



# FCC RADIO TEST REPORT

FCC ID : 2AG7G-J1A  
Equipment : Plume Adaptive Wi-Fi  
Brand Name : Plume Design, Inc.  
Model Name : J1A  
Applicant : Plume Design, Inc.  
325 Lytton Ave., Palo Alto, CA 94301  
Manufacturer : Plume Design, Inc.  
325 Lytton Ave., Palo Alto, CA 94301  
Standard : 47 CFR FCC Part 15.517

The product was received on Oct. 19, 2021, and testing was started from Oct. 30, 2021 and completed on Dec. 22, 2021. We, Sporton International Inc. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

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

Approved by: Louis Wu

**Sporton International Inc. EMC & Wireless Communications Laboratory**

No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)



## Table of Contents

<b>History of this test report</b> .....	<b>3</b>
<b>Summary of Test Result</b> .....	<b>4</b>
<b>1. General Description</b> .....	<b>5</b>
1.1. Product Feature of Equipment Under Test .....	5
1.2. Modification of EUT .....	6
1.3. Type of EUT .....	6
1.4. Testing Applied Standards .....	6
1.5. Testing Location Information .....	7
1.6. Measurement Uncertainty .....	7
<b>2. Test Configuration of EUT</b> .....	<b>8</b>
2.1. Test Mode .....	8
2.2. The Worst Case Measurement Configuration .....	8
2.3. Test Setup Diagram .....	9
2.4. Support Unit used in test configuration and system .....	10
<b>3. Transmitter Test Result</b> .....	<b>11</b>
3.1. AC Power-line Conducted Emissions .....	11
3.2. UWB bandwidth .....	12
3.3. Technical requirements for indoor UWB systems .....	14
3.4. Peak Power Measurement .....	16
3.5. Radiated Emissions .....	20
<b>4. Test Equipment and Calibration Data</b> .....	<b>47</b>
<b>Appendix A. Conducted Emission Test Results</b>	
<b>Appendix B. Setup Photographs</b>	



### History of this test report

Report No.	Version	Description	Issued Date
FR1O0638G	01	Initial issue of report	Jan. 19, 2022
FR1O0638G	02	1. Revise test standard and Summary 2. Revise Radiated Emissions above 960MHz Limit 3. Revise Radiated Emissions (960MHz – 18GHz)	Mar. 04, 2022



### Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
1.2	15.203	Antenna Requirement	PASS	15.203
-	15.207	AC Power-line Conducted Emissions	PASS	15.207
3.1	15.503	UWB Bandwidth	PASS	≥ 500MHz
3.3	15.517(a)(5)	Technical requirements for indoor UWB systems	PASS	15.517(a)(5)
3.4	15.517(e)	Peak Power Measurement	PASS	≤ 0 dBm/50MHz
3.5	15.517(c) /15.517(d)	Radiated Emissions	PASS	UWB Emissions: 15.517(c) GPS Emissions: 15.517(d) Digital Emissions: 15.209

**Declaration of Conformity:**  
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

**Comments and Explanations:**  
The product specifications of the EUT presented in the report are declared by the manufacturer who shall take full responsibility for the authenticity.

**Reviewed by: Danny Lee**  
**Report Producer: Lucy Wu**



# 1. General Description

## 1.1. Product Feature of Equipment Under Test

Bluetooth-LE, Wi-Fi 2.4GHz 802.11b/g/n/ac/ax, Wi-Fi 5GHz 802.11a/n/ac/ax, Wi-Fi 6GHz 802.11a/n/ac/ax and UWB.

Product Specification subjective to this standard	
<b>Antenna Type</b>	<b>WLAN</b> <b>&lt;2400 MHz ~ 2483.5 MHz&gt;</b> <Ant. 3>: IFA Antenna <Ant. 4>: IFA Antenna <b>&lt;5180 MHz ~ 5240 MHz&gt;</b> <Ant. 1>: IFA Antenna <Ant. 2>: IFA Antenna <Ant. 3>: IFA Antenna <Ant. 4>: IFA Antenna <b>&lt;5260 MHz ~ 5320 MHz&gt;</b> <Ant. 1>: IFA / Slot Antenna <Ant. 2>: IFA / Slot Antenna <Ant. 3>: IFA / Slot Antenna <Ant. 4>: IFA / Slot Antenna <b>&lt;5500MHz ~ 5825 MHz&gt;</b> <Ant. 1>: IFA / Slot Antenna <Ant. 2>: IFA / Slot Antenna <Ant. 3>: IFA / Slot Antenna <Ant. 4>: IFA / Slot Antenna <b>&lt;5925 MHz ~ 6425 MHz&gt;</b> <Ant. 5>: IFA Antenna <Ant. 6>: IFA Antenna <Ant. 7>: IFA Antenna <Ant. 8>: IFA Antenna <b>&lt;6425 MHz ~ 6525 MHz&gt;</b> <Ant. 5>: IFA Antenna <Ant. 6>: IFA Antenna <Ant. 7>: IFA Antenna <Ant. 8>: IFA Antenna <b>&lt;6525 MHz ~ 6875 MHz&gt;</b> <Ant. 5>: IFA Antenna <Ant. 6>: IFA Antenna <Ant. 7>: IFA Antenna <Ant. 8>: IFA Antenna <b>&lt;6875 MHz ~ 7125 MHz&gt;</b> <Ant. 5>: IFA Antenna <Ant. 6>: IFA Antenna <Ant. 7>: IFA Antenna <Ant. 8>: IFA Antenna <b>Bluetooth - LE:</b> IFA Antenna <b>UWB:</b> IFA Antenna



Antenna information	
Antenna Gain (CH5 and CH9)	<Ant. 1>: 4 dBi <Ant. 2>: 3 dBi

Remark: The above EUT's information was declared by manufacturer. Please refer to Comments and Explanations in report summary.

### 1.2. Modification of EUT

No modifications are made to the EUT during all test items.

### 1.3. Type of EUT

Operational Condition	
EUT Power Type	AC mains: AC voltage 120 V
Type of EUT	
<input checked="" type="checkbox"/>	Stand-alone
<input type="checkbox"/>	Combined (EUT where the radio part is fully integrated within another device) Combined Equipment - Brand Name / Model No.: ...
<input type="checkbox"/>	Plug-in radio (EUT intended for a variety of host systems) Host System - Brand Name / Model No.: ...
<input type="checkbox"/>	Other:

### 1.4. Testing Applied Standards

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

- ♦ 47 CFR FCC Part 15
- ♦ ANSI C63.10-2013
- ♦ FCC KDB 414788 D01 Radiated Test Site v01r01

Remark: The TAF code is not including all the FCC KDB listed without accreditation.

## 1.5. Testing Location Information

<b>Test Site</b>	Sporton International Inc. EMC & Wireless Communications Laboratory
<b>Test Site Location</b>	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978
<b>Test Site No.</b>	<b>Sporton Site No.</b> CO05-HY, DF02-HY

**Note:** The test site complies with ANSI C63.4 2014 requirement.

<b>Test Site</b>	Sporton International Inc. Wensan Laboratory
<b>Test Site Location</b>	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855
<b>Test Site No.</b>	<b>Sporton Site No.</b> 03CH20-HY (TAF Code: 3876)
<b>Remark</b>	The Radiated Spurious Emission test item subcontracted to Sporton International Inc. Wensan Laboratory.

**Note:** The test site complies with ANSI C63.4 2014 requirement.

FCC designation No.: TW1190 and TW3786

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
Conducted	DF02-HY	PH Yang	24~26 °C 45~50 %	Dec. 22, 2021
Conduction	CO05-HY	Calvin Wang	23~26 °C 45~55 %	Dec. 14, 2021
Radiated	03CH20-HY	JC Liang	19~20 °C 65~67 %	Oct. 30, 2021~ Nov. 13, 2021

## 1.6. Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))

Test Items	Uncertainty	Remark
AC Conduction (150kHz ~ 30MHz)	3.1 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1000MHz)	5.9 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	5.2 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	5.7 dB	Confidence levels of 95%



## 2. Test Configuration of EUT

### 2.1. Test Mode

Test Configuration			
Mode	Antenna	UWB Channel	UWB Frequency (MHz)
1	1	5	6489.6
2	1	9	7987.2
3	2	5	6489.6
4	2	9	7987.2




Test Cases	
AC Conducted Emission	Mode 1: UWB Link + LAN Link + WAN Link

### 2.2. The Worst Case Measurement Configuration

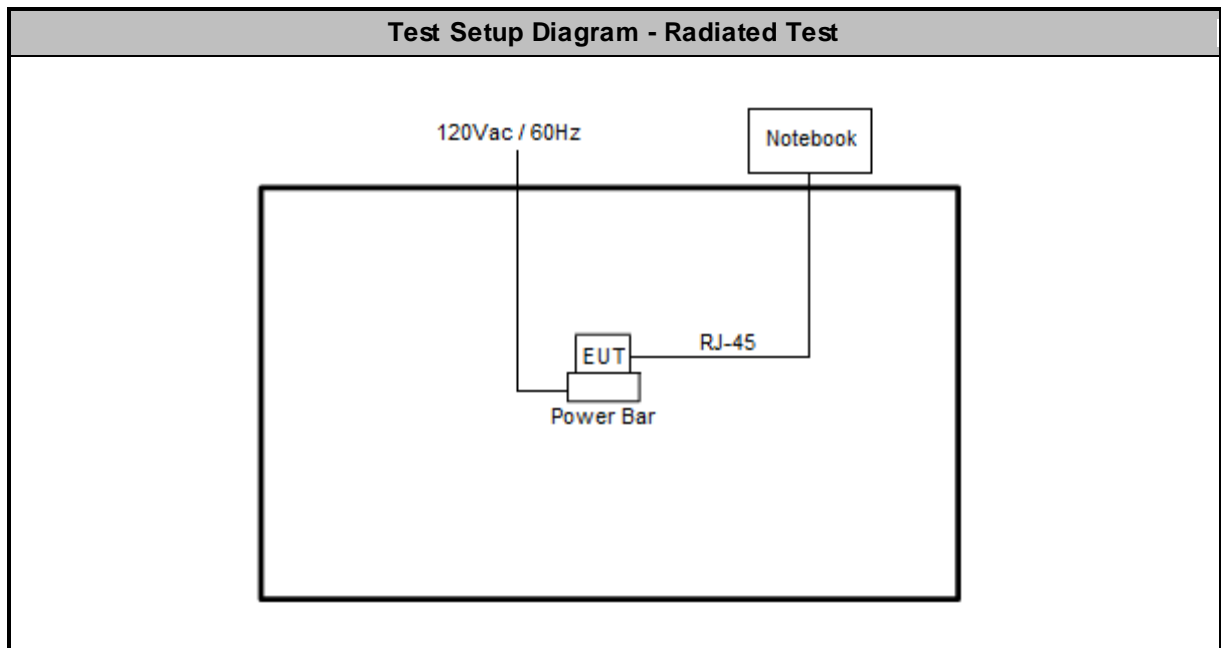
The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral Test Voltage: 120Vac / 60Hz
Operating Mode	CTX
1	Adapter Mode

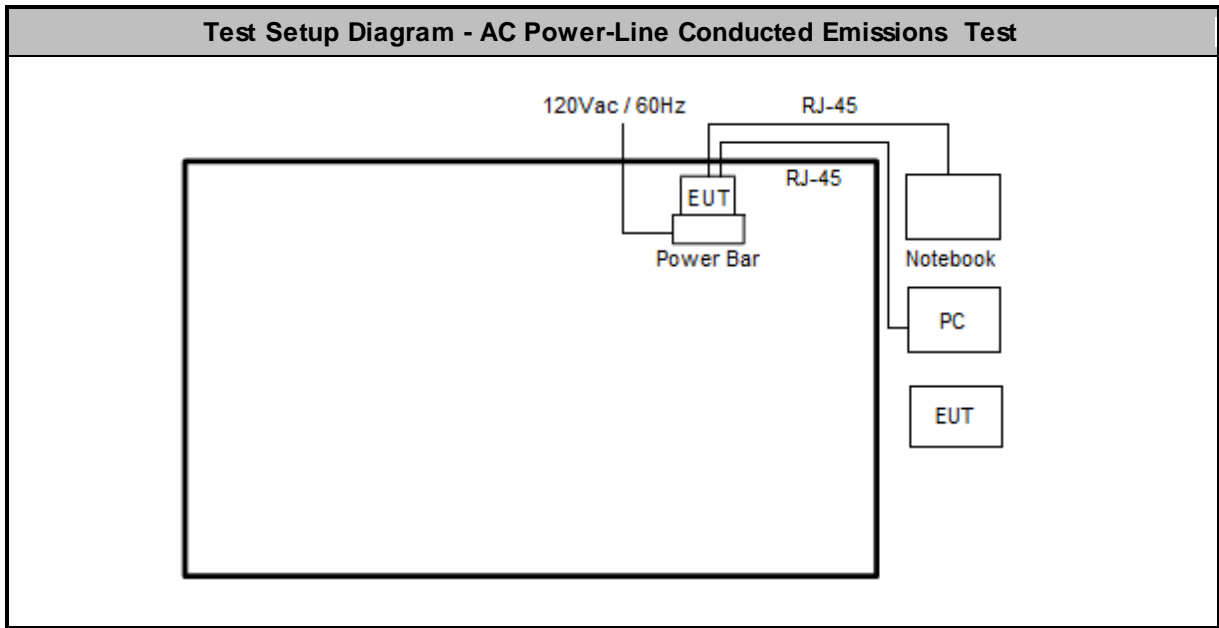
**Remark:** Please refer to 15.207 which states, "Measurements to demonstrate compliance with the conducted limits are not required for devices employ Battery for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines".



The Worst Case Mode for Following Conformance Tests			
Tests Item	UWB Bandwidth, Peak Power Measurement, Radiated Emissions		
Test Condition	Radiated measurement		
Operating Mode	CTX		
1	Adapter Mode		
Mode 1 configuration was tested and found to be the worst case and measured during the test.			
Operating Mode > 1GHz	CTX		
Orthogonal Planes of EUT	X Plane	Y Plane	Z Plane
			
Worst Plane of Test Mode 1		V	
Worst Plane of Test Mode 2	V		
Worst Plane of Test Mode 3			V
Worst Plane of Test Mode 4	V		
<p><b>Remark:</b> The measured emission level of the EUT was maximized by rotating the EUT on a turntable, adjusting the orientation of the EUT and EUT antenna in three orthogonal axis (X: flat, Y: portrait, Z: landscape), and adjusting the measurement antenna orientation, following C63.10 exploratory test procedures and find X plane as worst plane, and recorded in this report.</p>			

### 2.3. Test Setup Diagram





**2.4. Support Unit used in test configuration and system**

Item	Equipment	Brand Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Notebook	DELL	Latitude5310	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
2.	Notebook	DELL	Latitude 3400	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
3.	PC	msi	9461NGW	PD99461NG	Unshielded, 3.0m	Unshielded, 1.8m
4.	Plume Adaptive Wi-Fi	Plume Design Inc	J1A	2AG7G-J1A	N/A	N/A

### 3. Transmitter Test Result

#### 3.1. AC Power-line Conducted Emissions

##### 3.1.1. AC Power-line Conducted Emissions Limit

AC Power-line Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

Note 1: \* Decreases with the logarithm of the frequency.

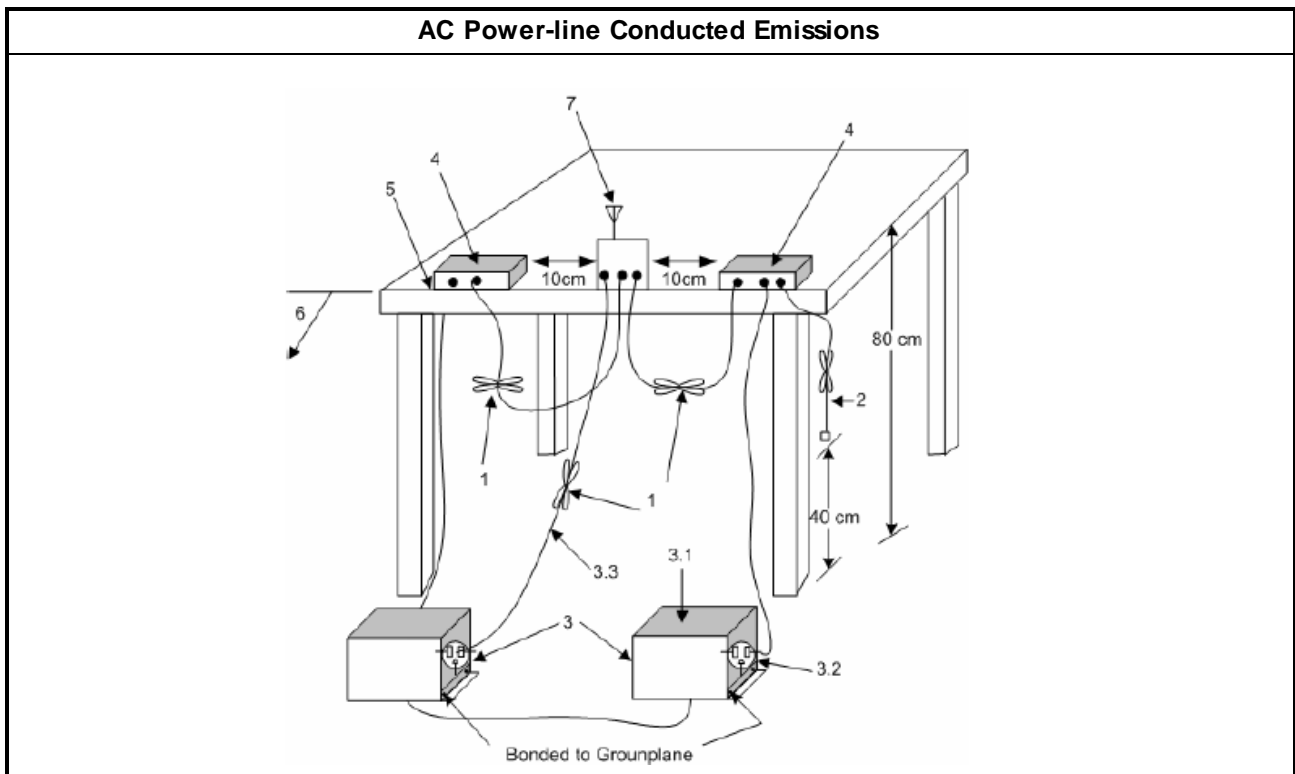
##### 3.1.2. Measuring Instruments

Refer a test equipment and calibration data table in this test report.

