



FCC AND ISCED CERTIFICATION TEST REPORT

Applicant	:	Harman International Industries, Inc.
Address of Applicant	:	8500 Balboa Boulevard, Northridge, CA 91329, UNITED STATES
Manufacturer	:	Harman International Industries, Inc.
Address of Manufacturer	:	8500 Balboa Boulevard, Northridge, CA 91329, UNITED STATES
Equipment under Test	:	Multi-Channel Soundbar with wireless subwoofer
Model No.	:	BAR 700MK2, BAR 800MK2
FCC ID	:	APIBAR800MK2
IC	:	APIBAR800MK2
Test Standard(s)	:	FCC Rules and Regulations Part 15 Subpart E, RSS-247 Issue 3 August 2023, ANSI C63.10:2020, 789033 D02 General U-NII Test Procedures New Rules v02r01, 662911 D01 Multiple Transmitter Output v02r01, RSS-Gen Issue 5 April 2018
Report No.	:	DDT-RE24111416-1E19
Issue Date	:	2025/03/12
Issue By	:	Guangdong Dongdian Testing Service Co., Ltd. Unit 2, Building 1, No. 17, Zongbu 2nd Road, Songshan Lake Park, Dongguan, Guangdong, China, 523808

REPORT

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Test Report Declare

Applicant	:	Harman International Industries, Inc.
Address of Applicant	:	8500 Balboa Boulevard, Northridge, CA 91329, UNITED STATES
Equipment under Test	:	Multi-Channel Soundbar with wireless subwoofer
Model No.	:	BAR 700MK2, BAR 800MK2
Manufacturer	:	Harman International Industries, Inc.
Address of Manufacturer	:	8500 Balboa Boulevard, Northridge, CA 91329, UNITED STATES

Test Standard Used:

FCC Rules and Regulations Part 15 Subpart E,
RSS-247 Issue 3 August 2023,
ANSI C63.10:2020,
789033 D02 General U-NII Test Procedures New Rules v02r01,
662911 D01 Multiple Transmitter Output v02r01,
RSS-Gen Issue 5 April 2018

We Declare:

The equipment described above is tested by Guangdong 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 Guangdong Dongdian Testing Service Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

Report No.:	DDT-RE24111416-1E19		
Date of Receipt:	2024/11/10	Date of Test:	2024/11/10-2025/02/28

Created: Jacky Huang	Reviewed: Ella Gong	Approved: Damon Hu
		
2025/03/02	2025/03/12	2025/03/12

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

Revision History

Rev.	Revisions	Issue Date	Revised By
---	Initial issue	2025/03/12	

1. Summary of Test Results

No.	Test Parameter	Clause No.	Condition	Result
1	6/26db Bandwidth and 99% Bandwidth	FCC 15.407 (e), RSS-247 Clause 6.2, RSS-GEN Clause 6.7	/	Pass
2	Output Power	FCC 15.407 (a), RSS-247 Clause 6.2	/	Pass
3	Power Spectral Density	FCC 15.407 (a), RSS-247 Clause 6.2	/	Pass
4	Frequency Stability Measurement	FCC 15.407 (g); RSS-247 Clause 6.2; RSS-GEN Clause 8.11	/	Pass
5	Radiated Emission	FCC 15.407 (b); FCC 15.209; FCC 15.205; RSS-247 Clause 6.2; RSS-GEN Clause 8.9	/	Pass
6	Band Edge Compliance	FCC 15.407 (b); FCC 15.209; FCC 15.205; RSS-247 Clause 6.2; RSS-GEN Clause 8.10	/	Pass
7	Power Line Conducted Emissions	FCC Part 15: 15.207(a), RSS-Gen Issue 5 clause 8.8	/	Pass
8	Antenna Requirement	FCC Part 15: 15.203, RSS-Gen Issue 5 clause 6.8	/	Pass
9	Dynamic Frequency Selection	FCC 15.407 (h); RSS-247 Clause 6.8	/	Pass
Note: N/A is an abbreviation for Not Applicable, and means this item is not applicable for this device or no need to test according to standard.				

