

Project No.: TM-2205000152P
Report No.: TMWK2205001728KR

FCC ID: 2ASXC-TMO-SKW-05

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Rev.: 02

RADIO TEST REPORT

FCC 47 CFR PART 15 SUBPART C

Test Standard	FCC Part 15.247
Product name	SyncUP Kids Watch
Brand Name	T-Mobile
Model No.	TMUS-SKW-1, TMUS-SKW-M
Test Result	Pass
Statements of Conformity	Determination of compliance is based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

The test Result was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were given in ANSI C63.10: 2013 and compliance standards.

The test results of this report relate only to the tested sample (EUT) identified in this report.

The test Report of full or partial shall not copy. Without written approval of Compliance Certification Services Inc. (Wugu Laboratory).

Approved by:



Shawn Wu
Supervisor

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.
除非另有說明，此報告結果僅對測試之樣品負責，同時此樣品僅保留90天。本報告未經本公司書面許可，不可部份複製。

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Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	July 26, 2022	Initial Issue	ALL	Allison Chen
01	August 16, 2022	See the following Note Rev.(01)	ALL	Allison Chen
02	August 17, 2022	See the following Note Rev.(02)	P.18, 29	Allison Chen

Note:

Rev.(01)

1. Modify frequency range up to 2472MHz and test data.

Rev.(02)

1. Modify frequency range title.

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1. GENERAL INFORMATION

1.1 EUT INFORMATION

Applicant	T-mobile Usa, Inc. 12920 Se 38th Street , Bellevue, Washington, United States, 98006.
Manufacturer	T-mobile Usa, Inc. 12920 Se 38th Street , Bellevue, Washington, United States, 98006.
Equipment	SyncUP Kids Watch
Model Name	TMUS-SKW-1, TMUS-SKW-M
Model Discrepancy	1. Preload profiles in SIM IC are different, but the SIM IC is the same. TMUS-SKW-1 is T-Mobile SKU, TMUS-SKW-M is MPCS SKU. 2. There are two memory implements, but the function is the same: (1) Main source memory: Kingston Solutions, Inc. / 08EPOP08-NL3DT227-A01 (2) Second source memory: Kingston Solutions, Inc. / 08EP08-N3GT227-GA08
Trade Name	T-Mobile
Received Date	May 10, 2022
Date of Test	May 18~August 16, 2022
Power Supply	Power from Battery. EVE / P0963 Rated Capacity: 3.85V, 495mAh, 1.91Wh

Remark:

1. For more details, please refer to the User's manual of the EUT.
2. Disclaimer: Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.
3. Disclaimer: The variant model numbers / trademarks are assessed as identical in hardware and software to each other, hence all variants are fully covered by the test results in this test report without further verification test.

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1.2 EUT CHANNEL INFORMATION

Frequency Range	802.11b/g/n HT 20: 2412MHz ~ 2472MHz
Modulation Type	1. IEEE 802.11b mode: CCK 2. IEEE 802.11g mode: OFDM 3. IEEE 802.11n HT 20 mode : OFDM
Number of channel	1. IEEE 802.11b mode: 13 Channels 2. IEEE 802.11g mode: 13 Channels 3. IEEE 802.11n HT 20 mode: 13 Channels

Remark:

Refer as ANSI C63.10: 2013 clause 5.6.1 Table 4 for test channels

Number of frequencies to be tested		
Frequency range in which device operates	Number of frequencies	Location in frequency range of operation
<input type="checkbox"/> 1 MHz or less	1	Middle
<input type="checkbox"/> 1 MHz to 10 MHz	2	1 near top and 1 near bottom
<input checked="" type="checkbox"/> More than 10 MHz	3	1 near top, 1 near middle, and 1 near bottom

1.3 ANTENNA INFORMATION

Antenna Specification	<input checked="" type="checkbox"/> PIFA <input type="checkbox"/> PCB <input type="checkbox"/> Dipole <input type="checkbox"/> Coils
Antenna Gain	-2.55 dBi
Antenna connector	N/A

Notes:

- Power Directional Gain = $10 \cdot \log \{ [10^{(Ant1/20)} + 10^{(Ant2/20)} + \dots + 10^{(Ant N /20)}]^2 / N \text{ ANT} \}$ dBi
- Two dipole detachable Antennas used which uses a unique coupling to the EUT meeting rule 15.203.

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1.4 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
AC Powerline Conducted Emission	± 2.1183
Channel Bandwidth	± 2.1863
RF output power (Power Meter + Power sensor)	± 1.2688
Power Spectral density	± 2.1855
Conducted Bandedge	± 2.1866
Conducted Spurious Emission	± 2.1859
Radiated Emission_9kHz-30MHz	± 3.814
Radiated Emission_30MHz-200MHz	± 4.272
Radiated Emission_200MHz-1GHz	± 4.619
Radiated Emission_1GHz-6GHz	± 5.522
Radiated Emission_6GHz-18GHz	± 5.228
Radiated Emission_18GHz-26GHz	± 4.089
Radiated Emission_26GHz-40GHz	± 4.019

Remark:

- 1.This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2
2. ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report.

1.5 FACILITIES AND TEST LOCATION

All measurement facilities used to collect the measurement data are located at No.11, Wugong 6th Rd., Wugu Dist., New Taipei City, Taiwan. (R.O.C.)

Test site	Test Engineer	Remark
AC Conduction Room	Jack Chen	-
Radiation	Ray Li, Tony Chao	-
RF Conducted	David Li	-

Remark: The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC public Access Link (PAL) database, FCC Registration No. :444940, the FCC Designation No.:TW1309.

1.6 INSTRUMENT CALIBRATION

AC Power Line Conducted Emission Test Room					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
CABLE	EMCI	CFD300-NL	CERF	06/28/2021	06/27/2022
EMI Test Receiver	R&S	ESCI	100064	07/05/2021	07/04/2022
LISN	SCHAFFNER	NNB 41	03/10013	02/15/2022	02/14/2023
Software	EZ-EMC(CCS-3A1-CE-wugu)				

RF Conducted Test Site					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
DC Power Supplies	GW Instek	SPS-3610	GPE880163	12/21/2021	12/20/2022
Power Meter	Anritsu	ML2496A	2136002	12/06/2021	12/05/2022
Power Seneor	Anritsu	MA2411B	1911386	08/19/2021	08/18/2022
Power Seneor	Anritsu	MA2411B	1911387	08/19/2021	08/18/2022
EXA Signal Analyzer	KEYSIGHT	N9010B	MY55460167	09/07/2021	09/06/2022
Software	N/A				

Remark:

1. Each piece of equipment is scheduled for calibration once a year.
2. N.C.R. = No Calibration Required.

3M 966 Chamber Test Site					
Equipment	Manufacturer	Model	S/N	Cal Date	Cal Due
Band Reject Filters	MICRO TRONICS	BRM 50702	112	11/23/2021	11/22/2022
Bilog Antenna	Sunol Sciences	JB1	A052609	02/15/2022	02/14/2023
Coaxial Cable	HUBER SUHNER	SUCOFLEX 104PEA	20995	02/23/2022	02/22/2023
Coaxial Cable	EMCI	EMC105	190914+1111	09/17/2021	09/16/2022
Coaxial Cable	Woken	J-1099	201709090004	12/23/2021	12/22/2022
Digital Thermo-Hygro Meter	WISEWIND	1206	D07	12/28/2021	12/27/2022
Horn Antenna	ETS LINDGREN	3116	00026370	11/30/2021	11/29/2022
Horn Antenna	ETS LINDGREN	3117	00055165	07/29/2021	07/28/2022
K Type Cable	Huber+Suhner	SUCOFLEX 102	29406/2	12/05/2021	12/04/2022
Pre-Amplifier	EMEC	EM330	060609	02/23/2022	02/22/2023
Pre-Amplifier	HP	8449B	3008A00965	12/24/2021	12/23/2022
PSA Series Spectrum Analyzer	Agilent	E4446A	MY46180323	12/06/2021	12/05/2022
Antenna Tower	CCS	CC-A-1F	N/A	N.C.R	N.C.R
Controller	CCS	CC-C-1F	N/A	N.C.R	N.C.R
Turn Table	CCS	CC-T-1F	N/A	N.C.R	N.C.R
Software	e3 210616				

Remark:

1. Each piece of equipment is scheduled for calibration once a year.
2. N.C.R. = No Calibration Required.

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1.7 SUPPORT AND EUT ACCESSORIES EQUIPMENT

EUT Accessories Equipment					
No.	Equipment	Brand	Model	Series No.	FCC ID
	N/A				

Support Equipment					
No.	Equipment	Brand	Model	Series No.	FCC ID
1	NB	Lenovo	T460P	N/A	N/A
2	Adapter	PHIHONG TECHNOLOGY	AN05A-050E	N/A	N/A

1.8 TEST METHODOLOGY AND APPLIED STANDARDS

The test methodology, setups and results comply with all requirements in accordance with ANSI C63.10:2013, FCC Part 2, FCC Part 15.247 and KDB 558074 D01.

2. TEST SUMMARY

FCC Standard Section	Report Section	Test Item	Result
15.203	1.3	Antenna Requirement	Pass
15.207(a)	4.1	AC Conducted Emission	Pass
15.247(a)(2)	4.2	6 dB Bandwidth	Pass
-	4.2	Occupied Bandwidth (99%)	Pass
15.247(b)	4.3	Output Power Measurement	Pass
15.247(e)	4.4	Power Spectral Density	Pass
15.247(d)	4.5	Conducted Band Edge	Pass
15.247(d)	4.5	Conducted Spurious Emission	Pass
15.247(d)	4.6	Radiation Band Edge	Pass
15.247(d)	4.6	Radiation Spurious Emission	Pass

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3. DESCRIPTION OF TEST MODES

3.1 THE WORST MODE OF OPERATING CONDITION

Operation mode	IEEE 802.11b mode :1Mbps IEEE 802.11g mode :6Mbps IEEE 802.11n HT20 mode :MCS0
Test Channel Frequencies	IEEE 802.11b mode: 1. Channel 1: 2412 MHz 2. Channel 6: 2437 MHz 3. Channel 11: 2462 MHz 4. Channel 12: 2467 MHz 5. Channel 13: 2472 MHz IEEE 802.11g mode: 1. Channel 1: 2412 MHz 2. Channel 6: 2437 MHz 3. Channel 11: 2462 MHz 4. Channel 12: 2467 MHz 5. Channel 13: 2472 MHz IEEE 802.11n HT20 mode: 1. Channel 1: 2412 MHz 2. Channel 6: 2437 MHz 3. Channel 11: 2462 MHz 4. Channel 12: 2467 MHz 5. Channel 13: 2472 MHz
Operation Transmitter	IEEE 802.11b mode : 1T1R IEEE 802.11g mode : 1T1R IEEE 802.11n HT20 mode : 1T1R

Remark:

1. EUT pre-scanned data rate of output power for each mode, the worst data rate were recorded in this report.

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3.2 THE WORST MODE OF MEASUREMENT

AC Power Line Conducted Emission	
Test Condition	AC Power line conducted emission for line and neutral
Power supply Mode	Mode 1: EUT power by Adapter 120V
Worst Mode	<input checked="" type="checkbox"/> Mode 1 <input type="checkbox"/> Mode 2 <input type="checkbox"/> Mode 3 <input type="checkbox"/> Mode 4

Radiated Emission Measurement Above 1G	
Test Condition	Radiated Emission Above 1G
Power supply Mode	Mode 1: EUT power by Battery Mode 2: EUT power by Cradle
Worst Mode	<input checked="" type="checkbox"/> Mode 1 <input type="checkbox"/> Mode 2 <input type="checkbox"/> Mode 3 <input type="checkbox"/> Mode 4
Worst Position	<input type="checkbox"/> Placed in fixed position. <input type="checkbox"/> Placed in fixed position at X-Plane (E2-Plane) <input checked="" type="checkbox"/> Placed in fixed position at Y-Plane (E1-Plane) <input type="checkbox"/> Placed in fixed position at Z-Plane (H-Plane)

Radiated Emission Measurement Below 1G	
Test Condition	Radiated Emission Below 1G
Power supply Mode	Mode 1: EUT power by Battery Mode 2: EUT power by Cradle
Worst Mode	<input type="checkbox"/> Mode 1 <input checked="" type="checkbox"/> Mode 2 <input type="checkbox"/> Mode 3 <input type="checkbox"/> Mode 4

Remark:

1. The worst mode was record in this test report.
2. EUT pre-scanned in three axis ,X,Y, Z and two polarity, for radiated measurement. The worst case(Y-Plane) were recorded in this report.
3. AC power line conducted emission and for below 1G radiation emission were performed the EUT transmit at the highest output power channel as worse case.

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3.3 EUT DUTY CYCLE

Temperature: 21.4~26.9°C
Humidity: 47~69% RH

Test date: May 20~August 16, 2022
Tested by: David Li

Duty Cycle				
Configuration	Duty Cycle (%) = Ton / (Ton+Toff)	Duty Factor (dB) =10*log (1/Duty Cycle)	1/T (kHz)	VBW setting (kHz)
802.11b	97.66	0.10	0.12	1.00
802.11g	87.29	0.59	0.74	1.00
802.11n_20	86.53	0.63	0.79	1.00



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4. TEST RESULT

4.1 AC POWER LINE CONDUCTED EMISSION

4.1.1 Test Limit

According to §15.207(a)(2),

Frequency Range (MHz)	Limits(dBμV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56*	56 to 46*
0.50 to 5	56	46
5 to 30	60	50

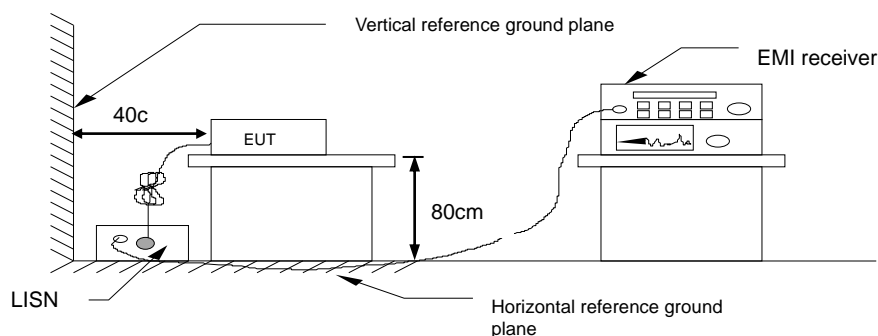
* Decreases with the logarithm of the frequency.

