

RADIO TEST REPORT

Product : IEEE 802.11ax/ac/a/b/g/n 2x2 WiFi with Bluetooth5.0 Combo Module

Model Name : WNFB265AX

FCC ID : VPQ-WNFB265AXIBT

Test Regulation : FCC 47 CFR Part 15 Subpart C (Section 15.247)

Received Date : 2023/6/29

Test Date : 2023/7/17 ~ 2023/12/8

Issued Date : 2023/12/11

Applicant : TRIXELL
460 Rue du Pommarin, 38430 Moirans

Issued By : Underwriters Laboratories Taiwan Co., Ltd.
Building A, B and E, No. 372-7, Sec. 4, Zhongxing Rd.,
Zhudong Township, Hsinchu County, Taiwan



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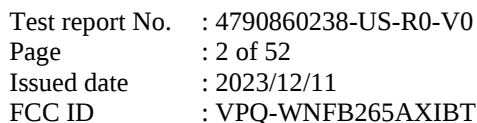
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Doc No: Form-ULID-004737 (DCS:17-EM-F0876) / 6.1



Original Test Report No.: 4790860238-US-R0-V0

[illegible]

Doc No: Form-ULID-004737 (DCS:17-EM-F0876) / 6.1

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1. Attestation of Test Results

APPLICANT: TRIXELL
460 Rue du Pommarin, 38430 Moirans

MANUFACTURER: SparkLAN Communications, Inc.
8F., No.257, Sec. 2, Tiding Blvd., Neihu District, Taipei City 11493,
Taiwan (R.O.C.)

EUT DESCRIPTION: IEEE 802.11ax/ac/a/b/g/n 2x2 WiFi with Bluetooth5.0 Combo
Module

BRAND: TRIXELL

MODEL: WNFB265AX

SAMPLE STAGE: Engineering Verification Test sample

DATE of TESTED: 2023/7/17 ~ 2023/12/8

APPLICABLE STANDARDS	
STANDARD	Test Results
FCC 47 CFR PART 15 Subpart C (Section 15.247)	PASS

Underwriters Laboratories Taiwan Co., Ltd. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by Underwriters Laboratories Taiwan Co., Ltd. based on interpretations and/or observations of test results. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by Underwriters Laboratories Taiwan Co., Ltd. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Underwriters Laboratories Taiwan Co., Ltd. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Prepared By:



Cindy Hsin
Project Handler

Date : 2023/12/11

Approved and Authorized By:



Eric Lee
Senior Laboratory Engineer

Date : 2023/12/11

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2. Summary of Test Results

Summary of Test Results		
FCC Clause	Test Items	Result
15.247(a)(2)	6dB Bandwidth	See Note 1
15.247(b)	Conducted Output Power	PASS
15.247(e)	Power Spectral Density	See Note 1
15.247(d)	Antenna Port Emission	See Note 1
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	PASS
15.207	AC Power Conducted Emission	See Note 1
15.203	Antenna Requirement	See Note 1

Note:

1. This report is as a supplementary report of report no.: 4789558390-US-R0-V0.

3. Test Methodology and Reference Procedures

The tests documented in this report were performed in accordance with 47 CFR FCC Part 2, KDB558074 D01 Meas Guidance v05r02, KDB414788 D01 Radiated Test Site v01r01, ANSI C63.10-2013 and KDB 662911 D01 Multiple Transmitter Output v02r01.

4. Facilities and Accreditation

Test Location	Underwriters Laboratories Taiwan Co., Ltd.
Address	Building A, B and E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan
Accreditation Certificate	Underwriters Laboratories Taiwan Co., Ltd. is accredited by TAF, Laboratory Code 3398.

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5. Measurement Uncertainty

For statement of conformity, Simple acceptance (Section 3.1.4 of IEC Guide 115) was applied as decision rule for measurement in this test report.

The following uncertainties have been calculated to provide a confidence level of 95 % using a coverage factor $k=2$.

Determining compliance based on the results of the compliance measurement, not considering measurement instrumentation uncertainty.

Measurement	Frequency	Uncertainty
Conducted disturbance at mains terminals ports	150kHz ~ 30MHz	3.1 dB
RF Conducted	9 kHz - 40GHz	2.3 dB
Radiated disturbance below 30MHz	9 kHz - 30 MHz	3.2 dB
Radiated disturbance below 1 GHz	30MHz ~ 1GHz	6.1 dB
Radiated disturbance above 1 GHz	1GHz ~ 40GHz	5.1 dB

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6. Equipment under Test

6.1. Description of EUT

Product	IEEE 802.11ax/ac/a/b/g/n 2x2 WiFi with Bluetooth5.0 Combo Module
Brand Name	TRIXELL
Model Name	WNFB265AX
Operating Frequency	2412MHz ~ 2462MHz
Modulation	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDMA
Transfer Rate	802.11b: up to 11 Mbps 802.11g: up to 54 Mbps 802.11n: up to MCS15 802.11ax: up to HE11
Number of Channel	11 for 802.11b, 802.11g, 802.11n (HT20), 802.11ax (HE20)
Maximum Output Power	Non-Beamforming mode: 802.11b: 9.91 dBm 802.11g: 17.65 dBm 802.11ax (HE20): 17.82 dBm Beamforming Mode: 802.11ax (HE20): 17.69 dBm
Normal Voltage	3.3Vdc
Sample ID	6110881

Note:

1. The model number of this application: WNFB265AX, based on original FCC ID: RYK-WNFB265AXIBT, Model: WNFB-265AXI(BT) whose RF circuit are identical, only the RF antenna, applicant, brand and model number have been changed. According to the above changed, the radiated emission and conducted output power need to be performed, other test results are referred to the original report (Report No.: 4789558390-US-R0-V0).
2. The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and two receivers.

Modulation Mode	Tx,Rx Function
802.11b	1TX,1RX
802.11g	2TX,2RX
802.11n (HT20)	2TX,2RX
802.11ax (HE20)	2TX,2RX

* The modulation and bandwidth are similar for 802.11n mode for HT20 and 802.11ax mode for HE20, therefore investigated worst case to representative mode in test report.

3. The EUT contains following accessory devices:

Product	Brand	Model	Description
Antenna	TAOGLAS	FXP831.07.0100C	2.4GHz: 3dBi 5GHz: 5.5dBi I-PEX

4. The above EUT information is declared by manufacturer and for more detailed features description, please refer the manufacturer's or user's manual, the laboratory shall not be held responsible.

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6.2. Channel List

11 channels are provided for 802.11b, 802.11g and 802.11n (HT20), 802.11ax (HE20):

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	7	2442
2	2417	8	2447
3	2422	9	2452
4	2427	10	2457
5	2432	11	2462
6	2437	-	-

6.3. Test Condition

Test Item	Test Site No.	Environmental Condition	Input Power	Test Date	Tested by
Radiated Spurious Emission	966-2	21~27°C/ 51~69%RH	3.3Vdc	2023/07/17~ 2023/12/08	Rex Chen
Antenna Port Conducted Measurement	SR4	21~27°C/ 51~69%RH	3.3Vdc	2023/07/17~ 2023/11/22	Rex Chen

FCC Test Firm Registration Number: 498077

Sample Calculation:

Antenna Port Conducted Measurement:

- Where relevant, the follow sample calculation is provided:
Result Value (dBm) = Reading Value (dBm) + Attenuator Factor (dB) + Cable Loss (dB).
Example: Result Value (10dBm) = Reading Value (-2dBm) + Attenuator Factor (10dB) + Cable Loss(2dB).
*Test plot only shown the “Result Value”.

Radiated Spurious Emission:

- Where relevant, the follow sample calculation is provided:
Result Value (dBuV/m) = Reading Value (dBuV) + Correction Factor (dB/m).
Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB) - Preamp Factor (dB).
Example: Result Value (34.5dBuV/m) = Reading Value (40.1dBuV) + Antenna Factor (18.7dB/m) + Cable Loss (4.2dB) - Preamp Factor (28.5dB).

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6.4. Description of Available Antennas

Ant. No.	Transmitter Circuit	Brand Name	Model Name	Ant. Type	Maximum Gain (dBi)
1	Chain (0)+(1)	TAOGLAS	FXP831.07.0100C	Dipole	2.4GHz: 3 5GHz: 5.5

Note: The above antenna information was provided from customer and for more detailed features description, please refer the manufacturer's specification or user's manual, the laboratory shall not be held responsible.

6.5. Test Mode Applicability and Tested Channel Detail

- The model number of this application: WNFB265AX, based on original FCC ID: RYK-WNFB265AXIBT, Model: WNFB-265AXI(BT) whose RF circuit are identical, only the RF antenna, applicant, brand and model number have been changed. According to the above changed, the radiated emission and conducted output power need to be performed, other test results are referred to the original report (Report No.: 4789558390-US-R0-V0).

Non-Beamforming Mode:

Test Item	Mode	Modulation Technology	Modulation Type	Available Channel	Test Channel	Data Rate
Radiated Emissions (Above 1GHz)	802.11b	DSSS	DBPSK	1 to 11	1,6,11	1 Mbps
	802.11g	OFDM	BPSK	1 to 11	1,6,11	6 Mbps
	802.11ax20	OFDM	BPSK	1 to 11	1,6,11	MCS0 Nss1
		OFDMA	BPSK	1 to 11	1,6,11	MCS0 Nss1
Radiated Emissions (Below 1GHz)	802.11b	DSSS	DBPSK	1 to 11	1	1 Mbps
Antenna Port Conducted Measurement	802.11b	DSSS	DBPSK	1 to 11	1,6,11	1 Mbps
	802.11g	OFDM	BPSK	1 to 11	1,6,11	6 Mbps
	802.11ax20	OFDM	BPSK	1 to 11	1,6,11	MCS0 Nss1
		OFDMA	BPSK	1 to 11	1,6,11	MCS0 Nss1

Beamforming Mode:

Test item	Mode	Modulation Technology	Modulation Type	Available Channel	Test Channel	Data Rate
Antenna Port Conducted Measurement	802.11ax (HE20)	OFDM	BPSK	1 to 11	1,6,11	MCS0
		OFDMA	BPSK	1 to 11	1,6,11	MCS0

*Note: The worse spurious emissions test and maximum output power was found in Non-Beamforming mode. Therefore Beamforming mode only the test data of the RF output power were recorded in this report.