##### 3.1.3. Test Procedures

Test Method
■ Refer as ANSI C63.10-2013, clause 6.2 for AC power-line conducted emissions.

##### 3.1.4. Test Setup



##### 3.1.5. Test Result

Please refer to Appendix A.

### 3.2. UWB bandwidth

#### 3.2.1. UWB bandwidth Limit

UWB bandwidth Limit
UWB bandwidth $\geq$ 500 MHz or Fractional bandwidth $\geq$ 0.2; Fractional bandwidth = $2(f_H - f_L) / (f_H + f_L)$

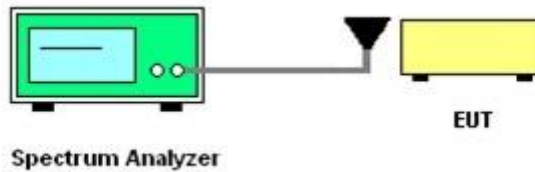
#### 3.2.2. Measuring Instruments

Refer a test equipment and calibration data table in this test report.

#### 3.2.3. Test Procedures

Test Method
<ul style="list-style-type: none"> <li>■ For the UWB bandwidth shall be measured using one of the options below:</li> </ul>
<ul style="list-style-type: none"> <li>■ Refer as ANSI C63.10, clause 6.9.2 and clause 10.1 for UWB bandwidth testing.</li> </ul>

#### 3.2.4. Test Setup





3.2.5. Test Result of UWB Bandwidth

Test mode	F <sub>L</sub> (MHz)	F <sub>H</sub> (MHz)	UWB Bandwidth (MHz)	Bandwidth limit (MHz)	Result	Pol [H/V]
1	6238.00	6783.00	545	≥ 500	Pass	H
2	7736.00	8259.00	523	≥ 500	Pass	H
3	6237.00	6754.00	517	≥ 500	Pass	H
4	7667.00	8240.00	573	≥ 500	Pass	H

UWB Bandwidth																																																																																																					
<p style="text-align: center;"><b>Mode 1: CH 05_Ant. 1</b></p> <p style="font-size: small;">Date: 2021-10-30</p> <p style="font-size: x-small;">Site : 03CH20-HY Condition : 3m 9120D_002360_1091103 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:3.000sec Project : IO0638 EUT : #5 Channel : CH5 Setting : 30</p> <table border="1" style="font-size: x-small; width: 100%;"> <thead> <tr> <th>Freq</th> <th>Level</th> <th>Over</th> <th>Limit</th> <th>ReadAntenna</th> <th>Cable</th> <th>Preamp</th> <th>A/Pos</th> <th>T/Pos</th> <th>Remark</th> </tr> <tr> <th>MHz</th> <th>dBuV/m</th> <th>dB</th> <th>dBuV/m</th> <th>dBuV</th> <th>dB/m</th> <th>dB</th> <th>cm</th> <th>deg</th> <th></th> </tr> </thead> <tbody> <tr> <td>1</td> <td>6238.00</td> <td>58.91</td> <td>-----</td> <td>48.99</td> <td>34.00</td> <td>13.78</td> <td>37.86</td> <td>---</td> <td>--- Peak</td> </tr> <tr> <td>2</td> <td>6573.00</td> <td>68.23</td> <td>-----</td> <td>56.61</td> <td>35.35</td> <td>14.19</td> <td>37.92</td> <td>---</td> <td>--- Peak</td> </tr> <tr> <td>3</td> <td>6783.00</td> <td>58.23</td> <td>-----</td> <td>46.17</td> <td>35.67</td> <td>14.40</td> <td>38.01</td> <td>---</td> <td>--- Peak</td> </tr> </tbody> </table>	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	cm	deg		1	6238.00	58.91	-----	48.99	34.00	13.78	37.86	---	--- Peak	2	6573.00	68.23	-----	56.61	35.35	14.19	37.92	---	--- Peak	3	6783.00	58.23	-----	46.17	35.67	14.40	38.01	---	--- Peak	<p style="text-align: center;"><b>Mode 2: CH 09_Ant. 1</b></p> <p style="font-size: small;">Date: 2021-10-30</p> <p style="font-size: x-small;">Site : 03CH20-HY Condition : 3m 9120D_002360_1091103 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:3.000sec Project : IO0638 EUT : #5 Channel : CH9 Setting : 32</p> <table border="1" style="font-size: x-small; width: 100%;"> <thead> <tr> <th>Freq</th> <th>Level</th> <th>Over</th> <th>Limit</th> <th>ReadAntenna</th> <th>Cable</th> <th>Preamp</th> <th>A/Pos</th> <th>T/Pos</th> <th>Remark</th> </tr> <tr> <th>MHz</th> <th>dBuV/m</th> <th>dB</th> <th>dBuV/m</th> <th>dBuV</th> <th>dB/m</th> <th>dB</th> <th>cm</th> <th>deg</th> <th></th> </tr> </thead> <tbody> <tr> <td>1</td> <td>7736.00</td> <td>59.53</td> <td>-----</td> <td>46.57</td> <td>36.64</td> <td>15.01</td> <td>38.69</td> <td>---</td> <td>--- Peak</td> </tr> <tr> <td>2</td> <td>8142.00</td> <td>69.03</td> <td>-----</td> <td>55.89</td> <td>36.93</td> <td>15.28</td> <td>39.07</td> <td>---</td> <td>--- Peak</td> </tr> <tr> <td>3</td> <td>8259.00</td> <td>59.31</td> <td>-----</td> <td>46.16</td> <td>37.02</td> <td>15.32</td> <td>39.19</td> <td>---</td> <td>--- Peak</td> </tr> </tbody> </table>	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	cm	deg		1	7736.00	59.53	-----	46.57	36.64	15.01	38.69	---	--- Peak	2	8142.00	69.03	-----	55.89	36.93	15.28	39.07	---	--- Peak	3	8259.00	59.31	-----	46.16	37.02	15.32	39.19	---	--- Peak
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<p style="text-align: center;"><b>Mode 3: CH 05_Ant. 2</b></p> <p style="font-size: small;">Date: 2021-11-02</p> <p style="font-size: x-small;">Site : 03CH20-HY Condition : 3m 9120D_00294_1110622 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:3.000sec Project : IO0638 EUT : #5 Channel : CH5 Setting : 20</p> <table border="1" style="font-size: x-small; width: 100%;"> <thead> <tr> <th>Freq</th> <th>Level</th> <th>Over</th> <th>Limit</th> <th>ReadAntenna</th> <th>Cable</th> <th>Preamp</th> <th>A/Pos</th> <th>T/Pos</th> <th>Remark</th> </tr> <tr> <th>MHz</th> <th>dBuV/m</th> <th>dB</th> <th>dBuV/m</th> <th>dBuV</th> <th>dB/m</th> <th>dB</th> <th>cm</th> <th>deg</th> <th></th> </tr> </thead> <tbody> <tr> <td>1</td> <td>6237.00</td> <td>57.55</td> <td>-----</td> <td>47.48</td> <td>34.15</td> <td>13.78</td> <td>37.86</td> <td>---</td> <td>--- Peak</td> </tr> <tr> <td>2</td> <td>6526.00</td> <td>67.50</td> <td>-----</td> <td>56.01</td> <td>35.26</td> <td>14.13</td> <td>37.90</td> <td>---</td> <td>--- Peak</td> </tr> <tr> <td>3</td> <td>6754.00</td> <td>57.64</td> <td>-----</td> <td>45.45</td> <td>35.81</td> <td>14.38</td> <td>38.00</td> <td>---</td> <td>--- Peak</td> </tr> </tbody> </table>	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	cm	deg		1	6237.00	57.55	-----	47.48	34.15	13.78	37.86	---	--- Peak	2	6526.00	67.50	-----	56.01	35.26	14.13	37.90	---	--- Peak	3	6754.00	57.64	-----	45.45	35.81	14.38	38.00	---	--- Peak	<p style="text-align: center;"><b>Mode 4: CH 09_Ant. 2</b></p> <p style="font-size: small;">Date: 2021-11-02</p> <p style="font-size: x-small;">Site : 03CH20-HY Condition : 3m 9120D_002360_1091103 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:3.000sec Project : IO0638 EUT : #5 Channel : CH9 Setting : 60</p> <table border="1" style="font-size: x-small; width: 100%;"> <thead> <tr> <th>Freq</th> <th>Level</th> <th>Over</th> <th>Limit</th> <th>ReadAntenna</th> <th>Cable</th> <th>Preamp</th> <th>A/Pos</th> <th>T/Pos</th> <th>Remark</th> </tr> <tr> <th>MHz</th> <th>dBuV/m</th> <th>dB</th> <th>dBuV/m</th> <th>dBuV</th> <th>dB/m</th> <th>dB</th> <th>cm</th> <th>deg</th> <th></th> </tr> </thead> <tbody> <tr> <td>1</td> <td>7667.00</td> <td>55.16</td> <td>-----</td> <td>42.70</td> <td>36.37</td> <td>14.73</td> <td>38.64</td> <td>---</td> <td>--- Peak</td> </tr> <tr> <td>2</td> <td>7831.00</td> <td>64.75</td> <td>-----</td> <td>51.34</td> <td>36.86</td> <td>15.32</td> <td>38.77</td> <td>---</td> <td>--- Peak</td> </tr> <tr> <td>3</td> <td>8248.00</td> <td>55.20</td> <td>-----</td> <td>42.12</td> <td>36.98</td> <td>15.27</td> <td>39.17</td> <td>---</td> <td>--- Peak</td> </tr> </tbody> </table>	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	cm	deg		1	7667.00	55.16	-----	42.70	36.37	14.73	38.64	---	--- Peak	2	7831.00	64.75	-----	51.34	36.86	15.32	38.77	---	--- Peak	3	8248.00	55.20	-----	42.12	36.98	15.27	39.17	---	--- Peak
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3	6754.00	57.64	-----	45.45	35.81	14.38	38.00	---	--- Peak																																																																																												
Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark																																																																																												
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	cm	deg																																																																																													
1	7667.00	55.16	-----	42.70	36.37	14.73	38.64	---	--- Peak																																																																																												
2	7831.00	64.75	-----	51.34	36.86	15.32	38.77	---	--- Peak																																																																																												
3	8248.00	55.20	-----	42.12	36.98	15.27	39.17	---	--- Peak																																																																																												

### 3.3. Technical requirements for indoor UWB systems

#### 3.3.1. Technical Requirements for transmission Limit

FCC 15.517(a) (5) a communications system shall transmit only when the intentional radiator is sending information to an associated receiver.

#### 3.3.2. Measuring Instruments

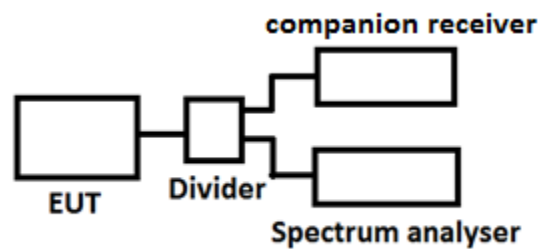
Refer a test equipment and calibration data table in this test report.

#### 3.3.3. Test Procedure

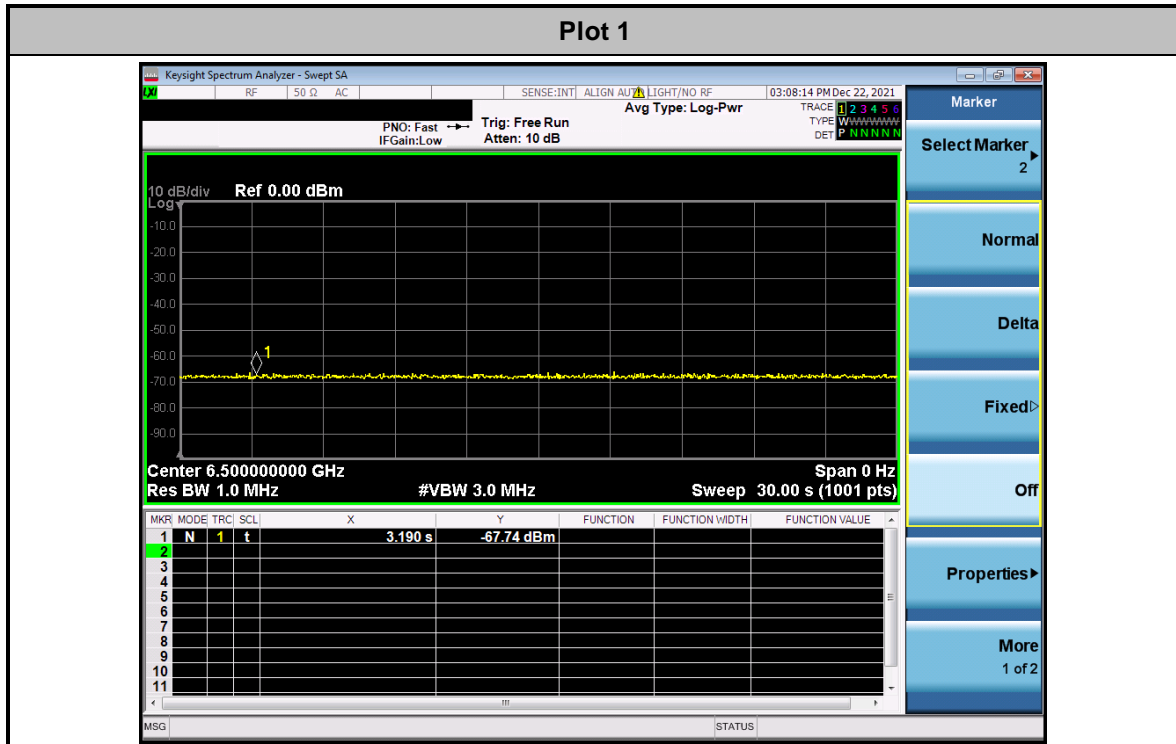
Follow the test step as below:

1. Turn on both EUT and companion receiver.
2. Check if the EUT transmit without setting up the companion receiver. (see plot 1 in clause 3.3.5)
3. Set the companion receiver to RX mode.
4. Set the EUT to associate the companion receiver and start to transmit.
5. Disable the RX function of the companion receiver to disassociate the EUT.
6. Check if EUT stop transmitting once step 5 is made. (see plot 2 in clause 3.3.5)

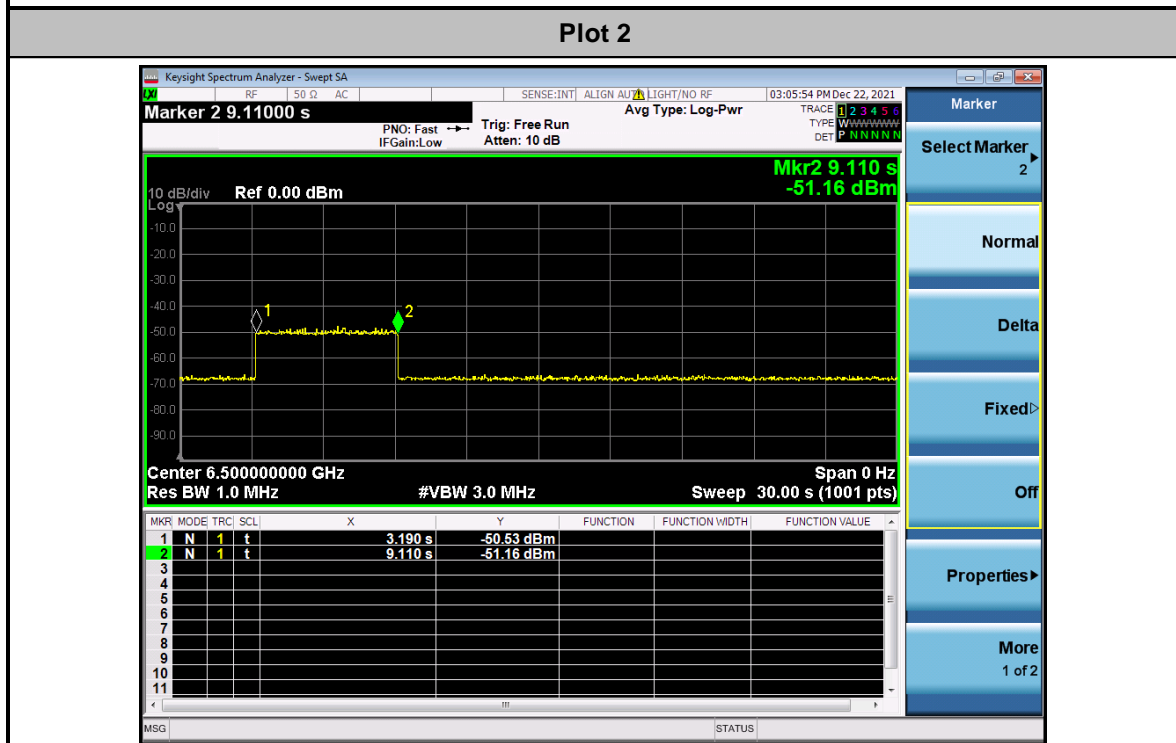
#### 3.3.4. Test Setup



3.3.5. Test Result



M1: Powering up EUT only.  
No Transmit. (noise floor only)



M1: EUT associates the companion receiver and start to transmit.  
M2: RX function of the companion receiver is disabled. EUT disassociates the companion receiver and stop transmitting.