4.1.2 Test Procedure

Test method Refer as ANSI C63.10: 2013 clause 6.2,

1. The EUT was placed on a non-conducted table, which is 0.8m above horizontal ground plane and 0.4m above vertical ground plane.
2. EUT connected to the line impedance stabilization network (LISN)
3. Receiver set RBW of 9kHz and Detector Peak, and note as quasi-peak and average.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. Recorded Line for Neutral and Line.

4.1.3 Test Setup

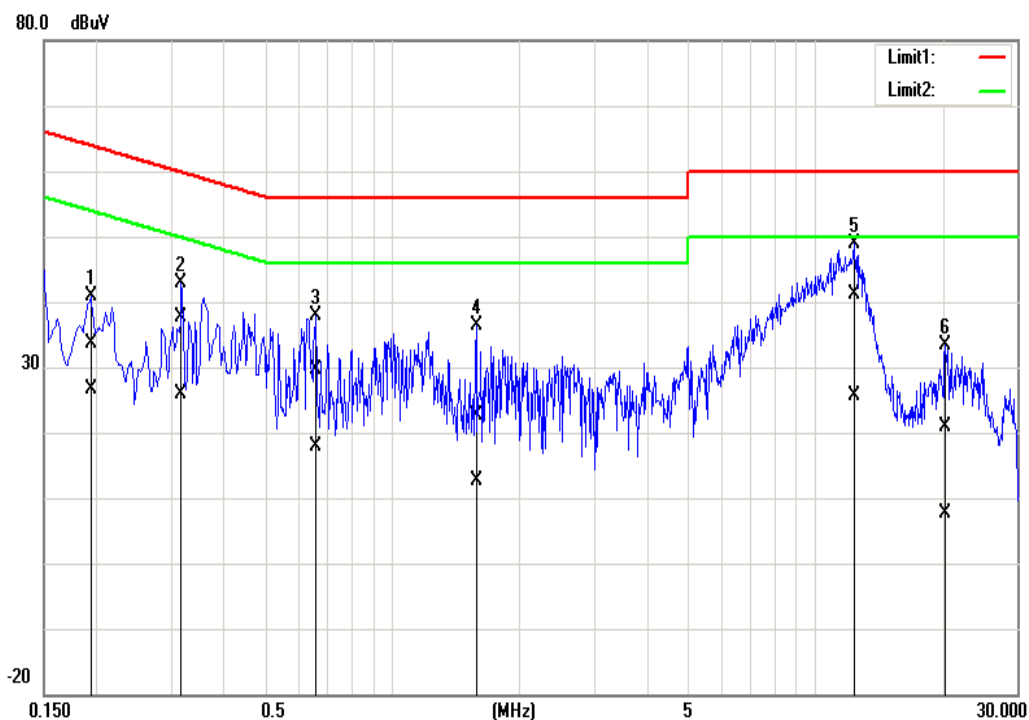


4.1.4 Test Result

Pass.

Test Data

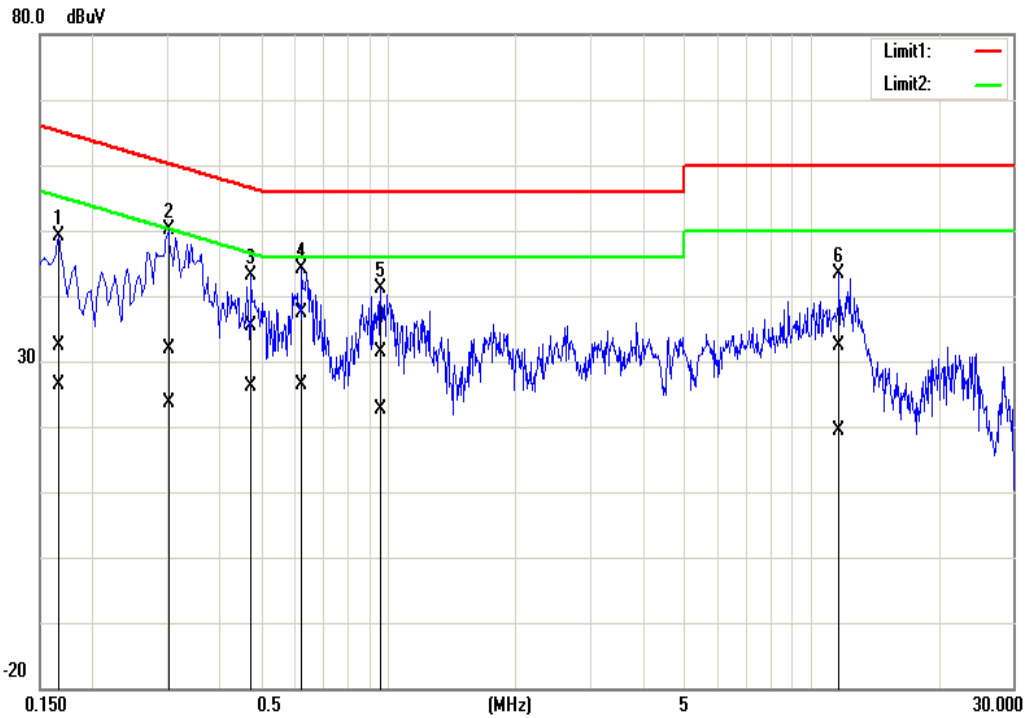
Test Mode:	Mode 1	Temp/Hum	23.5(°C)/ 62%RH
Phase:	Line	Test Date	May 27, 2022
Test Voltage:	120Vac, 60Hz	Test Engineer	Jack Chen



Frequency (MHz)	Quasi Peak reading (dBuV)	Average reading (d uV)	Correction factor (dB)	Quasi Peak result (dBuV)	Average result (dBuV)	Quasi Peak limit (dBuV)	Average limit (dBuV)	Quasi Peak margin (dB)	Average margin (dB)	Remark
0.1940	23.44	16.52	10.18	33.62	26.70	63.86	53.86	-30.24	-27.16	Pass
0.3180	27.56	15.79	10.19	37.75	25.98	59.76	49.76	-22.01	-23.78	Pass
0.6580	19.50	7.71	10.19	29.69	17.90	56.00	46.00	-26.31	-28.10	Pass
1.5780	12.30	2.32	10.23	22.53	12.55	56.00	46.00	-33.47	-33.45	Pass
12.3420	30.72	15.24	10.37	41.09	25.61	60.00	50.00	-18.91	-24.39	Pass
20.3500	10.51	-2.62	10.35	20.86	7.73	60.00	50.00	-39.14	-42.27	Pass

Note: 1. Correction factor = LISN loss + Cable loss.

