

Test report no.: Prüfbericht-Nr.:	CN23GWPE 002	Order No.: Auftragsnr.:	168374226	Page 1 of 25 Seite 1 von 25
Client reference no.: Kunden-Referenz-Nr.:	N/A	Order date: Auftragsdatum:	2022-05-06	
Client: Auftraggeber:	Honeywell International Inc. 12 Clintonville Road, Northford, CT 06472, USA			
Test item: Prüfgegenstand:	Plant controller			
Identification / Type no.: Bezeichnung / Typ-Nr.:	HON-GW00-B-W, HON-GW00-B-W-C, HON-GW00-B-W-D, IQ5-00-BW-24, IQ5P00-BW-24, CPO-PC600-BW, N-ADV-133-H-B-W, N-ADV-133-H-B-W-C, N-ADV-133-H-B-W-D			
Order content: Auftrags-Inhalt:	Test Report			
Test specification Prüfgrundlage:	CFR47 FCC Part15: Subpart E Section 15.407 RSS-247 Issue 3 August 2023			
Date of sample receipt: Wareneingangsdatum:	2022-05-27	Please refer to Photo Document		
Test sample no.: Prüfmuster-Nr.:	A003262749-001,003, 004, 007			
Testing period: Prüfzeitraum:	2022-06-01 - 2023-11-08			
Place of testing: Ort der Prüfung:	Refer to section 2.1			
Testing laboratory: Prüflaboratorium:	TÜV Rheinland (Shenzhen) Co., Ltd.			
Test result*: Prüfergebnis*:	Pass			
tested by: geprüft von:	X <u>Breeze Jiang</u>	authorized by: genehmigt von:	X <u>Bell Hu</u>	
Date: 2024-02-06 Datum:	Signed by: Breeze Jiang	Issue date: 2024-02-06 Ausstellungsdatum:	Signed by: Bell Hu	
Position / Stellung:	Expert/Sachverständige(r)	Position / Stellung:	Expert/Sachverständige(r)	
Other: Sonstiges:	FCC ID: 2A8LT-ADVBLEWIFI IC: 1609A-ADVBLEWIFI HVIN: 501004 PMN: HON-GW00-B-W, HON-GW00-B-W-C, HON-GW00-B-W-D, IQ5-00-BW-24, IQ5P00-BW-24, CPO-PC600-BW, N-ADV-133-H-B-W, N-ADV-133-H-B-W-C, N-ADV-133-H-B-W-D			
Condition of the test item at delivery: Zustand des Prüfgegenstandes bei Anlieferung:	Test item complete and undamaged Prüfmuster vollständig und unbeschädigt			
* Legend:	P(ass) = passed a.m. test specification(s)	F(ail) = failed a.m. test specification(s)	N/A = not applicable	N/T = not tested
* Legende:	P(ass) = entspricht o.g. Prüfgrundlage(n)	F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getestet
This test report only relates to the above mentioned test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark. Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.				

V05

Test report no.: CN23GWPE 002
Prüfbericht-Nr.:

