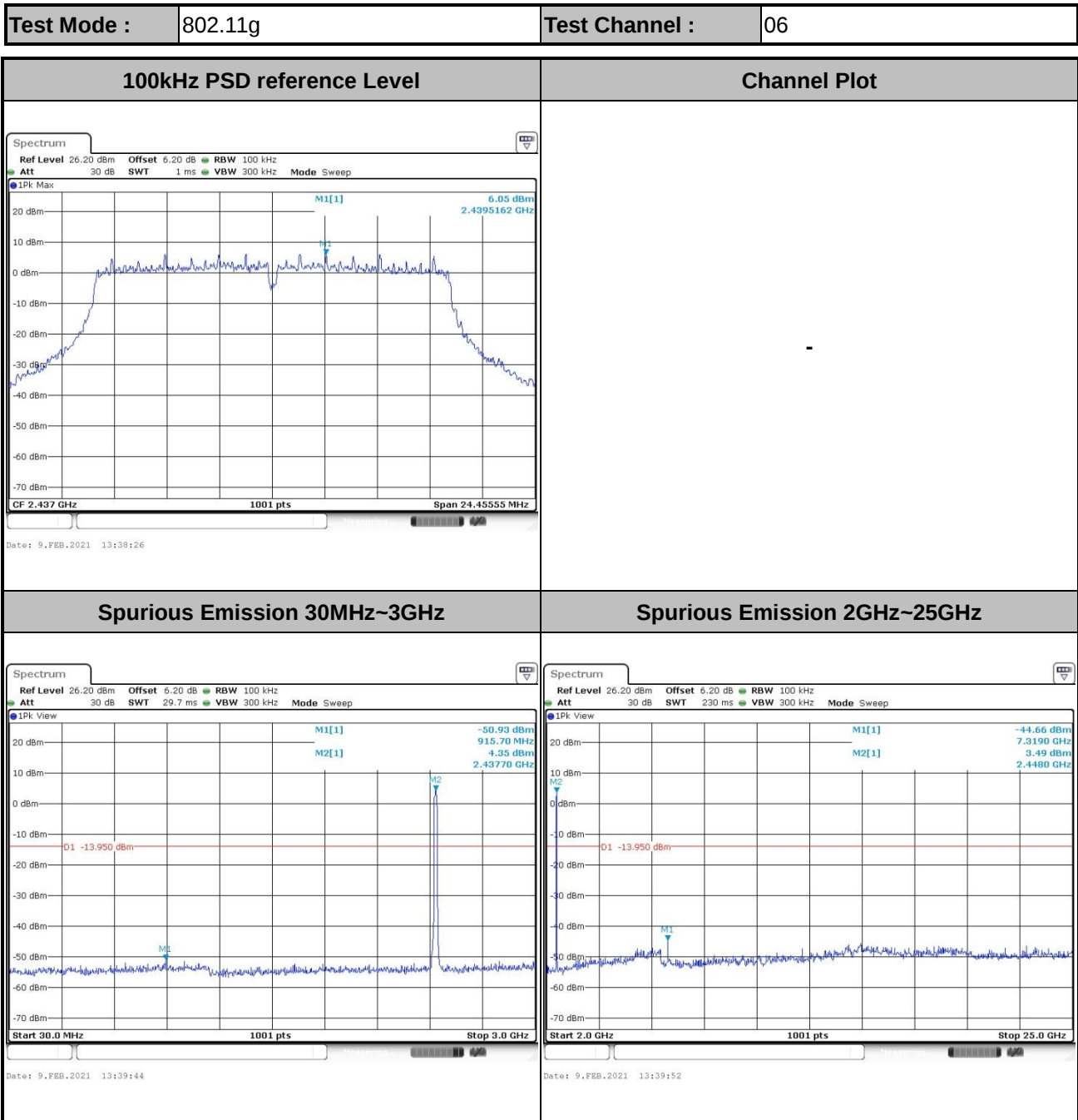
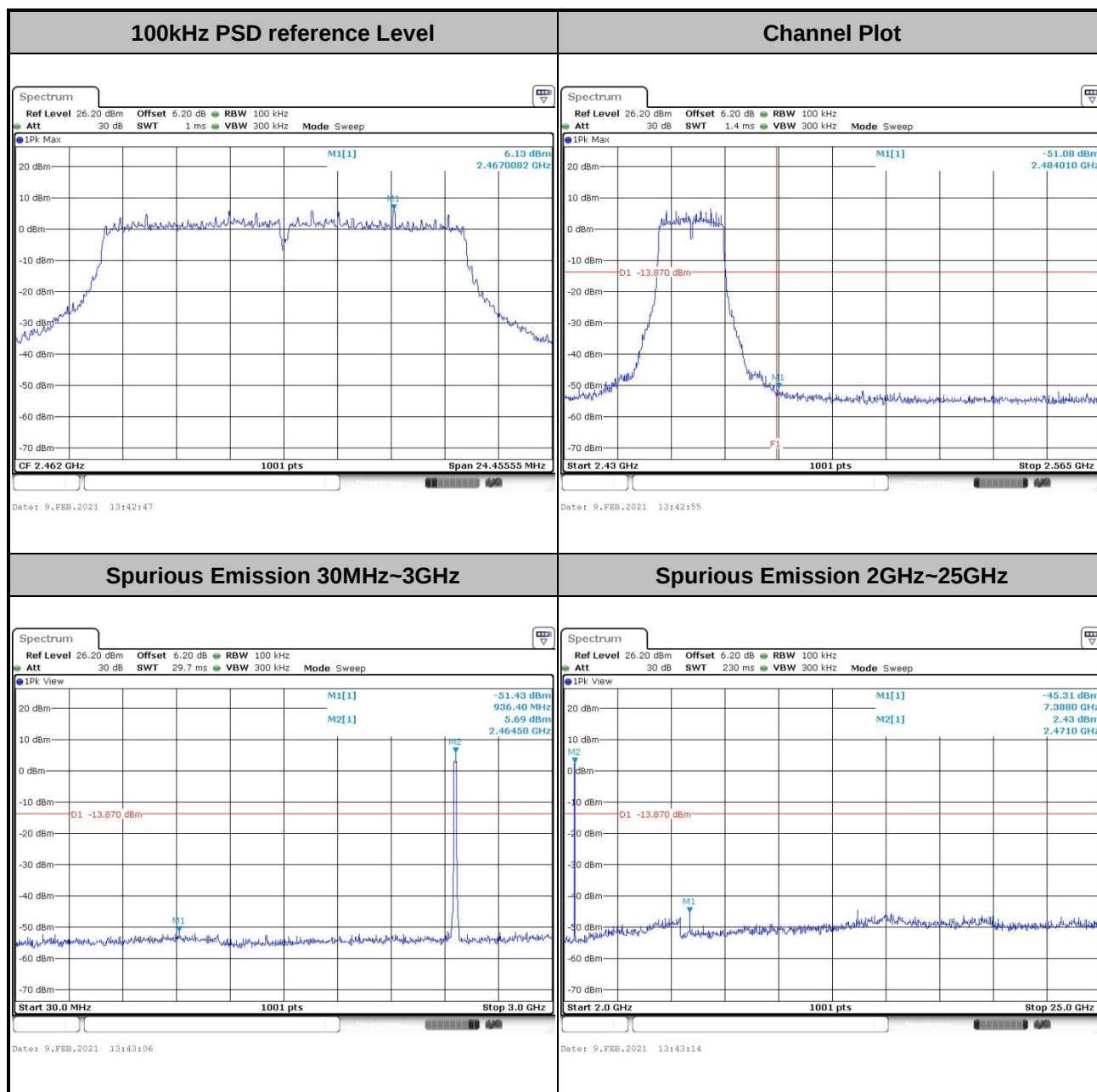
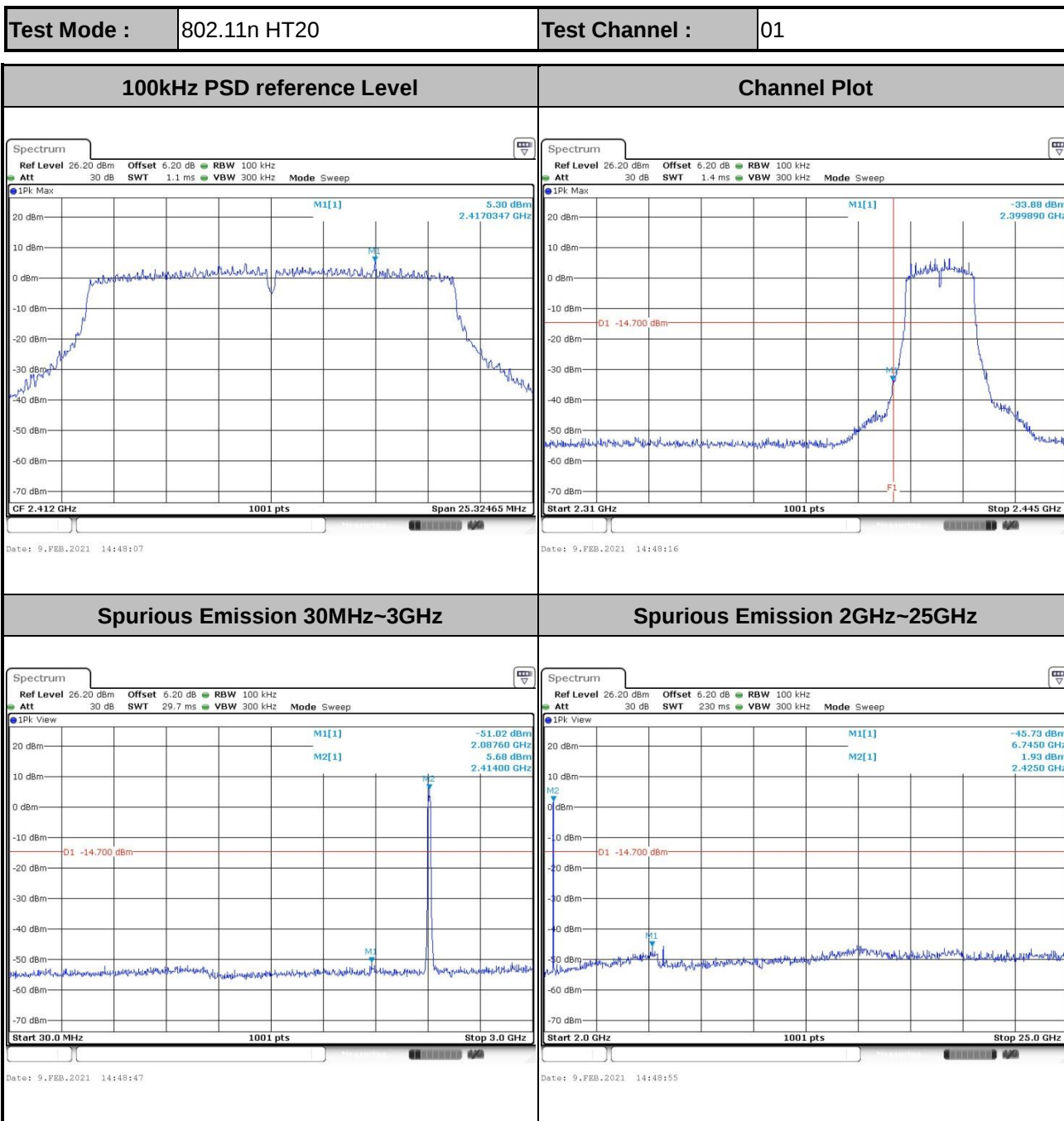






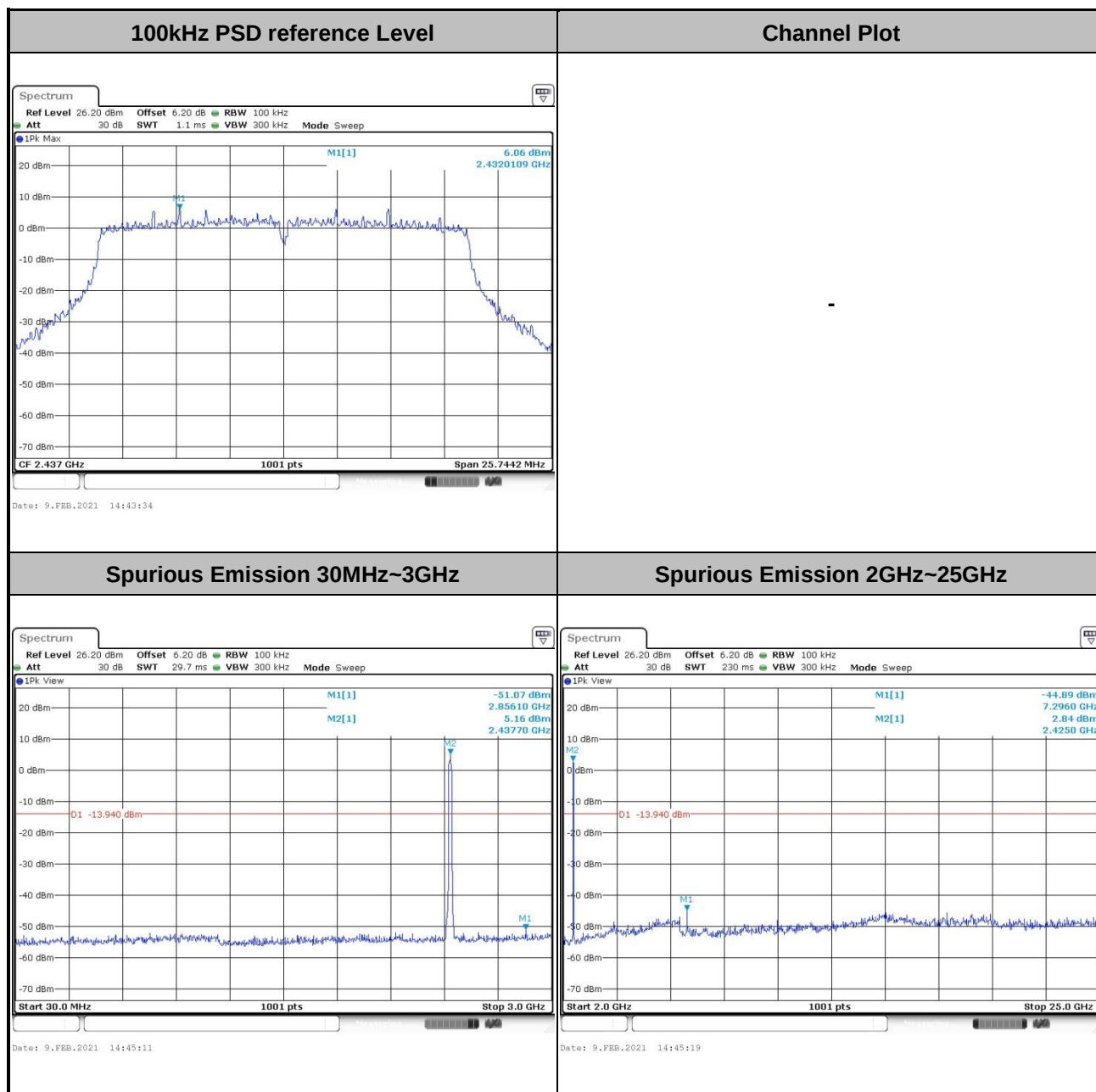
Test Mode :	802.11g	Test Channel :	11
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Test Mode :	802.11n HT20	Test Channel :	06
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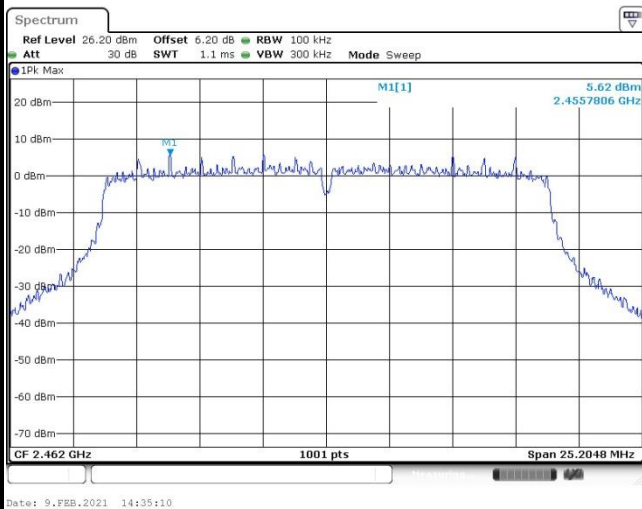