Test Mode:	Mode 1	Temp/Hum	23.5(°C)/ 62%RH
Phase:	Neutral	Test Date	May 27, 2022
Test Voltage:	120Vac, 60Hz	Test Engineer	Jack Chen



Frequency (MHz)	Quasi Peak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	Quasi Peak result (dBuV)	Average result (dBuV)	Quasi Peak limit (dBuV)	Average limit (dBuV)	Quasi Peak margin (dB)	Average margin (dB)	Remark
0.1660	22.13	16.26	10.17	32.30	26.43	65.15	55.16	-32.85	-28.73	Pass
0.3020	21.58	13.52	10.18	31.76	23.70	60.19	50.19	-28.43	-26.49	Pass
0.4740	25.16	16.02	10.18	35.34	26.20	56.44	46.44	-21.10	-20.24	Pass
0.6260	27.26	16.20	10.18	37.44	26.38	56.00	46.00	-18.56	-19.62	Pass
0.9620	21.10	12.41	10.20	31.30	22.61	56.00	46.00	-24.70	-23.39	Pass
11.6260	22.12	8.96	10.37	32.49	19.33	60.00	50.00	-27.51	-30.67	Pass

Note: 1. Correction factor = LISN loss + Cable loss.

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4.2 6dB BANDWIDTH AND OCCUPIED BANDWIDTH (99%)

4.2.1 Test Limit

According to §15.247(a)(2),

6 dB Bandwidth :

Limit	Shall be at least 500kHz
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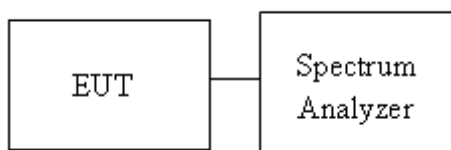
Occupied Bandwidth(99%) : For reporting purposes only.

4.2.2 Test Procedure

Test method Refer as ANSI C63.10: 2013,

1. The EUT RF output connected to the spectrum analyzer by RF cable.
2. Setting maximum power transmit of EUT
3. SA set RBW = 100kHz, VBW = 300kHz and Detector = Peak, to measurement 6 dB Bandwidth.
4. SA set RBW = 1% ~ 5% OBW, VBW = three times the RBW and Detector = Peak, to measurement 99% Bandwidth
5. Measure and record the result of 6 dB Bandwidth and 99% Bandwidth. in the test report.

4.2.3 Test Setup



4.2.4 Test Result

Temperature: 21.4~26.9°C

Test date: May 20~August 16, 2022

Humidity: 47~69% RH

Tested by: David Li

Test mode: IEEE 802.11b mode / 2412 – 2472 MHz						
Channel	Frequency (MHz)	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 6dB BW (kHz)	Chain 1 6dB BW (kHz)	6dB limit (kHz)
1	2412	12.628	-	7138.00	-	≥500
6	2437	12.417	-	7130.00	-	
11	2462	12.734	-	7590.00	-	
12	2467	12.519	-	7596.00	-	
13	2472	12.627	-	7593.00	-	

Test mode: IEEE 802.11g mode / 2412 – 2472 MHz						
Channel	Frequency (MHz)	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 6dB BW (kHz)	Chain 1 6dB BW (kHz)	6dB limit (kHz)
1	2412	17.007	-	16400.00	-	≥500
6	2437	17.099	-	16410.00	-	
11	2462	16.970	-	16380.00	-	
12	2467	17.189	-	16400.00	-	
13	2472	17.263	-	16410.00	-	

Test mode: IEEE 802.11n HT 20 mode / 2412 – 2472 MHz						
Channel	Frequency (MHz)	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 6dB BW (kHz)	Chain 1 6dB BW (kHz)	6dB limit (kHz)
1	2412	17.995	-	17600.00	-	≥500
6	2437	18.068	-	17640.00	-	
11	2462	17.983	-	17590.00	-	
12	2467	18.136	-	17600.00	-	
13	2472	18.209	-	17630.00	-	