Page 2 of 25
Seite 2 von 25

Remarks
Anmerkungen

1	<p>The equipment used during the specified testing period was calibrated according to our test laboratory calibration program. The equipment fulfils the requirements included in the relevant standards. The traceability of the test equipment used is ensured by compliance with the regulations of our management system. Detailed information regarding test conditions, equipment and measurement uncertainty is available in the test laboratory and could be provided on request.</p> <p><i>Alle eingesetzten Prüfmittel waren zum angegebenen Prüfzeitraum gemäß eines festgelegten Kalibrierungsprogramms unseres Prüfhauses kalibriert. Sie entsprechen den in den Prüfprogrammen hinterlegten Anforderungen. Die Rückverfolgbarkeit der eingesetzten Prüfmittel ist durch die Einhaltung der Regelungen unseres Managementsystems gegeben.</i></p> <p><i>Detaillierte Informationen bezüglich Prüfkonditionen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden.</i></p>
2	<p>As contractually agreed, this document has been signed digitally only. TUV Rheinland has not verified and unable to verify which legal or other pertaining requirements are applicable for this document. Such verification is within the responsibility of the user of this document. Upon request by its client, TUV Rheinland can confirm the validity of the digital signature by a separate document. Such request shall be addressed to our Sales department. An environmental fee for such additional service will be charged.</p> <p><i>Wie vertraglich vereinbart, wurde dieses Dokument nur digital unterzeichnet. Der TÜV Rheinland hat nicht überprüft, welche rechtlichen oder sonstigen diesbezüglichen Anforderungen für dieses Dokument gelten. Diese Überprüfung liegt in der Verantwortung des Benutzers dieses Dokuments. Auf Verlangen des Kunden kann der TÜV Rheinland die Gültigkeit der digitalen Signatur durch ein gesondertes Dokument bestätigen. Diese Anfrage ist an unseren Vertrieb zu richten. Eine Umweltgebühr für einen solchen zusätzlichen Service wird erhoben.</i></p>
3	<p>Test clauses with remark of * are subcontracted to qualified subcontractors and described under the respective test clause in the report. Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report.</p> <p><i>Prüfklausel mit der Note * wurden an qualifizierte Unterauftragnehmer vergeben und sind unter der jeweiligen Prüfklausel des Berichts beschrieben. Abweichungen von Prüfspezifikation(en) oder Kundenanforderungen sind in der jeweiligen Prüfklausel im Bericht aufgeführt.</i></p>
4	<p>The decision rule for statements of conformity, based on numerical measurement results, in this test report is based on the "Zero Guard Band Rule" and "Simple Acceptance" in accordance with ILAC G8:2019 and IEC Guide 115:2021, unless otherwise specified in the applied standard mentioned on Page 1 of this report or requested by the customer. This means that measurement uncertainty is not taken in account and hence also not declared in the test report. For additional information to the resulting risk based of this decision rule please refer to ILAC G8:2019.</p> <p><i>Die Entscheidungsregel für Konformitätserklärungen basierend auf numerischen Messergebnissen in diesem Prüfbericht basiert auf der "Null-Grenzwert-Regel" und der "Einfachen Akzeptanz" gemäß ILAC G8:2019 und IEC Guide 115:2021, es sei denn, in der auf Seite 1 dieses Berichts genannten angewandten Norm ist etwas anderes festgelegt oder vom Kunden gewünscht. Dies bedeutet, dass die Messunsicherheit nicht berücksichtigt wird und daher auch nicht im Prüfbericht angegeben wird. Zu weiteren Informationen bezueglich des Risikos durch diese Entscheidungsregel siehe ILAC G8:2019.</i></p>

Test Summary

5.1.1 ANTENNA REQUIREMENT

RESULT: Pass

5.1.2 MAXIMUM CONDUCTED OUTPUT POWER

RESULT: Pass

5.1.3 CONDUCTED POWER SPECTRAL DENSITY

RESULT: Pass

5.1.4 FREQUENCY STABILITY

RESULT: Pass

5.1.5 26dB BANDWIDTH AND 99% BANDWIDTH

RESULT: Pass

5.1.6 6dB BANDWIDTH

RESULT: Pass

5.1.7 RADIATED SPURIOUS EMISSION

RESULT: Pass

5.1.8 DYNAMIC FREQUENCY SELECTION (DFS)

RESULT: Pass

5.1.9 CONDUCTED EMISSION ON AC MAINS

RESULT: Pass

Contents

1	GENERAL REMARKS	5
1.1	COMPLEMENTARY MATERIALS	5
2	TEST SITES	5
2.1	TEST FACILITIES	5
2.2	LIST OF TEST AND MEASUREMENT INSTRUMENTS.....	6
2.3	TRACEABILITY	7
2.4	CALIBRATION	7
2.5	MEASUREMENT UNCERTAINTY.....	7
2.6	LOCATION OF ORIGINAL DATA.....	7
2.7	STATUS OF FACILITY USED FOR TESTING.....	7
3	GENERAL PRODUCT INFORMATION	8
3.1	PRODUCT FUNCTION AND INTENDED USE.....	8
3.2	RATINGS AND SYSTEM DETAILS	8
3.3	INDEPENDENT OPERATION MODES	10
3.4	NOISE GENERATING AND NOISE SUPPRESSING PARTS.....	10
3.5	SUBMITTED DOCUMENTS.....	10
4	TEST SET-UP AND OPERATION MODES	11
4.1	PRINCIPLE OF CONFIGURATION SELECTION	11
4.2	TEST OPERATION AND TEST SOFTWARE.....	11
4.3	SPECIAL ACCESSORIES AND AUXILIARY EQUIPMENT	13
4.4	COUNTERMEASURES TO ACHIEVE EMC COMPLIANCE.....	13
4.5	TEST SETUP DIAGRAM.....	14
5	TEST RESULTS	16
5.1	TRANSMITTER REQUIREMENT & TEST SUITES	16
<i>5.1.1</i>	<i>Antenna Requirement</i>	<i>16</i>
<i>5.1.2</i>	<i>Maximum Conducted Output Power</i>	<i>17</i>
<i>5.1.3</i>	<i>Conducted Power Spectral Density</i>	<i>18</i>
<i>5.1.4</i>	<i>Frequency Stability.....</i>	<i>19</i>
<i>5.1.5</i>	<i>26dB Bandwidth and 99% Bandwidth.....</i>	<i>20</i>
<i>5.1.6</i>	<i>6dB Bandwidth</i>	<i>21</i>
<i>5.1.7</i>	<i>Radiated Spurious Emission</i>	<i>22</i>
<i>5.1.8</i>	<i>Dynamic Frequency Selection (DFS).....</i>	<i>23</i>
<i>5.1.9</i>	<i>Conducted Emission on AC Mains.....</i>	<i>24</i>
6	PHOTOGRAPHS OF THE TEST SET-UP	25
7	LIST OF TABLES.....	25

