



TEST REPORT

Applicant: Fujian Newland Auto-ID Tech. Co.,Ltd.

Address: Newland Science & Technology Park No.1 Rujiang West Rd.,
Mawei district, Fuzhou, Fujian, China

Product Name: WD5 Industrial Smartwatch

FCC ID: SL9NLS-WD5

47 CFR Part 15, Subpart E(15.407)

Standard(s): ANSI C63.10-2013
KDB 789033 D02 General U-NII Test Procedures New Rules
v02r01

Report Number: 2402Z39468E-RF-00D

Report Date: 2025/2/12

The above device has been tested and found compliant with the requirement of the relative standards by Bay Area Compliance Laboratories Corp. (Dongguan).

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
1.0	2402Z39468E-RF-00D	Original Report	2025/2/12

1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

EUT Name:	WD5 Industrial Smartwatch
EUT Model:	NLS-WD5
Multiple Model:	WD5, NLS-NW20, NW20
Operation Frequency:	5150-5250MHz: 5180-5240 MHz(802.11a/n ht20/ac vht20/ax he20) 5190-5230 MHz(802.11n ht40/ac vht40/ax he40) 5210 MHz(802.11ac vht80/ax he80) 5250-5350MHz: 5260-5320 MHz (802.11a/n ht20/ac vht20/ax he20) 5270-5310 MHz(802.11n ht40/ac vht40/ax he40) 5290 MHz(802.11ac vht80/ax he80) 5470-5725MHz: 5500-5720 MHz (802.11a/n ht20/ac vht20/ax he20) 5510-5710 MHz(802.11n ht40/ac vht40/ax he40) 5530-5690MHz(802.11ac vht80/ax he80) 5725-5850MHz: 5745-5825 MHz (802.11a/n ht20/ac vht20/ax he20) 5755-5795 MHz(802.11n ht40/ac vht40/ax he40) 5775 MHz(802.11ac vht80/ax he80)
Maximum Average Conducted Output Power:	18.51dBm(5150-5250MHz) 19.18dBm(5250-5350MHz) 14.81dBm(5470-5725MHz) 17.81dBm(5725-5850MHz)
Modulation Type:	802.11a/n/ac: OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM 802.11ax:OFDMA-QPSK, 16QAM, 64QAM, 256QAM, 1024QAM
Rated Input Voltage:	DC 3.85V from battery or DC 5V from Base
Serial Number:	2UA3-1(Radiated Spurious Emission and AC Line Conducted Emission) 2OQU-1(RF Conducted)
EUT Received Date:	2024/11/12
EUT Received Status:	Good

Note: The multiple models are electrically identical with the test model. Please refer to the declaration letter for more detail, which was provided by manufacturer.

1.2 Accessory Information

Accessory Description	Manufacturer	Model	Parameters
/	/	/	/

1.3 Antenna Information Detail ▲

Antenna Manufacturer	Antenna Type	input impedance (Ohm)	Frequency Range	Antenna Gain	
				Chain 0	Chain 1
Fujian Newland Auto-ID Tech Co., Ltd.	FPC	50	5.15~5.25GHz	-0.85 dBi	-1.39 dBi
			5.25~5.35 GHz	-0.65 dBi	0.26 dBi
			5.47~5.725 GHz	-0.63 dBi	0.99 dBi
			5.725~5.85 GHz	-0.77 dBi	0.09 dBi

Note:
The system supports 2T2R at 802.11n/ac/ax modes.
Per KDB 662911 D01 Multiple Transmitter Output v02r01:

For power measurements:
CDD Mode:
Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$
directional gain=-0.85dBi for 5150-5250MHz
directional gain=0.26dBi for 5250-5350MHz
directional gain=0.99dBi for 5470-5725MHz
directional gain=0.09dBi for 5725-5850MHz

For power spectral density (PSD) measurements:
Array Gain = $10 \log(N_{ANT}/N_{SS})$ dB.
directional gain=-0.85dBi+3dB=2.15dBi for 5150-5250MHz
directional gain=0.26dBi+3dB=3.26dBi for 5250-5350MHz
directional gain=0.99dBi+3dB=3.99dBi for 5470-5725MHz
directional gain=0.09dBi+3dB=3.09dBi for 5725-5850MHz

The design of compliance with §15.203:

- Unit uses a permanently attached antenna.
- Unit uses a unique coupling to the intentional radiator.
- Unit was professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

1.4 Equipment Modifications

No modifications are made to the EUT during all test items.

2. SUMMARY OF TEST RESULTS

Standard(s) Section	Test Items	Result
§15.207(a)	AC line conducted emissions	Compliant
FCC§15.205& §15.209 &§15.407(b)	Radiated Spurious Emissions	Compliant
FCC§15.407(a) (e)	Emission Bandwidth	Compliant
FCC§15.407(a)	Maximum Conducted Output Power	Compliant
FCC§15.407 (a)	Power Spectral Density	Compliant
§15.203	Antenna Requirement	Compliant

Note 1: For AC line conducted emissions, the maximum output power channel was tested.
Note 2: For Radiated Spurious Emissions 9kHz~ 1GHz and 18~40GHz, the maximum output power channel was tested.

3. DESCRIPTION OF TEST CONFIGURATION

3.1 Operation Frequency Detail

For 802.11a/n ht20/ac vht20/ax he20:

5150-5250MHz Band		5250-5350 MHz Band		5470-5725 MHz Band		5725-5850MHz Band	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	52	5260	100	5500	149	5745
40	5200	56	5280	104	5520	153	5765
44	5220	60	5300	108	5540	157	5785
48	5240	64	5320	112	5560	161	5805
/	/	/	/	116	5580	165	5825
/	/	/	/	120	5600	/	/
/	/	/	/	124	5620	/	/
/	/	/	/	128	5640	/	/
/	/	/	/	132	5660	/	/
/	/	/	/	136	5680	/	/
/	/	/	/	140	5700	/	/
/	/	/	/	144*	5720	/	/

For 802.11n ht40/ac vht20/ax he40:

5150-5250MHz		5250-5350 MHz		5470-5725 MHz		5725-5850MHz	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
38	5190	54	5270	102	5510	151	5755
46	5230	62	5310	110	5550	159	5795
/	/	/	/	118	5590	/	/
/	/	/	/	126	5630	/	/
/	/	/	/	134	5670	/	/
/	/	/	/	142*	5710	/	/

For 802.11ac vht80/ax he80:

5150-5250MHz		5250-5350 MHz		5470-5725 MHz		5725-5850MHz	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
42	5210	58	5290	106	5530	155	5775
/	/	/	/	122	5610	/	/
/	/	/	/	138*	5690	/	/

Note:

*:Additional channels cross the band 5470-5725MHz and 5725-5850 MHz, Conducted output power/ Power Spectral Density/bandwidth test with the additional channel to compliance with stricter limit of the two bands(5470-5725MHz more stricter).

3.2 EUT Operation Condition

The system was configured for testing in Engineering Mode, which was provided by the manufacturer.

The EUT configuration is below:

EUT Exercise Software: engineering mode					
5150-5250 MHz Band:					
Test Modes	Test Channels	Test Frequency	Data rate	Power Level Setting	
				Chain 0	Chain 1
802.11a	Lowest	5180	6Mbps	16	16
	Middle	5200	6Mbps	16	16
	Highest	5240	6Mbps	16	16
802.11n ht20	Lowest	5260	MCS0	16	16
	Middle	5280	MCS0	16	16
	Highest	5320	MCS0	16	16
802.11n ht40	Lowest	5270	MCS0	12	12
	Highest	5310	MCS0	12	12
802.11ac vht80	Middle	5290	MCS0	10	10
802.11ax he20	Lowest	5180	MCS0	16	16
	Middle	5200	MCS0	16	16
	Highest	5240	MCS0	16	16
802.11ax he40	Lowest	5190	MCS0	12	12
	Highest	5230	MCS0	12	12
802.11ax he80	Middle	5210	MCS0	10	10
5250-5350 MHz Band:					
Test Modes	Test Channels	Test Frequency	Data rate	Power Level Setting	
				Chain 0	Chain 1
802.11a	Lowest	5260	6Mbps	16	16
	Middle	5280	6Mbps	16	16
	Highest	5320	6Mbps	16	16
802.11n ht20	Lowest	5260	MCS0	16	16
	Middle	5280	MCS0	16	16
	Highest	5320	MCS0	16	16
802.11n ht40	Lowest	5270	MCS0	12	12
	Highest	5310	MCS0	12	12
802.11ac vht80	Middle	5290	MCS0	13	13
802.11ax he20	Lowest	5180	MCS0	17	17
	Middle	5200	MCS0	17	17
	Highest	5240	MCS0	17	17
802.11ax he40	Lowest	5190	MCS0	12	12
	Highest	5230	MCS0	12	12
802.11ax he80	Middle	5210	MCS0	13	13

5470-5725 MHz Band:

Test Modes	Test Channels	Test Frequency	Data rate	Power Level Setting	
				Chain 0	Chain 1
802.11a	Lowest	5500	6Mbps	16	16
	Middle	5580	6Mbps	16	16
	Highest	5700	6Mbps	16	16
	Cross	5720	6Mbps	16	16
802.11n ht20	Lowest	5500	MCS0	13	13
	Middle	5580	MCS0	13	13
	Highest	5700	MCS0	13	13
	Cross	5720	MCS0	13	13
802.11n ht40	Lowest	5510	MCS0	10	10
	Middle	5550	MCS0	10	10
	Highest	5670	MCS0	10	10
	Cross	5710	MCS0	10	10
802.11ac vht80	Lowest	5530	MCS0	11	11
	Highest	5610	MCS0	11	11
	Cross	5690	MCS0	11	11
802.11ax he20	Lowest	5500	MCS0	14	14
	Middle	5580	MCS0	14	14
	Highest	5700	MCS0	14	14
	Cross	5720	MCS0	14	14
802.11ax he40	Lowest	5510	MCS0	10	10
	Middle	5550	MCS0	10	10
	Highest	5670	MCS0	10	10
	Cross	5710	MCS0	10	10
802.11ax he80	Lowest	5530	MCS0	11	11
	Highest	5610	MCS0	11	11
	Cross	5690	MCS0	11	11

5725-5850 MHz Band:

Test Modes	Test Channels	Test Frequency	Data rate	Power Level Setting	
				Chain 0	Chain 1
802.11a	Lowest	5745	6Mbps	17	17
	Middle	5785	6Mbps	17	17
	Highest	5825	6Mbps	17	17
802.11n ht20	Lowest	5745	MCS0	17	17
	Middle	5785	MCS0	17	17
	Highest	5825	MCS0	17	17
802.11n ht40	Lowest	5755	MCS0	17	17
	Highest	5795	MCS0	17	17
802.11ac vht80	Middle	5775	MCS0	17	17
802.11ax he20	Lowest	5745	MCS0	17	17
	Middle	5785	MCS0	17	17
	Highest	5825	MCS0	17	17
802.11ax he40	Lowest	5755	MCS0	17	17
	Highest	5795	MCS0	17	17
802.11ax he80	Middle	5775	MCS0	17	17

Note:

1. The system support 802.11a/n ht20/n ht40/ac vht20/vht40/vht80/ax he20/ax he40/ax he80, the vht20/vht40 were reduced since the identical parameters with 802.11n ht20 and ht40.
2. The above are the worst-case data rates, which are determined for each mode based upon investigations by measuring the average power and PSD across all data rates, bandwidths, and modulations.
3. The device supports SISO in all modes, and MIMO 2Tx in 802.11n/ac/ax modes, per pretest, 2Tx mode was the worst mode and reported for 802.11n/ac/ax modes.
4. For 802.11ax mode, the device not support partial RU mode.

3.3 Support Equipment List and Details

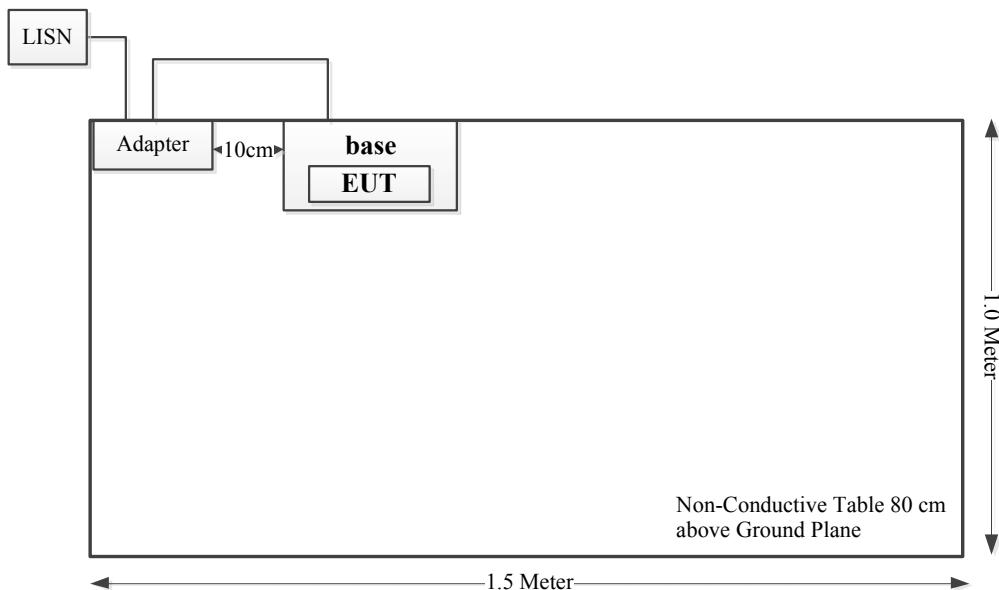
Manufacturer	Description	Model	Serial Number
xiamen kell Electronics Co.,Ltd	Adapter	KL-WD050200U	Unknown

3.4 Support Cable List and Details

Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
USB Cable	no	no	1.0	Adapter	Base

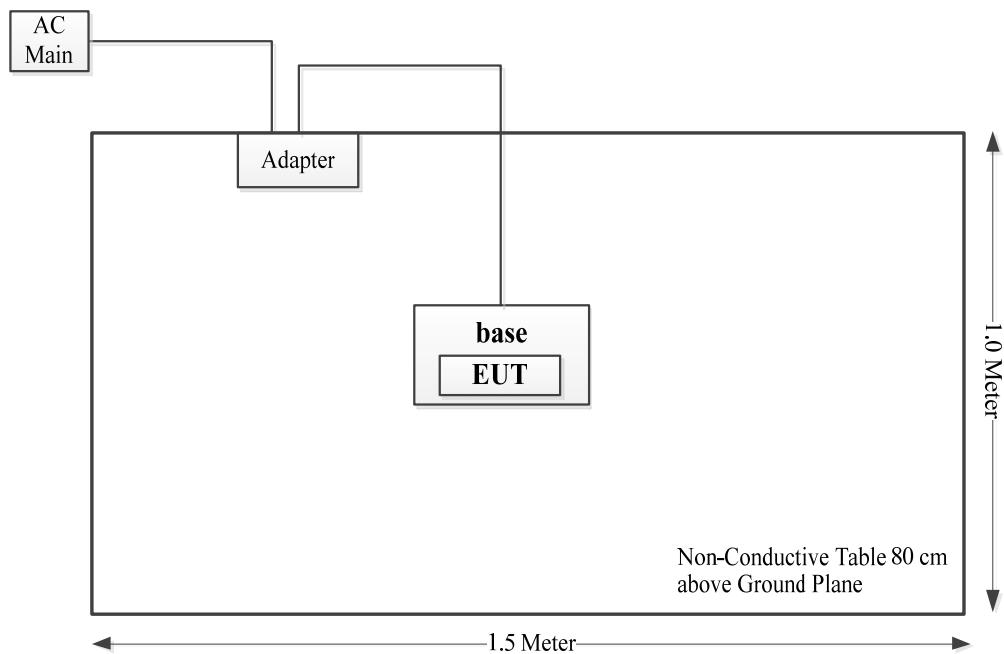
3.5 Block Diagram of Test Setup

AC line conducted emissions:

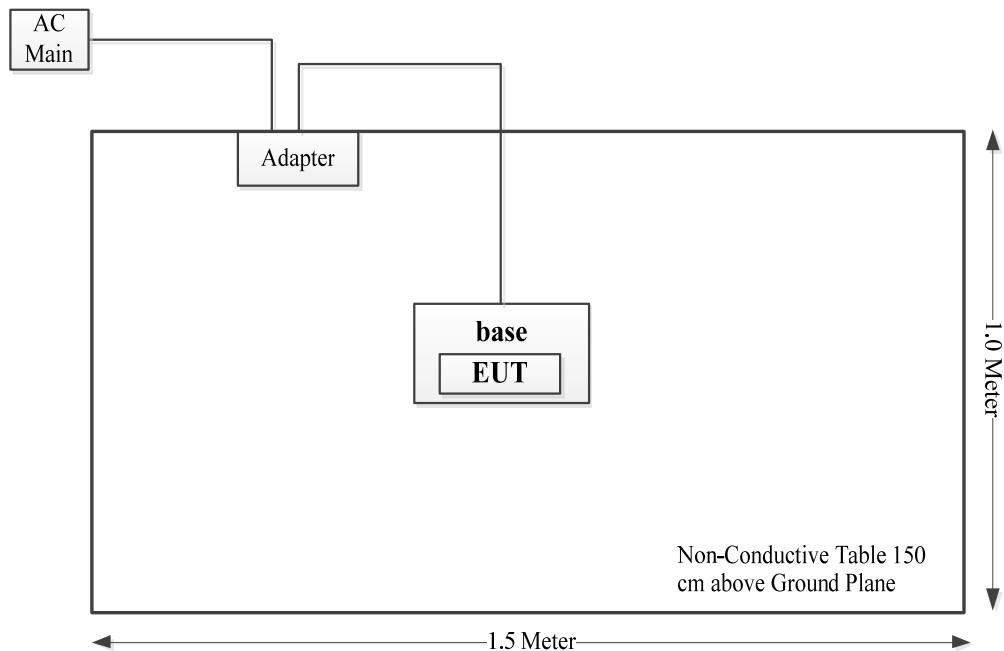


Spurious Emissions:

Below 1GHz:



Above 1GHz:



3.6 Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.12, Pulong East 1st Road, Tangxia Town, Dongguan, Guangdong, China.

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. : 829273, the FCC Designation No. : CN5044.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0022.

3.7 Measurement Uncertainty

Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.

Parameter	Measurement Uncertainty
Occupied Channel Bandwidth	±5 %
RF output power, conducted	±0.61dB
Power Spectral Density, conducted	±0.61 dB
Unwanted Emissions, radiated	9kHz~30MHz: 3.3dB, 30MHz~200MHz: 4.55 dB, 200MHz~1GHz: 5.92 dB, 1GHz~6GHz: 4.98 dB, 6GHz~18GHz: 5.89 dB, 18GHz~26.5GHz: 5.47 dB, 26.5GHz~40GHz: 5.63 dB
Unwanted Emissions, conducted	±2.47 dB
Temperature	±1°C
Humidity	±5%
DC and low frequency voltages	±0.4%
Duty Cycle	1%
AC Power Lines Conducted Emission	3.11 dB (150 kHz to 30 MHz)

4. REQUIREMENTS AND TEST PROCEDURES

4.1 AC Line Conducted Emissions

4.1.1 Applicable Standard

FCC§15.207(a).

(a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator 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, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

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.

(b) The limit shown in paragraph (a) of this section shall not apply to carrier current systems operating as intentional radiators on frequencies below 30 MHz. In lieu thereof, these carrier current systems shall be subject to the following standards:

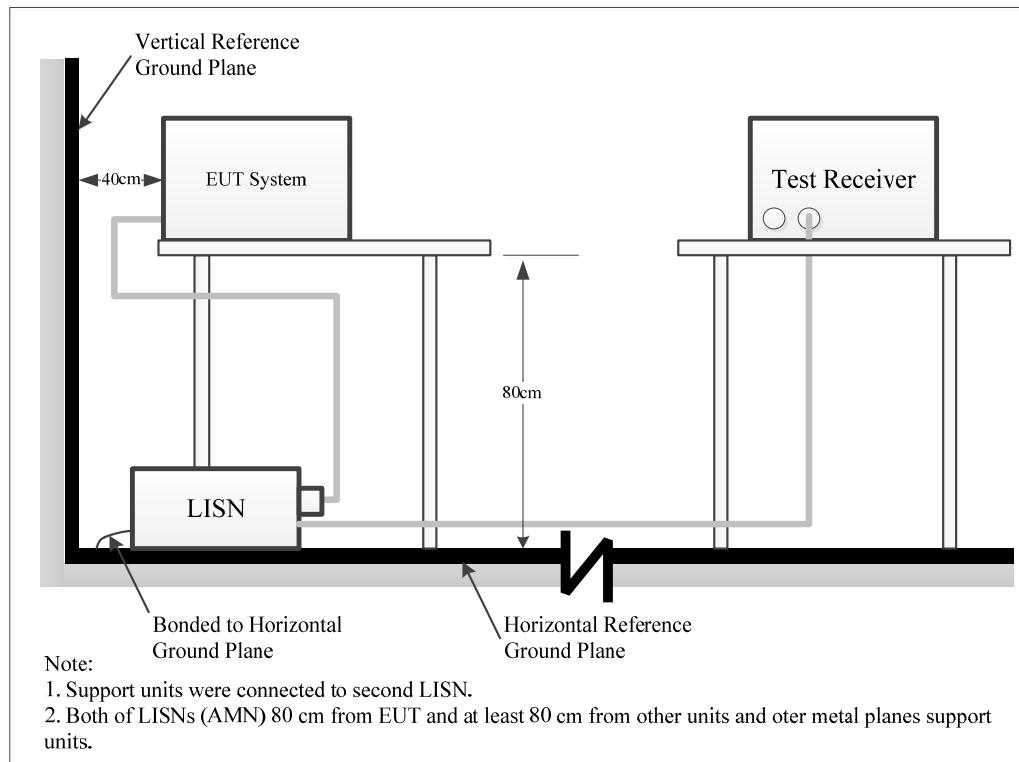
(1) For carrier current system containing their fundamental emission within the frequency band 535-1705 kHz and intended to be received using a standard AM broadcast receiver: no limit on conducted emissions.

(2) For all other carrier current systems: 1000 μ V within the frequency band 535-1705 kHz, as measured using a 50 μ H/50 ohms LISN.

(3) Carrier current systems operating below 30 MHz are also subject to the radiated emission limits in §15.205, §15.209, §15.221, §15.223, or §15.227, as appropriate.

(c) Measurements to demonstrate compliance with the conducted limits are not required for devices which only employ battery power for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines. Devices that include, or make provisions for, the use of battery chargers which permit operating while charging, AC adapters or battery eliminators or that connect to the AC power lines indirectly, obtaining their power through another device which is connected to the AC power lines, shall be tested to demonstrate compliance with the conducted limits.