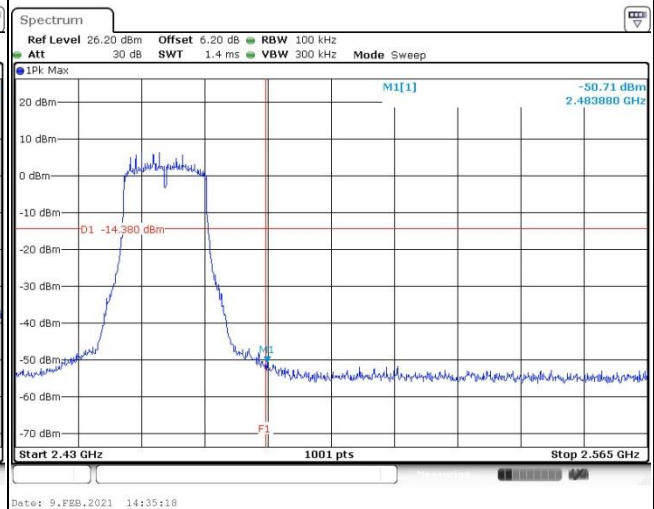
Test Mode : 802.11n HT20

Test Channel : 11

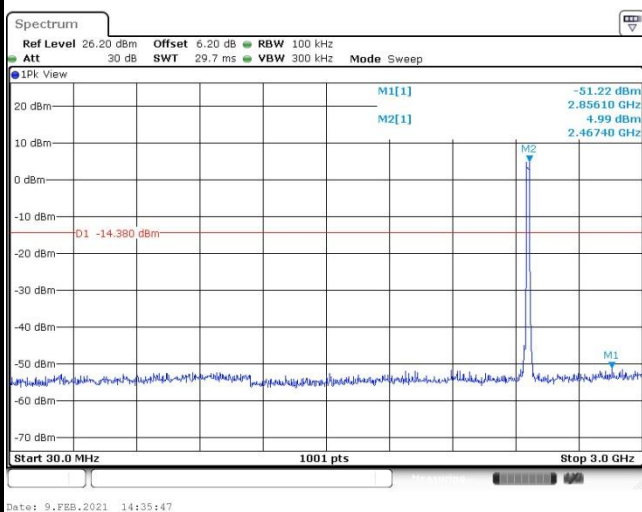
100kHz PSD reference Level



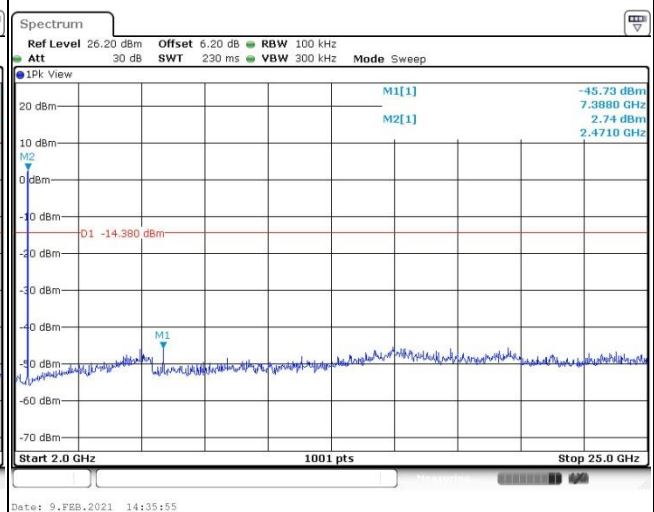
Channel Plot



Spurious Emission 30MHz~3GHz



Spurious Emission 2GHz~25GHz

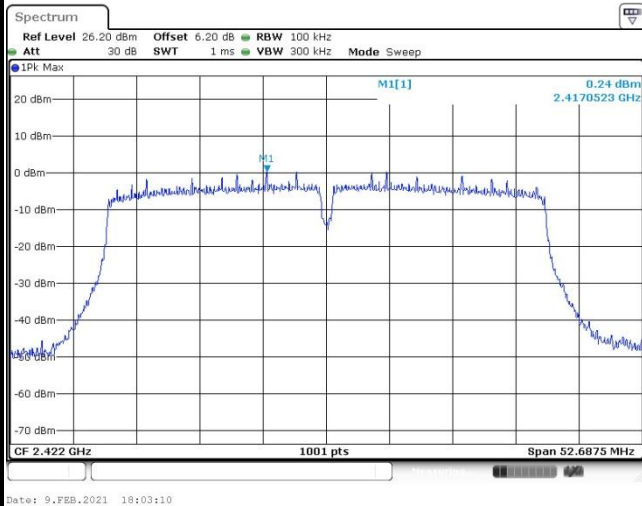




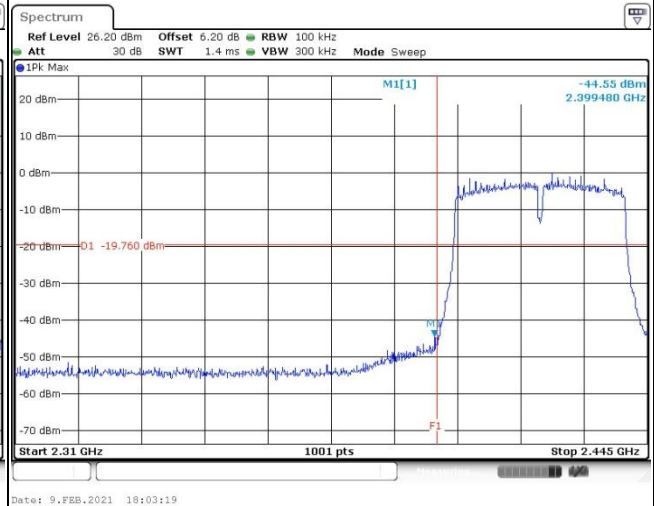
Test Mode : 802.11n HT40

Test Channel : 03

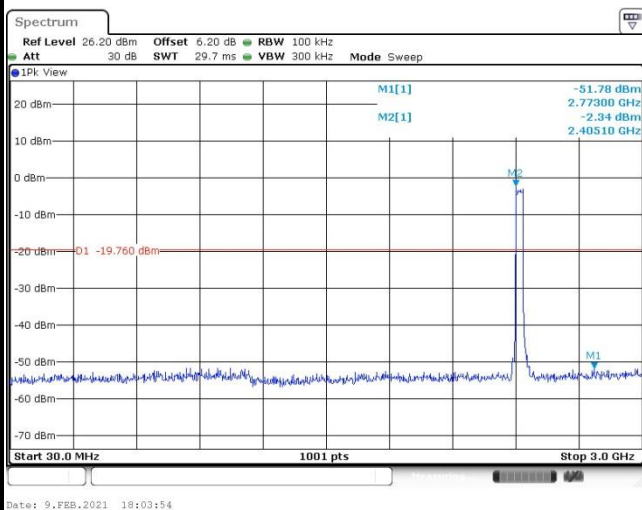
100kHz PSD reference Level



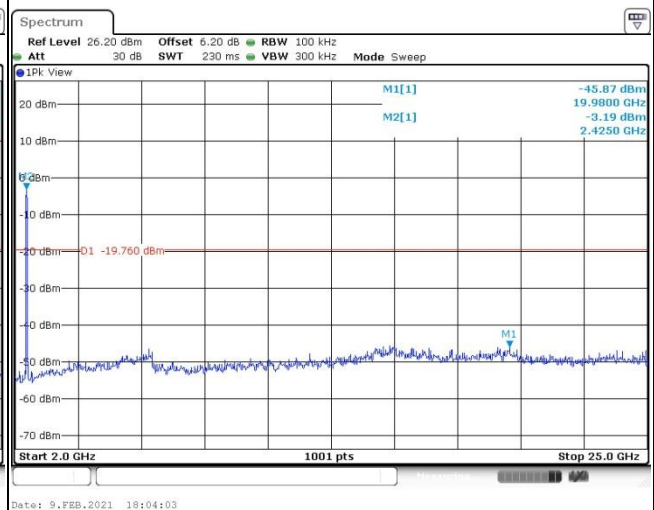
Channel Plot



Spurious Emission 30MHz~3GHz

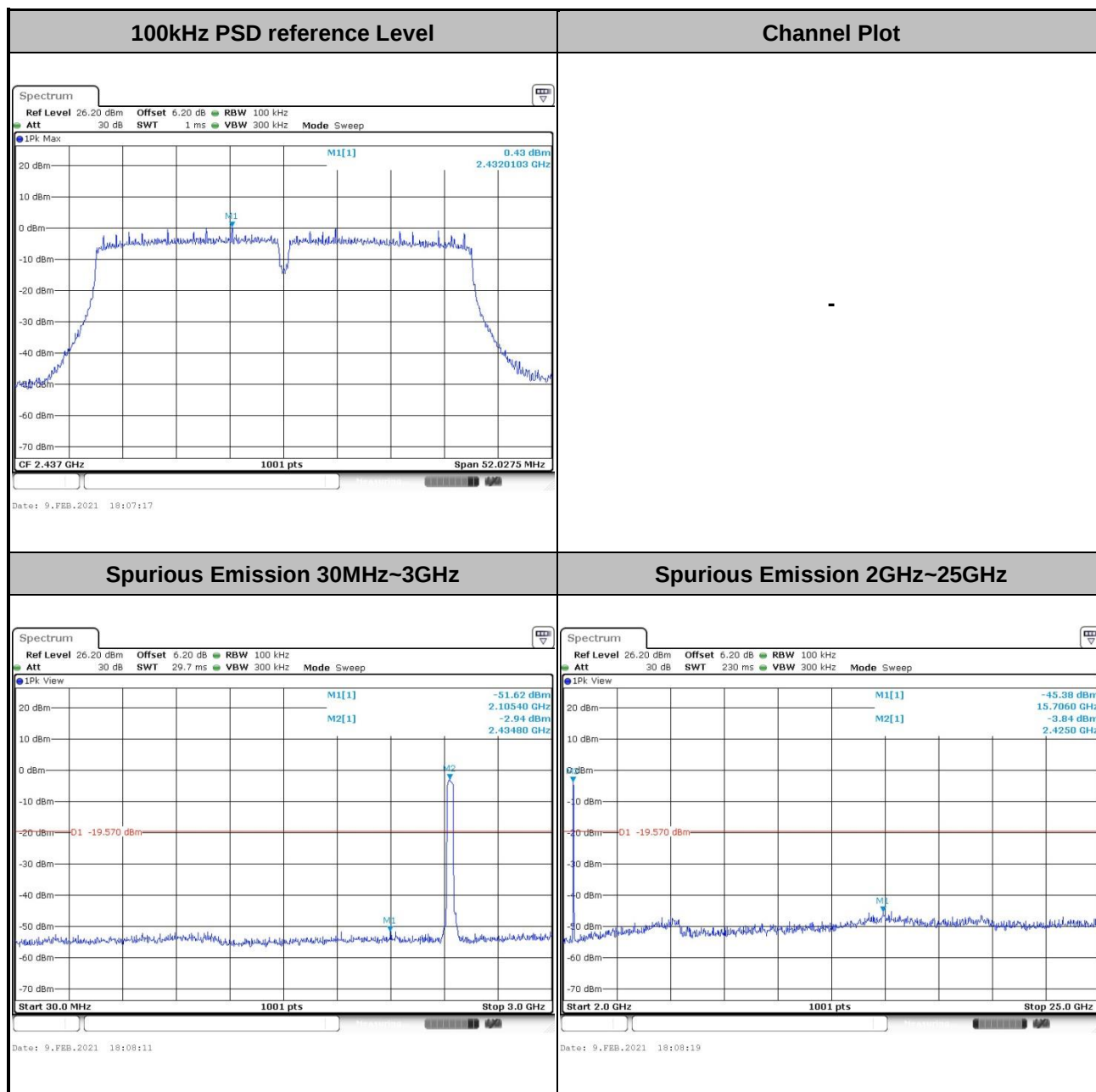