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Test Data 6dB BANDWIDTH

IEEE 802.11b mode- chain 0

Channel 1



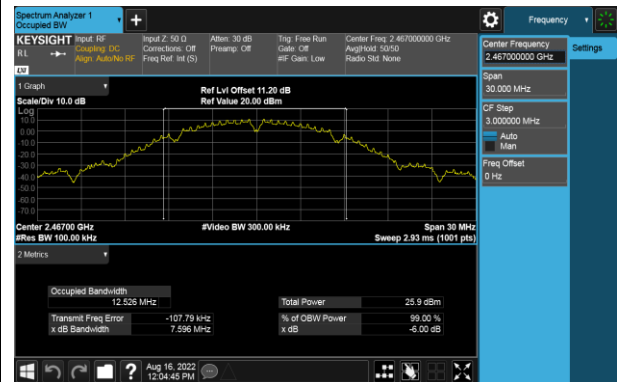
Channel 6



Channel 11



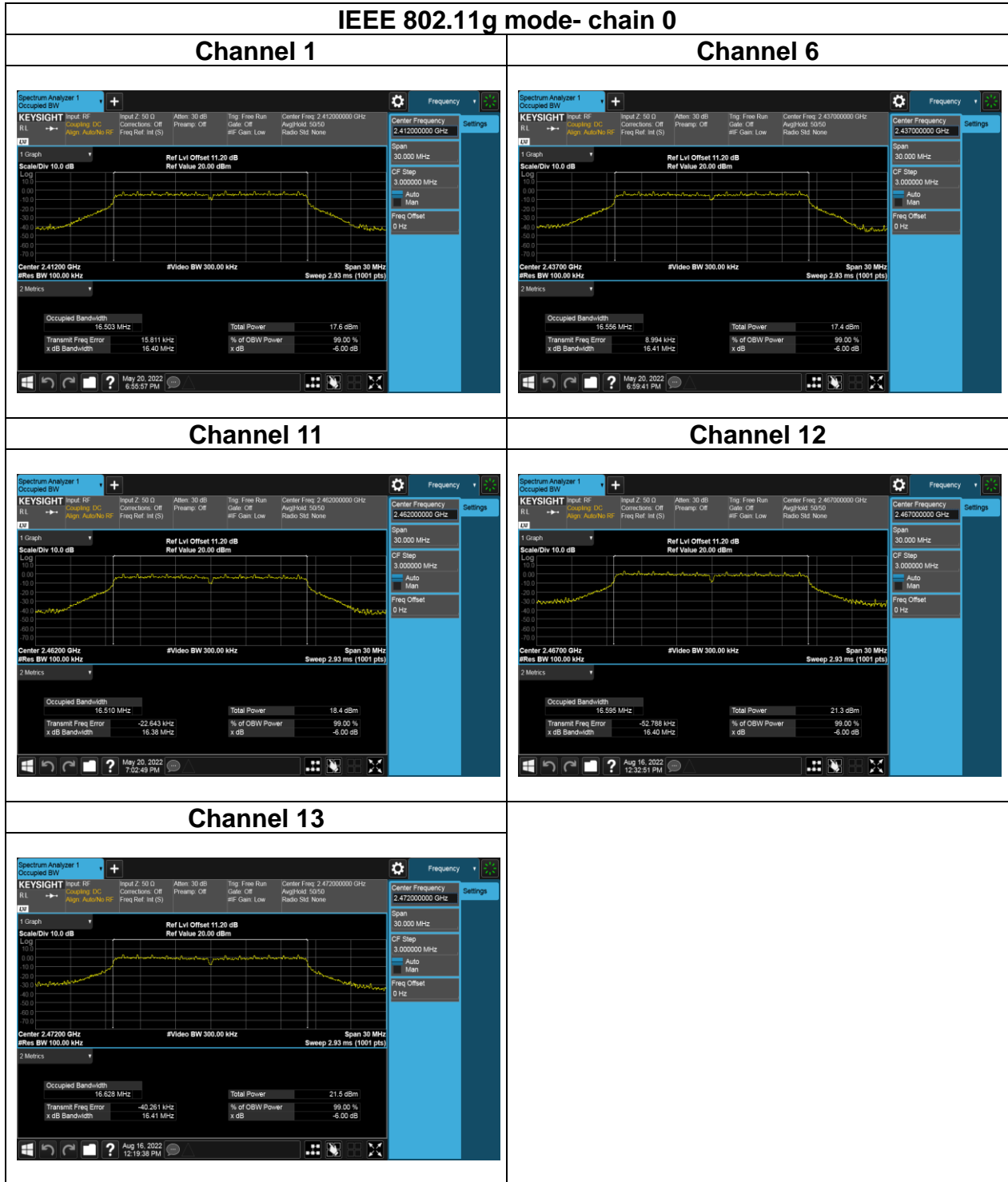
Channel 12



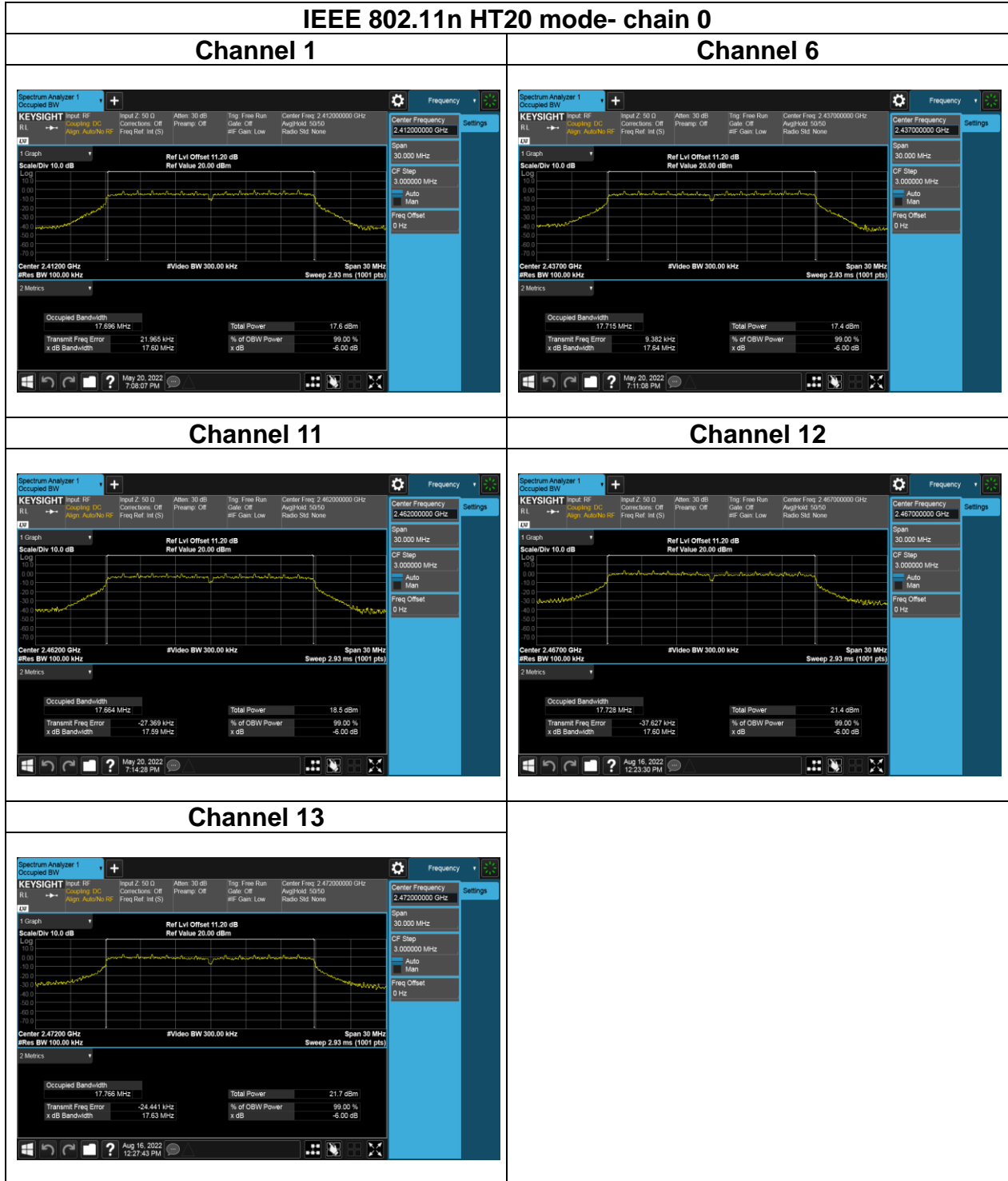
Channel 13



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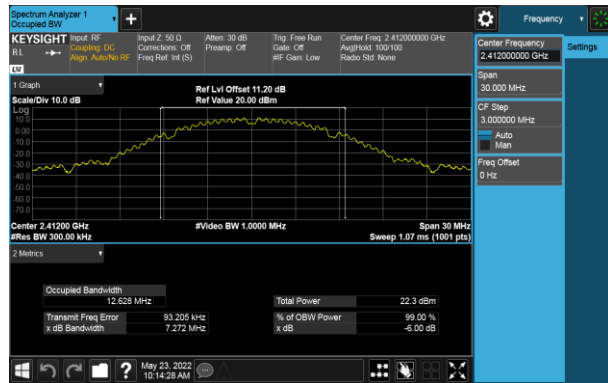


