

FCC AND ISED CERTIFICATION TEST REPORT

FOR

Applicant	:	Ruijie Networks Co., Ltd.
Address	:	Building 19, Juyuanzhou Industrial Park, No. 618 Jinshan Road, Cangshan District, Fuzhou, Fujian, China
Equipment under Test	:	Wireless Access Point
Model No.	:	RG-RAP73HD
Trade Mark	:	
FCC ID	:	2AX5J-RAP73HD
IC	:	27676-RAP73HD
Manufacturer	:	Ruijie Networks Co., Ltd.
Address	:	Building 19, Juyuanzhou Industrial Park, No. 618 Jinshan Road, Cangshan District, Fuzhou, Fujian, China

Issued By: Dongguan Dongdian Testing Service Co., Ltd.

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REPORT

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Test Report Declare

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Trade Mark	:	
Manufacturer	:	Ruijie Networks Co., Ltd.
Address	:	Building 19, Juyuanzhou Industrial Park, No. 618 Jinshan Road, Cangshan District, Fuzhou, Fujian, China

Test Standard Used:

FCC Rules and Regulations Part 15 Subpart E, RSS-248 Issue 2 December 20, 2022.

Test procedure used: ANSI C63.10:2013, 789033 D02 General U-NII Test Procedures New Rules v02r01, 987594 D02 U-NII 6GHz EMC Measurement v01r01, 662911 D01 Multiple Transmitter Output v02r01, RSS-Gen Issue 5 April 2018 Amendment 2 (February 2021)

We Declare:

The equipment described above is tested by Dongguan Dongdian Testing Service Co., Ltd. and in the configuration tested the equipment complied with the standards specified above. The test results are contained in this test report and Dongguan Dongdian Testing Service Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

After test and evaluation, our opinion is that the equipment provided for test compliance with the requirement of the above FCC&ISED standards.

Report No:	DDT-RE23032214-2E04		
Date of Receipt:	Feb. 09, 2023	Date of Test:	Feb. 09, 2023 ~ Jul. 05, 2023

Prepared By:

Ella Gong

Ella Gong/Engineer

Approved By:



Damon Hu/EMC Manager

Note: This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Dongguan Dongdian Testing Service Co., Ltd.

Revision History

Rev.	Revisions	Issue Date	Revised By
---	Initial issue	Jul. 05, 2023	

1. Summary of Test Results

The EUT have been tested according to the applicable standards as referenced below.		
Description of Test Item	Standard	Results
6/26db Bandwidth and 99% Bandwidth	15.407(a)(10) RSS-248 Clause 4.4 RSS-GEN Clause 6.7	PASS
Maximum Equivalent Isotropically Radiated Power (E.I.R.P.)	FCC 15.407 (a) RSS-248 Clause 4.5	PASS
Maximum Power Spectral Density	FCC 15.407 (a) RSS-248 Clause 4.5	PASS
In-band Emission	15.407(b)(6) RSS-248 Clause 4.6	PASS
Contention Based Protocol	15.407(d)(6) RSS-248 Clause 4.7	PASS
Frequency Stability Measurement	FCC 15.407 (g) RSS-GEN Clause 8.11	PASS
Unwanted Emissions	FCC 15.407 (b) FCC 15.209 FCC 15.205 RSS-248 Clause 4.6 RSS-GEN Clause 8.9 RSS-GEN Clause 8.10	PASS
Power Line Conducted Emission	FCC 15.207 RSS-GEN Clause 8.8	PASS
Antenna requirement	FCC 15.203 RSS-GEN Clause 6.8	PASS

2. General Test Information

2.1. Description of EUT

EUT* Name	: Wireless Access Point
Model Number	: RG-RAP73HD
EUT function description	: Please reference user manual of this device
Power Supply	: DC 48V from external adapter /POE
Radio Technology	: IEEE 802.11ax/be
Operation frequency	: U-NII-5: 5925 MHz ~ 6415 MHz U-NII-6: 6425 MHz ~ 6525 MHz U-NII-7: 6525 MHz ~ 6875 MHz U-NII-8: 6875 MHz ~ 7125 MHz
Modulation	: IEEE 802.11ax: OFDMA (1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK) IEEE 802.11be: OFDMA (4096QAM, 1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK)
Sample Number	: S23032214-02 for conductive test, S23032214-03 for radiation test

Antenna information							
/	Antenna 1	Antenna 2	Antenna 3	Antenna 4	Beamforming Directional Gain (dBi)	CDD Directional Gain (dBi)	
Antenna Type	PIFA	PIFA	PIFA	PIFA	(dBi)	Power	PSD
U-NII-5 Maximum PK gain(dBi)	6.49	3.99	5.78	5.63	11.54	6.49	11.54
U-NII-6 Maximum PK gain(dBi)	5.91	4.05	5.97	4.84	11.25	5.97	11.25
U-NII-7 Maximum PK gain(dBi)	5.77	4.67	4.58	5.84	11.26	5.84	11.26
U-NII-8 Maximum PK gain(dBi)	5.21	6.08	5.31	5.67	11.59	6.08	11.59
Note: The EUT supports Cyclic Delay Diversity (CDD) mode, and CDD signals are correlated. Directional gain = $G_{ANT} + \text{Array Gain}$, where Array Gain is as follows: 1) For power spectral density (PSD) measurements on all devices. Array Gain = $10 \log (N_{ANT} / N_{SS})$ dB; 2) For power measurements on IEEE 802.11 devices. Array Gain = 0 dB for $N_{ANT} < 4$; The EUT also supports beamforming mode, and the beamforming support 802.11n/ac/ax/be only, not include 802.11a/b/g. BF Directional Gain = Max. Gain + $10 \log (N_{ANT} / N_{SS})$. For beamforming operation, manufacturer automatically backs power down based on a $10 \log (N_{ANT})$ factor based on CDD power, Therefore, only the CDD mode was evaluated in this report.							