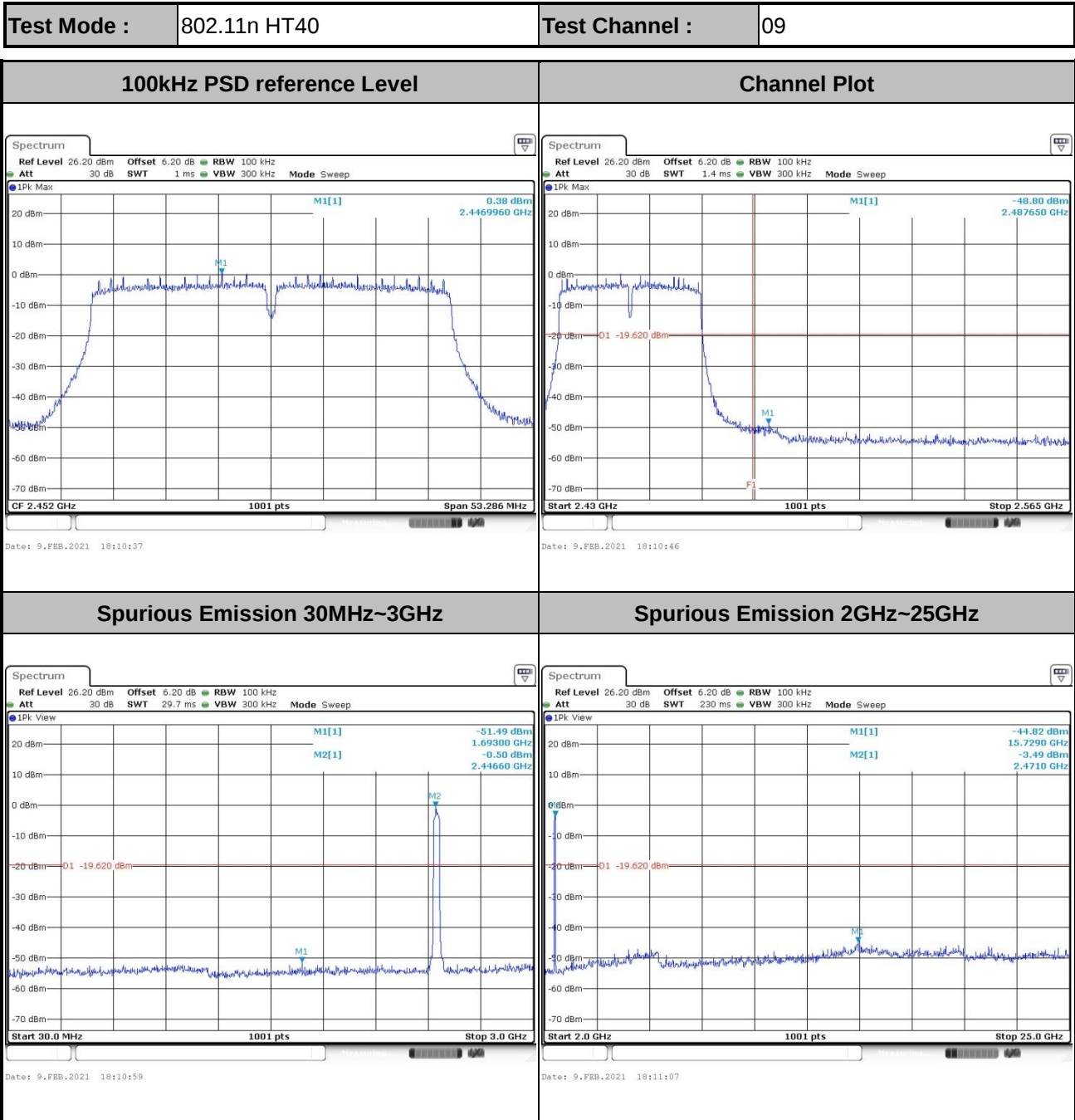
Spurious Emission 2GHz~25GHz





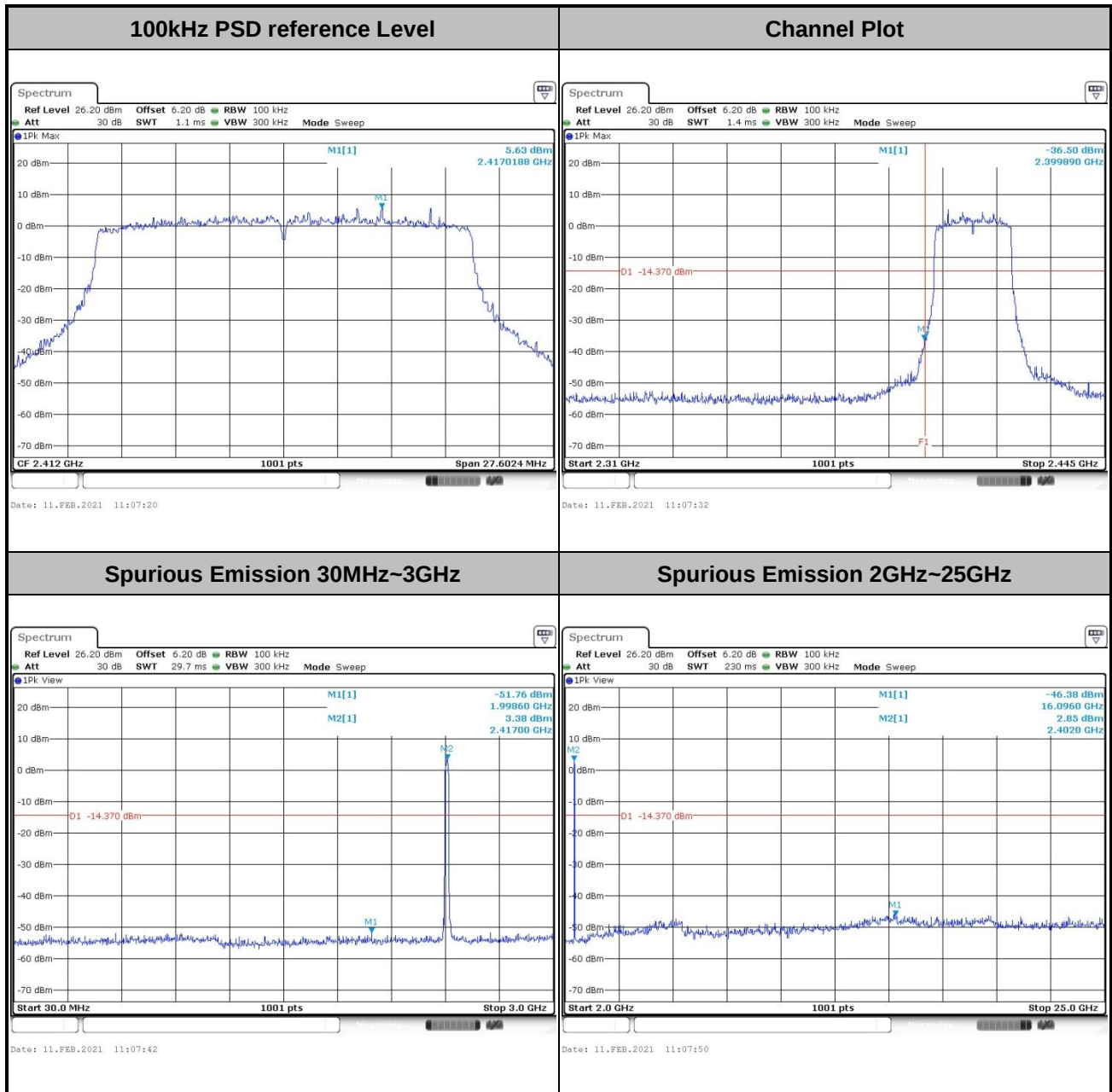
Test Mode :	802.11n HT40	Test Channel :	06
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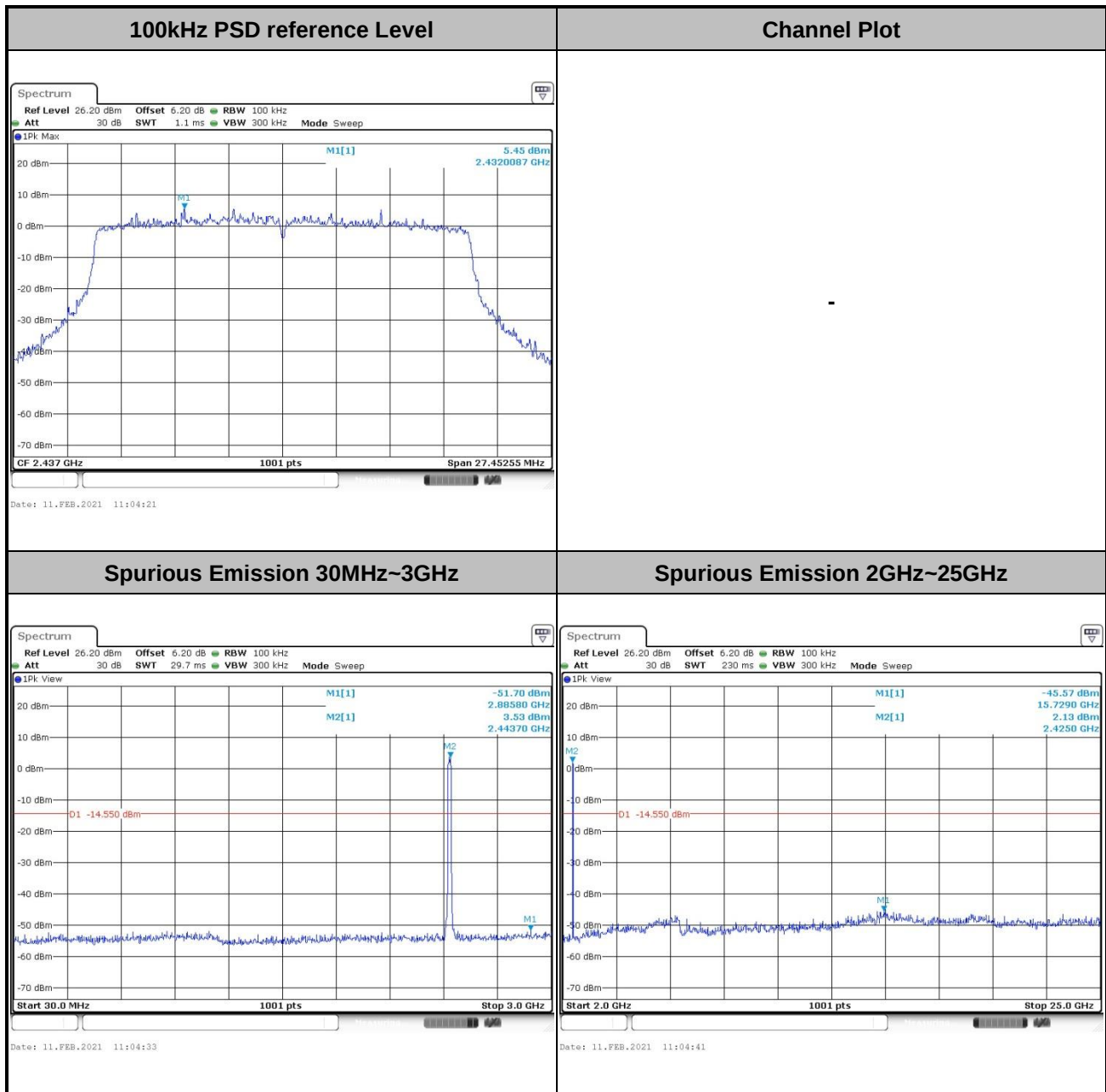


Test Mode :	802.11ax HE20	Test Channel :	01
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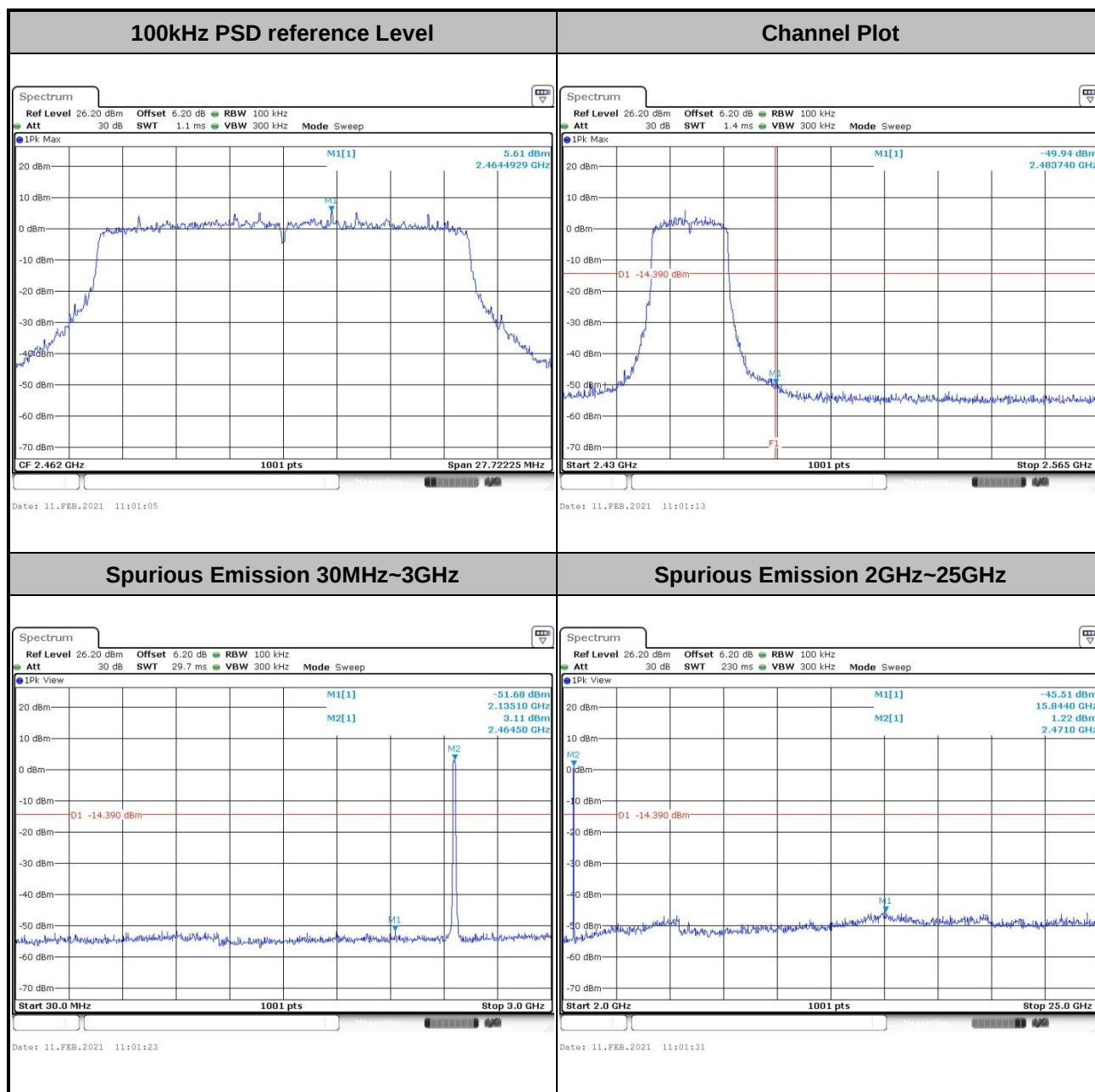


Test Mode :	802.11ax HE20	Test Channel :	06
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Test Mode :	802.11ax HE20	Test Channel :	11
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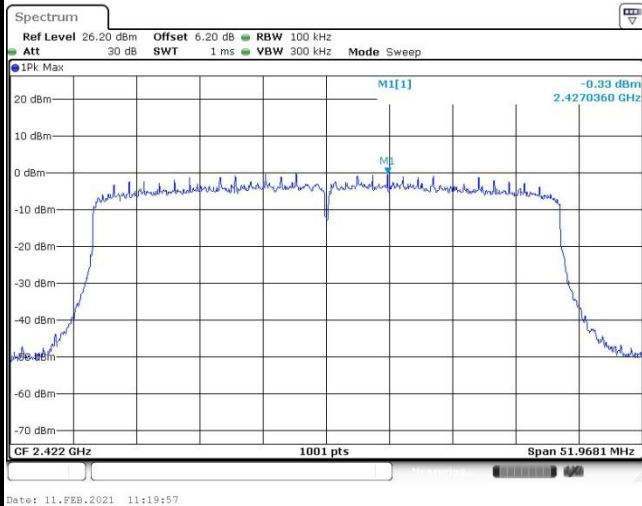