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Test Data BANDWIDTH 99%

IEEE 802.11b mode- chain 0

Channel 1



Channel 6



Channel 11



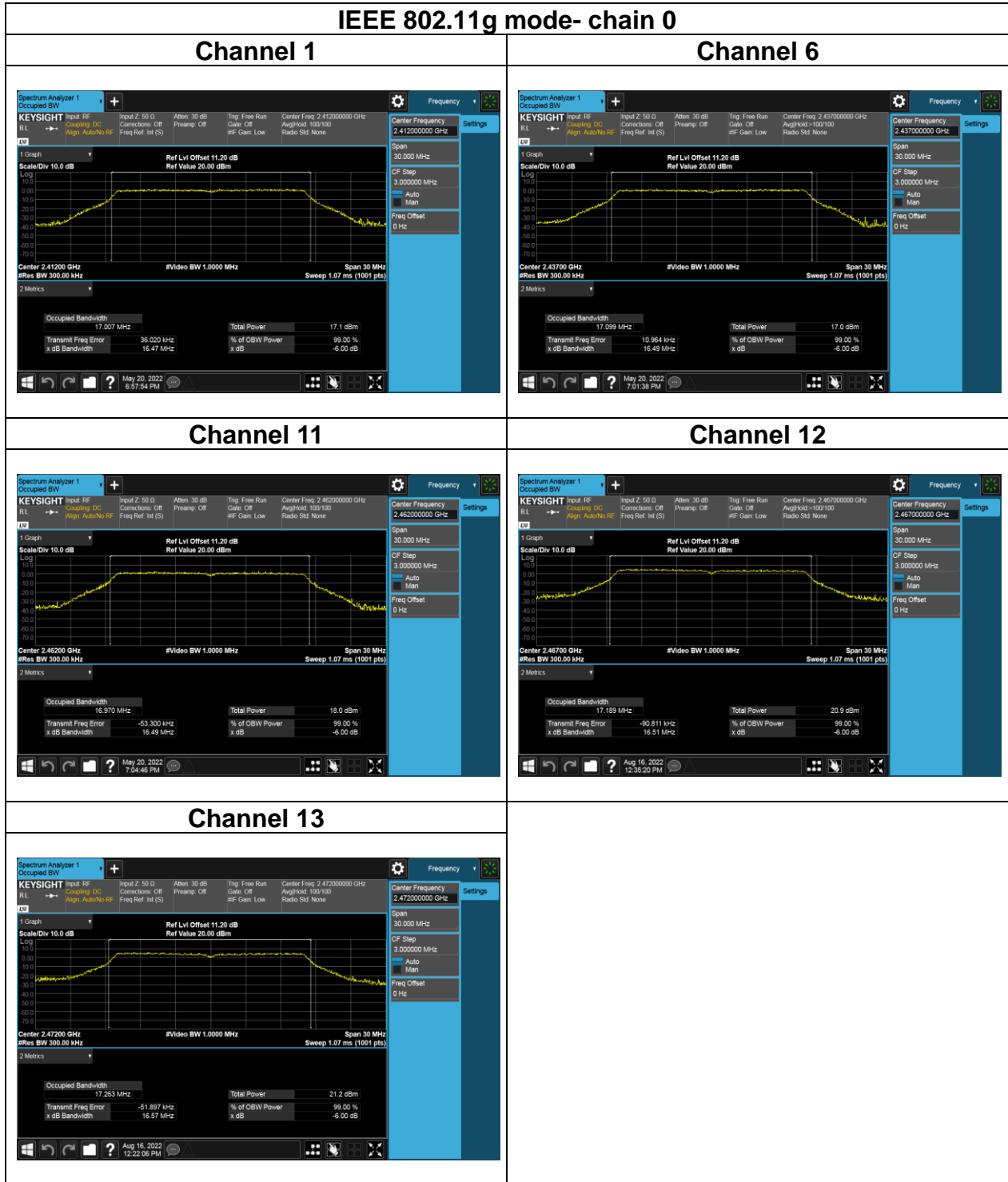
Channel 12

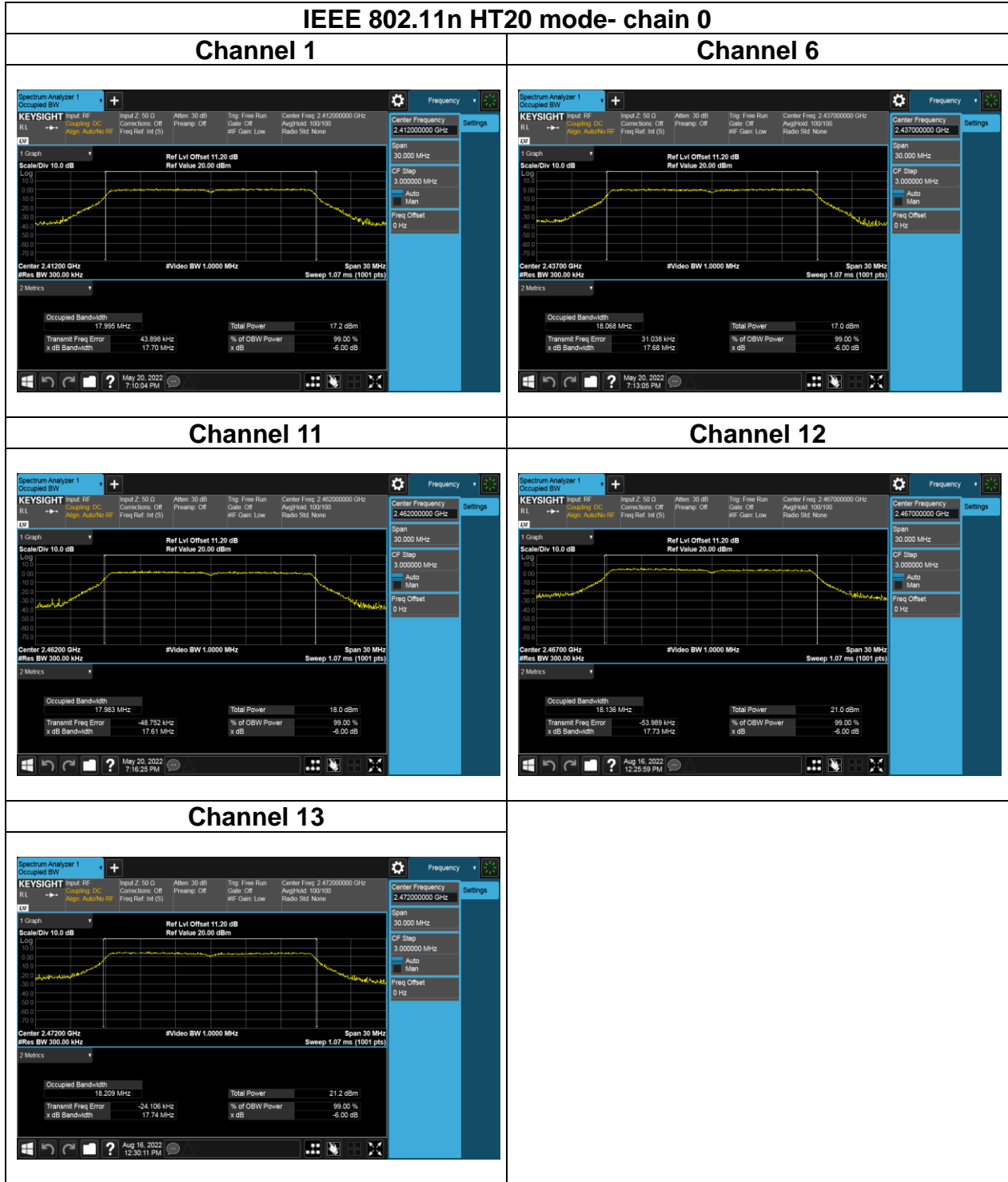


Channel 13



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4.3 OUTPUT POWER MEASUREMENT

4.3.1 Test Limit

According to §15.247(b),

Peak output power :

For systems using digital modulation in the 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt(30 dBm) and the e.i.r.p. shall not exceed 4Watt(36 dBm), base on the use of antennas with directional gain not exceed 6 dBi If transmitting antennas of directional gain greater than 6dBi are used the peak output power the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

Limit	<input checked="" type="checkbox"/> Antenna not exceed 6 dBi : 30dBm <input type="checkbox"/> Antenna with DG greater than 6 dBi : [Limit = 30 – (DG – 6)] <input type="checkbox"/> Point-to-point operation :
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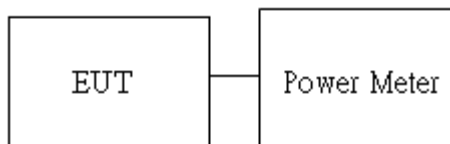
Average output power : For reporting purposes only.

