*Audix Technology Corp.*
*No. 491, Zhongfu Rd., Linkou Dist.,*
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# FCC 15.407
# WLAN 6GHz Test Report

# for

# LG Electronics Inc.

# 222, LG-ro, Jinwi-myeon Pyeongtaek-Si, Gyeonggi-Do, 17709 Republic of Korea

| | | |
|---|---|---|
| **Product Name** | **:** | **Notebook Computer** |
| **Model Name** | **:** | **(1)17Z90SP (2)17ZB90SP (3)17ZD90SP (4)17ZG90SP** |
| **Brand** | | **LG** |
| **FCC ID** | **:** | **BEJNT-17Z90SP** |

| | | |
|---|---|---|
| **Prepared by:** | **:** | **AUDIX Technology Corporation, EMC Department** |

Testing Laboratory
1724

TESTING
NVLAP LAB CODE 200077-0

The test report is based on a single evaluation of one sample of the above-mentioned products. It does not imply an assessment of the whole production and does not permit the use of the test lab logo.
The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.

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# TEST REPORT

| | | |
|---|---|---|
| Applicant | : | LG Electronics Inc. |
| Manufacturer | : | LG Electronics Inc. |
| Factory | : | LG Electronics Nanjing New Technology Co., Ltd. |
| EUT Description | | |
| (1) Product | : | Notebook Computer |
| (2) Model | : | (1)17Z90SP (2)17ZB90SP (3)17ZD90SP (4)17ZG90SP |
| (3) Brand | : | LG |
| (4) Power Supply | : | (1)DC 20V, 4.5A<br>(2)DC 20V, 3.25A |

Applicable Standards:

Title 47 FCC CFR Part 15 Subpart E

***Audix Technology Corp.*** tested the equipment mentioned in accordance with the requirements set forth in the above standards. Test results indicate that the equipment tested is capable of demonstrating compliance with the requirements as documented within this report.
***Audix Technology Corp.*** does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens and samples.

Date of Report: 2023. 12. 22

Reviewed by: Sunnie Huang (Sunnie Huang/Administrator)

Approved by: Johnny Hsueh (Johnny Hsueh/Section Manager)

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# 1. REVISION RECORD OF TEST REPORT

| Edition No | Issued Date | Revision Summary | Report Number |
|---|---|---|---|
| 0 | 2023. 12. 22 | Original Report | EM-F230564 |

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# 2. SUMMARY OF TEST RESULTS

| FCC Part Section(s) | Description | Results |
|---|---|---|
| 15.207 | Conducted Emission | **PASS** |
| 15.205/15.209<br>15.407 (b)(6) | Radiated Band Edge and<br>Radiated Spurious Emission | **PASS** |
| 15.407(a)(8) | Maximum Power Spectral Density | **PASS** |
| 15.407(a)(8) | Maximum Conducted Output Power | **PASS** |
| 2.1049<br>15.407(a)(10) | Emission/Occupied Bandwidth | **PASS** |
| 15.407(b)(6) | Undesirable emission limits: Spurious Emission (Conducted) | **PASS** |
| 15.407(b)(7) | In-Band Emission (Channel Mask) | **PASS** |
| 15.407(d)(6) | Contention Based Protocol | **PASS** |
| 15.203 | Antenna Requirement | **PASS** |
| Note: The uncertainties value is not used in determining the result. | | |

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# 3. GENERAL INFORMATION

## 3.1. Description of Application

| | |
|---|---|
| Applicant | LG Electronics Inc.<br>222, LG-ro, Jinwi-myeon Pyeongtaek-Si, Gyeonggi-Do,<br>17709 Republic of Korea |
| Manufacturer | LG Electronics Inc.<br>222, LG-ro, Jinwi-myeon Pyeongtaek-Si, Gyeonggi-Do,<br>17709 Republic of Korea |
| Factory | LG Electronics Nanjing New Technology Co., Ltd.<br>No.346,Yaoxin Road, Economic & Technical Development Zone, Nanjing, China. |
| Product | Notebook Computer |
| Model | (1)17Z90SP (2)17ZB90SP (3)17ZD90SP (4)17ZG90SP<br>The difference between all models is different in the sales customers and color difference. |
| Brand | LG |

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## 3.2. Description of EUT

<table>
<tr><td>Test Model</td><td>17Z90SP</td></tr>
<tr><td>Serial Number</td><td>N/A</td></tr>
<tr><td>Power Rating</td><td>(1)DC 20V, 4.5A (2)DC 20V, 3.25A</td></tr>
<tr><td>Software Version</td><td>XY (X, Y can be 0 to 9 for different SW version not influence RF parameter)</td></tr>
<tr><td>RF Features</td><td>WLAN:802.11 a/b/g/n/ac/ax<br>Bluetooth: BT and BLE (BT 5.3)</td></tr>
<tr><td>Transmit Type</td><td>
<table>
<tr><th colspan="2">2.4 GHz</th></tr>
<tr><td>802.11b</td><td>1T1R</td></tr>
<tr><td>802.11g</td><td>1T1R</td></tr>
<tr><td>802.11n-HT20</td><td>2T2R</td></tr>
<tr><td>802.11n-HT40</td><td>2T2R</td></tr>
<tr><td>802.11ax-HE20</td><td>2T2R</td></tr>
<tr><td>802.11ax-HE40</td><td>2T2R</td></tr>
<tr><td>BT/BLE</td><td>1T1R</td></tr>
</table>
<table>
<tr><th colspan="2">U-NII Bands</th></tr>
<tr><td>802.11a</td><td>1T1R</td></tr>
<tr><td>802.11n-HT20/802.11ac-VHT20/802.11ax-HE20</td><td>2T2R</td></tr>
<tr><td>802.11n-HT40/802.11ac-VHT40/802.11ax-HE40</td><td>2T2R</td></tr>
<tr><td>802.11ac-VHT80/802.11ax-HE80</td><td>2T2R</td></tr>
<tr><td>802.11ac-VHT160/802.11ax-HE160</td><td>2T2R</td></tr>
</table>
The MIMO is uncorrelated and supported SDM(Spatial Division Multiplexing) mode only. This radio device doesn't support beamforming and Cyclic Delay Diversity (CDD).</td></tr>
<tr><td>Device Category</td><td>☐Outdoor Access Point<br>☐Fixed point-to-point Access Point<br>☐Indoor Access Point<br>■Mobile and Portable client device</td></tr>
<tr><td>Test Sample</td><td>
<table>
<tr><th>Sample No.</th><th>Test Item</th><th>Firmware</th></tr>
<tr><td>01</td><td>AC Conduction, RSE, RF Conducted</td><td>N/A</td></tr>
<tr><td>03</td><td>AC Conduction, RSE</td><td>N/A</td></tr>
</table></td></tr>
<tr><td>Sample Status</td><td>Trial sample</td></tr>
<tr><td>Date of Receipt</td><td>2023. 10. 13</td></tr>
<tr><td>Date of Test</td><td>2023. 10. 17 ~ 12. 22</td></tr>
</table>

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| | |
|---|---|
| Interface Ports of EUT | • One HDMI Port<br>• Two USB Type C Ports<br>• One Earphone Port<br>• Two USB 3.0 Ports |
| Accessories Supplied | • AC Adapter<br>• USB C Cable<br>• LAN Gender |

Note: Pursuant ISO 17025:2017 section 7.8.2, Audix Technology Corp. does not assume responsibility for all EUT's information including RF features, transmit type, antenna information…etc are provided by customer.

## 3.3. Reference Test Guidance

ANSI C63.10:2013
KDB 789033 D02 v02r01, KDB 662911 D01 v02r01, KDB 987594 D02 v02r01

## 3.4. Antenna Information

| No. | Antenna Part Number | Manufacture | Antenna Type | Frequency (MHz) | Max Gain(dBi) | |
|---|---|---|---|---|---|---|
| | | | | | Main | AUX |
| 1. | WA-P-LBLB-04-112 | INPAQ | Mono-Pole | 2400~2500 | 2.1 | 2.6 |
| | | | | 5150~5350 | 1.7 | 2.8 |
| | | | | 5470~5725 | 2.4 | 1.6 |
| | | | | 5725~5850 | 2.9 | 2.3 |
| | | | | 5925~6425 | 0.8 | 2.8 |
| | | | | 6425~6525 | 2.3 | 2.2 |
| | | | | 6525~6875 | 2.9 | 2.5 |
| | | | | 6875~7125 | 2.4 | -1.8 |

According to KDB 662911 D01 d) ii), transmit signals are completely uncorrelated, then
Directional gain = 10 log[($10^{G1/10}$ + $10^{G2/10}$ + … + $10^{GN/10}$)/$N_{ANT}$] dBi
Note 1. 2.4G: Directional gain =
2400~2500MHz: Directional gain = 10 log[($10^{2.1/10}$ +$10^{2.6/10}$)/2]= 2.36dBi
Note 2. 5G: Directional gain =
5150 ~ 5350MHz: = 10 log[($10^{1.7/10}$ +$10^{2.8/10}$)/2]= 2.28dBi
Note 3. UNII Band (WLAN 6G):
5925~6425MHz: Directional gain = 10 log[($10^{0.8/10}$ +$10^{2.8/10}$)/2]= 1.91dBi
6425~6525MHz: Directional gain = 10 log[($10^{2.3/10}$ +$10^{2.2/10}$)/2]= 2.25dBi
6525~6875MHz: Directional gain = 10 log[($10^{2.9/10}$ +$10^{2.5/10}$)/2]= 2.70dBi
6875~7125MHz: Directional gain = 10 log[($10^{2.4/10}$ +$10^{-1.8/10}$)/2]= 0.79dBi
We chose the antenna gain corresponding to the frequency listed on the table which is closer to center frequency of WLAN.

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| No. | Antenna Part Number | Manufacture | Antenna Type | Frequency (MHz) | Max Gain(dBi) | |
|---|---|---|---|---|---|---|
| | | | | | Main | AUX |
| 2. | L1LRF016-CS-H | LUXSHARE-ICT | Mono-Pole | 2400 | 5.813 | 5.132 |
| | | | | 2450 | 3.347 | 2.955 |
| | | | | 2500 | 0.679 | 0.944 |
| | | | | 5150 | 2.506 | 3.566 |
| | | | | 5250 | 2.194 | 4.988 |
| | | | | 5350 | 3.567 | 5.712 |
| | | | | 5470 | 3.171 | 3.754 |
| | | | | 5600 | 3.047 | 2.810 |
| | | | | 5725 | 3.224 | 0.502 |
| | | | | 5785 | 3.558 | -0.056 |
| | | | | 5800 | 3.783 | -0.409 |
| | | | | 5850 | 4.741 | 0.850 |
| | | | | 5925 | 3.067 | 1.324 |
| | | | | 6025 | 3.313 | 2.275 |
| | | | | 6125 | 2.951 | 2.380 |
| | | | | 6225 | 4.728 | 1.790 |
| | | | | 6325 | 4.000 | 1.277 |
| | | | | 6425 | 3.299 | 3.020 |
| | | | | 6525 | 2.456 | 0.810 |
| | | | | 6625 | 1.446 | -0.314 |
| | | | | 6725 | 1.770 | 1.870 |
| | | | | 6825 | 1.036 | 1.129 |
| | | | | 6925 | 1.097 | 1.120 |
| | | | | 7025 | 3.194 | 1.471 |
| | | | | 7125 | 2.120 | 1.589 |

According to KDB 662911 D01 d) ii), transmit signals are completely uncorrelated, then
Directional gain = 10 log[($10^{G1/10}$ + $10^{G2/10}$ + … + $10^{GN/10}$)/$N_{ANT}$] dBi
Note 1. 2.4G: Directional gain =
2400MHz: Directional gain = 10 log[($10^{5.813/10}$ +$10^{5.132/10}$)/2]= 5.49dBi
2450MHz: Directional gain = 10 log[($10^{3.347/10}$ +$10^{2.955/10}$)/2]= 3.16dBi
Note 2. 5G: Directional gain =
5150MHz: = 10 log[($10^{2.506/10}$ +$10^{3.566/10}$)/2]= 3.07dBi
5250MHz: = 10 log[($10^{2.194/10}$ +$10^{4.988/10}$)/2]= 3.81dBi
5350MHz: = 10 log[($10^{3.567/10}$ +$10^{5.712/10}$)/2]= 4.77dBi
We chose the antenna gain corresponding to the frequency listed on the table which is closer to center frequency of WLAN.