4.1.2 EUT Setup



The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 limits.

The spacing between the peripherals was 10 cm.

The adapter or EUT was connected to the main LISN with a 120 V/60 Hz AC power source.

4.1.3 EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

4.1.4 Test Procedure

The frequency and amplitude of the six highest ac power-line conducted emissions relative to the limit, measured over all the current-carrying conductors of the EUT power cords, and the operating frequency or frequency to which the EUT is tuned (if appropriate), should be reported, unless such emissions are more than 20 dB below the limit. AC power-line conducted emissions measurements are to be separately carried out only on each of the phase ("hot") line(s) and (if used) on the neutral line(s), but not on the ground [protective earth] line(s). If less than six emission frequencies are within 20 dB of the limit, then the noise level of the measuring instrument at representative frequencies should be reported. The specific conductor of the power-line cord for each of the reported emissions should be identified. Measure the six highest emissions with respect to the limit on each current-carrying conductor of each power cord associated with the EUT (but not the power cords of associated or peripheral equipment that are part of the test configuration). Then, report the six highest emissions with respect to the limit from among all the measurements identifying the frequency and specific current-carrying conductor identified with the emission. The six highest emissions should be reported for each of the current-carrying conductors, or the six highest emissions may be reported over all the current-carrying conductors.

4.1.5 Corrected Amplitude & Margin Calculation

The basic equation is as follows:

Result = Reading + Factor

Factor = attenuation caused by cable loss + voltage division factor of AMN

The "Margin" column of the following data tables indicates the degree of compliance within the applicable limit. The equation for margin calculation is as follows:

Margin = Limit – Result

4.1.6 Test Result

Please refer to section 5.1.

4.2 Radiation Spurious Emissions

4.2.1 Applicable Standard

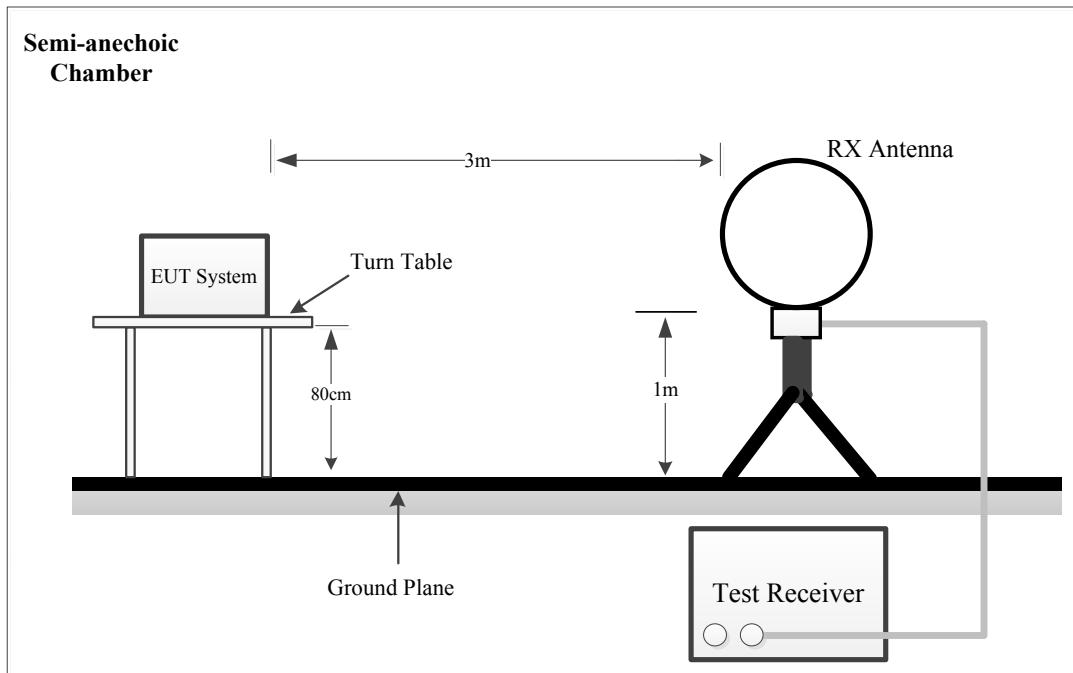
FCC §15.407 (b);

Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

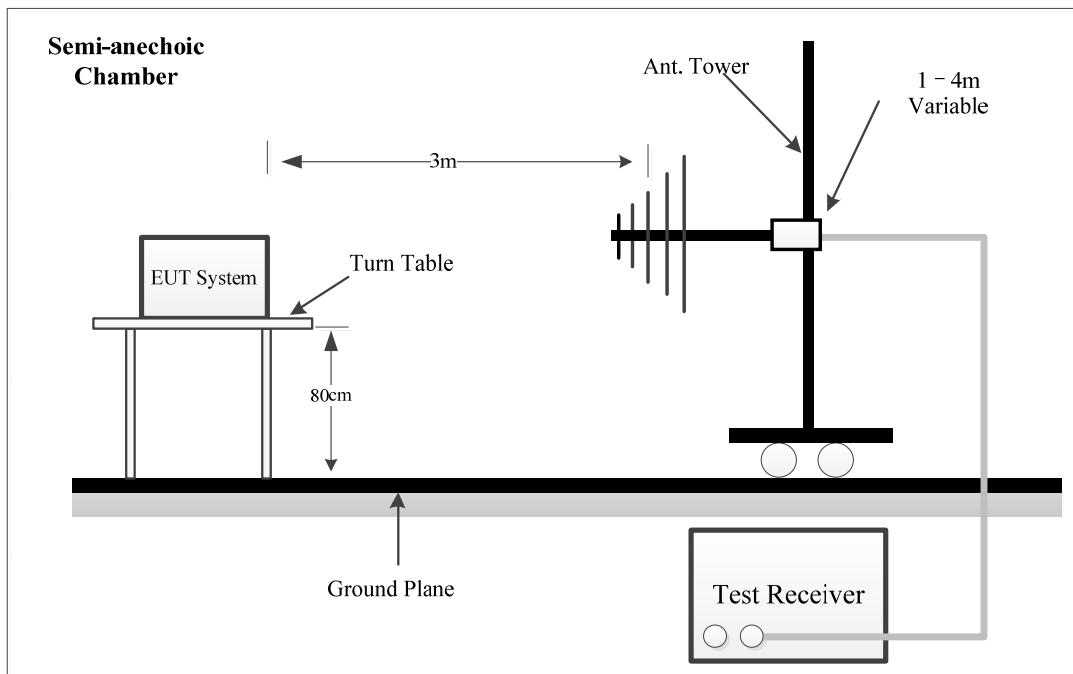
- (1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (4) For transmitters operating solely in the 5.725-5.850 GHz band:
 - (i) All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.
 - (ii) Devices certified before March 2, 2017 with antenna gain greater than 10 dBi may demonstrate compliance with the emission limits in § 15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease by March 2, 2018. Devices certified before March 2, 2018 with antenna gain of 10 dBi or less may demonstrate compliance with the emission limits in § 15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease before March 2, 2020.
- (8) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.
- (9) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in § 15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in § 15.207.
- (10) The provisions of § 15.205 apply to intentional radiators operating under this section.
- (11) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency band edges as the design of the equipment permits.
- (c) The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signalling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization a description of how this requirement is met.

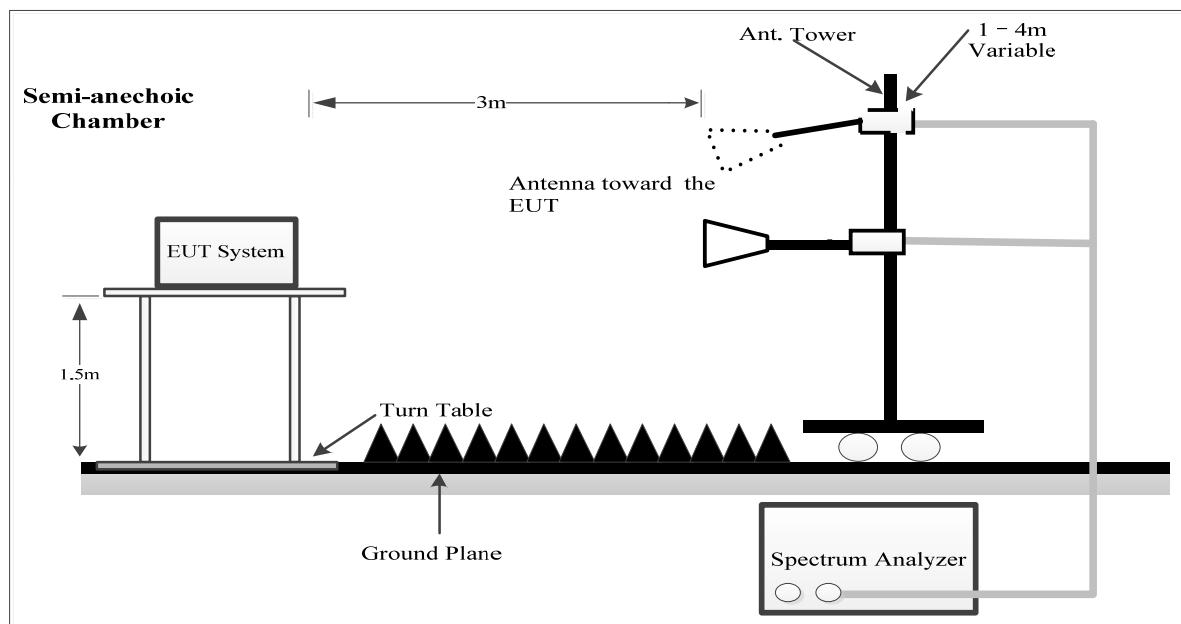
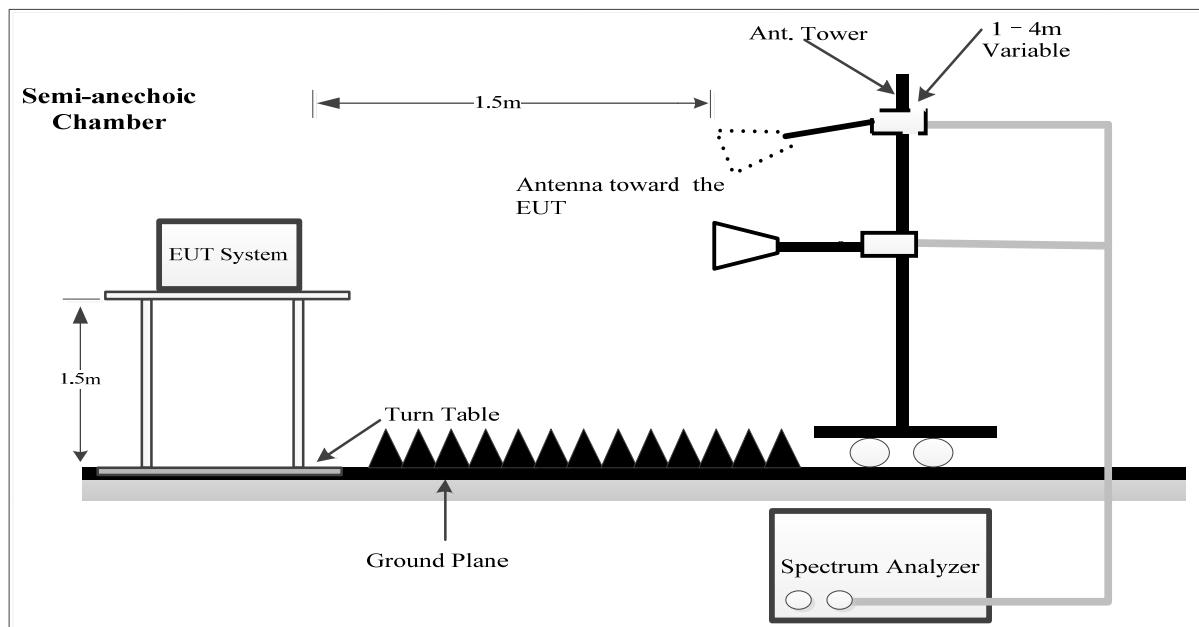
4.2.2 EUT Setup

9kHz~30MHz:



30MHz~1GHz:



1-26.5GHz:**26.5-40GHz:**

The radiated emission tests were performed in the semi-anechoic chamber, using the setup accordance with the ANSI C63.10-2013. The specification used was FCC 15.209, FCC 15.407 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

For 9kHz-30MHz test, the lowest height of the magnetic antenna shall be 1 m above the ground and three antenna orientations (parallel, perpendicular, and ground-parallel) shall be measured.

4.2.3 EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 9 kHz to 40 GHz.

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

9kHz-1000MHz:

Frequency Range	Measurement	RBW	Video B/W	IF B/W	Detector
9 kHz – 150 kHz	QP/AV	300Hz	1 kHz	200 Hz	QP/AV
150 kHz – 30 MHz	QP/AV	10 kHz	30 kHz	9 kHz	QP/AV
30MHz – 1000 MHz	PK	100 kHz	300 kHz	/	PK
	QP	/	/	120kHz	QP

1GHz- 40GHz:

Pre-scan:

Measurement	Detector	Duty cycle	RBW	Video B/W
PK	Peak	Any	1MHz	3 MHz
Ave.	Peak	>98%	1MHz	5kHz
		<98%	1MHz	≥1/T, not less than 5kHz

Final measurement for emission identified during the pre-scan:

Measurement	Detector	Duty cycle	RBW	Video B/W
PK	Peak	Any	1MHz	3 MHz
Ave.	Peak	>98%	1MHz	10 Hz
		<98%	1MHz	≥1/T

Note: T is minimum transmission duration

4.2.4 Test Procedure

Data was recorded in Quasi-peak detection mode for frequency range of 9 kHz -1 GHz, except 9-90 kHz, 110-490 kHz, employing an average detector, peak and Average detection modes for frequencies above 1 GHz.

If the maximized peak measured value is under the QP/Average limit by more than 6dB, then it is unnecessary to perform an QP/Average measurement.

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01, emission shall be computed as: $E [\text{dB}\mu\text{V}/\text{m}] = \text{EIRP}[\text{dBm}] + 95.2$, for d = 3 meters.

For Radiated 26.5-40GHz test, which was performed at 1.5 m distance, according to C63.10, the test result shall be extrapolated to the specified distance using an extrapolation Factor of 20dB/decade from 3m to 1.5m

Distance extrapolation Factor = $20 \log (\text{specific distance [3m]}/\text{test distance [1.5m]})$ dB = 6.0 dB

4.2.5 Corrected Result & Margin Calculation

The basic equation except 26.5-40GHz test is as follows:

Factor = Antenna Factor + Cable Loss- Amplifier Gain

For Radiated 26.5-40GHz test:

Factor = Antenna Factor + Cable Loss- Distance extrapolation Factor

Result = Reading + Factor

The “**Margin**” column of the following data tables indicates the degree of compliance within the applicable limit. The equation for margin calculation is as follows:

Margin = Limit – Result

4.2.6 Test Result

Please refer to section 5.2.

4.3 Emission Bandwidth

4.3.1 Applicable Standard

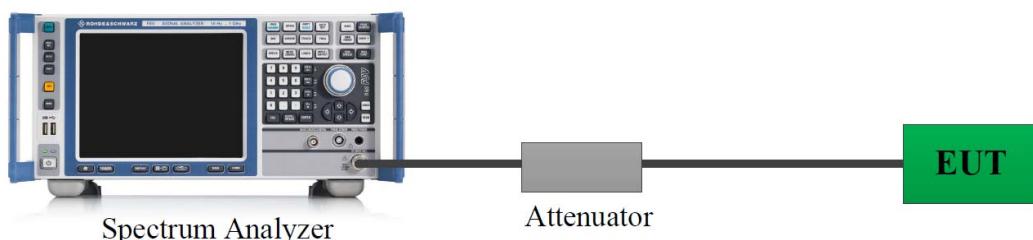
FCC §15.407 (a),(h)

(h)(2) Radar Detection Function of Dynamic Frequency Selection (DFS). U-NII devices operating with any part of its 26 dB emission bandwidth in the 5.25-5.35 GHz and 5.47-5.725 GHz bands shall employ a DFS radar detection mechanism to detect the presence of radar systems and to avoid co-channel operation with radar systems.

FCC §15.407 (e)

Within the 5.725-5.850 GHz and 5.850-5.895 GHz bands, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

4.3.2 EUT Setup



A short RF cable with low cable loss connected to the EUT antenna port, which was provided by manufacturer. The insert loss of this RF cable/attenuator was offset into the setting of test equipment.

4.3.3 Test Procedure

26dB Emission Bandwidth:

According to ANSI C63.10-2013 Section 12.4.1

- a) Set RBW = approximately 1% of the emission bandwidth.
- b) Set the VBW > RBW.
- c) Detector = peak.
- d) Trace mode = max hold
- e) Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the instrument. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

6 dB emission bandwidth:

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01

- a) Set RBW = 100 kHz.
- b) Set the video bandwidth (VBW) ≥ 3 RBW.
- c) Detector = Peak.
- d) Trace mode = max hold.
- e) Sweep = auto couple.
- f) Allow the trace to stabilize.

g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Note: The automatic bandwidth measurement capability of a spectrum analyzer or EMI receiver may be employed if it implements the functionality described in this section. For devices that use channel aggregation refer to III.A and III.C for determining emission bandwidth.

99% Occupied Bandwidth:

According to ANSI C63.10-2013 Section 12.4.2&6.9.3

The occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission. The following procedure shall be used for measuring 99% power bandwidth:

- a) The instrument center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be between 1.5 times and 5.0 times the OBW.
- b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW, and VBW shall be approximately three times the RBW, unless otherwise specified by the applicable requirement.
- c) Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than $[10 \log (\text{OBW}/\text{RBW})]$ below the reference level. Specific guidance is given in 4.1.5.2.
- d) Step a) through step c) might require iteration to adjust within the specified range.
- e) Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
- f) Use the 99% power bandwidth function of the instrument (if available) and report the measured bandwidth.
- g) If the instrument does not have a 99% power bandwidth function, then the trace data points are recovered and directly summed in linear power terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5% of the total is reached; that frequency is recorded as the upper frequency. The 99% power bandwidth is the difference between these two frequencies.
- h) The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

4.3.4 Test Result

Please refer to section 5.3 and section 5.4.

4.4 Maximum Conducted Output Power

4.4.1 Applicable Standard

FCC §15.407(a) (1)(iv)

For client devices in the 5.15 – 5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

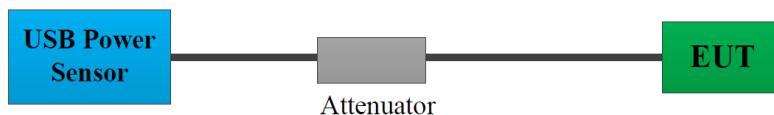
FCC §15.407(a) (2)

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

FCC §15.407(a) (3)(i)

For the band 5.725-5.850 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

4.4.2 EUT Setup



A short RF cable with low cable loss connected to the EUT antenna port, which was provided by manufacturer. The insert loss of this RF cable/attenuator was offset into the setting of test equipment.

4.4.3 Test Procedure

According to ANSI C63.10-2013 Section 12.3.3.1

Method PM-G is measurement using a gated RF average power meter.

Measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Because the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

4.4.4 Test Result

Please refer to section 5.5.

4.5 Maximum Power Spectral Density

4.5.1 Applicable Standard

FCC §15.407(a) (1)(iv)

For client devices in the 5.15 – 5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

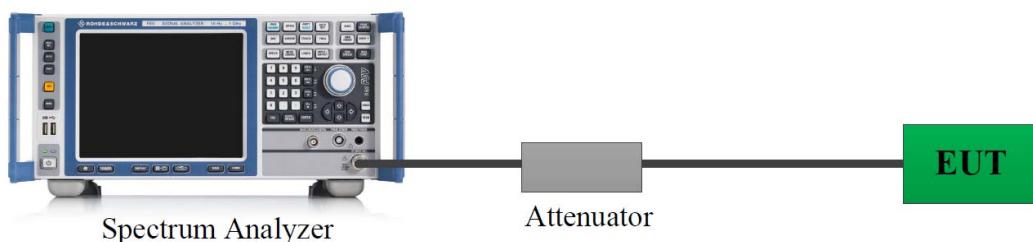
FCC §15.407(a) (2)

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

FCC §15.407(a) (3)(i)

For the band 5.725-5.850 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

4.5.2 EUT Setup



A short RF cable with low cable loss connected to the EUT antenna port, which was provided by manufacturer. The insert loss of this RF cable/attenuator was offset into the setting of test equipment.

4.5.3 Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01

Duty cycle $\geq 98\%$

KDB 789033 D02 General UNII Test Procedures New Rules v02r01 Method SA-1 should be applied.

Duty cycle $< 98\%$, duty cycle variations are less than $\pm 2\%$

KDB 789033 D02 General UNII Test Procedures New Rules v02r01 Method SA-2 should be applied.

Duty cycle $< 98\%$, duty cycle variations exceed $\pm 2\%$

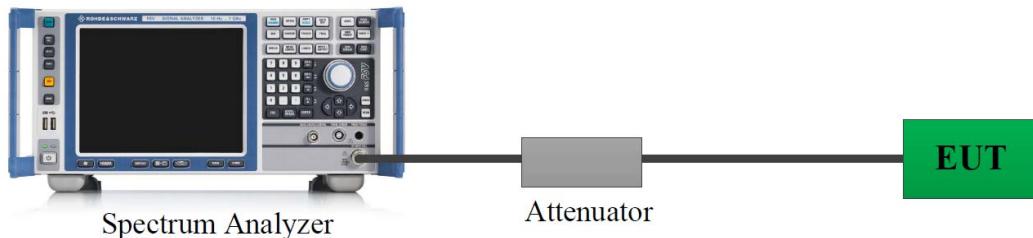
KDB 789033 D02 General UNII Test Procedures New Rules v02r01 Method SA-3 should be applied.

4.5.4 Test Result

Please refer to section 5.6.

4.6 Duty Cycle

4.6.1 EUT Setup



A short RF cable with low cable loss connected to the EUT antenna port, which was provided by manufacturer. The insert loss of this RF cable/attenuator was offset into the setting of test equipment.

4.6.2 Test Procedure

According to ANSI C63.10-2013 Section 12.2

The zero-span mode on a spectrum analyzer or EMI receiver if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the ON and OFF times of the transmitted signal:

- 1) Set the center frequency of the instrument to the center frequency of the transmission.
- 2) Set $RBW \geq OBW$ if possible; otherwise, set RBW to the largest available value.
- 3) Set $VBW \geq RBW$. Set detector = peak or average.
- 4) The zero-span measurement method shall not be used unless both RBW and VBW are $> 50/T$ and the number of sweep points across duration T exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring the duty cycle shall not be used if $T \leq 16.7 \mu s$.)