### 3.4. Peak Power Measurement

#### 3.4.1. Peak Power Measurement Limit

Peak Power Measurement Limit
$P_{eirp} = 0 \text{ dBm}/50\text{MHz}$

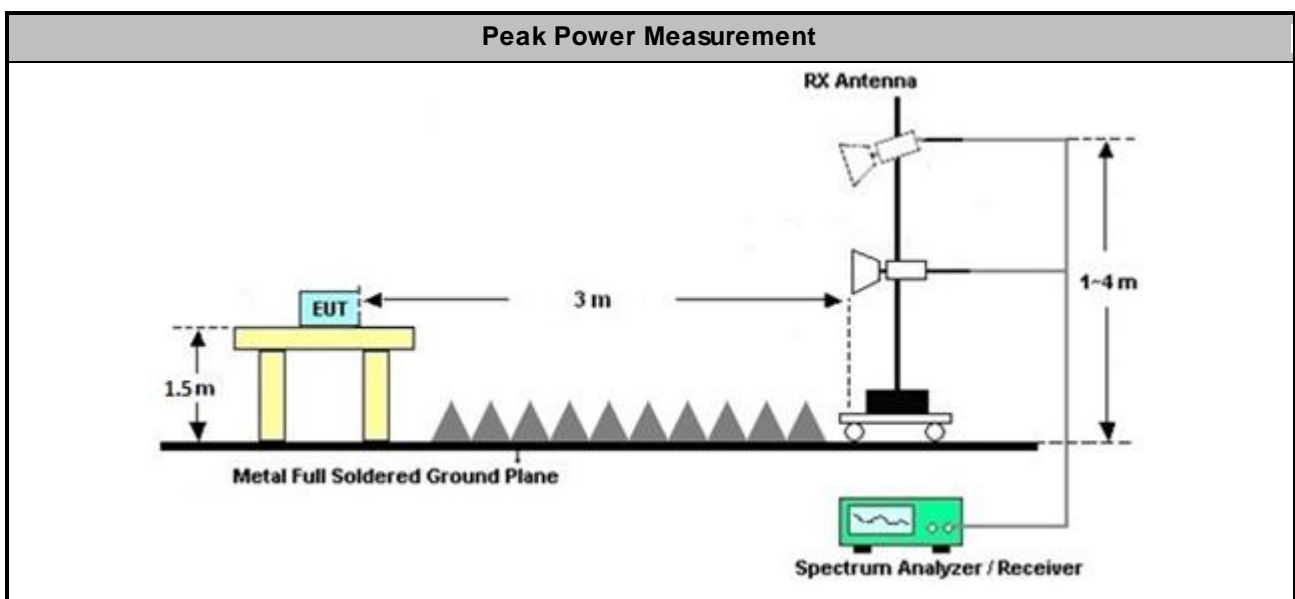
#### 3.4.2. Measuring Instruments

Refer a test equipment and calibration data table in this test report.

#### 3.4.3. Test Procedures

Test Method
<ul style="list-style-type: none"> <li>■ Peak Power Measurement</li> </ul>
<ul style="list-style-type: none"> <li>■ Refer as ANSI C63.10, clause 10.3.1 for radiated measurement procedure testing.</li> </ul>
<ul style="list-style-type: none"> <li>■ Refer as ANSI C63.10, clause 10.3.2 for measurement distance is 3m.</li> </ul>
<ul style="list-style-type: none"> <li>■ Refer as ANSI C63.10, clause 10.3.5 for peak detector procedure testing.</li> </ul>
<ul style="list-style-type: none"> <li>■ Refer as ANSI C63.10, clause 10.3.6 for bandwidth conversion of peak power.</li> </ul>
<ul style="list-style-type: none"> <li>■ Frequency of max peak power is pre-located: The span bandwidth is continuously reduced to find the worst frequency. Once the worst frequency is found, the setting of spectrum analyzer is set as below:               <ul style="list-style-type: none"> <li>• Central frequency: Worst frequency point</li> <li>• Span: Zero span</li> <li>• RBW: 40MHz</li> <li>• VBW: 40MHz</li> <li>• Detector: Peak detector</li> <li>• Trace: Max hold</li> </ul> </li> </ul>

#### 3.4.4. Test Setup







3.4.5. Test Result of Peak Power Measurement

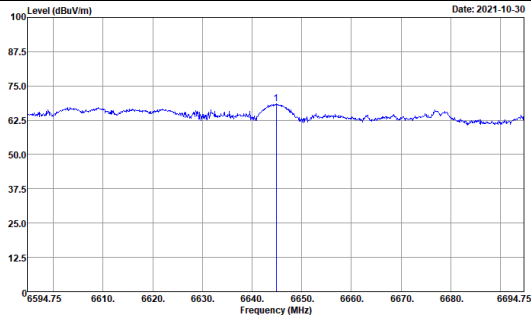
Peak Measurement Result								
Test Mode	Freq. (MHz)	E-Field (dBuV/m)	ERIP <sub>40MHz</sub> (dBm)	ERIP <sub>50MHz</sub> Limit (dBm)	EIRP <sub>40MHz</sub> Limit (dBm)	Margin (dB)	Result	Pol [H/V]
1	6644.85	88.31	-6.92	0	-1.94	-4.98	Pass	H
2	8142.05	86.71	-8.52	0	-1.94	-6.58	Pass	H
3	6524.55	88.53	-6.70	0	-1.94	-4.76	Pass	H
4	7830.90	83.69	-11.54	0	-1.94	-9.60	Pass	H

Note 1: EIRP [dBm] = E-Field [dBuV/m] - 95.23;  
Note 2: Bandwidth Correction Factor (BWCF) = 20 log (40MHz/50MHz).  
Note 3: EIRP<sub>40MHz</sub> Limit = EIRP<sub>50MHz</sub> Limit + BWCF, FCC Part 15.521(g).  
Note 4: Measurement worst emissions of receive antenna polarization.



Mode 1: CH 05\_Ant. 1

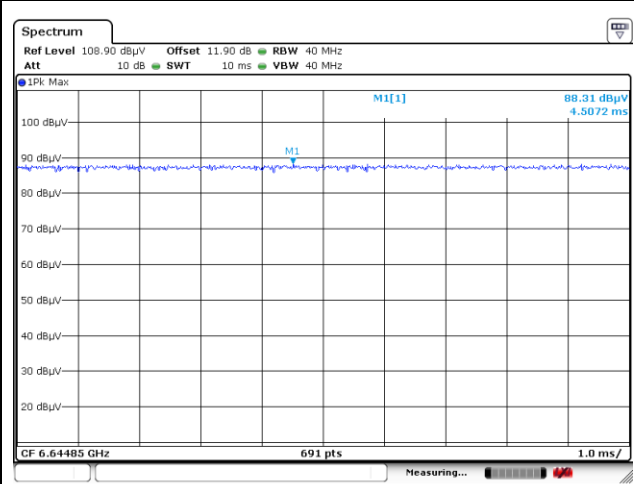
Pre-located worst frequency Plots



Site : 03CH20-HY  
 Condition : 3m 9120D\_002360\_1091103 HORIZONTAL  
 : RBW:1000.000KHz VBW:3000.000KHz SWT:3.000sec  
 Project : IO0638  
 EUT : #5  
 Channel : CH5  
 Setting : 30  
 span : 100MHz

Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	6644.85	68.39	-----	56.49	35.58	14.27	37.95	---	--- Peak

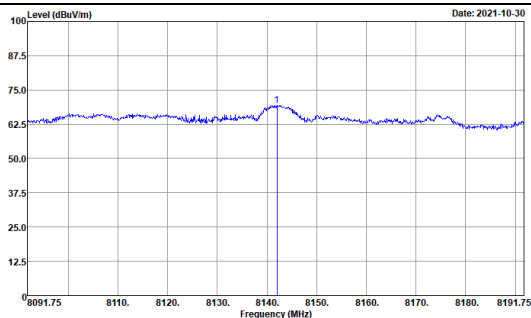
Peak Power Measurement Plots



Date: 30.OCT.2021 19:36:12

Mode 2: CH 09\_Ant. 1

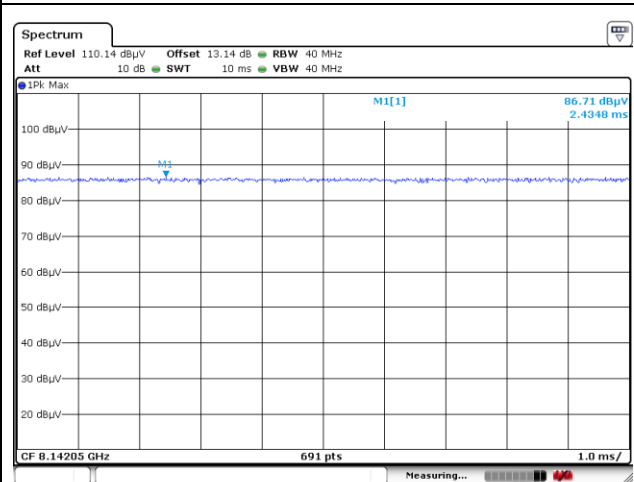
Pre-located worst frequency Plots



Site : 03CH20-HY  
 Condition : 3m 9120D\_002360\_1091103 HORIZONTAL  
 : RBW:1000.000KHz VBW:3000.000KHz SWT:3.000sec  
 Project : IO0638  
 EUT : #5  
 Channel : CH9  
 Setting : 32  
 span : 100MHz

Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	8142.85	69.30	-----	56.16	36.93	15.28	39.87	---	--- Peak

Peak Power Measurement Plots

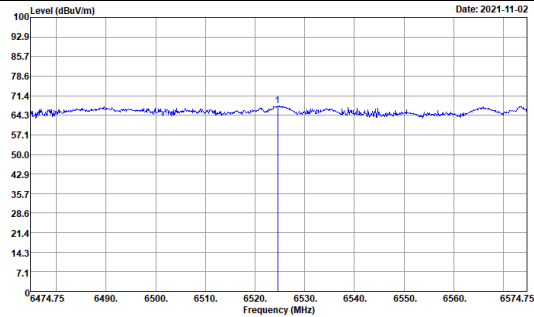


Date: 30.OCT.2021 22:45:40



Mode 3: CH 05\_Ant. 2

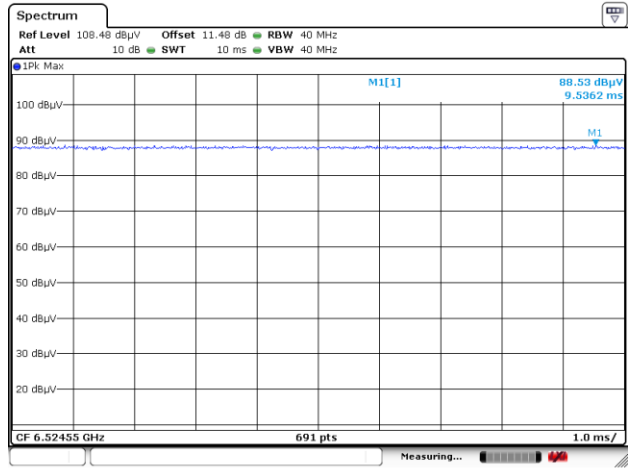
Pre-located worst frequency Plots



Site : 03CH20-HY  
 Condition : 3m 91200\_02294\_1110622 HORIZONTAL  
 : RBW:1000.000KHz VBW:3000.000KHz SWT:3.000sec  
 Project : IO0638  
 EUT : #5  
 Channel : CH5  
 Setting : 20  
 span : 100MHz

Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	6524.55	67.73	-----	56.25	35.25	14.13	37.90	---	--- Peak

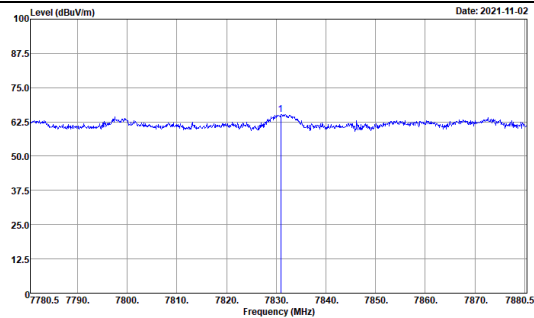
Peak Power Measurement Plots



Date: 2.NOV.2021 20:23:18

Mode 4: CH 09\_Ant. 2

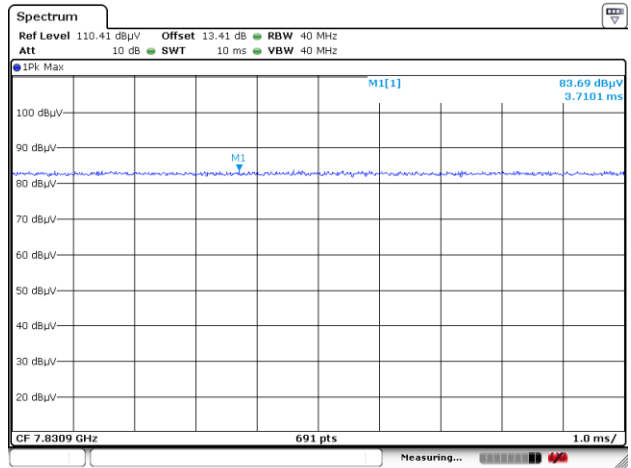
Pre-located worst frequency Plots



Site : 03CH20-HY  
 Condition : 3m 91200\_002360\_1091103 HORIZONTAL  
 : RBW:1000.000KHz VBW:3000.000KHz SWT:3.000sec  
 Project : IO0638  
 EUT : #5  
 Channel : CH9  
 Setting : 60  
 span : 100MHz

Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	7830.90	65.31	-----	51.90	36.86	15.32	38.77	---	--- Peak

Peak Power Measurement Plots



Date: 2.NOV.2021 19:41:23



### 3.5. Radiated Emissions

#### 3.5.1. Radiated Emissions Limit

Radiated Emissions below 960MHz and Emissions from Digital Circuitry Limit			
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (m)
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300
0.490~1.705	24000/F(kHz)	33.8 - 23	30
1.705~30.0	30	29	30
30~88	100	40	3
88~216	150	43.5	3
216~960	200	46	3
Above 960	500	54	3

Note 1: Test distance for frequencies at or above 30 MHz, measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

Note 2: Test distance for frequencies at below 30 MHz, measurements may be performed at a distance closer than the EUT limit distance; however, an attempt should be made to avoid making measurements in the near field. When performing measurements below 30 MHz at a closer distance than the limit distance, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two or more distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). The test report shall specify the extrapolation method used to determine compliance of the EUT.