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According to KDB 662911 D01 d) ii), transmit signals are completely uncorrelated, then
Directional gain = 10 log[($10^{G1/10}$ + $10^{G2/10}$ + … + $10^{GN/10}$)/$N_{ANT}$] dBi

Note 3. UNII Band (WLAN 6G):

5925MHz: Directional gain = 10 log[($10^{3.067/10}$ +$10^{1.324/10}$)/2]= 2.28dBi
6025MHz: Directional gain = 10 log[($10^{3.313/10}$ +$10^{2.275/10}$)/2]= 2.82dBi
6125MHz: Directional gain = 10 log[($10^{2.951/10}$ +$10^{2.380/10}$)/2]= 2.67dBi
6225MHz: Directional gain = 10 log[($10^{4.728/10}$ +$10^{1.790/10}$)/2]= 3.50dBi
6325MHz: Directional gain = 10 log[($10^{4.000/10}$ +$10^{1.277/10}$)/2]= 2.85dBi
6425MHz: Directional gain = 10 log[($10^{3.299/10}$ +$10^{3.020/10}$)/2]= 3.16dBi
6525MHz: Directional gain = 10 log[($10^{2.456/10}$ +$10^{0.810/10}$)/2]= 1.71dBi
6625MHz: Directional gain = 10 log[($10^{1.446/10}$ +$10^{-0.314/10}$)/2]= 0.65dBi
6725MHz: Directional gain = 10 log[($10^{1.770/10}$ +$10^{1.870/10}$)/2]= 1.82dBi
6825MHz: Directional gain = 10 log[($10^{1.036/10}$ +$10^{1.129/10}$)/2]= 1.08dBi
6925MHz: Directional gain = 10 log[($10^{1.097/10}$ +$10^{1.120/10}$)/2]= 1.11dBi
7025MHz: Directional gain = 10 log[($10^{3.194/10}$ +$10^{1.471/10}$)/2]= 2.42dBi
7125MHz: Directional gain = 10 log[($10^{2.120/10}$ +$10^{1.589/10}$)/2]= 1.86dBi

We chose the antenna gain corresponding to the frequency listed on the table which is closer to center frequency of WLAN.

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## 3.5. EUT Specifications Assessed in Current Report

| Mode | U-NII Band | Fundamental Range (MHz) | Channel Number |
|---|---|---|---|
| 802.11ax-HE20 | 5 | 5955-6415 | 24 |
| | 6 | 6435-6515 | 5 |
| | 7 | 6535-6855 | 17 |
| | 8 | 6875-7115 | 13 |
| 802.11ax-HE40 | 5 | 5965-6405 | 12 |
| | 6 | 6445-6485 | 2 |
| | 7 | 6525-6845 | 9 |
| | 8 | 6885-7085 | 6 |
| 802.11ax-HE80 | 5 | 5985-6385 | 6 |
| | 6 | 6465-6545 | 2 |
| | 7 | 6625-6785 | 3 |
| | 8 | 6865-7025 | 3 |
| 802.11ax-HE160 | 5 | 6025-6345 | 3 |
| | 6 | 6505 | 1 |
| | 7 | 6665-6825 | 2 |
| | 8 | 6985 | 1 |

| Mode | Modulation | Data Rate (Mbps) |
|---|---|---|
| 802.11ax-HE20 | OFDMA (BPSK/ QPSK/ 16QAM/ 64QAM/ 256QAM/1024QAM) | Up to 287 |
| 802.11ax-HE40 | | Up to 574 |
| 802.11ax-HE80 | | Up to 1201 |
| 802.11ax-HE160 | | Up to 2402 |

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| Channel List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 802.11ax-HE20 | | | | | | | | |
| U-NII Band | Channel Number | Freq. (MHz) | U-NII Band | Channel Number | Freq. (MHz) | U-NII Band | Channel Number | Freq. (MHz) |
| 5 | 2 | 5955 | 5 | 81 | 6335 | 7 | 161 | 6755 |
| | 5 | 5975 | | 85 | 6375 | | 165 | 6775 |
| | 9 | 5995 | | 89 | 6395 | | 169 | 6795 |
| | 13 | 6015 | | 93 | 6415 | | 173 | 6815 |
| | 17 | 6035 | 6 | 97 | 6435 | | 177 | 6835 |
| | 21 | 6055 | | 101 | 6455 | | 181 | 6855 |
| | 25 | 6075 | | 105 | 6475 | 8 | 185 | 6875 |
| | 29 | 6095 | | 109 | 6495 | | 189 | 6895 |
| | 33 | 6115 | | 113 | 6515 | | 193 | 6915 |
| | 37 | 6135 | 7 | 117 | 6535 | | 197 | 6935 |
| | 41 | 6155 | | 121 | 6555 | | 201 | 6955 |
| | 45 | 6175 | | 125 | 6575 | | 205 | 6975 |
| | 49 | 6195 | | 129 | 6595 | | 209 | 6995 |
| | 53 | 6215 | | 133 | 6615 | | 213 | 7015 |
| | 57 | 6235 | | 137 | 6635 | | 217 | 7035 |
| | 61 | 6255 | | 141 | 6655 | | 221 | 7055 |
| | 65 | 6275 | | 145 | 6675 | | 225 | 7075 |
| | 69 | 6295 | | 149 | 6695 | | 229 | 7095 |
| | 73 | 6315 | | 153 | 6715 | | 233 | 7115 |
| | 77 | 6335 | | 157 | 6735 | | | |

| Channel List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 802.11ax-HE40 | | | | | | | | |
| U-NII Band | Channel Number | Freq. (MHz) | U-NII Band | Channel Number | Freq. (MHz) | U-NII Band | Channel Number | Freq. (MHz) |
| 5 | 3 | 5965 | 5 | 83 | 6365 | 7 | 163 | 6765 |
| | 11 | 6005 | | 91 | 6405 | | 171 | 6805 |
| | 19 | 6045 | 6 | 99 | 6445 | | 179 | 6845 |
| | 27 | 6085 | | 107 | 6485 | 8 | 187 | 6885 |
| | 35 | 6125 | 7 | 115 | 6525 | | 195 | 6925 |
| | 43 | 6165 | | 123 | 6565 | | 203 | 6965 |
| | 51 | 6205 | | 131 | 6505 | | 211 | 7005 |
| | 59 | 6245 | | 139 | 6645 | | 219 | 7045 |
| | 67 | 6285 | | 147 | 6685 | | 227 | 7085 |
| | 75 | 6325 | | 155 | 6725 | | | |

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| Channel List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 802.11ax-HE80 | | | | | | | | |
| U-NII Band | Channel Number | Freq. (MHz) | U-NII Band | Channel Number | Freq. (MHz) | U-NII Band | Channel Number | Freq. (MHz) |
| 5 | 7 | 5985 | 5 | 87 | 6385 | 7 | 167 | 6785 |
| | 23 | 6065 | 6 | 103 | 6465 | 8 | 183 | 6865 |
| | 39 | 6145 | | 119 | 6545 | | 199 | 6945 |
| | 55 | 6225 | 7 | 135 | 6625 | | 215 | 7025 |
| | 71 | 6305 | | 151 | 6705 | | | |

| Channel List | | | | | |
|---|---|---|---|---|---|
| 802.11ax-HE160 | | | | | |
| U-NII Band | Channel Number | Frequency (MHz) | U-NII Band | Channel Number | Frequency (MHz) |
| 5 | 15 | 6025 | 7 | 143 | 6665 |
| | 47 | 6185 | 8 | 175 | 6825 |
| | 79 | 6345 | | 207 | 6985 |
| 6 | 111 | 6505 | | | |

Note: Test modes are presented at section 3.7.

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## 3.6. Description of Key Components

### 3.6.1. For the All Component Lists

| Item | Supplier | Model / Type | Character |
|---|---|---|---|
| System | Microsoft | Win10 Home/Pro | --- |
| | | Win11 Home/Pro | |
| Main Board | LG | 1XZ90SP MAIN B/D | PM (With GPU)<br>Manufacturer:<br>#1 Hannstar Board Tech (Jiang Yin) Corp.,Ltd.<br>#2 Elec&Eltek Company (MCO) Limited. |
| | | | GM (Without GPU)<br>Manufacturer:<br>#1 Hannstar Board Tech (Jiang Yin) Corp.,Ltd.<br>#2 Elec&Eltek Company (MCO) Limited. |
| SUB Board | LG | 17Z90SP SUB B/D | Manufacturer:<br>#1 HannstarBoardTech(Jiang Yin)Corp.,Ltd.<br>#2 JiangSuHuaShen Electronic co.,ltd (HXF)<br>#3 Elec&Eltek Company (MCO) Limited. |
| CPU<br>(Socket: BGA2049) | Intel | Ultra 7 155H | 3.8GHz |
| | Intel | Ultra 5 125H | 3.6GHz |
| 17” LCD Panel | LG Display | LP170WQ2 | Resolution: 2560 x 1600, 144Hz |
| Storage (SSD) | SK hynix | --- | 256GB |
| | | --- | 512GB |
| | | --- | 1TB |
| | | --- | 2TB |
| | Samsung | --- | 256GB |
| | | --- | 512GB |
| | | --- | 1TB |
| | | --- | 2TB |
| Memory (RAM) | Samsung | --- | 16GB LPDDR5x(On Board) |
| | | --- | 8GB LPDDR5x(On Board) |
| | | --- | 32GB LPDDR5x(On Board) |
| | SK Hynix | --- | 16GB LPDDR5x(On Board) |
| | | --- | 8GB LPDDR5x(On Board) |
| | | --- | 32GB LPDDR5x(On Board) |
| Battery Pack | LGES | LB3122MM | 77Wh, DC 15.52V, 4963mAh<br>For GM Main Board |
| | LGES | LBY122NM | 90Wh, DC 15.52V, 5800mAh<br>For PM Main Board |
| WLAN Combo Card | Intel | AX211D2W | WLAN and BT, 2x2 PCIe M.2 1216 SD adapter card<br>FCC ID: PD9AX211D2<br>IC: 1000M-AX211D2 |
| WLAN Combo Antenna | LG (INPAQ) | WA-P-LBLB-04-112 | PCB, Mono-pole Type<br>Main: Black, Aux: Gray |
| | LG (Luxshare) | L1LRF016-CS-H | PCB, Mono-pole Type<br>Main: Black, Aux: Gray |

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| Item | Supplier | Model / Type | Character |
|---|---|---|---|
| Keyboard | LITE-ON | SN8B32BU0 | --- |
| | | SN8B32BU1 | --- |
| Touch Pad | LITE-ON | SP8B00B31(SG-A0660-00A) | --- |
| | ELAN | SD082A-34H0 | --- |
| Web Camera | Luxvisions | ABG213N3 | --- |
| LAN Gender (Type C to LAN) | SUZHOU MEC ELECTRONICS | 80-5946-111 | (White) 10/100 Megabit Ethernet |
| | | 80-5946-101 | (Black) 10/100 Megabit Ethernet |
| | ARIN TECH CO. LTD | GD-08MF-36-WH-LP10 | (White) 10/100 Megabit Ethernet |
| | | GD-08MF-36-BK-LP11 | (Black) 10/100 Megabit Ethernet |
| | HUIZHOU DEHONG TECHNOLOGY CO.,LTD. | 370-50713 | (White) 10/100 Megabit Ethernet |
| | | 370-50714 | (Black) 10/100 Megabit Ethernet |
| | Type C to LAN: Shielded, Undetached | | |
| | ARIN TECH CO. LTD | GD-08MF-50-WH-LP12 | (White) 10/100/1000 Megabit Ethernet |
| | | GD-08MF-50-BK-LP13 | (Black) 10/100/1000 Megabit Ethernet |
| | Type C to LAN: Shielded, Undetached | | |
| AC Adapter | LG (HONOR) | LP90DGC20H-WW | I/P: AC 100-240V, 2.0A, 50-60Hz<br>O/P: (PDO) DC 5.0V,3.0A(15W) or DC 9.0V, 3.0A(27W)or<br>DC 15.0V,3.0A (45W) or DC 20.0V,4.5A (90W)<br>(PPS) DC 5.0V~20.0V, 4.5A (Max 90W)<br>(For PM Main Board) |
| | #1 Type C Cable, Shielded, Undetached (5A)<br>#2 Type C Cable, Shielded, Undetached (3A)<br>AC Power Cord: Non-Shielded, Detached (3C) | | |
| | LG (PI ELECTRONICS) | LP65WFC20P-NJ | I/P: AC 100-240V, 1.6A, 50-60Hz<br>O/P:DC 5V,3A(15W) or DC 9V, 3A(27W)or<br>DC 15V,3A (45W) or DC 20V,3.25A (65W)<br>(For GM Main Board, US Type, Wall-mount) |
| | #1 Type C Cable, Shielded, Undetached (5A)<br>#2 Type C Cable, Shielded, Undetached(3A) | | |