Channel information									
IEEE 802.11ax (HE20) IEEE 802.11be (EHT20)		IEEE 802.11ax (HE40) IEEE 802.11be (EHT40)		IEEE 802.11ax (HE80) IEEE 802.11be (EHT80)		IEEE 802.11ax (HE160) IEEE 802.11be (EHT160)		IEEE 802.11be (EHT320)	
UNII-5									
CH	Freq. (MHz)	CH	Freq. (MHz)	CH	Freq. (MHz)	CH	Freq. (MHz)	CH	Freq. (MHz)
1	5955	3	5965	7	5985	15	6025	31	6105
5	5975	11	6005	23	6065	47	6185	63	6265
9	5995	19	6045	39	6145	79	6345	/	/
13	6015	27	6085	55	6225	/	/	/	/
17	6035	35	6125	71	6305	/	/	/	/
21	6055	43	6165	87	6385	/	/	/	/
25	6075	51	6205	/	/	/	/	/	/
29	6095	59	6245	/	/	/	/	/	/
33	6115	67	6285	/	/	/	/	/	/
37	6135	75	6325	/	/	/	/	/	/
41	6155	83	6365	/	/	/	/	/	/
45	6175	91	6405	/	/	/	/	/	/
49	6195	/	/	/	/	/	/	/	/
53	6215	/	/	/	/	/	/	/	/
57	6235	/	/	/	/	/	/	/	/
61	6255	/	/	/	/	/	/	/	/
65	6275	/	/	/	/	/	/	/	/
69	6295	/	/	/	/	/	/	/	/
73	6315	/	/	/	/	/	/	/	/
77	6335	/	/	/	/	/	/	/	/
81	6355	/	/	/	/	/	/	/	/
85	6375	/	/	/	/	/	/	/	/
89	6395	/	/	/	/	/	/	/	/
93	6415	/	/	/	/	/	/	/	/
UNII-6									
97	6435	99	6445	103	6465	111	6505 (Straddle)	127	6585 (Straddle)
101	6455	107	6485	119	6545 (Straddle)	/	/	/	/
105	6475	115	6525 (Straddle)	/	/	/	/	/	/
109	6495	/	/	/	/	/	/	/	/
113	6515	/	/	/	/	/	/	/	/
UNII-7									
117	6535	123	6565	135	6625	143	6665	159	6745
121	6555	131	6605	151	6705	175	6825 (Straddle)	/	/
125	6575	139	6645	167	6785	/	/	/	/
129	6595	147	6685	183	6865 (Straddle)	/	/	/	/
133	6615	155	6725	/	/	/	/	/	/
137	6635	163	6765	/	/	/	/	/	/
141	6655	171	6805	/	/	/	/	/	/
145	6675	179	6845	/	/	/	/	/	/

149	6695	187	6885 (Straddle)	/	/	/	/	/	/
153	6715	/	/	/	/	/	/	/	/
157	6735	/	/	/	/	/	/	/	/
161	6755	/	/	/	/	/	/	/	/
165	6775	/	/	/	/	/	/	/	/
169	6795	/	/	/	/	/	/	/	/
173	6815	/	/	/	/	/	/	/	/
177	6835	/	/	/	/	/	/	/	/
181	6855	/	/	/	/	/	/	/	/
185	6875 (Straddle)	/	/	/	/	/	/	/	/
UNII-8									
189	6895	195	6925	199	6945	207	6985	191	6905
193	6915	203	6965	215	7025	/	/	/	/
197	6935	211	7005	/	/	/	/	/	/
201	6955	219	7045	/	/	/	/	/	/
205	6975	227	7085	/	/	/	/	/	/
209	6995	/	/	/	/	/	/	/	/
213	7015	/	/	/	/	/	/	/	/
217	7035	/	/	/	/	/	/	/	/
221	7055	/	/	/	/	/	/	/	/
225	7075	/	/	/	/	/	/	/	/
229	7095	/	/	/	/	/	/	/	/
233	7115	/	/	/	/	/	/	/	/

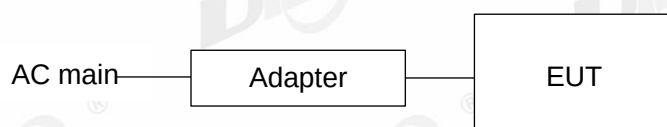
2.2. Accessories of EUT

Description of Accessories	Manufacturer	Model number	Other
POE Power Supply	RISUNIC Technology (ShenZhen) Co., Ltd	RP026-5601080YX	Input: 100-240~50/60Hz, 1.5A Max Output: DC 56.0V/1.08A, 60.48W

2.3. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	EMC Compliance	SN
N/A	N/A	N/A	N/A	N/A

2.4. Block diagram of EUT configuration for test



Test software: QATool_20221007C.exe

The test software was used to control EUT work in Continuous Tx mode, and select test channel, wireless mode as below table.

The pathloss of external cable: 2 dB (According to the manufacturer's claims)

Tested mode, channel, and data rate information				
Mode	Setting Tx Power Level	data rate (Mbps) (see Note)	Channel	Frequency (MHz)
IEEE 802.11ax HE20	0	MCS 0	1	5955
	0	MCS 0	45	6175
	0	MCS 0	93	6415
	0	MCS 0	97	6435
	0	MCS 0	105	6475
	0	MCS 0	113	6515
	0	MCS 0	117	6535
	0	MCS 0	149	6695
	0	MCS 0	181	6855
	0	MCS 0	185	6875 (Straddle)
	0	MCS 0	189	6895
	0	MCS 0	209	6995
	0	MCS 0	233	7115
IEEE 802.11ax HE40	4	MCS 0	3	5965
	4	MCS 0	43	6165
	4	MCS 0	91	6405
	4	MCS 0	99	6445
	4	MCS 0	107	6485
	4	MCS 0	115	6525 (Straddle)
	4	MCS 0	123	6565
	4	MCS 0	147	6685
	4	MCS 0	179	6845
	4	MCS 0	187	6885 (Straddle)
	4	MCS 0	195	6925
	4	MCS 0	203	6965
	4	MCS 0	227	7085
IEEE 802.11ax HE80	7	MCS 0	7	5985
	7	MCS 0	39	6145
	7	MCS 0	87	6385
	7	MCS 0	103	6465
	7	MCS 0	119	6545 (Straddle)
	7	MCS 0	135	6625
	7	MCS 0	151	6705
	7	MCS 0	167	6785
	7	MCS 0	183	6865 (Straddle)
	7	MCS 0	199	6945
IEEE 802.11ax HE160	7	MCS 0	215	7025
	8	MCS 0	15	6025