1 General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix A: Photographs of the Test Set-up

Appendix B: Test Results of 5GHz Wi-Fi

Appendix C: Test Results DFS

2 Test Sites

2.1 Test Facilities

TÜV Rheinland (Shenzhen) Co., Ltd.

No. 362 Huanguan Road Middle, Longhua District, 518110, Shenzhen, P. R. China.

FCC Accreditation Designation No.: 694916

ISED wireless device testing laboratory: 25069

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Radio Spectrum Testing (SRD-Tonscend)				
Equipment	Manufacturer	Model	Serial No.	Cal. until
EXA Signal Analyzer, Multi-touch	Keysight	N9010B	MY60241175	21.09.2024
MXG X-Series RF Vector Signal Generator	Keysight	N5182B	MY61250137	21.09.2024
EXG X-Series Microwave Analog Signal Generator	Keysight	N5173B	MY61250141	21.09.2024
DC Power Supply	Keysight	E3642A	MY61276100	21.09.2024
Wireless Connectivity Tester	R&S	CMW270	102505	21.09.2024
Power Control Unit	Tonscend	JS0806-4ADC	N/A	21.09.2024
Automation Control Unit	Tonscend	JS0806-2	21C8060396	21.09.2024
Test Software	Tonscend	JS1120-3	N/A	N/A
Control PC	Lenovo	TianYi510S-071MB	YLX23JMF	N/A
Unwanted Emission Testing (TS9975)				
Equipment	Manufacturer	Model	Serial No.	Cal. until
EMI Test Receiver	R&S	ESR 7	102021	25.07.2024
Signal Analyzer	R&S	FSV 40	101439	25.07.2024
System Controller Interface	R&S	SCI-100	S10010038	N/A
Filterbank	R&S	Wlan	100759	25.07.2024
OSP	R&S	OSP 120	102040	N/A
Pre-amplifier	R&S	SCU08F1	08320031	25.07.2024
Amplifier	R&S	SCU-18F	180070	25.07.2024
Amplifier	R&S	SCU40A	100475	25.07.2024
Trilog Broadband Antenna (30 MHz - 7 GHz)	Schwarzbeck	VULB 9162	193	06.08.2024
Double-Ridged Antenna (1 -18 GHz)	ETS-LINDGREN	3117	00218717	06.08.2024
Wideband Ridged Horn Antenna (18-40 GHz)	Steatite	QMS-00880	19067	27.08.2024
Active Loop Antenna	Schwarzbeck	FMZB 1513	302	06.08.2024
Test software	R&S	EMC32 (V10.60.10)	N/A	N/A
Control PC	Dell	OptiPlex 7050	36NV9P2	N/A
3m Semi-Anechoic Chamber	Albatross	SAC-3m	APC17151-SAC	22.06.2024

Conducted Emission

Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
EMI Test Receiver	R&S	ESR3	102680	23.02.2024
Artificial Mains Network	R&S	ENV216	101445	23.02.2024
EMC32 test software	R&S	EMC32(Ver.10.50.00)	N/A	N/A

2.3 Traceability

All measurement equipment calibrations are traceable to NIM (National Institute of Metrology) or where calibration is performed in other countries, to equivalent nationally recognized standards organizations.