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

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3.6.2. The EUT collocates with following worst components, which are used to establish a basic configuration of system during test:

| **SKU (Mode)** | | | **1** | **2** |
|---|---|---|---|---|
| Main Board | | LG, 1XZ90SP MAIN B/D [PM (With GPU)] | V | |
| | | LG, 1XZ90SP MAIN B/D [GM (Without GPU)] | | V |
| SUB Board | | LG, 17Z90SP SUB B/D | V | V |
| CPU | | Intel, Ultra 7 155H | V | V |
| 17” LCD Panel | | LG Display, LP170WQ2 | V | V |
| Storage (SSD) | | Samsung, 2TB | V | V |
| Memory (RAM) | | SK hynix, 32GB | V | V |
| Battery Pack | | LG, 90Wh | V | V |
| Keyboard | | LITE-ON, SN8B32BU0 | V | V |
| Touch Pad | | ELAN, SD082A-34H0 | V | V |
| Web Camera | | Luxvisions, ABG213N3 | V | V |
| WLAN Combo Card | | Intel, AX211D2W | V | V |
| WLAN Combo Antenna | | LG (INPAQ), WA-P-LBLB-04-112 | V | V |
| | | LG (Luxshare), L1LRF016-CS-H | V | V |
| Type C #1 | AC Adapter | LG (HONOR), LP90DGC20H-WW | V | V |
| Type C #2 | Link to LAN Gender | MEC (White) | V | V |

| Evaluation method | INPAQ | LUXSHARE-ICT | INPAQ | LUXSHARE-ICT |
|---|---|---|---|---|
| | SKU #1 | SKU #1 | SKU #2 | SKU #2 |
| 6G Band | Full test | Full test | Worst case depend on INPAQ test result | Worst case depend on LUXSHARE-ICT test result |

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## 3.7. Test Configuration

| Mode | $TX_{on}$ (ms) | 1/ $TX_{on}$ (kHz) | $TX_{on+off}$ (ms) | Duty Cycle (x) | Duty Cycle Factor [10log(1/x)] (dB) |
|---|---|---|---|---|---|
| 802.11ax-HE20 | 3.980 | 0.251 | 4.030 | 0.988 | N/A |
| 802.11ax-HE40 | 3.990 | 0.251 | 4.040 | 0.988 | N/A |
| 802.11ax-HE80 | 3.980 | 0.251 | 4.030 | 0.988 | N/A |
| 802.11ax-HE160 | 2.305 | 0.434 | 2.350 | 0.981 | N/A |
| RU (26T) | 2.590 | 0.386 | 2.630 | 0.985 | N/A |
| RU (52T) | 2.590 | 0.386 | 2.630 | 0.985 | N/A |
| RU (106T) | 2.590 | 0.386 | 2.630 | 0.985 | N/A |
| RU (242T) | 2.590 | 0.386 | 2.640 | 0.981 | N/A |
| RU (484T) | 2.590 | 0.386 | 2.630 | 0.985 | N/A |
| RU (996T) | 2.590 | 0.386 | 2.630 | 0.985 | N/A |

Note: When duty cycle is less than 98% (0.98) that duty cycle factor 10log(1/x) is needed to add in conducted test items measured in average detector.

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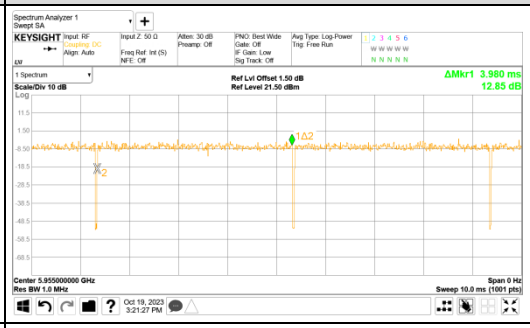
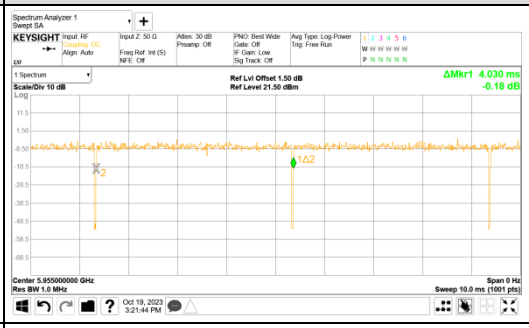
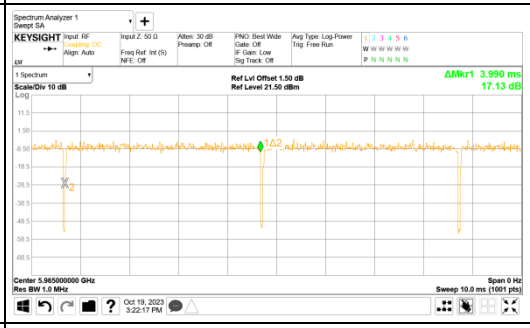
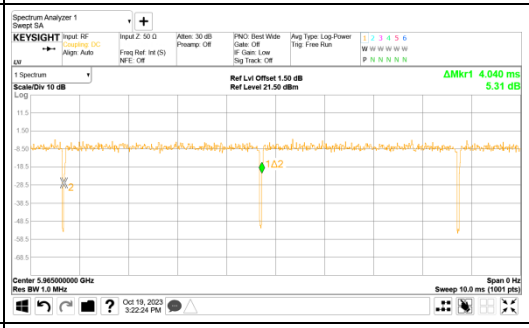
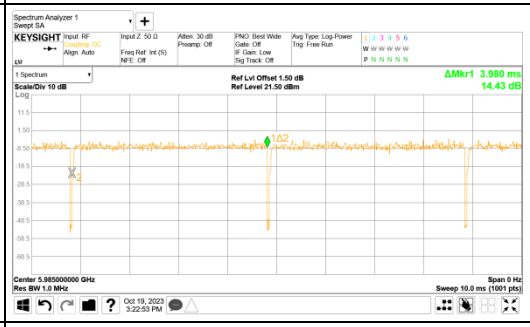
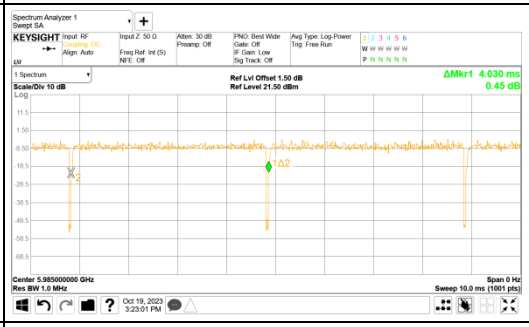
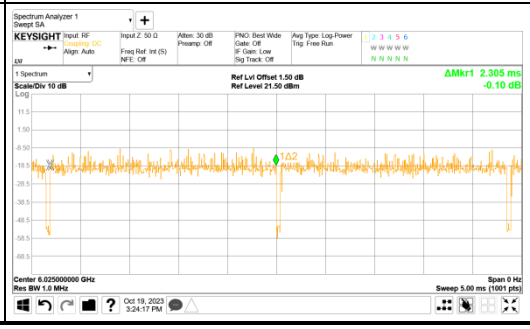
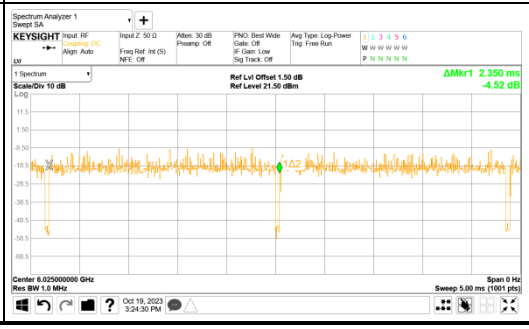
| Mode | $TX_{on}$ (ms) | $T_{on}+T_{off}$(ms) |
|---|---|---|
| 802.11ax-HE20 |  |  |
| 802.11ax-HE40 |  |  |
| 802.11ax-HE80 |  |  |
| 802.11ax-HE160 |  |  |

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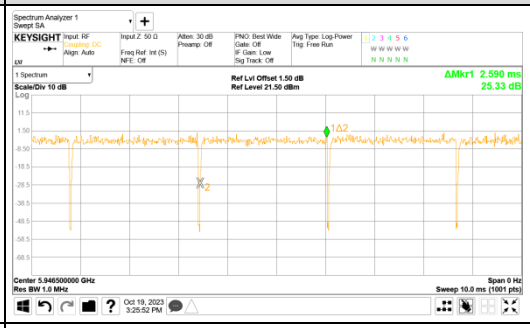
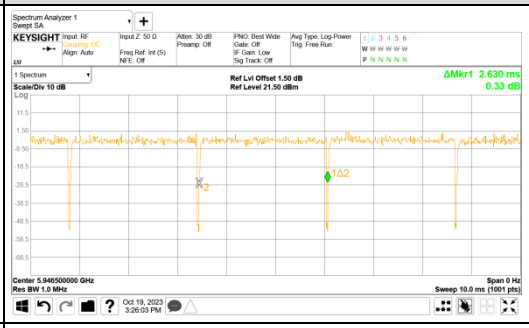
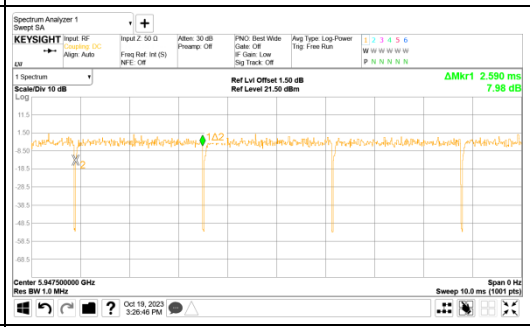
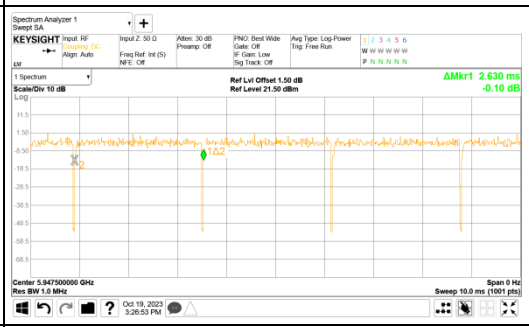
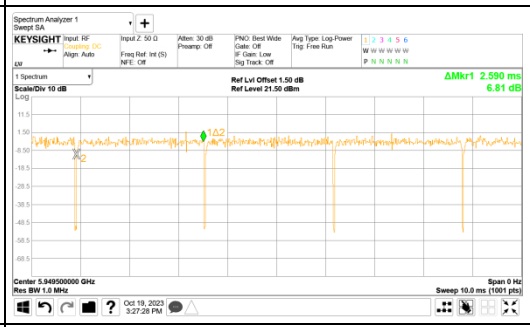
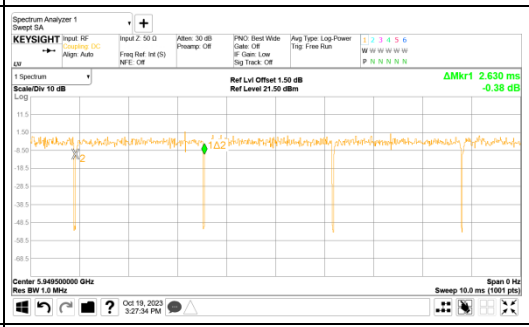
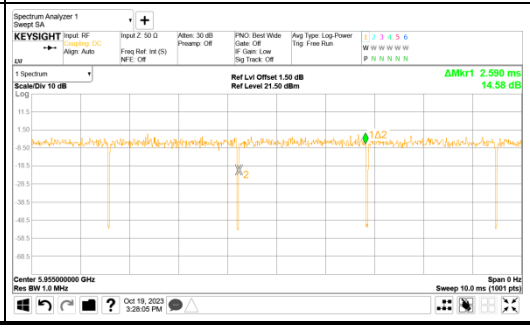
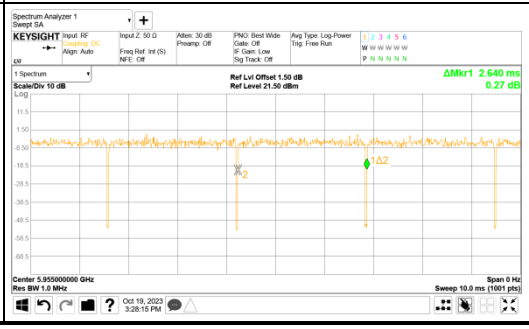
| Mode | $TX_{on}$ (ms) | $T_{on}+T_{off}$(ms) |
|---|---|---|
| RU (26T) |  |  |
| RU (52T) |  |  |
| RU (106T) |  |  |
| RU (242T) |  |  |