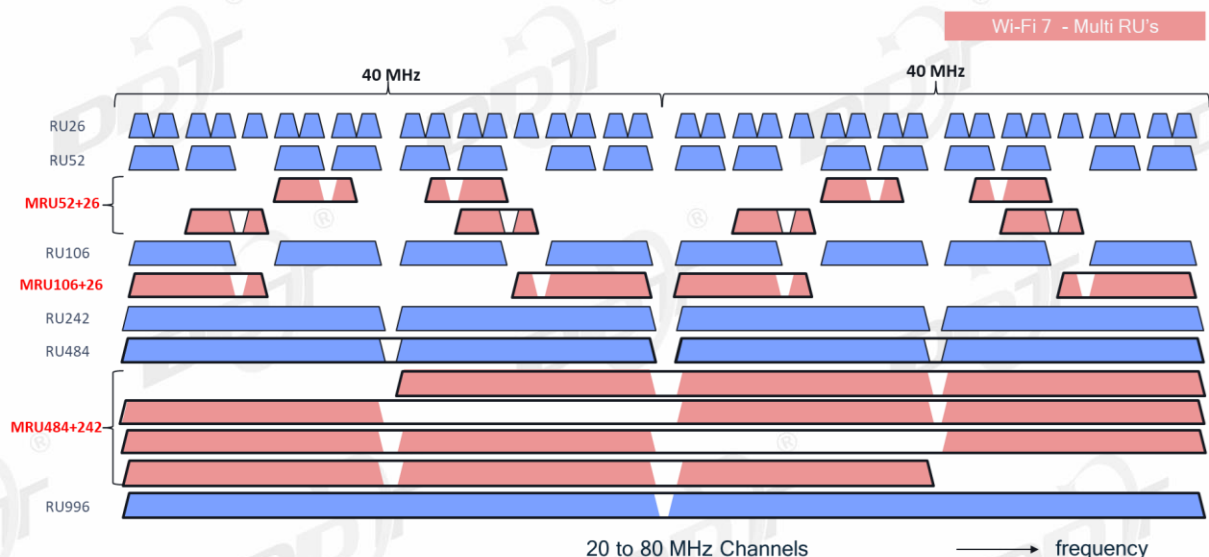
	8	MCS 0	47	6185
	8	MCS 0	79	6345
	8	MCS 0	111	6505
	8	MCS 0	143	6665
	8	MCS 0	175	6825 (Straddle)
IEEE 802.11be EHT20	8	MCS 0	207	6985
	0	MCS 0	1	5955
	0	MCS 0	45	6175
	0	MCS 0	93	6415
	0	MCS 0	97	6435
	0	MCS 0	105	6475
	0	MCS 0	113	6515
	0	MCS 0	117	6535
	0	MCS 0	149	6695
	0	MCS 0	181	6855
	0	MCS 0	185	6875 (Straddle)
	0	MCS 0	189	6895
	0	MCS 0	209	6995
	-11	MCS 0	233	7115
IEEE 802.11be EHT40	4	MCS 0	3	5965
	4	MCS 0	43	6165
	4	MCS 0	91	6405
	4	MCS 0	99	6445
	4	MCS 0	107	6485
	4	MCS 0	115	6525 (Straddle)
	4	MCS 0	123	6565
	4	MCS 0	147	6685
	4	MCS 0	179	6845
	4	MCS 0	187	6885 (Straddle)
	4	MCS 0	195	6925
	4	MCS 0	203	6965
	4	MCS 0	227	7085
IEEE 802.11be EHT80	7	MCS 0	7	5985
	7	MCS 0	39	6145
	7	MCS 0	87	6385
	7	MCS 0	103	6465
	7	MCS 0	119	6545 (Straddle)
	7	MCS 0	135	6625
	7	MCS 0	151	6705
	7	MCS 0	167	6785
	7	MCS 0	183	6865 (Straddle)
	7	MCS 0	199	6945
IEEE 802.11be EHT160	7	MCS 0	215	7025
	8	MCS 0	15	6025
	8	MCS 0	47	6185

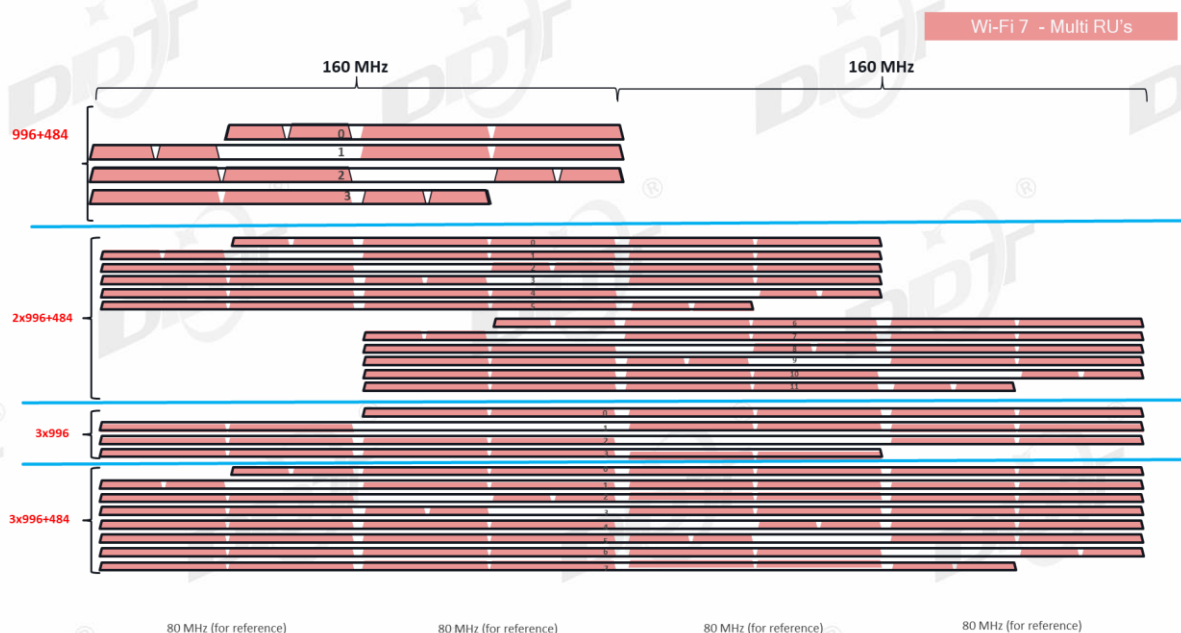
	8	MCS 0	79	6345
	8	MCS 0	111	6505
	8	MCS 0	143	6665
	8	MCS 0	175	6825 (Straddle)
	8	MCS 0	207	6985
IEEE 802.11be EHT320	10	MCS 0	31	6105
	10	MCS 0	63	6265
	10	MCS 0	127	6585
	10	MCS 0	159	6745
	10	MCS 0	191	6905

Note: According exploratory test, EUT will have maximum output power in those data rate, so those data rate were used for all test.