7. Test Equipment

Test Equipment List					
Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Expired date
Radiated Spurious Emission					
Spectrum Analyzer	Keysight	N9010A	MY56070827	2023/4/7	2024/4/6
EMI Test Receiver	Rohde & Schwarz	ESR7	101754	2022/12/13	2023/12/12
Loop Antenna	ETS lindgren	6502	00213440	2023/1/4	2024/1/3
Trilog-Broadband Antenna with 5dB Attenuator	Schwarzbeck & EMCI	VULB 9168 & N-6-05	774 & AT-N0538	2023/2/13	2024/2/12
Preamplifier (30-1000 MHz)	EMCI	EMC330E	980405	2023/6/7	2024/6/6
Cables	Hanyitek	K1K50-UP0264-K1K50-2500	170214-4 & 170425-2	2022/12/1	2023/11/30
Cables	Hanyitek	K1K50-UP0264-K1K50-2500	170214-4 & 170425-2	2023/11/29	2024/11/28
Antenna Port Conducted Measurement					
Spectrum Analyzer	Keysight	N9010A	MY56070818	2023/4/10	2024/4/9
Attenuator	EMCI	EMC-40ATK2W10	17002	2022/12/9	2023/12/8
Pulse Power Sensor	Anritsu	MA2411B	1531202	2023/1/4	2024/1/3
Power Meter	Anritsu	ML2495A	1645002	2023/1/4	2024/1/3

UL Software		
Description	Name	Version
Radiated measurement	e3	6.191211 (V6)
Conducted measurement	RF-Conducted-FCC 15247	ver 1.0

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8. Description of Test Setup

Support Equipment

ID	Equipment	Brand Name	Model Name	S/N	Remark
A	Test Tool	Broadcom	Bluetool	NA	Supplied by client
B	Monitor	Dell	SE2417HG	NA	Provide by lab
C	Computer	Gigabyte	H310M-S2P	BC00049	Supplied by client
D	Keyboard	Dell	KB216I	CH2-WD050	Provide by lab

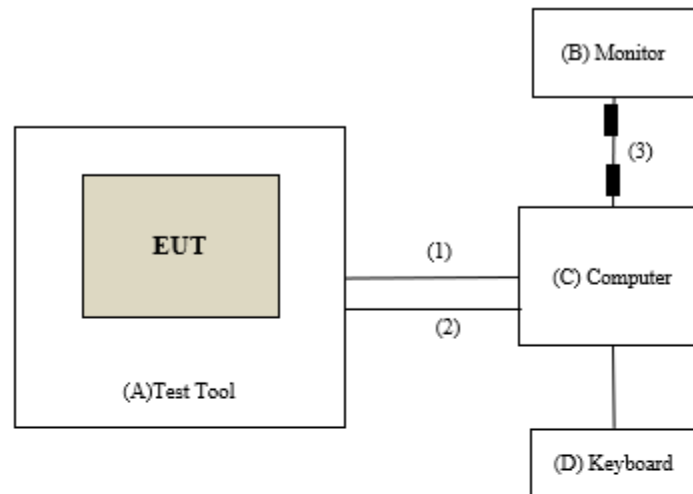
I/O Cables

ID	Equipment	Brand Name	Model Name	Length (m)	Remark
1	Flexible Cable	Soliton	PEM-1LC	0.47	Supplied by client
2	Micro USB Cable	Centenary	US-26	1.8	Supplied by client
3	HDMI Cable	EATON	P568010	1.44	Provide by lab with two core

Test Setup

The EUT was worked in engineering mode to transmit signal.

Setup Diagram for Test



Under Table

Remote Site

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9. Test Results

9.1. Conducted Output Power

Requirements

For systems using digital modulation in the 2400-2483.5 MHz bands: 1 Watt.

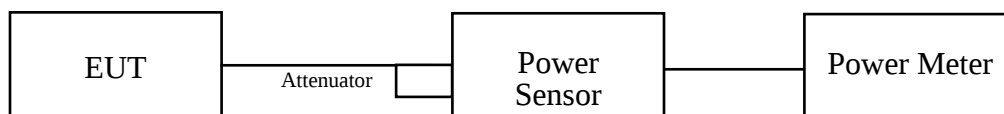
Note:

1. P_{Out} = maximum conducted output power in dBm, G_{TX} = the maximum transmitting antenna directional gain in dBi, B is the 26 dB emission bandwidth in megahertz
2. Per KDB 662911 Method of conducted output power measurement on IEEE 802.11 devices, CDD
Array Gain = 0 dB (i.e., no array gain) for $N_{\text{ANT}} \leq 4$;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT} ;
Array Gain = $5 \log(N_{\text{ANT}}/N_{\text{SS}})$ dB or 3 dB, whichever is less for 20-MHz channel widths with $N_{\text{ANT}} \geq 5$.
Example: Maximum antenna gain = 5 dBi and $N_{\text{ANT}} \leq 4$, so if it was used for CDD power measurement
Directional Gain = 5 dBi + Array Gain = 5 dBi + 0 dB = 5 dBi
3. For power measurement of KDB 662911 is used with multiple transmitter output. Total conducted power is the sum of the conducted power levels measured at the various output ports.

Test Procedure

A peak power sensor was used on the output port of the EUT. A power meter was used to read the response of the peak power sensor. Record the power level.

Test Setup



The loss between RF output port of the EUT and the input port of the Power Meter has been taken into consideration.

Test Data

Non-Beamforming Mode

Peak Power

802.11b

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	9.311	9.69	30	PASS
6	2437	9.795	9.91	30	PASS
11	2462	9.75	9.89	30	PASS

802.11g

Channel	Frequency (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	14.90	14.30	57.81	17.62	30	PASS
6	2437	14.92	14.33	58.21	17.65	30	PASS
11	2462	14.91	14.30	57.943	17.63	30	PASS

802.11ax (HE20)

OFDM

Channel	Frequency (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	15.15	14.30	59.704	17.76	30	PASS
6	2437	15.19	14.06	58.479	17.67	30	PASS
11	2462	15.13	14.46	60.534	17.82	30	PASS

OFDMA

Channel	Frequency (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	14.97	14.06	56.885	17.55	30	PASS
6	2437	14.96	13.83	55.463	17.44	30	PASS
11	2462	14.92	14.27	57.81	17.62	30	PASS

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Average Power (Reference Only)

802.11b

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)
1	2412	4.539	6.57
6	2437	4.498	6.53
11	2462	4.406	6.44

802.11g

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	6.61	6.26	8.81	9.45
6	2437	6.60	5.79	8.356	9.22
11	2462	6.74	6.01	8.71	9.40

802.11ax (HE20)

OFDM

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	6.54	6.20	8.67	9.38
6	2437	6.52	6.21	8.67	9.38
11	2462	6.39	6.13	8.453	9.27

OFDMA

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	6.36	5.96	8.26	9.17
6	2437	6.29	5.98	8.222	9.15
11	2462	6.18	5.94	8.072	9.07

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Beamforming Mode

Peak Power

802.11ax (HE20)

OFDM

Channel	Frequency (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	15.01	14.15	57.677	17.61	29.99	PASS
6	2437	15.03	13.89	56.364	17.51	29.99	PASS
11	2462	15.02	14.30	58.749	17.69	29.99	PASS

OFDMA

Channel	Frequency (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	14.84	13.93	55.208	17.42	29.99	PASS
6	2437	14.77	13.73	53.58	17.29	29.99	PASS
11	2462	14.77	14.13	55.847	17.47	29.99	PASS

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Average Power (Reference Only)

802.11ax (HE20)

OFDM

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	6.43	6.06	8.433	9.26
6	2437	6.41	6.03	8.375	9.23
11	2462	6.27	6.01	8.222	9.15

OFDMA

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	6.23	5.86	8.054	9.06
6	2437	6.16	5.87	7.998	9.03
11	2462	6.05	5.83	7.852	8.95

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9.2. Radiated Spurious Emission

Requirements

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20dB below the highest level of the desired power:

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

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

Test Procedures

[For 9 kHz ~ 30 MHz]

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. For measurement below 30MHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

[For above 30 MHz]

- a. The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. For measurement below 1GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
- f. The test-receiver system was set to peak and average detects function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

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Note:

- a. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
- b. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
- c. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $\geq 1/T$ (Duty cycle $< 98\%$) or 10Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.

Configuration	Average	
	RBW	VBW
802.11b	1MHz	Duty cycle refer to original report.
802.11g		
802.11ax (HE20)_OFDM		
802.11ax (HE20)_OFDMA		

- d. All modes of operation were investigated (includes all external accessories) and the worst-case emissions are reported, the other emission levels were low against the limit.
- e. Test data of Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
- f. Test data of Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
- g. Test data of Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB) - Preamp Factor (dB).
- h. Test data of Notation "@" = Fundamental Frequency
- i. Test data of Notation "*" = The peak result under 20 dB above and complies with AVG limit, AVG result is deemed to comply with AVG limit.

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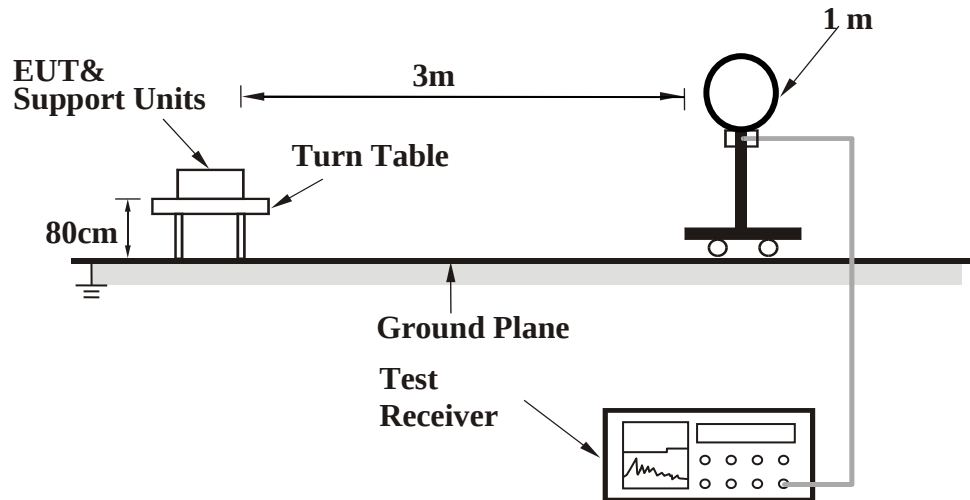
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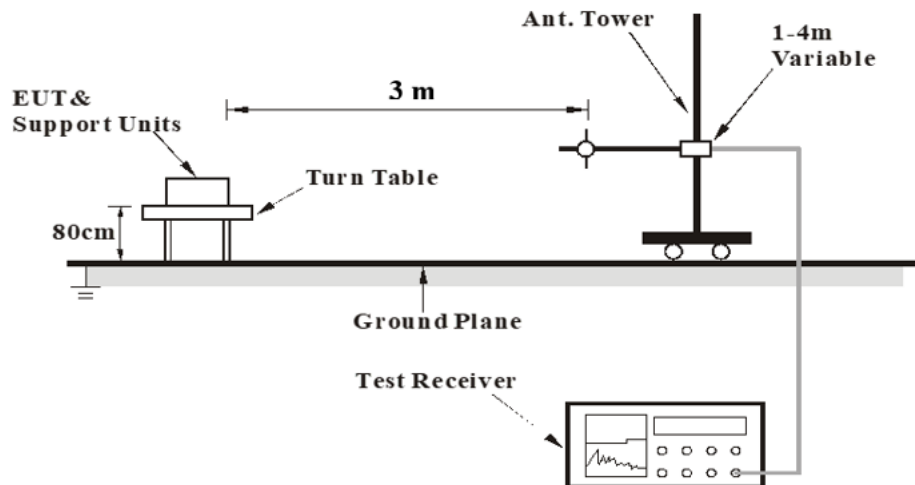
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Test Setup