2. General Test Information

2.1. Description of EUT

EUT Name	: Multi-Channel Soundbar with wireless subwoofer
Model Number	: BAR 700MK2, BAR 800MK2
Difference of model number	: "BAR 800MK2" and "BAR 700MK2" are just different models. The appearance, circuit design, layout, components used and internal wiring are the same, we chose the model "BAR 800MK2" as a representative model for compliance testing.
EUT Function Description	: Please reference user manual of this device
Power Supply	: AC 100-240V, 50/60Hz, 50W
Antenna Type	: Bluetooth Antenna type: PIFA WiFi Antenna type: Monopole SRD Antenna type: PCB
Max Antenna Gain (dBi)	: Bluetooth Antenna: 2.35 dBi Ant1: 2.4 GHz WiFi: 1.95 dBi 5 GHz WiFi: 5150-5250MHz: 3.69 dBi 5250-5350MHz: 3.68 dBi 5470-5725MHz: 3.45 dBi 5745-5825MHz: 3.13 dBi Ant2: 2.4 GHz WiFi: 2.18 dBi 5 GHz WiFi: 5150-5250MHz: 3.11 dBi 5250-5350MHz: 2.77 dBi 5470-5725MHz: 3.03 dBi 5745-5825MHz: 2.93 dBi 2.4GHz SRD Antenna: 2.40 dBi

Radio Technology	: IEEE 802.11a/n/ac/ax
Operation frequency	: U-NII-1: 5180 MHz to 5240 MHz U-NII-2A: 5260 MHz to 5320 MHz U-NII-2C: 5500 MHz to 5720 MHz U-NII-3: 5745 MHz to 5825 MHz
Modulation	: IEEE 802.11a: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ax: OFDM, OFDMA (1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK)

Channel information					
IEEE 802.11a		IEEE 802.11n (HT40)		IEEE 802.11ac (VHT80)	
IEEE 802.11n (HT20)		IEEE802.11ac (VHT40)		IEEE 802.11ax (HE80)	
IEEE 802.11ac (VHT20)		IEEE 802.11ax (HE40)			
IEEE 802.11ax (HE20)					
UNII-1					
CH	Frequency (MHz)	CH	Frequency (MHz)	CH	Frequency (MHz)
36	5180	38	5190	42	5210
40	5200	46	5230	/	/

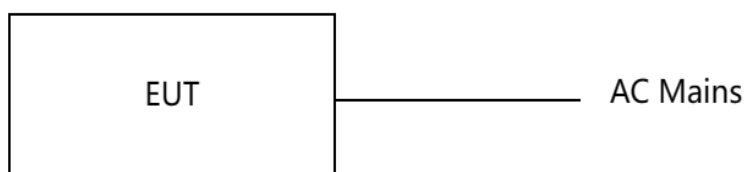
44	5220	/	/	/	/
48	5240	/	/	/	/
UNII-2A					
52	5260	54	5270	58	5290
56	5280	62	5310	/	/
60	5300	/	/	/	/
64	5320	/	/	/	/
UNII-2C					
100	5500	102	5510	106	5530
104	5520	110	5550	122	5610
108	5540	118	5590	138	5690 (Straddle)
112	5560	126	5630	/	/
116	5580	134	5670	/	/
120	5600	142	5710 (Straddle)	/	/
124	5620	/	/	/	/
128	5640	/	/	/	/
132	5660	/	/	/	/
136	5680	/	/	/	/
140	5700	/	/	/	/
144	5720 (Straddle)	/	/	/	/
UNII-3					
149	5745	151	5755	155	5775
153	5765	159	5795	/	/
157	5785	/	/	/	/
161	5805	/	/	/	/
165	5825	/	/	/	/
Note: Band 5600-5650MHz will be disabled when shipped to Canada.					

Note: The above EUT information is declared by manufacturer and for more detailed features description please refer to the manufacturer's specifications or User's Manual. The above Antenna information is declared by manufacturer and for more detailed features description please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

2.2. Accessories of EUT

Accessories	Manufacturer	Model number	Description
AC cable	Harman	N/A	Length: 195cm
HDMI cable	Harman	N/A	Length: 115cm, with two magnetic rings
Remote control	Harman	N/A	N/A

2.3. Block diagram of EUT configuration for test



2.4. Decision of final test mode

According pre-test, the worst test modes were reported as below:

Test software: adb.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, Tx Power Setting, Data rate, Channel, and Frequency					
Tested mode	Tx Power Setting		Data rate (Mbps) (see Note)	Test Channel	Frequency (MHz)
	ANT1	ANT2			
IEEE 802.11a	12	12	6	LCH: CH36	5180
	12	12	6	MCH: CH40	5200
	12	12	6	HCH: CH48	5240
	12	12	6	LCH: CH52	5260
	12	12	6	MCH: CH56	5280
	12	12	6	HCH: CH64	5320
	12	12	6	LCH: CH100	5500
	12	12	6	MCH: CH116	5580
	12	12	6	HCH: CH140	5700
	12	12	6	Straddle: CH144	5720
	12	12	6	LCH: CH149	5745
	12	12	6	MCH: CH157	5785
	12	12	6	HCH: CH165	5825
IEEE 802.11n HT20	12	12	MCS 8	LCH: CH36	5180
	12	12	MCS 8	MCH: CH40	5200
	12	12	MCS 8	HCH: CH48	5240
	12	12	MCS 8	LCH: CH52	5260