Note:

1. For 802.11ax/be 20/40/80/160MHz and 802.11be EHT20EHT40/ EHT80/ EHT160MHz mode, the whole testing has assessed only the worst case refer to output power.
2. For WLAN SISO & MMO mode, the whole testing has assessed only MIMO mode by referring to the higher normal conducted power.
3. UNI-5/-6/-7/-8 can't transmit simultaneously.
4. 802.11 ax only support full RU mode
5. 802.11be support full RU tone and partial RU tone, both full RU and partial RU-left (for low CH) and partial RU-right (for high CH), small size RU, Large size RU and Puncturing modes are tested for conducted power/PSD, the Channel Mask/RSE/ Bandwidth Emission test for full RU only.
6. 802.11be support small size RU, Large size RU and Puncturing modes as below:





2.5. Deviations of test standard

No Deviation.

2.6. Test environment conditions

Temperature range:	+15℃ to +35 ℃
Humidity range:	20% to 75%
Pressure range:	86 kPa to 106 kPa

2.7. Test laboratory

Dongguan Dongdian Testing Service Co., Ltd.

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CNAS Accreditation No. L6451; A2LA Accreditation Number: 3870.01

FCC Designation Number: CN1182, Test Firm Registration Number: 540522

Innovation, Science and Economic Development Canada Site Registration Number: 10288A

Conformity Assessment Body identifier: CN0048

VCCI facility registration number: C-20087, T-20088, R-20123, R-20155, G-20118

2.8. Measurement uncertainty

Test Item	Uncertainty
Bandwidth	1.1%
Peak Output Power (Conducted) (Spectrum analyzer)	0.86 dB (10 MHz $\leq$ f < 3.6 GHz); 1.38 dB (3.6 GHz $\leq$ f < 8 GHz)
Peak Output Power (Conducted) (Power Sensor)	0.74 dB
Power Spectral Density	0.74 dB (10 MHz $\leq$ f < 3.6 GHz); 1.38 dB (3.6 GHz $\leq$ f < 8 GHz)
Frequencies Stability	6.7 x 10 ⁻⁸ (Antenna couple method) 5.5 x 10 ⁻⁸ (Conducted method)
Conducted spurious emissions	0.86 dB (10 MHz $\leq$ f < 3.6GHz); 1.40 dB (3.6 GHz $\leq$ f < 8 GHz) 1.66 dB (8 GHz $\leq$ f < 22 GHz)
Uncertainty for radio frequency (RBW<20kHz)	3x10 ⁻⁸
Temperature	0.4℃
Humidity	2%
Uncertainty for Radiation Emission test (9 kHz – 30 MHz)	3.44 dB
Uncertainty for Radiation Emission test (30MHz-1GHz)	4.70 dB (Antenna Polarize: V) 4.84 dB (Antenna Polarize: H)
Uncertainty for Radiation Emission test (1GHz-40GHz)	4.10 dB (1-6 GHz) 4.40 dB (6 GHz-18 GHz) 3.54 dB (18 GHz-26 GHz) 4.30 dB (26 GHz-40 GHz)
Uncertainty for Power line conduction emission test	3.32 dB (150 kHz-30 MHz)
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

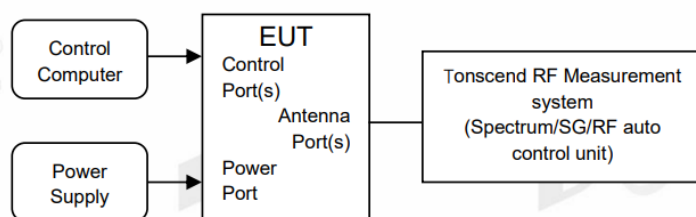
3. Equipment Used During Test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
☑RF Connected Test (Tonscend RF Measurement System 4#)					
Signal & Spectrum analyzer	R&S	FSV3044	101173	May 26, 2022 Apr. 23, 2023	1 Year
Wideband Radio Communication tester	R&S	CMW500	120259	May 26, 2022 Apr. 27, 2023	1 Year
Vector Signal Generator	Agilent	N5182A	MY48180737	Apr. 27, 2023	1 Year
Vector Signal Generator	Agilent	E8267D	US49060192	Sep. 28, 2022	1 Year
RF Control Unit	Tonsend	JS0806-2	2118060485	May 28, 2022 Apr. 27, 2023	1 Year
Temp&Humi Programmable	ZHIXIANG	ZXGDJS-150L	ZX170110-A	May 26, 2022 May 15, 2023	1 Year
Test Software	JS Tonscend	JS1120-3	Ver.3.2.22	N/A	N/A
☑Radiation 3#chamber					
EMI Test Receiver	R&S	ESU26	100472	May 19, 2022 Apr. 23, 2023	1 Year
Spectrum analyzer	Agilent	E4447A	MY50180031	May 17, 2022 Apr. 23, 2023	1 Year
Active Loop antenna	Schwarzbeck	FMZB-1519	1519-038	Sep. 29, 2022	1 Year
Trilog Broadband Antenna	Schwarzbeck	VULB 9163	01429	Jul. 22, 2022	1 Year
Double Ridged Horn Antenna	Schwarzbeck	BBHA9120 D	02468	Sep. 29, 2022	1 Year
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	790	May 06, 2022 Apr. 26, 2023	1 Year
Pre-amplifier	COM-POWER	PAM-118A	18040084	Aug. 17, 2022	1 Year
Pre-amplifier	COM-POWER	PAM-840A	461369	May 26, 2022 Apr. 27, 2023	1 Year
RE Cable	N/A	W23.02 CP1-X2 + W23.09 AP1-X8+ JCT26S-NJ-NJ-1.5M+ JCT26S-NJ-NJ-1.5M	4.5M+8M+1.5M+1.5M	Aug. 17, 2022	1 Year
RF Cable	Yuhu Technology	JCTB810-NJ-NJ-9M	21123964	May 19, 2022 Apr. 23, 2023	1 Year
RF Cable	Yuhu Technology	ZT26S-SMAJ-SMAJ-1M	21073466	Aug. 17, 2022	1 Year
Micro-Tronics filters	REBES	BRM50702	G555	N/A	N/A
Micro-Tronics filters	REBES	BRM50716	G392	N/A	N/A
High Pass filter	XB	XBLBQ-GTA67	210820-2-3	N/A	N/A
Test software	Tonscend	JS32-RE	V 5.0.0.1	N/A	N/A
☑Power Line Conducted Emissions Test 1#					
Test Receiver	R&S	ESCI	100551	Aug. 26, 2022	1 Year

LISN 1	R&S	ENV216	101109	Aug. 26, 2022	1 Year
LISN 2	R&S	ESH2-Z5	100309	Aug. 26, 2022	1 Year
Pulse Limiter	R&S	ESH3-Z2	101242	Aug. 26, 2022	1 Year
CE Cable 1	HUBSER	N/A	W10.01	Aug. 26, 2022	1 Year
Test software	Audix	E3	V 6.11111b	N/A	N/A
Test Receiver	R&S	ESCI	100551	Aug. 26, 2022	1 Year

4. 26dB Bandwidth

4.1. Block diagram of test setup



4.2. Limits

FCC Part15, Subpart E/ RSS-248		
Test Item	Limit	Frequency Range (MHz)
26 dB Bandwidth	---	5955- 6415
	---	6435- 6515
	---	6535- 6875
	---	6895- 7115

4.3. Test procedure

Connect EUT's antenna output to spectrum analyzer by RF cable.