<Frequency Range 9 kHz ~ 30 MHz>



<Frequency Range 30 MHz ~ 1 GHz >



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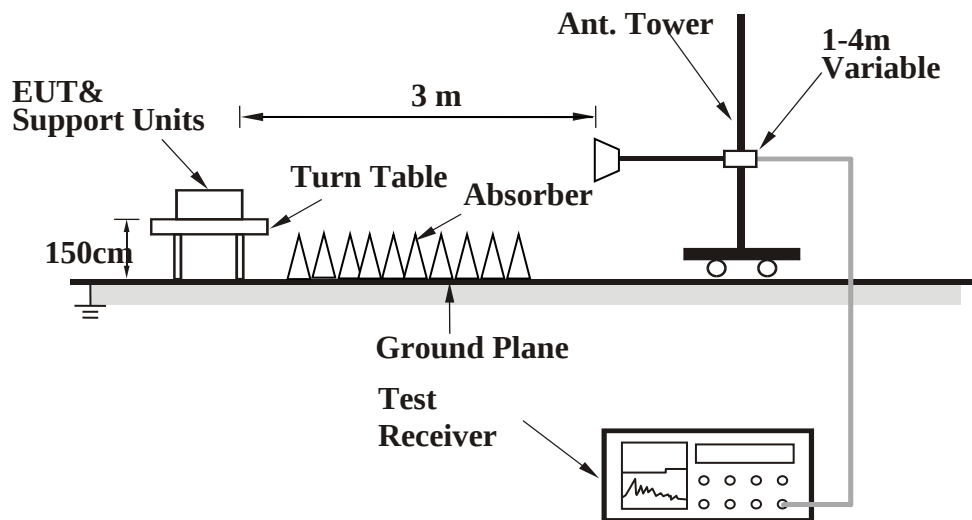
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<Frequency Range above 1 GHz>



For the actual test configuration, please refer to the Setup Configurations.

Test Data

Non-Beamforming Mode:

Above 1 GHz

Mode	802.11b	Channel	1
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Polarization	Notation	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
Horizontal		2329.76	40.89	23.17	64.06	74	-9.94	PK
		2375.93	29.53	23.15	52.68	54	-1.32	AVG
	@	2412	72.56	23.1	95.66	N/A	N/A	PK
	@	2412	69.27	23.1	92.37	N/A	N/A	AVG
	*	4824	48.09	5.13	53.22	74	-20.78	PK
Vertical		2376.5	41.43	23.15	64.58	74	-9.42	PK
		2376.88	29.69	23.14	52.83	54	-1.17	AVG
	@	2412	77.44	23.1	100.54	N/A	N/A	PK
	@	2412	73.5	23.1	96.6	N/A	N/A	AVG
	*	4824	37.62	5.13	42.75	74	-31.25	PK

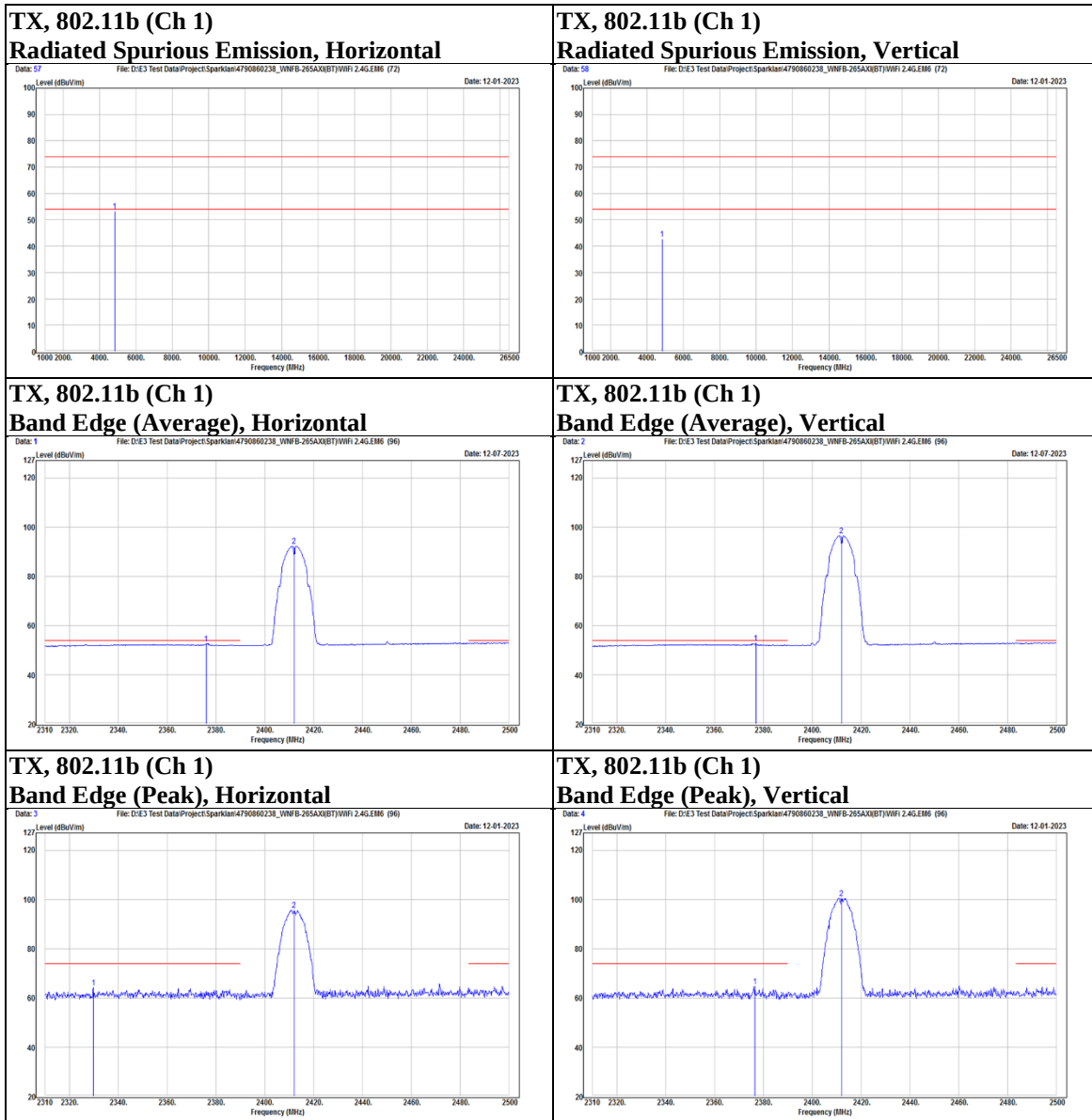
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Mode	802.11b	Channel	6
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Polarization	Notation	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
Horizontal		2375.17	29.18	23.16	52.34	54	-1.66	AVG
		2381.82	40.32	23.1	63.42	74	-10.58	PK
	@	2437	71.97	23.39	95.36	N/A	N/A	PK
	@	2437	68.54	23.39	91.93	N/A	N/A	AVG
		2487.08	41.15	23.82	64.97	74	-9.03	PK
		2494.68	29.01	23.88	52.89	54	-1.11	AVG
	*	4874	36.89	5.29	42.18	74	-31.82	PK
Vertical		2323.68	41.47	23.11	64.58	74	-9.42	PK
		2376.88	29.49	23.14	52.63	54	-1.37	AVG
	@	2437	75.39	23.39	98.78	N/A	N/A	PK
	@	2437	71.76	23.39	95.15	N/A	N/A	AVG
		2496.39	40.19	23.89	64.08	74	-9.92	PK
		2500	29.12	23.92	53.04	54	-0.96	AVG
	*	4874	38.22	5.29	43.51	74	-30.49	PK