	12	12	MCS 8	MCH: CH56	5280
	12	12	MCS 8	HCH: CH64	5320
	12	12	MCS 8	LCH: CH100	5500
	12	12	MCS 8	MCH: CH116	5580
	12	12	MCS 8	HCH: CH140	5700
	12	12	MCS 8	Straddle: CH144	5720
	12	12	MCS 8	LCH: CH149	5745
	12	12	MCS 8	MCH: CH157	5785
	12	12	MCS 8	HCH: CH165	5825
IEEE 802.11n HT40	10	10	MCS 8	LCH: CH38	5190
	10	10	MCS 8	HCH: CH46	5230
	10	10	MCS 8	LCH: CH54	5270
	10	10	MCS 8	HCH: CH62	5310
	10	10	MCS 8	LCH: CH102	5510
	10	10	MCS 8	MCH: CH110	5550
	10	10	MCS 8	HCH: CH134	5670
	10	10	MCS 8	LCH: CH151	5755
	10	10	MCS 8	HCH: CH159	5795
IEEE 802.11ac VHT20	11	11	MCS 8	LCH: CH36	5180
	11	11	MCS 8	MCH: CH40	5200
	11	11	MCS 8	HCH: CH48	5240
	11	11	MCS 8	LCH: CH52	5260
	11	11	MCS 8	MCH: CH56	5280
	11	11	MCS 8	HCH: CH64	5320
	11	11	MCS 8	LCH: CH100	5500
	11	11	MCS 8	MCH: CH116	5580
	11	11	MCS 8	HCH: CH140	5700
	11	11	MCS 8	Straddle: CH144	5720
	11	11	MCS 8	LCH: CH149	5745
	11	11	MCS 8	MCH: CH157	5785
	11	11	MCS 8	HCH: CH165	5825
IEEE 802.11 ac VHT40	10	10	MCS 8	LCH: CH38	5190
	10	10	MCS 8	HCH: CH46	5230
	10	10	MCS 8	LCH: CH54	5270
	10	10	MCS 8	HCH: CH62	5310
	10	10	MCS 8	LCH: CH102	5510
	10	10	MCS 8	MCH: CH110	5550
	10	10	MCS 8	HCH: CH134	5670
	10	10	MCS 8	Straddle: CH151	5710