Center Frequency	The center frequency of the channel under test
RBW	approximately 1% of the emission bandwidth.
VBW	> RBW
Detector	Peak
Trace	Max hold
Sweep	Auto couple

Allow the trace to stabilize, measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 26 dB relative to the maximum level measured in the fundamental emission.

4.4. Test result

Test Mode	Antenna	Frequency [MHz]	26db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11AX20MIMO	Ant1	5955	19.96	5945.00	5964.96	---	---
	Ant2	5955	19.92	5945.04	5964.96	---	---
	Ant3	5955	19.88	5945.04	5964.92	---	---
	Ant4	5955	19.92	5945.00	5964.92	---	---
	Ant1	6175	19.96	6165.00	6184.96	---	---
	Ant2	6175	19.92	6165.04	6184.96	---	---
	Ant3	6175	19.96	6165.00	6184.96	---	---
	Ant4	6175	19.92	6165.04	6184.96	---	---
	Ant1	6415	19.96	6405.00	6424.96	---	---
	Ant2	6415	19.96	6405.00	6424.96	---	---
	Ant3	6415	19.92	6405.00	6424.92	---	---
	Ant4	6415	19.96	6405.00	6424.96	---	---
	Ant1	6435	19.92	6425.04	6444.96	---	---

	Ant2	6435	19.96	6425.00	6444.96	---	---
	Ant3	6435	19.92	6425.04	6444.96	---	---
	Ant4	6435	19.84	6425.04	6444.88	---	---
	Ant1	6475	19.96	6465.00	6484.96	---	---
	Ant2	6475	19.88	6465.04	6484.92	---	---
	Ant3	6475	19.92	6465.04	6484.96	---	---
	Ant4	6475	19.92	6465.04	6484.96	---	---
	Ant1	6515	19.92	6505.00	6524.92	---	---
	Ant2	6515	19.96	6505.00	6524.96	---	---
	Ant3	6515	19.92	6505.00	6524.92	---	---
	Ant4	6515	19.92	6505.04	6524.96	---	---
	Ant1	6535	19.96	6525.00	6544.96	---	---
	Ant2	6535	19.96	6525.00	6544.96	---	---
	Ant3	6535	19.92	6525.00	6544.92	---	---
	Ant4	6535	19.88	6525.04	6544.92	---	---
	Ant1	6695	19.92	6685.04	6704.96	---	---
	Ant2	6695	19.88	6685.04	6704.92	---	---
	Ant3	6695	19.92	6685.04	6704.96	---	---
	Ant4	6695	19.88	6685.04	6704.92	---	---
	Ant1	6855	19.88	6845.08	6864.96	---	---
	Ant2	6855	19.92	6845.00	6864.92	---	---
	Ant3	6855	19.92	6845.00	6864.92	---	---
	Ant4	6855	19.92	6845.00	6864.92	---	---
	Ant1	6875	19.92	6865.00	6884.92	---	---
	Ant2	6875	19.92	6865.00	6884.92	---	---
	Ant3	6875	19.96	6865.00	6884.96	---	---
	Ant4	6875	19.92	6865.04	6884.96	---	---
	Ant1	6895	19.96	6885.00	6904.96	---	---
	Ant2	6895	19.92	6885.04	6904.96	---	---
	Ant3	6895	19.84	6885.04	6904.88	---	---
	Ant4	6895	19.92	6885.00	6904.92	---	---
	Ant1	6995	19.92	6985.04	7004.96	---	---
	Ant2	6995	19.92	6985.00	7004.92	---	---
	Ant3	6995	19.92	6985.00	7004.92	---	---
	Ant4	6995	19.92	6985.00	7004.92	---	---
	Ant1	7115	19.92	7105.00	7124.92	---	---
	Ant2	7115	19.92	7105.00	7124.92	---	---
	Ant3	7115	19.92	7105.00	7124.92	---	---
	Ant4	7115	19.88	7105.04	7124.92	---	---
11AX40MIMO	Ant1	5965	39.84	5945.00	5984.84	---	---
	Ant2	5965	39.84	5945.08	5984.92	---	---
	Ant3	5965	39.76	5945.08	5984.84	---	---
	Ant4	5965	39.84	5945.00	5984.84	---	---
	Ant1	6165	39.76	6145.08	6184.84	---	---
	Ant2	6165	39.84	6145.08	6184.92	---	---
	Ant3	6165	39.84	6145.08	6184.92	---	---
	Ant4	6165	39.84	6145.08	6184.92	---	---
	Ant1	6405	39.84	6385.08	6424.92	---	---
	Ant2	6405	39.76	6385.08	6424.84	---	---
	Ant3	6405	39.84	6385.08	6424.92	---	---
	Ant4	6405	39.92	6385.00	6424.92	---	---
	Ant1	6445	40.00	6425.00	6465.00	---	---
	Ant2	6445	39.84	6425.08	6464.92	---	---
	Ant3	6445	40.00	6425.00	6465.00	---	---
	Ant4	6445	39.84	6425.08	6464.92	---	---
	Ant1	6485	39.92	6465.08	6505.00	---	---
	Ant2	6485	39.76	6465.08	6504.84	---	---
	Ant3	6485	39.76	6465.08	6504.84	---	---
	Ant4	6485	39.84	6465.08	6504.92	---	---
	Ant1	6525	39.84	6505.08	6544.92	---	---
	Ant2	6525	39.76	6505.08	6544.84	---	---
	Ant3	6525	39.92	6505.08	6545.00	---	---
	Ant4	6525	39.92	6505.00	6544.92	---	---
	Ant1	6565	40.00	6545.00	6585.00	---	---