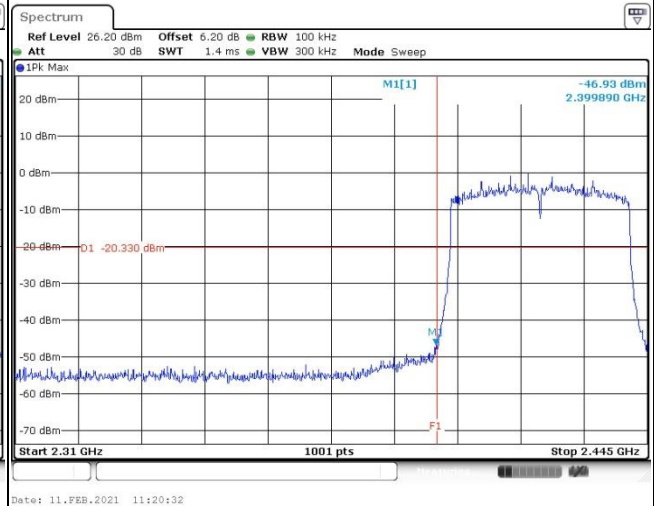
Test Mode : 802.11ax HE40

Test Channel : 03

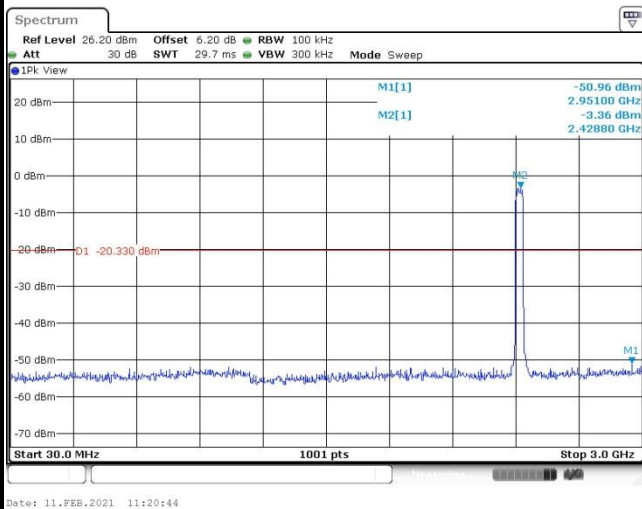
100kHz PSD reference Level



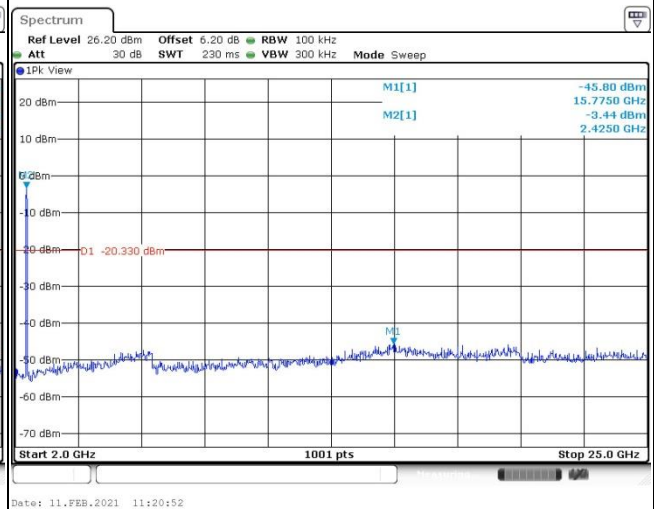
Channel Plot



Spurious Emission 30MHz~3GHz

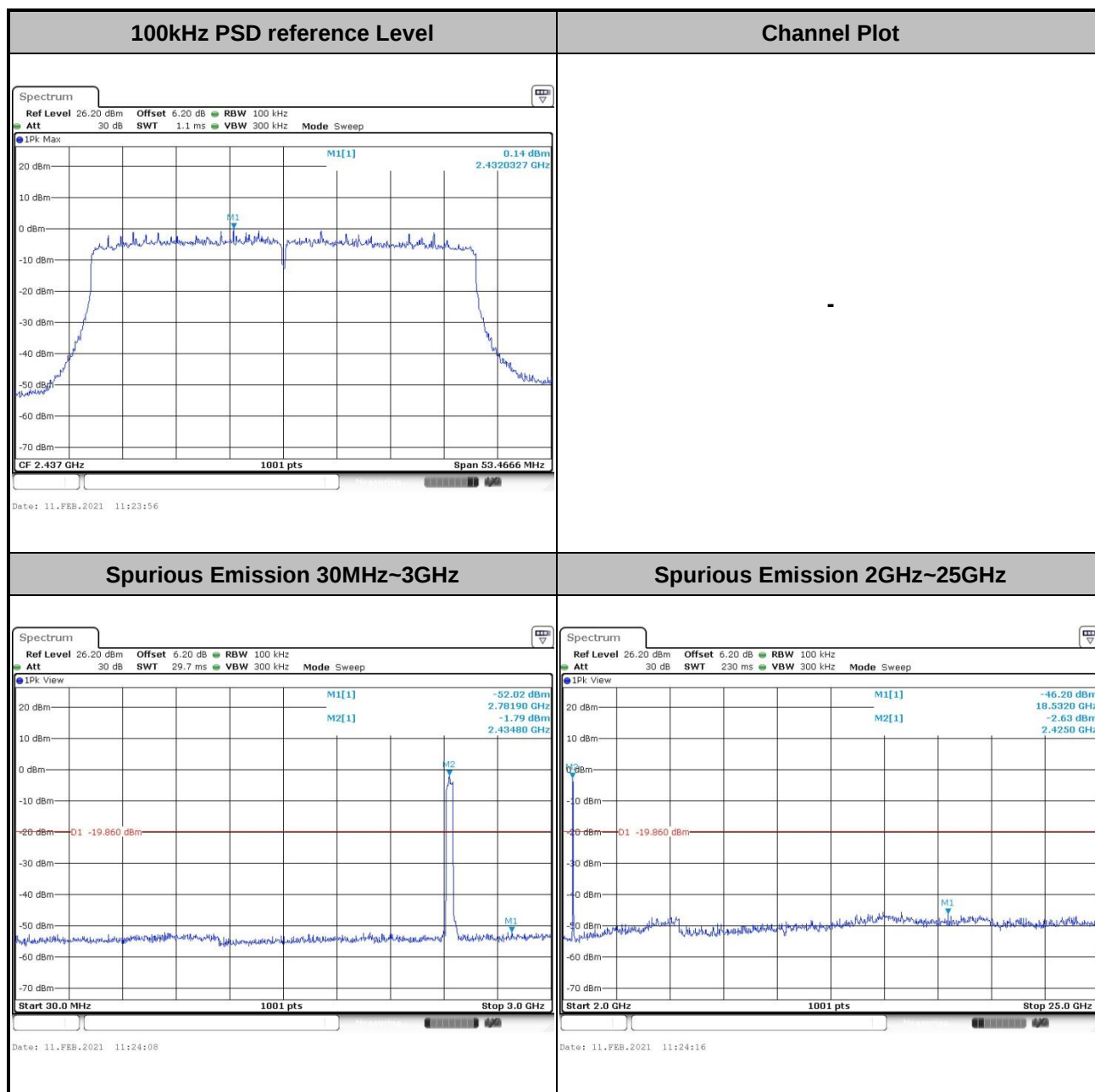


Spurious Emission 2GHz~25GHz



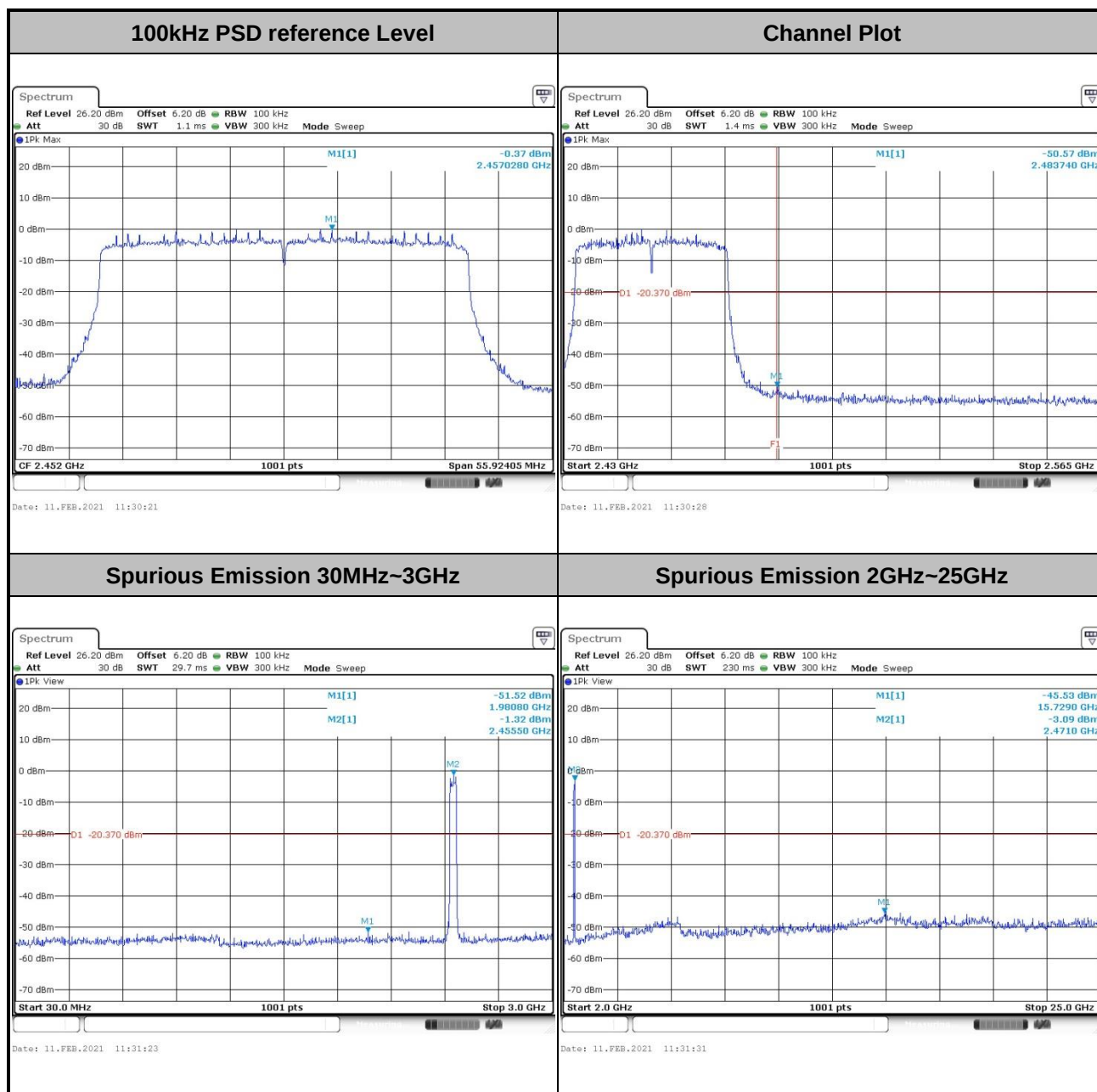


Test Mode :	802.11ax HE40	Test Channel :	06
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Test Mode :	802.11ax HE40	Test Channel :	09
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3.5 Radiated Band Edges and Spurious Emission Measurement

3.5.1 Limit of Radiated band edge and Spurious Emission Measurement

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB. In addition, radiated emissions which fall in the restricted bands must also comply with the limits as below.

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

3.5.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.5.3 Test Procedures

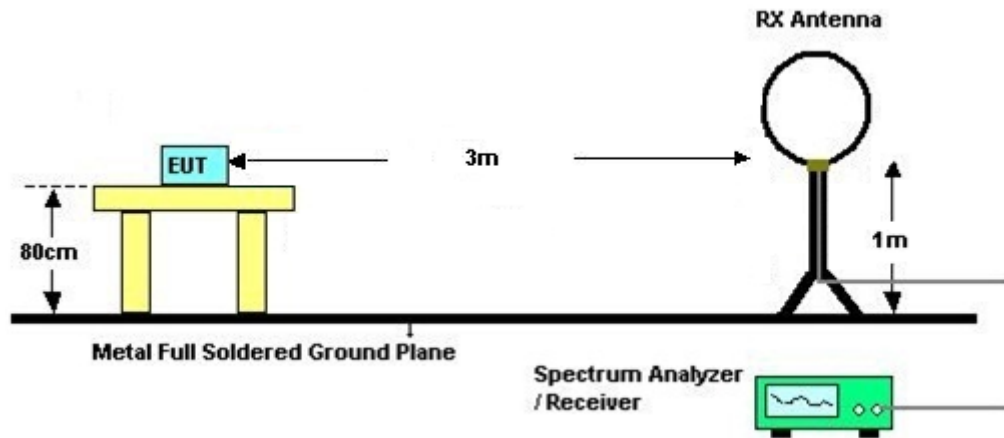
1. The testing follows ANSI C63.10-2013 clause 11.11 & 11.12
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
3. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
6. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
7. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than peak limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
8. Use the following spectrum analyzer settings:
 - (1) Span shall wide enough to fully capture the emission being measured;
 - (2) Set RBW=100 kHz for $f < 1$ GHz; VBW $\geq$ RBW; Sweep = auto; Detector function = peak; Trace = max hold;
 - (3) Set RBW = 1 MHz, VBW= 3MHz for $f \geq 1$ GHz for peak measurement.

For average measurement:

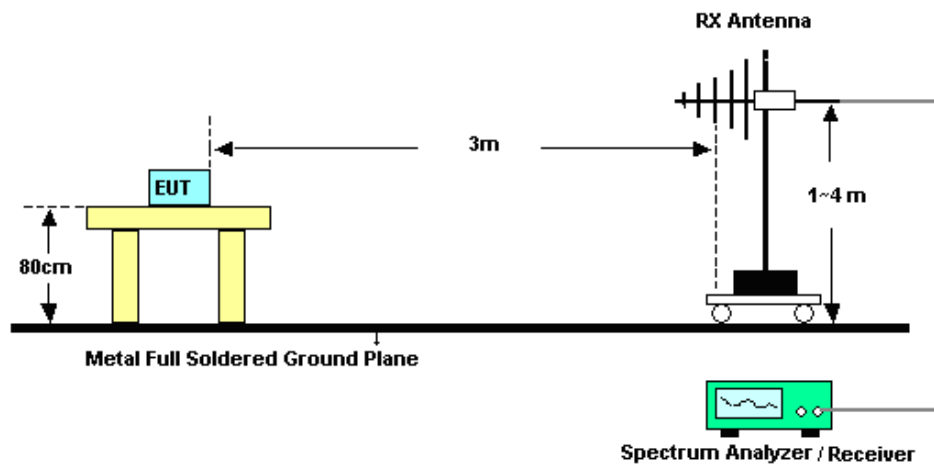
 - VBW = 10 Hz, when duty cycle is no less than 98 percent.
 - VBW $\geq 1/T$, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

3.5.4 Test Setup

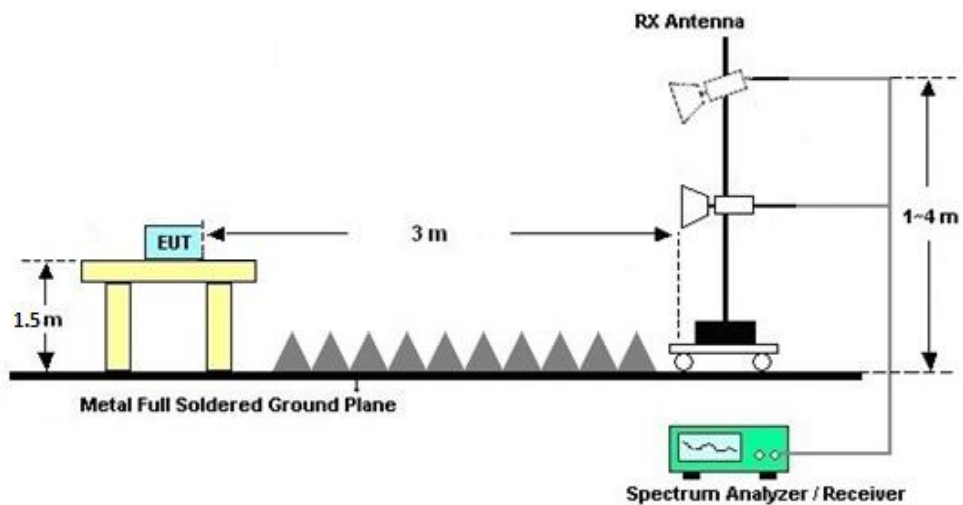
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



**3.5.5 Test Results of Radiated Spurious Emissions (9kHz ~ 30MHz)**

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

3.5.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix C.

3.5.7 Duty Cycle

Please refer to Appendix D.

3.5.8 Test Result of Radiated Spurious Emission (30MHz ~ 10th Harmonic or 40GHz, whichever is lower)

Please refer to Appendix C.

3.6 AC Conducted Emission Measurement

3.6.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of Emission (MHz)	Conducted Limit (dB μ V)	
	Quasi-Peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

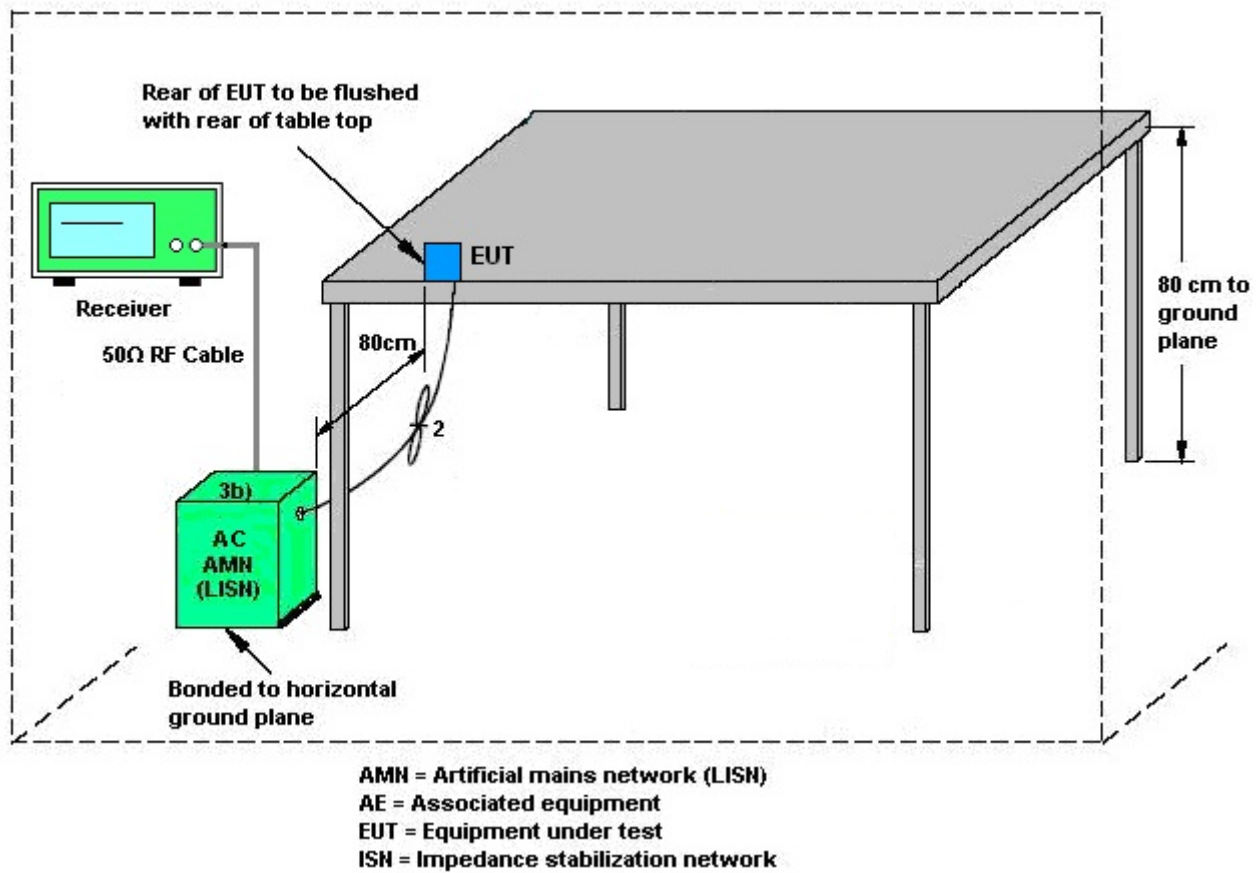
3.6.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.6.3 Test Procedures

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF bandwidth = 9kHz) with Maximum Hold Mode.