4.6.3 Judgment

Report Only. Please refer to section 5.7.

4.7 Antenna Requirement

4.7.1 Applicable Standard

FCC §15.203

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. 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 provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §§15.211, 15.213, 15.217, 15.219, 15.221, or §15.236. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

4.7.2 Judgment

Compliant. Please refer to the Antenna Information detail in Section 1.3.

5. Test DATA AND RESULTS

5.1 AC Line Conducted Emissions

Serial Number:	2UA3-1	Test Date:	2024/11/14
Test Site:	CE	Test Mode:	Transmitting
Tester:	Yukin Qiu	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	26.1	Relative Humidity: (%)	55	ATM Pressure: (kPa)	101.2
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Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	LISN	ENV216	101614	2024/9/5	2025/9/4
MICRO-COAX	Coaxial Cable	C-NJNJ-50	C-0200-01	2024/9/5	2025/9/4
R&S	EMI Test Receiver	ESCI	100035	2024/8/26	2025/8/25
Audix	Test Software	E3	191218 V9	N/A	N/A

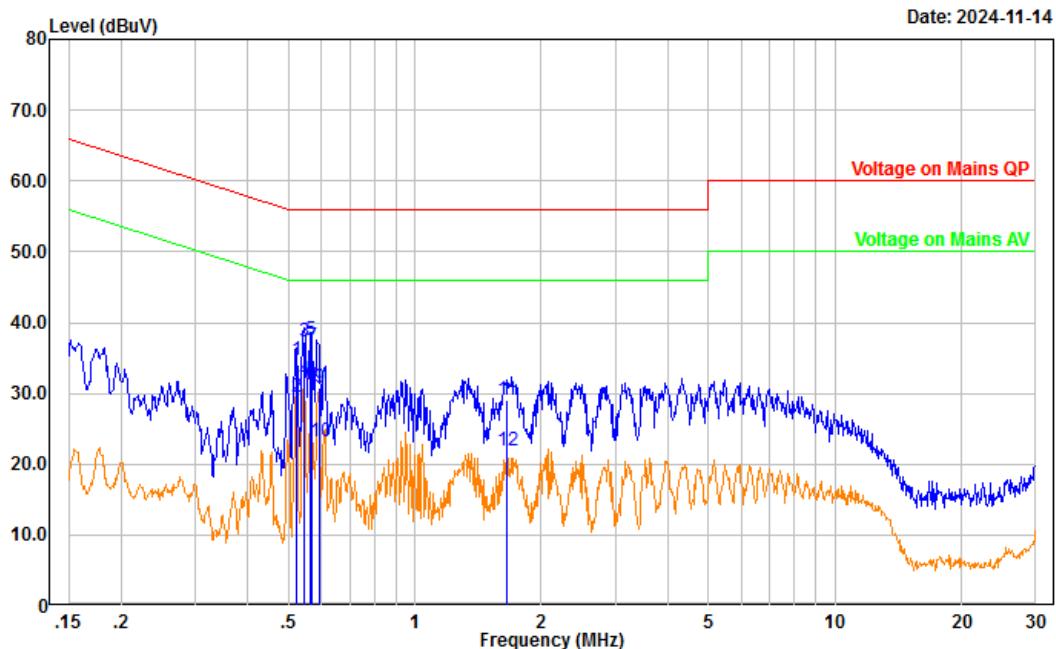
* Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data:

802.11ax20 5280MHz was tested.

Project No.: 2402Z39468E-RF
 Port: Line
 Test Mode: Transmitting
 Note: 5G WIFI

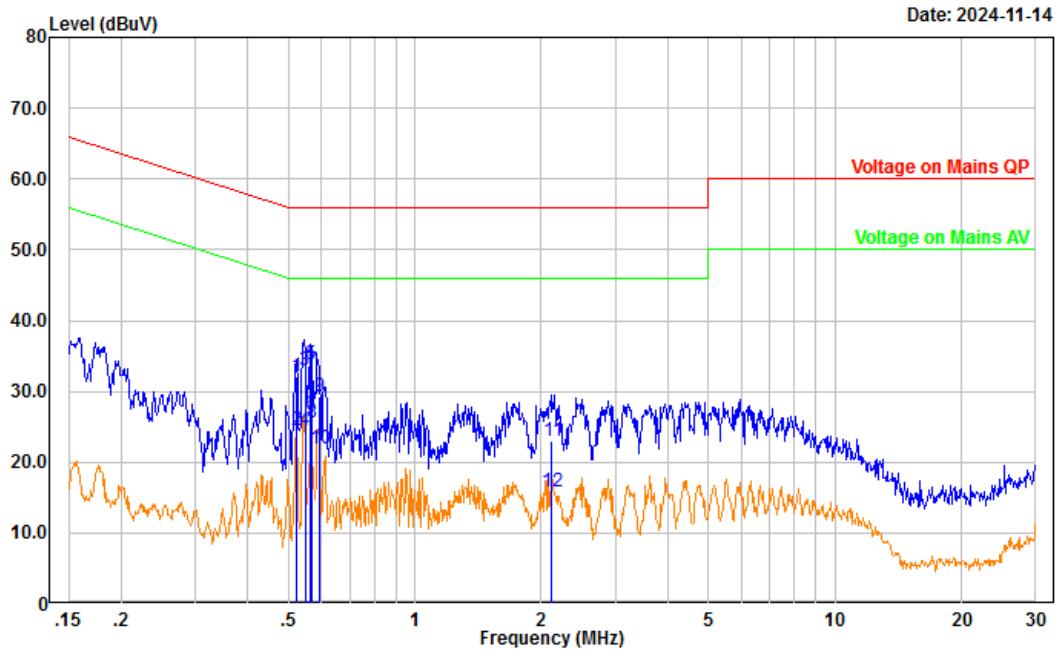
Serial No.: 2UA3-1
 Tester: Yukin Qiu



No.	Frequency (MHz)	Reading (dB μ V)	Factor (dB)	Result (dB μ V)	Limit (dB μ V)	Margin (dB)	Detector
1	0.523	23.84	10.84	34.68	56.00	21.32	QP
2	0.523	18.70	10.84	29.54	46.00	16.46	Average
3	0.545	26.56	10.83	37.39	56.00	18.61	QP
4	0.545	21.05	10.83	31.88	46.00	14.12	Average
5	0.564	26.71	10.83	37.54	56.00	18.46	QP
6	0.564	20.49	10.83	31.32	46.00	14.68	Average
7	0.568	25.88	10.83	36.71	56.00	19.29	QP
8	0.568	20.34	10.83	31.17	46.00	14.83	Average
9	0.594	20.06	10.82	30.88	56.00	25.12	QP
10	0.594	12.46	10.82	23.28	46.00	22.72	Average
11	1.652	18.33	10.83	29.16	56.00	26.84	QP
12	1.652	11.04	10.83	21.87	46.00	24.13	Average

Project No.: 2402Z39468E-RF
 Port: neutral
 Test Mode: Transmitting
 Note: 5G WIFI

Serial No.: 2UA3-1
 Tester: Yukin Qiu



No.	Frequency (MHz)	Reading (dB μ V)	Factor (dB)	Result (dB μ V)	Limit (dB μ V)	Margin (dB)	Detector
1	0.522	21.25	10.74	31.99	56.00	24.01	QP
2	0.522	13.72	10.74	24.46	46.00	21.54	Average
3	0.548	22.31	10.73	33.04	56.00	22.96	QP
4	0.548	13.75	10.73	24.48	46.00	21.52	Average
5	0.566	23.18	10.73	33.91	56.00	22.09	QP
6	0.566	15.87	10.73	26.60	46.00	19.40	Average
7	0.569	22.28	10.73	33.01	56.00	22.99	QP
8	0.569	14.82	10.73	25.55	46.00	20.45	Average
9	0.593	18.56	10.72	29.28	56.00	26.72	QP
10	0.593	11.18	10.72	21.90	46.00	24.10	Average
11	2.119	12.10	10.91	23.01	56.00	32.99	QP
12	2.119	4.93	10.91	15.84	46.00	30.16	Average

5.2 Radiation Spurious Emissions

1) 9kHz - 1GHz

Serial Number:	2UA3-1	Test Date:	2024/11/19
Test Site:	Chamber A	Test Mode:	Transmitting
Tester:	Alan Xie	Test Result:	Pass

Environmental Conditions:					
Temperature: (°C)	24.1	Relative Humidity: (%)	37	ATM Pressure: (kPa)	102

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
EMCO	Passive Loop Antenna	6512	9706-1206	2023/10/25	2026/10/24
Sunol Sciences	Hybrid Antenna	JB3	A060611-2	2024/4/16	2027/4/15
Narda	Coaxial Attenuator	757C-6dB	34010	2024/4/16	2027/4/15
Unknown	Coaxial Cable	C-NJNJ-50	C-0075-01	2024/7/1	2025/6/30
Unknown	Coaxial Cable	C-NJNJ-50	C-0400-01	2024/7/1	2025/6/30
Unknown	Coaxial Cable	C-NJNJ-50	C-1400-01	2024/7/1	2025/6/30
Sonoma	Amplifier	310N	372193	2024/8/16	2025/8/15
R&S	EMI Test Receiver	ESR3	102453	2024/8/26	2025/8/25
Audix	Test Software	E3	191218 V9	N/A	N/A

* Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data:

Please refer to the below table and plots.

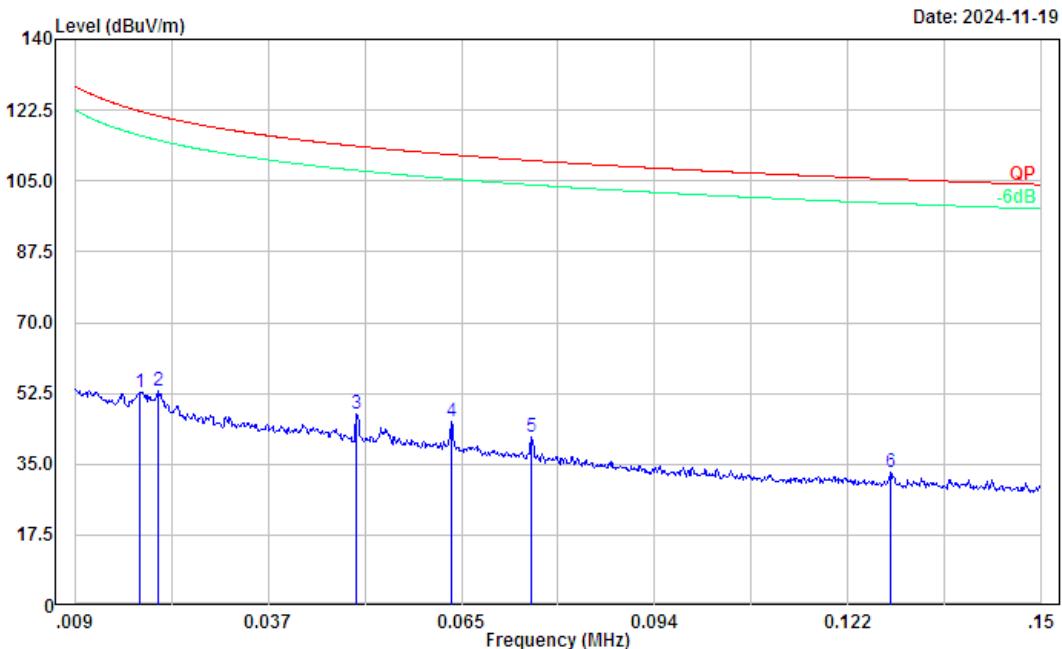
After pre-scan in the X, Y and Z axes of orientation, the worst case is refer to table and plots.

9kHz~30MHz(802.11ax20 5280MHz was tested)

The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

Project No.: 2402Z39468E-RF
Polarization: Parallel
Test Mode: Transmitting
Note:

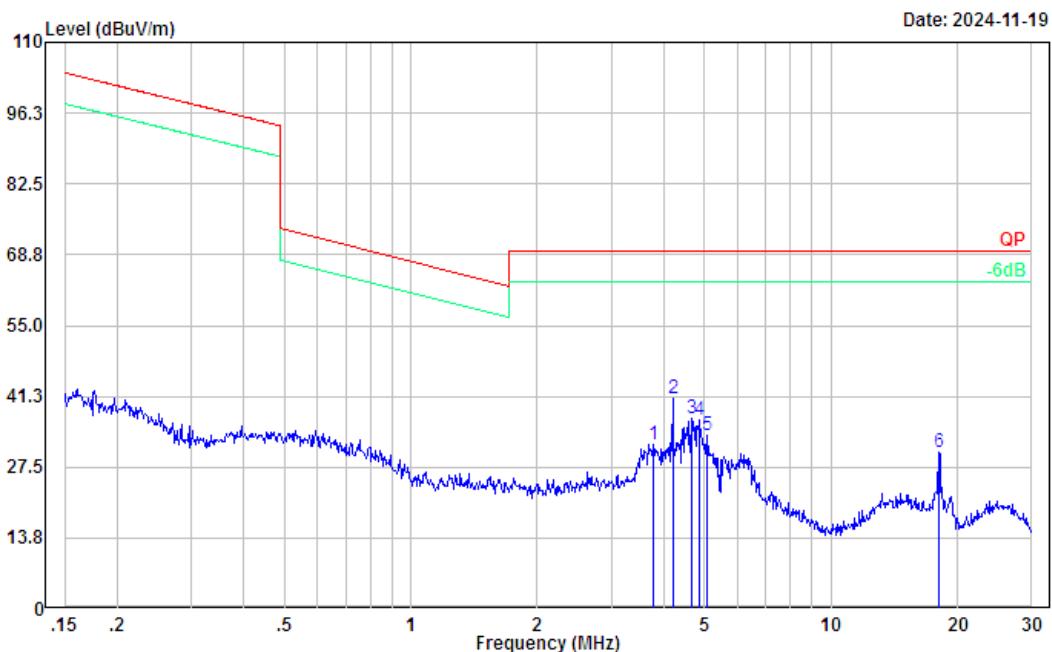
Serial No.: 2UA3-1
Tester: Alan Xie



No.	Frequency (MHz)	Reading (dB μ V)	Factor (dB/m)	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector
1	0.0186	3.50	49.36	52.86	122.22	69.36	Peak
2	0.0211	4.26	48.75	53.01	121.11	68.10	Peak
3	0.0502	3.97	43.41	47.38	113.60	66.22	Peak
4	0.0640	4.21	41.15	45.36	111.48	66.12	Peak
5	0.0757	2.77	39.14	41.91	110.02	68.11	Peak
6	0.1280	-0.54	33.40	32.86	105.46	72.60	Peak

Project No.: 2402Z39468E-RF
Polarization: Parallel
Test Mode: Transmitting
Note:

Serial No.: 2UA3-1
Tester: Alan Xie

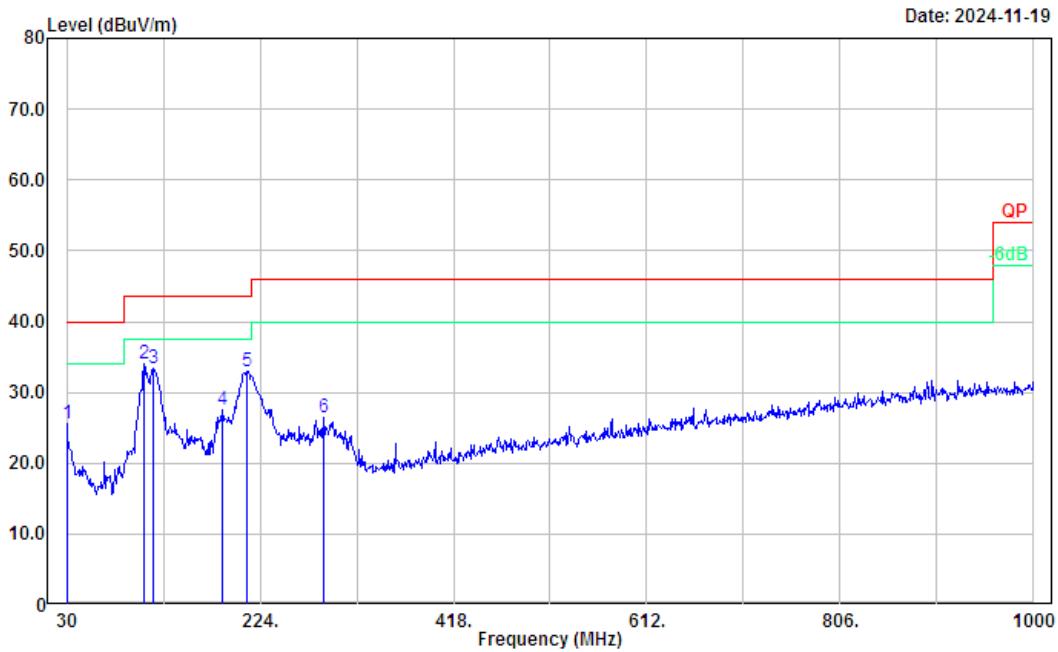


No.	Frequency (MHz)	Reading (dB μ V)	Factor (dB/m)	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector
1	3.7794	24.30	7.48	31.78	69.54	37.76	Peak
2	4.2018	33.94	6.77	40.71	69.54	28.83	Peak
3	4.6469	30.88	6.17	37.05	69.54	32.49	Peak
4	4.8738	30.93	5.87	36.80	69.54	32.74	Peak
5	5.0848	28.01	5.64	33.65	69.54	35.89	Peak
6	18.0394	26.63	3.78	30.41	69.54	39.13	Peak

30MHz-1GHz(802.11ax20 5280MHz was tested)

Project No.: 2402Z39468E-RF
Polarization: Horizontal
Test Mode: Transmitting
Note:

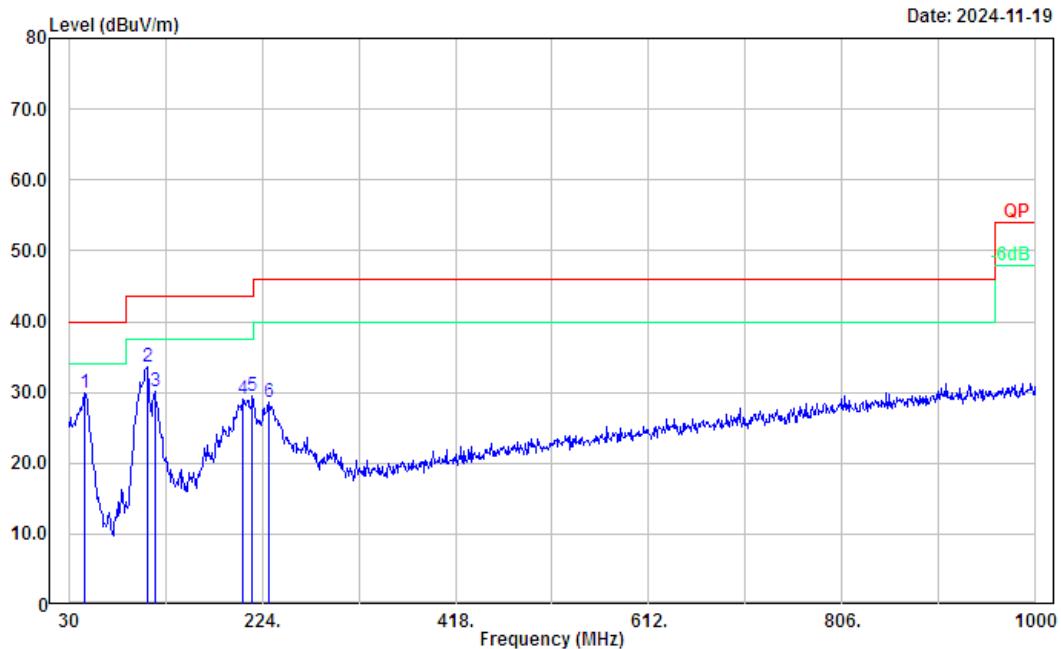
Serial No.: 2UA3-1
Tester: Alan Xie



No.	Frequency (MHz)	Reading (dB μ V)	Factor (dB/m)	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector
1	30.00	29.19	-3.71	25.48	40.00	14.52	Peak
2	107.60	45.61	-11.67	33.94	43.50	9.56	Peak
3	117.30	43.60	-10.29	33.31	43.50	10.19	Peak
4	186.17	39.81	-12.25	27.56	43.50	15.94	Peak
5	210.42	44.05	-11.05	33.00	43.50	10.50	Peak
6	288.02	36.39	-9.86	26.53	46.00	19.47	Peak

Project No.: 2402Z39468E-RF
Polarization: Vertical
Test Mode: Transmitting
Note:

Serial No.: 2UA3-1
Tester: Alan Xie



No.	Frequency (MHz)	Reading (dB μ V)	Factor (dB/m)	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector
1	45.52	43.55	-13.66	29.89	40.00	10.11	Peak
2	108.57	45.03	-11.41	33.62	43.50	9.88	Peak
3	116.33	40.47	-10.39	30.08	43.50	13.42	Peak
4	204.60	40.19	-11.12	29.07	43.50	14.43	Peak
5	214.30	40.42	-11.00	29.42	43.50	14.08	Peak
6	230.79	39.70	-11.12	28.58	46.00	17.42	Peak

2) 1-40GHz:

Serial Number:	2UA3-1	Test Date:	2024/11/25~2024/11/28
Test Site:	Chamber B	Test Mode:	Transmitting
Tester:	Nat Zhou, Colin Yang	Test Result:	Pass

Environmental Conditions:					
Temperature: (°C)	21.2~22.1	Relative Humidity: (%)	34~48	ATM Pressure: (kPa)	102.0~102.3

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
ETS-Lindgren	Horn Antenna	3115	000 527 35	2023/9/7	2026/9/6
Ducommun Technologies	Horn Antenna	ARH-4223-02	1007726-02 1304	2023/2/22	2026/2/21
Ducommun Technologies	Horn Antenna	ARH-2823-02	1007726-01 1302	2023/2/22	2026/2/21
Xinhang Macrowave	Coaxial Cable	XH750A-N/J-SMA/J-10M	20231117004 #0001	2024/11/17	2025/11/16
Xinhang Macrowave	Coaxial Cable	XH360A-2.92/J-2.92/J-6M-A	20231208001 #0001	2023/12/11	2024/12/10
AH	Preamplifier	PAM-0118P	469	2024/4/15	2025/4/14
AH	Preamplifier	PAM-1840VH	191	2024/9/5	2025/9/4
R&S	Spectrum Analyzer	FSV40	101944	2024/9/6	2025/9/5
Audix	Test Software	E3	191218 V9	N/A	N/A
Decentest	Multiplex Switch Test Control Set & Filter Switch Unit	DT7220SCU & DT7220FCU	DC79902 & DC79905	2024/8/27	2025/8/26