	Ant2	6565	39.84	6545.08	6584.92	---	---
	Ant3	6565	39.76	6545.08	6584.84	---	---
	Ant4	6565	39.76	6545.08	6584.84	---	---
	Ant1	6685	39.92	6665.00	6704.92	---	---
	Ant2	6685	39.76	6665.08	6704.84	---	---
	Ant3	6685	39.76	6665.08	6704.84	---	---
	Ant4	6685	39.76	6665.08	6704.84	---	---
	Ant1	6845	39.84	6825.08	6864.92	---	---
	Ant2	6845	39.84	6825.00	6864.84	---	---
	Ant3	6845	39.92	6825.00	6864.92	---	---
	Ant4	6845	39.92	6825.08	6865.00	---	---
	Ant1	6885	39.92	6865.00	6904.92	---	---
	Ant2	6885	39.76	6865.08	6904.84	---	---
	Ant3	6885	39.76	6865.08	6904.84	---	---
	Ant4	6885	39.68	6865.16	6904.84	---	---
	Ant1	6925	40.00	6905.00	6945.00	---	---
	Ant2	6925	39.76	6905.08	6944.84	---	---
	Ant3	6925	39.76	6905.08	6944.84	---	---
	Ant4	6925	39.68	6905.16	6944.84	---	---
	Ant1	6965	39.84	6945.08	6984.92	---	---
	Ant2	6965	39.84	6945.08	6984.92	---	---
	Ant3	6965	39.68	6945.16	6984.84	---	---
	Ant4	6965	39.68	6945.16	6984.84	---	---
	Ant1	7085	39.84	7065.08	7104.92	---	---
	Ant2	7085	39.84	7065.00	7104.84	---	---
	Ant3	7085	39.68	7065.16	7104.84	---	---
	Ant4	7085	39.76	7065.16	7104.92	---	---
11AX80MIMO	Ant1	5985	80.32	5944.84	6025.16	---	---
	Ant2	5985	80.32	5944.84	6025.16	---	---
	Ant3	5985	80.32	5944.84	6025.16	---	---
	Ant4	5985	80.32	5944.84	6025.16	---	---
	Ant1	6145	80.32	6104.84	6185.16	---	---
	Ant2	6145	80.32	6104.84	6185.16	---	---
	Ant3	6145	80.32	6104.84	6185.16	---	---
	Ant4	6145	80.32	6104.84	6185.16	---	---
	Ant1	6385	80.32	6344.84	6425.16	---	---
	Ant2	6385	80.32	6344.84	6425.16	---	---
	Ant3	6385	80.32	6344.84	6425.16	---	---
	Ant4	6385	80.32	6344.84	6425.16	---	---
	Ant1	6465	80.48	6424.68	6505.16	---	---
	Ant2	6465	80.32	6424.84	6505.16	---	---
	Ant3	6465	80.32	6424.84	6505.16	---	---
	Ant4	6465	80.32	6424.84	6505.16	---	---
	Ant1	6545	80.32	6504.84	6585.16	---	---
	Ant2	6545	80.32	6504.84	6585.16	---	---
	Ant3	6545	80.48	6504.68	6585.16	---	---
	Ant4	6545	80.32	6504.84	6585.16	---	---
	Ant1	6625	80.32	6584.84	6665.16	---	---
	Ant2	6625	80.48	6584.68	6665.16	---	---
	Ant3	6625	80.32	6584.84	6665.16	---	---
	Ant4	6625	80.32	6584.84	6665.16	---	---
	Ant1	6705	80.32	6664.84	6745.16	---	---
	Ant2	6705	80.48	6664.68	6745.16	---	---
	Ant3	6705	80.48	6664.68	6745.16	---	---
	Ant4	6705	80.32	6664.84	6745.16	---	---
	Ant1	6785	80.32	6744.84	6825.16	---	---
	Ant2	6785	80.48	6744.68	6825.16	---	---
	Ant3	6785	80.32	6744.84	6825.16	---	---
	Ant4	6785	80.32	6744.84	6825.16	---	---
	Ant1	6865	80.32	6824.84	6905.16	---	---
	Ant2	6865	80.32	6824.84	6905.16	---	---
	Ant3	6865	80.32	6824.84	6905.16	---	---
	Ant4	6865	80.48	6824.68	6905.16	---	---
	Ant1	6945	80.48	6904.68	6985.16	---	---

	Ant2	6945	80.32	6904.84	6985.16	---	---
	Ant3	6945	80.48	6904.68	6985.16	---	---
	Ant4	6945	80.32	6904.84	6985.16	---	---
	Ant1	7025	80.48	6984.68	7065.16	---	---
	Ant2	7025	80.32	6984.84	7065.16	---	---
	Ant3	7025	80.32	6984.84	7065.16	---	---
11AX160MIMO	Ant4	7025	80.48	6984.68	7065.16	---	---
	Ant1	6025	162.24	5944.04	6106.28	---	---
	Ant2	6025	162.24	5944.04	6106.28	---	---
	Ant3	6025	162.56	5943.72	6106.28	---	---
	Ant4	6025	162.56	5943.72	6106.28	---	---
	Ant1	6185	162.56	6103.72	6266.28	---	---
	Ant2	6185	162.56	6103.72	6266.28	---	---
	Ant3	6185	162.56	6103.72	6266.28	---	---
	Ant4	6185	162.56	6103.72	6266.28	---	---
	Ant1	6345	162.56	6263.72	6426.28	---	---
	Ant2	6345	162.56	6263.72	6426.28	---	---
	Ant3	6345	162.56	6263.72	6426.28	---	---
	Ant4	6345	162.56	6263.72	6426.28	---	---
	Ant1	6505	162.24	6423.72	6585.96	---	---
	Ant2	6505	162.56	6423.72	6586.28	---	---
	Ant3	6505	162.56	6423.72	6586.28	---	---
	Ant4	6505	162.56	6423.72	6586.28	---	---
	Ant1	6665	162.56	6583.72	6746.28	---	---
	Ant2	6665	162.56	6583.72	6746.28	---	---
	Ant3	6665	162.56	6583.72	6746.28	---	---
	Ant4	6665	162.56	6583.72	6746.28	---	---
	Ant1	6825	162.56	6743.72	6906.28	---	---
	Ant2	6825	162.56	6743.72	6906.28	---	---
	Ant3	6825	162.56	6743.72	6906.28	---	---
	Ant4	6825	162.56	6743.72	6906.28	---	---
	Ant1	6985	162.56	6903.72	7066.28	---	---
	Ant2	6985	162.56	6903.72	7066.28	---	---
	Ant3	6985	162.56	6903.72	7066.28	---	---
	Ant4	6985	162.56	6903.72	7066.28	---	---
11BE20MIMO	Ant1	5955	19.96	5945.04	5965.00	---	---
	Ant2	5955	19.80	5945.08	5964.88	---	---
	Ant3	5955	19.88	5945.04	5964.92	---	---
	Ant4	5955	19.92	5945.00	5964.92	---	---
	Ant1	6175	19.92	6165.00	6184.92	---	---
	Ant2	6175	19.80	6165.12	6184.92	---	---
	Ant3	6175	19.76	6165.08	6184.84	---	---
	Ant4	6175	19.92	6165.00	6184.92	---	---
	Ant1	6415	19.92	6405.00	6424.92	---	---
	Ant2	6415	19.96	6405.00	6424.96	---	---
	Ant3	6415	19.92	6405.08	6425.00	---	---
	Ant4	6415	19.96	6405.00	6424.96	---	---
	Ant1	6435	19.92	6425.04	6444.96	---	---
	Ant2	6435	19.96	6425.00	6444.96	---	---
	Ant3	6435	19.88	6425.04	6444.92	---	---
	Ant4	6435	19.96	6425.00	6444.96	---	---
	Ant1	6475	19.96	6465.00	6484.96	---	---
	Ant2	6475	19.92	6465.04	6484.96	---	---
	Ant3	6475	19.92	6465.04	6484.96	---	---
	Ant4	6475	19.92	6465.04	6484.96	---	---
	Ant1	6515	19.92	6505.00	6524.92	---	---
	Ant2	6515	20.04	6504.96	6525.00	---	---
	Ant3	6515	20.04	6504.96	6525.00	---	---
	Ant4	6515	19.96	6505.00	6524.96	---	---
	Ant1	6535	20.00	6524.96	6544.96	---	---
	Ant2	6535	19.88	6525.04	6544.92	---	---
	Ant3	6535	19.88	6525.00	6544.88	---	---
	Ant4	6535	19.88	6525.00	6544.88	---	---
	Ant1	6695	19.84	6685.04	6704.88	---	---