3.6.4 Test Setup



3.6.5 Test Result of AC Conducted Emission

Please refer to Appendix B.

3.7 Antenna Requirements

3.7.1 Standard Applicable

If directional gain of transmitting Antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. The use of a permanently attached Antenna or of an Antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the rule.

3.7.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.7.3 Antenna Gain

<CDD Modes >

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

Directional gain = G_{ANT} + Array Gain, where Array Gain is as follows.

For power spectral density (PSD) measurements on all devices,

Array Gain = $10 \log(N_{ANT}/N_{SS}=1)$ dB.

For power measurements on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$.

Directional gain may be calculated by using the formulas applicable to equal gain antennas with G_{ANT} set equal to the gain of the antenna having the highest gain;

The EUT supports CDD mode.

For power, the directional gain G_{ANT} is set equal to the antenna having the highest gain, i.e., F)2)f)i).

For PSD, the directional gain calculation is following F)2)f)ii) of KDB 662911 D01 v02r01.

The power and PSD limit should be modified if the directional gain of EUT is over 6 dBi,

The directional gain "DG" is calculated as following table.

<CDD Modes>						
	Ant. 1	Ant. 2	DG for Power	DG for PSD	Power Limit Reduction	PSD Limit Reduction
	(dBi)	(dBi)	(dBi)	(dBi)	(dB)	(dB)
2.4 GHz	0.90	-0.10	0.90	3.42	0.00	0.00

$Power\ Limit\ Reduction = DG(Power) - 6dBi, (min = 0)$

$PSD\ Limit\ Reduction = DG(PSD) - 6dBi, (min = 0)$



4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101040	10Hz~40GHz	Nov. 01, 2020	Feb. 09, 2021~ Feb. 11, 2021	Oct. 31, 2021	Conducted (TH01-KS)
Pulse Power Sensor	Anritsu	MA2411B	0917070	300MHz~40GHz	Jan. 07, 2021	Feb. 09, 2021~ Feb. 11, 2021	Jan. 06, 2022	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Jan. 07, 2021	Feb. 09, 2021~ Feb. 11, 2021	Jan. 06, 2022	Conducted (TH01-KS)
EMI Test Receiver	Keysight	N9038A	MY564000 04	3Hz~8.5GHz; Max 30dBm	Oct. 17, 2020	Feb. 15, 2021	Oct. 16, 2021	Radiation (03CH05-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY551502 44	10Hz~44GHz, MAX 30dB	Apr. 15, 2020	Feb. 15, 2021	Apr. 14, 2021	Radiation (03CH05-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Nov. 1, 2020	Feb. 15, 2021	Oct. 31, 2021	Radiation (03CH05-KS)
Bilog Antenna	TeseQ	CBL6111D	49922	30MHz~1GHz	May. 30, 2020	Feb. 15, 2021	May. 29, 2021	Radiation (03CH05-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00218652	1GHz~18GHz	Apr. 26, 2020	Feb. 15, 2021	Apr. 25, 2021	Radiation (03CH05-KS)
SHF-EHF Horn	Com-power	AH-840	101115	18GHz~40GHz	Nov. 10, 2020	Feb. 15, 2021	Nov. 09, 2021	Radiation (03CH05-KS)
Amplifier	SONOMA	310N	187289	9kHz~1GHz	Apr. 14, 2020	Feb. 15, 2021	Apr. 13, 2021	Radiation (03CH05-KS)
Amplifier	MITEQ	EM18G40GGA	060728	18~40GHz	Jan. 07, 2021	Feb. 15, 2021	Jan. 06, 2022	Radiation (03CH05-KS)
high gain Amplifier	MITEQ	AMF-7D-0010 1800-30-10P	2012228	1GHz~18GHz	Oct. 17, 2020	Feb. 15, 2021	Oct. 16, 2021	Radiation (03CH05-KS)
Amplifier	Keysight	83017A	MY532703 16	500MHz~26.5GHz	Oct. 17, 2020	Feb. 15, 2021	Oct. 16, 2021	Radiation (03CH05-KS)
AC Power Source	Chroma	61601	F1040900 04	N/A	NCR	Feb. 15, 2021	NCR	Radiation (03CH05-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Feb. 15, 2021	NCR	Radiation (03CH05-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Feb. 15, 2021	NCR	Radiation (03CH05-KS)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz;	Apr. 14, 2020	Mar. 01, 2021	Apr. 13, 2021	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060103	9kHz~30MHz	Oct. 17, 2020	Mar. 01, 2021	Oct. 16, 2021	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060105	9kHz~30MHz	Oct. 27, 2020	Mar. 01, 2021	Oct. 26, 2021	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP00000 0811	AC 0V~300V, 45Hz~1000Hz	Oct. 17, 2020	Mar. 01, 2021	Oct. 16, 2021	Conduction (CO01-KS)

NCR: No Calibration Required

5 Uncertainty of Evaluation

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI 63.10-2013. All the measurement uncertainty value were shown with a coverage $K=2$ to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.

Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.94dB
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Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.0dB
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Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.0dB
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Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.0dB
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Appendix A. Conducted Test Results

A1. Conducted Test Results

Test Engineer:	HeYong	Temperature:	21~25	°C
Test Date:	2021/02/09~2021/2/11	Relative Humidity:	51~54	%

TEST RESULTS DATA
6dB and 99% Occupied Bandwidth

2.4GHz Band MIMO										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Occupied BW (MHz)		6dB BW (MHz)		6dB BW Limit (MHz)	Pass/Fail
					Ant1	Ant2	Ant1	Ant2		
11b	1Mbps	2	1	2412	13.04	13.04	7.97	8.03	0.50	Pass
11b	1Mbps	2	6	2437	13.09	13.09	8.05	7.59	0.50	Pass
11b	1Mbps	2	11	2462	13.19	13.14	8.05	8.05	0.50	Pass
11g	6Mbps	2	1	2412	16.83	16.93	16.00	15.92	0.50	Pass
11g	6Mbps	2	6	2437	16.83	16.98	16.00	16.30	0.50	Pass
11g	6Mbps	2	11	2462	16.83	16.93	16.28	16.30	0.50	Pass
HT20	MCS0	2	1	2412	17.88	17.93	16.88	16.88	0.50	Pass
HT20	MCS0	2	6	2437	17.88	17.98	16.90	17.16	0.50	Pass
HT20	MCS0	2	11	2462	17.93	17.93	16.90	16.80	0.50	Pass
HT40	MCS0	2	3	2422	35.96	35.06	35.09	35.13	0.50	Pass
HT40	MCS0	2	6	2437	36.06	36.06	35.33	34.69	0.50	Pass
HT40	MCS0	2	9	2452	36.16	36.06	35.88	35.52	0.50	Pass

TEST RESULTS DATA
Peak Output Power

2.4GHz Band MIMO																
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak Conducted Power (dBm)			Conducted Power Limit (dBm)		DG (dBi)		EIRP Power (dBm)		EIRP Power Limit (dBm)		Pass /Fail
					Ant1	Ant2	SUM	Ant1	Ant2	Ant1	Ant2	Ant1	Ant2	Ant1	Ant2	
11b	1Mbps	2	1	2412	22.05	21.17	24.64	30.00		0.90		25.54		36.00		Pass
11b	1Mbps	2	6	2437	22.18	20.99	24.64	30.00		0.90		25.54		36.00		Pass
11b	1Mbps	2	11	2462	22.21	21.31	24.79	30.00		0.90		25.69		36.00		Pass
11g	6Mbps	2	1	2412	24.72	24.31	27.53	30.00		0.90		28.43		36.00		Pass
11g	6Mbps	2	6	2437	24.94	24.44	27.71	30.00		0.90		28.61		36.00		Pass
11g	6Mbps	2	11	2462	25.03	24.35	27.71	30.00		0.90		28.61		36.00		Pass
HT20	MCS0	2	1	2412	24.75	24.37	27.57	30.00		0.90		28.47		36.00		Pass
HT20	MCS0	2	6	2437	24.56	24.35	27.47	30.00		0.90		28.37		36.00		Pass
HT20	MCS0	2	11	2462	24.86	24.41	27.65	30.00		0.90		28.55		36.00		Pass
HT40	MCS0	2	3	2422	21.47	21.17	24.33	30.00		0.90		25.23		36.00		Pass
HT40	MCS0	2	6	2437	21.43	21.24	24.35	30.00		0.90		25.25		36.00		Pass
HT40	MCS0	2	9	2452	22.06	21.31	24.71	30.00		0.90		25.61		36.00		Pass

Note: Measured power (dBm) has offset with cable loss.

TEST RESULTS DATA
6dB and 99% Occupied Bandwidth

2.4GHz Band MIMO											
Mod.	Data Rate	NTx	CH.	Freq. (MHz)	RU Config.	99% Occupied BW (MHz)		6dB BW (MHz)		6dB BW Limit (MHz)	Pass/Fail
						Ant1	Ant2	Ant1	Ant2		
HE20		2	1	2412	Full	19.23	19.18	18.18	18.40	0.50	Pass
HE20		2	6	2437	Full	19.23	19.23	18.28	18.30	0.50	Pass
HE20		2	11	2462	Full	19.23	19.23	18.56	18.48	0.50	Pass
HE40		2	3	2422	Full	37.66	37.66	35.08	34.65	0.50	Pass
HE40		2	6	2437	Full	37.76	37.76	37.80	35.64	0.50	Pass
HE40		2	9	2452	Full	37.86	37.76	37.80	37.28	0.50	Pass

TEST RESULTS DATA
Peak Output Power

2.4GHz Band MIMO																	
Mod.	Data Rate	NtX	CH.	Freq. (MHz)	RU Config.	Peak Conducted Power (dBm)			Conducted Power Limit (dBm)		DG (dBi)		EIRP Power (dBm)		EIRP Power Limit (dBm)		Pass /Fail
						Ant1	Ant2	SUM	Ant1	Ant2	Ant1	Ant2	Ant1	Ant2	Ant1	Ant2	
HE20	MCS0	2	1	2412	Full	25.86	25.08	28.50	30.00	0.90	29.40	36.00	Pass				
HE20	MCS0	2	1	2412	26/0	20.55	20.18	23.38	30.00	0.90	24.28	36.00	Pass				
HE20	MCS0	2	1	2412	52/37	21.21	20.47	23.87	30.00	0.90	24.77	36.00	Pass				
HE20	MCS0	2	1	2412	106/53	23.49	23.56	26.54	30.00	0.90	27.44	36.00	Pass				
HE20	MCS0	2	6	2437	Full	25.66	24.85	28.28	30.00	0.90	29.18	36.00	Pass				
HE20	MCS0	2	11	2462	Full	25.45	24.91	28.20	30.00	0.90	29.10	36.00	Pass				
HE20	MCS0	2	11	2462	26/8	20.42	20.22	23.33	30.00	0.90	24.23	36.00	Pass				
HE20	MCS0	2	11	2462	52/40	21.56	21.53	24.56	30.00	0.90	25.46	36.00	Pass				
HE20	MCS0	2	11	2462	106/54	23.79	23.78	26.80	30.00	0.90	27.70	36.00	Pass				
HE40	MCS0	2	3	2422	Full	22.16	21.77	24.98	30.00	0.90	25.88	36.00	Pass				
HE40	MCS0	2	3	2422	242/61	21.88	21.20	24.56	30.00	0.90	25.46	36.00	Pass				
HE40	MCS0	2	6	2437	Full	22.01	21.98	25.01	30.00	0.90	25.91	36.00	Pass				
HE40	MCS0	2	9	2452	Full	22.75	22.18	25.48	30.00	0.90	26.38	36.00	Pass				
HE40	MCS0	2	9	2452	242/62	22.65	22.09	25.39	30.00	0.90	26.29	36.00	Pass				

Note: Measured power (dBm) has offset with cable loss.

TEST RESULTS DATA
Average Output Power

2.4GHz Band MIMO																
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average Conducted Power with duty factor (dBm)			Conducted Power Limit (dBm)		DG (dBi)		EIRP Power (dBm)		EIRP Power Limit (dBm)		Pass /Fail
					Ant1	Ant2	SUM	Ant1	Ant2	Ant1	Ant2	Ant1	Ant2	Ant1	Ant2	
11b	1Mbps	2	1	2412	19.33	18.45	21.92	30.00		0.90		22.82		36.00		Pass
11b	1Mbps	2	6	2437	19.54	18.74	22.17	30.00		0.90		23.07		36.00		Pass
11b	1Mbps	2	11	2462	19.46	18.57	22.05	30.00		0.90		22.95		36.00		Pass
11g	6Mbps	2	1	2412	17.44	16.96	20.22	30.00		0.90		21.12		36.00		Pass
11g	6Mbps	2	6	2437	17.55	17.08	20.33	30.00		0.90		21.23		36.00		Pass
11g	6Mbps	2	11	2462	17.62	17.17	20.41	30.00		0.90		21.31		36.00		Pass
HT20	MCS0	2	1	2412	17.28	16.83	20.07	30.00		0.90		20.97		36.00		Pass
HT20	MCS0	2	6	2437	17.42	16.88	20.17	30.00		0.90		21.07		36.00		Pass
HT20	MCS0	2	11	2462	17.65	16.96	20.33	30.00		0.90		21.23		36.00		Pass
HT40	MCS0	2	3	2422	14.01	13.62	16.83	30.00		0.90		17.73		36.00		Pass
HT40	MCS0	2	6	2437	14.24	13.83	17.05	30.00		0.90		17.95		36.00		Pass
HT40	MCS0	2	9	2452	14.54	14.11	17.34	30.00		0.90		18.24		36.00		Pass

Note: Measured power (dBm) has offset with cable loss.

TEST RESULTS DATA
Average Output Power

2.4GHz Band MIMO														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Duty Factor (dB)		Average Conducted Power with duty factor (dBm)			DG (dBi)		EIRP Power (dBm)	
						Ant1	Ant2	Ant1	Ant2	SUM	Ant1	Ant2	Ant1	Ant2
HE20	MCS0	2	1	2412	Full	0.00	0.00	17.37	16.98	20.19	0.90		21.09	
HE20	MCS0	2	1	2412	26/0	0.00	0.00	8.59	8.99	11.80	0.90		12.70	
HE20	MCS0	2	1	2412	52/37	0.00	0.00	9.62	9.47	12.56	0.90		13.46	
HE20	MCS0	2	1	2412	106/53	0.00	0.00	12.21	12.32	15.28	0.90		16.18	
HE20	MCS0	2	6	2437	Full	0.00	0.00	17.56	17.05	20.32	0.90		21.22	
HE20	MCS0	2	11	2462	Full	0.00	0.00	17.53	17.08	20.32	0.90		21.22	
HE20	MCS0	2	11	2462	26/8	0.00	0.00	8.72	8.57	11.66	0.90		12.56	
HE20	MCS0	2	11	2462	52/40	0.00	0.00	9.82	9.76	12.80	0.90		13.70	
HE20	MCS0	2	11	2462	106/54	0.00	0.00	13.01	12.61	15.82	0.90		16.72	
HE40	MCS0	2	3	2422	Full	0.00	0.00	13.78	13.53	16.67	0.90		17.57	
HE40	MCS0	2	3	2422	242/61	0.00	0.00	9.64	9.54	12.60	0.90		13.50	
HE40	MCS0	2	6	2437	Full	0.00	0.00	14.01	13.74	16.89	0.90		17.79	
HE40	MCS0	2	9	2452	Full	0.00	0.00	14.33	13.93	17.14	0.90		18.04	
HE40	MCS0	2	9	2452	242/62	0.00	0.00	10.59	10.51	13.56	0.90		14.46	

Note: Measured power (dBm) has offset with cable loss.