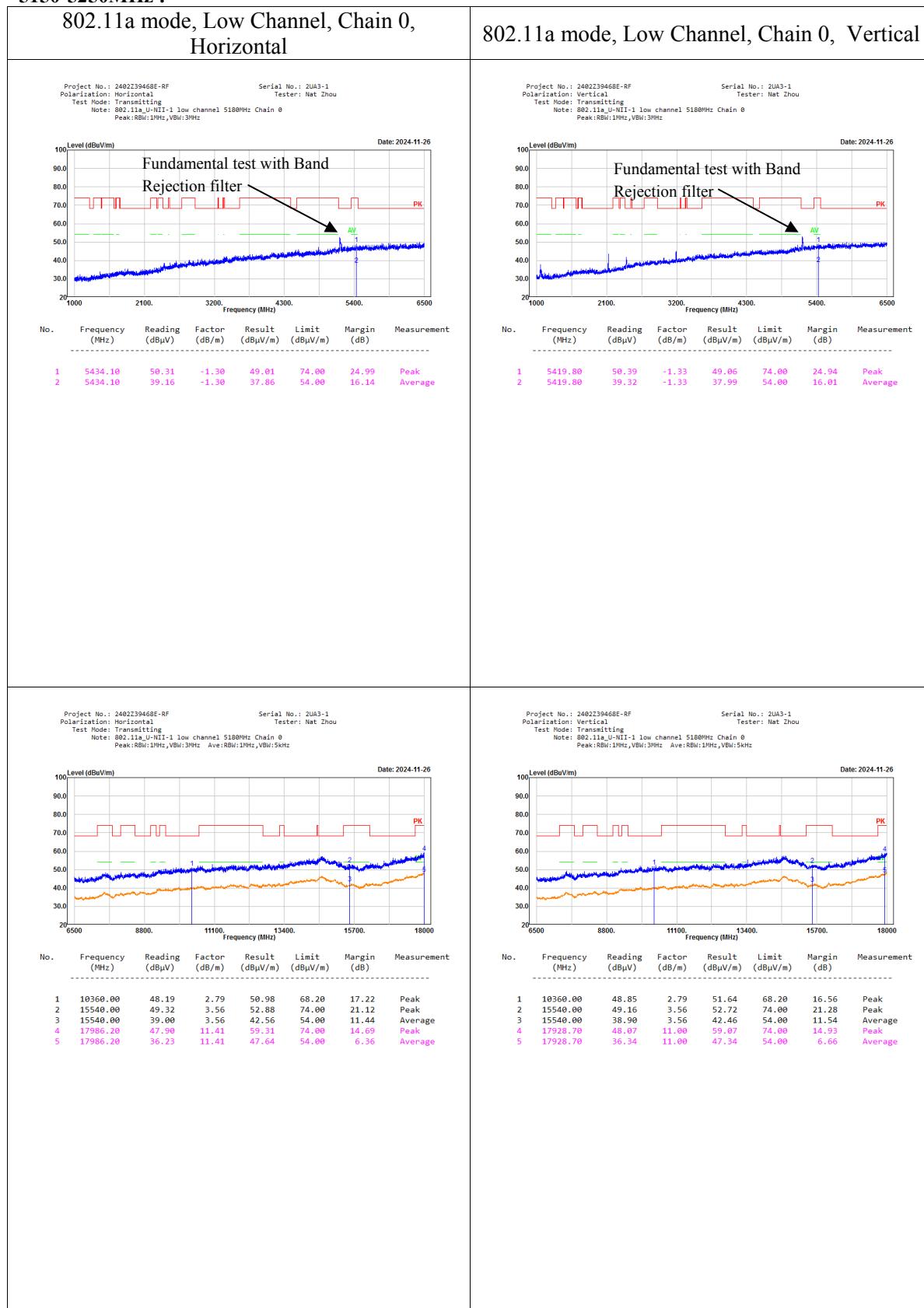
* *Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

Test Data:

Please refer to the below table and plots.

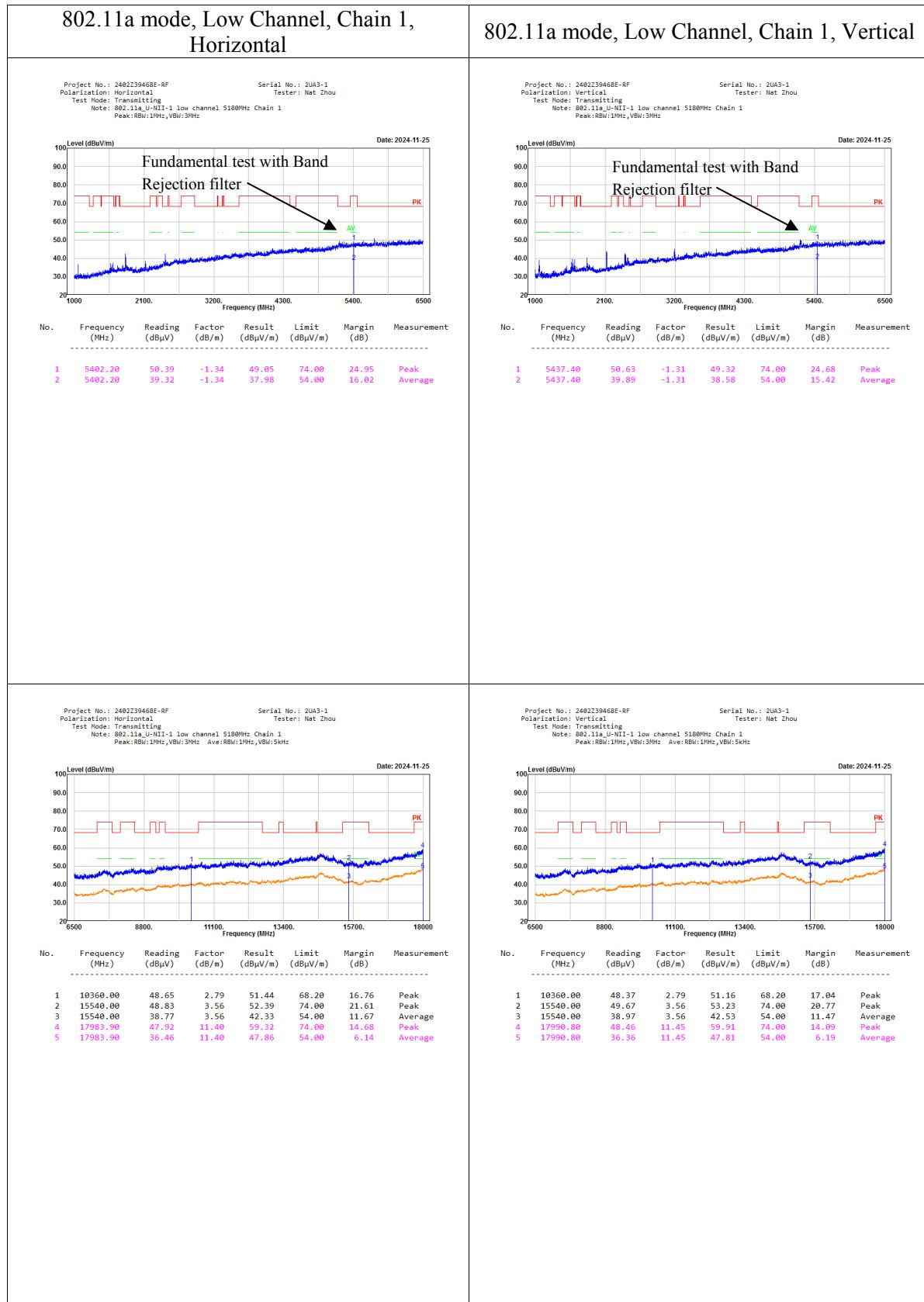
After pre-scan in the X, Y and Z axes of orientation, the worst case is refer to table and plots.

1-18GHz:
5150-5250MHz :

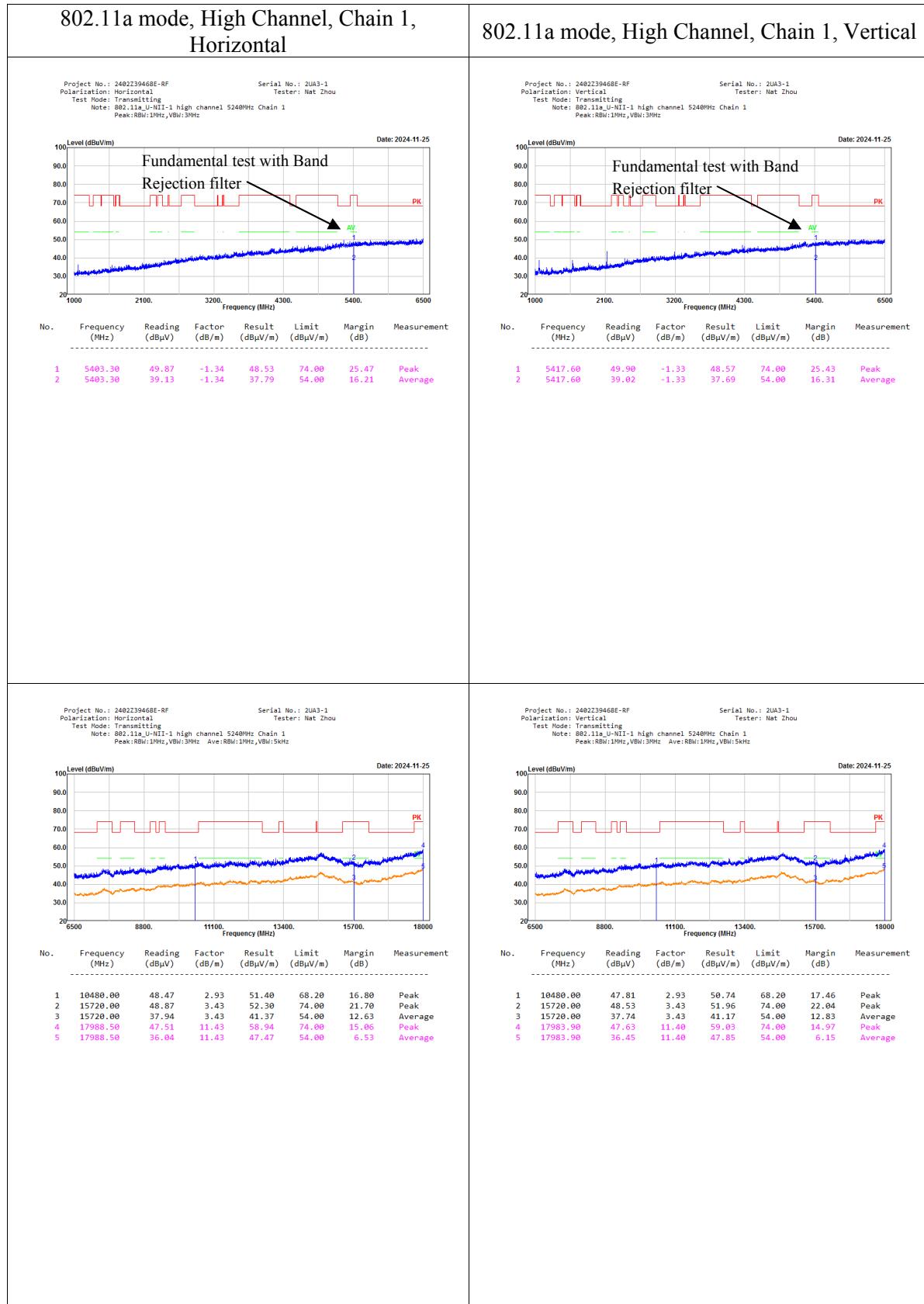


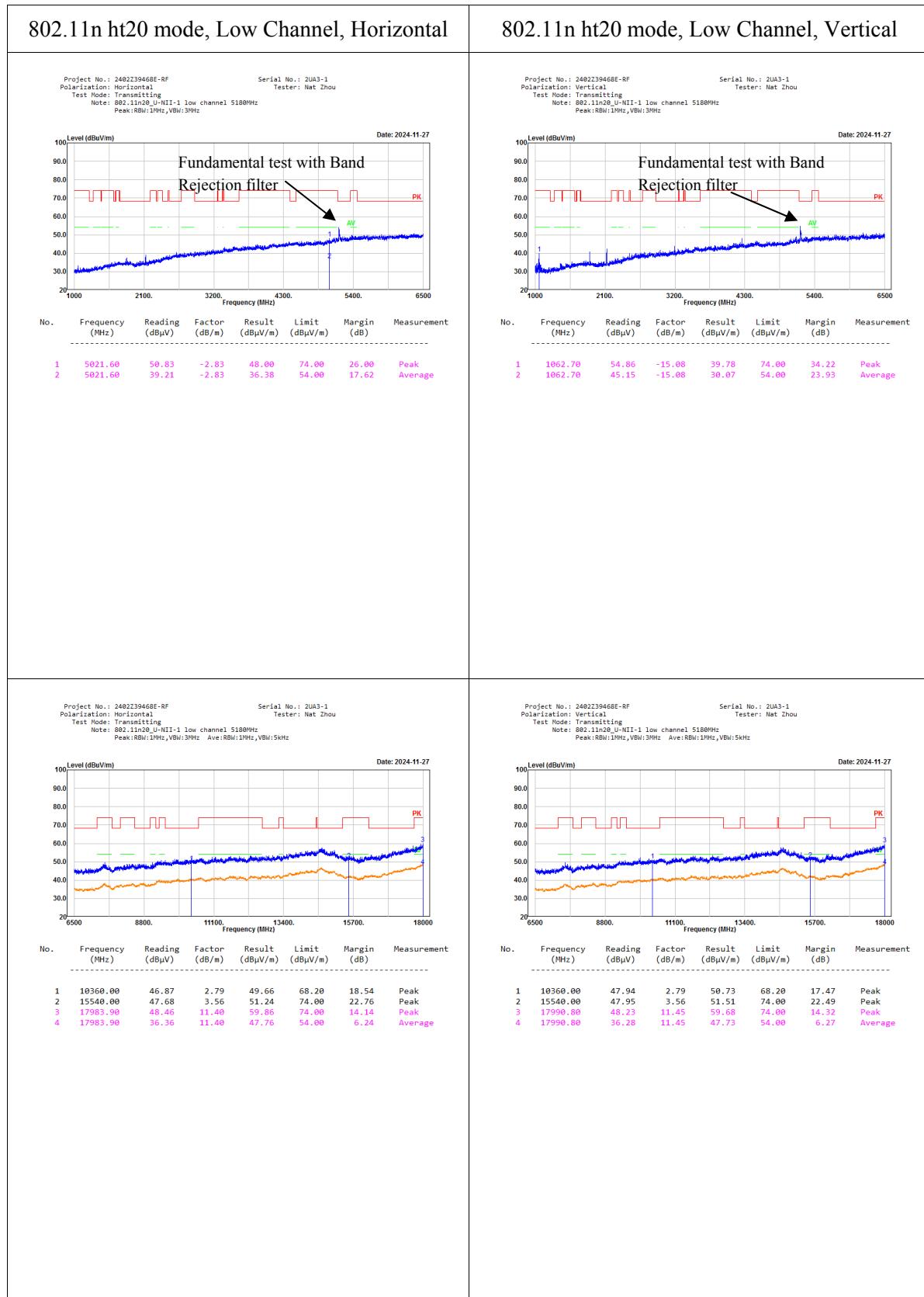


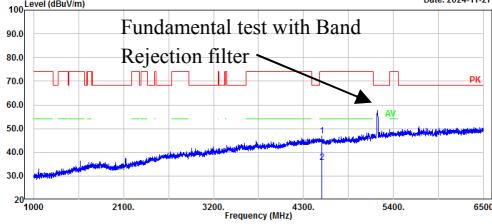
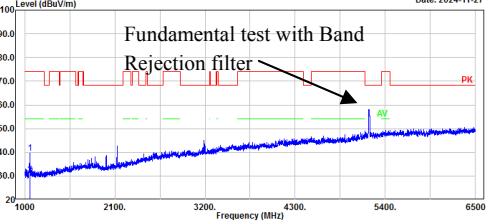
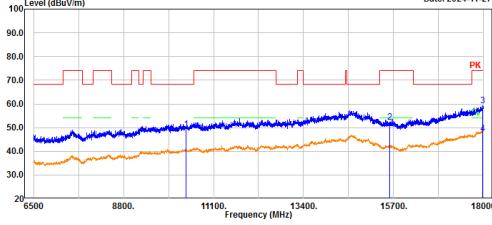
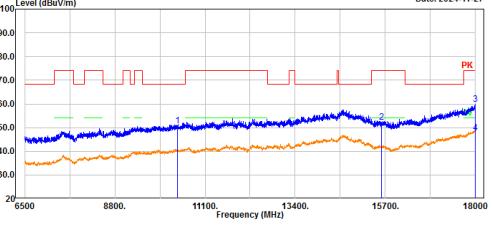