	Ant2	6695	19.88	6685.04	6704.92	---	---
	Ant3	6695	19.92	6685.00	6704.92	---	---
	Ant4	6695	19.88	6685.08	6704.96	---	---
	Ant1	6855	19.96	6845.04	6865.00	---	---
	Ant2	6855	19.84	6845.04	6864.88	---	---
	Ant3	6855	19.84	6845.04	6864.88	---	---
	Ant4	6855	19.88	6845.04	6864.92	---	---
	Ant1	6875	19.88	6865.04	6884.92	---	---
	Ant2	6875	19.92	6865.00	6884.92	---	---
	Ant3	6875	19.88	6865.04	6884.92	---	---
	Ant4	6875	19.92	6865.04	6884.96	---	---
	Ant1	6895	19.96	6885.00	6904.96	---	---
	Ant2	6895	19.96	6885.00	6904.96	---	---
	Ant3	6895	19.96	6885.00	6904.96	---	---
	Ant4	6895	19.96	6885.00	6904.96	---	---
	Ant1	6995	19.96	6985.04	7005.00	---	---
	Ant2	6995	20.08	6984.96	7005.04	---	---
	Ant3	6995	19.96	6985.00	7004.96	---	---
	Ant4	6995	20.00	6985.00	7005.00	---	---
	Ant1	7115	19.96	7105.00	7124.96	---	---
11BE40MIMO	Ant2	7115	19.92	7105.04	7124.96	---	---
	Ant3	7115	20.00	7104.96	7124.96	---	---
	Ant4	7115	19.88	7105.08	7124.96	---	---
	Ant1	5965	39.76	5945.16	5984.92	---	---
	Ant2	5965	39.76	5945.08	5984.84	---	---
	Ant3	5965	39.84	5945.08	5984.92	---	---
	Ant4	5965	39.76	5945.08	5984.84	---	---
	Ant1	6165	39.68	6145.16	6184.84	---	---
	Ant2	6165	39.84	6145.08	6184.92	---	---
	Ant3	6165	39.76	6145.16	6184.92	---	---
	Ant4	6165	39.60	6145.24	6184.84	---	---
	Ant1	6405	39.76	6385.16	6424.92	---	---
	Ant2	6405	39.76	6385.16	6424.92	---	---
	Ant3	6405	39.92	6385.00	6424.92	---	---
	Ant4	6405	39.84	6385.08	6424.92	---	---
	Ant1	6445	39.92	6425.08	6465.00	---	---
	Ant2	6445	39.84	6425.00	6464.84	---	---
	Ant3	6445	39.76	6425.16	6464.92	---	---
	Ant4	6445	39.76	6425.16	6464.92	---	---
	Ant1	6485	39.76	6465.08	6504.84	---	---
	Ant2	6485	39.68	6465.24	6504.92	---	---
	Ant3	6485	39.68	6465.16	6504.84	---	---
	Ant4	6485	39.76	6465.08	6504.84	---	---
	Ant1	6525	39.84	6505.08	6544.92	---	---
	Ant2	6525	39.92	6504.92	6544.84	---	---
	Ant3	6525	39.68	6505.16	6544.84	---	---
	Ant4	6525	39.84	6505.00	6544.84	---	---
	Ant1	6565	39.76	6545.16	6584.92	---	---
	Ant2	6565	39.92	6545.08	6585.00	---	---
	Ant3	6565	39.84	6545.16	6585.00	---	---
	Ant4	6565	39.60	6545.16	6584.76	---	---
	Ant1	6685	39.76	6665.08	6704.84	---	---
	Ant2	6685	39.92	6665.00	6704.92	---	---
	Ant3	6685	39.68	6665.16	6704.84	---	---
	Ant4	6685	39.84	6665.08	6704.92	---	---
	Ant1	6845	39.84	6825.08	6864.92	---	---
	Ant2	6845	39.84	6825.08	6864.92	---	---
	Ant3	6845	39.76	6825.16	6864.92	---	---
	Ant4	6845	39.84	6825.08	6864.92	---	---
	Ant1	6885	39.92	6865.00	6904.92	---	---
	Ant2	6885	39.84	6865.08	6904.92	---	---
	Ant3	6885	39.84	6865.08	6904.92	---	---
	Ant4	6885	39.92	6865.00	6904.92	---	---
	Ant1	6925	39.84	6905.08	6944.92	---	---