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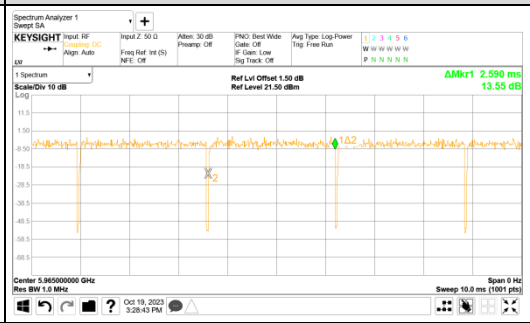
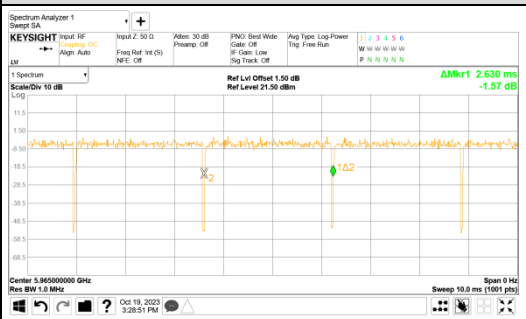
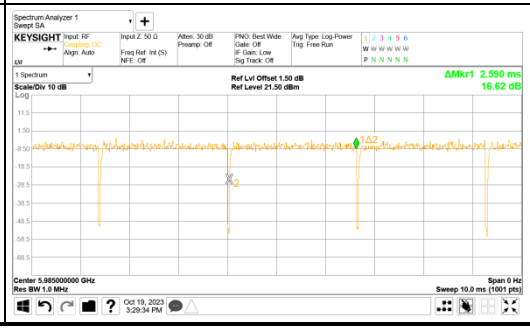
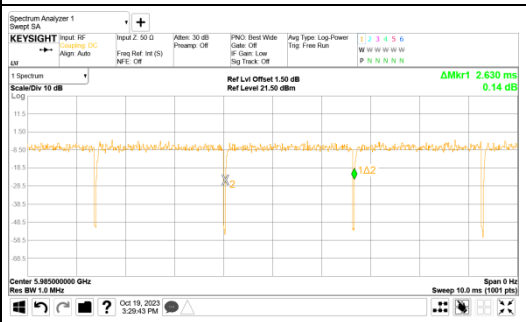
| Mode | $TX_{on}$ (ms) | $T_{on}+T_{off}$(ms) |
|---|---|---|
| RU (484T) |  |  |
| RU (996T) |  |  |

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| AC Conduction | |
|---|---|
| SKU #1 (with INPOAQ ANT) | Normal operation |
| SKU #2 (with LUXSHARE-ICT ANT) | Normal operation |

| Item | | | Mode | Data Rate | Test Channel |
|---|---|---|---|---|---|
| Radiated Test Case | SKU #1 (with INPAQ ANT) | Radiated Spurious Emission (30MHz~1GHz) | 802.11ax-HE160 | HE0 | 111 |
| | SKU #1 (with LUXSHARE-ICT ANT) | | 802.11ax-HE160 | HE0 | 47 |

- OFDM Modulation

| Item | | | Mode | Data Rate | Test Channel |
|---|---|---|---|---|---|
| Radiated Test Case | SKU #1 (with INPAQ ANT) | Radiated Spurious Emission (Above 1GHz) | 802.11ax-HE20 | HE0 | 2/113/117/201 |
| | | | 802.11ax-HE40 | HE0 | 3/107/115/227 |
| | | | 802.11ax-HE80 | HE0 | 87/103/151/199 |
| | | | 802.11ax-HE160 | HE0 | 47/111/143/207 |
| | | Band Edge | 802.11ax-HE20 | HE0 | 2/233 |
| | | | 802.11ax-HE40 | HE0 | 3/227 |
| | | | 802.11ax-HE80 | HE0 | 7/215 |
| | | | 802.11ax-HE160 | HE0 | 15/207 |
| | SKU #1 (with LUXSHARE-ICT ANT) | Radiated Spurious Emission (Above 1GHz) | 802.11ax-HE20 | HE0 | 45/97/149/209 |
| | | | 802.11ax-HE40 | HE0 | 3/99/115/211 |
| | | | 802.11ax-HE80 | HE0 | 87/103/151/215 |
| | | | 802.11ax-HE160 | HE0 | 47/111/175/207 |
| | | Band Edge | 802.11ax-HE20 | HE0 | 2/233 |
| | | | 802.11ax-HE40 | HE0 | 3/227 |
| | | | 802.11ax-HE80 | HE0 | 7/215 |
| | | | 802.11ax-HE160 | HE0 | 15/207 |

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| Item | | | Mode | Data Rate | Test Channel |
|---|---|---|---|---|---|
| Conducted Test Case | SKU #1 Note 7 | Maximum Power Spectral Density/ Maximum Conducted Output power/ Emission/Occupied Bandwidth | 802.11ax-HE20 | HE0 | 2/45/93/97/105/113/117/149/181/185/209/233 |
| | | | 802.11ax-HE40 | HE0 | 3/43/91/99/107/115/147/179/187/211/227 |
| | | | 802.11ax-HE80 | HE0 | 7/39/87/103/119/135/151/167/183/199/215 |
| | | | 802.11ax-HE160 | HE0 | 15/47/79/111/143/175/207 |
| | | Band Edge | 802.11ax-HE20 | HE0 | 2/233 |
| | | | 802.11ax-HE40 | HE0 | 3/227 |
| | | | 802.11ax-HE80 | HE0 | 7/215 |
| | | | 802.11ax-HE160 | HE0 | 15/207 |
| | | Spurious Emission | 802.11ax-HE20 | HE0 | 2/113/117/185 |
| | | | 802.11ax-HE40 | HE0 | 3/107/115/227 |
| | | | 802.11ax-HE80 | HE0 | 87/119/135/215 |
| | | | 802.11ax-HE160 | HE0 | 79/111/143/207 |

| Item | | | Mode | Data Rate | Test Channel |
|---|---|---|---|---|---|
| Conducted Test Case | SKU #1 Note 7 | In-Band Emission (Channel Mask) | 802.11ax-HE20 | HE0 | 2/45/93/97/105/113/117/149/181/185/209/233 |
| | | | 802.11ax-HE40 | HE0 | 3/43/91/99/107/115/147/179/187/211/227 |
| | | | 802.11ax-HE80 | HE0 | 7/39/87/103/119/135/151/167/183/199/215 |
| | | | 802.11ax-HE160 | HE0 | 15/47/79/111/143/175/207 |
| | | Contention Based Protocol | 802.11ax-HE20 | HE0 | 45/105/149/209 |
| | | | 802.11ax-HE160 | HE0 | 47/111/143/207 |

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- OFDMA Modulation

| Item | | | Tones | RU Index | Mode | Data Rate | Test Channel |
|---|---|---|---|---|---|---|---|
| Radiated Test Case | SKU #1 (with INPAQ ANT) | Radiated Spurious Emission (Above 1GHz) Note 4 | 26T | 18 | 802.11ax-HE80 | HE0 | 7 |
| | | | 52T | 39 | 802.11ax-HE20 | HE0 | 2 |
| | | | 106T | 53 | 802.11ax-HE40 | HE0 | 3 |
| | | | 242T | 62 | 802.11ax-HE160 | HE0 | 15 |
| | | | 484T | 65 | 802.11ax-HE160 | HE0 | 15 |
| | | | 996T | 67 | 802.11ax-HE80 | HE0 | 119 |
| | | Band Edge Note 5 | 26T | 0 | 802.11ax-HE20 | HE0 | 2 |
| | | | | 8 | 802.11ax-HE20 | HE0 | 233 |
| | | | | 17 | 802.11ax-HE40 | HE0 | 227 |
| | | | 52T | 37 | 802.11ax-HE20 | HE0 | 2 |
| | | | | 40 | 802.11ax-HE20 | HE0 | 233 |
| | | | | 44 | 802.11ax-HE40 | HE0 | 227 |
| | | | 106T | 53 | 802.11ax-HE40 | HE0 | 3 |
| | | | | 54 | 802.11ax-HE20 | HE0 | 233 |
| | | | | 56 | 802.11ax-HE40 | HE0 | 227 |
| | | | 242T | 61 | 802.11ax-HE160 | HE0 | 15 |
| | | | | 61 | 802.11ax-HE20 | HE0 | 233 |
| | | | | 62 | 802.11ax-HE40 | HE0 | 227 |
| | | | 484T | 65 | 802.11ax-HE80 | HE0 | 7 |
| | | | | 65 | 802.11ax-HE40 | HE0 | 227 |
| | | | 996T | 67 | 802.11ax-HE80 | HE0 | 7 |
| | | | | 67 | 802.11ax-HE80 | HE0 | 215 |
| | SKU #1 (with LUXSHARE-ICT ANT) | Radiated Spurious Emission (Above 1GHz) Note 4 | 26T | 18 | 802.11ax-HE80 | HE0 | 7 |
| | | | 52T | 44 | 802.11ax-HE80 | HE0 | 7 |
| | | | 106T | 56 | 802.11ax-HE80 | HE0 | 7 |
| | | | 242T | 62 | 802.11ax-HE160 | HE0 | 47 |
| | | | 484T | 65 | 802.11ax-HE160 | HE0 | 47 |
| | | | 996T | 67 | 802.11ax-HE160 | HE0 | 47 |
| | | Band Edge Note 5 | 26T | 0 | 802.11ax-HE20 | HE0 | 2 |
| | | | | 8 | 802.11ax-HE20 | HE0 | 233 |
| | | | | 17 | 802.11ax-HE40 | HE0 | 227 |
| | | | 52T | 37 | 802.11ax-HE20 | HE0 | 2 |
| | | | | 40 | 802.11ax-HE20 | HE0 | 233 |
| | | | | 44 | 802.11ax-HE40 | HE0 | 227 |
| | | | 106T | 53 | 802.11ax-HE40 | HE0 | 3 |
| | | | | 54 | 802.11ax-HE20 | HE0 | 233 |
| | | | | 56 | 802.11ax-HE40 | HE0 | 227 |
| | | | 242T | 61 | 802.11ax-HE160 | HE0 | 15 |
| | | | | 64 | 802.11ax-HE80 | HE0 | 215 |
| | | | 484T | 65 | 802.11ax-HE40 | HE0 | 227 |
| | | | | 65 | 802.11ax-HE80 | HE0 | 7 |
| | | | 996T | 67 | 802.11ax-HE80 | HE0 | 7 |
| | | | | 67 | 802.11ax-HE80 | HE0 | 215 |

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| Item | | | Tones | RU Index | Mode | Data Rate | Test Channel |
|---|---|---|---|---|---|---|---|
| Conducted Test Case | SKU #1 Note 7 | Maximum Power Spectral Density/ In-Band Emission (Channel Mask) | 26T | 18 | 802.11ax-HE80 | HE0 | 7 |
| | | | 52T | 39 | 802.11ax-HE20 | HE0 | 2 |
| | | | 106T | 53 | 802.11ax-HE40 | HE0 | 3 |
| | | | 242T | 61 | 802.11ax-HE160 | HE0 | 15 |
| | | | 484T | 65 | 802.11ax-HE40 | HE0 | 115 |
| | | | 996T | 67 | 802.11ax-HE80 | HE0 | 119 |
| | | Maximum Conducted Output power Note 3 | 26T | 0/4/8 | 802.11ax-HE20 | HE0 | 2/45/93/97/105/ 113/117/149/ 181/185/209/ 233 |
| | | | 52T | 37/39/40 | | | |
| | | | 106T | 53/54 | | | |
| | | | 242T | 61 | | | |
| | | | 26T | 0/8/17 | 802.11ax-HE40 | HE0 | 3/43/91/99/107/ 115/147/179/ 187/211/227 |
| | | | 52T | 37/40/44 | | | |
| | | | 106T | 53/54/56 | | | |
| | | | 242T | 61/62 | | | |
| | | | 484T | 65 | | | |
| | | | 26T | 0/18/36 | 802.11ax-HE80 | HE0 | 7/39/87/103/119 /135/151/167/18 3/199/215 |
| | | | 52T | 37/44/52 | | | |
| | | | 106T | 53/56/60 | | | |
| | | | 242T | 61/62/64 | | | |
| | | | 484T | 65/66 | | | |
| | | | 996T | 67 | | | |
| | | | 26T | 0/18/36 S0/S18/S36 | 802.11ax-HE160 | HE0 | 15/47/79/111/ 143/175/207 |
| | | | 52T | 37/44/52 S37/S44/S52 | | | |
| | | | 106T | 53/56/60 S53/S56/S60 | | | |
| | | | 242T | 61/62/64 S61/S62/S64 | | | |
| | | | 484T | 65/66 S65/S66 | | | |
| | | | 996T | 65/S67 | | | |