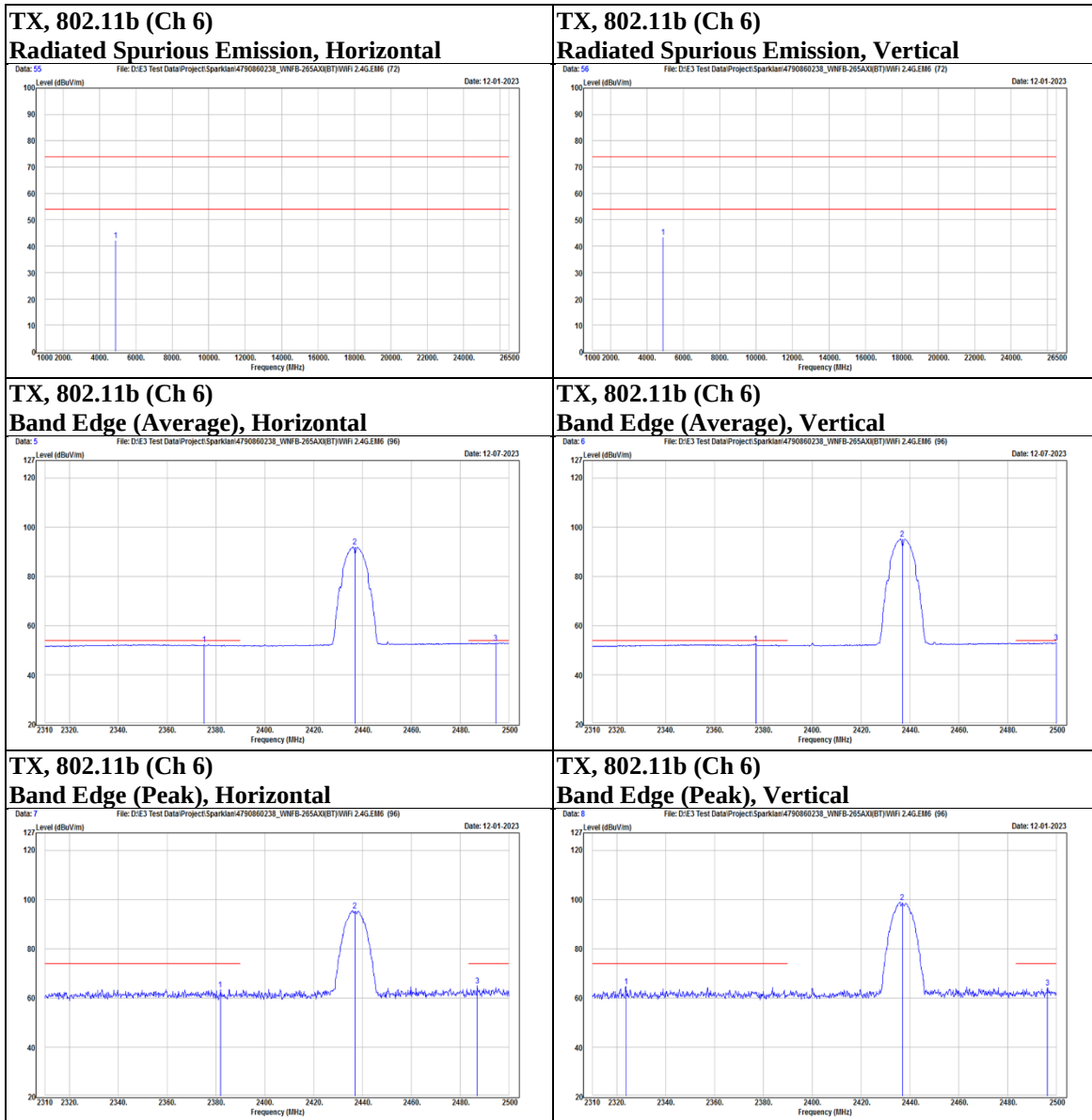
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Mode	802.11b	Channel	11
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Polarization	Notation	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
Horizontal	@	2462	70.79	23.63	94.42	N/A	N/A	PK
	@	2462	66.98	23.63	90.61	N/A	N/A	AVG
		2484.23	29.14	23.8	52.94	54	-1.06	AVG
		2484.42	41.53	23.8	65.33	74	-8.67	PK
	*	4924	36.52	5.4	41.92	74	-32.08	PK
Vertical	@	2462	72.04	23.63	95.67	N/A	N/A	PK
	@	2462	68.14	23.63	91.77	N/A	N/A	AVG
		2492.78	41.25	23.87	65.12	74	-8.88	PK
		2498.1	28.97	23.91	52.88	54	-1.12	AVG
	*	4924	36.78	5.4	42.18	74	-31.82	PK

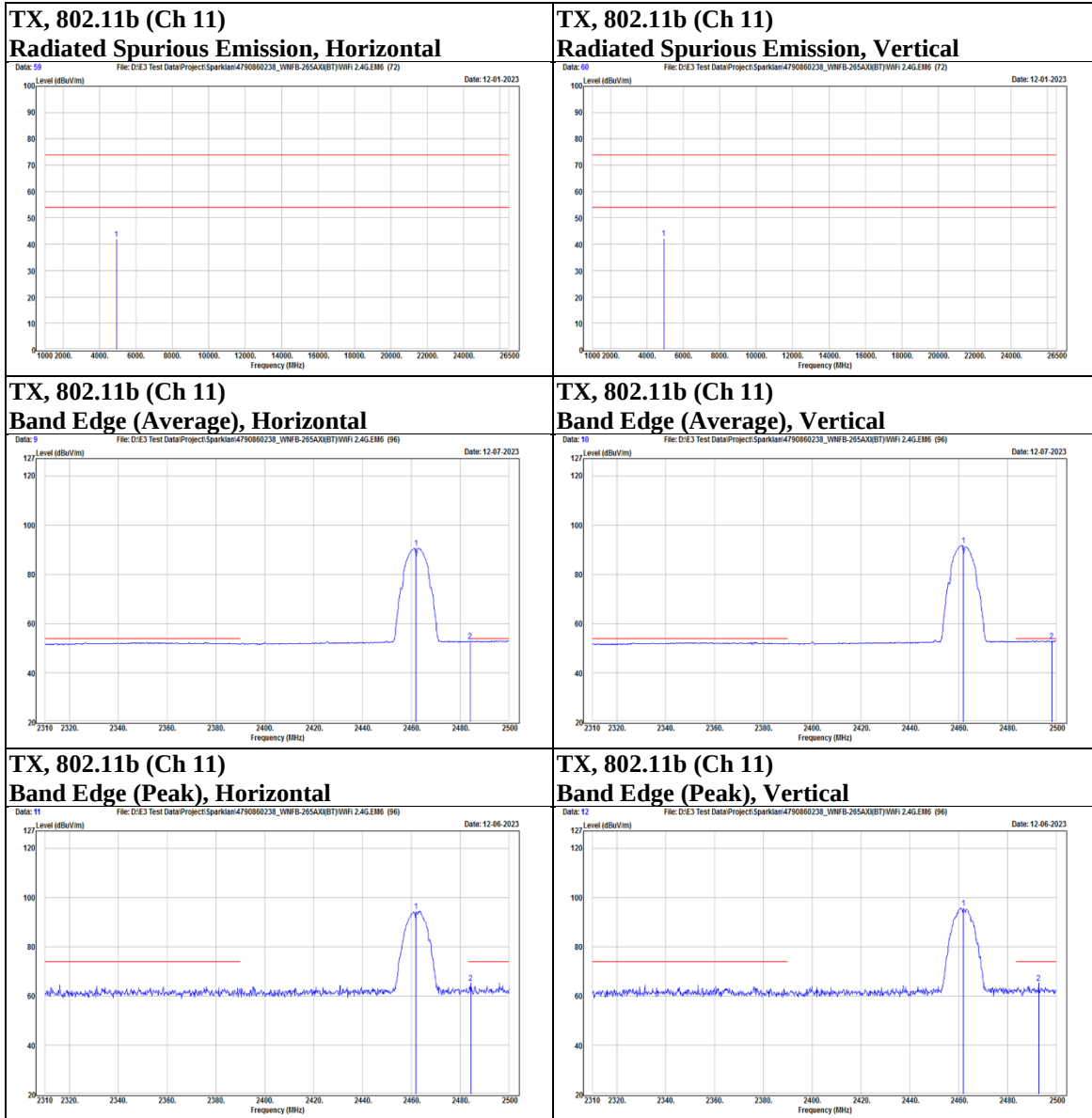
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OFDM

Mode	802.11g	Channel	1
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Polarization	Notation	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
Horizontal		2345.53	40.11	23.32	63.43	74	-10.57	PK
		2376.69	29.44	23.14	52.58	54	-1.42	AVG
	@	2412	78.06	23.1	101.16	N/A	N/A	PK
	@	2412	69.47	23.1	92.57	N/A	N/A	AVG
	*	4824	42.26	5.13	47.39	74	-26.61	PK
Vertical		2313.23	40.76	23.01	63.77	74	-10.23	PK
		2375.93	29.63	23.15	52.78	54	-1.22	AVG
	@	2412	83.51	23.1	106.61	N/A	N/A	PK
	@	2412	75.05	23.1	98.15	N/A	N/A	AVG
	*	4824	36.86	5.13	41.99	74	-32.01	PK

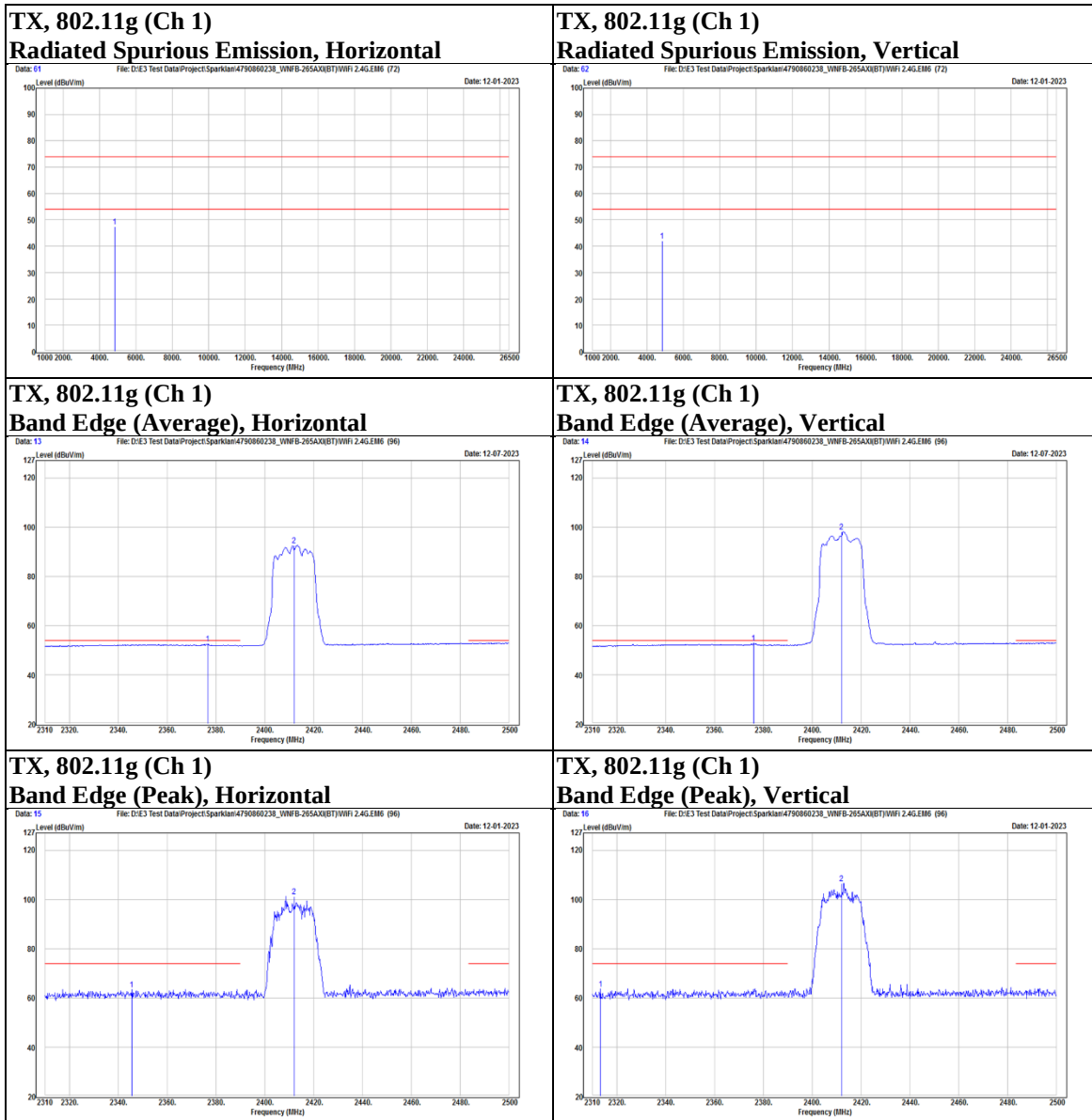
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Mode	802.11g	Channel	6
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Polarization	Notation	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
Horizontal		2376.12	41.47	23.15	64.62	74	-9.38	PK
		2376.12	29.46	23.15	52.61	54	-1.39	AVG
	@	2437	74.82	23.39	98.21	N/A	N/A	PK
	@	2437	67.31	23.39	90.7	N/A	N/A	AVG
		2490.31	40	23.84	63.84	74	-10.16	PK
		2500	28.93	23.92	52.85	54	-1.15	AVG
	*	4874	37.82	5.29	43.11	74	-30.89	PK
Vertical		2366.81	41.32	23.22	64.54	74	-9.46	PK
		2375.74	29.38	23.15	52.53	54	-1.47	AVG
	@	2437	77.92	23.39	101.31	N/A	N/A	PK
	@	2437	71.64	23.39	95.03	N/A	N/A	AVG
		2492.97	29.08	23.87	52.95	54	-1.05	AVG
		2496.96	40.65	23.89	64.54	74	-9.46	PK
	*	4874	37.82	5.29	43.11	74	-30.89	PK