	Ant2	6925	39.76	6905.08	6944.84	---	---
	Ant3	6925	39.76	6905.08	6944.84	---	---
	Ant4	6925	39.84	6905.00	6944.84	---	---
	Ant1	6965	40.00	6945.00	6985.00	---	---
	Ant2	6965	39.76	6945.16	6984.92	---	---
	Ant3	6965	39.76	6945.16	6984.92	---	---
	Ant4	6965	39.76	6945.08	6984.84	---	---
	Ant1	7085	39.76	7065.00	7104.76	---	---
	Ant2	7085	39.84	7065.00	7104.84	---	---
	Ant3	7085	39.76	7065.08	7104.84	---	---
	Ant4	7085	39.76	7065.08	7104.84	---	---
	Ant1	5985	80.32	5944.84	6025.16	---	---
11BE80MIMO	Ant2	5985	80.48	5944.68	6025.16	---	---
	Ant3	5985	80.32	5944.84	6025.16	---	---
	Ant4	5985	80.48	5944.68	6025.16	---	---
	Ant1	6145	80.32	6104.84	6185.16	---	---
	Ant2	6145	80.48	6104.84	6185.32	---	---
	Ant3	6145	80.64	6104.68	6185.32	---	---
	Ant4	6145	80.48	6104.84	6185.32	---	---
	Ant1	6385	80.32	6344.84	6425.16	---	---
	Ant2	6385	80.32	6344.84	6425.16	---	---
	Ant3	6385	80.32	6344.84	6425.16	---	---
	Ant4	6385	80.32	6344.84	6425.16	---	---
	Ant1	6465	80.48	6424.68	6505.16	---	---
	Ant2	6465	80.32	6424.84	6505.16	---	---
	Ant3	6465	80.48	6424.68	6505.16	---	---
	Ant4	6465	80.32	6424.84	6505.16	---	---
	Ant1	6545	80.64	6504.68	6585.32	---	---
	Ant2	6545	80.48	6504.68	6585.16	---	---
	Ant3	6545	80.48	6504.84	6585.32	---	---
	Ant4	6545	80.32	6504.84	6585.16	---	---
	Ant1	6625	80.48	6584.68	6665.16	---	---
	Ant2	6625	80.32	6584.84	6665.16	---	---
	Ant3	6625	80.32	6584.84	6665.16	---	---
	Ant4	6625	80.48	6584.68	6665.16	---	---
	Ant1	6705	80.48	6664.84	6745.32	---	---
	Ant2	6705	80.32	6664.84	6745.16	---	---
	Ant3	6705	80.32	6664.84	6745.16	---	---
	Ant4	6705	80.32	6664.84	6745.16	---	---
	Ant1	6785	80.32	6744.84	6825.16	---	---
	Ant2	6785	80.48	6744.68	6825.16	---	---
	Ant3	6785	80.48	6744.84	6825.32	---	---
	Ant4	6785	80.64	6744.68	6825.32	---	---
	Ant1	6865	80.32	6824.84	6905.16	---	---
	Ant2	6865	80.32	6824.84	6905.16	---	---
	Ant3	6865	80.48	6824.84	6905.32	---	---
	Ant4	6865	80.32	6824.84	6905.16	---	---
	Ant1	6945	80.48	6904.68	6985.16	---	---
	Ant2	6945	80.48	6904.84	6985.32	---	---
	Ant3	6945	80.48	6904.68	6985.16	---	---
	Ant4	6945	80.48	6904.68	6985.16	---	---
	Ant1	7025	80.32	6984.84	7065.16	---	---
	Ant2	7025	80.32	6984.84	7065.16	---	---
	Ant3	7025	80.32	6984.84	7065.16	---	---
	Ant4	7025	80.32	6984.84	7065.16	---	---
11BE160MIMO	Ant1	6025	162.56	5943.72	6106.28	---	---
	Ant2	6025	162.56	5943.72	6106.28	---	---
	Ant3	6025	162.56	5943.72	6106.28	---	---
	Ant4	6025	162.56	5943.72	6106.28	---	---
	Ant1	6185	162.56	6103.72	6266.28	---	---
	Ant2	6185	162.56	6103.72	6266.28	---	---
	Ant3	6185	162.56	6103.72	6266.28	---	---
	Ant4	6185	162.56	6103.72	6266.28	---	---
	Ant1	6345	162.56	6263.72	6426.28	---	---

	Ant2	6345	162.56	6263.72	6426.28	---	---
	Ant3	6345	162.56	6263.72	6426.28	---	---
	Ant4	6345	162.56	6263.72	6426.28	---	---
	Ant1	6505	161.92	6424.04	6585.96	---	---
	Ant2	6505	161.92	6424.04	6585.96	---	---
	Ant3	6505	161.92	6424.04	6585.96	---	---
	Ant4	6505	161.92	6424.04	6585.96	---	---
	Ant1	6665	162.56	6583.72	6746.28	---	---
	Ant2	6665	162.56	6583.72	6746.28	---	---
	Ant3	6665	162.56	6583.72	6746.28	---	---
	Ant4	6665	162.56	6583.72	6746.28	---	---
	Ant1	6825	162.56	6743.72	6906.28	---	---
	Ant2	6825	162.56	6743.72	6906.28	---	---
	Ant3	6825	162.56	6743.72	6906.28	---	---
	Ant4	6825	162.56	6743.72	6906.28	---	---
	Ant1	6985	162.56	6903.72	7066.28	---	---
	Ant2	6985	162.56	6903.72	7066.28	---	---
	Ant3	6985	162.56	6903.72	7066.28	---	---
	Ant4	6985	162.56	6903.72	7066.28	---	---
11BE320MIMO	Ant1	6105	328.32	5941.16	6269.48	---	---
	Ant2	6105	329.60	5940.52	6270.12	---	---
	Ant3	6105	329.60	5940.52	6270.12	---	---
	Ant4	6105	330.24	5939.88	6270.12	---	---
	Ant1	6265	328.32	6100.52	6428.84	---	---
	Ant2	6265	328.96	6100.52	6429.48	---	---
	Ant3	6265	328.96	6100.52	6429.48	---	---
	Ant4	6265	328.96	6100.52	6429.48	---	---
	Ant1	6585	328.96	6420.52	6749.48	---	---
	Ant2	6585	328.96	6420.52	6749.48	---	---
	Ant3	6585	328.96	6420.52	6749.48	---	---
	Ant4	6585	328.96	6420.52	6749.48	---	---
	Ant1	6745	328.96	6580.52	6909.48	---	---
	Ant2	6745	330.24	6579.88	6910.12	---	---
	Ant3	6745	328.96	6580.52	6909.48	---	---
	Ant4	6745	328.96	6580.52	6909.48	---	---
	Ant1	6905	328.96	6740.52	7069.48	---	---
	Ant2	6905	328.96	6740.52	7069.48	---	---
	Ant3	6905	330.24	6739.88	7070.12	---	---
	Ant4	6905	328.96	6740.52	7069.48	---	---

4.5. Test graphs