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**Spot Check** Note 6

| Item | | | Mode | Data Rate | Test Channel |
|---|---|---|---|---|---|
| Radiated Test Case | SKU #2 (with INPAQ ANT) | Radiated Spurious Emission (30MHz~1GHz) | 802.11ax-HE80 | HE0 | 119 |
| | SKU #2 (with LUXSHARE-ICT ANT) | | 802.11ax-HE80 | HE0 | 215 |

| Item | | | Mode | Data Rate | Test Channel |
|---|---|---|---|---|---|
| Radiated Test Case | SKU #2 (with INPAQ ANT) | Radiated Spurious Emission (Above 1GHz) | 802.11ax-HE80 | HE0 | 119 |
| Radiated Test Case | SKU #2 (with LUXSHARE-ICT ANT) | Radiated Spurious Emission (Above 1GHz) | 802.11ax-HE80 | HE0 | 215 |

Note 1: ☐Mobile Device ■Portable Device
and 3 axis were assessed. The worst scenario for Radiated Spurious Emission as follow:
■Lie ☐Side ☐Stand

Note 2: Low, mid, and high channels were measured, only the worst channel of each modulation was presented in this report.

Note 3: The data rates were selected based on preliminary testing that identified rate as the worst case for output power.

Note 4: After preliminary test, we present worst case with maximum power of each RU type.

Note 5: We present worst case (max. power, closest band-edge channel or both) in the report.

Note 6: The spot check worst case was depended on SKU # 1 (with INPAQ ANT and with LUXSHARE-ICT ANT).

Note 7: We used SKU #1 measured all conducted test

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## 3.8. Output Power Setting

| Mode | U-NII Band | Centre Frequency (MHz) | Power Setting | | Mode | U-NII Band | Centre Frequency (MHz) | Power Setting | |
|---|---|---|---|---|---|---|---|---|---|
| | | | AUX | Main | | | | AUX | Main |
| 802.11ax -HE20 | 5 | 5955 | 1.50 | 1.50 | 802.11ax -HE20 | 7 | 6535 | 0.75 | 0.75 |
| | | 6175 | 1.50 | 1.50 | | | 6695 | 0.75 | 0.75 |
| | | 6415 | 1.50 | 1.50 | | | 6855 | 0.75 | 0.75 |
| | 6 | 6435 | 1.50 | 1.50 | | 8 | 6875 | 0.75 | 0.75 |
| | | 6475 | 1.50 | 1.50 | | | 6995 | 0.75 | 0.75 |
| | | 6515 | 1.50 | 1.50 | | | 7115 | -3.00 | -3.00 |

| Mode | U-NII Band | Centre Frequency (MHz) | Power Setting | | Mode | U-NII Band | Centre Frequency (MHz) | Power Setting | |
|---|---|---|---|---|---|---|---|---|---|
| | | | AUX | Main | | | | AUX | Main |
| 802.11ax -HE40 | 5 | 5965 | 4.75 | 4.75 | 802.11ax -HE40 | 7 | 6525 | 4.75 | 4.75 |
| | | 6165 | 4.75 | 4.75 | | | 6685 | 4.00 | 4.00 |
| | | 6405 | 4.75 | 4.75 | | | 6845 | 4.00 | 4.00 |
| | 6 | 6445 | 4.75 | 4.75 | | 8 | 6885 | 4.00 | 4.00 |
| | | 6485 | 4.75 | 4.75 | | | 7005 | 4.00 | 4.00 |
| | | | | | | | 7085 | 4.00 | 4.00 |

| Mode | U-NII Band | Centre Frequency (MHz) | Power Setting | | Mode | U-NII Band | Centre Frequency (MHz) | Power Setting | |
|---|---|---|---|---|---|---|---|---|---|
| | | | AUX | Main | | | | AUX | Main |
| 802.11ax -HE80 | 5 | 5985 | 7.25 | 7.25 | 802.11ax -HE80 | 7 | 6625 | 7.25 | 7.25 |
| | | 6145 | 7.25 | 7.25 | | | 6705 | 6.50 | 6.50 |
| | | 6385 | 7.25 | 7.25 | | | 6785 | 6.50 | 6.50 |
| | 6 | 6465 | 7.25 | 7.25 | | 8 | 6865 | 6.50 | 6.50 |
| | | 6545 | 7.25 | 7.25 | | | 6945 | 6.50 | 6.50 |
| | | | | | | | 7025 | 6.50 | 6.50 |

| Mode | U-NII Band | Centre Frequency (MHz) | Power Setting | | Mode | U-NII Band | Centre Frequency (MHz) | Power Setting | |
|---|---|---|---|---|---|---|---|---|---|
| | | | AUX | Main | | | | AUX | Main |
| 802.11ax -HE160 | 5 | 6025 | 10.00 | 10.00 | 802.11ax-HE160 | 7 | 6665 | 9.25 | 9.25 |
| | | 6185 | 10.00 | 10.00 | | | 6825 | 9.25 | 9.25 |
| | | 6345 | 10.00 | 10.00 | | 8 | 6985 | 9.25 | 9.25 |
| | 6 | 6505 | 10.00 | 10.00 | | | | | |

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## 3.9. Tested Supporting System List

### 3.9.1. Support Peripheral Unit

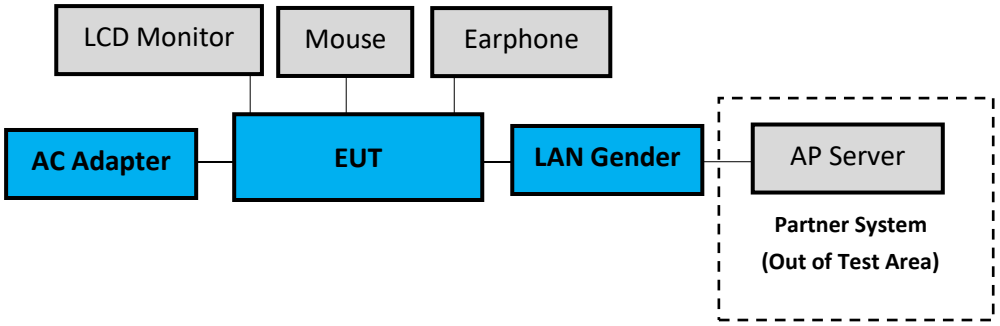
| No. | Product | Brand | Model No. | Serial No. | Approval |
|---|---|---|---|---|---|
| 1. | LCD Monitor | DELL | U2718Qb | CN-0M5R5F-QDC00-99P-04CL | N/A |
| 2. | USB Mouse | Lenovo | SM-8823 | 8SSM50L24506AVLC99H049R | N/A |
| 3. | Earphone | APPLE | N/A | N/A | N/A |
| Partner System | | | | | |
| 4. | AP Server | ASUS | RT-AX88U | N/A | FCC ID: MSQ-RTAXHP00<br>IC: 3568A-RTAXHP00 |

### 3.9.2. Cable Lists

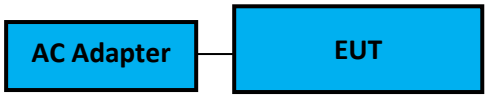
| No. | Cable Description Of The Above Support Units |
|---|---|
| 1. | HDMI Cable: Shielded, Detachable, 1.8<br>AC Power Cord: Unshielded, Detachable, 1.8m |
| 2. | USB Cable: Unshielded, Undetachable, 1.8 |
| 3. | Earphone Cable: Unshielded, Undetachable, 1.2m |
| 4. | AC adapter: M/N:WA-30B12, Cable: Unshielded, Detachable, 1.2m<br>LAN cable: Unshielded, Detachable,3.0m |
| 5. | LAN cable: Unshielded, Detachable, 1.8m |

## 3.10. Setup Configuration

### 3.10.1. EUT Configuration for Power Line & Radiated Emission




### 3.10.2. EUT Configuration for RF Conducted Test Items



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## 3.11.Operating Condition of EUT

Test program "DRTU" is used for enabling EUT WLAN function under continues transmitting and choosing data rate/ channel.
[ANT AUX port (A Button in DRTU), ANT Main port (B Button in DRTU)].

## 3.12.Description of Test Facility

| | |
|---|---|
| Name of Test Firm | Audix Technology Corporation / EMC Department<br>No. 491, Zhongfu Rd., Linkou Dist., New Taipei City 244, Taiwan<br>Tel: +886-2-26092133<br>Fax: +886-2-26099303<br>Website : www.audixtech.com<br>Contact e-mail: attemc_report@audixtech.com |
| Accreditations | The laboratory is accredited by following organizations under ISO/IEC 17025:2017<br>(1) NVLAP(USA)<br>NVLAP Lab Code 200077-0<br>(2) TAF(Taiwan)<br>No. 1724 |
| Test Facilities | FCC OET Designation Number under APEC MRA by NCC is : TW1724<br>ISED CAB Identifier Number under APEC TEL MRA by NCC is TW1724<br>(1) No.8 Shielded Room<br>(2) No.1 3m Semi Anechoic Chamber |

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## 3.13.Measurement Uncertainty

The measurement uncertainty levels have been estimated as specified in ETSI TR 100 028-2001

| Test Items/Facilities | | | Frequency Range | Uncertainty |
|---|---|---|---|---|
| Conduction Test | ☐ | No. 7 Shielded Room | 9kHz-150kHz | ±3.7dB |
| | | | 150kHz-30MHz | ±3.4dB |
| | ☒ | No. 8 Shielded Room | 9kHz-150kHz | ±3.7dB |
| | | | 150kHz-30MHz | ±3.5dB |
| Radiation Test | ☒ | No.1 3m Semi Anechoic Chamber | 30MHz-200MHz, 3m, Horizontal | ±3.6dB |
| | | | 200MHz-1000MHz, 3m, Horizontal | ±4.3dB |
| | | | 30MHz-200MHz, 3m, Vertical | ±4.4dB |
| | | | 200MHz-1000MHz, 3m, Vertical | ±4.8dB |
| | | | 1GHz-6GHz, 3m | ±4.8dB |
| | | | 6GHz-18GHz, 3m | ±4.5dB |
| | ☐ | No.3 3m Semi Anechoic Chamber | 30MHz-200MHz, 3m, Horizontal | ±4.0dB |
| | | | 200MHz-1000MHz, 3m, Horizontal | ±4.4dB |
| | | | 30MHz-200MHz, 3m, Vertical | ±4.7dB |
| | | | 200MHz-1000MHz, 3m, Vertical | ±4.5dB |
| | | | 1GHz-6GHz, 3m | ±4.8dB |
| | | | 6GHz-18GHz, 3m | ±4.5dB |
| | ☐ | No.4 3m Semi Anechoic Chamber | 30MHz-200MHz, 3m, Horizontal | ±4.3dB |
| | | | 200MHz-1000MHz, 3m, Horizontal | ±4.2dB |
| | | | 30MHz-200MHz, 3m, Vertical | ±4.8dB |
| | | | 200MHz-1000MHz, 3m, Vertical | ±4.7dB |
| | | | 1GHz-6GHz, 3m | ±4.6dB |
| | | | 6GHz-18GHz, 3m | ±4.4dB |
| | ☐ | No.5 3m Semi Anechoic Chamber | 30MHz-200MHz, 3m, Horizontal | ±4.6dB |
| | | | 200MHz-1000MHz, 3m, Horizontal | ±4.4dB |
| | | | 30MHz-200MHz, 3m, Vertical | ±4.5dB |
| | | | 200MHz-1000MHz, 3m, Vertical | ±4.9dB |
| | | | 1GHz-6GHz, 3m | ±4.9dB |
| | | | 6GHz-18GHz, 3m | ±4.6dB |
| | Radiated emissions (18GHz-40GHz) | | 18GHz-40GHz, 3m | ±3.4dB |