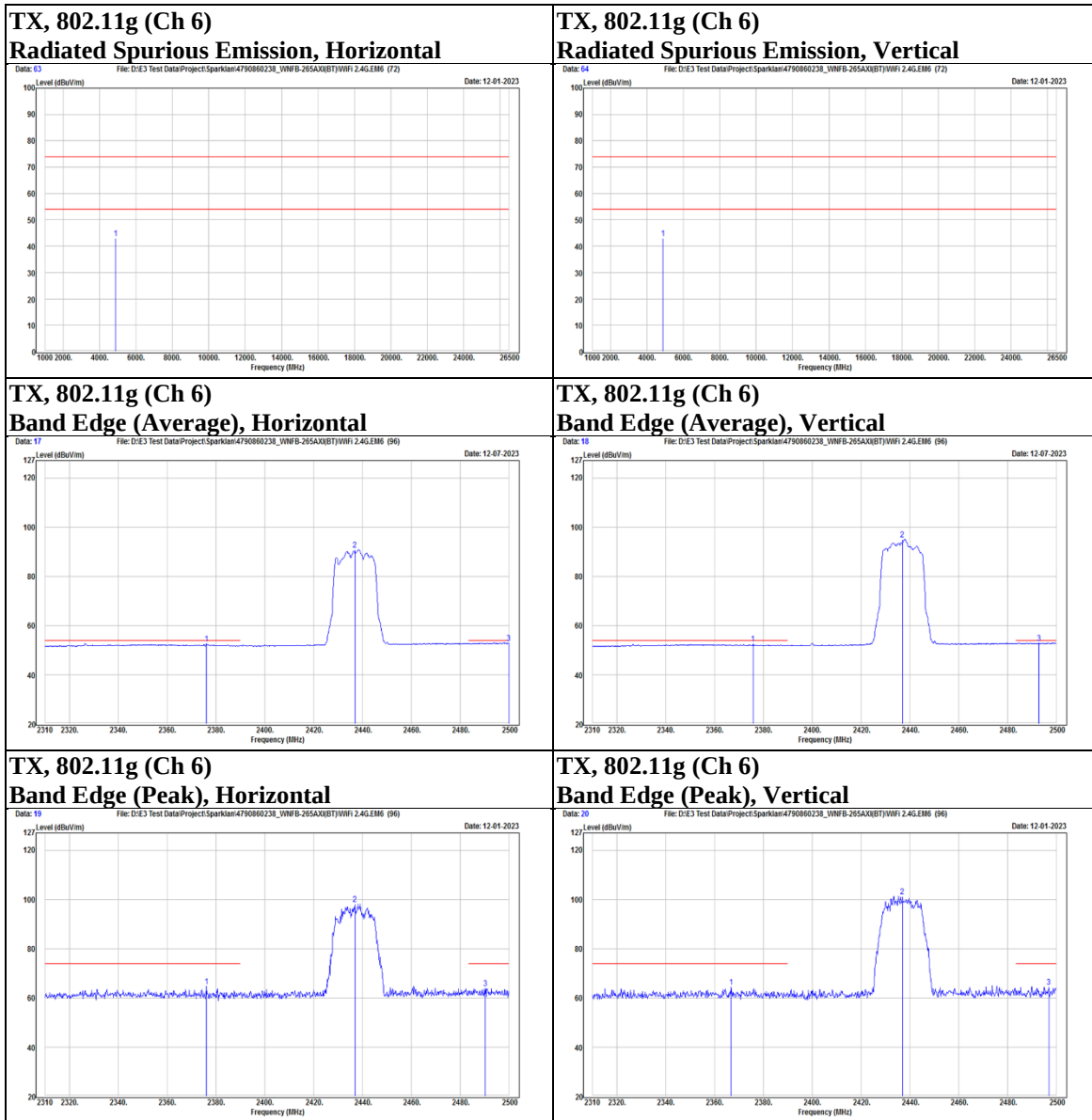
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Mode	802.11g	Channel	11
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Polarization	Notation	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
Horizontal	@	2462	74.98	23.63	98.61	N/A	N/A	PK
	@	2462	66.9	23.63	90.53	N/A	N/A	AVG
		2497.34	29.02	23.9	52.92	54	-1.08	AVG
		2499.05	40.59	23.91	64.5	74	-9.5	PK
	*	4924	36.68	5.4	42.08	74	-31.92	PK
Vertical	@	2462	75.17	23.63	98.8	N/A	N/A	PK
	@	2462	68.28	23.63	91.91	N/A	N/A	AVG
		2497.53	41.07	23.91	64.98	74	-9.02	PK
		2500	28.96	23.92	52.88	54	-1.12	AVG
	*	4924	36.8	5.4	42.2	74	-31.8	PK

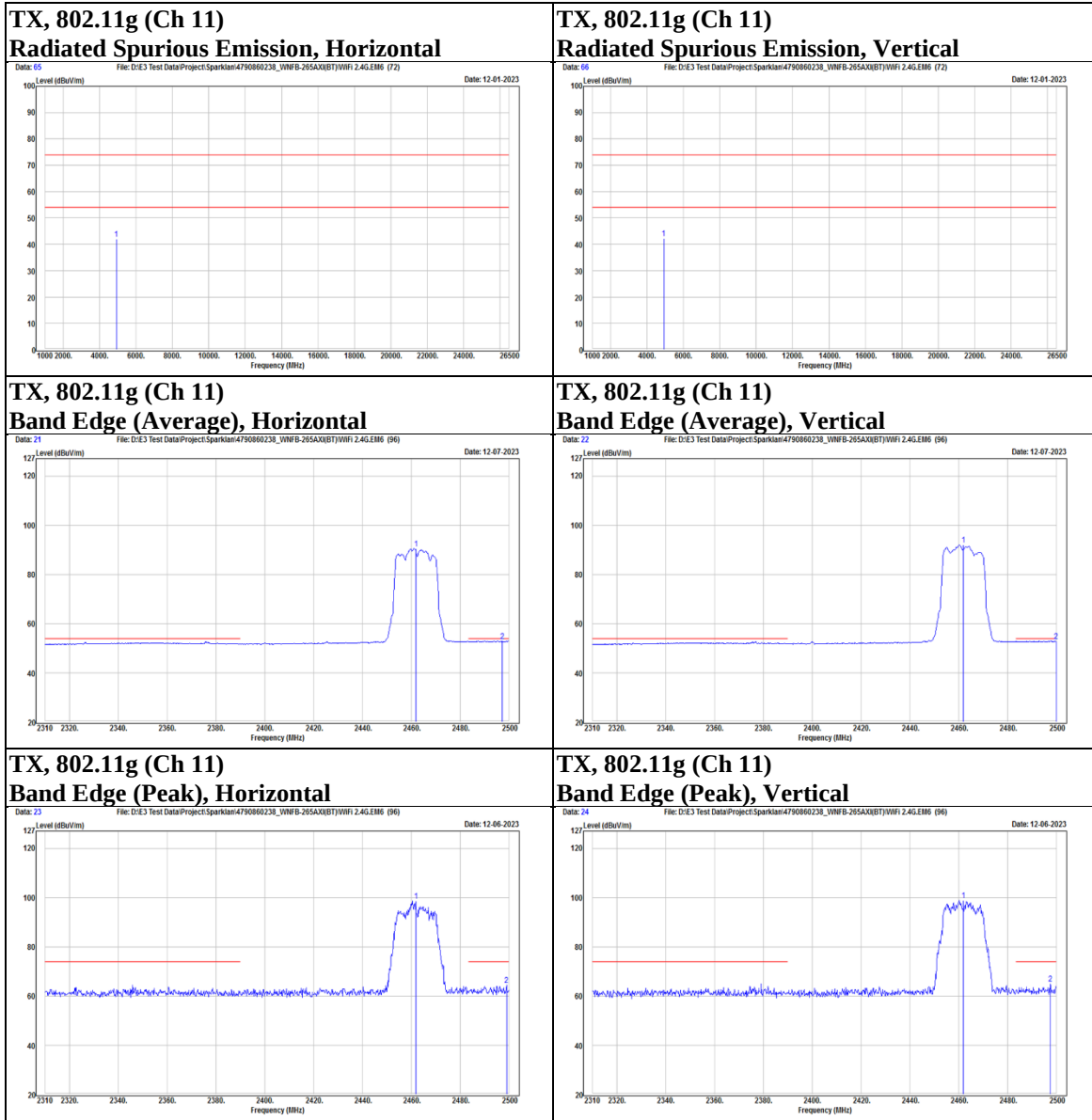
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Mode	802.11ax(HE20)	Channel	1
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Polarization	Notation	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
Horizontal		2360.16	41.24	23.29	64.53	74	-9.47	PK
		2375.93	29.58	23.15	52.73	54	-1.27	AVG
	@	2412	76.96	23.1	100.06	N/A	N/A	PK
	@	2412	69.97	23.1	93.07	N/A	N/A	AVG
	*	4824	38.97	5.13	44.1	74	-29.9	PK
Vertical		2375.74	29.5	23.15	52.65	54	-1.35	AVG
		2376.5	41.16	23.15	64.31	74	-9.69	PK
	@	2412	83.87	23.1	106.97	N/A	N/A	PK
	@	2412	75.22	23.1	98.32	N/A	N/A	AVG
	*	4824	37.89	5.13	43.02	74	-30.98	PK