2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

2.5 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements as below table.

Parameter	Uncertainty
Radio Frequency	$\pm 1 \times 10^{-7}$
RF Power (conducted)	± 2.5 dB
Radiated Emission of Transmitter, valid up to 26.5 GHz	± 6 dB
Radiated Emission of Receiver, valid up to 26.5 GHz	± 6 dB
Conducted Emission, (9kHz to 150kHz)/(150kHz to 30MHz)	± 3.70 dB / ± 3.30 dB
Temperature	± 1 °C
Humidity	± 5 %
Voltage (DC)	± 1 %
Voltage (AC, <10kHz)	± 2 %

2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix A & B of this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Shenzhen) Co., Ltd. File for certification follow-up purposes.

2.7 Status of Facility Used for Testing

The TÜV Rheinland (Shenzhen) Co., Ltd. Test facility located at No. 362 Huanguan Road Middle, Longhua District, 518110, Shenzhen, P. R. China. is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

3 General Product Information

3.1 Product Function and Intended Use

The Product is plant controller which supports BT and Wi-Fi technology.

This report is for Wi-Fi 5GHz operation only.

For details refer to the User Manual, Technical Description and Circuit Diagram.

3.2 Ratings and System Details

Table 2: Technical Specification of EUT

General Information of EUT	Value
Kind of Equipment:	Plant controller
Type Designation:	HON-GW00-B-W, HON-GW00-B-W-C, HON-GW00-B-W-D, IQ5-00-BW-24, IQ5P00-BW-24, CPO-PC600-BW, N-ADV-133-H-B-W, N-ADV-133-H-B-W-C, N-ADV-133-H-B-W-D
FCC ID:	2A8LT-ADVBLEWIFI
IC:	1609A-ADVBLEWIFI
HVIN:	501004
PMN:	HON-GW00-B-W, HON-GW00-B-W-C, HON-GW00-B-W-D, IQ5-00-BW-24, IQ5P00-BW-24, CPO-PC600-BW, N-ADV-133-H-B-W, N-ADV-133-H-B-W-C, N-ADV-133-H-B-W-D
Operating Voltage:	DC 20V-30V or AC 19.2V-30V
Testing Voltage:	AC 24V or DC 24V (via AC/DC or AC/AC adapter)
Operating Temperature Range:	-25°C ~ 60°C
Technical Specification of Wi-Fi 802.11 b/g/n	
Operating Frequency:	2412 - 2462 MHz for 802.11b/g/n(HT20) 2422 - 2452 MHz for 802.11n(HT40)
Type of Modulation:	802.11b: CCK, DQPSK, DBPSK 802.11g/n: BPSK, QPSK, 16QAM, 64QAM
Data Rate:	1/2/5.5/11 Mbps for 802.11b 6/9/12/18/24/36/48/54 Mbps for 802.11g MCS0-MCS7 for 802.11n(HT20/40) (All data rates considered, only the Worst-cases reported)
Channel Number:	11 channels for 802.11b/g/n(HT20) 7 channels for 802.11n(HT40)
Channel Separation:	5 MHz
Antenna Type:	External Antenna
Number of Antenna:	2, only SISO supported.
Antenna Gain:	2.94 dBi Max
Technical Specification of BLE	
Frequency Range:	2402 MHz to 2480 MHz
Type of Modulation:	GFSK
Channel Number:	40 channels

Prüfbericht - Nr.: CN23GWPE 002
Test Report No.:

Seite 9 von 25

Page 9 of 25

Data Rate:	2Mbps, 1Mbps, 500kbps, 125kbps
Channel Separation:	2 MHz
Antenna Type:	Integral antenna
Antenna Gain:	3.11 dBi
Technical Specification of Wi-Fi 802.11 a/n/ac	
Operating Frequency:	5180-5320MHz, 5500-5700MHz, 5745-5825MHz
Type of Modulation:	802.11n/a: BPSK, QPSK, 16QAM, 64QAM 802.11ac: BPSK, QPSK, 16QAM, 64QAM, 256QAM
Operating Frequency / Protocol:	802.11 a/n20/n40/ac20/ac40/ac80
Data Rate:	6/9/12/18/24/36/48/54 Mbps for 802.11a MCS0 ~ MCS7 for 802.11n MCS0-MCS9 for 802.11ac (All data rates considered, only the Worst-cases reported)
Channel Separation	5 MHz
Antenna Type:	External Antenna
Number of Antenna:	2, only SISO supported.
Antenna Gain:	U-NII-1 Band: 2.65dBi, U-NII-2A Band: 2.65dBi, U-NII-2C Band:1.7dBi, U-NII-3 Band:1.62dBi
Type of Device	This equipment can be worked as a master device or client device, And both of the two configuration considered in Appendix C DFS.