TEST RESULTS DATA
Peak Power Spectral Density

2.4GHz Band MIMO												
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak PSD (dBm/3kHz)			DG (dBi)		Peak PSD Limit (dBm/3kHz)		Pass/Fail
					Ant1	Ant2	Worse + 3.01	Ant1	Ant2	Ant1	Ant2	
11b	1Mbps	2	1	2412	-5.19	-6.85	-2.18	3.42		8.00		Pass
11b	1Mbps	2	6	2437	-4.67	-6.28	-1.66	3.42		8.00		Pass
11b	1Mbps	2	11	2462	-5.30	-5.87	-2.29	3.42		8.00		Pass
11g	6Mbps	2	1	2412	-9.77	-9.31	-6.30	3.42		8.00		Pass
11g	6Mbps	2	6	2437	-7.82	-9.63	-4.81	3.42		8.00		Pass
11g	6Mbps	2	11	2462	-8.13	-8.00	-4.99	3.42		8.00		Pass
HT20	MCS0	2	1	2412	-7.59	-8.98	-4.58	3.42		8.00		Pass
HT20	MCS0	2	6	2437	-7.47	-7.67	-4.46	3.42		8.00		Pass
HT20	MCS0	2	11	2462	-8.65	-8.80	-5.64	3.42		8.00		Pass
HT40	MCS0	2	3	2422	-14.41	-15.64	-11.40	3.42		8.00		Pass
HT40	MCS0	2	6	2437	-14.97	-14.65	-11.64	3.42		8.00		Pass
HT40	MCS0	2	9	2452	-15.25	-14.78	-11.77	3.42		8.00		Pass

Measured power density (dBm) has offset with cable loss.

TEST RESULTS DATA
Peak Power Spectral Density

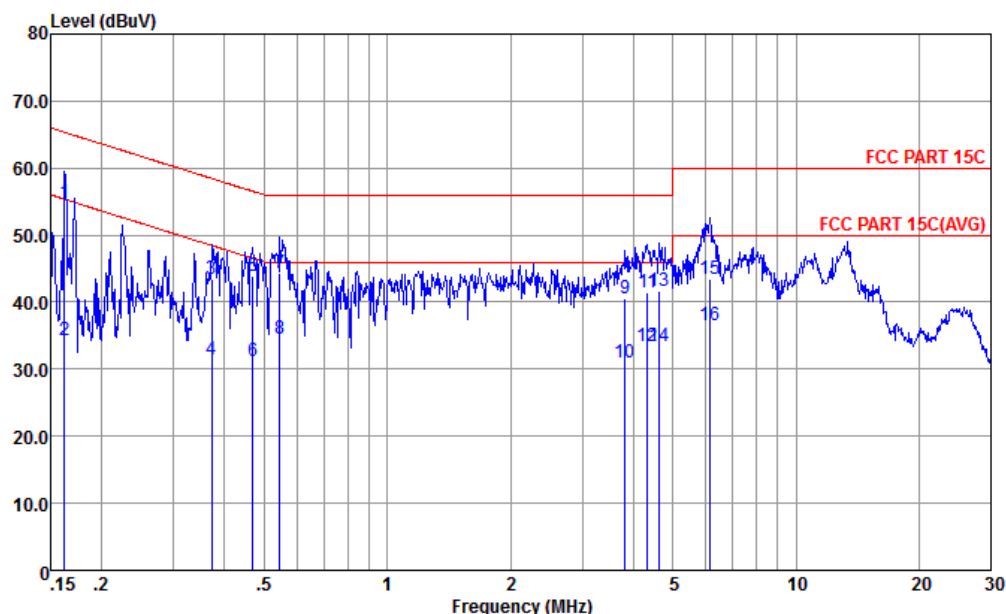
2.4GHz Band MIMO													
Mod.	Data Rate	NTx	CH.	Freq. (MHz)	RU Config.	Peak PSD (dBm/3kHz)			DG (dBi)		Peak PSD Limit (dBm/3kHz)		Pass/Fail
						Ant1	Ant2	Worse + 3.01	Ant1	Ant2	Ant1	Ant2	
HE20	MCS0	2	1	2412	Full	-9.56	-9.14	-6.13	3.42		8.00		Pass
HE20	MCS0	2	1	2412	26/0	-9.24	-9.60	-6.23	3.42		8.00		Pass
HE20	MCS0	2	1	2412	52/37	-9.29	-9.65	-6.28	3.42		8.00		Pass
HE20	MCS0	2	1	2412	106/53	-10.25	-9.89	-6.88	3.42		8.00		Pass
HE20	MCS0	2	6	2437	Full	-8.45	-10.09	-5.44	3.42		8.00		Pass
HE20	MCS0	2	11	2462	Full	-8.67	-9.65	-5.66	3.42		8.00		Pass
HE20	MCS0	2	11	2462	26/8	-9.12	-8.96	-5.95	3.42		8.00		Pass
HE20	MCS0	2	11	2462	52/40	-9.33	-8.93	-5.92	3.42		8.00		Pass
HE20	MCS0	2	11	2462	106/54	-8.77	-10.48	-5.76	3.42		8.00		Pass
HE40	MCS0	2	3	2422	Full	-16.29	-15.93	-12.92	3.42		8.00		Pass
HE40	MCS0	2	3	2422	242/61	-16.06	-17.56	-13.05	3.42		8.00		Pass
HE40	MCS0	2	6	2437	Full	-14.97	-16.00	-11.96	3.42		8.00		Pass
HE40	MCS0	2	9	2452	Full	-15.98	-15.03	-12.02	3.42		8.00		Pass
HE40	MCS0	2	9	2452	242/62	-15.18	-15.72	-12.17	3.42		8.00		Pass

Measured power density (dBm) has offset with cable loss.



Appendix B. AC Conducted Emission Test Results

Test Engineer :	Amos Zhang	Temperature :	25.3~26.2°C
		Relative Humidity :	38~40%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		

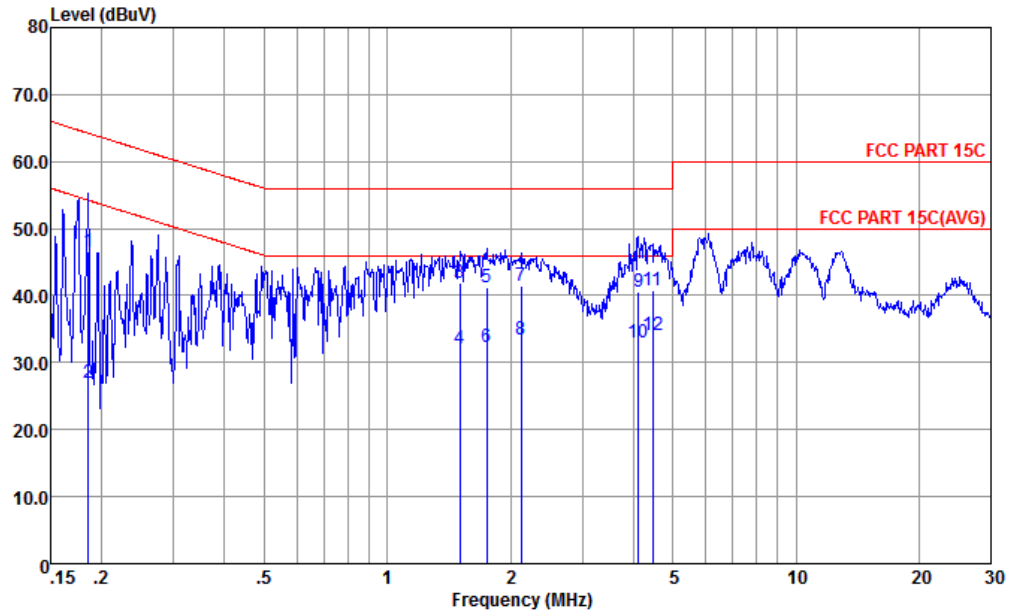


Site : CO01-KS
Condition : FCC PART 15C TWO-LISN-CN02-L LINE

	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1 *	0.162	54.89	-10.45	65.34	34.80	9.64	10.45	QP
2	0.162	34.29	-21.05	55.34	14.20	9.64	10.45	Average
3	0.371	43.52	-14.95	58.47	23.60	9.64	10.28	QP
4	0.371	31.52	-16.95	48.47	11.60	9.64	10.28	Average
5	0.469	43.99	-12.55	56.54	24.10	9.65	10.24	QP
6	0.469	31.19	-15.35	46.54	11.30	9.65	10.24	Average
7	0.546	44.39	-11.61	56.00	24.50	9.65	10.24	QP
8	0.546	34.49	-11.51	46.00	14.60	9.65	10.24	Average
9	3.820	40.60	-15.40	56.00	20.20	10.15	10.25	QP
10	3.820	31.00	-15.00	46.00	10.60	10.15	10.25	Average
11	4.338	41.55	-14.45	56.00	21.10	10.19	10.26	QP
12	4.338	33.35	-12.65	46.00	12.90	10.19	10.26	Average
13	4.622	41.58	-14.42	56.00	21.11	10.21	10.26	QP
14	4.622	33.38	-12.62	46.00	12.91	10.21	10.26	Average
15	6.153	43.52	-16.48	60.00	22.90	10.33	10.29	QP
16	6.153	36.52	-13.48	50.00	15.90	10.33	10.29	Average



Test Engineer :	Amos Zhang	Temperature :	25.3~26.2℃
		Relative Humidity :	38~40%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : CO01-KS
Condition : FCC PART 15C TWO-LISN-CN02-N NEUTRAL

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.185	46.46	-17.78	64.24	26.20	9.87	10.39	QP
2	0.185	26.86	-27.38	54.24	6.60	9.87	10.39	Average
3	1.503	41.87	-14.13	56.00	21.80	9.84	10.23	QP
4	1.503	32.17	-13.83	46.00	12.10	9.84	10.23	Average
5	1.753	41.21	-14.79	56.00	21.10	9.88	10.23	QP
6	1.753	32.31	-13.69	46.00	12.20	9.88	10.23	Average
7	2.121	41.38	-14.62	56.00	21.20	9.95	10.23	QP
8	2.121	33.38	-12.62	46.00	13.20	9.95	10.23	Average
9	4.114	40.64	-15.36	56.00	20.21	10.18	10.25	QP
10	4.114	33.04	-12.96	46.00	12.61	10.18	10.25	Average
11	4.454	40.67	-15.33	56.00	20.20	10.21	10.26	QP
12 *	4.454	34.07	-11.93	46.00	13.60	10.21	10.26	Average

Note:

1. Level(dBμV) = Read Level(dBμV) + LISN Factor(dB) + Cable Loss(dB)
2. Over Limit(dB) = Level(dBμV) – Limit Line(dBμV)



Appendix C. Radiated Spurious Emission

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2385.79	56.52	-17.48	74	48.38	32.2	7.59	31.65	185	160	P	H
		2389.95	45.81	-8.19	54	37.67	32.2	7.59	31.65	185	160	A	H
	*	2412	115.11	-	-	106.96	32.18	7.62	31.65	185	160	P	H
	*	2412	111.89	-	-	103.74	32.18	7.62	31.65	185	160	A	H
		2373.7	56.84	-17.16	74	48.79	32.15	7.56	31.66	385	60	P	V
		2389.43	44.97	-9.03	54	36.83	32.2	7.59	31.65	385	60	A	V
	*	2412	108.86	-	-	100.71	32.18	7.62	31.65	385	60	P	V
	*	2414	105.76	-	-	97.61	32.18	7.62	31.65	385	60	A	V
802.11b CH 11 2462MHz		2494.6	56.5	-17.5	74	48.2	32.1	7.76	31.56	127	158	P	H
		2483.5	45.54	-8.46	54	37.27	32.12	7.73	31.58	127	158	A	H
	*	2462	112.89	-	-	104.66	32.13	7.7	31.6	127	158	P	H
	*	2460	109.75	-	-	101.52	32.13	7.7	31.6	127	158	A	H
		2499.82	57.09	-16.91	74	48.79	32.1	7.76	31.56	365	59	P	V
		2483.92	45.13	-8.87	54	36.86	32.12	7.73	31.58	365	59	A	V
	*	2462	108.14	-	-	99.91	32.13	7.7	31.6	365	59	P	V
	*	2460	105	-	-	96.77	32.13	7.7	31.6	365	59	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11b (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11b CH 01 2412MHz		4824	41.91	-32.09	74	56.58	34.31	11.06	60.04	100	360	P	H
		4824	41.02	-32.98	74	55.69	34.31	11.06	60.04	100	360	P	V
802.11b CH 06 2437MHz		4872	40.99	-33.01	74	55.64	34.34	11.04	60.03	100	360	P	H
		7308	43	-31	74	54.09	35.94	13.48	60.51	100	360	P	H
		4872	40.14	-33.86	74	54.79	34.34	11.04	60.03	100	360	P	V
		7308	42.36	-31.64	74	53.45	35.94	13.48	60.51	100	360	P	V
802.11b CH 11 2462MHz		4926	42.22	-31.78	74	56.85	34.36	11.03	60.02	300	0	P	H
		7386	44.14	-29.86	74	55.2	35.92	13.55	60.53	300	0	P	H
		4926	42.05	-31.95	74	56.68	34.36	11.03	60.02	300	360	P	V
		7386	43.31	-30.69	74	54.37	35.92	13.55	60.53	300	360	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz
WIFI 802.11g (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11g CH 01 2412MHz		2389.69	59.13	-14.87	74	50.99	32.2	7.59	31.65	163	200	P	H
		2389.95	47.38	-6.62	54	39.24	32.2	7.59	31.65	163	200	A	H
	*	2410	114.83	-	-	106.68	32.18	7.62	31.65	163	200	P	H
	*	2410	107.24	-	-	99.09	32.18	7.62	31.65	163	200	A	H
		2389.82	58.1	-15.9	74	49.96	32.2	7.59	31.65	400	291	P	V
		2389.95	45.78	-8.22	54	37.64	32.2	7.59	31.65	400	291	A	V
	*	2414	111.15	-	-	103	32.18	7.62	31.65	400	291	P	V
	*	2414	103.14	-	-	94.99	32.18	7.62	31.65	400	291	A	V
802.11g CH 11 2462MHz		2484.82	57.36	-16.64	74	49.09	32.12	7.73	31.58	132	200	P	H
		2483.5	46.18	-7.82	54	37.91	32.12	7.73	31.58	132	200	A	H
	*	2456	114.01	-	-	105.78	32.13	7.7	31.6	132	200	P	H
	*	2456	106.23	-	-	98	32.13	7.7	31.6	132	200	A	H
		2486.98	56.84	-17.16	74	48.57	32.12	7.73	31.58	356	77	P	V
		2483.5	45.74	-8.26	54	37.47	32.12	7.73	31.58	356	77	A	V
	*	2460	109.42	-	-	101.19	32.13	7.7	31.6	356	77	P	V
	*	2456	102.01	-	-	93.78	32.13	7.7	31.6	356	77	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11g (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11g CH 01 2412MHz		4824	40.56	-33.44	74	55.23	34.31	11.06	60.04	100	360	P	H
		4824	40.42	-33.58	74	55.09	34.31	11.06	60.04	100	360	P	V
802.11g CH 06 2437MHz		4872	39.96	-34.04	74	54.61	34.34	11.04	60.03	100	360	P	H
		7308	42.91	-31.09	74	54	35.94	13.48	60.51	100	360	P	H
		4872	40.51	-33.49	74	55.16	34.34	11.04	60.03	100	360	P	V
		7308	43.39	-30.61	74	54.48	35.94	13.48	60.51	100	360	P	V
802.11g CH 11 2462MHz		4926	41.47	-32.53	74	56.1	34.36	11.03	60.02	100	360	P	H
		7386	43.32	-30.68	74	54.38	35.92	13.55	60.53	100	360	P	H
		4926	41.16	-32.84	74	55.79	34.36	11.03	60.02	100	360	P	V
		7386	42.45	-31.55	74	53.51	35.92	13.55	60.53	100	360	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 01 2412MHz		2388.39	57.38	-16.62	74	49.24	32.2	7.59	31.65	161	201	P	H
		2389.95	47.1	-6.9	54	38.96	32.2	7.59	31.65	161	201	A	H
	*	2410	115.48	-	-	107.33	32.18	7.62	31.65	161	201	P	H
	*	2410	107.06	-	-	98.91	32.18	7.62	31.65	161	201	A	H
		2379.94	56.81	-17.19	74	48.75	32.15	7.56	31.65	400	283	P	V
		2389.95	45.7	-8.3	54	37.56	32.2	7.59	31.65	400	283	A	V
	*	2410	110.18	-	-	102.03	32.18	7.62	31.65	400	283	P	V
	*	2408	102.09	-	-	93.94	32.18	7.62	31.65	400	283	A	V
802.11n HT20 CH 11 2462MHz		2484.22	57.12	-16.88	74	48.85	32.12	7.73	31.58	131	201	P	H
		2483.5	46.55	-7.45	54	38.28	32.12	7.73	31.58	131	201	A	H
	*	2460	113.72	-	-	105.49	32.13	7.7	31.6	131	201	P	H
	*	2458	105.56	-	-	97.33	32.13	7.7	31.6	131	201	A	H
		2483.5	58.2	-15.8	74	49.93	32.12	7.73	31.58	360	78	P	V
		2483.5	46.77	-7.23	54	38.5	32.12	7.73	31.58	360	78	A	V
	*	2458	109.3	-	-	101.07	32.13	7.7	31.6	360	78	P	V
	*	2458	101.2	-	-	92.97	32.13	7.7	31.6	360	78	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 01 2412MHz		4824	40.2	-33.8	74	54.87	34.31	11.06	60.04	100	360	P	H
		4824	40.17	-33.83	74	54.84	34.31	11.06	60.04	100	360	P	V
802.11n HT20 CH 06 2437MHz		4872	40.11	-33.89	74	54.76	34.34	11.04	60.03	100	360	P	H
		7308	42.79	-31.21	74	53.88	35.94	13.48	60.51	100	360	P	H
		4872	39.87	-34.13	74	54.52	34.34	11.04	60.03	100	360	P	V
		7308	42.74	-31.26	74	53.83	35.94	13.48	60.51	100	360	P	V
802.11n HT20 CH 11 2462MHz		4926	42.2	-31.8	74	56.83	34.36	11.03	60.02	100	360	P	H
		7386	43.23	-30.77	74	54.29	35.92	13.55	60.53	100	360	P	H
		4926	42	-32	74	56.63	34.36	11.03	60.02	100	360	P	V
		7386	43.34	-30.66	74	54.4	35.92	13.55	60.53	100	360	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamplifier Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 03 2422MHz		2388.65	57.32	-16.68	74	49.18	32.2	7.59	31.65	107	199	P	H
		2389.95	46.31	-7.69	54	38.17	32.2	7.59	31.65	107	199	A	H
	*	2420	108.87	-	-	100.69	32.17	7.64	31.63	107	199	P	H
	*	2420	100.87	-	-	92.69	32.17	7.64	31.63	107	199	A	H
		2491.54	56.41	-17.59	74	48.11	32.1	7.76	31.56	107	199	P	H
		2487.16	45.03	-8.97	54	36.76	32.12	7.73	31.58	107	199	A	H
		2326.64	56.34	-17.66	74	48.52	32.02	7.47	31.67	386	97	P	V
		2389.95	45.28	-8.72	54	37.14	32.2	7.59	31.65	386	97	A	V
	*	2426	104.29	-	-	96.11	32.17	7.64	31.63	386	97	P	V
	*	2426	95.42	-	-	87.24	32.17	7.64	31.63	386	97	A	V
		2496.04	56.37	-17.63	74	48.07	32.1	7.76	31.56	386	97	P	V
		2489.86	44.9	-9.1	54	36.62	32.1	7.76	31.58	386	97	A	V
802.11n HT40 CH 06 2437MHz		2351.47	57.05	-16.95	74	49.16	32.06	7.5	31.67	185	199	P	H
		2389.3	45.05	-8.95	54	36.91	32.2	7.59	31.65	185	199	A	H
	*	2434	108.94	-	-	100.76	32.17	7.64	31.63	185	199	P	H
	*	2434	100.73	-	-	92.55	32.17	7.64	31.63	185	199	A	H
		2490.16	56.16	-17.84	74	47.88	32.1	7.76	31.58	185	199	P	H
		2483.74	44.98	-9.02	54	36.71	32.12	7.73	31.58	185	199	A	H
		2350.04	56.05	-17.95	74	48.16	32.06	7.5	31.67	336	289	P	V
		2389.95	44.83	-9.17	54	36.69	32.2	7.59	31.65	336	289	A	V
	*	2444	103.76	-	-	95.55	32.15	7.67	31.61	336	289	P	V
	*	2442	95.8	-	-	87.59	32.15	7.67	31.61	336	289	A	V
		2486.74	55.7	-18.3	74	47.43	32.12	7.73	31.58	336	289	P	V
		2486.68	44.87	-9.13	54	36.6	32.12	7.73	31.58	336	289	A	V