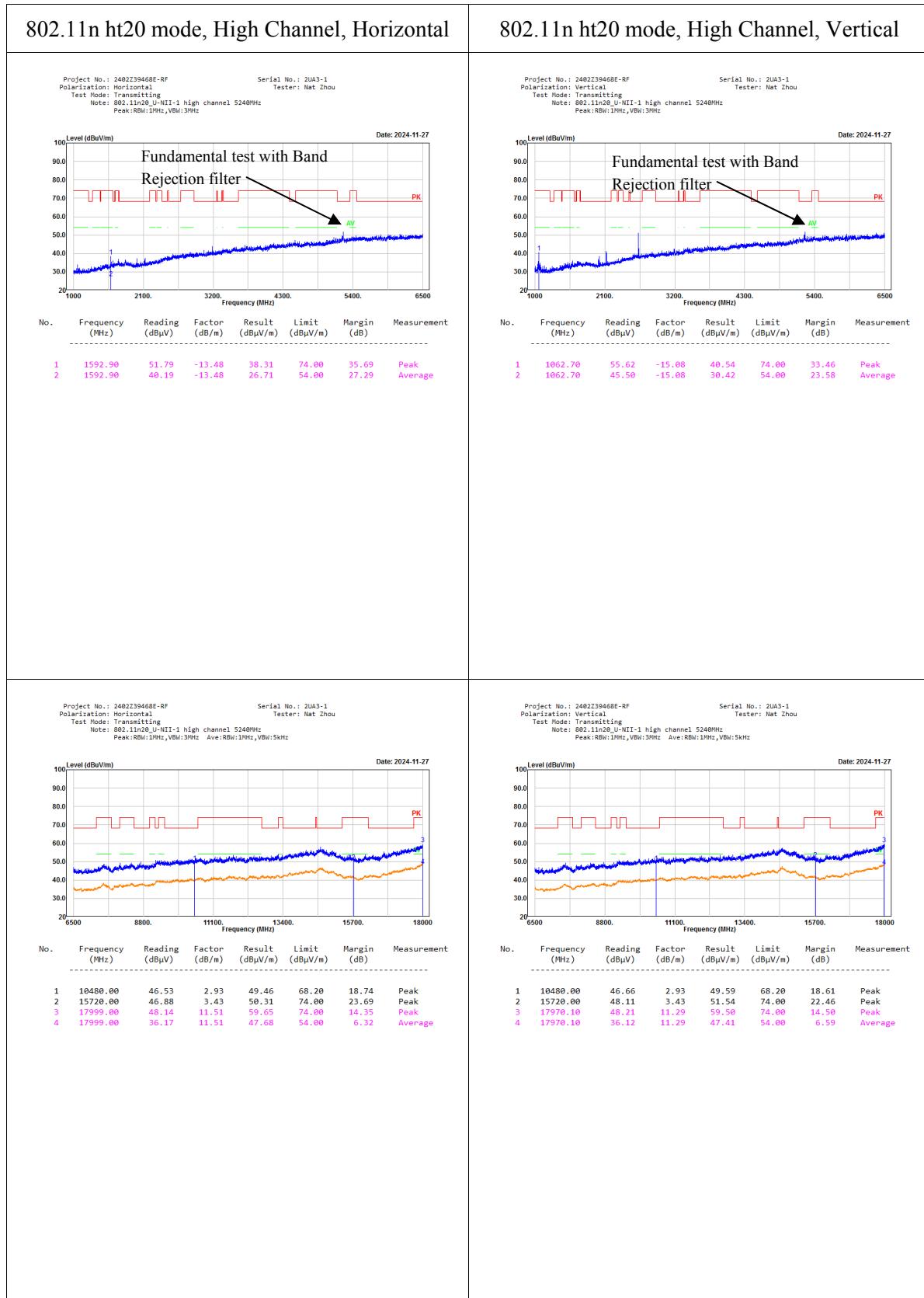


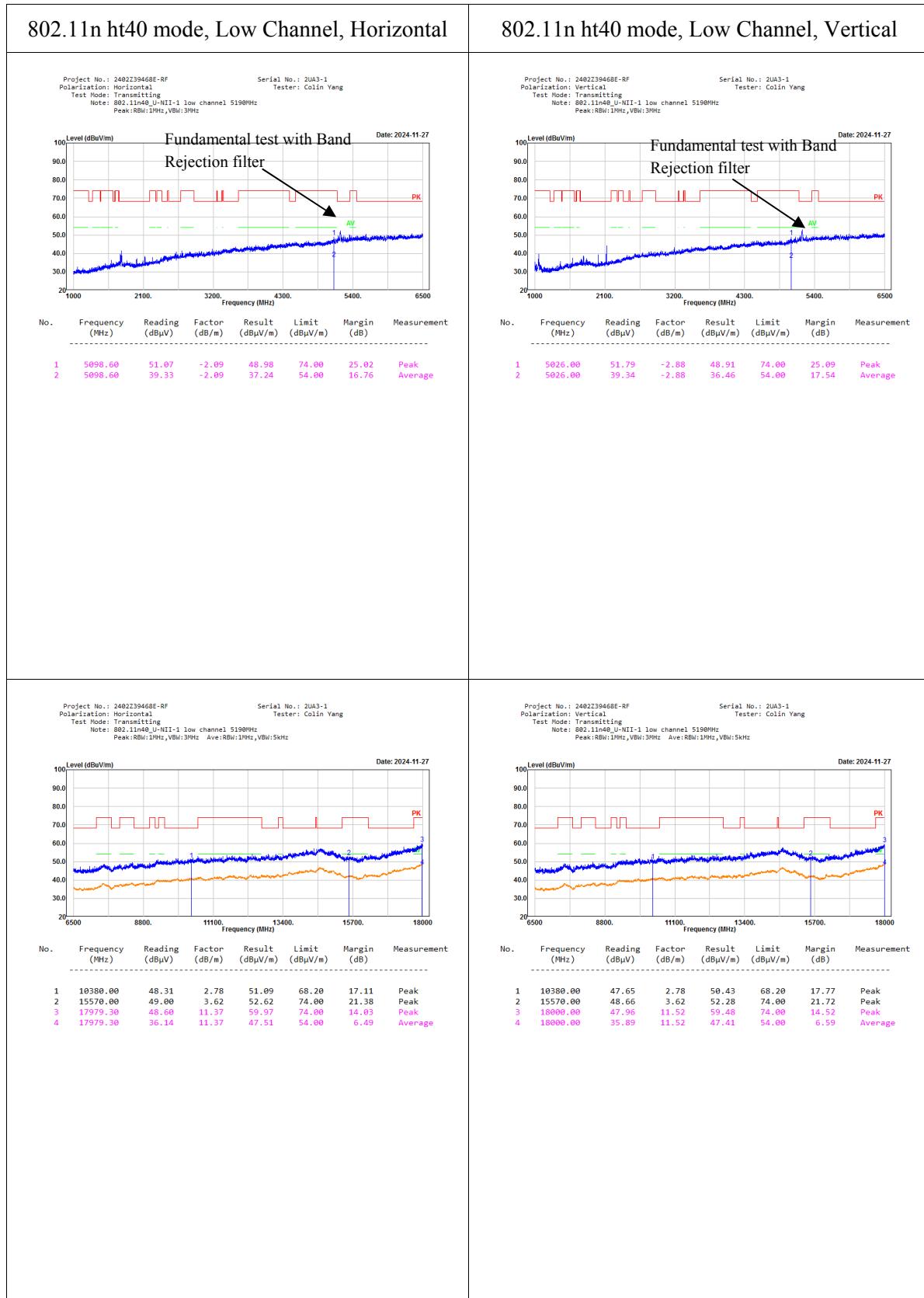


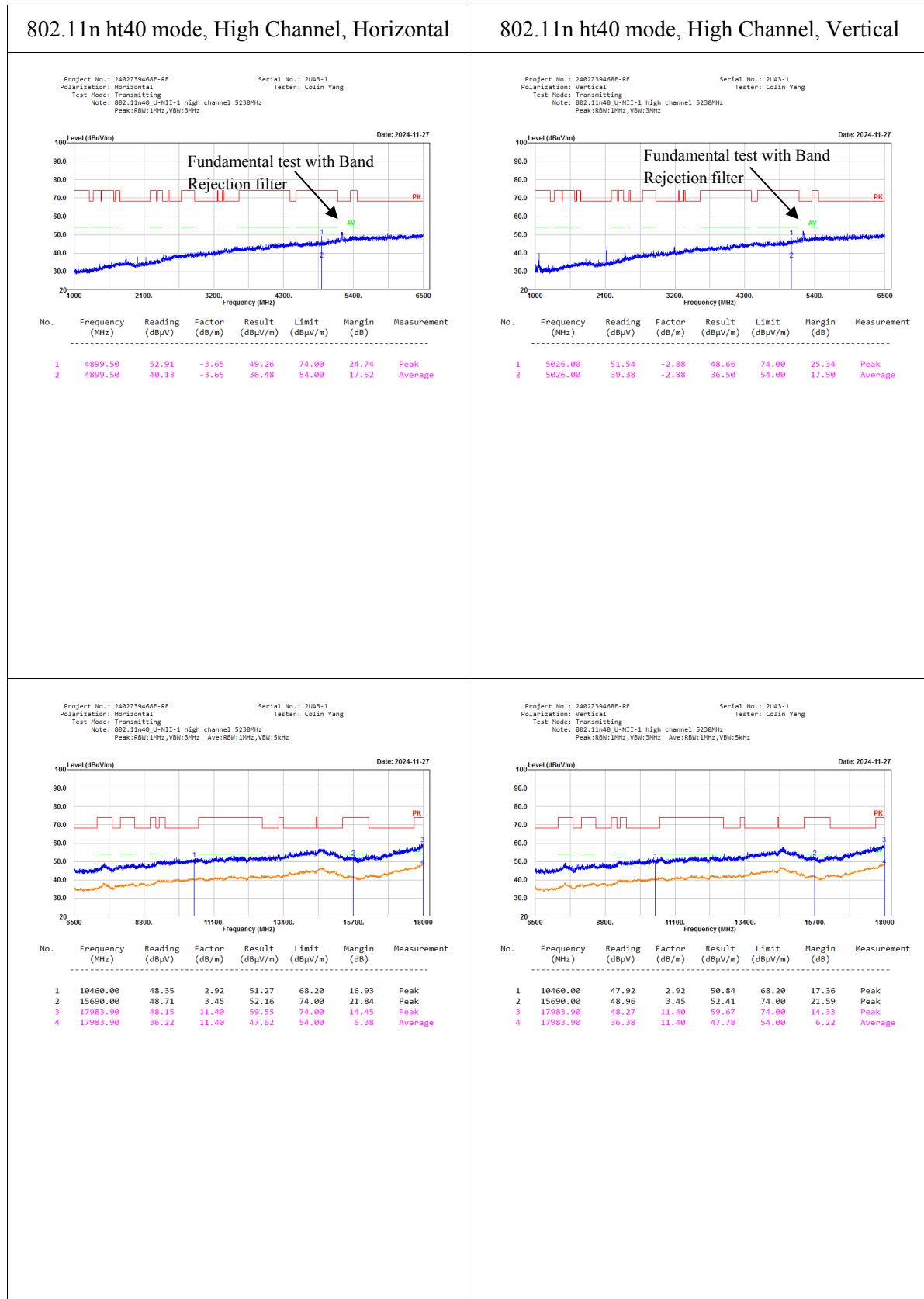


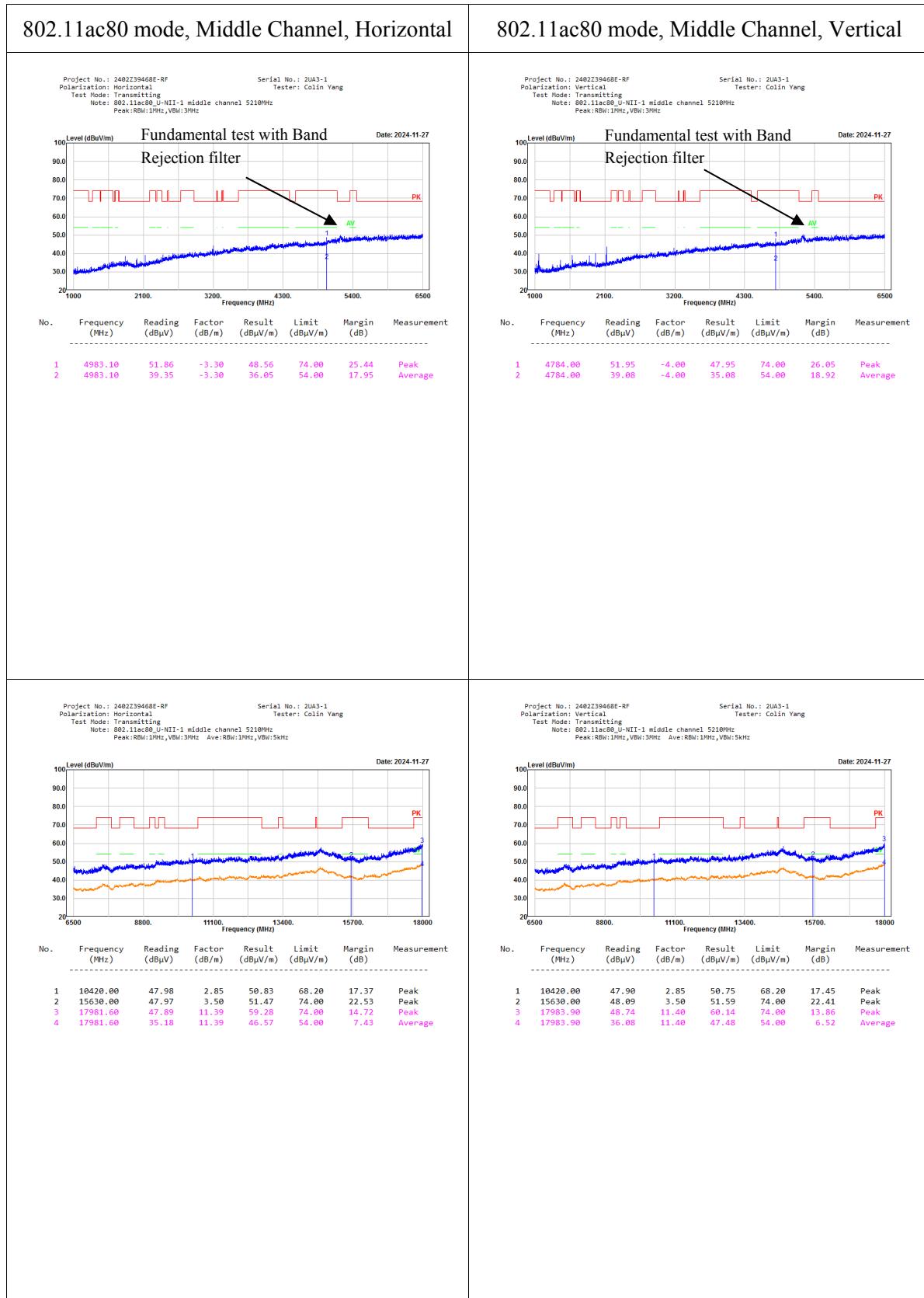


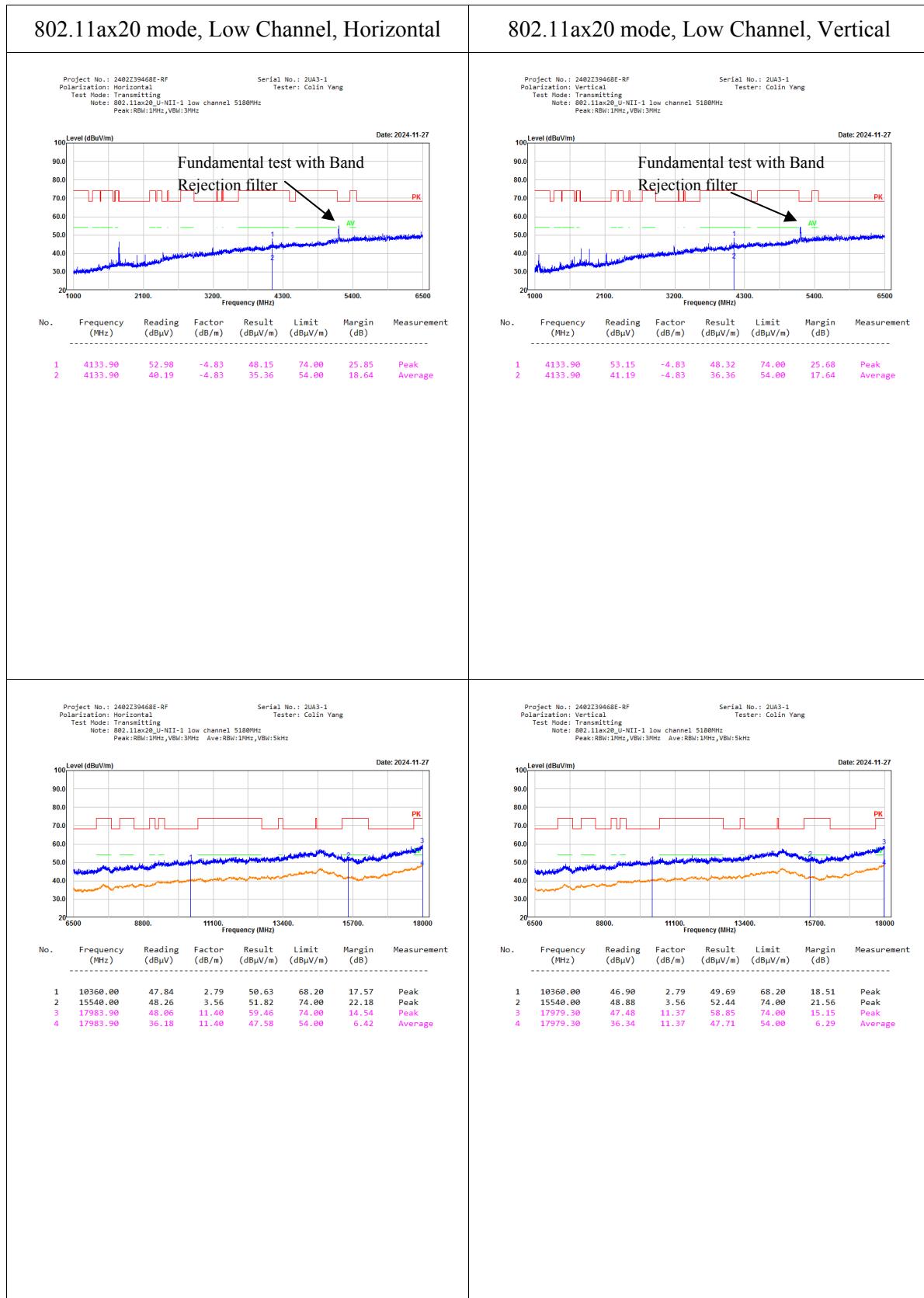
802.11n ht20 mode, Middle Channel, Horizontal	802.11n ht20 mode, Middle Channel, Vertical																																																																
<p>Project No.: 2402Z39468E-RF Polarization: Horizontal Test Mode: Transmitting Note: 802.11n20_U-NII-1 middle channel 5200MHz Peak:RBW:1MHz,VBW:3MHz</p> <p>Serial No.: 2UA3-1 Tester: Nat Zhou</p> <p>Date: 2024-11-27</p> <p>Fundamental test with Band Rejection filter</p>  <p>Level (dBuV/m)</p> <p>Frequency (MHz)</p> <p>PK</p> <p>AV</p> <p>No. Frequency (MHz) Reading (dBuV) Factor (dB/m) Result (dBuV/m) Limit (dBuV/m) Margin (dB) Measurement</p> <tbody> <tr> <td>1</td><td>4522.20</td><td>50.99</td><td>-4.19</td><td>46.80</td><td>74.00</td><td>27.20</td><td>Peak</td></tr> <tr> <td>2</td><td>4522.20</td><td>39.82</td><td>-4.19</td><td>35.63</td><td>54.00</td><td>18.37</td><td>Average</td></tr> </tbody>	1	4522.20	50.99	-4.19	46.80	74.00	27.20	Peak	2	4522.20	39.82	-4.19	35.63	54.00	18.37	Average	<p>Project No.: 2402Z39468E-RF Polarization: Vertical Test Mode: Transmitting Note: 802.11n20_U-NII-1 middle channel 5200MHz Peak:RBW:1MHz,VBW:3MHz</p> <p>Serial No.: 2UA3-1 Tester: Nat Zhou</p> <p>Date: 2024-11-27</p> <p>Fundamental test with Band Rejection filter</p>  <p>Level (dBuV/m)</p> <p>Frequency (MHz)</p> <p>PK</p> <p>AV</p> <p>No. Frequency (MHz) Reading (dBuV) Factor (dB/m) Result (dBuV/m) Limit (dBuV/m) Margin (dB) Measurement</p> <tbody> <tr> <td>1</td><td>1062.70</td><td>54.67</td><td>-15.08</td><td>39.59</td><td>74.00</td><td>34.41</td><td>Peak</td></tr> <tr> <td>2</td><td>1062.70</td><td>45.71</td><td>-15.08</td><td>30.63</td><td>54.00</td><td>23.37</td><td>Average</td></tr> </tbody>	1	1062.70	54.67	-15.08	39.59	74.00	34.41	Peak	2	1062.70	45.71	-15.08	30.63	54.00	23.37	Average																																
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<p>Project No.: 2402Z39468E-RF Polarization: Horizontal Test Mode: Transmitting Note: 802.11n20_U-NII-1 middle channel 5200MHz Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz</p> <p>Serial No.: 2UA3-1 Tester: Nat Zhou</p> <p>Date: 2024-11-27</p>  <p>Level (dBuV/m)</p> <p>Frequency (MHz)</p> <p>PK</p> <p>AV</p> <p>No. Frequency (MHz) Reading (dBuV) Factor (dB/m) Result (dBuV/m) Limit (dBuV/m) Margin (dB) Measurement</p> <tbody> <tr> <td>1</td><td>10400.00</td><td>46.54</td><td>2.82</td><td>49.36</td><td>68.20</td><td>18.84</td><td>Peak</td></tr> <tr> <td>2</td><td>15600.00</td><td>48.73</td><td>3.56</td><td>52.29</td><td>74.00</td><td>21.71</td><td>Peak</td></tr> <tr> <td>3</td><td>17974.70</td><td>48.04</td><td>11.32</td><td>59.36</td><td>74.00</td><td>14.64</td><td>Peak</td></tr> <tr> <td>4</td><td>17974.70</td><td>36.20</td><td>11.32</td><td>47.52</td><td>54.00</td><td>6.48</td><td>Average</td></tr> </tbody>	1	10400.00	46.54	2.82	49.36	68.20	18.84	Peak	2	15600.00	48.73	3.56	52.29	74.00	21.71	Peak	3	17974.70	48.04	11.32	59.36	74.00	14.64	Peak	4	17974.70	36.20	11.32	47.52	54.00	6.48	Average	<p>Project No.: 2402Z39468E-RF Polarization: Vertical Test Mode: Transmitting Note: 802.11n20_U-NII-1 middle channel 5200MHz Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz</p> <p>Serial No.: 2UA3-1 Tester: Nat Zhou</p> <p>Date: 2024-11-27</p>  <p>Level (dBuV/m)</p> <p>Frequency (MHz)</p> <p>PK</p> <p>AV</p> <p>No. Frequency (MHz) Reading (dBuV) Factor (dB/m) Result (dBuV/m) Limit (dBuV/m) Margin (dB) Measurement</p> <tbody> <tr> <td>1</td><td>10400.00</td><td>47.91</td><td>2.82</td><td>50.73</td><td>68.20</td><td>17.47</td><td>Peak</td></tr> <tr> <td>2</td><td>15600.00</td><td>48.64</td><td>3.56</td><td>52.20</td><td>74.00</td><td>21.80</td><td>Peak</td></tr> <tr> <td>3</td><td>17997.70</td><td>48.38</td><td>11.51</td><td>59.89</td><td>74.00</td><td>14.11</td><td>Peak</td></tr> <tr> <td>4</td><td>17997.70</td><td>36.25</td><td>11.51</td><td>47.76</td><td>54.00</td><td>6.24</td><td>Average</td></tr> </tbody>	1	10400.00	47.91	2.82	50.73	68.20	17.47	Peak	2	15600.00	48.64	3.56	52.20	74.00	21.80	Peak	3	17997.70	48.38	11.51	59.89	74.00	14.11	Peak	4	17997.70	36.25	11.51	47.76	54.00	6.24	Average
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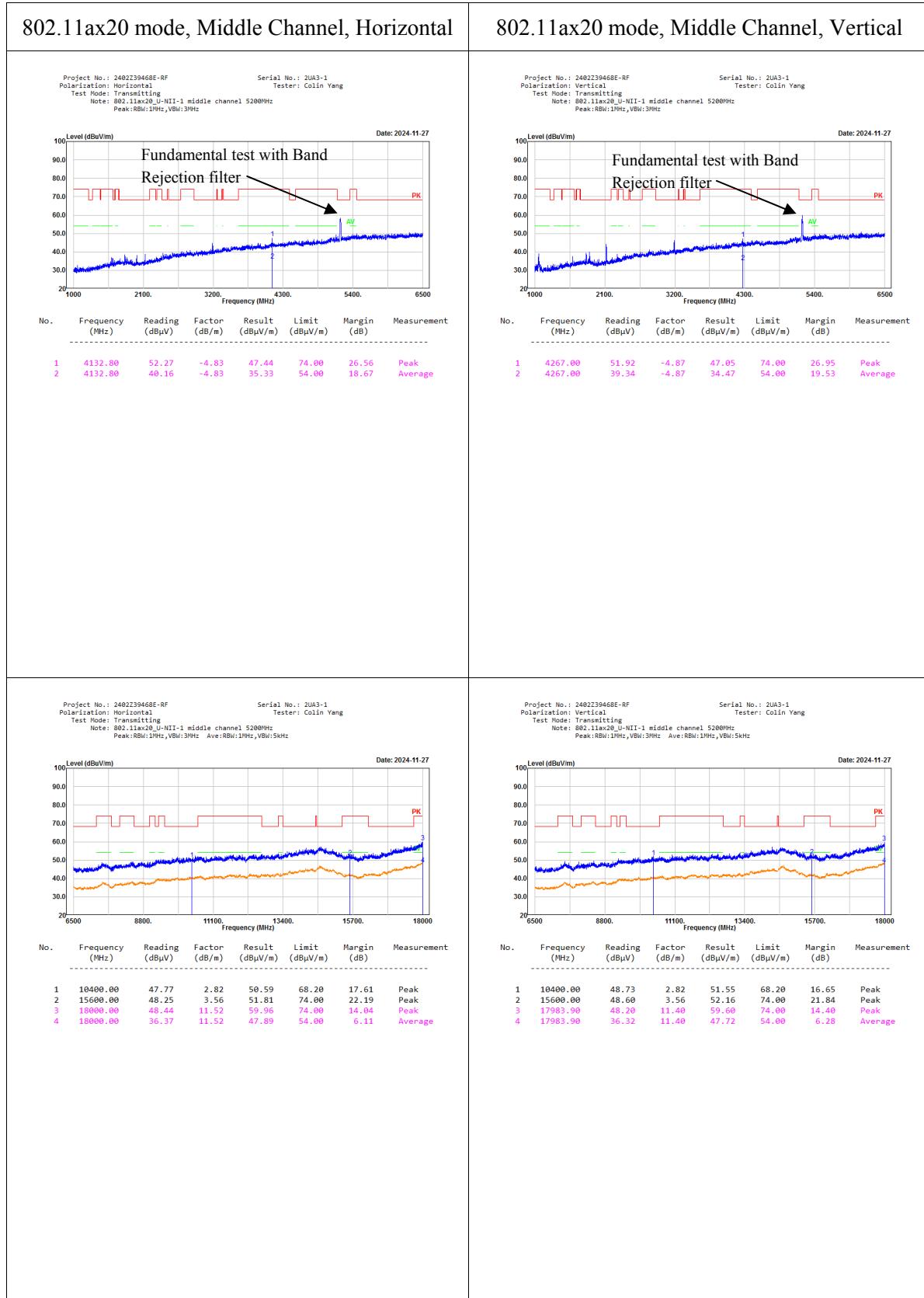