	10	10	MCS 8	LCH: CH159	5755
	10	10	MCS 8	HCH: CH36	5795
IEEE 802.11ac VHT80	10	10	MCS 0	CH42	5210
	10	10	MCS 0	CH58	5290
	10	10	MCS 0	LCH: CH106	5530
	10	10	MCS 0	HCH: CH122	5610
	10	10	MCS 0	Straddle: CH138	5690
	10	10	MCS 0	CH155	5775
	10	10	MCS 0	CH155	5775
IEEE 802.11ax HE20	SU: 13 RU: 6	SU: 13 RU: 6	MCS 0	LCH: CH36	5180
	SU: 13 RU: 6	SU: 13 RU: 6	MCS 0	MCH: CH40	5200
	SU: 13 RU: 6	SU: 13 RU: 6	MCS 0	HCH: CH48	5240
	SU: 13 RU: 9	SU: 13 RU: 9	MCS 0	LCH: CH52	5260
	SU: 13 RU: 9	SU: 13 RU: 9	MCS 0	MCH: CH56	5280
	SU: 13 RU: 9	SU: 13 RU: 9	MCS 0	HCH: CH64	5320
	SU: 13 RU: 9	SU: 13 RU: 9	MCS 0	LCH: CH100	5500
	SU: 13 RU: 9	SU: 13 RU: 9	MCS 0	MCH: CH116	5580
	SU: 13 RU: 9	SU: 13 RU: 9	MCS 0	HCH: CH140	5700
	SU: 13 RU: 9	SU: 13 RU: 9	MCS 0	Straddle: CH144	5720
	SU: 13 RU: 9	SU: 13 RU: 9	MCS 0	LCH: CH149	5745
	SU: 13 RU: 9	SU: 13 RU: 9	MCS 0	MCH: CH157	5785
	SU: 13 RU: 9	SU: 13 RU: 9	MCS 0	HCH: CH165	5825
IEEE 802.11ax HE40	SU: 10 RU: 6	SU: 10 RU: 6	MCS 0	LCH: CH38	5190
	SU: 10 RU: 6	SU: 10 RU: 6	MCS 0	HCH: CH46	5230
	SU: 10 RU: 9	SU: 10 RU: 9	MCS 0	LCH: CH54	5270
	SU: 10 RU: 9	SU: 10 RU: 9	MCS 0	HCH: CH62	5310
	SU: 10 RU: 9	SU: 10 RU: 9	MCS 0	LCH: CH102	5510
	SU: 10 RU: 9	SU: 10 RU: 9	MCS 0	MCH: CH110	5550
	SU: 10 RU: 9	SU: 10 RU: 9	MCS 0	HCH: CH134	5670
	SU: 10 RU: 9	SU: 10 RU: 9	MCS 0	Straddle: CH151	5710
	SU: 10 RU: 9	SU: 10 RU: 9	MCS 0	LCH: CH159	5755
	SU: 10 RU: 9	SU: 10 RU: 9	MCS 0	HCH: CH36	5795
IEEE 802.11ax HE80	SU: 10 RU: 6	SU: 10 RU: 6	MCS 0	CH42	5210
	SU: 10 RU: 9	SU: 10 RU: 9	MCS 0	CH58	5290
	SU: 10 RU: 9	SU: 10 RU: 9	MCS 0	LCH: CH106	5530
	SU: 10 RU: 9	SU: 10 RU: 9	MCS 0	HCH: CH122	5610
	SU: 10 RU: 9	SU: 10 RU: 9	MCS 0	Straddle: CH138	5690
	SU: 10 RU: 9	SU: 10 RU: 9	MCS 0	CH155	5775

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

2.5. Deviations of test standard

No deviation.

2.6. Test environment conditions

During the measurement the environmental conditions were within the listed ranges:

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

Note: The specific temperature and humidity information of each test item refers to the temperature and humidity record in the corresponding test data.

2.7. Test laboratory

Guangdong Dongdian Testing Service Co., Ltd.

Add.: Unit 2, Building 1, No. 17, Zongbu 2nd Road, Songshan Lake Park, Dongguan, Guangdong, China, 523808.

Tel.: +86-0769-38826678, <http://www.dgddt.com>, Email: ddt@dgddt.com.

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-20240, G-20118

2.8. Measurement uncertainty

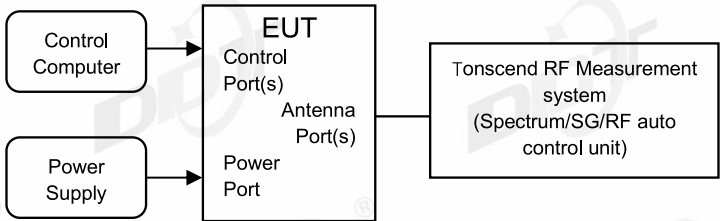
Test Item	Uncertainty
Bandwidth	1.1%
Peak Output Power (Conducted) (Spectrum analyzer)	0.86 dB ($10 \text{ MHz} \leq f < 3.6 \text{ GHz}$);
	1.38 dB ($3.6 \text{ GHz} \leq f < 8 \text{ GHz}$)
Peak Output Power (Conducted) (Power Sensor)	0.74 dB
Power Spectral Density	0.74 dB ($10 \text{ MHz} \leq f < 3.6 \text{ GHz}$);
	1.38 dB ($3.6 \text{ GHz} \leq f < 8 \text{ GHz}$)
Frequencies Stability	6.7×10^{-8} (Antenna couple method)
	5.5×10^{-8} (Conducted method)
Conducted spurious emissions	0.86 dB ($10 \text{ MHz} \leq f < 3.6 \text{ GHz}$);
	1.40 dB ($3.6 \text{ GHz} \leq f < 8 \text{ GHz}$)
	1.66 dB ($8 \text{ GHz} \leq f < 26.5 \text{ GHz}$)
Uncertainty for radio frequency (RBW < 20 kHz)	3×10^{-8}
Temperature	0.4 °C
Humidity	2 %
Uncertainty for Radiation Emission test (9 kHz – 30 MHz)	3.44 dB
Uncertainty for Radiation Emission test (30 MHz - 1 GHz)	4.70 dB (Antenna Polarize: V)
	4.84 dB (Antenna Polarize: H)
Uncertainty for Radiation Emission test (1 GHz - 40 GHz)	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	3.34dB (150KHz-30MHz)
	3.72dB (9KHz-150KHz)
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 Conductive Test