Radiated Emissions above 960MHz Limit	
Frequency Range (MHz)	EIRP (dBm), RBW = 1MHz
960-1610	-75.3
1610-1990	-63.3
1990-3100	-51.3
3100-10600	-41.3
Above 10600	-51.3

Radiated Emissions in GPS Bands Limit	
Frequency Range (MHz)	EIRP (dBm), RBW ≥ 1kHz
1164-1240	-85.3
1559-1610	-85.3

Note E (dBuV/m) = EIRP (dBm) + 95.23, example, E(dBuV/m) = -85.3 + 95.23 = 9.93dBuV/m



### 3.5.2. Measuring Instruments

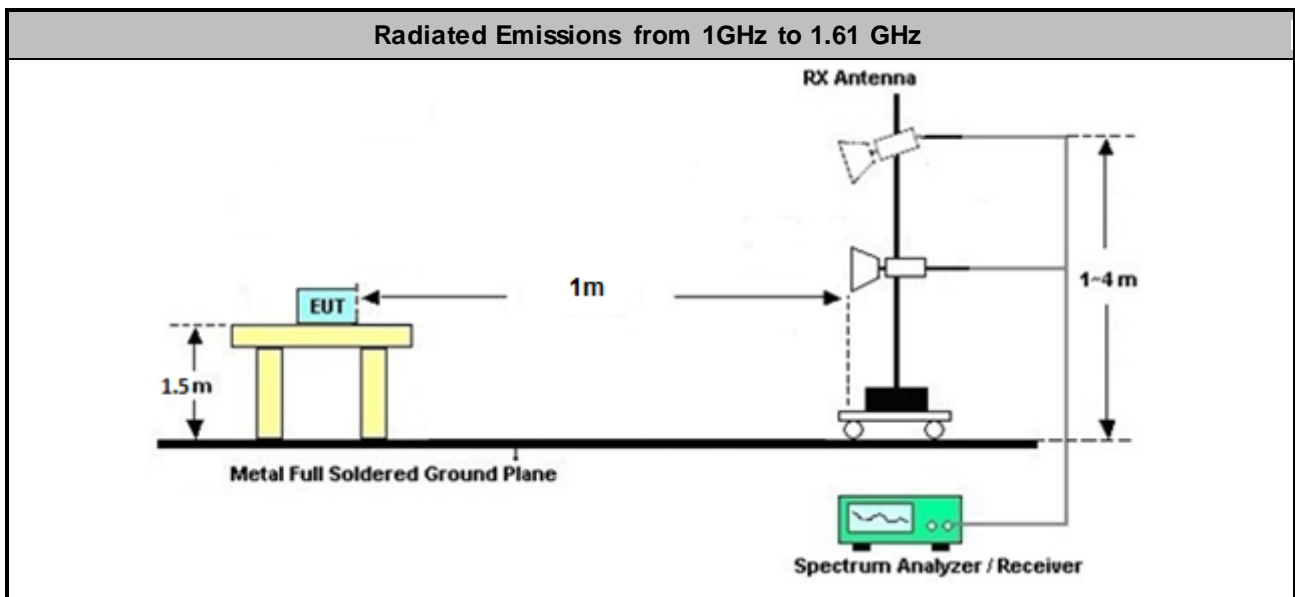
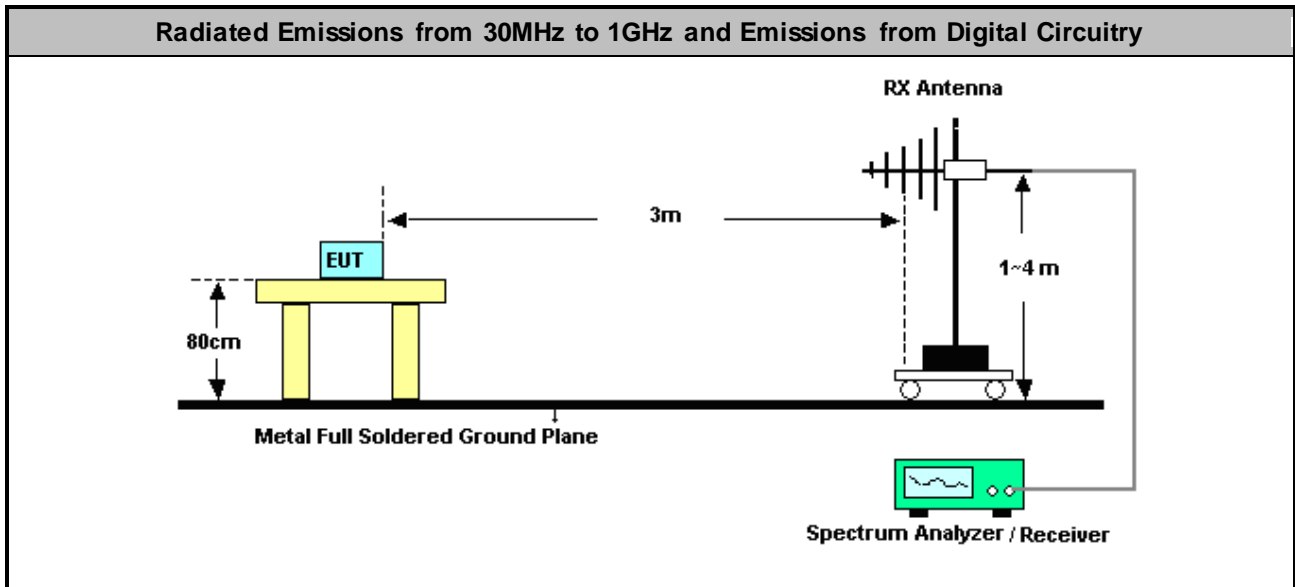
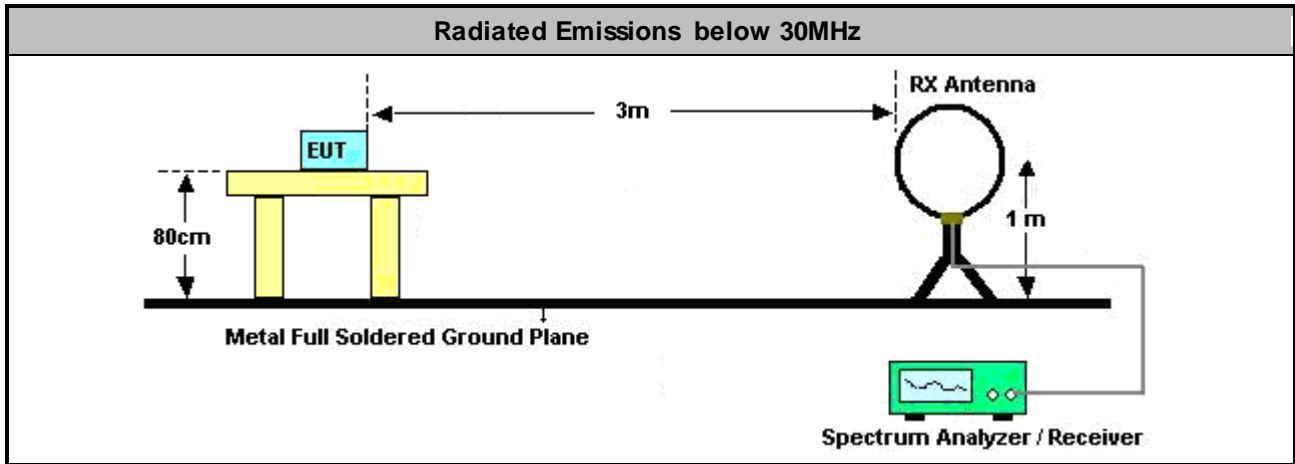
Refer a test equipment and calibration data table in this test report.

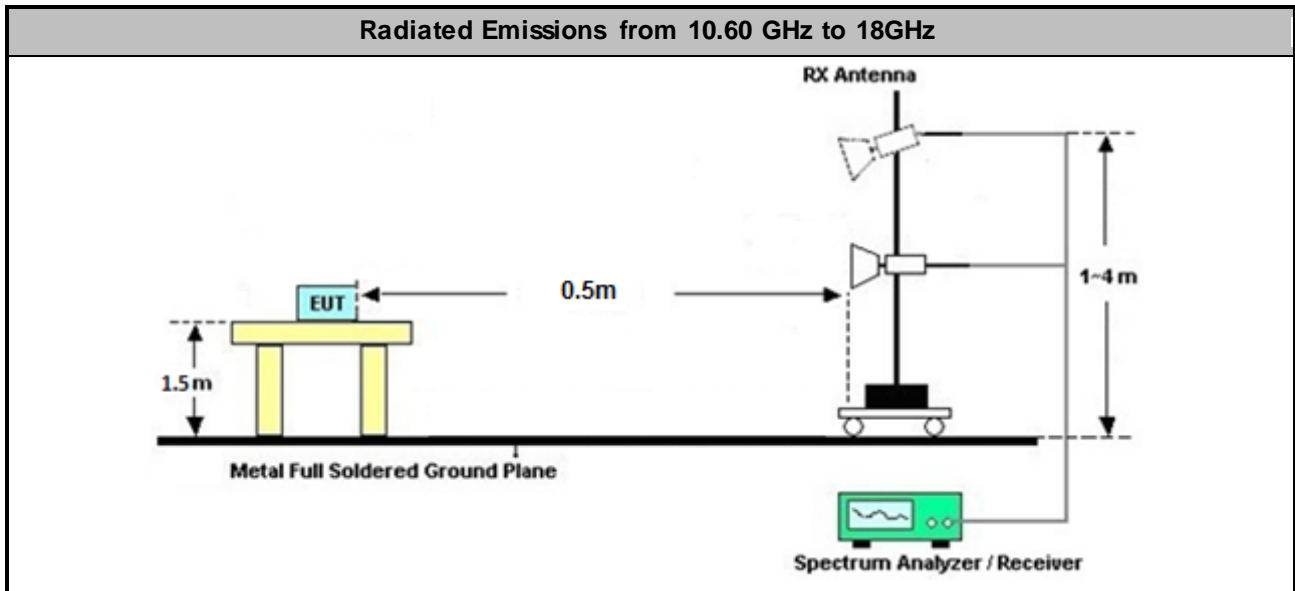
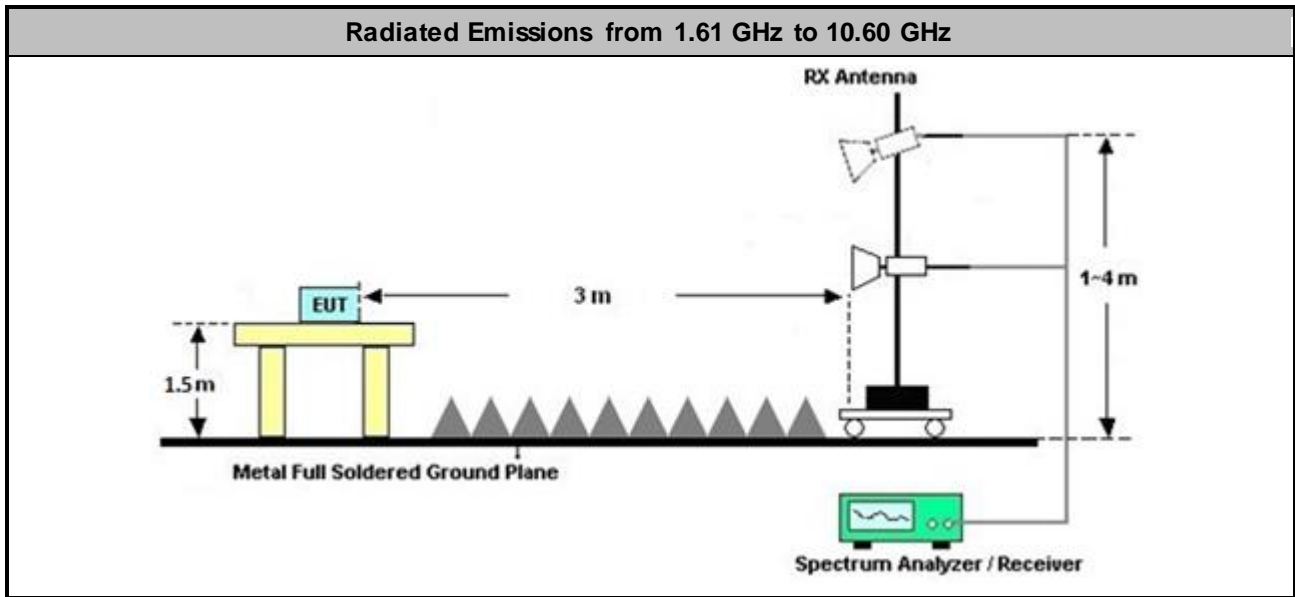
### 3.5.3. Test Procedures

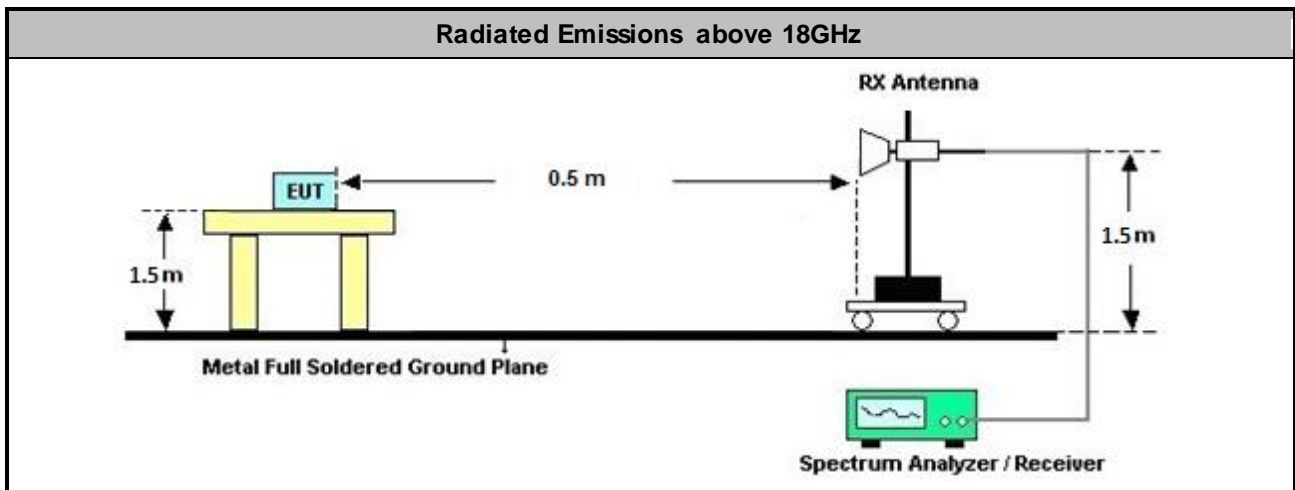
Test Method for Radiated Emissions above 960MHz	
<ul style="list-style-type: none"> <li>■ Radiated Emissions above 960MHz</li> </ul>	
■	Refer as ANSI C63.10, clause 10.3.1 for radiated measurement procedure testing.
■	Refer as ANSI C63.10, clause 10.3.2 for measurement distance is 3m. In some cases, it may be necessary to measure the radiated UWB emissions at a closer distance to obtain enough signal and margin to overcome the measurement system noise floor. Distance extrapolation factor = 20 log (test distance [X m]/specific distance [3 m]) (dB)
■	Refer as ANSI C63.10, clause 10.3.4 for rms detector procedure testing.
■	Refer as ANSI C63.10, clause 10.3.7 for evaluating AVG-PSD (RBW=1MHz).
■	Refer as ANSI C63.10, clause 10.3.10 for evaluating AVG-PSD in GPS Band (RBW≥1kHz).
<ul style="list-style-type: none"> <li>■ For radiated measurement.</li> </ul>	
■	Refer as ANSI C63.10, clause 10.3.8 following eirp can be used radiated test configuration.
■	Refer as ANSI C63.10, clause 10.3.9 following eirp can be directly determined using the field strength.

Test Method for Radiated Emissions below 960MHz and Emissions from Digital Circuitry	
<ul style="list-style-type: none"> <li>■ Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements) for above 30MHz-960MHz; 40dB/decade for frequency below 30MHz.</li> </ul>	
<ul style="list-style-type: none"> <li>■ For the transmitter unwanted emissions shall be measured using following options below:</li> </ul>	
■	Refer as ANSI C63.10, clause 4.1.4 Detector functions and selection of bandwidth
<input type="checkbox"/>	Refer as ANSI C63.10, clause 4.1.4.2.4 average value of pulsed emissions. Adjusted by a “duty cycle correction factor”, derived from 20log (dwell time/100 ms). Average emission = peak emission + 20 log (duty cycle).
■	Refer as ANSI C63.10, clause 4.1.4.2.2 measurement procedure peak limit.
<ul style="list-style-type: none"> <li>■ For radiated measurement.</li> </ul>	
■	Refer as ANSI C63.10, clause 6.4 for radiated emissions below 30 MHz and test distance is 3m.
■	Refer as ANSI C63.10, clause 6.5 for radiated emissions 30 MHz to 1 GHz and test distance is 3m.
■	Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1 GHz and test distance is 3m.
■	If the noise floor can't meet the limit, the test distance will be shorten and described in the report.
<ul style="list-style-type: none"> <li>■ Any unwanted emissions level shall not exceed the fundamental emission level.</li> </ul>	

**3.5.4. Test Setup**







Note 1: Magnetic field tests shall be performed in the frequency range of 9 kHz to 30 MHz using a calibrated loop antenna. Electric field tests shall be performed in the frequency range of 30 MHz to 1000 MHz using a calibrated bi-log antenna and the frequency range of 1 GHz to 40 GHz using a calibrated horn antenna.