Remark：Uncertainty = $ku_c(y)$

| Test Items | Uncertainty |
|---|---|
| Maximum Power Spectral Density | ± 0.52dB |
| Maximum Conducted Output Power | ± 0.72dB |
| Emission Bandwidth | ± 0.38% |
| Contention Based Protocol | ± 2% |

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# 4. MEASUREMENT EQUIPMENTLIST

## 4.1. Conducted Emission Measurement

| Item | Type | Manufacturer | Model No. | Serial No. | Cal. Date | Cal. Interval |
|---|---|---|---|---|---|---|
| 1. | Test Receiver | R&S | ESR3 | 101774 | 2023. 01. 11 | 1 Year |
| 2. | A.M.N. | R&S | ENV432 | 101567 | 2023. 06. 02 | 1 Year |
| 3. | L.I.S.N. | Kyoritsu | KNW-407 | 8-855-9 | 2022. 12. 19 | 1 Year |
| 4. | Pulse Limiter | R&S | ESH3-Z2 | 100354 | 2022. 12. 14 | 1 Year |
| 5. | Digital Thermo-Hygro Meter | iMax | HTC-1 | No.8 S/R | 2023. 04. 13 | 1 Year |
| 6. | Coaxial Cable | Yeida | RG/58AU | CE-08 | 2023. 09. 06 | 1 Year |
| 7. | Test Software | Audix | e3 | V9 18621a | N.C.R. | N.C.R. |

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## 4.2. Radiated Emission Measurement

| Item | Type | Manufacturer | Model No. | Serial No. | Cal. Date | Cal. Interval |
|---|---|---|---|---|---|---|
| 1. | Spectrum Analyzer | Agilent | N9010A-526 | MY53400071 | 2023.08.16 | 1 Year |
| 2. | Spectrum Analyzer | Keysight | N9010B-544 | MY55460198 | 2023.03.29 | 1 Year |
| 3. | Test Receiver | R&S | ESCS30 | 100338 | 2023.06.20 | 1 Year |
| 4. | Amplifier | HP | 8447D | 2944A06305 | 2022.12.29 | 1 Year |
| 5. | Microwave Amplifier | Keysight | 83051A | MY56480113 | 2023.09.11 | 1 Year |
| 6. | Microwave Amplifier | HP | 8449B | 3008A01284 | 2023.06.06 | 1 Year |
| 7. | Loop Antenna | TESEQ | HLA 6121 | 60478 | 2023.02.21 | 1 Year |
| 8. | Bilog Antenna | TESEQ | CBL6112D | 33821 | 2023.06.30 | 1 Year |
| 9. | Horn Antenna | EMCO | 3115 | 9609-4927 | 2023.07.21 | 1 Year |
| 10. | Horn Antenna | COM-POWER | AH-840 | 101092 | 2022.12.30 | 1 Year |
| 11. | Notch Filter | Warison | WFIL-N5925-6425F | WR61CFWC4B1 | 2023. 01. 13 | Notch Filter |
| 12. | Notch Filter | Warison | WFIL-N6425-6525F | WR61CFWC6B1 | 2023. 01. 13 | Notch Filter |
| 13. | Notch Filter | Warison | WFIL-N6525-6875F | WR61CFWC8B1 | 2023. 01. 13 | Notch Filter |
| 14. | Notch Filter | Warison | WFIL-N6875-7125F | WR61CFWC2B1 | 2023. 01. 13 | Notch Filter |
| 15. | Coaxial Cable | MIYAZAKI | 5D2W | RE-11 | 2023.01.07 | 1 Year |
| 16. | Coaxial Cable | HUBER+SUHNER | RG223/U | RE-33 | 2023.03.02 | 1 Year |
| 17. | Coaxial Cable | HUBER+SUHNER | SUCOFLEX 106 | RE-14 | 2023.01.07 | 1 Year |
| 18. | Coaxial Cable | HUBER+SUHNER | SUCOFLEX 102 | RE-30 | 2023.08.21 | 1 Year |
| 19. | Digital Thermo-Hygro Meter | iMax | HTC-1 | No.1 3m A/C | 2023.04.13 | 1 Year |

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## 4.3. RF Conducted Measurement

| Item | Type | Manufacturer | Model No. | Serial No. | Cal. Date | Cal. Interval |
|---|---|---|---|---|---|---|
| 1. | Spectrum Analyzer | Keysight | N9020B-544 | MY57120357 | 2023. 02. 22 | 1 Year |
| 2. | Power Meter | Anritsu | ML2495A | 2127005 | 2022. 12. 01 | 1 Year |
| 3. | Power Meter | Anritsu | ML2495A | 2127004 | 2022. 12. 07 | 1 Year |
| 4. | Power Sensor | Anritsu | MA2411B | 1911360 | 2022. 12. 07 | 1 Year |
| 5. | Power Sensor | Anritsu | MA2411B | 1911356 | 2022. 12. 01 | 1 Year |
| 6. | Digital Thermo-Hygro Meter | iMax | HTC-1 | RF-03 | 2023. 04. 13 | 1 Year |

## 4.4. Contention Based Protocol Measurement

| Item | Type | Manufacturer | Model No. | Serial No. | Cal. Date | Cal. Interval |
|---|---|---|---|---|---|---|
| 1. | Spectrum Analyzer | Keysight | N9030B | MY61330403 | 2022. 12. 16 | 1 Year |
| 2. | Spectrum Analyzer | Keysight | N9010B | MY59071380 | 2023. 03. 02 | 1 Year |
| 3. | MXG RF Vector Signal Generator | Agilent | N5182B | MY53050409 | 2022. 11.14 | 1 Year |
| 4. | Frequency Extender | KEYSIGHT | N5182BX07 | MY59362533 | 2022. 11.14 | 1 Year |
| 5. | Digital Thermo-Hygro Meter | iMax | HTC-1 | RF-03 | 2023. 04. 13 | 1 Year |
| 6. | Power Splitter | minicircuit | ZFRSC-183-S$^{+}$ | SF688901703 | 2023. 03. 30 | 1 Year |
| 7. | Atteuator (10dB) X2 | Worken | WK0602-10 | 0120A02208001S | N.C.R | N.C.R |
| 8. | Atteuator (30dB) X1 | Worken | WK0602-30 | 0120A02208002S | N.C.R | N.C.R |
| 9. | Power Divider | EMEC | EM-MPD-0.5/8-2SS | 22072002-17 | 2023. 03. 30 | 1 Year |

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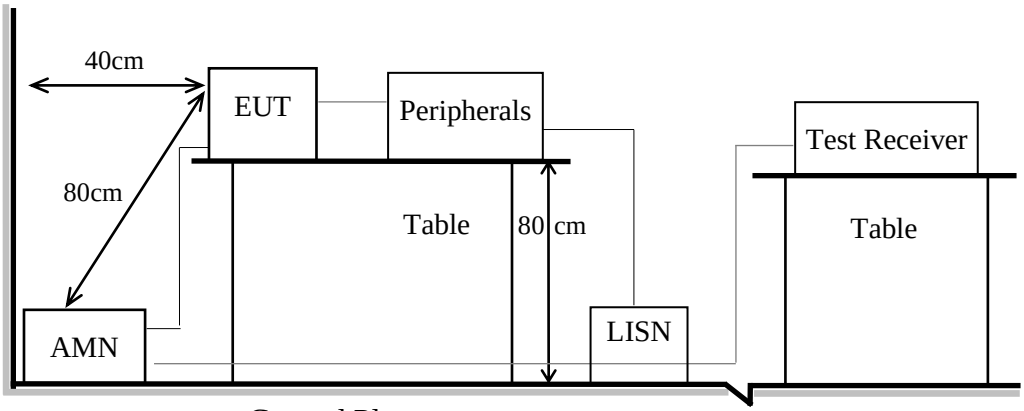
# 5. CONDUCTED EMISSION

## 5.1. Block Diagram of Test Setup

5.1.1. Block Diagram of EUT

Indicated as section 3.10

5.1.2. Shielded Room Setup Diagram




## 5.2. Conducted Emission Limit

| Frequency | Conducted Limit | |
|---|---|---|
| | 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 measurement using the average detector is not required.

2.: The lower limit applies to the band edges.

## 5.3. Test Procedure

5.3.1. To set up the EUT as indicated in ANSI C63.10. The EUT was placed on the table which has 80 cm height to the ground and 40 cm distance to the conducting wall.

5.3.2. Power supplier of the EUT was connected to the AC mains through an Artificial Mains Network (A.M.N.).

5.3.3. The AC power supplies to all peripheral devices must be provided through line impedance stabilization network (L.I.S.N.)

5.3.4. Checking frequency range from 150 kHz to 30 MHz and record the emission which does not have 20 dB below limit.

## 5.4. Test Results

Please refer to Appendix A.

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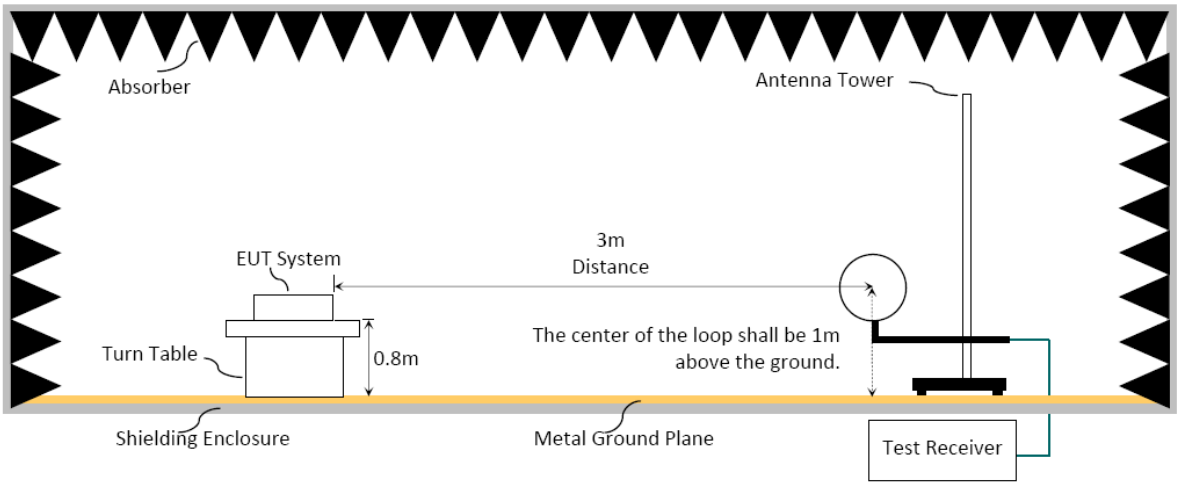
# 6. RADIATED EMISSION