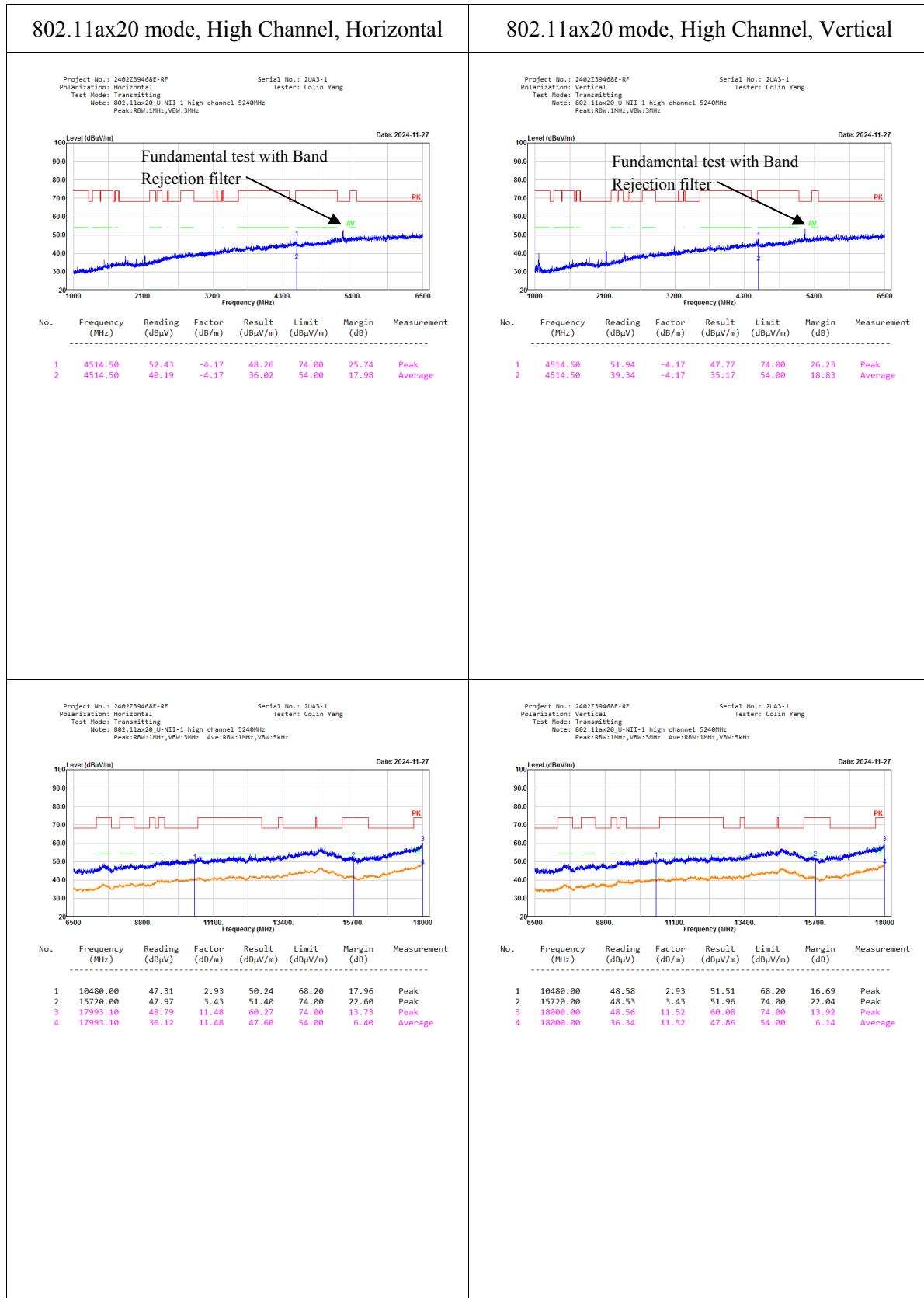


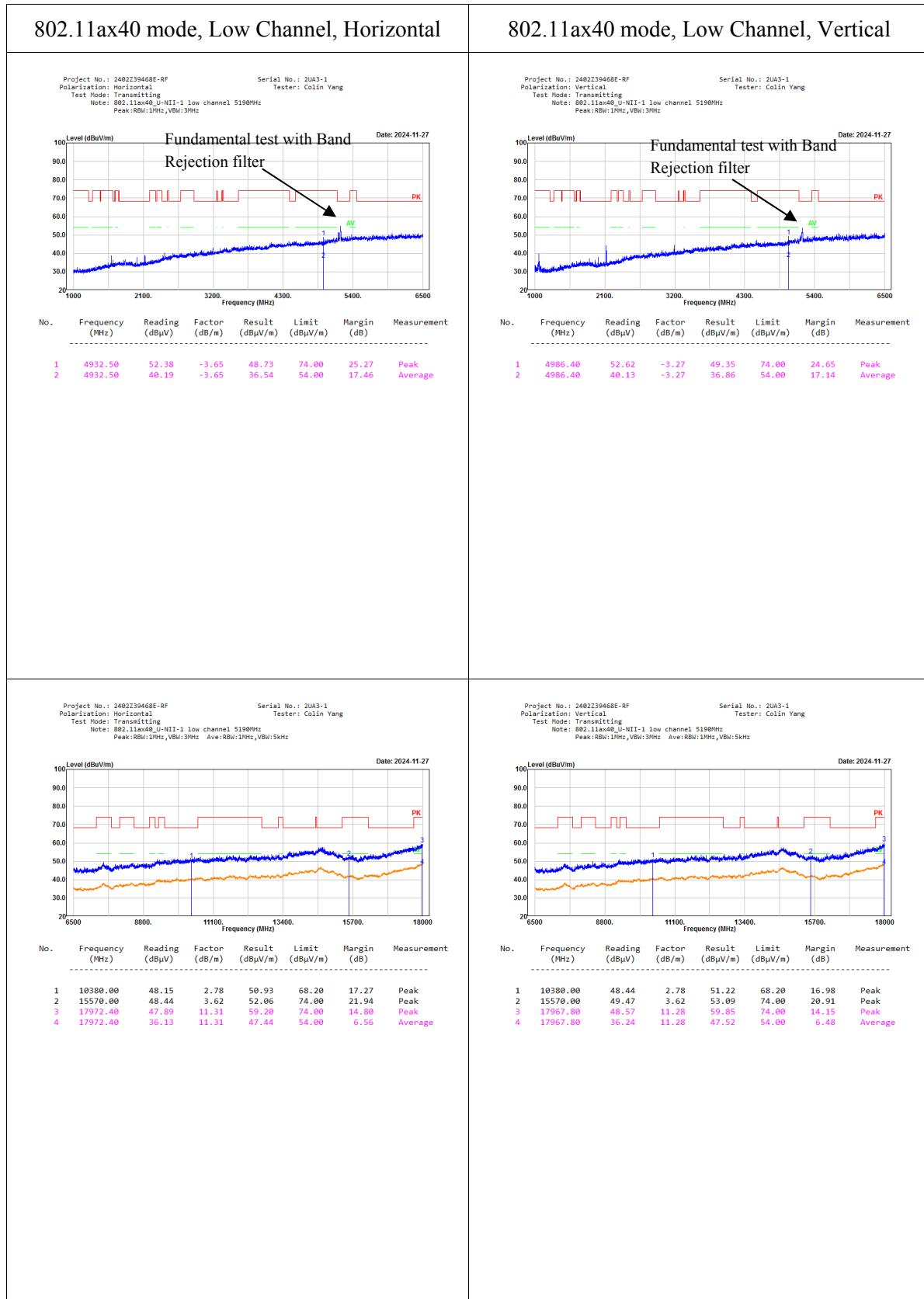


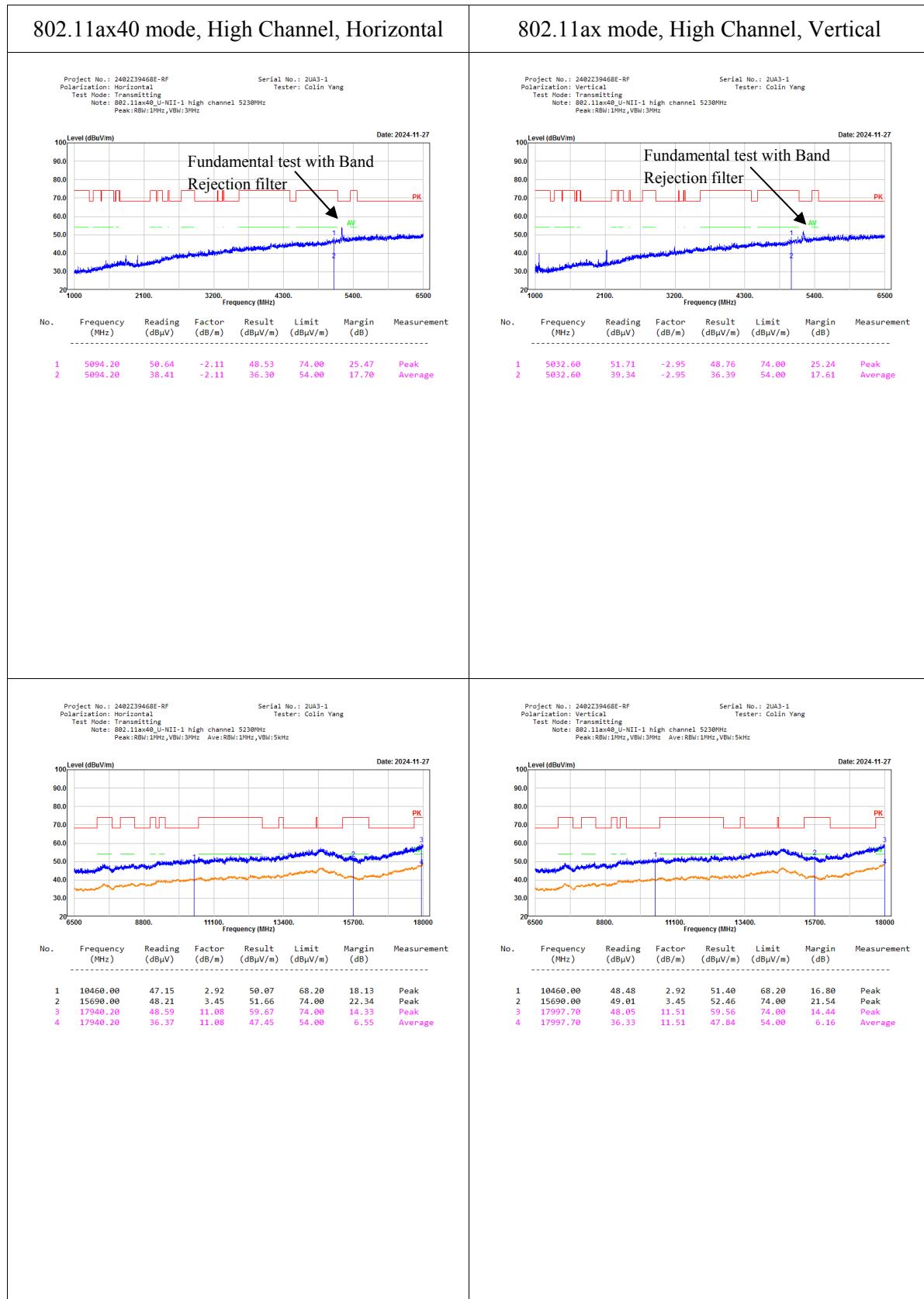


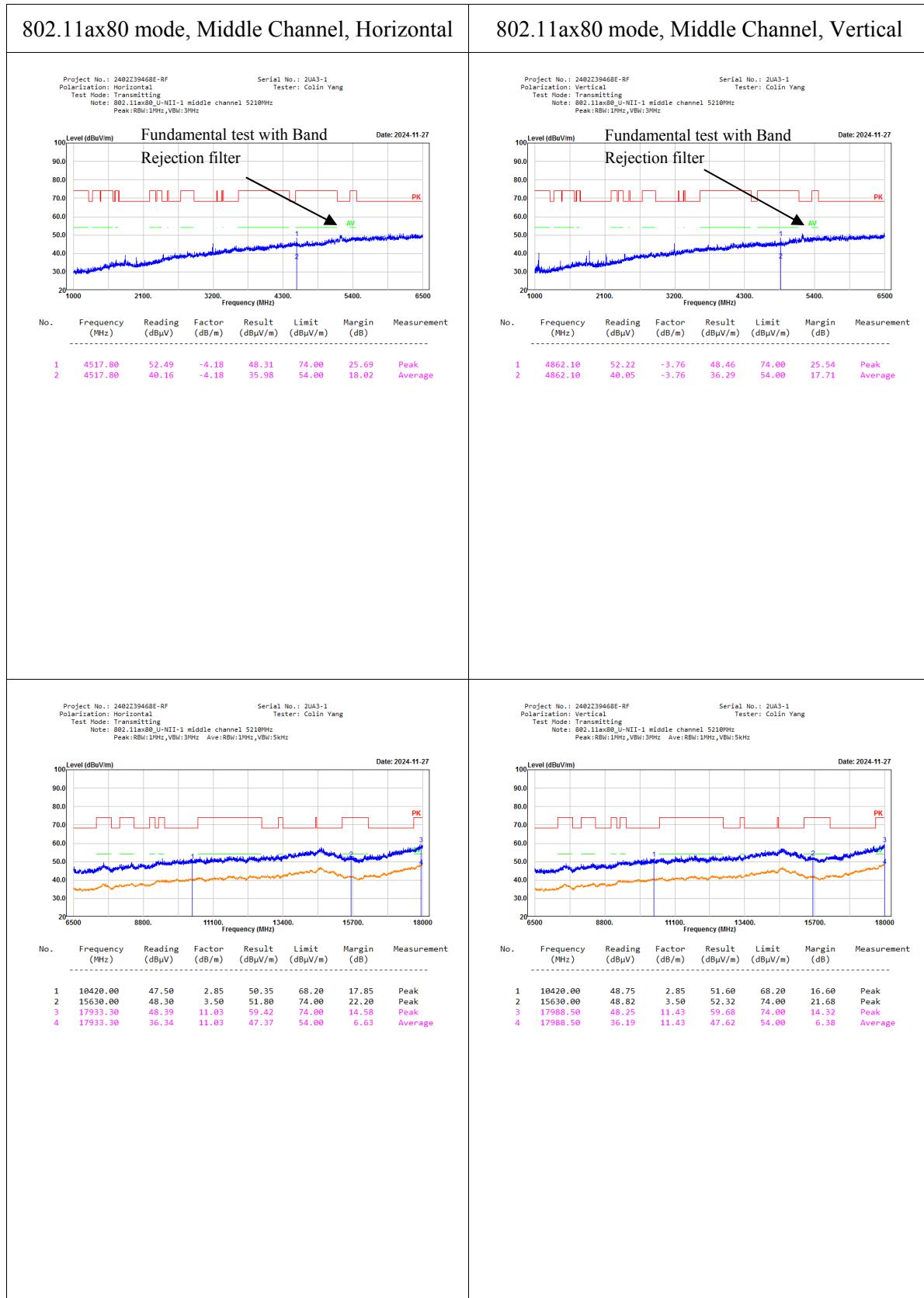




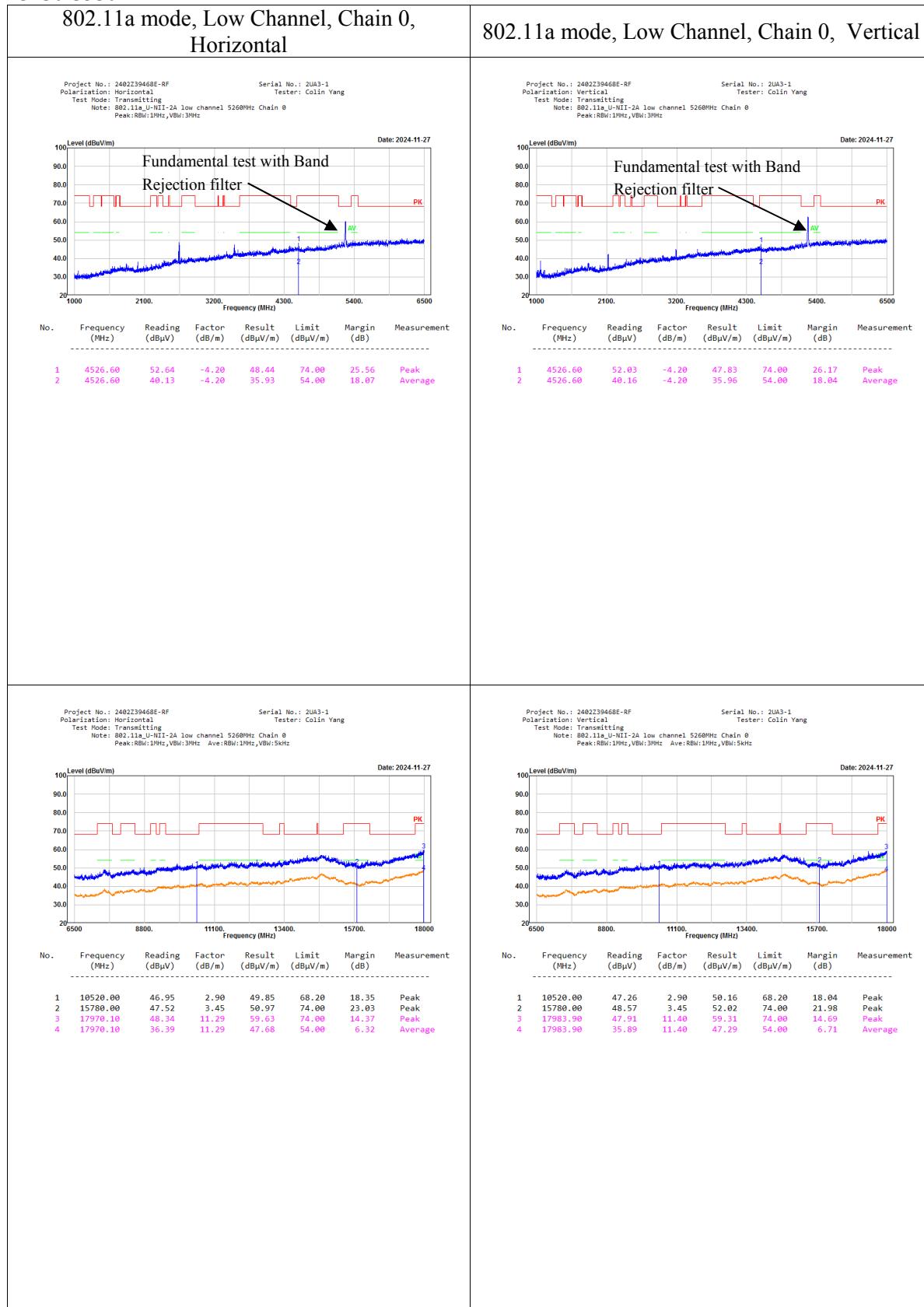


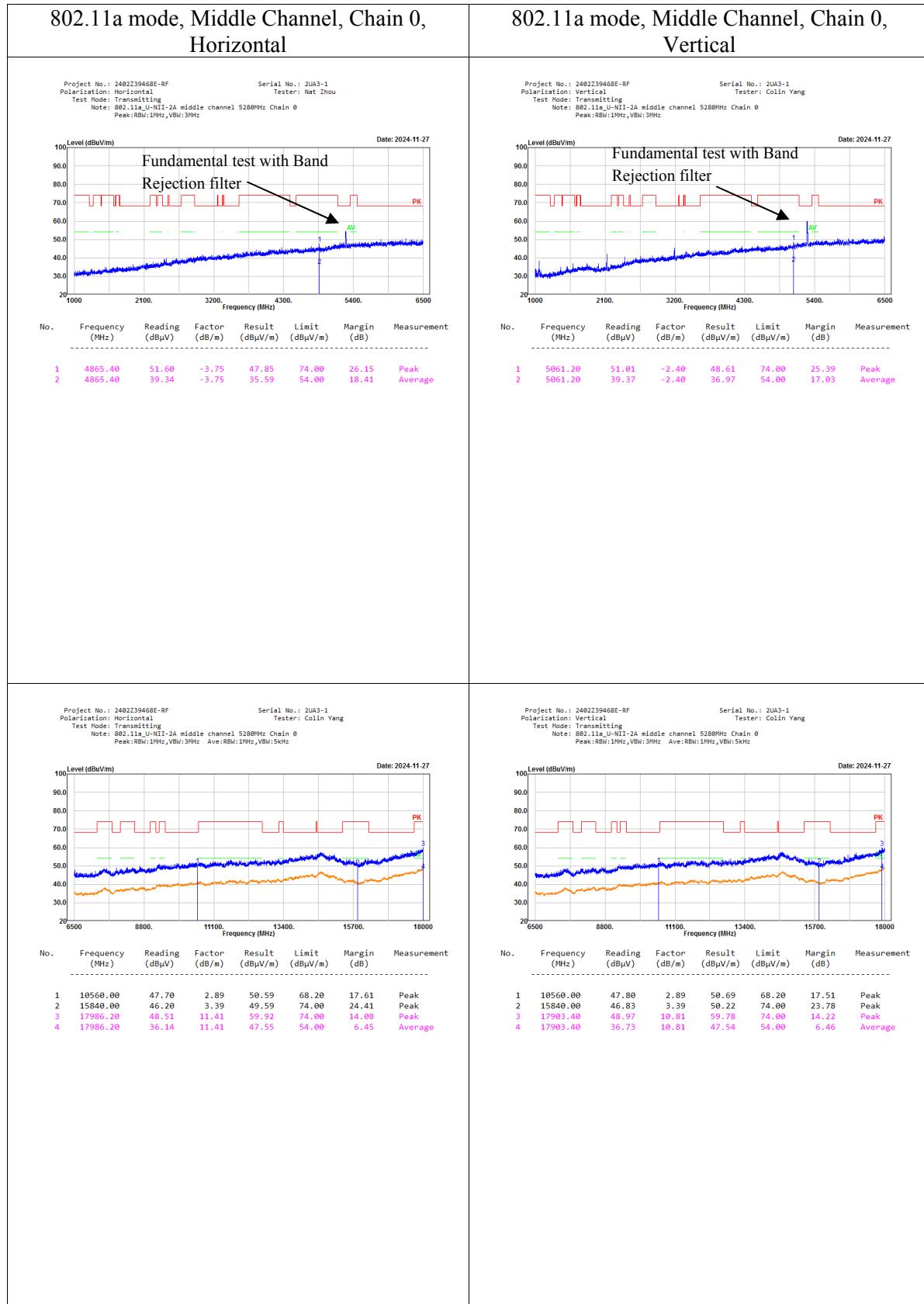