802.11n HT40 CH 09 2452MHz		2361.35	55.76	-18.24	74	47.78	32.11	7.53	31.66	156	201	P	H
		2389.95	44.98	-9.02	54	36.84	32.2	7.59	31.65	156	201	A	H
	*	2448	109.56	-	-	101.35	32.15	7.67	31.61	156	201	P	H
	*	2448	100.96	-	-	92.75	32.15	7.67	31.61	156	201	A	H
		2489.38	58.94	-15.06	74	50.66	32.1	7.76	31.58	156	201	P	H
		2483.5	47.42	-6.58	54	39.15	32.12	7.73	31.58	156	201	A	H
		2336	55.81	-18.19	74	47.92	32.06	7.5	31.67	336	288	P	V
		2389.56	44.81	-9.19	54	36.67	32.2	7.59	31.65	336	288	A	V
	*	2446	104.93	-	-	96.72	32.15	7.67	31.61	336	288	P	V
	*	2446	96.6	-	-	88.39	32.15	7.67	31.61	336	288	A	V
		2485.72	56.5	-17.5	74	48.23	32.12	7.73	31.58	336	288	P	V
		2486.26	45.7	-8.3	54	37.43	32.12	7.73	31.58	336	288	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz
WIFI 802.11n HT40 (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 03 2422MHz		4842	40.85	-33.15	74	55.51	34.32	11.05	60.03	300	0	P	H
		7266	42.97	-31.03	74	54.09	35.94	13.45	60.51	300	0	P	H
		4842	41.13	-32.87	74	55.79	34.32	11.05	60.03	300	360	P	V
		7266	43.13	-30.87	74	54.25	35.94	13.45	60.51	300	360	P	V
802.11n HT40 CH 06 2437MHz		4872	40.59	-33.41	74	55.24	34.34	11.04	60.03	300	0	P	H
		7308	43.26	-30.74	74	54.35	35.94	13.48	60.51	300	0	P	H
		4872	40.95	-33.05	74	55.6	34.34	11.04	60.03	300	360	P	V
		7308	43	-31	74	54.09	35.94	13.48	60.51	300	360	P	V
802.11n HT40 CH 09 2452MHz		4902	41.54	-32.46	74	56.18	34.35	11.03	60.02	300	0	P	H
		7356	43.4	-30.6	74	54.47	35.93	13.52	60.52	300	0	P	H
		4902	42.87	-31.13	74	57.51	34.35	11.03	60.02	300	360	P	V
		7356	43.33	-30.67	74	54.4	35.93	13.52	60.52	300	360	P	V
Remark		1. No other spurious found. 2. All results are PASS against Peak and Average limit line.											



2.4GHz 2400~2483.5MHz

WIFI 802.11 ax HE20 Full (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ax HE20 Full CH 01 2412MHz		2389.17	60.78	-13.22	74	52.64	32.2	7.59	31.65	163	199	P	H
		2389.82	48.9	-5.1	54	40.76	32.2	7.59	31.65	163	199	A	H
		2408	117.77	-	-	109.62	32.18	7.62	31.65	163	199	P	H
		2410	107.67	-	-	99.52	32.18	7.62	31.65	163	199	A	H
		2389.95	57.99	-16.01	74	49.85	32.2	7.59	31.65	309	97	P	V
		2389.95	45.75	-8.25	54	37.61	32.2	7.59	31.65	309	97	A	V
		2416	111.95	-	-	103.78	32.18	7.62	31.63	309	97	P	V
		2406	101.9	-	-	93.75	32.18	7.62	31.65	309	97	A	V
8802.11ax HE20 Full CH 11 2462MHz		2484.34	58.51	-15.49	74	50.24	32.12	7.73	31.58	173	178	P	H
		2483.5	46.81	-7.19	54	38.54	32.12	7.73	31.58	173	178	A	H
		2460	115.7	-	-	107.47	32.13	7.7	31.6	173	178	P	H
		2458	104.87	-	-	96.64	32.13	7.7	31.6	173	178	A	H
		2484.16	57.77	-16.23	74	49.5	32.12	7.73	31.58	302	89	P	V
		2483.5	46.49	-7.51	54	38.22	32.12	7.73	31.58	302	89	A	V
		2458	109.96	-	-	101.73	32.13	7.7	31.6	302	89	P	V
		2458	100.21	-	-	91.98	32.13	7.7	31.6	302	89	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11 ax HE20 Full (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ax HE20 Full CH 01 2412MHz		4824	40.11	-33.89	74	54.78	34.31	11.06	60.04	300	360	P	H
		4824	40.29	-33.71	74	54.96	34.31	11.06	60.04	100	0	P	V
802.11ax HE20 Full CH 06 2437MHz		4872	41.26	-32.74	74	55.91	34.34	11.04	60.03	300	360	P	H
		7308	43.8	-30.2	74	54.89	35.94	13.48	60.51	300	360	P	H
		4872	40.71	-33.29	74	55.36	34.34	11.04	60.03	100	0	P	V
		7308	43.01	-30.99	74	54.1	35.94	13.48	60.51	100	0	P	V
802.11ax HE20 Full CH 11 2462MHz		4926	41.8	-32.2	74	56.43	34.36	11.03	60.02	300	360	P	H
		7386	43.03	-30.97	74	54.09	35.92	13.55	60.53	300	360	P	H
		4926	42.16	-31.84	74	56.79	34.36	11.03	60.02	100	0	P	V
		7386	42.99	-31.01	74	54.05	35.92	13.55	60.53	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11ax HE20 Partial 26 (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ax HE20 Partial 26/0 CH 01 2412MHz		2323.26	56.71	-17.29	74	48.89	32.02	7.47	31.67	162	155	P	H
		2389.56	45.1	-8.9	54	36.96	32.2	7.59	31.65	162	155	A	H
		2404	114.05	-	-	105.9	32.18	7.62	31.65	162	155	P	H
		2404	105.7	-	-	97.55	32.18	7.62	31.65	162	155	A	H
		2385.27	56.07	-17.93	74	48.01	32.15	7.56	31.65	384	277	P	V
		2389.82	44.57	-9.43	54	36.43	32.2	7.59	31.65	384	277	A	V
		2404	107.98	-	-	99.83	32.18	7.62	31.65	384	277	P	V
		2404	98.88	-	-	90.73	32.18	7.62	31.65	384	277	A	V
802.11ax HE20 Partial 26/8 CH 11 2462MHz		2499.34	55.84	-18.16	74	47.54	32.1	7.76	31.56	125	152	P	H
		2483.5	44.71	-9.29	54	36.44	32.12	7.73	31.58	125	152	A	H
		2470	112.96	-	-	104.73	32.13	7.7	31.6	125	152	P	H
		2470	101.92	-	-	93.69	32.13	7.7	31.6	125	152	A	H
		2498.56	56.26	-17.74	74	47.96	32.1	7.76	31.56	317	57	P	V
		2488.78	44.79	-9.21	54	36.51	32.1	7.76	31.58	317	57	A	V
		2470	105.6	-	-	97.37	32.13	7.7	31.6	317	57	P	V
		2470	97.02	-	-	88.79	32.13	7.7	31.6	317	57	A	V
Remark	3. No other spurious found.												
	4. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11ax HE20 Partial 52 (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ax HE20 Partial 52/37 CH 01 2412MHz		2349.65	55.64	-18.36	74	47.75	32.06	7.5	31.67	162	156	P	H
		2389.95	44.58	-9.42	54	36.44	32.2	7.59	31.65	162	156	A	H
		2404	112.16	-	-	104.01	32.18	7.62	31.65	162	156	P	H
		2404	102.92	-	-	94.77	32.18	7.62	31.65	162	156	A	H
		2345.1	55.85	-18.15	74	47.96	32.06	7.5	31.67	344	276	P	V
		2389.82	44.55	-9.45	54	36.41	32.2	7.59	31.65	344	276	A	V
		2404	106.38	-	-	98.23	32.18	7.62	31.65	344	276	P	V
		2406	97.19	-	-	89.04	32.18	7.62	31.65	344	276	A	V
802.11ax HE20 Partial 52/40 CH 11 2462MHz		2484.1	56.43	-17.57	74	48.16	32.12	7.73	31.58	126	152	P	H
		2484.28	44.86	-9.14	54	36.59	32.12	7.73	31.58	126	152	A	H
		2470	109.28	-	-	101.05	32.13	7.7	31.6	126	152	P	H
		2468	100.36	-	-	92.13	32.13	7.7	31.6	126	152	A	H
		2496.4	56.12	-17.88	74	47.82	32.1	7.76	31.56	321	58	P	V
		2489.62	44.64	-9.36	54	36.36	32.1	7.76	31.58	321	58	A	V
		2470	103.43	-	-	95.2	32.13	7.7	31.6	321	58	P	V
		2468	94.5	-	-	86.27	32.13	7.7	31.6	321	58	A	V



2.4GHz 2400~2483.5MHz

WIFI 802.11ax HE20 Partial 106 (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ax HE20 Partial 106/53 CH 01 2412MHz		2349.65	56.15	-17.85	74	48.26	32.06	7.5	31.67	187	155	P	H
		2389.95	44.83	-9.17	54	36.69	32.2	7.59	31.65	187	155	A	H
		2410	112.46	-	-	104.31	32.18	7.62	31.65	187	155	P	H
		2408	103.13	-	-	94.98	32.18	7.62	31.65	187	155	A	H
		2379.03	55.9	-18.1	74	47.84	32.15	7.56	31.65	343	278	P	V
		2389.82	44.56	-9.44	54	36.42	32.2	7.59	31.65	343	278	A	V
		2410	106.95	-	-	98.8	32.18	7.62	31.65	343	278	P	V
		2410	97.23	-	-	89.08	32.18	7.62	31.65	343	278	A	V
802.11ax HE20 Partial 106/54 CH 11 2462MHz		2483.5	62.38	-11.62	74	54.11	32.12	7.73	31.58	126	153	P	H
		2483.5	45.12	-8.88	54	36.85	32.12	7.73	31.58	126	153	A	H
		2470	110.17	-	-	101.94	32.13	7.7	31.6	126	153	P	H
		2464	101.04	-	-	92.81	32.13	7.7	31.6	126	153	A	H
		2483.98	57.88	-16.12	74	49.61	32.12	7.73	31.58	362	292	P	V
		2483.92	44.88	-9.12	54	36.61	32.12	7.73	31.58	362	292	A	V
		2466	105.14	-	-	96.91	32.13	7.7	31.6	362	292	P	V
		2464	95.52	-	-	87.29	32.13	7.7	31.6	362	292	A	V