Equipment	Manufacturer	Model No.	Serial Number	Due Date	Cal. Interval
☑RF Connected Test (RF Measurement System 4#)					
Signal & Spectrum Analyzer	R&S	FSV3044	101173	2025/03/31	1 Year
Wideband Radio Communication Tester	R&S	CMW500	168801	2025/03/31	1 Year
MXG Vector Signal Generator	Agilent	N5182A	MY48180737	2025/03/31	1 Year
PSG Vector Signal Generator	Agilent	E8267D	US49060192	2025/08/25	1 Year
RF Control Unit	Tonsend	JS0806-2	2118060485	2025/03/31	1 Year
TEMP&HUMI Programmable Chamber	ZHIXIANG	ZXGDJS-150L	ZX170110-A	2025/04/22	1 Year
Test Software	Tonscend	JS1120-3	Ver.3.2.22	N/A	N/A

4. 26dB Bandwidth

4.1. Block diagram of test setup



4.2. Limits

FCC Part15, Subpart E/ RSS-247		
Test Item	Limit	Frequency Range (MHz)
26 dB Bandwidth	---	5150 - 5250
	---	5250 - 5350
	---	For FCC: 5470 - 5725 For IC: 5470 - 5600 5650 - 5725

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
Detector	Peak
RBW	approximately 1% of the emission bandwidth.
VBW	> RBW
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 Engineer:	Haofeng	Test Site:	RF Measurement System 4#
Ambient Condition:	25.4℃, 49.1%RH	Test Date:	2024.11.26-2024.12.04
Test Power Supply:	AC 230V/50Hz	Sample Number:	S24111416-005

Test Mode	Antenna	Frequency [MHz]	26db EBW [MHz]	FL [MHz]	FH [MHz]	Limit [MHz]	Verdict
11A	Ant1	5180	25.28	5166.68	5191.96	---	---
	Ant2	5180	24.04	5167.60	5191.64	---	---
	Ant1	5200	25.80	5187.64	5213.44	---	---
	Ant2	5200	24.08	5187.60	5211.68	---	---
	Ant1	5240	19.76	5230.08	5249.84	---	---
	Ant2	5240	19.64	5230.04	5249.68	---	---
	Ant1	5260	24.20	5247.88	5272.08	---	---
	Ant2	5260	23.64	5248.04	5271.68	---	---
	Ant1	5280	24.00	5268.04	5292.04	---	---
	Ant2	5280	23.64	5268.04	5291.68	---	---
	Ant1	5320	25.04	5306.64	5331.68	---	---
	Ant2	5320	23.92	5307.60	5331.52	---	---
	Ant1	5500	24.12	5487.60	5511.72	---	---
	Ant2	5500	24.16	5487.60	5511.76	---	---
	Ant1	5580	23.96	5568.08	5592.04	---	---
	Ant2	5580	24.00	5568.08	5592.08	---	---
	Ant1	5700	24.12	5687.60	5711.72	---	---
	Ant2	5700	24.20	5687.52	5711.72	---	---
	Ant1	5720	24.00	5707.80	5731.80	---	---
	Ant2	5720	24.00	5707.88	5731.88	---	---
	Ant1	5720_UNII-2C	17.2	5707.80	5725	---	---
	Ant2	5720_UNII-2C	17.12	5707.88	5725	---	---
	Ant1	5720_UNII-3	6.8	5725	5731.80	---	---
	Ant2	5720_UNII-3	6.88	5725	5731.88	---	---
	Ant1	5745	23.60	5732.92	5756.52	---	---
	Ant2	5745	24.08	5732.60	5756.68	---	---
	Ant1	5785	23.92	5772.84	5796.76	---	---
	Ant2	5785	23.88	5772.88	5796.76	---	---