Note 2: If test distance other than 3m is used, the used test distance will be recorded in test result.

**3.5.5. Radiated Emissions (Below 30MHz)**

All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

There is adequate comparison measurement of both open-field test site and alternative test site - semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, and the result came out very similar.





3.5.6. Radiated Emissions (Fundamental)

Test mode	Frequency (MHz)	Emission Level (dBuV/m)	Emission Limit (dBm/MHz)	Emission Limit (dBuV/m)	Margin (dB)	Result	Pol [H/V]
1	6591.00	52.69	-41.3	53.93	-1.24	Pass	H
2	7987.00	52.65	-41.3	53.93	-1.28	Pass	V
3	6490.00	52.72	-41.3	53.93	-1.21	Pass	H
4	7878.00	48.98	-41.3	53.93	-4.95	Pass	H

Radiated Emissions (Fundamental)																																																																			
Operating Function	Adapter Mode			Polarization	H																																																														
				Test Distance	3m																																																														
<b>Mode 1: CH 05_Ant. 1</b>																																																																			
<p>Date: 2021-11-03</p> <p>Site : 03CH20-HY            Condition : FCC_UWB_HAND 3m 9120b_002360_1091103 HORIZONTAL            : RBW:1000.000kHz VBW:3000.000kHz SWT:1.000sec            Project : I00638            EUT : #5            Channel : CH5            Setting : 30</p> <table border="1" style="width:100%; border-collapse: collapse; font-size: small;"> <thead> <tr> <th>Freq</th> <th>Level</th> <th>Over Limit</th> <th>Limit Line</th> <th>ReadAntenna Level Factor</th> <th>Cable Loss Factor</th> <th>Preamp Loss Factor</th> <th>A/Pos</th> <th>T/Pos</th> <th>Remark</th> </tr> <tr> <th>MHz</th> <th>dBuV/m</th> <th>dB</th> <th>dBuV/m</th> <th>dBuV</th> <th>dB/m</th> <th>dB</th> <th>dB</th> <th>cm</th> <th>deg</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>6591.00</td> <td>52.69</td> <td>-1.24</td> <td>53.93</td> <td>41.02</td> <td>35.38</td> <td>14.22</td> <td>37.93</td> <td>--- Average</td> </tr> </tbody> </table>								Freq	Level	Over Limit	Limit Line	ReadAntenna Level Factor	Cable Loss Factor	Preamp Loss Factor	A/Pos	T/Pos	Remark	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	1	6591.00	52.69	-1.24	53.93	41.02	35.38	14.22	37.93	--- Average																														
Freq	Level	Over Limit	Limit Line	ReadAntenna Level Factor	Cable Loss Factor	Preamp Loss Factor	A/Pos	T/Pos	Remark																																																										
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg																																																										
1	6591.00	52.69	-1.24	53.93	41.02	35.38	14.22	37.93	--- Average																																																										
<b>Mode 3: CH 05_Ant. 2</b>				<b>Mode 4: CH 09_Ant. 2</b>																																																															
<p>Date: 2021-11-02</p> <p>Site : 03CH20-HY            Condition : FCC_UWB_HAND 3m 9120b_02294_1110622 HORIZONTAL            : RBW:1000.000kHz VBW:3000.000kHz SWT:1.000sec            Project : I00638            EUT : #5            Channel : CH5            Setting : 20</p> <table border="1" style="width:100%; border-collapse: collapse; font-size: small;"> <thead> <tr> <th>Freq</th> <th>Level</th> <th>Over Limit</th> <th>Limit Line</th> <th>ReadAntenna Level Factor</th> <th>Cable Loss Factor</th> <th>Preamp Loss Factor</th> <th>A/Pos</th> <th>T/Pos</th> <th>Remark</th> </tr> <tr> <th>MHz</th> <th>dBuV/m</th> <th>dB</th> <th>dBuV/m</th> <th>dBuV</th> <th>dB/m</th> <th>dB</th> <th>dB</th> <th>cm</th> <th>deg</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>6490.00</td> <td>52.72</td> <td>-1.21</td> <td>53.93</td> <td>41.49</td> <td>35.04</td> <td>14.08</td> <td>37.89</td> <td>--- Average</td> </tr> </tbody> </table>				Freq	Level	Over Limit	Limit Line	ReadAntenna Level Factor	Cable Loss Factor	Preamp Loss Factor	A/Pos	T/Pos	Remark	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	1	6490.00	52.72	-1.21	53.93	41.49	35.04	14.08	37.89	--- Average	<p>Date: 2021-11-02</p> <p>Site : 03CH20-HY            Condition : FCC_UWB_HAND 3m 9120b_002360_1091103 HORIZONTAL            : RBW:1000.000kHz VBW:3000.000kHz SWT:1.000sec            Project : I00638            EUT : #5            Channel : CH9            Setting : 60</p> <table border="1" style="width:100%; border-collapse: collapse; font-size: small;"> <thead> <tr> <th>Freq</th> <th>Level</th> <th>Over Limit</th> <th>Limit Line</th> <th>ReadAntenna Level Factor</th> <th>Cable Loss Factor</th> <th>Preamp Loss Factor</th> <th>A/Pos</th> <th>T/Pos</th> <th>Remark</th> </tr> <tr> <th>MHz</th> <th>dBuV/m</th> <th>dB</th> <th>dBuV/m</th> <th>dBuV</th> <th>dB/m</th> <th>dB</th> <th>dB</th> <th>cm</th> <th>deg</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>7878.00</td> <td>48.98</td> <td>-4.95</td> <td>53.93</td> <td>35.45</td> <td>36.96</td> <td>15.38</td> <td>38.81</td> <td>--- Average</td> </tr> </tbody> </table>				Freq	Level	Over Limit	Limit Line	ReadAntenna Level Factor	Cable Loss Factor	Preamp Loss Factor	A/Pos	T/Pos	Remark	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	1	7878.00	48.98	-4.95	53.93	35.45	36.96	15.38	38.81	--- Average
Freq	Level	Over Limit	Limit Line	ReadAntenna Level Factor	Cable Loss Factor	Preamp Loss Factor	A/Pos	T/Pos	Remark																																																										
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Freq	Level	Over Limit	Limit Line	ReadAntenna Level Factor	Cable Loss Factor	Preamp Loss Factor	A/Pos	T/Pos	Remark																																																										
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg																																																										
1	7878.00	48.98	-4.95	53.93	35.45	36.96	15.38	38.81	--- Average																																																										



Radiated Emissions (Fundamental)																																							
Operating Function	Adapter Mode	Polarization	V																																				
		Test Distance	3m																																				
		<b>Mode 2: CH 09_Ant. 1</b>																																					
		<p>Date: 2021-11-03</p> <p>Site : 03CH20-HY            Condition : FCC_UWB_HANd 3m 9120D_002360_1091103 VERTICAL            : RBW:1000.000KHz VBW:3000.000KHz SWT:1.000sec            Project : J00638            EUT : #5            Channel : CH9            Setting : 32</p> <table border="1"> <thead> <tr> <th>Over</th> <th>Limit</th> <th>ReadAntenna</th> <th>Cable</th> <th>Preamp</th> <th>A/Pos</th> <th>T/Pos</th> <th>Remark</th> </tr> <tr> <th>Freq</th> <th>Level</th> <th>Limit</th> <th>Level</th> <th>Factor</th> <th>Loss</th> <th>Factor</th> <th></th> </tr> <tr> <th>MHz</th> <th>dBuV/m</th> <th>dB</th> <th>dBuV/m</th> <th>dBuV</th> <th>dB/m</th> <th>dB</th> <th>dB</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>7987.00</td> <td>52.65</td> <td>-1.28</td> <td>53.93</td> <td>39.03</td> <td>37.00</td> <td>15.52</td> <td>38.90</td> <td>---</td> <td>---</td> <td>Average</td> </tr> </tbody> </table>		Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark	Freq	Level	Limit	Level	Factor	Loss	Factor		MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	1	7987.00	52.65	-1.28	53.93	39.03	37.00	15.52	38.90	---	---	Average
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3.5.7. Radiated Emissions (30MHz – 1GHz)

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Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: Peak emission setting: RBW=120kHz; VBW = 300kHz.

Note 5:

- Distance extrapolation factor = 20 log (test distance [X m]/specific distance [3 m]) (dB)
- Corrected Reading: Antenna Factor (dB/m) + Cable Loss (dB) + Read Level (dBuV) - Preamp Factor (dB) + Aux Factor (dB) = Level (dBuV/m)  
(Note: Aux Factor = Filter loss (dB), Aux 2 Factor = Distance extrapolation factor (dB))



**Radiated Emissions (30MHz – 1GHz)**

<b>Test Mode</b>	Mode 2: CH 09_Ant. 1		
<b>Operating Function</b>	Adapter Mode	<b>Test Distance</b>	3m

Polarization: H	Polarization: V																																																																																																																																																																																																
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3	183.72	35.95	-7.55	43.50	53.26	16.56	1.70	35.64	0.07	0.00	100 89 QP																																																																																																																																																																																						
4	159.98	32.68	-10.82	43.50	49.67	16.36	2.12	35.55	0.08	0.00	--- Peak																																																																																																																																																																																						
5	729.37	32.51	-13.49	46.00	34.45	27.26	4.60	33.96	0.16	0.00	--- Peak																																																																																																																																																																																						
6	903.00	39.45	-6.55	46.00	30.53	28.76	5.13	33.34	0.37	0.00	--- Peak																																																																																																																																																																																						

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.  
 Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)  
 Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)  
 Note 4: Peak emission setting: RBW=120kHz; VBW = 300kHz.  
 Note 5:

- Distance extrapolation factor = 20 log (test distance [X m]/specific distance [3 m]) (dB)
- Corrected Reading: Antenna Factor (dB/m) + Cable Loss (dB) + Read Level (dBuV) - Preamp Factor (dB) + Aux Factor (dB) = Level (dBuV/m)  
 (Note: Aux Factor = Filter loss (dB), Aux 2 Factor = Distance extrapolation factor (dB))



**Radiated Emissions (30MHz – 1GHz)**

<b>Test Mode</b>	Mode 3: CH 05_Ant. 2		
<b>Operating Function</b>	Adapter Mode	<b>Test Distance</b>	3m

Polarization: H		Polarization: V																																																																																																																																																																																																	
<p>Site : 03CH20-HY            Condition : QP 3m LF_55606408_1101017 HORIZONTAL            Project : 100638            EUT : #5            Channel : CH5            Setting : 20            AV6 Type : RMS            Trace : Max Hold</p> <table border="1"> <thead> <tr> <th>Freq</th> <th>Level</th> <th>Over</th> <th>Limit</th> <th>ReadAntenna</th> <th>Cable</th> <th>Preamp</th> <th>Aux</th> <th>Aux2</th> <th>A/Pos</th> <th>T/Pos</th> <th>Remark</th> </tr> <tr> <th>MHz</th> <th>dBuV/m</th> <th>dB</th> <th>dBuV/m</th> <th>dBuV</th> <th>dB/m</th> <th>dB</th> <th>dB</th> <th>dB</th> <th>cm</th> <th>deg</th> <th></th> </tr> </thead> <tbody> <tr><td>1</td><td>34.85</td><td>23.38</td><td>-16.62</td><td>40.00</td><td>36.10</td><td>21.96</td><td>1.02</td><td>35.72</td><td>0.02</td><td>0.00</td><td>--- Peak</td></tr> <tr><td>2</td><td>111.48</td><td>29.77</td><td>-13.73</td><td>43.50</td><td>46.38</td><td>17.19</td><td>1.76</td><td>35.63</td><td>0.07</td><td>0.00</td><td>--- Peak</td></tr> <tr><td>3</td><td>185.20</td><td>33.59</td><td>-9.93</td><td>43.50</td><td>52.02</td><td>14.73</td><td>2.29</td><td>35.51</td><td>0.06</td><td>0.00</td><td>--- Peak</td></tr> <tr><td>4</td><td>217.21</td><td>35.90</td><td>-10.10</td><td>46.00</td><td>53.72</td><td>15.06</td><td>2.49</td><td>35.44</td><td>0.07</td><td>0.00</td><td>--- Peak</td></tr> <tr><td>5</td><td>297.72</td><td>29.04</td><td>-16.96</td><td>46.00</td><td>41.99</td><td>19.29</td><td>2.93</td><td>35.26</td><td>0.09</td><td>0.00</td><td>--- Peak</td></tr> <tr><td>6</td><td>729.37</td><td>35.04</td><td>-10.96</td><td>46.00</td><td>36.98</td><td>27.26</td><td>4.60</td><td>33.96</td><td>0.16</td><td>0.00</td><td>--- Peak</td></tr> </tbody> </table>		Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Aux	Aux2	A/Pos	T/Pos	Remark	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	dB	cm	deg		1	34.85	23.38	-16.62	40.00	36.10	21.96	1.02	35.72	0.02	0.00	--- Peak	2	111.48	29.77	-13.73	43.50	46.38	17.19	1.76	35.63	0.07	0.00	--- Peak	3	185.20	33.59	-9.93	43.50	52.02	14.73	2.29	35.51	0.06	0.00	--- Peak	4	217.21	35.90	-10.10	46.00	53.72	15.06	2.49	35.44	0.07	0.00	--- Peak	5	297.72	29.04	-16.96	46.00	41.99	19.29	2.93	35.26	0.09	0.00	--- Peak	6	729.37	35.04	-10.96	46.00	36.98	27.26	4.60	33.96	0.16	0.00	--- Peak	<p>Site : 03CH20-HY            Condition : QP 3m LF_55606408_1101017 VERTICAL            Project : 100638            EUT : #5            Channel : CH5            Setting : 20            AV6 Type : RMS            Trace : Max Hold</p> <table border="1"> <thead> <tr> <th>Freq</th> <th>Level</th> <th>Over</th> <th>Limit</th> <th>ReadAntenna</th> <th>Cable</th> <th>Preamp</th> <th>Aux</th> <th>Aux2</th> <th>A/Pos</th> <th>T/Pos</th> <th>Remark</th> </tr> <tr> <th>MHz</th> <th>dBuV/m</th> <th>dB</th> <th>dBuV/m</th> <th>dBuV</th> <th>dB/m</th> <th>dB</th> <th>dB</th> <th>dB</th> <th>cm</th> <th>deg</th> <th></th> </tr> </thead> <tbody> <tr><td>1</td><td>35.82</td><td>34.57</td><td>-5.43</td><td>40.00</td><td>47.75</td><td>21.49</td><td>1.03</td><td>35.72</td><td>0.02</td><td>0.00</td><td>100 23 QP</td></tr> <tr><td>2</td><td>58.13</td><td>32.94</td><td>-7.06</td><td>40.00</td><td>55.41</td><td>11.96</td><td>1.25</td><td>35.71</td><td>0.03</td><td>0.00</td><td>100 358 QP</td></tr> <tr><td>3</td><td>102.75</td><td>36.43</td><td>-7.07</td><td>43.50</td><td>53.89</td><td>16.43</td><td>1.69</td><td>35.65</td><td>0.07</td><td>0.00</td><td>113 71 QP</td></tr> <tr><td>4</td><td>161.92</td><td>32.90</td><td>-10.60</td><td>43.50</td><td>50.09</td><td>16.14</td><td>2.13</td><td>35.54</td><td>0.08</td><td>0.00</td><td>--- Peak</td></tr> <tr><td>5</td><td>205.57</td><td>32.61</td><td>-10.89</td><td>43.50</td><td>50.52</td><td>15.08</td><td>2.42</td><td>35.47</td><td>0.06</td><td>0.00</td><td>--- Peak</td></tr> <tr><td>6</td><td>729.37</td><td>34.71</td><td>-11.29</td><td>46.00</td><td>36.65</td><td>27.36</td><td>4.60</td><td>33.96</td><td>0.16</td><td>0.00</td><td>--- Peak</td></tr> </tbody> </table>		Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Aux	Aux2	A/Pos	T/Pos	Remark	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	dB	cm	deg		1	35.82	34.57	-5.43	40.00	47.75	21.49	1.03	35.72	0.02	0.00	100 23 QP	2	58.13	32.94	-7.06	40.00	55.41	11.96	1.25	35.71	0.03	0.00	100 358 QP	3	102.75	36.43	-7.07	43.50	53.89	16.43	1.69	35.65	0.07	0.00	113 71 QP	4	161.92	32.90	-10.60	43.50	50.09	16.14	2.13	35.54	0.08	0.00	--- Peak	5	205.57	32.61	-10.89	43.50	50.52	15.08	2.42	35.47	0.06	0.00	--- Peak	6	729.37	34.71	-11.29	46.00	36.65	27.36	4.60	33.96	0.16	0.00	--- Peak
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Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.  
 Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)  
 Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)  
 Note 4: Peak emission setting: RBW=120kHz; VBW = 300kHz.  
 Note 5:

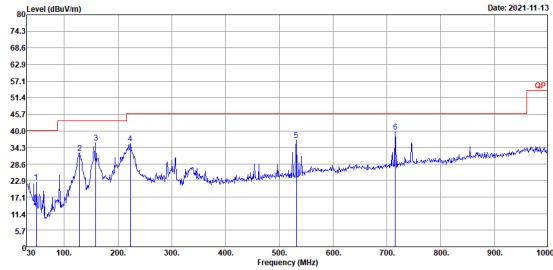
- Distance extrapolation factor = 20 log (test distance [X m]/specific distance [3 m]) (dB)
- Corrected Reading: Antenna Factor (dB/m) + Cable Loss (dB) + Read Level (dBuV) - Preamp Factor (dB) + Aux Factor (dB) = Level (dBuV/m)  
 (Note: Aux Factor = Filter loss (dB), Aux 2 Factor = Distance extrapolation factor (dB))



**Radiated Emissions (30MHz – 1GHz)**

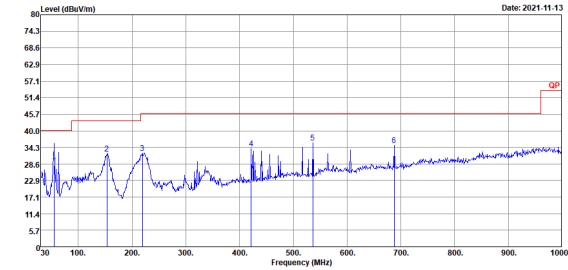
<b>Test Mode</b>	Mode 4: CH 09_Ant. 2		
<b>Operating Function</b>	Adapter Mode	<b>Test Distance</b>	3m

<b>Polarization: H</b>		<b>Polarization: V</b>	
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Site : 03CH20-HY  
 Condition : QP 3m LF\_55606408\_1101017 HORIZONTAL  
 Project : 100638  
 EUT : #5  
 Channel : CH9  
 Setting : 60  
 AV6 Type : RMS  
 Trace : Max Hold

Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Aux	Aux2	A/Pos	T/Pos	Remark
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	dB	cm	deg	
1	47.46	22.28	-17.72	40.00	41.57	15.29	1.12	35.72	0.02	0.00	--- Peak
2	128.94	32.32	-11.18	43.50	48.46	17.48	1.90	35.60	0.08	0.00	--- Peak
3	159.01	35.87	-7.63	43.50	52.79	16.44	2.11	35.55	0.08	0.00	--- Peak
4	223.03	35.60	-10.40	46.00	53.02	15.42	2.52	35.43	0.07	0.00	--- Peak
5	531.49	36.67	-9.33	46.00	43.30	23.95	3.93	34.64	0.13	0.00	--- Peak
6	715.79	39.56	-6.44	46.00	42.24	26.62	4.56	34.01	0.15	0.00	--- Peak



Site : 03CH20-HY  
 Condition : QP 3m LF\_55606408\_1101017 VERTICAL  
 Project : 100638  
 EUT : #5  
 Channel : CH9  
 Setting : 60  
 AV6 Type : RMS  
 Trace : Max Hold

Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Aux	Aux2	A/Pos	T/Pos	Remark
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	dB	cm	deg	
1	55.22	28.04	-11.96	40.00	49.85	12.65	1.22	35.71	0.03	0.00	100 242 QP
2	153.19	32.18	-11.32	43.50	48.63	16.96	2.07	35.56	0.08	0.00	--- Peak
3	219.15	32.32	-13.68	46.00	58.05	15.14	2.50	35.44	0.07	0.00	--- Peak
4	421.88	33.88	-12.12	46.00	42.44	22.76	3.50	34.91	0.09	0.00	--- Peak
5	536.34	35.92	-10.08	46.00	42.48	23.98	3.95	34.62	0.13	0.00	--- Peak
6	687.66	34.94	-11.06	46.00	38.29	26.15	4.47	34.11	0.14	0.00	--- Peak

- Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.  
 Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)  
 Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)  
 Note 4: Peak emission setting: RBW=120kHz; VBW = 300kHz.  
 Note 5:
- Distance extrapolation factor = 20 log (test distance [X m]/specific distance [3 m]) (dB)
  - Corrected Reading: Antenna Factor (dB/m) + Cable Loss (dB) + Read Level (dBuV) - Preamp Factor (dB) + Aux Factor (dB) = Level (dBuV/m)  
 (Note: Aux Factor = Filter loss (dB), Aux 2 Factor = Distance extrapolation factor (dB))



3.5.8. Radiated Emissions (960MHz – 18GHz)

Radiated Emissions (960MHz – 18GHz)	
Test Mode	Mode 1: CH 05_Ant. 1
Operating Function	Adapter Mode
Test Distance	The test distance between the receiving antenna and the EUT is as following: 3 m for 1.61 GHz ~ 10.60 GHz frequency range 1 m for 1 GHz ~ 1.61 GHz 0.5 m for other frequency ranges.

Polarization: H												Polarization: V																																																																																																																																																																																																																							
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 Note 4: Average emission setting outside GPS Bands: RBW=1MHz; VBW=3MHz.  
 Note 5: Average emission setting in GPS bands: RBW=100kHz; VBW=300kHz.  
 Note 6: #5 is fundamental signal.  
 Note 7:  
 • Distance extrapolation factor = 20 log (test distance [X m]/specific distance [3 m]) (dB)  
 • Corrected Reading: Antenna Factor (dB/m) + Cable Loss (dB) + Read Level (dBuV) - Preamp Factor (dB) + Aux Factor (dB) = Level (dBuV/m)  
 (Note: For Frequency below 1GHz, Aux Factor = Filter loss (dB), Aux 2 Factor = Distance extrapolation factor (dB); For Frequency above 1GHz, Aux Factor = Distance extrapolation factor (dB), Aux 2 Factor = Filter loss (dB))



Radiated Emissions (960MHz – 18GHz)	
<b>Test Mode</b>	Mode 2: CH 09_Ant. 1
<b>Operating Function</b>	Adapter Mode
<b>Test Distance</b>	The test distance between the receiving antenna and the EUT is as following: 3 m for 1.61 GHz ~ 10.60 GHz frequency range 1 m for 1 GHz ~ 1.61 GHz 0.5 m for other frequency ranges.

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 Note 5: Average emission setting in GPS bands: RBW=100kHz; VBW=300kHz.  
 Note 6: #5 is fundamental signal.  
 Note 7:

- Distance extrapolation factor = 20 log (test distance [X m]/specific distance [3 m]) (dB)
- Corrected Reading: Antenna Factor (dB/m) + Cable Loss (dB) + Read Level (dBuV) - Preamp Factor (dB) + Aux Factor (dB) = Level (dBuV/m)  
 (Note: For Frequency below 1GHz, Aux Factor = Filter loss (dB), Aux 2 Factor = Distance extrapolation factor (dB); For Frequency above 1GHz, Aux Factor = Distance extrapolation factor (dB), Aux 2 Factor = Filter loss (dB))





Radiated Emissions (960MHz – 18GHz)	
<b>Test Mode</b>	Mode 3: CH 05_Ant. 2
<b>Operating Function</b>	Adapter Mode
<b>Test Distance</b>	The test distance between the receiving antenna and the EUT is as following: 3 m for 1.61 GHz ~ 10.60 GHz frequency range 1 m for 1 GHz ~ 1.61 GHz 0.5 m for other frequency ranges.

Polarization: H																																																		Polarization: V																																																																																																																																																																																																																																																																	
<p>Site : 03CH20-HY Condition : FCC_UWB_INDOOR 3m 9120d_02294_1110622 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:7.500sec</p> <p>Project : 100638 EUT : #5 Channel : CH5 Setting : 20 AVG Type : RMS Trace : Max Hold</p> <table border="1"> <thead> <tr> <th>Freq</th> <th>Level</th> <th>Over</th> <th>Limit</th> <th>Read</th> <th>Antenna</th> <th>Cable</th> <th>Preamp</th> <th>Aux</th> <th>Aux2</th> <th>A/Pos</th> <th>T/Pos</th> <th>Remark</th> </tr> <tr> <th>MHz</th> <th>dBuV/m</th> <th>dB</th> <th>dBuV/m</th> <th>dBuV</th> <th>dB/m</th> <th>dB</th> <th>dB</th> <th>dB</th> <th>dB</th> <th>cm</th> <th>deg</th> <th></th> </tr> </thead> <tbody> <tr><td>1</td><td>977.16</td><td>15.92</td><td>-4.01</td><td>19.93</td><td>28.31</td><td>30.49</td><td>5.32</td><td>33.04</td><td>0.40</td><td>-15.56</td><td>105</td><td>129 Average</td></tr> <tr><td>2</td><td>1161.04</td><td>17.82</td><td>-2.11</td><td>19.93</td><td>31.33</td><td>25.84</td><td>5.82</td><td>35.63</td><td>-9.54</td><td>0.00</td><td>100</td><td>115 Average</td></tr> <tr><td>3</td><td>1951.62</td><td>26.84</td><td>-15.09</td><td>41.93</td><td>29.11</td><td>26.21</td><td>7.56</td><td>36.04</td><td>0.00</td><td>0.00</td><td>111</td><td>107 Average</td></tr> <tr><td>4</td><td>2422.90</td><td>30.03</td><td>-13.90</td><td>43.93</td><td>30.40</td><td>27.39</td><td>8.45</td><td>36.20</td><td>0.00</td><td>0.00</td><td>121</td><td>135 Average</td></tr> <tr><td>5</td><td>6505.00</td><td>52.31</td><td>-1.62</td><td>53.93</td><td>40.97</td><td>35.13</td><td>14.10</td><td>37.89</td><td>0.00</td><td>0.00</td><td>100</td><td>116 Average</td></tr> <tr><td>6</td><td>17985.20</td><td>28.56</td><td>-15.37</td><td>43.93</td><td>23.84</td><td>41.70</td><td>23.89</td><td>45.31</td><td>-15.56</td><td>0.00</td><td>153</td><td>45 Average</td></tr> </tbody> </table>																																																		Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Aux	Aux2	A/Pos	T/Pos	Remark	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	dB	dB	cm	deg		1	977.16	15.92	-4.01	19.93	28.31	30.49	5.32	33.04	0.40	-15.56	105	129 Average	2	1161.04	17.82	-2.11	19.93	31.33	25.84	5.82	35.63	-9.54	0.00	100	115 Average	3	1951.62	26.84	-15.09	41.93	29.11	26.21	7.56	36.04	0.00	0.00	111	107 Average	4	2422.90	30.03	-13.90	43.93	30.40	27.39	8.45	36.20	0.00	0.00	121	135 Average	5	6505.00	52.31	-1.62	53.93	40.97	35.13	14.10	37.89	0.00	0.00	100	116 Average	6	17985.20	28.56	-15.37	43.93	23.84	41.70	23.89	45.31	-15.56	0.00	153	45 Average	<p>Site : 03CH20-HY Condition : FCC_UWB_INDOOR 3m 9120d_02294_1110622 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:7.500sec</p> <p>Project : 100638 EUT : #5 Channel : CH5 Setting : 20 AVG Type : RMS Trace : Max Hold</p> <table border="1"> <thead> <tr> <th>Freq</th> <th>Level</th> <th>Over</th> <th>Limit</th> <th>Read</th> <th>Antenna</th> <th>Cable</th> <th>Preamp</th> <th>Aux</th> <th>Aux2</th> <th>A/Pos</th> <th>T/Pos</th> <th>Remark</th> </tr> <tr> <th>MHz</th> <th>dBuV/m</th> <th>dB</th> <th>dBuV/m</th> <th>dBuV</th> <th>dB/m</th> <th>dB</th> <th>dB</th> <th>dB</th> <th>dB</th> <th>cm</th> <th>deg</th> <th></th> </tr> </thead> <tbody> <tr><td>1</td><td>977.68</td><td>15.92</td><td>-4.01</td><td>19.93</td><td>28.33</td><td>30.47</td><td>5.32</td><td>33.04</td><td>0.40</td><td>-15.56</td><td>109</td><td>76 Average</td></tr> <tr><td>2</td><td>1250.71</td><td>17.71</td><td>-2.22</td><td>19.93</td><td>30.98</td><td>25.90</td><td>6.04</td><td>35.67</td><td>-9.54</td><td>0.00</td><td>106</td><td>85 Average</td></tr> <tr><td>3</td><td>1953.90</td><td>26.71</td><td>-15.22</td><td>41.93</td><td>28.96</td><td>26.23</td><td>7.56</td><td>36.04</td><td>0.00</td><td>0.00</td><td>100</td><td>91 Average</td></tr> <tr><td>4</td><td>2420.68</td><td>30.21</td><td>-13.72</td><td>43.93</td><td>30.58</td><td>27.38</td><td>8.45</td><td>36.20</td><td>0.00</td><td>0.00</td><td>103</td><td>54 Average</td></tr> <tr><td>5</td><td>6482.50</td><td>49.95</td><td>-3.98</td><td>53.93</td><td>38.78</td><td>34.99</td><td>14.07</td><td>37.89</td><td>0.00</td><td>0.00</td><td>100</td><td>73 Average</td></tr> <tr><td>6</td><td>17977.80</td><td>28.52</td><td>-15.41</td><td>43.93</td><td>23.86</td><td>41.64</td><td>23.88</td><td>45.30</td><td>-15.56</td><td>0.00</td><td>151</td><td>49 Average</td></tr> </tbody> </table>																																																		Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Aux	Aux2	A/Pos	T/Pos	Remark	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	dB	dB	cm	deg		1	977.68	15.92	-4.01	19.93	28.33	30.47	5.32	33.04	0.40	-15.56	109	76 Average	2	1250.71	17.71	-2.22	19.93	30.98	25.90	6.04	35.67	-9.54	0.00	106	85 Average	3	1953.90	26.71	-15.22	41.93	28.96	26.23	7.56	36.04	0.00	0.00	100	91 Average	4	2420.68	30.21	-13.72	43.93	30.58	27.38	8.45	36.20	0.00	0.00	103	54 Average	5	6482.50	49.95	-3.98	53.93	38.78	34.99	14.07	37.89	0.00	0.00	100	73 Average	6	17977.80	28.52	-15.41	43.93	23.86	41.64	23.88	45.30	-15.56	0.00	151	49 Average
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Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.  
 Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)  
 Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)  
 Note 4: Average emission setting outside GPS Bands: RBW=1MHz; VBW=3MHz.  
 Note 5: Average emission setting in GPS bands: RBW=100kHz; VBW=300kHz.  
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Radiated Emissions (960MHz – 18GHz)	
Test Mode	Mode 4: CH 09_Ant. 2
Operating Function	Adapter Mode
Test Distance	The test distance between the receiving antenna and the EUT is as following: 3 m for 1.61 GHz ~ 10.60 GHz frequency range 1 m for 1 GHz ~ 1.61 GHz 0.5 m for other frequency ranges.