2.4GHz 2400~2483.5MHz

WIFI 802.11 ax HE40 Full (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ax HE40 Full CH 03 2422MHz		2389.82	57.81	-16.19	74	49.67	32.2	7.59	31.65	169	172	P	H
		2389.95	47.11	-6.89	54	38.97	32.2	7.59	31.65	169	172	A	H
		2484.46	56.03	-17.97	74	47.76	32.12	7.73	31.58	169	172	P	H
		2487.94	45.09	-8.91	54	36.81	32.1	7.76	31.58	169	172	A	H
		2420	109.76	-	-	101.58	32.17	7.64	31.63	169	172	P	H
		2420	100.25	-	-	92.07	32.17	7.64	31.63	169	172	A	H
		2388.65	56.23	-17.77	74	48.09	32.2	7.59	31.65	297	92	P	V
		2389.82	45.5	-8.5	54	37.36	32.2	7.59	31.65	297	92	A	V
		2497.78	55.91	-18.09	74	47.61	32.1	7.76	31.56	297	92	P	V
		2488.48	44.99	-9.01	54	36.71	32.1	7.76	31.58	297	92	A	V
		2424	103.25	-	-	95.07	32.17	7.64	31.63	297	92	P	V
		2426	94.49	-	-	86.31	32.17	7.64	31.63	297	92	A	V
802.11ax HE40 Full CH 09 2452MHz		2329.5	56.52	-17.48	74	48.7	32.02	7.47	31.67	165	174	P	H
		2389.3	45.01	-8.99	54	36.87	32.2	7.59	31.65	165	174	A	H
		2488.9	58.44	-15.56	74	50.16	32.1	7.76	31.58	165	174	P	H
		2483.5	46.39	-7.61	54	38.12	32.12	7.73	31.58	165	174	A	H
		2448	110.99	-	-	102.78	32.15	7.67	31.61	165	174	P	H
		2448	100.69	-	-	92.48	32.15	7.67	31.61	165	174	A	H
		2361.09	56.26	-17.74	74	48.28	32.11	7.53	31.66	301	98	P	V
		2389.95	44.86	-9.14	54	36.72	32.2	7.59	31.65	301	98	A	V
		2486.44	55.94	-18.06	74	47.67	32.12	7.73	31.58	301	98	P	V
		2485.48	45.45	-8.55	54	37.18	32.12	7.73	31.58	301	98	A	V
		2446	105.98	-	-	97.77	32.15	7.67	31.61	301	98	P	V
		2446	96.25	-	-	88.04	32.15	7.67	31.61	301	98	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11 ax HE40 Full (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ax		4842	40.35	-33.65	74	55.01	34.32	11.05	60.03	300	360	P	H
HE40 Full		7266	42.76	-31.24	74	53.88	35.94	13.45	60.51	300	360	P	H
CH 03		4842	40.43	-33.57	74	55.09	34.32	11.05	60.03	100	0	P	V
2422MHz		7266	43.32	-30.68	74	54.44	35.94	13.45	60.51	100	0	P	V
802.11ax		4872	40.35	-33.65	74	55	34.34	11.04	60.03	300	360	P	H
HE40 Full		7308	42.65	-31.35	74	53.74	35.94	13.48	60.51	300	360	P	H
CH 06		4872	40.04	-33.96	74	54.69	34.34	11.04	60.03	100	0	P	V
2437MHz		7308	42.79	-31.21	74	53.88	35.94	13.48	60.51	100	0	P	V
802.11ax		4902	41.75	-32.25	74	56.39	34.35	11.03	60.02	300	360	P	H
HE40 Full		7356	43.75	-30.25	74	54.82	35.93	13.52	60.52	300	360	P	H
CH 09		4902	41.39	-32.61	74	56.03	34.35	11.03	60.02	100	0	P	V
2452MHz		7356	43.39	-30.61	74	54.46	35.93	13.52	60.52	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11ax HE40 Partial 242 (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ax HE40 Partial 242/61 CH 03 2422MHz		2388	58.49	-15.51	74	50.35	32.2	7.59	31.65	187	155	P	H
		2389.95	45.6	-8.4	54	37.46	32.2	7.59	31.65	187	155	A	H
		2484.4	56.2	-17.8	74	47.93	32.12	7.73	31.58	187	155	P	H
		2490.16	44.83	-9.17	54	36.55	32.1	7.76	31.58	187	155	A	H
		2420	106.6	-	-	98.42	32.17	7.64	31.63	187	155	P	H
		2412	97.09	-	-	88.94	32.18	7.62	31.65	187	155	A	H
		2389.43	56.25	-17.75	74	48.11	32.2	7.59	31.65	343	279	P	V
		2389.56	44.96	-9.04	54	36.82	32.2	7.59	31.65	343	279	A	V
		2493.22	56.17	-17.83	74	47.87	32.1	7.76	31.56	343	279	P	V
		2488.48	44.79	-9.21	54	36.51	32.1	7.76	31.58	343	279	A	V
		2418	102.25	-	-	94.08	32.18	7.62	31.63	343	279	P	V
		2412	91.86	-	-	83.71	32.18	7.62	31.65	343	279	A	V
802.11ax HE40 Partial 242/62 CH 09 2452MHz		2381.76	56.85	-17.15	74	48.79	32.15	7.56	31.65	131	153	P	H
		2388.65	44.88	-9.12	54	36.74	32.2	7.59	31.65	131	153	A	H
		2483.74	58.26	-15.74	74	49.99	32.12	7.73	31.58	131	153	P	H
		2483.5	45.92	-8.08	54	37.65	32.12	7.73	31.58	131	153	A	H
		2454	107.46	-	-	99.23	32.13	7.7	31.6	131	153	P	H
		2454	98.09	-	-	89.86	32.13	7.7	31.6	131	153	A	H
		2385.53	55.73	-18.27	74	47.59	32.2	7.59	31.65	361	88	P	V
		2388.78	44.77	-9.23	54	36.63	32.2	7.59	31.65	361	88	A	V
		2489.92	56.15	-17.85	74	47.87	32.1	7.76	31.58	361	88	P	V
		2483.62	44.97	-9.03	54	36.7	32.12	7.73	31.58	361	88	A	V
		2458	99.98	-	-	91.75	32.13	7.7	31.6	361	88	P	V
		2454	90.92	-	-	82.69	32.13	7.7	31.6	361	88	A	V



Emission below 1GHz

2.4GHz WIFI 802.11ax HE20 (LF)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
2.4GHz 802.11ax HE20 LF		30	18.54	-21.46	40	24.79	25.14	0.81	32.2	-	-	P	H
		61.04	16.97	-23.03	40	35.68	12.05	1.34	32.1	-	-	P	H
		157.07	16.86	-26.64	43.5	30.04	16.73	2.19	32.1	-	-	P	H
		186.17	16.34	-27.16	43.5	31.09	14.97	2.38	32.1	-	-	P	H
		814.73	32.47	-13.53	46	31.41	28.43	4.96	32.33	-	-	P	H
		818.61	33.96	-12.04	46	32.81	28.52	4.97	32.34	100	0	P	H
		30	24.25	-15.75	40	30.5	25.14	0.81	32.2	-	-	P	V
		60.07	27.58	-12.42	40	46.29	12.06	1.33	32.1	100	0	P	V
		167.74	17.49	-26.01	43.5	30.76	16.57	2.26	32.1	-	-	P	V
		722.58	25.64	-20.36	46	25.7	27.51	4.67	32.24	-	-	P	V
		755.56	26.04	-19.96	46	25.08	28.48	4.78	32.3	-	-	P	V
		817.64	33.28	-12.72	46	32.15	28.5	4.97	32.34	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												



Note symbol

*	Fundamental Frequency which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
!	Test result is over limit line.
P/A	P eak or A verage
H/V	H orizontal or V ertical



A calculation example for radiated spurious emission is shown as below:

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
CH 01													
2412MHz		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

1. Path Loss(dB) = Cable loss(dB) + Filter loss(dB) + Attenuator loss(dB)

2. Level(dBμV/m) =

Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

3. Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

For Peak Limit @ 2390MHz:

1. Level(dBμV/m)

= Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

= 32.22(dB/m) + 4.58(dB) + 54.51(dBμV) – 35.86 (dB)

= 55.45 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 55.45(dBμV/m) – 74(dBμV/m)

= -18.55(dB)

For Average Limit @ 2390MHz:

1. Level(dBμV/m)

= Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

= 32.22(dB/m) + 4.58(dB) + 42.6(dBμV) – 35.86 (dB)

= 43.54 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 43.54(dBμV/m) – 54(dBμV/m)

= -10.46(dB)

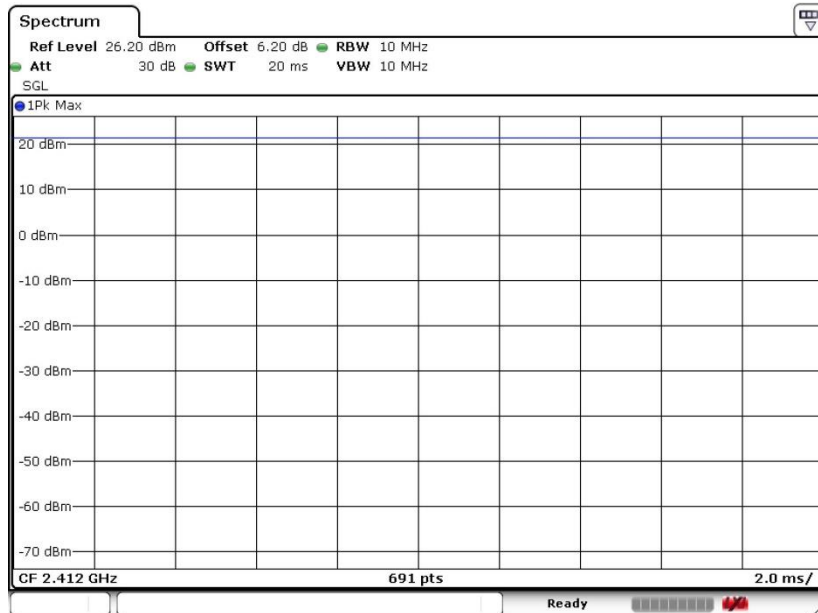
Both peak and average measured complies with the limit line, so test result is “PASS”.

Appendix D. Duty Cycle Plots

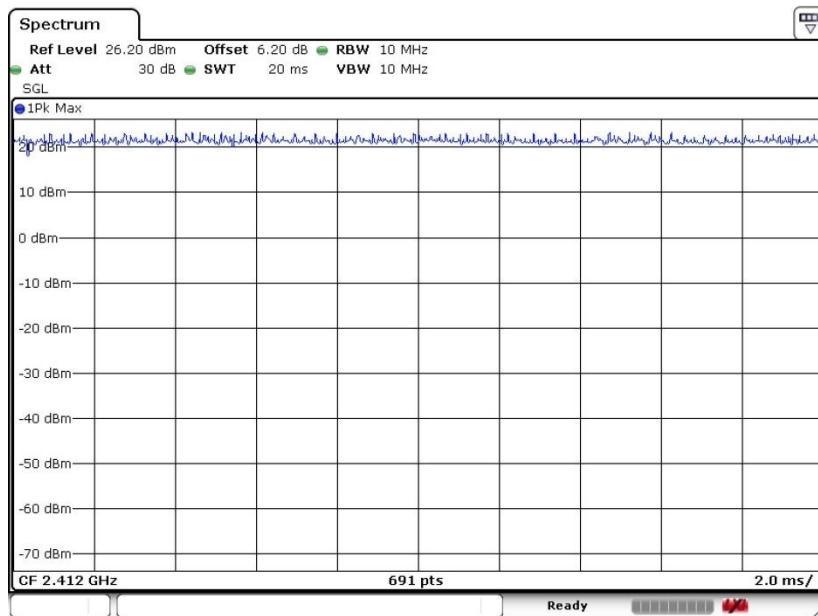
Antenna	Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
1+2	802.11b	100	-	-	10Hz
1+2	802.11g	100	-	-	10Hz
1+2	802.11n HT20	100	-	-	10Hz
1+2	802.11n HT40	100	-	-	10Hz
1+2	802.11ax HE20	100	-	-	10Hz
1+2	802.11ax HE40	100	-	-	10Hz

<MIMO Ant. 1+2>

802.11b

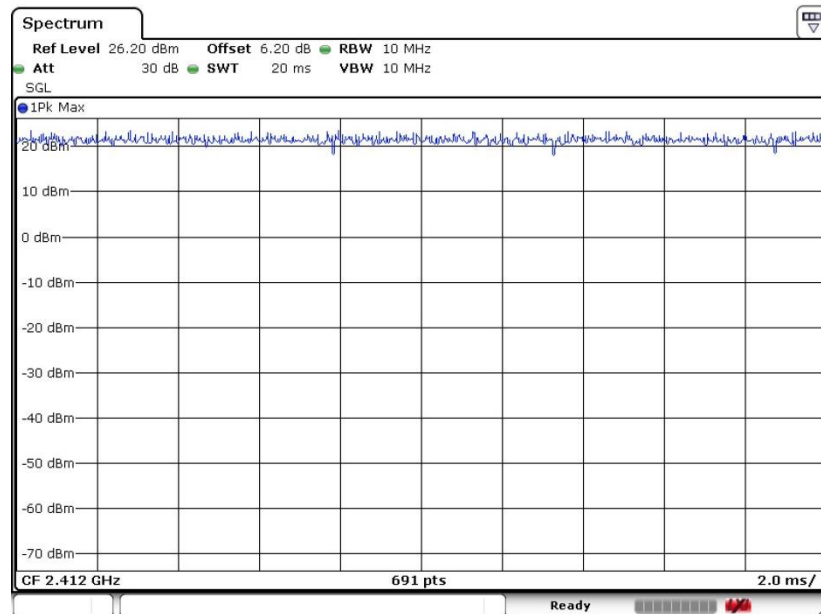


802.11g

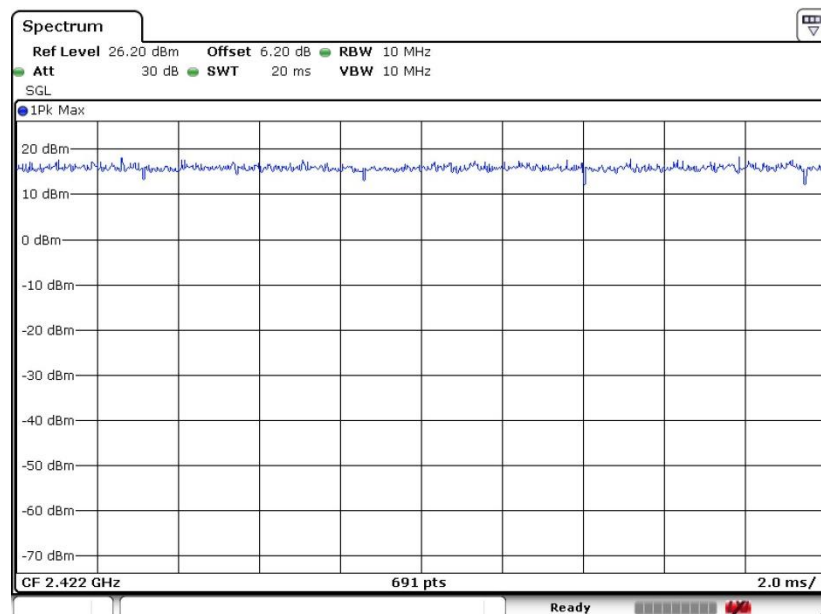




802.11n HT20

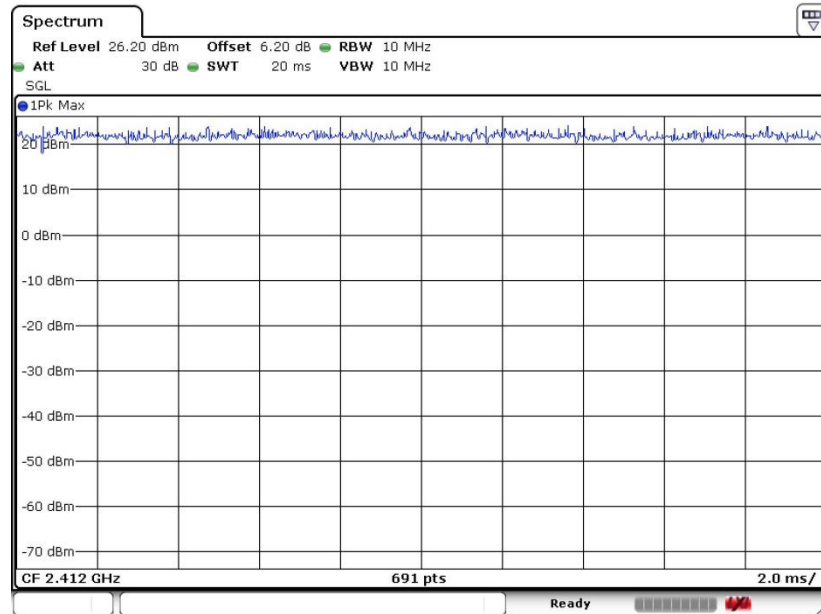


802.11n HT40





802.11ax HE20



802.11ax HE40