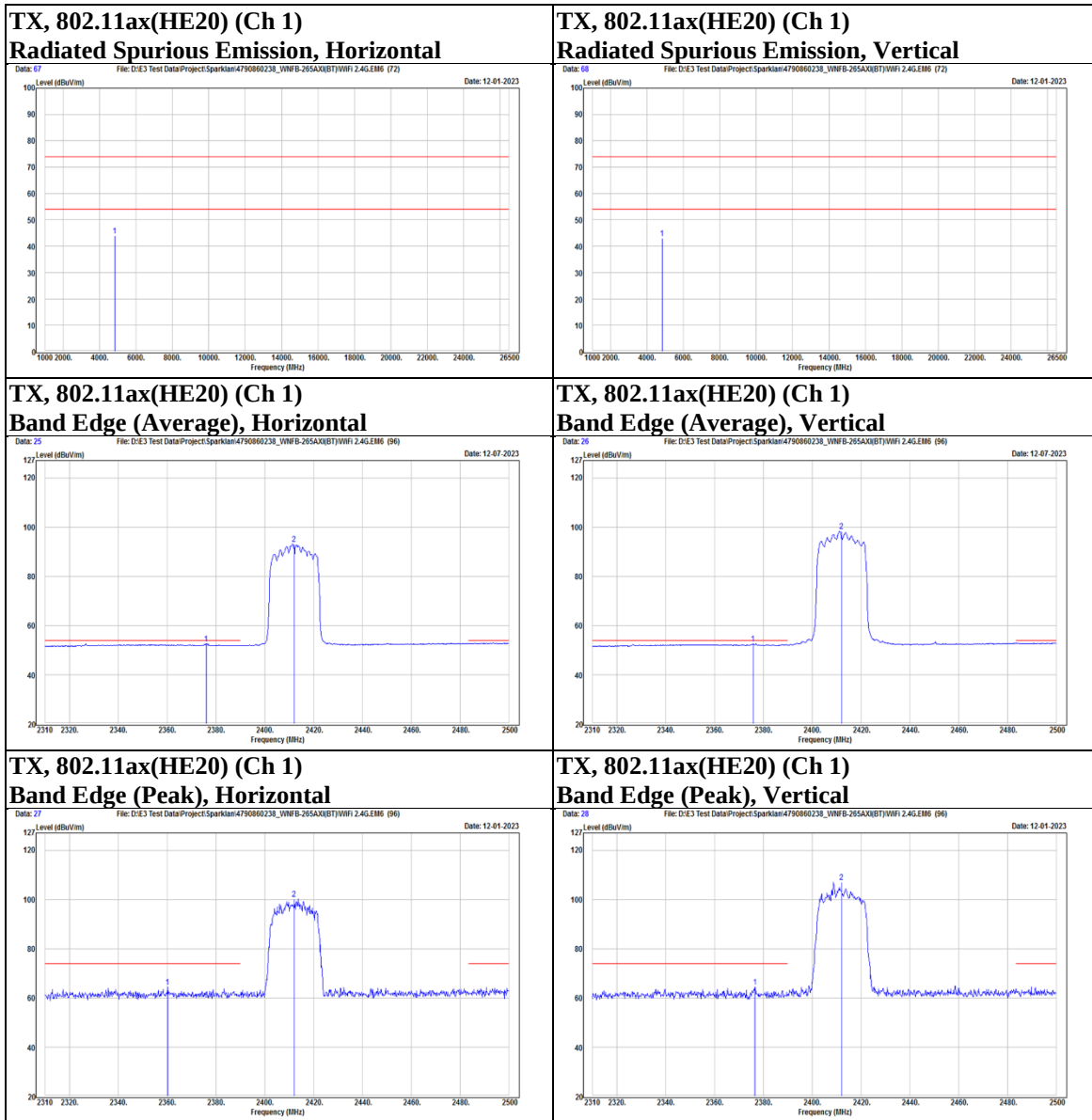
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Mode	802.11ax(HE20)	Channel	6
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Polarization	Notation	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
Horizontal		2348.19	41.65	23.36	65.01	74	-8.99	PK
		2376.31	29.57	23.15	52.72	54	-1.28	AVG
	@	2437	75.91	23.39	99.3	N/A	N/A	PK
	@	2437	67.26	23.39	90.65	N/A	N/A	AVG
		2490.5	29.05	23.84	52.89	54	-1.11	AVG
		2499.81	40.65	23.92	64.57	74	-9.43	PK
	*	4874	37.38	5.29	42.67	74	-31.33	PK
Vertical		2312.09	41.04	23	64.04	74	-9.96	PK
		2375.55	29.59	23.15	52.74	54	-1.26	AVG
	@	2437	79.59	23.39	102.98	N/A	N/A	PK
	@	2437	71.6	23.39	94.99	N/A	N/A	AVG
		2489.36	39.99	23.84	63.83	74	-10.17	PK
		2497.34	29	23.9	52.9	54	-1.1	AVG
	*	4874	36.51	5.29	41.8	74	-32.2	PK

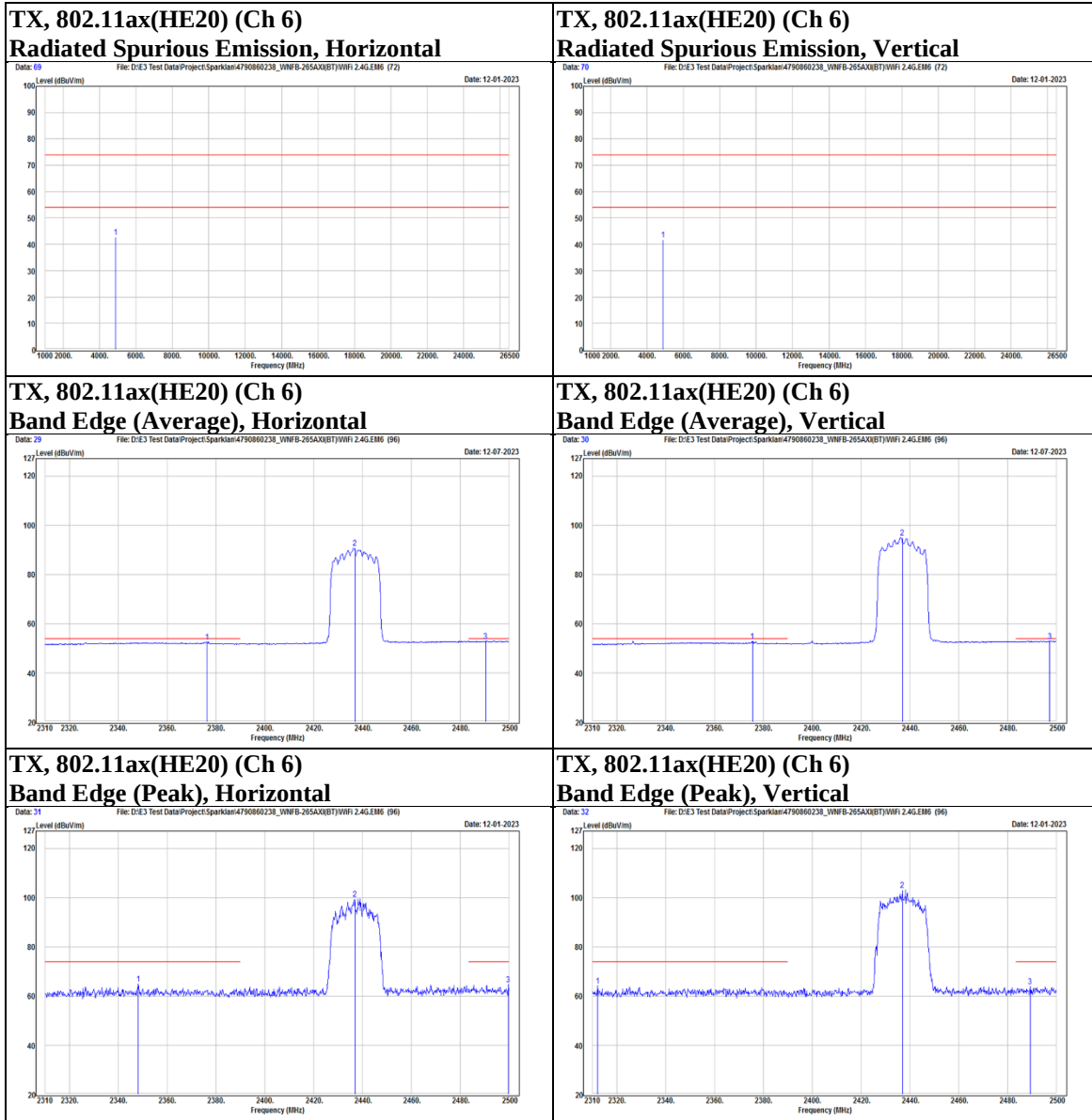
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Mode	802.11ax(HE20)	Channel	11
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Polarization	Notation	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
Horizontal	@	2462	74.92	23.63	98.55	N/A	N/A	PK
	@	2462	66.45	23.63	90.08	N/A	N/A	AVG
		2494.68	41.47	23.88	65.35	74	-8.65	PK
		2498.1	28.98	23.91	52.89	54	-1.11	AVG
	*	4924	36.07	5.4	41.47	74	-32.53	PK
Vertical	@	2462	75.64	23.63	99.27	N/A	N/A	PK
	@	2462	68.13	23.63	91.76	N/A	N/A	AVG
		2493.35	29.01	23.87	52.88	54	-1.12	AVG
		2494.68	39.9	23.88	63.78	74	-10.22	PK
	*	4924	36.59	5.4	41.99	74	-32.01	PK