	Ant1	5825	23.64	5813.08	5836.72	---	---
	Ant2	5825	24.00	5812.68	5836.68	---	---
11N20MIMO	Ant1	5180	24.64	5167.64	5192.28	---	---
	Ant2	5180	24.80	5167.20	5192.00	---	---
	Ant1	5200	24.68	5187.76	5212.44	---	---
	Ant2	5200	23.88	5188.16	5212.04	---	---
	Ant1	5240	20.12	5229.88	5250.00	---	---
	Ant2	5240	19.88	5230.00	5249.88	---	---
	Ant1	5260	24.52	5247.76	5272.28	---	---
	Ant2	5260	23.76	5248.16	5271.92	---	---
	Ant1	5280	24.44	5267.64	5292.08	---	---
	Ant2	5280	23.52	5268.24	5291.76	---	---
	Ant1	5320	24.60	5307.36	5331.96	---	---
	Ant2	5320	23.60	5307.96	5331.56	---	---
	Ant1	5500	24.32	5488.00	5512.32	---	---
	Ant2	5500	25.28	5486.20	5511.48	---	---
	Ant1	5580	24.80	5567.48	5592.28	---	---
	Ant2	5580	23.72	5568.08	5591.80	---	---
	Ant1	5700	24.72	5687.64	5712.36	---	---
	Ant2	5700	26.20	5685.80	5712.00	---	---
	Ant1	5720	25.04	5707.64	5732.68	---	---
	Ant2	5720	23.48	5708.00	5731.48	---	---
	Ant1	5720_UNII-2C	17.36	5707.64	5725	---	---
	Ant2	5720_UNII-2C	17	5708.00	5725	---	---
	Ant1	5720_UNII-3	7.68	5725	5732.68	---	---
	Ant2	5720_UNII-3	6.48	5725	5731.48	---	---
	Ant1	5745	24.72	5732.48	5757.20	---	---
	Ant2	5745	23.32	5732.96	5756.28	---	---
	Ant1	5785	24.36	5772.92	5797.28	---	---
	Ant2	5785	23.36	5773.16	5796.52	---	---
	Ant1	5825	24.96	5812.40	5837.36	---	---
	Ant2	5825	23.60	5812.92	5836.52	---	---
11N40MIMO	Ant1	5190	40.88	5169.60	5210.48	---	---
	Ant2	5190	40.08	5169.92	5210.00	---	---

	Ant1	5230	40.96	5209.52	5250.48	---	---
	Ant2	5230	39.84	5210.08	5249.92	---	---
	Ant1	5270	40.88	5249.52	5290.40	---	---
	Ant2	5270	39.92	5250.00	5289.92	---	---
	Ant1	5310	40.80	5289.60	5330.40	---	---
	Ant2	5310	39.76	5290.00	5329.76	---	---
	Ant1	5510	40.80	5489.68	5530.48	---	---
	Ant2	5510	39.76	5490.08	5529.84	---	---
	Ant1	5550	40.72	5529.60	5570.32	---	---
	Ant2	5550	39.92	5530.00	5569.92	---	---
	Ant1	5670	40.64	5649.68	5690.32	---	---
	Ant2	5670	39.84	5650.16	5690.00	---	---
	Ant1	5710	41.04	5689.52	5730.56	---	---
	Ant2	5710	40.00	5690.00	5730.00	---	---
	Ant1	5710_UNII-2C	35.48	5689.52	5725	---	---
	Ant2	5710_UNII-2C	35	5690.00	5725	---	---
	Ant1	5710_UNII-3	5.56	5725	5730.56	---	---
	Ant2	5710_UNII-3	5	5725	5730.00	---	---
	Ant1	5755	40.80	5734.60	5775.40	---	---
	Ant2	5755	39.76	5735.08	5774.84	---	---
	Ant1	5795	40.88	5774.52	5815.40	---	---
	Ant2	5795	40.16	5775.00	5815.16	---	---
11AC20MIMO	Ant1	5180	24.64	5168.08	5192.72	---	---
	Ant2	5180	23.12	5168.60	5191.72	---	---
	Ant1	5200	25.00	5187.80	5212.80	---	---
	Ant2	5200	24.24	5187.72	5211.96	---	---
	Ant1	5240	20.12	5229.84	5249.96	---	---
	Ant2	5240	19.88	5229.96	5249.84	---	---
	Ant1	5260	24.16	5248.00	5272.16	---	---
	Ant2	5260	23.04	5248.64	5271.68	---	---
	Ant1	5280	24.16	5267.96	5292.12	---	---
	Ant2	5280	22.88	5268.64	5291.52	---	---
	Ant1	5320	25.12	5307.60	5332.72	---	---
	Ant2	5320	23.08	5308.64	5331.72	---	---