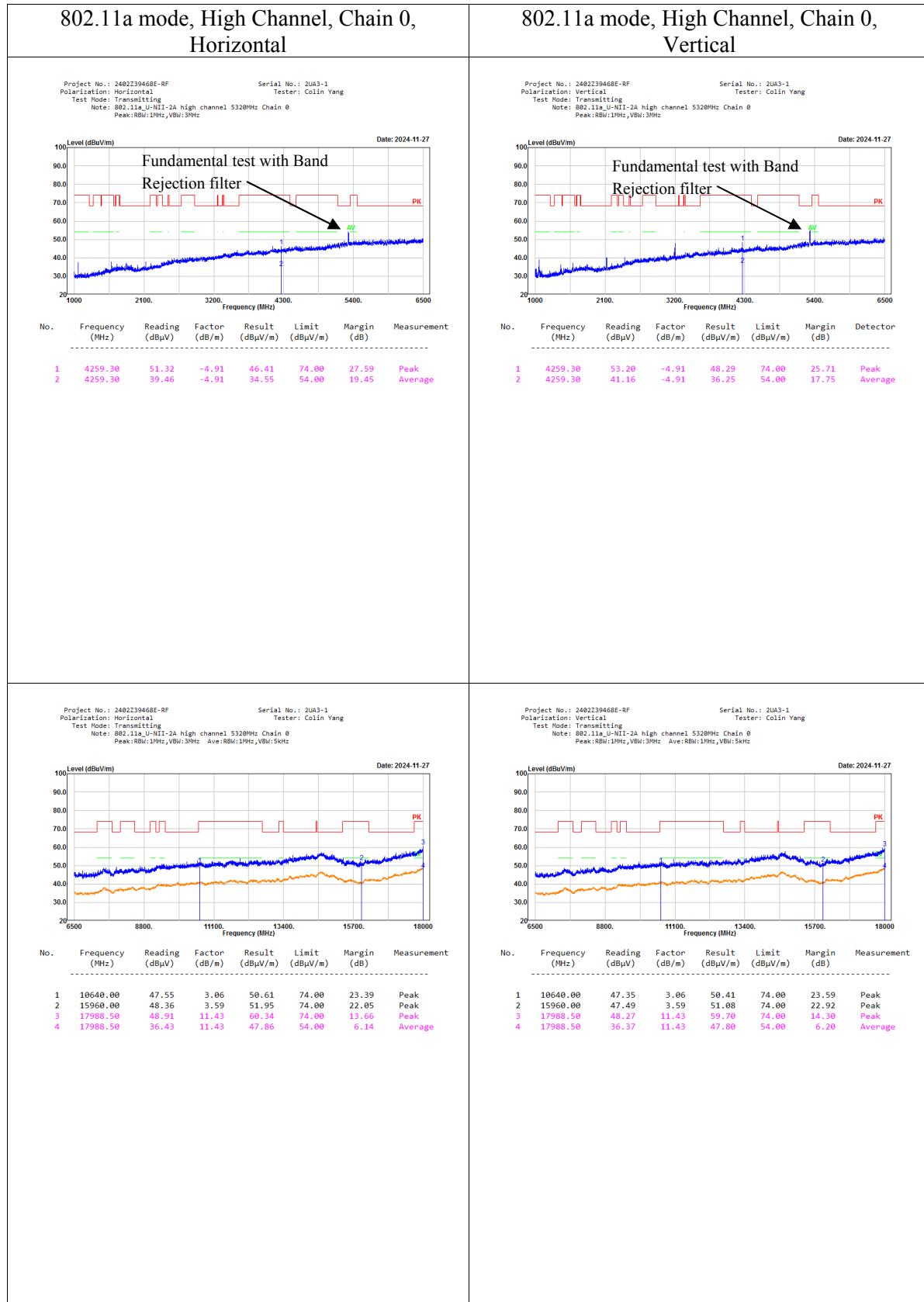


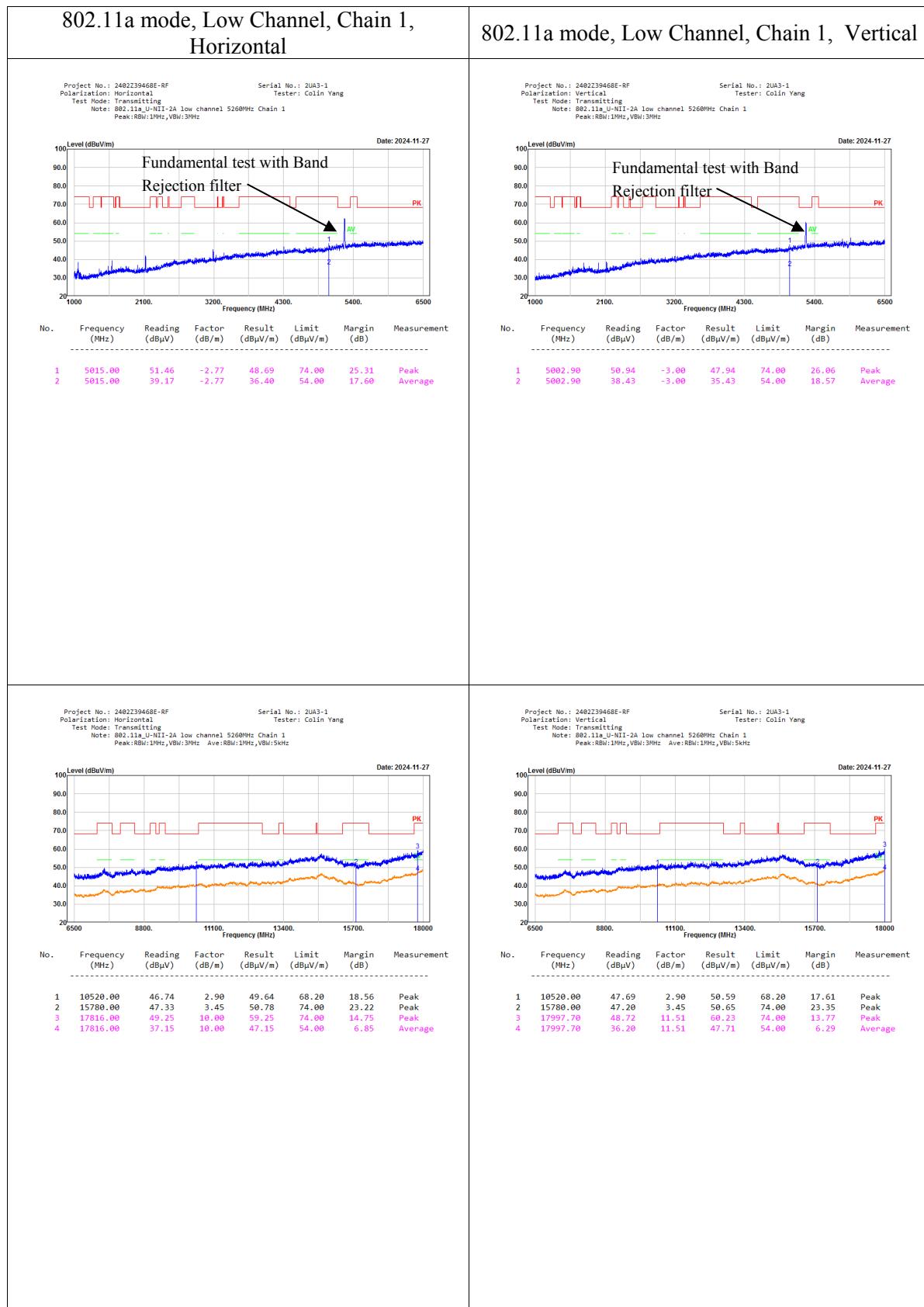


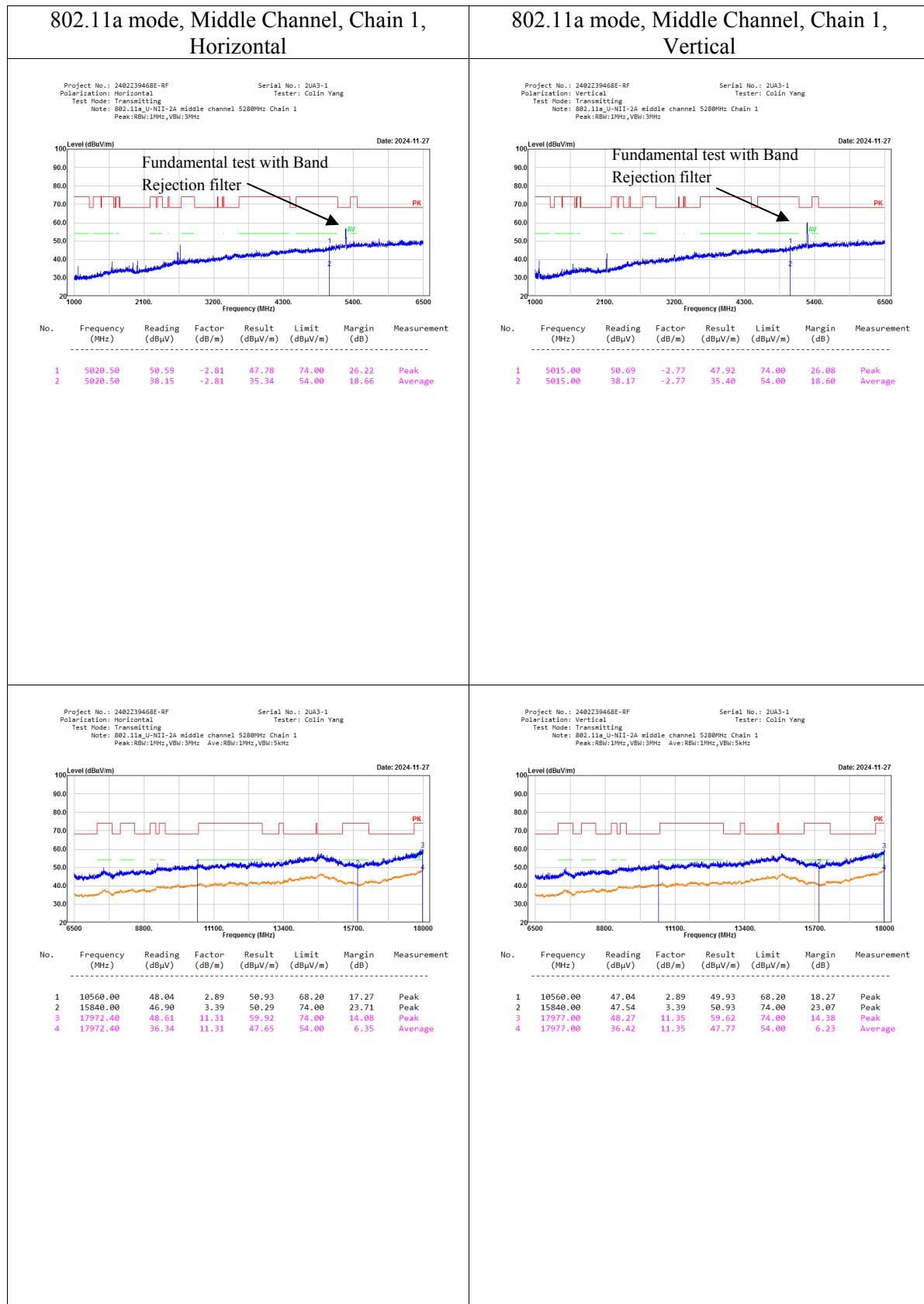
5250-5350MHz



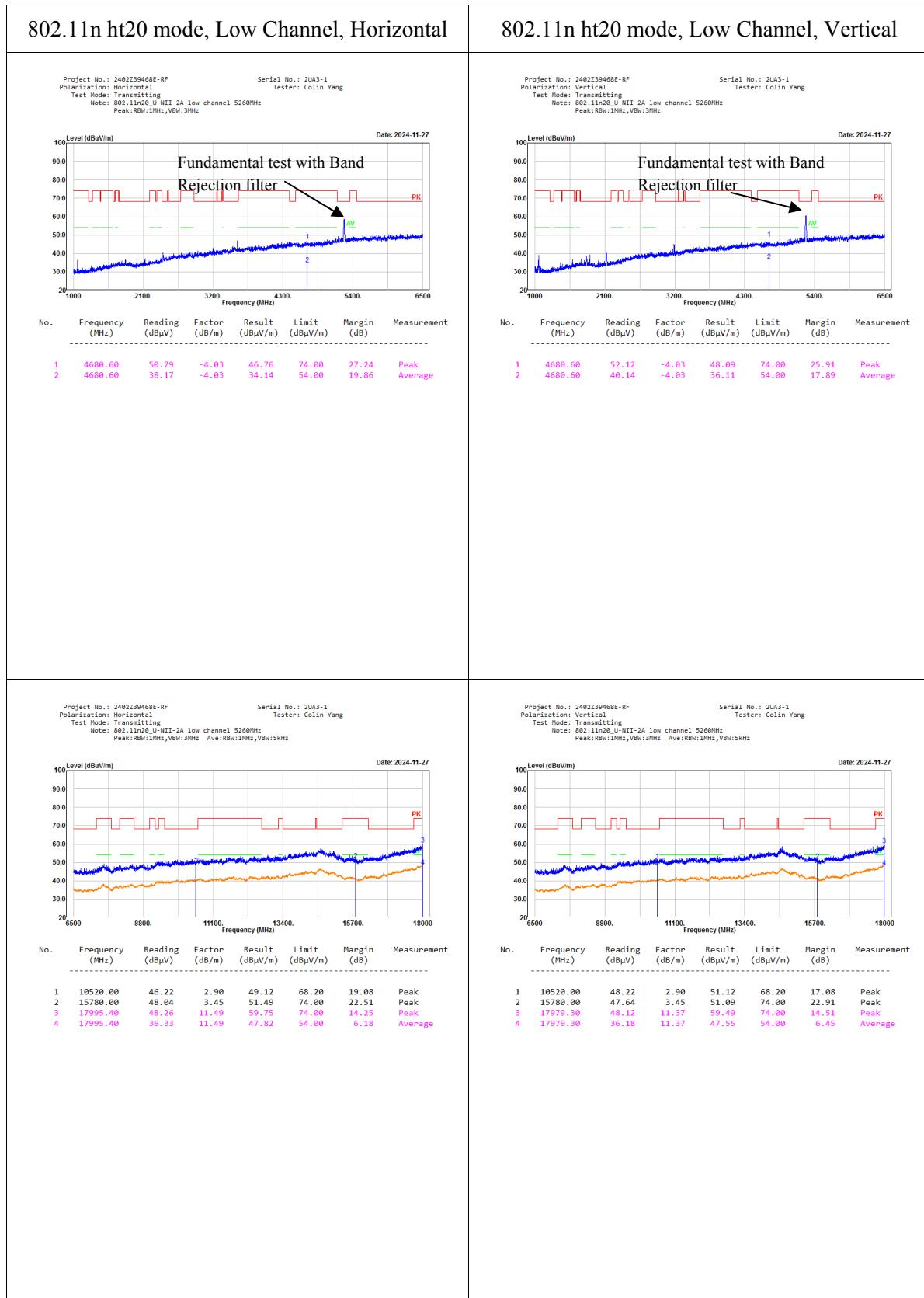


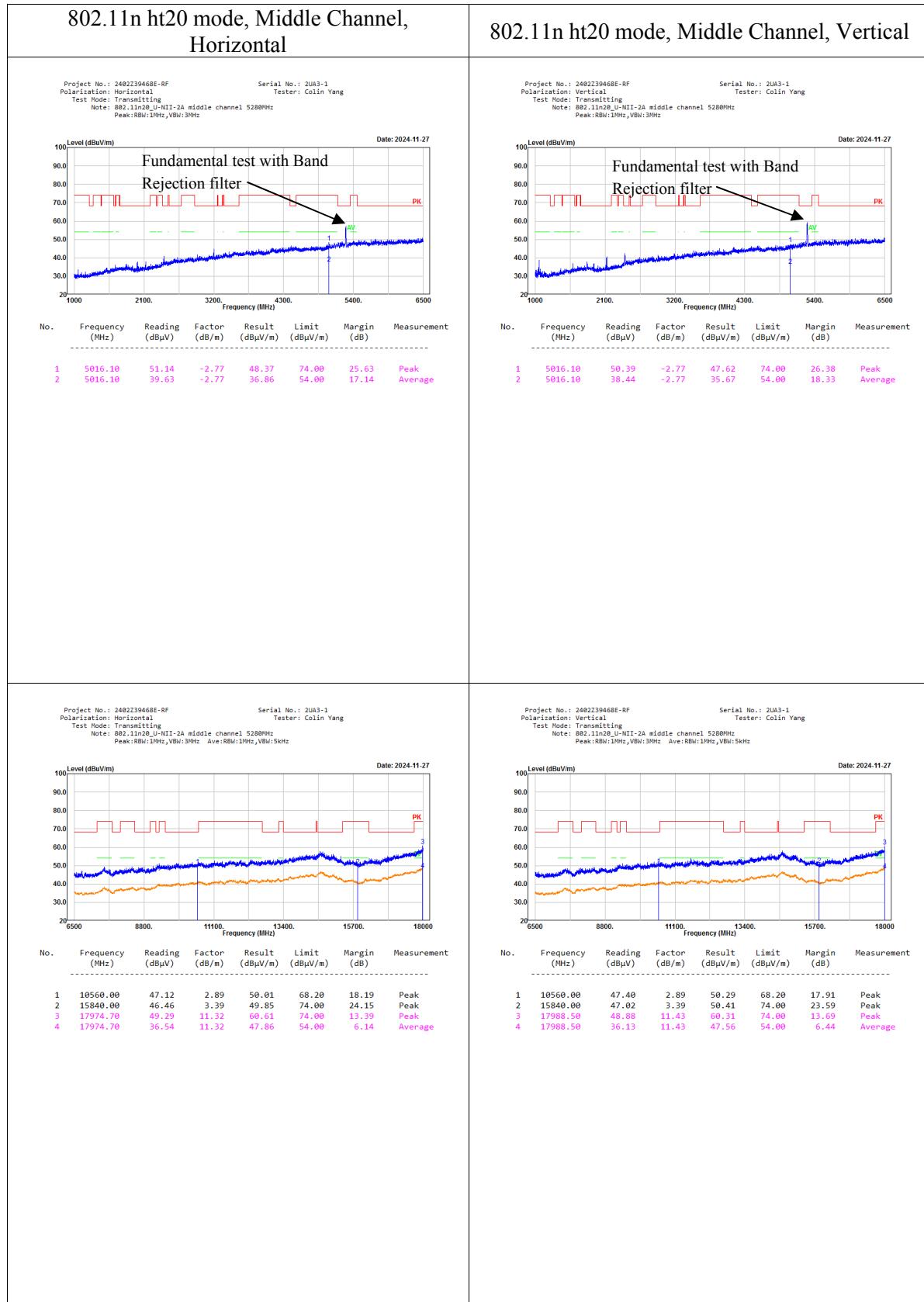


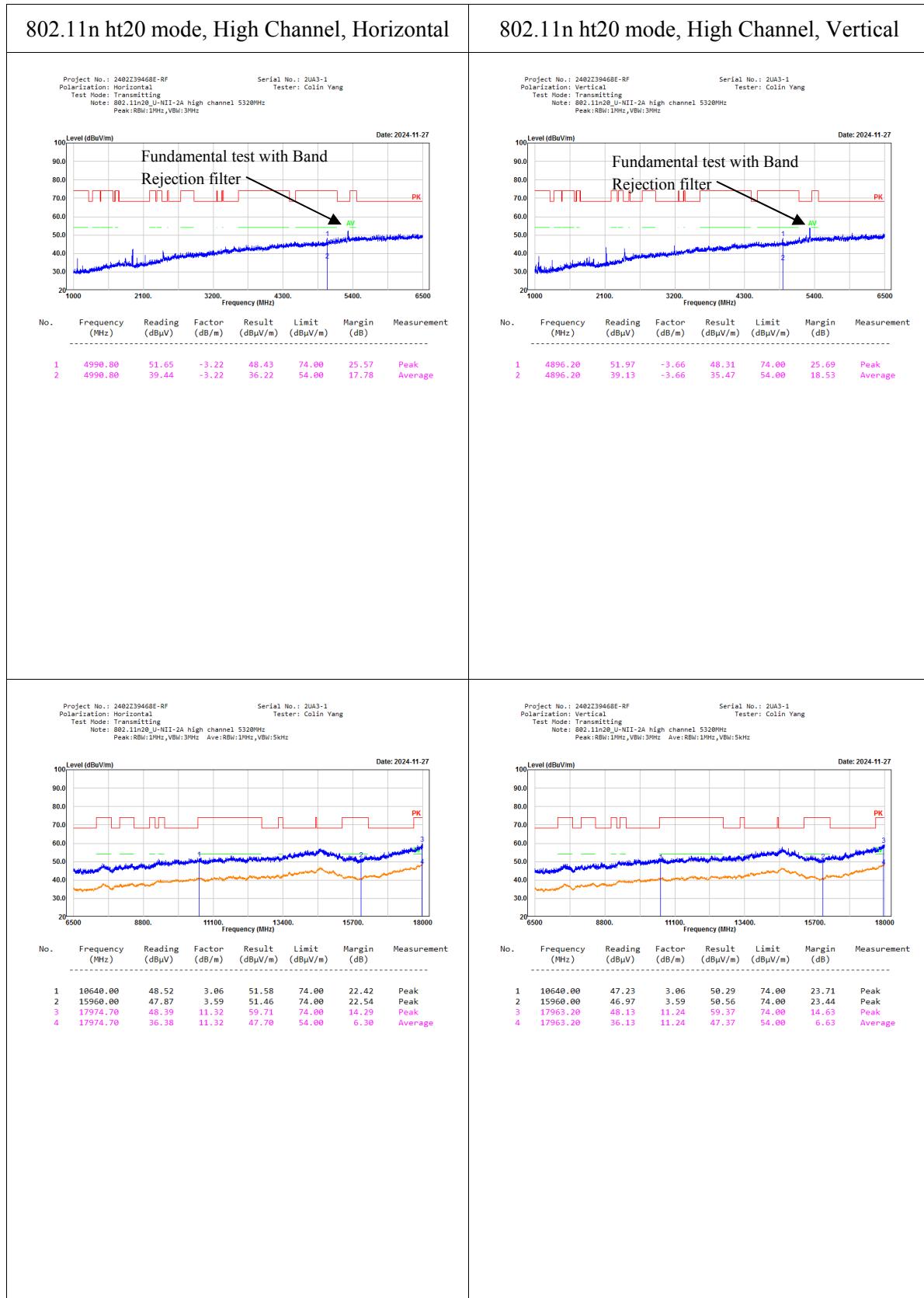