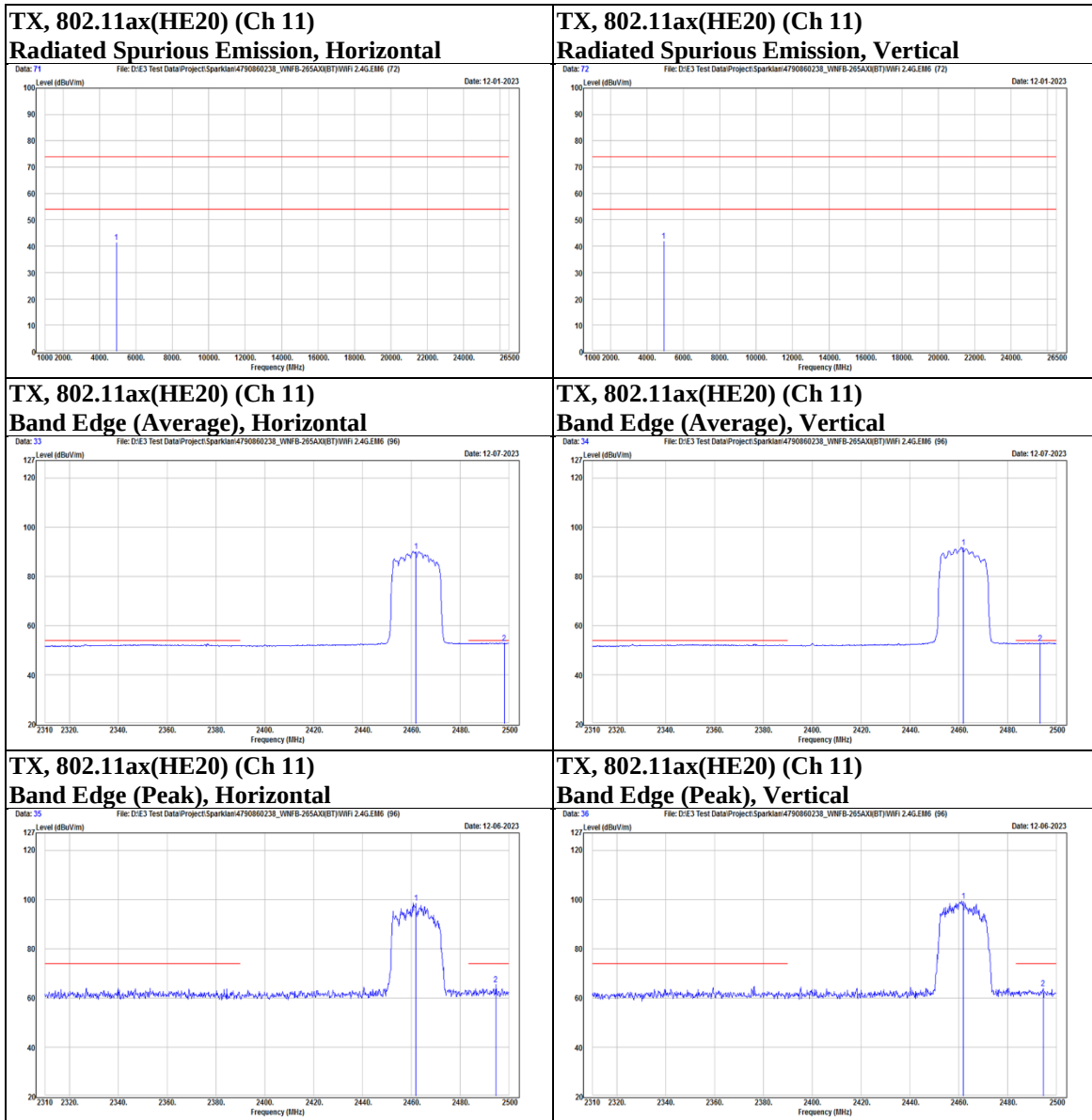
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OFDMA

Above 1 GHz

Mode	802.11ax(HE20)	Channel	1
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Polarization	Notation	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
Horizontal		2313.99	42.65	23.01	65.66	74	-8.34	PK
		2355.79	29.35	23.32	52.67	54	-1.33	AVG
	@	2412	76.34	23.1	99.44	N/A	N/A	PK
	@	2412	67.78	23.1	90.88	N/A	N/A	AVG
	*	4824	37.92	5.13	43.05	74	-30.95	PK
Vertical		2366.43	41.78	23.23	65.01	74	-8.99	PK
		2374.6	29.45	23.16	52.61	54	-1.39	AVG
	@	2412	82.11	23.1	105.21	N/A	N/A	PK
	@	2412	73.24	23.1	96.34	N/A	N/A	AVG
	*	4824	45.77	5.13	50.9	74	-23.1	PK

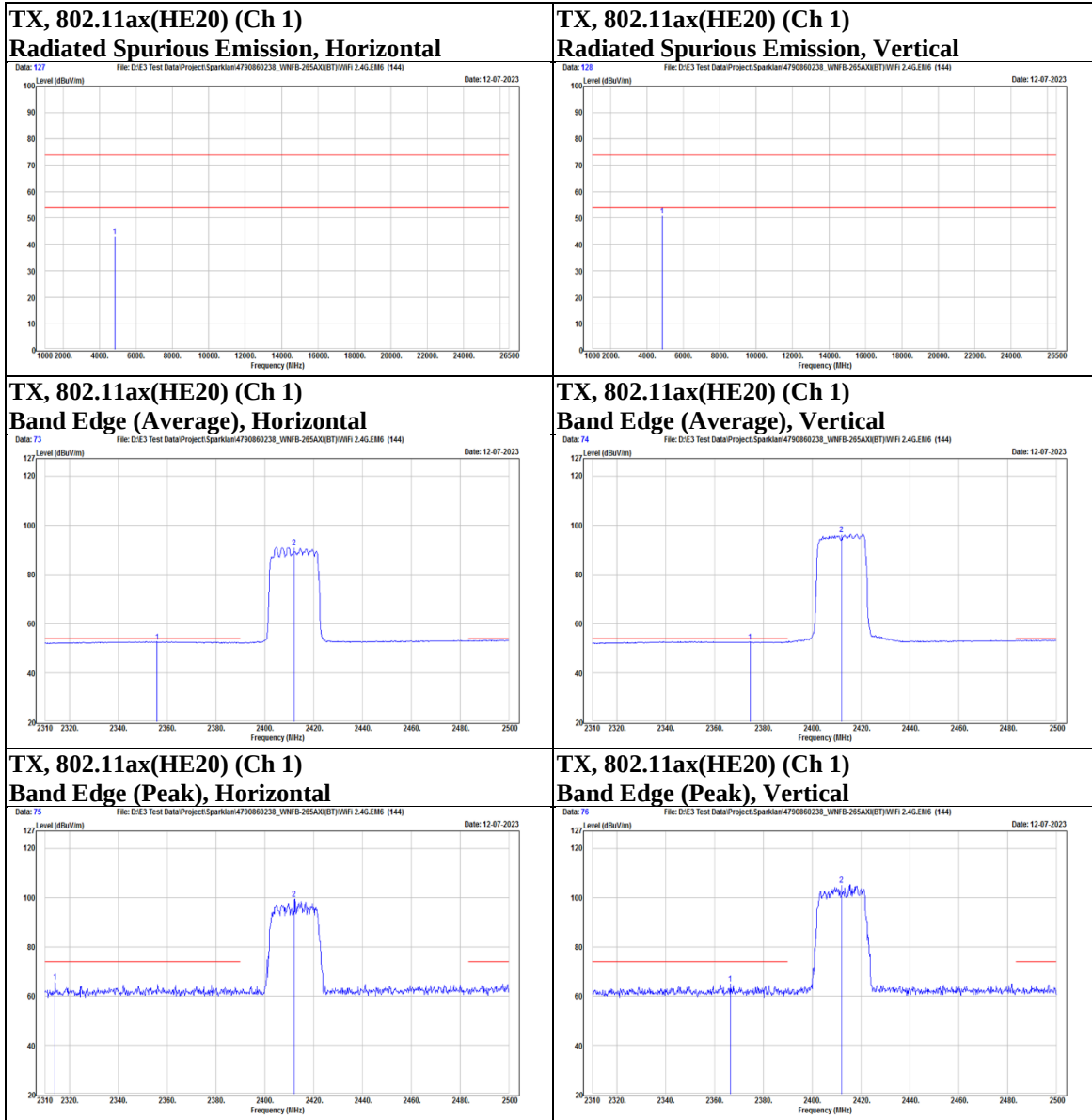
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Mode	802.11ax(HE20)	Channel	6
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Polarization	Notation	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
Horizontal		2348.38	29.24	23.36	52.6	54	-1.4	AVG
		2389.04	41.24	23.05	64.29	74	-9.71	PK
	@	2437	73.3	23.39	96.69	N/A	N/A	PK
	@	2437	65.08	23.39	88.47	N/A	N/A	AVG
		2484.99	40.85	23.8	64.65	74	-9.35	PK
		2495.06	29.34	23.88	53.22	54	-0.78	AVG
	*	4874	37.86	5.29	43.15	74	-30.85	PK
Vertical		2355.79	29.35	23.32	52.67	54	-1.33	AVG
		2360.73	41.41	23.28	64.69	74	-9.31	PK
	@	2437	79.93	23.39	103.32	N/A	N/A	PK
	@	2437	71.15	23.39	94.54	N/A	N/A	AVG
		2499.05	40.67	23.91	64.58	74	-9.42	PK
		2499.62	29.19	23.92	53.11	54	-0.89	AVG
	*	4874	36.98	5.29	42.27	74	-31.73	PK