This device has 9 models, all of them share the RF circuits and the main boards. The only differences among them are mainly in the digital output ports, FRAM and Brand for market purpose. Details listed as below:

Module No.	Brand	Ethernet Isolated Port	Ethernet Switched Port	FRAM	RS485 Serial pt (TOP)	Touch Flake	HMI Side Port	Build option Port
HON-GW00-B-W	Honeywell	1	2	0	1	T1L Only	Not Used	N.A
HON-GW00-B-W-C	Honeywell	1	2	0	1			
HON-GW00-B-W-D	Honeywell	1	2	0	1			
IQ5-00-BW-24	Trend	1	3	512kB	3			
IQ5P00-BW-24	Trend	1	3	512kB	3	T1L & Serial	RJ11	CAN (4 pin)
CPO-PC600-BW	Honeywell	1	3	768kB	3			
N-ADV-133-H-B-W	Honeywell	1	3	768kB	3			
N-ADV-133-H-B-W-C	Honeywell	1	3	768kB	3			
N-ADV-133-H-B-W-D	Honeywell	1	3	768kB	3			N.A

As above differences, IQ5-00-BW-24 is assessed as the typical one. Only the worst result is showed in this report.

3.3 Independent Operation Modes

The basic operation modes are:

- A. On, Wi-Fi 802.11 a/n/ac wireless transmitting mode
 - 1. Low channel
 - 2. Middle channel
 - 3. High channel
- B. On, Normal Operation (Wi-Fi Link)
- C. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

3.5 Submitted Documents

- Application Form
- Operation Description
- Schematics
- PCB Layout
- User Manual
- Block Diagram
- Rating Label
- Parts List

4 Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

Radio Spectrum: The equipment under test (EUT) was configured at its highest power output in order to measure its highest possible radiation and conducted level. The test modes were adapted accordingly in reference to the instructions for use.

Emission: The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5. All tests were performed according to the procedures in ANSI C63.10: 2013.

According to clause 3.1, all tests were performed on model IQ5-00-BW-24 in this report.

Table 3: RF Channel and Frequency of 5GHz Wi-Fi 802.11 a/n/ac

U-NII-1					
20MHz Bandwidth		40MHz Bandwidth		80MHz Bandwidth	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	38	5190	42	5210
40	5200	46	5230		
44	5220				
48	5240				

U-NII-2A					
20MHz Bandwidth		40MHz Bandwidth		80MHz Bandwidth	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
52	5260	54	5270	58	5290
56	5280	62	5310		
60	5300				
64	5320				

U-NII-2C					
20MHz Bandwidth		40MHz Bandwidth		80MHz Bandwidth	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
100	5500	102	5510	106	5530
104	5520	110	5550	122	5610
108	5540	118	5590		
112	5560	126	5630		
116	5580	134	5670		
120	5600				
124	5620				
128	5640				
132	5660				
136	5680				
140	5700				

Note: Per RSS-247 section 6.2.3, transmission on channels which overlap 5600-5650MHz is prohibited for ISFD.

U-NII-3					
20MHz Bandwidth		40MHz Bandwidth		80MHz Bandwidth	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	151	5755	155	5775
153	5765	159	5795		
157	5785				
161	5805				
165	5825				

4.3 Special Accessories and Auxiliary Equipment

Table 4: List of Accessories and Auxiliary Equipment

Description	Model	Manufacturer	S/N
Laptop	X240	LENOVO	SL 10F31638JS
Laptop	X260	LENOVO	PC0FF78S
Transformer	MOD_EL_66	Emperor Ling	N/A
Portable Laptop	E5440	DELL	N/A
AC-AC Adapter	BK-100	DELIXI	N/A
Wiring Adapter	IQ5-IO-ADPT	Honeywell	N/A
plant controller	IQ5-00-24	Honeywell	N/A
Router	RAX50	NETGEAR	N/A
Router	RT-AC66U	Asus	N/A

4.4 Countermeasures to Achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Technical Construction File (TCF).

No additional measures were employed to achieve compliance.