4.3.2 Test Procedure

Test method Refer as ANSI C63.10:2013.

1. The EUT RF output connected to the power meter by RF cable.
2. Setting maximum power transmit of EUT.
3. The path loss was compensated to the results for each measurement.
4. Measure and record the result of Peak output power and Average output power. in the test report.

4.3.3 Test Setup



4.3.4 Test Result

Temperature: 21.4~26.9°C

Test date: May 20~August 16, 2022

Humidity: 47~69% RH

Tested by: David Li

Peak output power :

Test Mode: IEEE 802.11b Mode

802.11b Ch0						
CH	Freq. (MHz)	Data Rate	Power set	Peak Output Power (dBm)	Limit (dBm)	RESULT
1	2412	1	15	20.76	30.00	PASS
6	2437	1	14	20.38	30.00	PASS
11	2462	1	14	20.35	30.00	PASS
12	2467	1	15	20.52	30.00	PASS
13	2472	1	15	20.59	30.00	PASS

Test Mode: IEEE 802.11g Mode

802.11g Ch0						
CH	Freq. (MHz)	Data Rate	Power set	Peak Output Power (dBm)	Limit (dBm)	RESULT
1	2412	6	11	21.54	30.00	PASS
6	2437	6	10	21.66	30.00	PASS
11	2462	6	10	21.64	30.00	PASS
12	2467	6	11	21.78	30.00	PASS
13	2472	6	11	21.69	30.00	PASS

Test Mode: IEEE 802.11n HT 20 Mode

802.11nHT_20M Ch0						
CH	Freq. (MHz)	Data Rate	Power set	Peak Output Power (dBm)	Limit (dBm)	RESULT
1	2412	MCS0	11	21.72	30.00	PASS
6	2437	MCS0	10	21.43	30.00	PASS
11	2462	MCS0	11	21.61	30.00	PASS
12	2467	MCS0	11	21.75	30.00	PASS
13	2472	MCS0	11	21.88	30.00	PASS

Average output power :

Test Mode: IEEE 802.11b Mode

802.11b Ch0						
CH	Freq. (MHz)	Data Rate	Power set	Max. Avg. Output Power (dBm)	Limit (dBm)	RESULT
1	2412	1	15	17.61	30.00	PASS
6	2437	1	14	17.33	30.00	PASS
11	2462	1	14	17.39	30.00	PASS
12	2467	1	15	17.79	30.00	PASS
13	2472	1	15	17.85	30.00	PASS

Test Mode: IEEE 802.11g Mode

802.11g Ch0						
CH	Freq. (MHz)	Data Rate	Power set	Max. Avg. Output Power (dBm)	Limit (dBm)	RESULT
1	2412	6	11	13.00	30.00	PASS
6	2437	6	10	12.86	30.00	PASS
11	2462	6	10	13.10	30.00	PASS
12	2467	6	11	13.42	30.00	PASS
13	2472	6	11	13.58	30.00	PASS

Test Mode: IEEE 802.11n HT 20 Mode

802.11nHT_20M Ch0						
CH	Freq. (MHz)	Data Rate	Power set	Max. Avg. Output Power (dBm)	Limit (dBm)	RESULT
1	2412	MCS0	11	13.05	30.00	PASS
6	2437	MCS0	10	12.86	30.00	PASS
11	2462	MCS0	11	13.97	30.00	PASS
12	2467	MCS0	11	13.48	30.00	PASS
13	2472	MCS0	11	13.54	30.00	PASS

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4.4 POWER SPECTRAL DENSITY

4.4.1 Test Limit

According to §15.247(e),

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

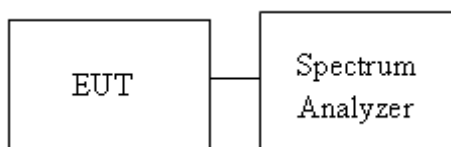
Limit	<input checked="" type="checkbox"/> Antenna not exceed 6 dBi : 8dBm <input type="checkbox"/> Antenna with DG greater than 6 dBi : [Limit = 8 – (DG – 6)] <input type="checkbox"/> Point-to-point operation :
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4.4.2 Test Procedure

Test method Refer as ANSI C63.10:2013,

1. The EUT RF output connected to the spectrum analyzer by RF cable.
2. Setting maximum power transmit of EUT
3. SA set RBW = 3kHz, VBW = 10kHz, Span = 1.5 times DTS Bandwidth (6 dB BW), Detector = Peak, Sweep Time = Auto and Trace = Max hold.
4. The path loss and Duty Factor were compensated to the results for each measurement by SA.
5. Mark the maximum level.
6. Measure and record the result of power spectral density. in the test report.

4.4.3 Test Setup



4.4.4 Test Result

Temperature: 21.4~26.9°C

Test date: May 20~August 16, 2022

Humidity: 47~69% RH

Tested by: David Li

Test mode: IEEE 802.11b mode / 2412 – 2472 MHz					
Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	Total PPSD (dBm/3kHz)	Limit (dBm/3kHz)
1	2412	-3.79	-	-3.79	8.00
6	2437	-2.71	-	-2.71	
11	2462	-2.30	-	-2.30	
12	2467	-3.30	-	-3.30	
13	2472	-3.90	-	-3.90	