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6	17963.00	27.38	-16.55	43.93	22.81	41.54	23.88	45.29	-15.56	0.00	---	---	Average																																																																																																																																																																																																												
Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Aux	Aux2	A/Pos	T/Pos	Remark																																																																																																																																																																																																														
MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB	dB	cm	deg																																																																																																																																																																																																															
1	978.12	16.01	-3.92	19.93	28.42	30.46	5.33	33.04	0.40	-15.56	161	173	Average																																																																																																																																																																																																												
2	1242.78	17.46	-2.47	19.93	30.73	25.91	6.02	35.66	-9.54	0.00	236	133	Average																																																																																																																																																																																																												
3	1724.38	28.62	-13.31	41.93	32.51	24.90	7.10	35.89	0.00	0.00	255	146	Average																																																																																																																																																																																																												
4	2431.78	29.78	-14.15	43.93	30.09	27.43	8.47	36.21	0.00	0.00	237	154	Average																																																																																																																																																																																																												
5	7878.00	46.87	-7.06	53.93	33.36	36.94	15.37	38.80	0.00	0.00	400	236	Average																																																																																																																																																																																																												
6	17970.40	27.45	-16.48	43.93	22.84	41.59	23.88	45.30	-15.56	0.00	---	---	Average																																																																																																																																																																																																												

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.  
 Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)  
 Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)  
 Note 4: Average emission setting outside GPS Bands: RBW=1MHz; VBW=3MHz.  
 Note 5: Average emission setting in GPS bands: RBW=100kHz; VBW=300kHz.  
 Note 6: #5 is fundamental signal.  
 Note 7:

- Distance extrapolation factor = 20 log (test distance [X m]/specific distance [3 m]) (dB)
- Corrected Reading: Antenna Factor (dB/m) + Cable Loss (dB) + Read Level (dBuV) - Preamp Factor (dB) + Aux Factor (dB) = Level (dBuV/m)  
 (Note: For Frequency below 1GHz, Aux Factor = Filter loss (dB), Aux 2 Factor = Distance extrapolation factor (dB); For Frequency above 1GHz, Aux Factor = Distance extrapolation factor (dB), Aux 2 Factor = Filter loss (dB))



3.5.9. Radiated Emissions (1164MHz – 1240MHz)

Radiated Emissions (1164MHz – 1240MHz)																																																																																									
<b>Test Mode</b>		Mode 1: CH 05_Ant. 1																																																																																							
<b>Operating Function</b>		Adapter Mode					<b>Test Distance</b>		3m																																																																																
Polarization: H					Polarization: V																																																																																				
Site : 03CH20-HY Condition : UWB_GPS 3m 9120D_02294_1110622 HORIZONTAL Project : IO0638 EUT : #5 Channel : CH5 Setting : 30 AV6 Type : RMS Trace : Max Hold					Site : 03CH20-HY Condition : UWB_GPS 3m 9120D_02294_1110622 VERTICAL Project : IO0638 EUT : #5 Channel : CH5 Setting : 30 AV6 Type : RMS Trace : Max Hold																																																																																				
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Radiated Emissions (1164MHz – 1240MHz)																																																																					
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<b>Operating Function</b>	Adapter Mode						<b>Test Distance</b>	3m																																																													
<b>Polarization: H</b>					<b>Polarization: V</b>																																																																
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Radiated Emissions (1164MHz – 1240MHz)																																																																					
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3.5.10. Radiated Emissions (1559MHz – 1610MHz)

Radiated Emissions (1559MHz – 1610MHz)																																																																									
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<b>Polarization: H</b>					<b>Polarization: V</b>																																																																				
<p>Date: 2021-11-13</p>					<p>Date: 2021-11-13</p>																																																																				
Site : 03CH20-HY Condition : UWB_GPS 3m 9120D_02294_1110622 HORIZONTAL : RBW:1.000KHz VBW:3.000KHz SWT:40.000sec Project : IO0638 EUT : #5 Channel : CH5 Setting : 30 AV6 Type : RMS Trace : Max Hold					Site : 03CH20-HY Condition : UWB_GPS 3m 9120D_02294_1110622 VERTICAL : RBW:1.000KHz VBW:3.000KHz SWT:40.000sec Project : IO0638 EUT : #5 Channel : CH5 Setting : 30 AV6 Type : RMS Trace : Max Hold																																																																				
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Radiated Emissions (1559MHz – 1610MHz)																																																																					
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Radiated Emissions (1559MHz – 1610MHz)																																																																					
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<b>Operating Function</b>		Adapter Mode					<b>Test Distance</b>		3m																																																												
Polarization: H					Polarization: V																																																																
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Radiated Emissions (1559MHz – 1610MHz)																																																																					
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3.5.11. Radiated Emissions (18GHz – 40GHz)

Radiated Emissions (18GHz – 40GHz)																																																																																			
Test Mode	Mode 1: CH 05_Ant. 1																																																																																		
Operating Function	Adapter Mode			Test Distance	0.5m																																																																														
Polarization: H					Polarization: V																																																																														
Site : 03CH10-HY Condition : FCC_UWB_HAND 1m SHF_00991_210512 HORIZONTAL Project : 100638 EUT : #5 Channel : CH5 Setting : 30 AVG Type : RMS Trace : Max Hold					Site : 03CH10-HY Condition : FCC_UWB_HAND 1m SHF_00991_210512 VERTICAL Project : 100638 EUT : #5 Channel : CH5 Setting : 30 AVG Type : RMS Trace : Max Hold																																																																														
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Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: Average emission setting: RBW=1MHz; VBW=3MHz.

Note 5:

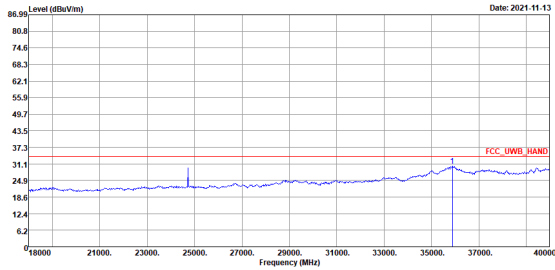
- Distance extrapolation factor = 20 log (test distance [X m]/specific distance [3 m]) (dB)
- Corrected Reading: Antenna Factor (dB/m) + Cable Loss (dB) + Read Level (dBuV) - Preamp Factor (dB) + Aux Factor (dB) = Level (dBuV/m)  
 (Note: Aux Factor = Distance extrapolation factor (dB), Aux 2 Factor = Filter loss (dB))



**Radiated Emissions (18GHz – 40GHz)**

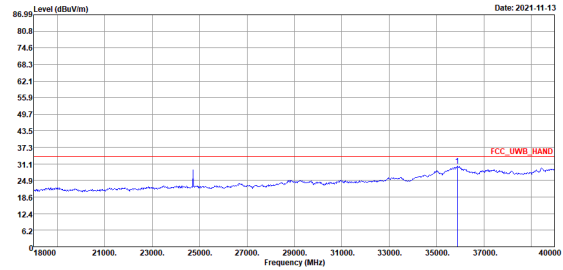
<b>Test Mode</b>	Mode 2: CH 09_Ant. 1		
<b>Operating Function</b>	Adapter Mode	<b>Test Distance</b>	0.5m

<b>Polarization: H</b>	<b>Polarization: V</b>
------------------------	------------------------



Site : 03CH10-HY  
 Condition : FCC\_UWB\_HAND 1m SHF\_00991\_210512 HORIZONTAL  
 Project : 100638  
 EUT : #5  
 Channel : CH9  
 Setting : 32  
 AV6 Type : RMS  
 Trace : Max Hold

Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Aux	Aux2	A/Pos	T/Pos	Remark	
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	dB	cm	deg		
1	35886.00	30.29	-3.64	33.93	53.71	42.62	8.37	58.85	-15.56	0.00	157	24 Average



Site : 03CH10-HY  
 Condition : FCC\_UWB\_HAND 1m SHF\_00991\_210512 VERTICAL  
 Project : 100638  
 EUT : #5  
 Channel : CH9  
 Setting : 32  
 AV6 Type : RMS  
 Trace : Max Hold

Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Aux	Aux2	A/Pos	T/Pos	Remark	
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	dB	cm	deg		
1	35886.00	30.18	-3.75	33.93	53.60	42.62	8.37	58.85	-15.56	0.00	156	51 Average

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.  
 Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)  
 Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)  
 Note 4: Average emission setting: RBW=1MHz; VBW=3MHz.

Note 5:

- Distance extrapolation factor = 20 log (test distance [X m]/specific distance [3 m]) (dB)
- Corrected Reading: Antenna Factor (dB/m) + Cable Loss (dB) + Read Level (dBuV) - Preamp Factor (dB) + Aux Factor (dB) = Level (dBuV/m)  
 (Note: Aux Factor = Distance extrapolation factor (dB), Aux 2 Factor = Filter loss (dB))



**Radiated Emissions (18GHz – 40GHz)**

<b>Test Mode</b>	Mode 3: CH 05_Ant. 2		
<b>Operating Function</b>	Adapter Mode	<b>Test Distance</b>	0.5m

Polarization: H	Polarization: V																																																																										
<p style="font-size: small;">Date: 2021-11-13</p> <p style="font-size: x-small;">Site : 03CH10-HY Condition : FCC_UWB_HAND 1m SHF_00991L_210512 HORIZONTAL Project : 100638 EUT : #5 Channel : CH5 Setting : 20 AVG Type : RMS Trace : Max Hold</p> <table border="1" style="width: 100%; border-collapse: collapse; font-size: x-small;"> <thead> <tr> <th>Freq</th> <th>Level</th> <th>Over</th> <th>Limit</th> <th>ReadAntenna</th> <th>Cable</th> <th>Preamp</th> <th>Aux</th> <th>Aux2</th> <th>A/Pos</th> <th>T/Pos</th> <th>Remark</th> </tr> <tr> <th>MHz</th> <th>dBuV/m</th> <th>dB</th> <th>dBuV/m</th> <th>dBuV</th> <th>dB/m</th> <th>dB</th> <th>dB</th> <th>dB</th> <th>dB</th> <th>cm</th> <th>deg</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>35886.00</td> <td>30.56</td> <td>-3.37</td> <td>33.93</td> <td>53.98</td> <td>42.62</td> <td>8.37</td> <td>58.85</td> <td>-15.56</td> <td>0.00</td> <td>151</td> <td>26 Average</td> </tr> </tbody> </table>	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Aux	Aux2	A/Pos	T/Pos	Remark	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	dB	dB	cm	deg	1	35886.00	30.56	-3.37	33.93	53.98	42.62	8.37	58.85	-15.56	0.00	151	26 Average	<p style="font-size: small;">Date: 2021-11-13</p> <p style="font-size: x-small;">Site : 03CH10-HY Condition : FCC_UWB_HAND 1m SHF_00991L_210512 VERTICAL Project : 100638 EUT : #5 Channel : CH5 Setting : 20 AVG Type : RMS Trace : Max Hold</p> <table border="1" style="width: 100%; border-collapse: collapse; font-size: x-small;"> <thead> <tr> <th>Freq</th> <th>Level</th> <th>Over</th> <th>Limit</th> <th>ReadAntenna</th> <th>Cable</th> <th>Preamp</th> <th>Aux</th> <th>Aux2</th> <th>A/Pos</th> <th>T/Pos</th> <th>Remark</th> </tr> <tr> <th>MHz</th> <th>dBuV/m</th> <th>dB</th> <th>dBuV/m</th> <th>dBuV</th> <th>dB/m</th> <th>dB</th> <th>dB</th> <th>dB</th> <th>dB</th> <th>cm</th> <th>deg</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>35886.00</td> <td>30.55</td> <td>-3.38</td> <td>33.93</td> <td>53.97</td> <td>42.62</td> <td>8.37</td> <td>58.85</td> <td>-15.56</td> <td>0.00</td> <td>155</td> <td>58 Average</td> </tr> </tbody> </table>	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Aux	Aux2	A/Pos	T/Pos	Remark	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	dB	dB	cm	deg	1	35886.00	30.55	-3.38	33.93	53.97	42.62	8.37	58.85	-15.56	0.00	155	58 Average
Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Aux	Aux2	A/Pos	T/Pos	Remark																																																																
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	dB	dB	cm	deg																																																																
1	35886.00	30.56	-3.37	33.93	53.98	42.62	8.37	58.85	-15.56	0.00	151	26 Average																																																															
Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Aux	Aux2	A/Pos	T/Pos	Remark																																																																
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	dB	dB	cm	deg																																																																
1	35886.00	30.55	-3.38	33.93	53.97	42.62	8.37	58.85	-15.56	0.00	155	58 Average																																																															

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.  
 Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)  
 Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)  
 Note 4: Average emission setting: RBW=1MHz; VBW=3MHz.  
 Note 5:

- Distance extrapolation factor = 20 log (test distance [X m]/specific distance [3 m]) (dB)
- Corrected Reading: Antenna Factor (dB/m) + Cable Loss (dB) + Read Level (dBuV) - Preamp Factor (dB) + Aux Factor (dB) = Level (dBuV/m)  
 (Note: Aux Factor = Distance extrapolation factor (dB), Aux 2 Factor = Filter loss (dB))

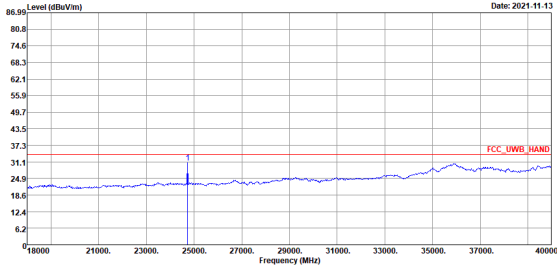


**Radiated Emissions (18GHz – 40GHz)**

**Test Mode** : Mode 4: CH 09\_Ant. 2

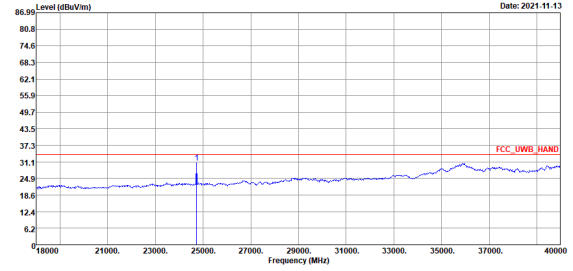
**Operating Function** : Adapter Mode **Test Distance** : 0.5m

**Polarization: H** **Polarization: V**



Site : 03CH10-HY  
 Condition : FCC\_UWB\_HAND 1m SHF\_0099L\_210512 HORIZONTAL  
 Project : I00638  
 EUT : #5  
 Channel : CH9  
 Setting : 60  
 AV6 Type : RMS  
 Trace : Max Hold

Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Aux	Aux2	A/Pos	T/Pos	Remark
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	dB	cm	deg	
1 24732.00	30.73	-3.20	33.93	53.73	39.10	6.72	53.26	-15.56	0.00	---	Average



Site : 03CH10-HY  
 Condition : FCC\_UWB\_HAND 1m SHF\_0099L\_210512 VERTICAL  
 Project : I00638  
 EUT : #5  
 Channel : CH9  
 Setting : 60  
 AV6 Type : RMS  
 Trace : Max Hold

Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Aux	Aux2	A/Pos	T/Pos	Remark
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	dB	cm	deg	
1 24732.00	30.66	-3.27	33.93	53.66	39.10	6.72	53.26	-15.56	0.00	158	23 Average

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.  
 Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)  
 Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)  
 Note 4: Average emission setting: RBW=1MHz; VBW=3MHz.

Note 5:

- Distance extrapolation factor = 20 log (test distance [X m]/specific distance [3 m]) (dB)
- Corrected Reading: Antenna Factor (dB/m) + Cable Loss (dB) + Read Level (dBuV) - Preamp Factor (dB) + Aux Factor (dB) = Level (dBuV/m)  
 (Note: Aux Factor = Distance extrapolation factor (dB), Aux 2 Factor = Filter loss (dB))



### 4. Test Equipment and Calibration Data

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	Rohde & Schwarz	FSV3044	101048	10Hz~44GHz	Apr. 20, 2021	Dec. 22, 2021	Apr. 19, 2022	Conducted (DF02-HY)
Coupler	Woken	10dB 30W SMA	DOM5CIW3A1	0.5-18GHz	Calibration from System	Dec. 22, 2021	Calibration from System	Conducted (DF02-HY)
Power Divider	Woken	2Way Divider	DCMB1KW7A1	0.5GHz-18GHz	Calibration from System	Dec. 22, 2021	Calibration from System	Conducted (DF02-HY)
Power Divider	Woken	2Way Divider	DCMB1KW7A2	0.5GHz-18GHz	Calibration from System	Dec. 22, 2021	Calibration from System	Conducted (DF02-HY)
RF Cable	Woken	S05(100cm)	161202-01	30 kHz~18GHz	Calibration from System	Dec. 22, 2021	Calibration from System	Conducted (DF02-HY)
RF Cable	Woken	S05(100cm)	161202-02	30 kHz~18GHz	Calibration from System	Dec. 22, 2021	Calibration from System	Conducted (DF02-HY)
RF Cable	Woken	S05(100cm)	161202-03	30 kHz~18GHz	Calibration from System	Dec. 22, 2021	Calibration from System	Conducted (DF02-HY)
RF Cable	Woken	S05(100cm)	161202-04	30 kHz~18GHz	Calibration from System	Dec. 22, 2021	Calibration from System	Conducted (DF02-HY)
RF Cable	Woken	S05(100cm)	161202-05	30 kHz~18GHz	Calibration from System	Dec. 22, 2021	Calibration from System	Conducted (DF02-HY)
RF Cable	Woken	S05(100cm)	161202-06	30 kHz~18GHz	Calibration from System	Dec. 22, 2021	Calibration from System	Conducted (DF02-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Dec. 14, 2021	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102388	9kHz~3.6GHz	Dec. 01, 2021	Dec. 14, 2021	Nov. 30, 2022	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Dec. 03, 2021	Dec. 14, 2021	Dec. 02, 2022	Conduction (CO05-HY)
Software	Rohde & Schwarz	EMC32	N/A	N/A	N/A	Dec. 14, 2021	N/A	Conduction (CO05-HY)
Pulse Limiter	SCHWARZBECK	VTSD 9561-FN	00691	N/A	Jul. 28, 2021	Dec. 14, 2021	Jul. 27, 2022	Conduction (CO05-HY)
LISN Cable	MVE	RG-400	260260	N/A	Dec. 31, 2020	Dec. 14, 2021	Dec. 30, 2021	Conduction (CO05-HY)
EMI Test Receiver	Keysight	N9010B	MY60240520	10Hz~44GHz	Dec. 02, 2020	Oct. 30, 2021~Nov. 13, 2021	Dec. 01, 2021	Radiation (03CH20-HY)
Preamplifier	COM-POWER	PAM-103	18020201	1MHz-1000MHz	Jan. 04, 2021	Oct. 30, 2021~Nov. 13, 2021	Jan. 03, 2022	Radiation (03CH20-HY)
Amplifier	EMCI	EMC118A45SE	980792	N/A	Nov. 16, 2020	Oct. 30, 2021~Nov. 13, 2021	Nov. 15, 2021	Radiation (03CH20-HY)
Preamplifier	EMEC	EM18G40G	060801	18GHz~40GHz	Jun. 22, 2021	Oct. 30, 2021~Nov. 13, 2021	Jun. 21, 2022	Radiation (03CH20-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100315	9 kHz~30 MHz	Jan. 04, 2021	Oct. 30, 2021~Nov. 13, 2021	Jan. 03, 2022	Radiation (03CH20-HY)
Bilog Antenna	TESEQ	CBL 6111D&00802 N1D01N-06	55606 & 08	30MHz~1GHz	Oct. 17, 2021	Oct. 30, 2021~Nov. 13, 2021	Oct. 16, 2022	Radiation (03CH20-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-02294	1GHz~18GHz	Jun. 23, 2021	Oct. 30, 2021~Nov. 13, 2021	Jun. 22, 2022	Radiation (03CH20-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA9170	00991	18GHz-40GHz	May 12, 2021	Oct. 30, 2021~Nov. 13, 2021	May 11, 2022	Radiation (03CH20-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	519229/2,804015/2,804027/2	N/A	Jan. 20, 2021	Oct. 30, 2021~Nov. 13, 2021	Jan. 19, 2022	Radiation (03CH20-HY)
Software	Audix	E3 6.2009-8-24	RK-002156	N/A	N/A	Oct. 30, 2021~Nov. 13, 2021	N/A	Radiation (03CH20-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1m~4m	N/A	Oct. 30, 2021~Nov. 13, 2021	N/A	Radiation (03CH20-HY)
Turn Table	EMEC	TT2000	N/A	0~360 Degree	N/A	Oct. 30, 2021~Nov. 13, 2021	N/A	Radiation (03CH20-HY)