	Ant1	5500	24.92	5487.80	5512.72	---	---
	Ant2	5500	23.20	5488.52	5511.72	---	---
	Ant1	5580	24.56	5567.72	5592.28	---	---
	Ant2	5580	22.96	5568.60	5591.56	---	---
	Ant1	5700	24.88	5687.88	5712.76	---	---
	Ant2	5700	23.88	5688.52	5712.40	---	---
	Ant1	5720	24.48	5707.80	5732.28	---	---
	Ant2	5720	22.88	5708.80	5731.68	---	---
	Ant1	5720_UNII-2C	17.2	5707.80	5725	---	---
	Ant2	5720_UNII-2C	16.2	5708.80	5725	---	---
	Ant1	5720_UNII-3	7.28	5725	5732.28	---	---
	Ant2	5720_UNII-3	6.68	5725	5731.68	---	---
	Ant1	5745	24.12	5732.84	5756.96	---	---
	Ant2	5745	23.28	5733.24	5756.52	---	---
	Ant1	5785	24.40	5772.80	5797.20	---	---
	Ant2	5785	23.08	5773.52	5796.60	---	---
	Ant1	5825	24.64	5812.60	5837.24	---	---
	Ant2	5825	23.08	5813.44	5836.52	---	---
11AC40MIMO	Ant1	5190	40.16	5169.92	5210.08	---	---
	Ant2	5190	39.84	5170.08	5209.92	---	---
	Ant1	5230	40.24	5209.84	5250.08	---	---
	Ant2	5230	39.76	5210.00	5249.76	---	---
	Ant1	5270	40.32	5249.92	5290.24	---	---
	Ant2	5270	39.92	5250.00	5289.92	---	---
	Ant1	5310	40.32	5289.84	5330.16	---	---
	Ant2	5310	39.68	5290.08	5329.76	---	---
	Ant1	5510	40.24	5489.92	5530.16	---	---
	Ant2	5510	39.76	5490.08	5529.84	---	---
	Ant1	5550	40.16	5529.92	5570.08	---	---
	Ant2	5550	39.76	5530.08	5569.84	---	---
	Ant1	5670	40.24	5649.92	5690.16	---	---
	Ant2	5670	39.92	5650.00	5689.92	---	---
	Ant1	5710	40.40	5689.76	5730.16	---	---
	Ant2	5710	39.76	5690.00	5729.76	---	---

	Ant1	5710_UNII-2C	35.24	5689.76	5725	---	---
	Ant2	5710_UNII-2C	35	5690.00	5725	---	---
	Ant1	5710_UNII-3	5.16	5725	5730.16	---	---
	Ant2	5710_UNII-3	4.76	5725	5729.76	---	---
	Ant1	5755	40.32	5734.76	5775.08	---	---
	Ant2	5755	39.84	5735.00	5774.84	---	---
	Ant1	5795	40.48	5774.68	5815.16	---	---
	Ant2	5795	39.92	5775.00	5814.92	---	---
11AC80MIMO	Ant1	5210	80.64	5169.68	5250.32	---	---
	Ant2	5210	79.36	5170.32	5249.68	---	---
	Ant1	5290	80.32	5249.84	5330.16	---	---
	Ant2	5290	79.36	5250.32	5329.68	---	---
	Ant1	5530	80.48	5489.68	5570.16	---	---
	Ant2	5530	79.36	5490.32	5569.68	---	---
	Ant1	5610	80.48	5569.68	5650.16	---	---
	Ant2	5610	79.52	5570.16	5649.68	---	---
	Ant1	5690	80.32	5649.84	5730.16	---	---
	Ant2	5690	79.36	5650.32	5729.68	---	---
	Ant1	5690_UNII-2C	75.16	5649.84	5725	---	---
	Ant2	5690_UNII-2C	74.68	5650.32	5725	---	---
	Ant1	5690_UNII-3	5.16	5725	5730.16	---	---
	Ant2	5690_UNII-3	4.68	5725	5729.68	---	---
	Ant1	5775	80.48	5734.68	5815.16	---	---
	Ant2	5775	79.52	5735.16	5814.68	---	---
11AX20MIMO	Ant1	5180	24.12	5167.40	5191.52	---	---
	Ant2	5180	24.92	5168.08	5193.00	---	---
	Ant1	5200	24.88	5188.32	5213.20	---	---
	Ant2	5200	22.96	5188.96	5211.92	---	---
	Ant1	5240	19.88	5230.00	5249.88	---	---
	Ant2	5240	19.88	5230.00	5249.88	---	---
	Ant1	5260	23.64	5247.84	5271.48	---	---
	Ant2	5260	23.36	5248.68	5272.04	---	---
	Ant1	5280	22.80	5268.44	5291.24	---	---
	Ant2	5280	22.92	5268.72	5291.64	---	---