4.5 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test (Below 1GHz)

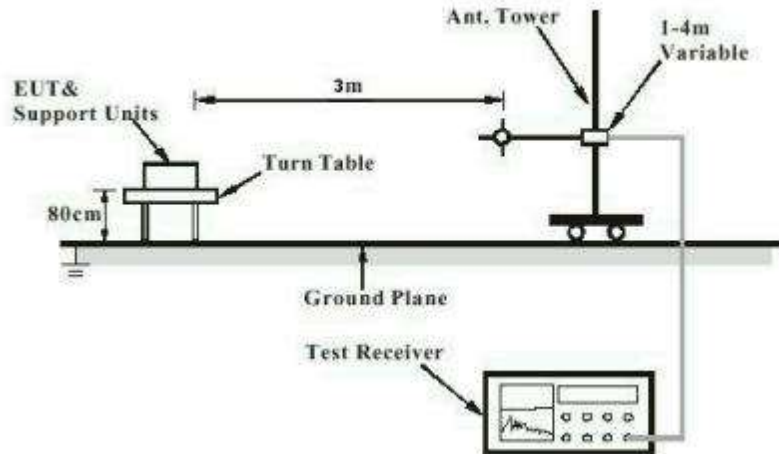


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)

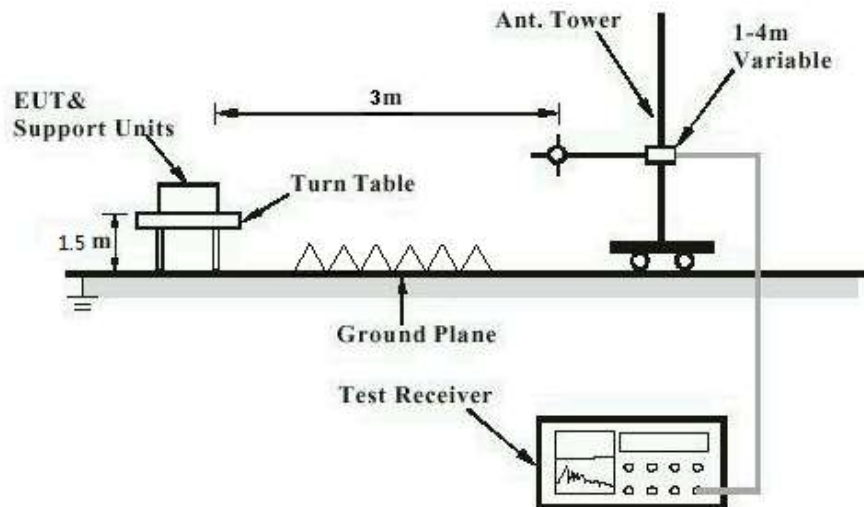


Diagram of Measurement Configuration for Mains Conduction Measurement

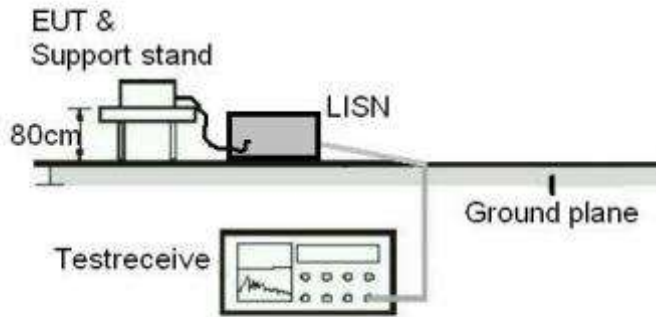


Diagram of Measurement Configuration for Conducted Transmitter Measurement

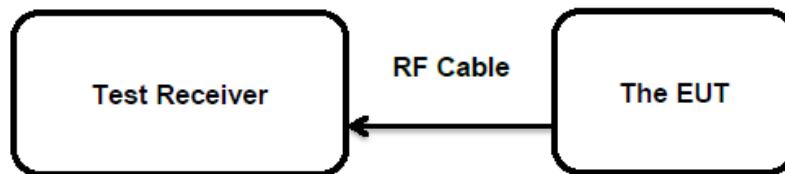
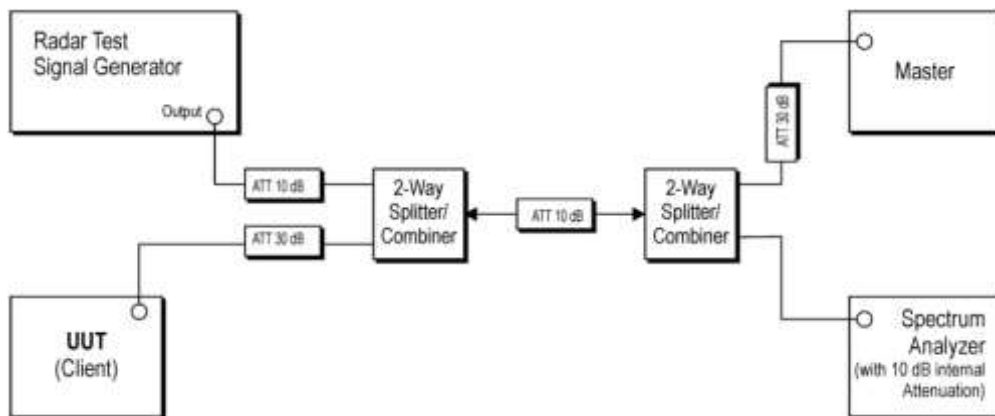


Diagram of Measurement Configuration for Dynamic Frequency Selection (DFS)



5 Test Results

5.1 Transmitter Requirement & Test Suites

5.1.1 Antenna Requirement

RESULT:**Pass****Test Specification**

Test standard : Part 15.203
RSS-Gen Clause 6.8

The EUT have 2 External antennas with SMA connector for Wi-Fi and 1 Integral antenna for BLE. Antenna gain as listed in section 3.2 table 2.

Only professional installation will be permitted. The installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

Manufacturers ensure that their designs will not be modified by the user or third parties arbitrary antenna parameters and performance. The EUT complies with the requirement of § 15.203.

Therefore the EUT is considered sufficient to comply with the provision.

Refer to EUT Photo for further details.

5.1.2 Maximum Conducted Output Power

RESULT:**Pass****Test Specification**

Test standard	: FCC Part 15.407(a)(1)&(2)&(4) RSS-247 clause 6.2
Basic standard	: ANSI C63.10: 2013