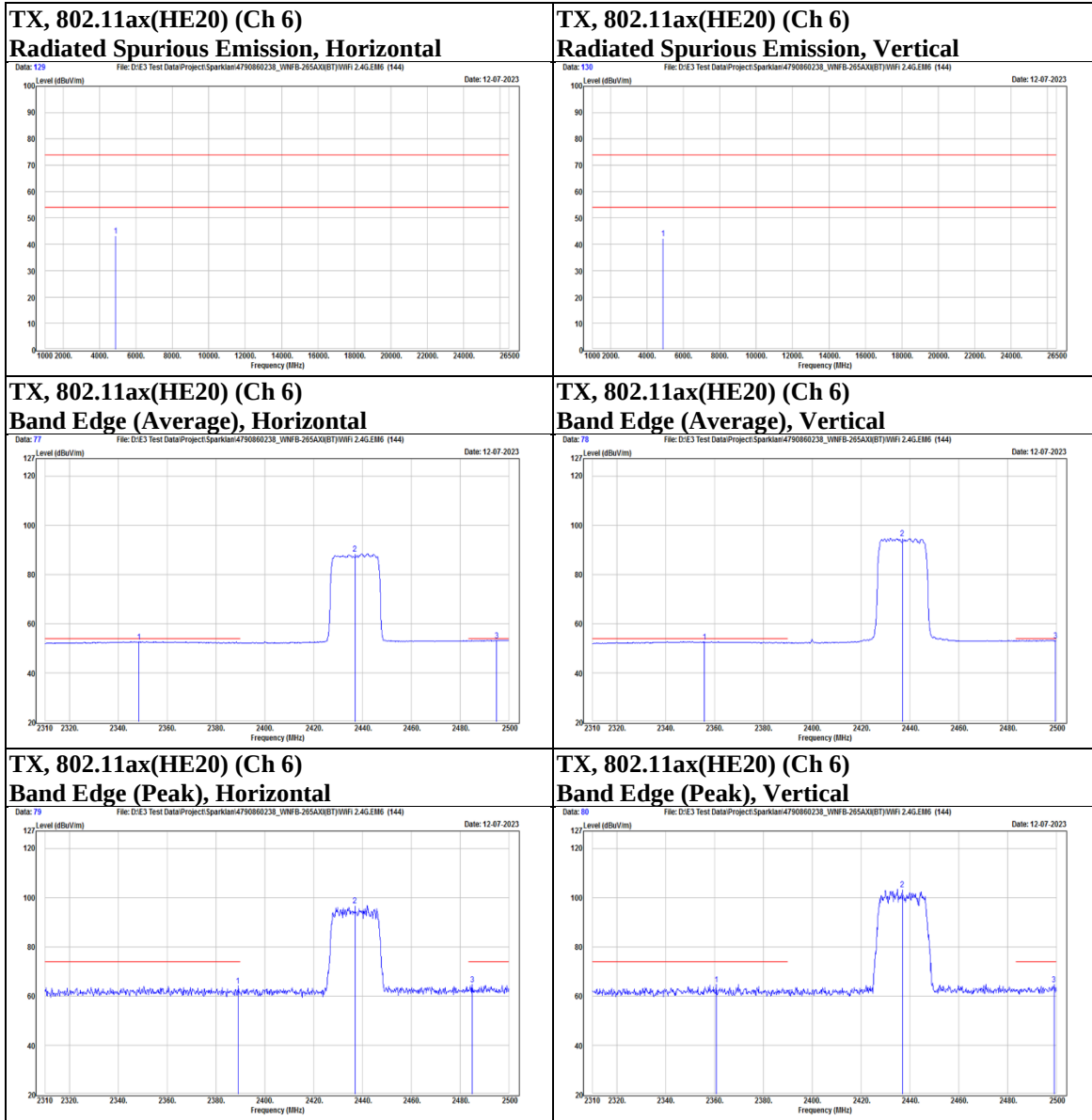
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Doc No: Form-ULID-004737 (DCS:17-EM-F0876) / 6.1



Mode	802.11ax(HE20)	Channel	11
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Polarization	Notation	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
Horizontal	@	2462	72.76	23.63	96.39	N/A	N/A	PK
	@	2462	64.15	23.63	87.78	N/A	N/A	AVG
		2484.99	29.4	23.8	53.2	54	-0.8	AVG
		2499.81	40.36	23.92	64.28	74	-9.72	PK
	*	4924	37.35	5.4	42.75	74	-31.25	PK
Vertical	@	2462	79.92	23.63	103.55	N/A	N/A	PK
	@	2462	70.44	23.63	94.07	N/A	N/A	AVG
		2484.61	29.41	23.8	53.21	54	-0.79	AVG
		2498.67	41.22	23.91	65.13	74	-8.87	PK
	*	4924	36.52	5.4	41.92	74	-32.08	PK

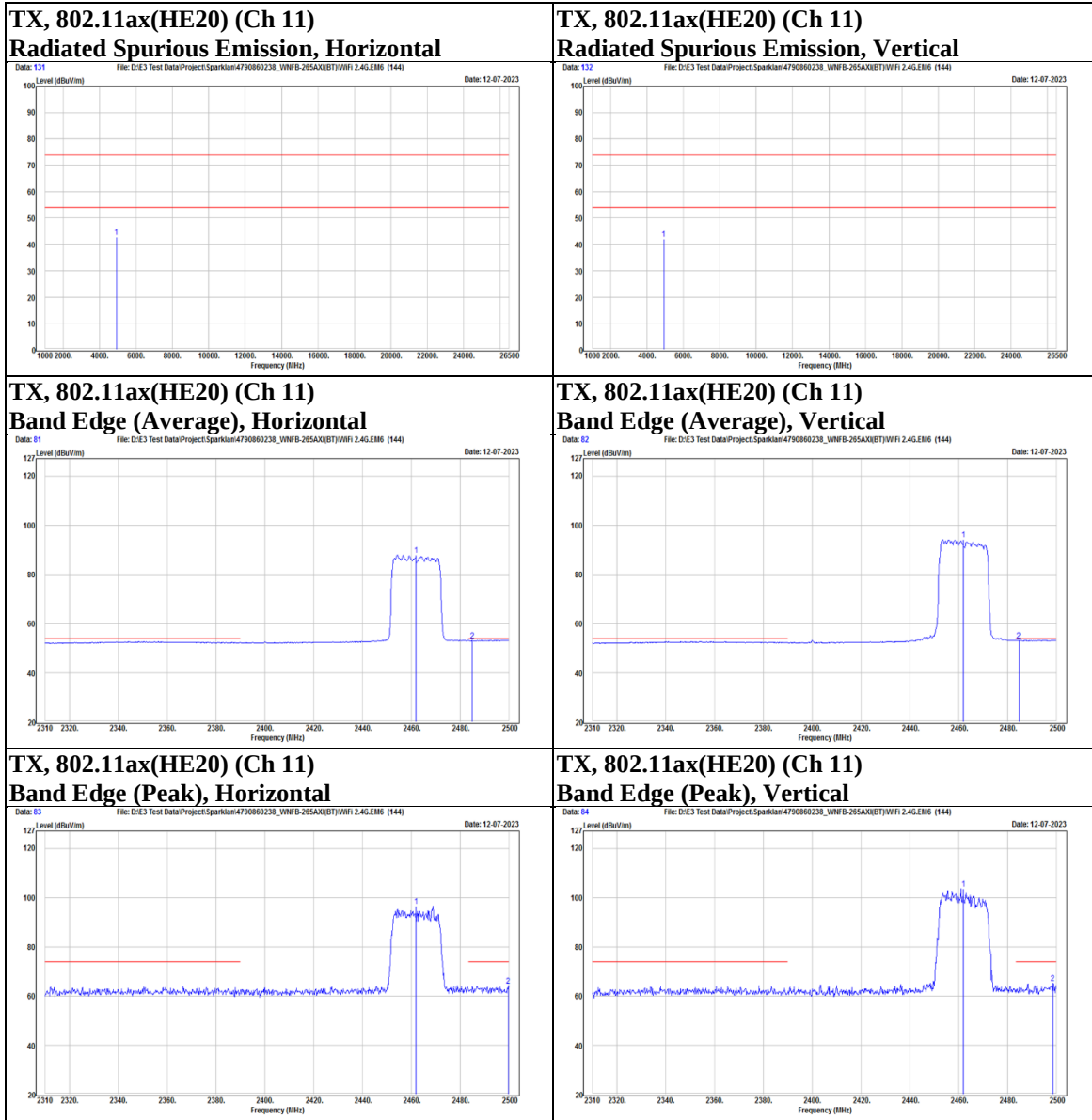
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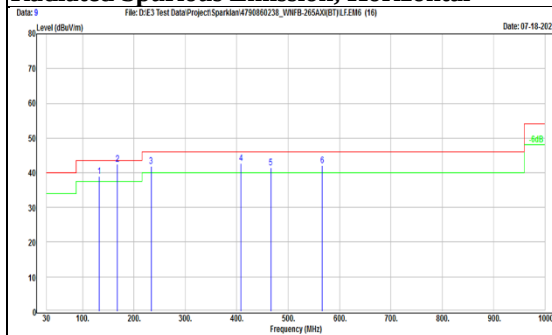
Below 1 GHz

Mode	802.11b	Channel	1
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Polarization	Notation	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
Horizontal		132.82	52.55	-13.55	39	43.5	-4.5	PK
		167.74	54.23	-11.85	42.38	43.5	-1.12	PK
		233.7	55.24	-13.37	41.87	46	-4.13	PK
		408.3	50.22	-7.63	42.59	46	-3.41	PK
		466.5	47.1	-5.65	41.45	46	-4.55	PK
		566.41	45.61	-3.61	42	46	-4	PK
Vertical		167.74	53.39	-11.85	41.54	43.5	-1.96	PK
		199.75	55.41	-14.81	40.6	43.5	-2.9	PK
		312.27	49.7	-10.24	39.46	46	-6.54	PK
		408.3	49.17	-7.63	41.54	46	-4.46	PK
		499.48	43.91	-5.16	38.75	46	-7.25	PK
		600.36	45.67	-2.38	43.29	46	-2.71	PK

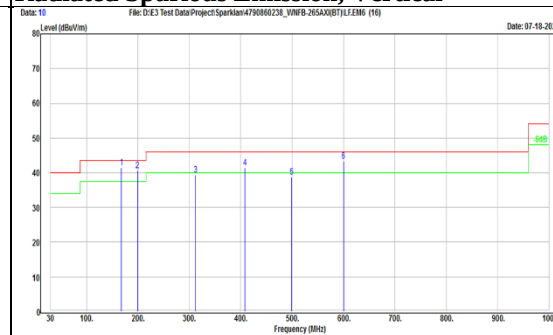
TX, 802.11b (Ch 1)

Radiated Spurious Emission, Horizontal



TX, 802.11b (Ch 1)

Radiated Spurious Emission, Vertical



9 kHz ~ 30 MHz Data:

For 9 kHz to 30 MHz radiated emission have performed all modes of operation were investigated. The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

No non-compliance noted:

KDB 414788 D01 OATS and Chamber Correlation Justification

- Base on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.

- OATs and chamber correlation testing had been performed and chamber measured test results is the worst case test result.

Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30m open area test site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788.

END OF REPORT**Underwriters Laboratories Taiwan Co., Ltd.**

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