	Ant1	5320	25.08	5307.08	5332.16	---	---
	Ant2	5320	23.20	5308.36	5331.56	---	---
	Ant1	5500	23.80	5487.64	5511.44	---	---
	Ant2	5500	22.56	5488.32	5510.88	---	---
	Ant1	5580	25.04	5567.24	5592.28	---	---
	Ant2	5580	23.68	5567.76	5591.44	---	---
	Ant1	5700	27.08	5685.16	5712.24	---	---
	Ant2	5700	22.52	5688.36	5710.88	---	---
	Ant1	5720	24.44	5707.56	5732.00	---	---
	Ant2	5720	24.00	5707.56	5731.56	---	---
	Ant1	5720_UNII-2C	17.44	5707.56	5725	---	---
	Ant2	5720_UNII-2C	17.44	5707.56	5725	---	---
	Ant1	5720_UNII-3	7	5725	5732.00	---	---
	Ant2	5720_UNII-3	6.56	5725	5731.56	---	---
	Ant1	5745	22.76	5733.36	5756.12	---	---
	Ant2	5745	23.24	5733.60	5756.84	---	---
	Ant1	5785	27.44	5772.40	5799.84	---	---
	Ant2	5785	23.04	5773.12	5796.16	---	---
	Ant1	5825	26.60	5812.72	5839.32	---	---
	Ant2	5825	23.60	5812.92	5836.52	---	---
11AX40MIMO	Ant1	5190	39.68	5170.08	5209.76	---	---
	Ant2	5190	39.60	5170.16	5209.76	---	---
	Ant1	5230	39.76	5210.08	5249.84	---	---
	Ant2	5230	39.68	5210.08	5249.76	---	---
	Ant1	5270	39.68	5250.08	5289.76	---	---
	Ant2	5270	39.68	5250.08	5289.76	---	---
	Ant1	5310	39.68	5290.08	5329.76	---	---
	Ant2	5310	39.68	5290.08	5329.76	---	---
	Ant1	5510	39.68	5490.08	5529.76	---	---
	Ant2	5510	39.68	5490.16	5529.84	---	---
	Ant1	5550	39.68	5530.08	5569.76	---	---
	Ant2	5550	39.68	5530.08	5569.76	---	---
	Ant1	5670	39.68	5650.08	5689.76	---	---
	Ant2	5670	39.76	5650.08	5689.84	---	---

	Ant1	5710	39.68	5690.08	5729.76	---	---
	Ant2	5710	39.68	5690.08	5729.76	---	---
	Ant1	5710_UNII-2C	34.92	5690.08	5725	---	---
	Ant2	5710_UNII-2C	34.92	5690.08	5725	---	---
	Ant1	5710_UNII-3	4.76	5725	5729.76	---	---
	Ant2	5710_UNII-3	4.76	5725	5729.76	---	---
	Ant1	5755	39.68	5735.08	5774.76	---	---
	Ant2	5755	39.76	5735.08	5774.84	---	---
	Ant1	5795	39.60	5775.16	5814.76	---	---
	Ant2	5795	39.68	5775.08	5814.76	---	---
11AX80MIMO	Ant1	5210	80.32	5169.84	5250.16	---	---
	Ant2	5210	80.32	5169.84	5250.16	---	---
	Ant1	5290	80.48	5249.68	5330.16	---	---
	Ant2	5290	80.48	5249.68	5330.16	---	---
	Ant1	5530	80.48	5489.68	5570.16	---	---
	Ant2	5530	80.48	5489.68	5570.16	---	---
	Ant1	5610	80.48	5569.68	5650.16	---	---
	Ant2	5610	80.48	5569.68	5650.16	---	---
	Ant1	5690	80.64	5649.68	5730.32	---	---
	Ant2	5690	80.32	5649.84	5730.16	---	---
	Ant1	5690_UNII-2C	75.32	5649.68	5725	---	---
	Ant2	5690_UNII-2C	75.16	5649.84	5725	---	---
	Ant1	5690_UNII-3	5.32	5725	5730.32	---	---
	Ant2	5690_UNII-3	5.16	5725	5730.16	---	---
	Ant1	5775	80.48	5734.68	5815.16	---	---
	Ant2	5775	80.48	5734.68	5815.16	---	---

4.5. Test graphs