Limits	: FCC: <250mW (24dBm) (5150-5250MHz) * <250mW (24dBm) (5250-5350MHz, 5470-5725MHz) * 250 mW (24dBm) or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz, where is lesser. <1W (30dBm) (5725-5850MHz) IC: * Max e.i.r.p.<200mW (23dBm) (5150-5250MHz) * 200 mW (23dBm) or 10 dBm + 10 logB, where B is the 99% emission bandwidth in MHz, where is lesser. * Max conducted output power < 250mW (24dBm) (5250-5350MHz) * 250 mW (24dBm) or 11 dBm + 10 logB, where B is the 99% emission bandwidth in MHz, where is lesser. * Max e.i.r.p.<1W (30dBm) (5250-5350MHz) * 1 W (30dBm) or 17 dBm + 10 log B, where B is the 99% emission bandwidth in MHz, where is lesser. Max conducted output power <1W (30dBm) (5725-5850MHz)

Test Setup

Date of testing	: 2022-06-02 to 2022-07-30
Input voltage	: AC 24V
Operation mode	: A
Test channel	: Low / Middle / High
Ambient temperature	: 24.8 °C
Relative humidity	: 55 %
Atmospheric pressure	: 101 kPa

For the measurement records, refer to the appendix B.

This device is an indoor access point.

5.1.3 Conducted Power Spectral Density

RESULT:**Pass****Test Specification**

Test standard	: FCC part 15.407(a) RSS-247 clause 6.2
Basic standard	: ANSI C63.10: 2013 KDB 789033 D02 v01r03
Limits	: FCC: <11dBm/MHz (5150-5250MHz 5250-5350MHz, 5470-5725MHz) <30dBm/500KHz (5725-5850MHz) IC: e.i.r.p. spectral density <10dBm/MHz (5150-5250MHz) <11dBm/1MHz (5250-5350MHz) <30dBm/500KHz (5725-5850MHz)

Test Setup

Date of testing	: 2022-06-02 to 2022-07-30
Input voltage	: AC 24V
Operation mode	: A
Test channel	: Low / Middle / High
Ambient temperature	: 24.8 °C
Relative humidity	: 55 %
Atmospheric pressure	: 101 kPa

For the measurement records, refer to the appendix B.