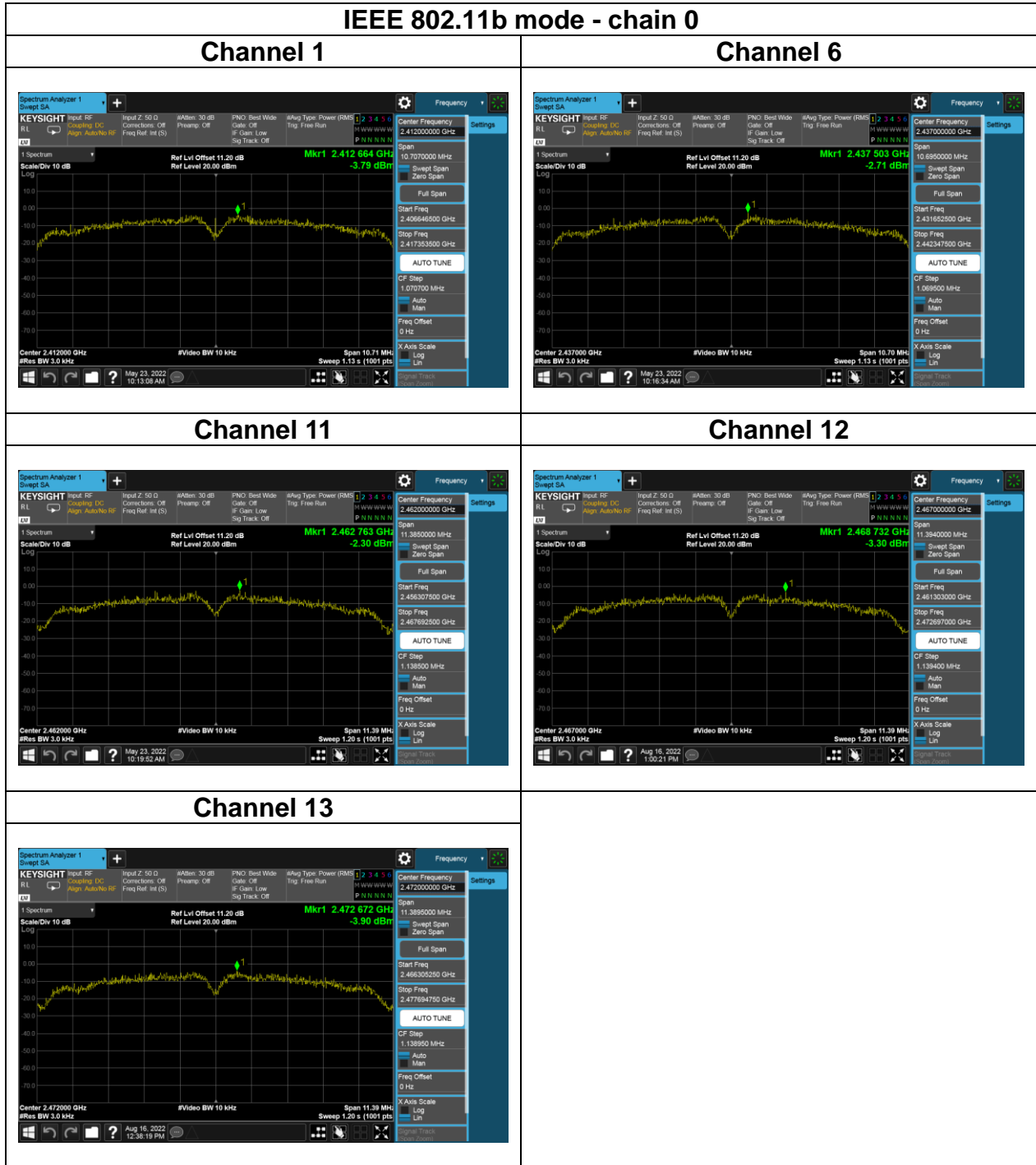
Test mode: IEEE 802.11g mode / 2412 – 2472 MHz					
Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	Total PPSD (dBm/3kHz)	Limit (dBm/3kHz)
1	2412	-14.41	-	-14.41	8.00
6	2437	-15.63	-	-15.63	
11	2462	-13.33	-	-13.33	
12	2467	-10.60	-	-10.60	
13	2472	-10.61	-	-10.61	

Test mode: IEEE 802.11n HT 20 mode / 2412 – 2472 MHz					
Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	Total PPSD (dBm/3kHz)	Limit (dBm/3kHz)
1	2412	-16.03	-	-16.03	8.00
6	2437	-15.86	-	-15.86	
11	2462	-14.47	-	-14.47	
12	2467	-11.81	-	-11.81	
13	2472	-10.63	-	-10.63	

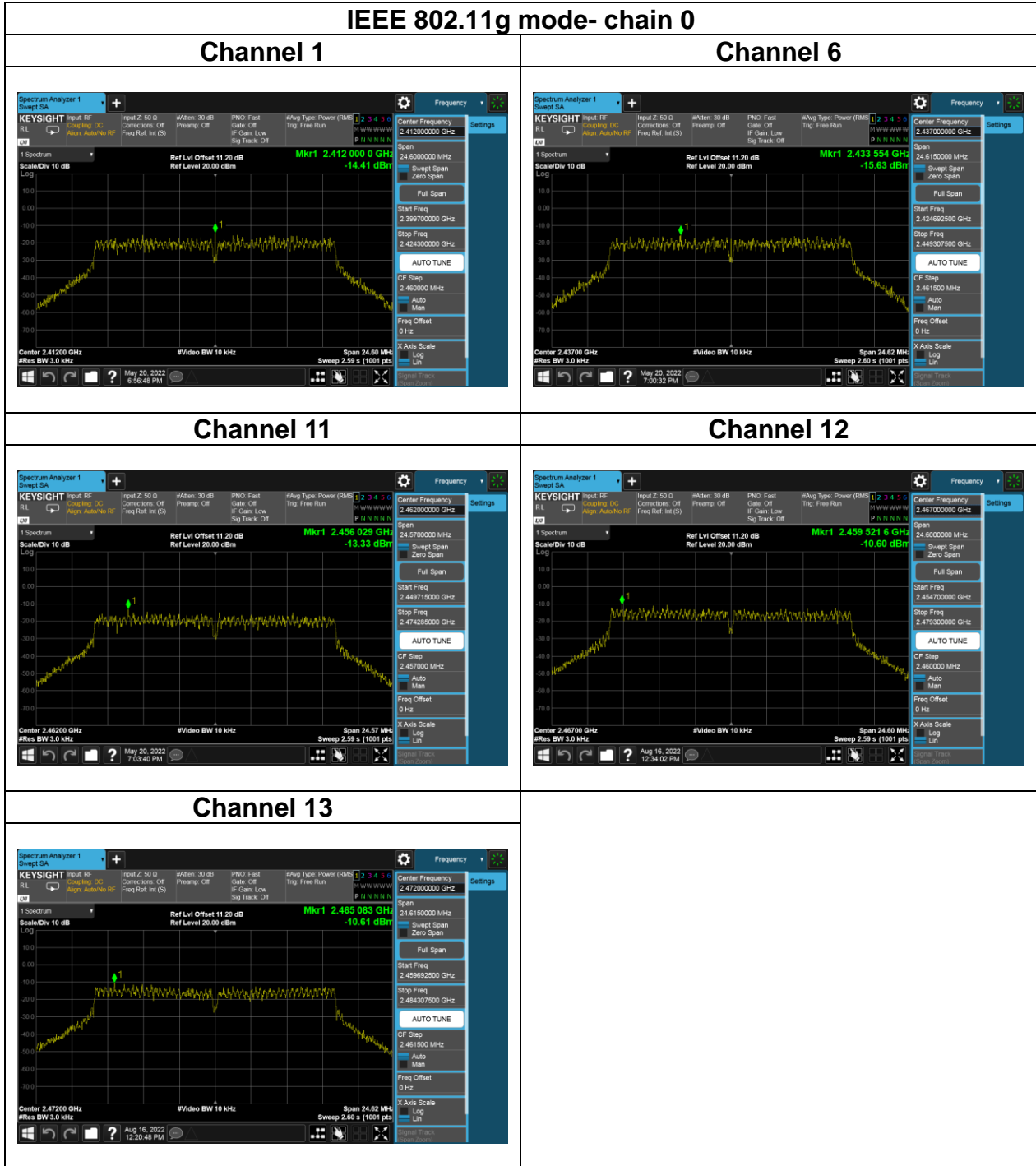


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Test Data



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