## 6.1. Block Diagram of Test Setup

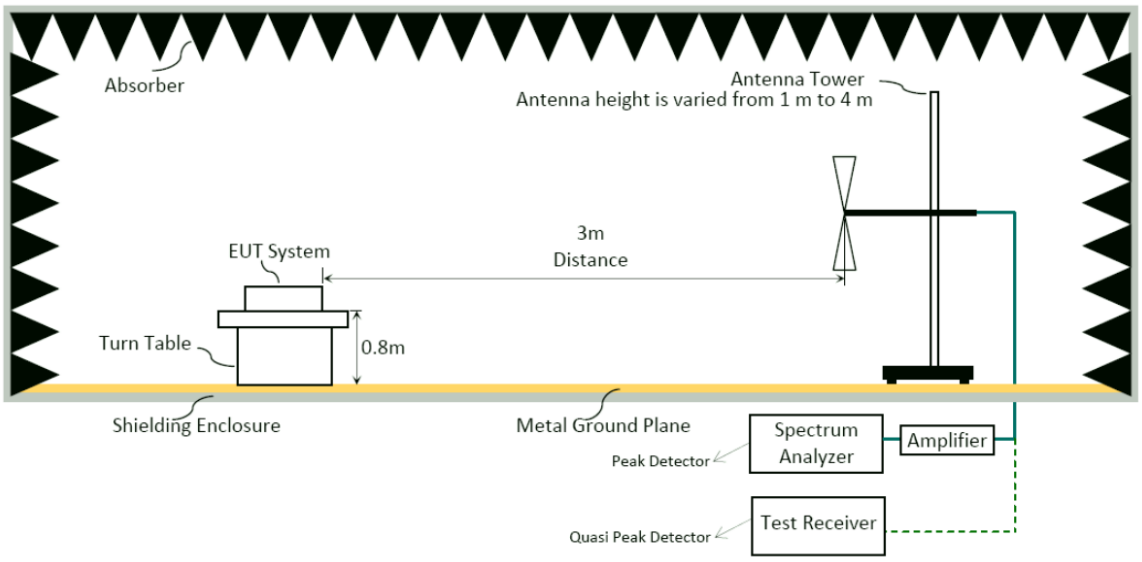
### 6.1.1. Block Diagram of EUT

Indicated as section 3.10

### 6.1.2. Setup Diagram for 9kHz-30MHz




### 6.1.3. Setup Diagram for 30-1000MHz



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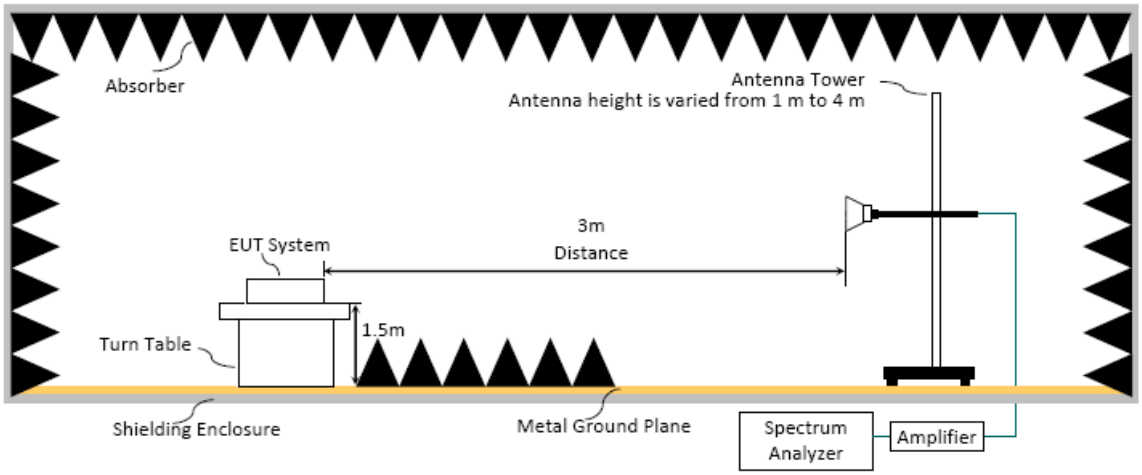
### 6.1.4. Setup Diagram for above 1GHz



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## 6.2. Radiated Emission Limits

Radiated emissions fall in restricted bands, as defined in FCC Section 15.205/RSS-Gen Section 8.10 table 7 must be in compliance with the radiated emission limits specified in FCC Section 15.209/RSS-Gen Section 8.9 table 6 as below.

### 6.2.1. General Limit

| Frequency (MHz) | Distance(m) | Limits | |
|---|---|---|---|
| | | dBμV/m | μV/m |
| 0.009 - 0.490 | 300 | 67.6-20 log f(kHz) | 2400/f kHz |
| 0.490 - 1.705 | 30 | 87.6-20 log f(kHz) | 24000/f kHz |
| 1.705 - 30 | 30 | 29.5 | 30 |
| 30 - 88 | 3 | 40.0 | 100 |
| 88- 216 | 3 | 43.5 | 150 |
| 216- 960 | 3 | 46.0 | 200 |
| Above 960 | 3 | 54.0 | 500 |
| Above 1000 | 3 | 74.0 dBμV/m (Peak)<br>54.0 dBμV/m (Average) | |

Remark：(1) dBμV/m = 20 log (μV/m)
(2) The tighter limit applies to 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) Fundamental and emission fall within operation band are exempted from this section.
(5) Pursuant to ANSI C63.10: 6.6.4.3,if the maximized peak measured value complies with the average limit, then it is unnecessary to perform an average measurement.

### 6.2.2. Limit for non-restricted frequency above 1 GHz

| Frequency Band (MHz) | E.I.R.P. Limit | Field Strength Limit at 3 m |
|---|---|---|
| Out of 5925 to 7125 | -27 dBm/MHz | 68.2 dBμV/m |

Note: Field Strength at 3 m= E.I.R.P. + 95.2 dB

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## 6.3. Test Procedure

**Frequency Range 9kHz~30MHz:**
The EUT setup on the turntable which has 0.8 m height to the ground. The turn table rotated 360 degrees and antenna fixed to 1 m to find the maximum emission level.
In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10-2013 regulation.

(1) RBW = 9kHz with peak and average detector.
(2) Detector: average and peak (9kHz-490kHz)
Q.P. (490kHz-30MHz)

**Frequency Range 30MHz ~ 40GHz:**
The EUT setup on the turn table which has 80cm (for 30-1000MHz) and 1.5m (for above 1GHz) height to the ground. The turn table rotated 360 degrees and antenna varied from 1 m to 4 m to find the maximum emission level. Both horizontal and vertical polarization are required. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10-2013 regulation.

6.3.1. Radiated measurement Spectrum Analyzer Setting

6.3.1.1 Frequency below 1GHz:

Spectrum Analyzer is used for pre-testing with following setting:

(1) RBW = 120kHz
(2) VBW ≥ 3 x RBW.
(3) Detector = Peak.
(4) Sweep time = auto.
(5) Trace mode = max hold.
(6) Allow sweeps to continue until the trace stabilizes.

Note 1: When peak-detected value is lower than limit that the measurement using the Q.P. detector is not required, otherwise using Q.P. for final measurement.

Note 2: When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds.

6.3.1.2 Frequency above 1GHz to 10th harmonic (up to 40 GHz):

**Peak Detector:**

(1) RBW = 1MHz
(2) VBW ≥ 3 x RBW.
(3) Detector = Peak.
(4) Sweep time = auto.
(5) Trace mode = max hold.
(6) Allow sweeps to continue until the trace stabilizes.

Note: When peak-detected value is lower than limit that the measurement using the average detector is not required, otherwise using average detector for final measurement.

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**Average Detector:**

**■Option 1:**

(1)RBW = 1MHz

(2)VBW ≥ 1/ T. (Duty Cycle < 98%, when duty cycle presented in section 3.7)

(3)VBW = set VBW≤ RBW / 100, but not less than 10Hz (Duty Cycle ≥ 98%, when duty cycle presented in section 3.7)

| Mode | VBW Setting |
|---|---|
| 802.11ax-HE20 | 10Hz |
| 802.11ax-HE40 | 10Hz |
| 802.11ax-HE80 | 10Hz |
| 802.11ax-HE160 | 10Hz |
| RU (26T) | 10Hz |
| RU (52T) | 10Hz |
| RU (106T) | 10Hz |
| RU (242T) | 10Hz |
| RU (484T) | 10Hz |
| RU (996T) | 10Hz |

(4)Detector = Peak.

(5)Sweep time = auto.

(6)Trace mode = max hold.

(7)Allow sweeps to continue until the trace stabilizes.

**□Option 2:**

Average Emission Level= Peak Emission Level+ D.C.C.F.

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6.3.2. Radiated band edge measurement Spectrum Analyzer Setting

**For <u>without</u> 99% OBW edge within 2 MHz of the authorized band edge:**
The spectrum analyzer setting, please refer to section 6.3.1.2

**For <u>with</u> 99% OBW edge within 2 MHz of the authorized band edge:**
Per KDB 789033 Section G.3.d and ANSI C63.10 -2013 6.10.4, SA setting as below:

**a. Fundamental field strength of SA setting:**
The spectrum analyzer setting, please refer to section 6.3.1.2

**b. Delta of SA setting:**
(1) RBW = 1% SPAN but no less than 30 KHz
(In this case, RBW = 500 KHz)
(2) VBW ≥ 3 x RBW.
(3) Detector = Peak.
(4) Sweep time = auto.
(5) Trace mode = max hold.
(6)Allow sweeps to continue until the trace stabilizes.

Correction Factor(Via delta, dB)= Fundamental Emission Level(dBμV/m)@RBW 500KHz- Band Edge Emission Level(dBμV/m)@RBW 500kHz

Band Edge Emission Level (dBμV/m) =
Fundamental Emission Level (dBμV/m)@RBW 1MHz – Marker Delta (dB)

## 6.4. Measurement Result Explanation

■Peak Emission Level (dBμV/m) =Antenna Factor (dB/m) + Cable Loss (dB) + Meter Reading (dBμV) (including Preamp factor if test used)
■Average Emission Level (dBμV/m) =Antenna Factor (dB/m) + Cable Loss (dB) + Meter Reading (dBμV) (including Preamp factor if test used)
□Average Emission Level (dBμV/m)= Peak Emission Level (dBμV/m)+ DCCF(dB)
Duty Cycle Correction Factor (DCCF)= 20log($TX_{on}/TX_{on+off}$) presented in section 3.7.
□ERP= Peak Emission Level (dBμV/m) -95.2dB-2.14dB
□Band Edge Emission Level (dBμV/m) = Fundamental Emission Level (dBμV/m) – Maker-Delta (dB)

## 6.5. Test Results

Please refer to Appendix A.

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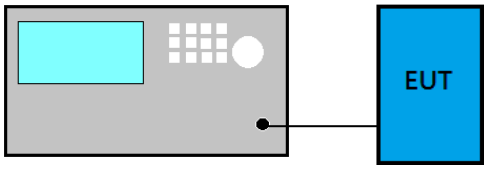
# 7. MAXIMUM POWER SPECTRAL DENSITY

## 7.1. Block Diagram of Test Setup




## 7.2. Specification Limits

For client devices operating under the control of an indoor access point in the 5.925-7.125 GHz bands, the maximum power spectral density must not exceed -1dBm e.i.r.p. in any 1-megahertz band

## 7.3. Test Procedure

Following measurement procedure is reference to KDB 789033 D02 General UNII Test Procedures New Rules v02r01:

**■Method AVGSA-2 (Spectrum channel power)**

(1) Set span to at least 1.5 times the OBW
(2) Set RBW = 1 MHz
(3) Set the video bandwidth (VBW) ≥ 3 MHz.
(4) Detector = RMS.
(5) Trace mode = trace average at least 100 traces
(6) Sweep = auto couple.
(7) Use peak search function to find out the maximum power density.
(8) Duty cycle factor is added when duty cycle presented in section 3.7 is < 98%.

For power density emission measurements from multiple outputs of a transmitter or from multiple transmitters: Please refer to KDB 662911 E 2) c).

## 7.4. Test Results

Please refer to Appendix A

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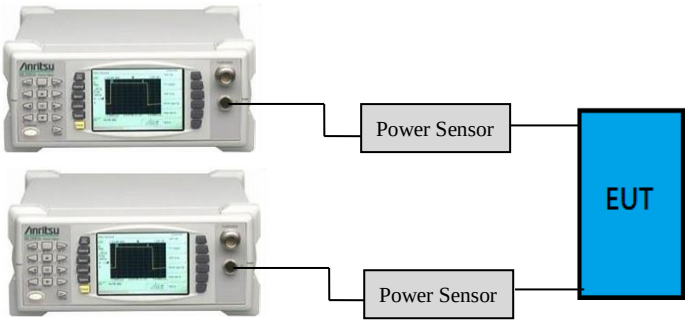
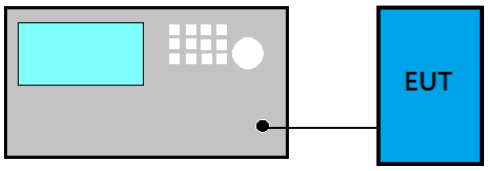
# 8. MAXIMUM CONDUCTED OUTPUT POWER

## 8.1. Block Diagram of Test Setup




- **For 802.11ac-VHT80/160, 802.11ax-HE160 modes only**




## 8.2. Specification Limits

For client devices operating under the control of an indoor access point in the 5.925-7.125 GHz bands, the maximum e.i.r.p. over the frequency band of operation must not exceed 24 dBm.

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## 8.3. Test Procedure

Following measurement procedure is reference to KDB 789033 D02 General UNII Test Procedures New Rules v02r01:

**■Method AVGPM (Measurement using an RF average power meter):**

EUT is connected to power sensor and record the maximum average output power and duty cycle factor is added when duty cycle presented in section 3.7 is < 98%.

**■Method AVGSA-2 (Spectrum channel power) for 802.11ac-VHT80/160, 802.11ax-HE80/160 modes only**

(1) Set span to at least 1.5 times the OBW
(2) Set RBW = 1 MHz
(3) Set the video bandwidth (VBW) ≥ 3 MHz.
(4) Detector = RMS.
(5) Trace mode = trace average at least 100 traces
(6) Sweep = auto couple.
(7) Compute power by integrating the spectrum across the OBW of the signal using the instrument's band power measurement function with band limits set equal to the OBW band edges.
(8) Duty cycle factor is added when duty cycle presented in section 3.7 is < 98%.