5.1.4 Frequency Stability

RESULT:**Pass****Test Specification**

Test standard	:	FCC Part 15.407(g)
	:	RSS-Gen Clause 6.11
Basic standard	:	ANSI C63.10: 2013
Limits	:	Within assigned bands
Kind of test site	:	Shielded Room

As declared, the device will be maintained within assigned bands under all conditions of normal operation as Specified.

5.1.5 26dB Bandwidth and 99% Bandwidth**RESULT:****Pass****Test Specification**

Test standard	:	FCC Part 15.407(e) RSS-Gen Clause 6.6
Basic standard	:	ANSI C63.10: 2013
Limits	:	N/A
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	2022-06-02 to 2022-07-30
Input voltage	:	AC 24V
Operation mode	:	A
Test channel	:	Low / Middle / High
Ambient temperature	:	24.8 °C
Relative humidity	:	55 %
Atmospheric pressure	:	101 kPa

For the measurement records, refer to the appendix B.

5.1.6 6dB Bandwidth

RESULT:**Pass****Test Specification**

Test standard : FCC Part 15.407(e)
RSS-Gen Clause 6.6
Basic standard : ANSI C63.10: 2013
Limits : At least 500KHz (5725-5850MHz)
Kind of test site : Shielded Room

Test Setup

Date of testing : 2022-06-02 to 2022-07-30
Input voltage : AC 24V
Operation mode : A
Test channel : Low / Middle / High
Ambient temperature : 24.8 °C
Relative humidity : 55 %
Atmospheric pressure : 101 kPa

For the measurement records, refer to the appendix B.

5.1.7 Radiated Spurious Emission

RESULT:**Pass****Test Specification**

Test standard	: FCC Part 15.407(b) & FCC Part 15.205 & FCC Part 15.209 RSS-247 clause 6.2 & RSS-GEN clause 8.9 and 8.10
Basic standard	: ANSI C63.10: 2013 KDB 789033 D02 v01r03
Limits	: <ul style="list-style-type: none">• For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.• For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.• For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz. Emissions outside the band 5470-5600 MHz and 5650-5725 MHz shall not exceed -27 dBm/MHz e.i.r.p.• For transmitters operating in the 5.725-5.85 GHz band: All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge. Restricted Bands meet the requirement of 15.209 limit and RSS-GEN

Test Setup

Date of testing	: 2023-07-27 to 2023-09-06
Input voltage	: AC 24V
Operation mode	: A
Test channel	: Low / Middle / High
Ambient temperature	: Refer to test result
Relative humidity	: Refer to test result
Atmospheric pressure	: 101 kPa

Remark:

Testing was carried out within frequency range 9kHz to the tenth harmonics. Only the worst case spurious emissions configuration of the each mode were reported.

For the measurement records, refer to the appendix B.

5.1.8 Dynamic Frequency Selection (DFS)

RESULT:**Pass****Test Specification**

Test standard	:	FCC Part 15.407(h) RSS-247 clause 6.3
Basic standard	:	ANSI C63.10: 2013
Limits	:	5250-5350MHz, 5470-5725MHz FCC Part 15.407(h)(2)
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	2023-08-10 to 2023-10-12
Input voltage	:	AC 24V
Operation mode	:	B
Test channel	:	CH 58, CH 106
Ambient temperature	:	24.8 °C
Relative humidity	:	55 %
Atmospheric pressure	:	101 kPa

For the measurement records, refer to the appendix C.

5.1.9 Conducted Emission on AC Mains

RESULT:**Pass****Test Specification**

Test standard	:	FCC Part 15.207(a) RSS-Gen Clause 8.8
Basic standard	:	ANSI C63.10: 2013
Frequency range	:	0.15 – 30MHz
Limits	:	FCC Part 15.207(a) RSS-Gen Table 4
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	2023-11-08
Input voltage	:	AC 120V, 60Hz
Operation mode	:	B
Earthing	:	Not connected
Ambient temperature	:	23.1 °C
Relative humidity	:	52 %
Atmospheric pressure	:	101 kPa

For the measurement records, refer to the appendix B.

6 Photographs of the Test Set-Up

For photographs of the test set-up, refer to the appendix A.

7 List of Tables

Table 1: List of Test and Measurement Equipment.....	6
Table 2: Technical Specification of EUT.....	8
Table 3: RF Channel and Frequency of 5GHz Wi-Fi 802.11 a/n/ac.....	11
Table 4: List of Accessories and Auxiliary Equipment.....	13