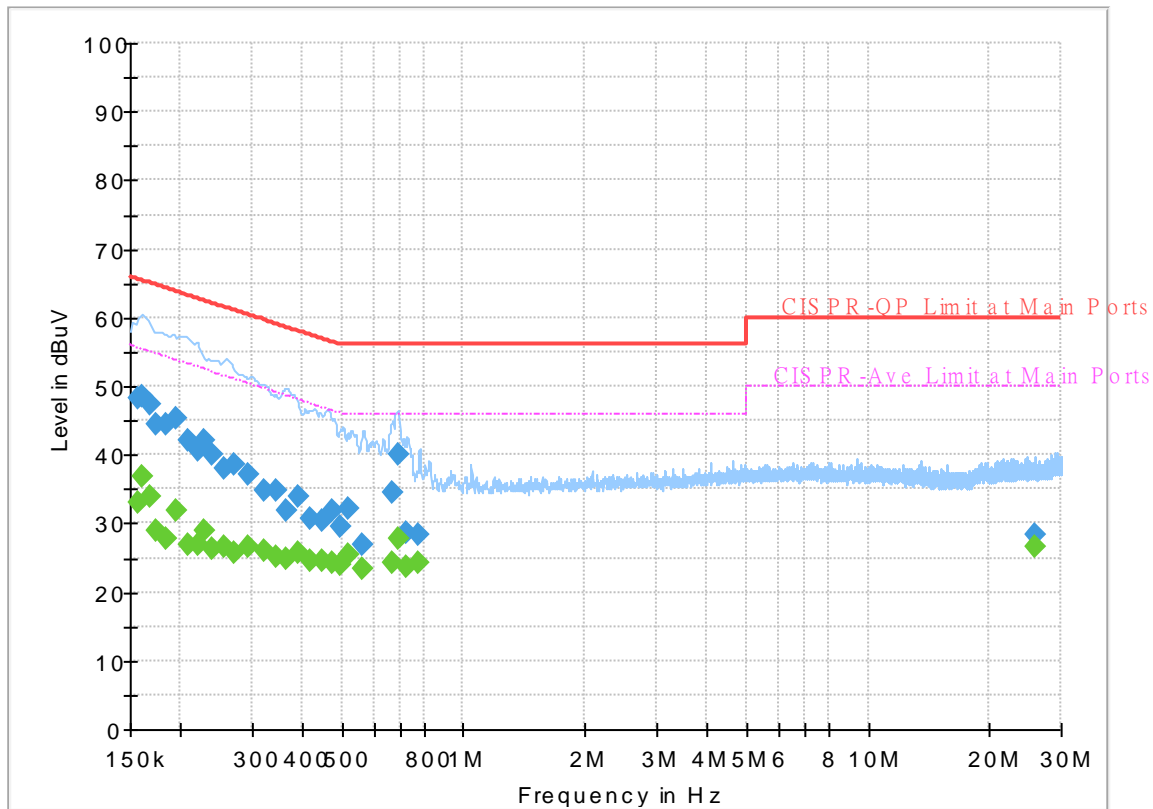
## **Appendix A. AC Conducted Emission Test Results**



## EUT Information

Report NO : 100638  
 Test Mode : Mode 1  
 Test Voltage : 120Vac/60Hz  
 Phase : Line

Full Spectrum



## Final\_Result

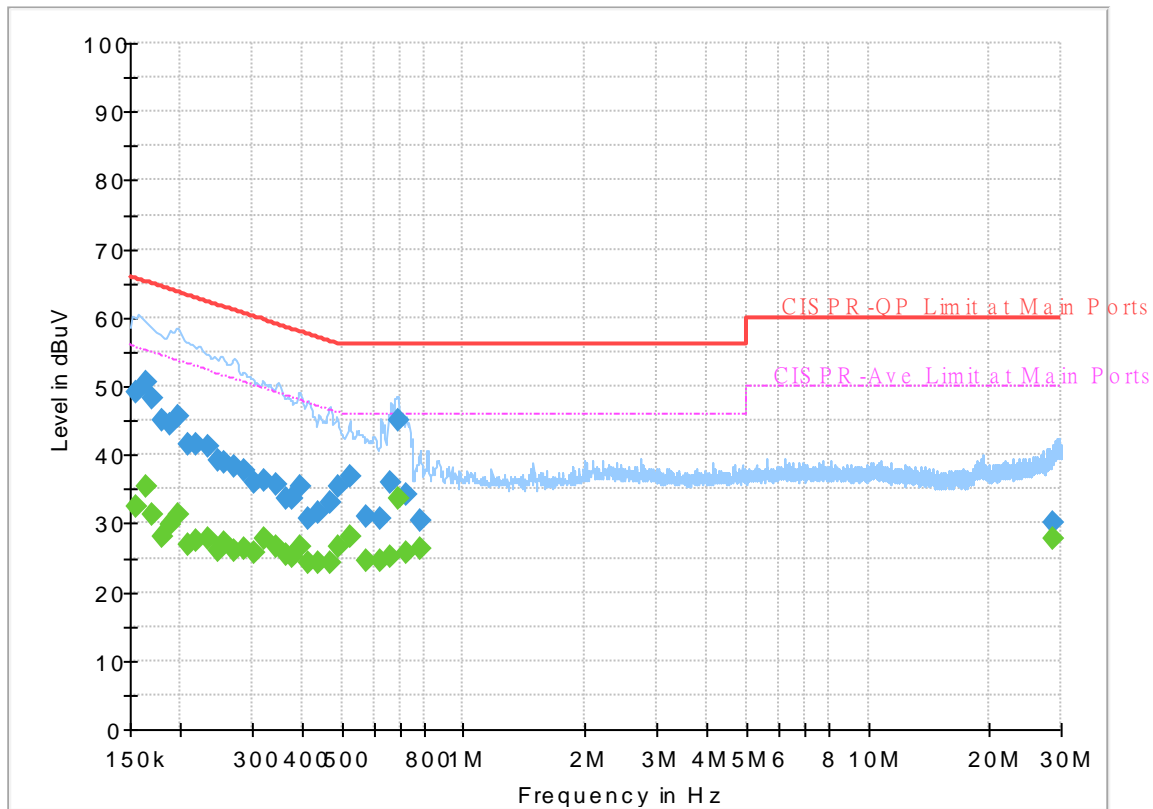
Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.156750	---	33.08	55.63	22.55	L1	OFF	19.6
0.156750	48.11	---	65.63	17.52	L1	OFF	19.6
0.161250	---	36.77	55.40	18.63	L1	OFF	19.6
0.161250	48.46	---	65.40	16.94	L1	OFF	19.6
0.168000	---	34.05	55.06	21.01	L1	OFF	19.6
0.168000	47.43	---	65.06	17.63	L1	OFF	19.6
0.174750	---	28.83	54.73	25.90	L1	OFF	19.6
0.174750	44.37	---	64.73	20.36	L1	OFF	19.6
0.183750	---	27.78	54.31	26.53	L1	OFF	19.6
0.183750	44.35	---	64.31	19.96	L1	OFF	19.6
0.195000	---	31.91	53.82	21.91	L1	OFF	19.6
0.195000	45.34	---	63.82	18.48	L1	OFF	19.6
0.208500	---	26.81	53.27	26.46	L1	OFF	19.6
0.208500	42.04	---	63.27	21.23	L1	OFF	19.6
0.219750	---	26.77	52.83	26.06	L1	OFF	19.6
0.219750	40.71	---	62.83	22.12	L1	OFF	19.6
0.228750	---	28.84	52.50	23.66	L1	OFF	19.6
0.228750	42.14	---	62.50	20.36	L1	OFF	19.6
0.240000	---	26.22	52.10	25.88	L1	OFF	19.6
0.240000	40.18	---	62.10	21.92	L1	OFF	19.6
0.255750	---	26.59	51.57	24.98	L1	OFF	19.6

0.255750	38.04	---	61.57	23.53	L1	OFF	19.6
0.271500	---	25.83	51.07	25.24	L1	OFF	19.6
0.271500	38.55	---	61.07	22.52	L1	OFF	19.6
0.294000	---	26.69	50.41	23.72	L1	OFF	19.6
0.294000	37.14	---	60.41	23.27	L1	OFF	19.6
0.321000	---	26.11	49.68	23.57	L1	OFF	19.6
0.321000	34.76	---	59.68	24.92	L1	OFF	19.6
0.343500	---	25.23	49.12	23.89	L1	OFF	19.6
0.343500	34.71	---	59.12	24.41	L1	OFF	19.6
0.366000	---	24.83	48.59	23.76	L1	OFF	19.6
0.366000	31.87	---	58.59	26.72	L1	OFF	19.6
0.388500	---	25.70	48.10	22.40	L1	OFF	19.6
0.388500	33.88	---	58.10	24.22	L1	OFF	19.6
0.420000	---	24.51	47.45	22.94	L1	OFF	19.6
0.420000	30.79	---	57.45	26.66	L1	OFF	19.6
0.449250	---	24.46	46.89	22.43	L1	OFF	19.7
0.449250	30.38	---	56.89	26.51	L1	OFF	19.7
0.476250	---	24.34	46.40	22.06	L1	OFF	19.7
0.476250	31.80	---	56.40	24.60	L1	OFF	19.7
0.498750	---	23.85	46.02	22.17	L1	OFF	19.7
0.498750	29.63	---	56.02	26.39	L1	OFF	19.7
0.516750	---	25.30	46.00	20.70	L1	OFF	19.8
0.516750	32.12	---	56.00	23.88	L1	OFF	19.8
0.564000	---	23.51	46.00	22.49	L1	OFF	19.8
0.564000	26.86	---	56.00	29.14	L1	OFF	19.8
0.667500	---	24.28	46.00	21.72	L1	OFF	19.9
0.667500	34.64	---	56.00	21.36	L1	OFF	19.9
0.690000	---	27.78	46.00	18.22	L1	OFF	19.9
0.690000	40.16	---	56.00	15.84	L1	OFF	19.9
0.726000	---	23.71	46.00	22.29	L1	OFF	19.9
0.726000	28.61	---	56.00	27.39	L1	OFF	19.9
0.777750	---	24.37	46.00	21.63	L1	OFF	20.0
0.777750	28.49	---	56.00	27.51	L1	OFF	20.0
25.998000	---	26.55	50.00	23.45	L1	OFF	20.6
25.998000	28.48	---	60.00	31.52	L1	OFF	20.6

# EUT Information

Report NO : 100638  
 Test Mode : Mode 1  
 Test Voltage : 120Vac/60Hz  
 Phase : Neutral

Full Spectrum



## Final\_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.154500	---	32.31	55.75	23.44	N	OFF	19.6
0.154500	49.10	---	65.75	16.65	N	OFF	19.6
0.163500	---	35.50	55.28	19.78	N	OFF	19.6
0.163500	50.52	---	65.28	14.76	N	OFF	19.6
0.170250	---	31.20	54.95	23.75	N	OFF	19.6
0.170250	48.17	---	64.95	16.78	N	OFF	19.6
0.179250	---	27.95	54.52	26.57	N	OFF	19.6
0.179250	45.03	---	64.52	19.49	N	OFF	19.6
0.188250	---	29.73	54.11	24.38	N	OFF	19.6
0.188250	44.59	---	64.11	19.52	N	OFF	19.6
0.197250	---	31.40	53.73	22.33	N	OFF	19.6
0.197250	45.63	---	63.73	18.10	N	OFF	19.6
0.208500	---	26.95	53.27	26.32	N	OFF	19.6
0.208500	41.66	---	63.27	21.61	N	OFF	19.6
0.217500	---	27.51	52.91	25.40	N	OFF	19.6
0.217500	41.39	---	62.91	21.52	N	OFF	19.6
0.233250	---	27.69	52.33	24.64	N	OFF	19.6
0.233250	41.14	---	62.33	21.19	N	OFF	19.6
0.246750	---	26.01	51.87	25.86	N	OFF	19.6
0.246750	39.16	---	61.87	22.71	N	OFF	19.6
0.255750	---	27.09	51.57	24.48	N	OFF	19.6

0.255750	39.00	---	61.57	22.57	N	OFF	19.6
0.271500	---	26.02	51.07	25.05	N	OFF	19.6
0.271500	38.36	---	61.07	22.71	N	OFF	19.6
0.287250	---	26.25	50.60	24.35	N	OFF	19.6
0.287250	37.76	---	60.60	22.84	N	OFF	19.6
0.303000	---	25.78	50.16	24.38	N	OFF	19.6
0.303000	36.04	---	60.16	24.12	N	OFF	19.6
0.321000	---	27.72	49.68	21.96	N	OFF	19.6
0.321000	36.29	---	59.68	23.39	N	OFF	19.6
0.345750	---	26.73	49.06	22.33	N	OFF	19.6
0.345750	35.60	---	59.06	23.46	N	OFF	19.6
0.366000	---	25.57	48.59	23.02	N	OFF	19.6
0.366000	33.75	---	58.59	24.84	N	OFF	19.6
0.379500	---	25.19	48.29	23.10	N	OFF	19.6
0.379500	33.49	---	58.29	24.80	N	OFF	19.6
0.393000	---	26.59	48.00	21.41	N	OFF	19.6
0.393000	35.30	---	58.00	22.70	N	OFF	19.6
0.415500	---	24.33	47.54	23.21	N	OFF	19.7
0.415500	30.82	---	57.54	26.72	N	OFF	19.7
0.438000	---	24.40	47.10	22.70	N	OFF	19.7
0.438000	31.64	---	57.10	25.46	N	OFF	19.7
0.467250	---	24.30	46.56	22.26	N	OFF	19.7
0.467250	32.99	---	56.56	23.57	N	OFF	19.7
0.489750	---	26.68	46.17	19.49	N	OFF	19.7
0.489750	35.36	---	56.17	20.81	N	OFF	19.7
0.523500	---	28.12	46.00	17.88	N	OFF	19.8
0.523500	36.90	---	56.00	19.10	N	OFF	19.8
0.575250	---	24.67	46.00	21.33	N	OFF	19.8
0.575250	31.11	---	56.00	24.89	N	OFF	19.8
0.624750	---	24.65	46.00	21.35	N	OFF	19.9
0.624750	30.57	---	56.00	25.43	N	OFF	19.9
0.663000	---	25.17	46.00	20.83	N	OFF	19.9
0.663000	35.98	---	56.00	20.02	N	OFF	19.9
0.687750	---	33.67	46.00	12.33	N	OFF	19.9
0.687750	44.99	---	56.00	11.01	N	OFF	19.9
0.723750	---	25.65	46.00	20.35	N	OFF	20.0
0.723750	34.10	---	56.00	21.90	N	OFF	20.0
0.782250	---	26.21	46.00	19.79	N	OFF	20.0
0.782250	30.39	---	56.00	25.61	N	OFF	20.0
28.529250	---	27.72	50.00	22.28	N	OFF	20.8
28.529250	30.16	---	60.00	29.84	N	OFF	20.8