## 8.4. Test Results

Please refer to Appendix A

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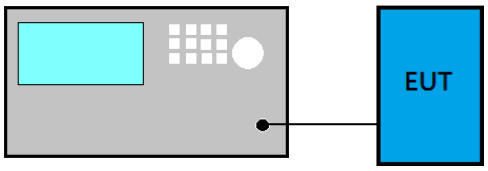
# 9. EMISSION/OCCUPIED BANDWIDTH

## 9.1. Block Diagram of Test Setup




## 9.2. Specification Limits

The maximum transmitter channel bandwidth for U-NII devices in the 5.925-7.125 GHz band is 320 megahertz

## 9.3. Test Procedure

Following measurement procedure is reference to KDB 789033 D02 General UNII Test Procedures New Rules v02r01:

(1) Set RBW= 1% of the emission bandwidth
(2) Set VBW > RBW
(3) Detector = Peak
(4) Trace mode = max hold
(5) Setting channel bandwidth function x dB to -26 dB to record the final bandwidth.

## 9.4. Test Results

Please refer to Appendix A

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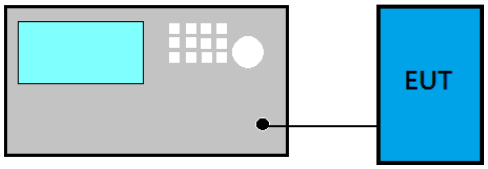
# 10. UNDERSIRABLE EMISSIONS LIMITS: SPURIOUS EMISSION (CONDUCTED)

## 10.1. Block Diagram of Test Setup




## 10.2. Spurious Emission Specification Limits

For transmitters operating within the 5.925-7.125 GHz band: Any emissions outside of the 5.925- 7.125 GHz band must not exceed an e.i.r.p. of −27 dBm/MHz.
Unless otherwise specified, on any frequency or frequencies above 1000 MHz, the radiated emission limits are based on the use of measurement instrumentation employing an average detector function. Unless otherwise specified, measurements above 1000 MHz shall be performed using a minimum resolution bandwidth of 1 MHz. When average radiated emission measurements are specified in this part, including average emission measurements below 1000 MHz, there also is a limit on the peak level of the radio frequency emissions. Unless otherwise specified, e.g., see FCC Part §§ 15.250, 15.252, 15.253(d), 15.255, 15.256, and 15.509 through 15.519, the limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device, e.g., the total peak power level

## 10.3. Test Procedure

Please refer to KDB 789033 D02 v02r01 G5

For spurious emission measurements from multiple outputs of a transmitter or from multiple transmitters: Please refer to KDB 662911 E 3) a) (iii).

## 10.4. Test Results

Please refer to Appendix A

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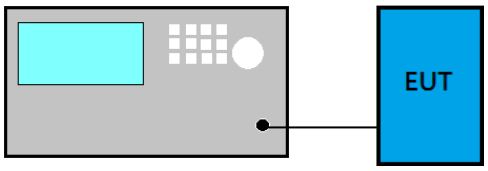
# 11. IN-BAND EMISSION (CHANNEL MASK)

## 11.1. Block Diagram of Test Setup




## 11.2. Specification Limits

For transmitters operating within the 5.925-7.125 GHz bands: Power spectral density must be suppressed by 20 dB at 1 MHz outside of channel edge, by 28 dB at one channel bandwidth from the channel center, and by 40 dB at one- and one-half times the channel bandwidth away from channel center. At frequencies between one megahertz outside an unlicensed device's channel edge and one channel bandwidth from the center of the channel, the limits must be linearly interpolated between 20 dB and 28 dB suppression, and at frequencies between one and one- and one-half times an unlicensed device's channel bandwidth, the limits must be linearly interpolated between 28 dB and 40 dB suppression. Emissions removed from the channel center by more than one- and one-half times the channel bandwidth must be suppressed by at least 40 dB.

## 11.3. Test Procedure

Following measurement procedure is reference to KDB 987594 D02 U-NII 6GHz EMC Measurement v01v01:

Measure the power spectral density (which will be used for emissions mask reference) using the following procedure:

(a) Set the span to encompass the entire 26 dB EBW of the signal.
(b) Set RBW = same RBW used for 26 dB EBW measurement.
(c) Set VBW ≥ 3 X RBW
(d) Number of points in sweep ≥ (2 X span / RBW).
(e) Sweep time = auto.
(f) Detector = RMS (i.e., power averaging)
(g) Trace average at least 100 traces in power averaging (rms) mode.
(h) Use the peak search function on the instrument to find the peak of the spectrum.

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(1) Using the measuring equipment limit line function, develop the emissions mask based on the following requirements. The emissions power spectral density must be reduced below the peak power spectral density (in dB) as follows:
   (a) Suppressed by 20 dB at 1 MHz outside of the channel edge.
   (b) Suppressed by 28 dB at one channel bandwidth from the channel center.
   (c) Suppressed by 40 dB at one- and one-half times the channel bandwidth from the channel center.
(2) Adjust the span to encompass the entire mask as necessary.
(3) Clear trace.
(4) Trace average at least 100 traces in power averaging (rms) mode.
(5) Adjust the reference level as necessary so that the crest of the channel touches the top of the emission mask.

## 11.4.Test Results

Please refer to Appendix A

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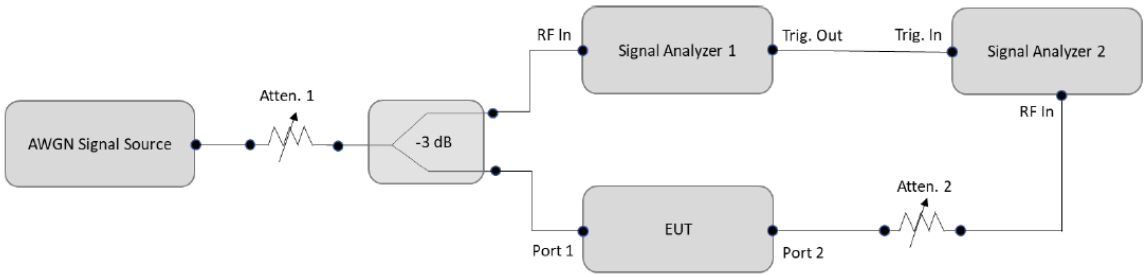
# 12. CONTENTION BASED PROTOCOL

## 12.1. Block Diagram of Test Setup




## 12.2. Specification Limits

Indoor access points, subordinate devices and client devices operating in the 5.925-7.125 GHz band must employ a contention-based protocol

**FCC KDB 987594 D02 U-NII 6GHz EMC Measurement v01v01**
Unlicensed low-power indoor devices must detect co-channel radio frequency power that is at least -62 dBm or lower. Upon detection of energy in the band, unlicensed low power indoor devices must vacate the channel (in which incumbent signal is transmitted) and stay off the incumbent channel as long as detected radio frequency power is equal to or greater than the threshold (-62 dBm)1. The -62 dBm (or lower) threshold is referenced to a 0 dBi antenna gain

To ensure incumbent operations are reliably detected in the band, low power indoor devices must detect RF energy throughout their intended operating channel. For example, an 802.11 device that plans to transmit a 40 MHz- wide signal (on a primary 20 MHz channel and a secondary 20 MHz channel) must detect energy throughout the entire 40 MHz channel. Additionally, low-power indoor devices must detect co-channel energy with 90% or greater certainty.

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**Table 1. Criteria to determine number of times detection threshold test may be performed**

| If | Number of Tests | Placement of Incumbent Transmission |
|---|---|---|
| $BW_{EUT} \leq BW_{Inc}$ | One | Tune incumbent and EUT transmission ($f_{c1}=f_{c2}$) |
| $BW_{Inc} < BW_{EUT} \leq 2BW_{Inc}$ | One | Incumbent transmission is contained within $BW_{EUT}$ |
| $2BW_{Inc} < BW_{EUT} \leq 4BW_{Inc}$ | Twice. Incumbent transmission is contained within $BW_{EUT}$ | Incumbent transmission is located as closely as possible to the lower edge and upper edge, respectively, of the EUT channel |
| $BW_{EUT} > 4BW_{Inc}$ | Three times | Incumbent transmission is located as closely as possible to the lower edge of the EUT channel, in the middle of EUT channel, and as closely as possible to the upper edge of the EUT channel |

Where:

$BW_{EUT}$ : Transmission bandwidth of EUT signal
$BW_{Inc}$ : Transmission bandwidth of the simulated incumbent signal (10 MHz wide AWGN signal)
$f_{c1}$: Center frequency of EUT transmission
$f_{c2}$: Center frequency of simulated incumbent signal

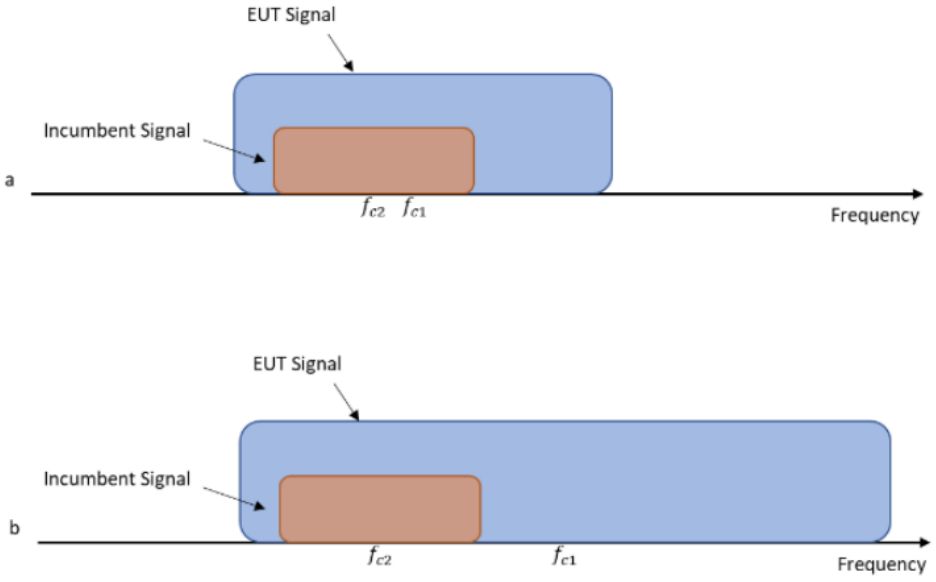


**Figure 1. Two possible scenarios where a) center frequency of EUT transmission falls within incumbent's bandwidth, or b) outside of it**

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## 12.3.Test Procedure

Following measurement procedure is reference to KDB 987594 D02 U-NII 6GHz EMC Measurement v01v01:

(1) To ensure EUT reliably detects an incumbent signal in both scenarios shown in Figure 1, the detection threshold test may be repeated more than once with the incumbent signal (having center frequency $f_{c2}$) tuned to different center frequencies within the EUT transmission bandwidth. The criteria specified in Table 1 determines how many times the detection threshold test must be performed

(2) Using an AWGN signal source, generate (but do not transmit, i.e., RF OFF) a 10 MHz-wide AWGN signal. Use Table 1 to determine the center frequency of the 10 MHz AWGN signal relative to the EUT's channel bandwidth and center frequency.

(3) Monitor the signal analyzer to verify if the AWGN signal has been detected and the EUT has ceased transmission. If the EUT continues to transmit, then incrementally increase the AWGN signal power level until the EUT stops transmitting.

(4) (Including all losses in the RF paths) Determine and record the AWGN signal power level (at the EUT's antenna port) at which the EUT ceased transmission. Repeat the procedure at least 10 times to verify the EUT can detect an AWGN signal with 90% (or better) level of certainty.

(5) Refer to Table 1 to determine number of times the detection threshold testing needs to be repeated. If testing is required more than once, then go back to step 2, choose a different center frequency for the AWGN signal and repeat the process.

(6) The test tool is "LAN test" to let the EUT to transmit with a constant duty cycle.

## 12.4.Test Results

Please refer to Appendix A

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# 13. DEVIATION TO TEST SPECIFICATIONS

【NONE】

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# APPENDIX A

## TEST DATA AND PLOTS

(Model: 17Z90SP)

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# APPENDIX B

## TEST PHOTOGRAPHS

(Model: 17Z90SP)