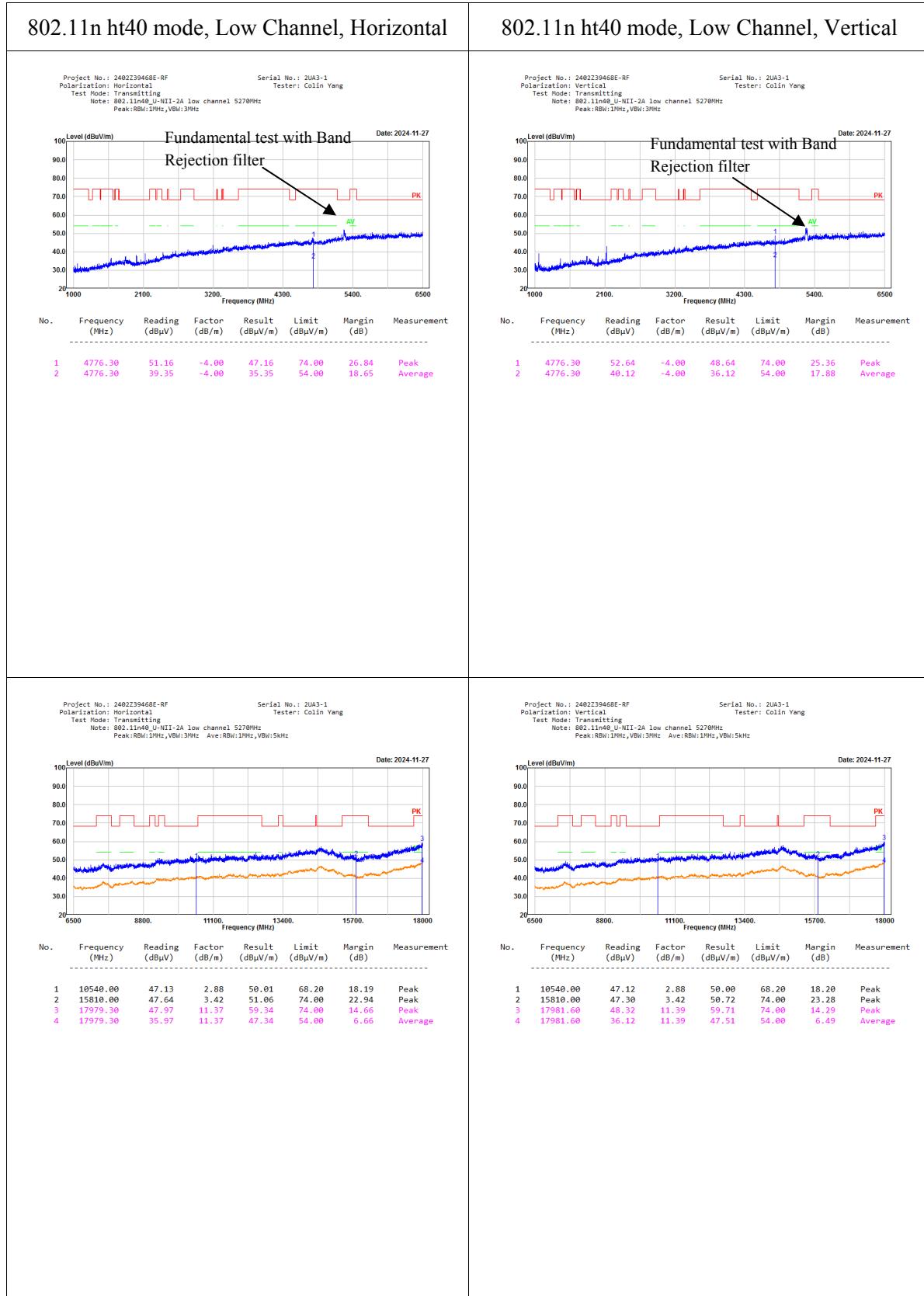


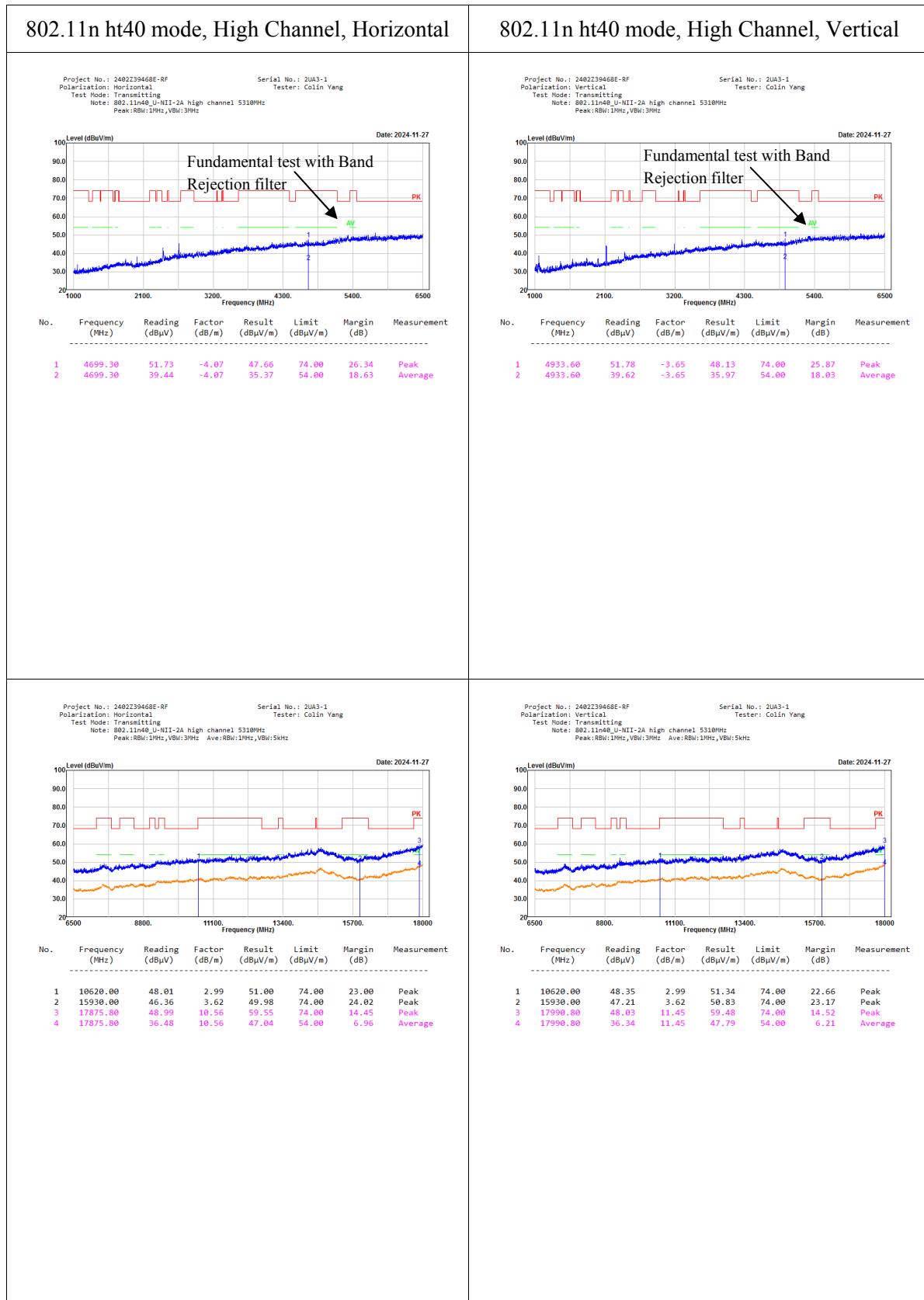


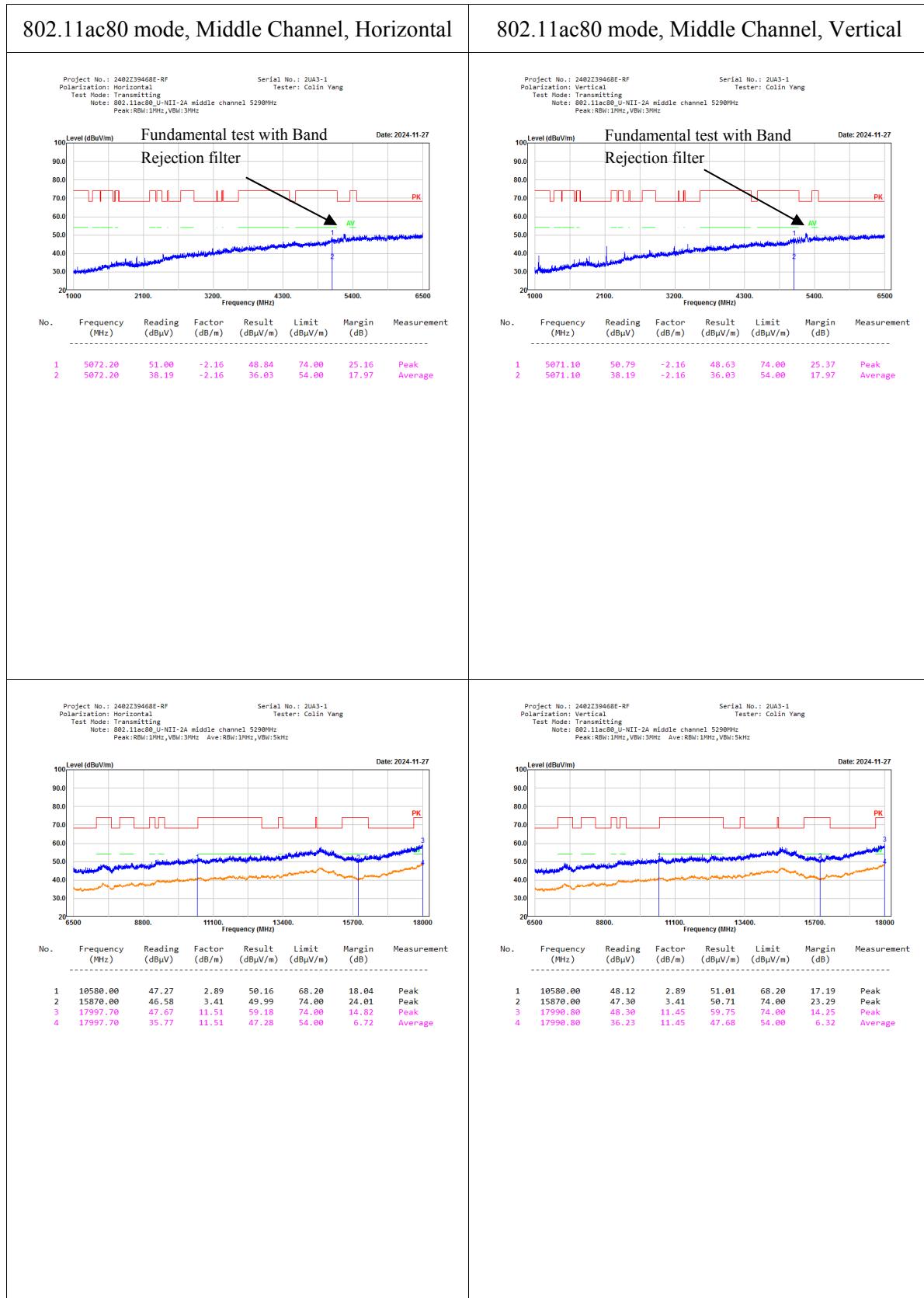


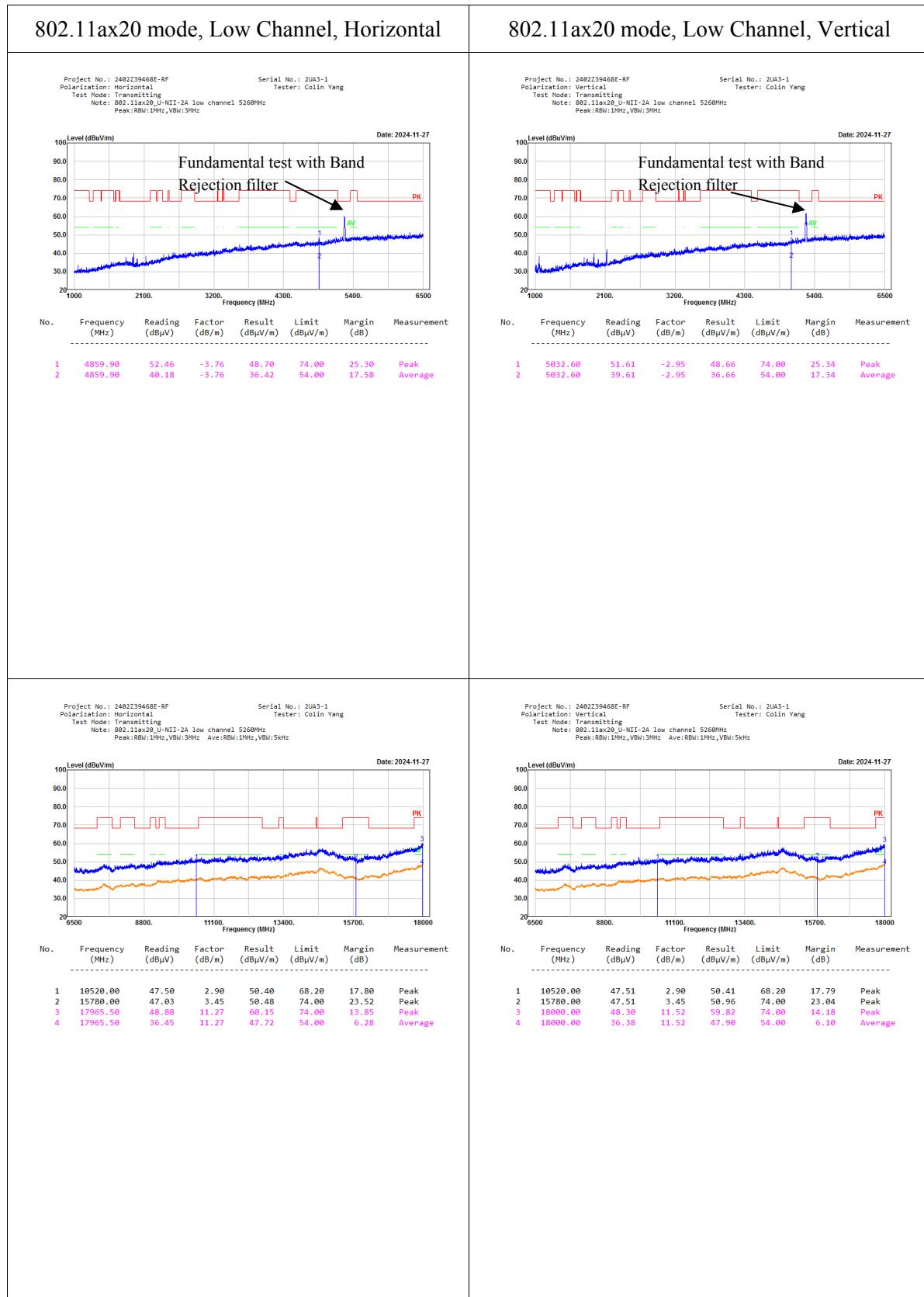


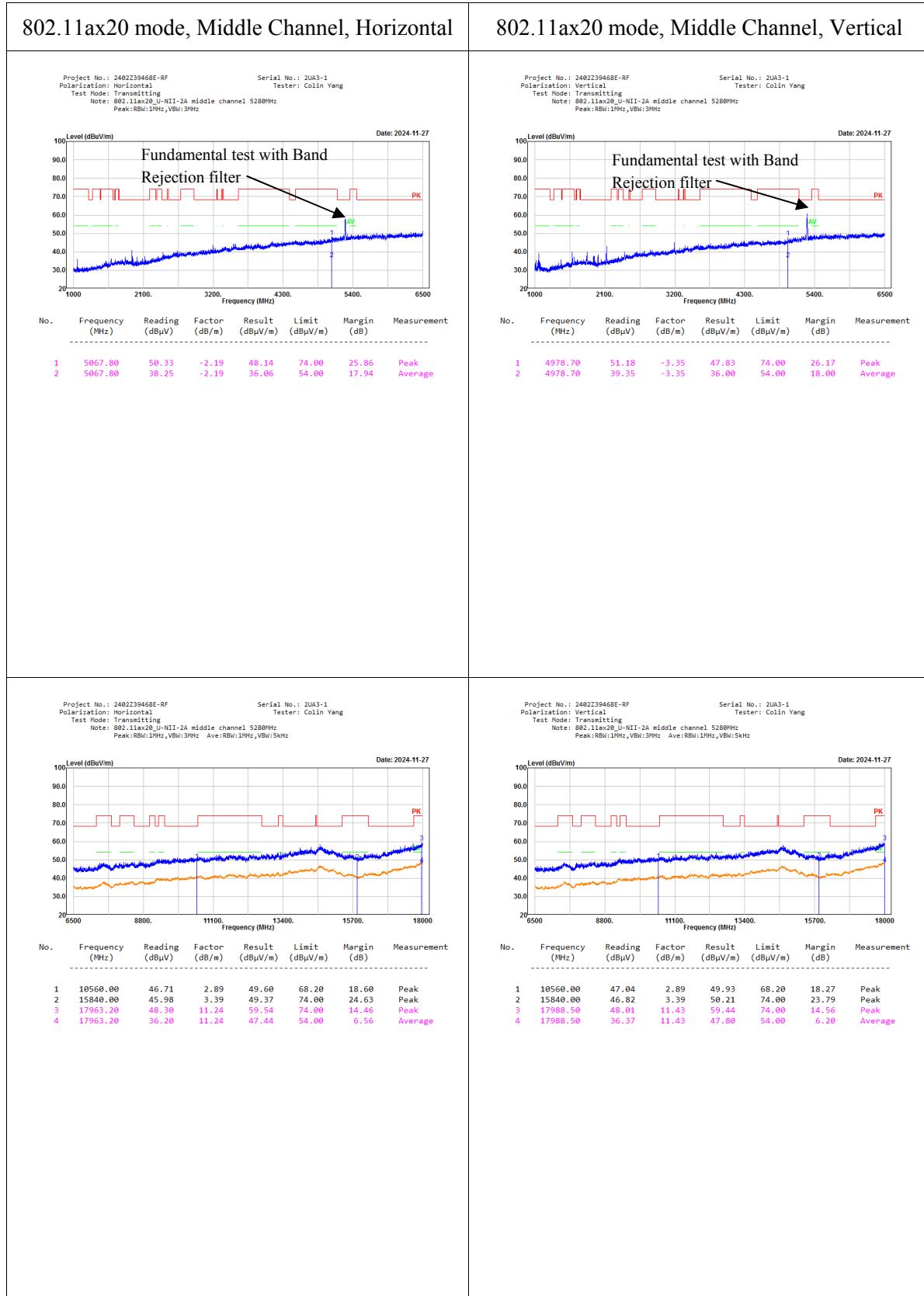


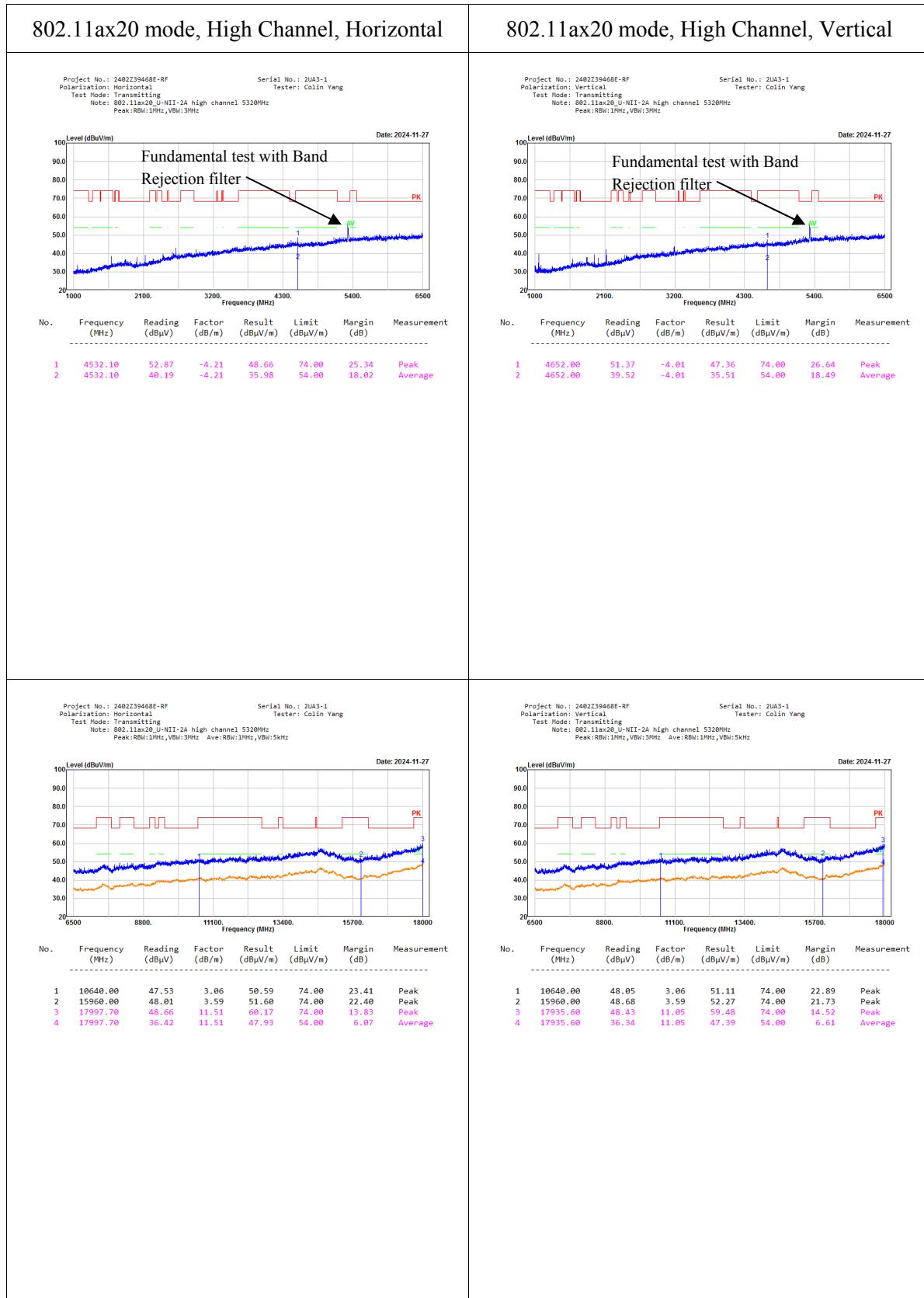


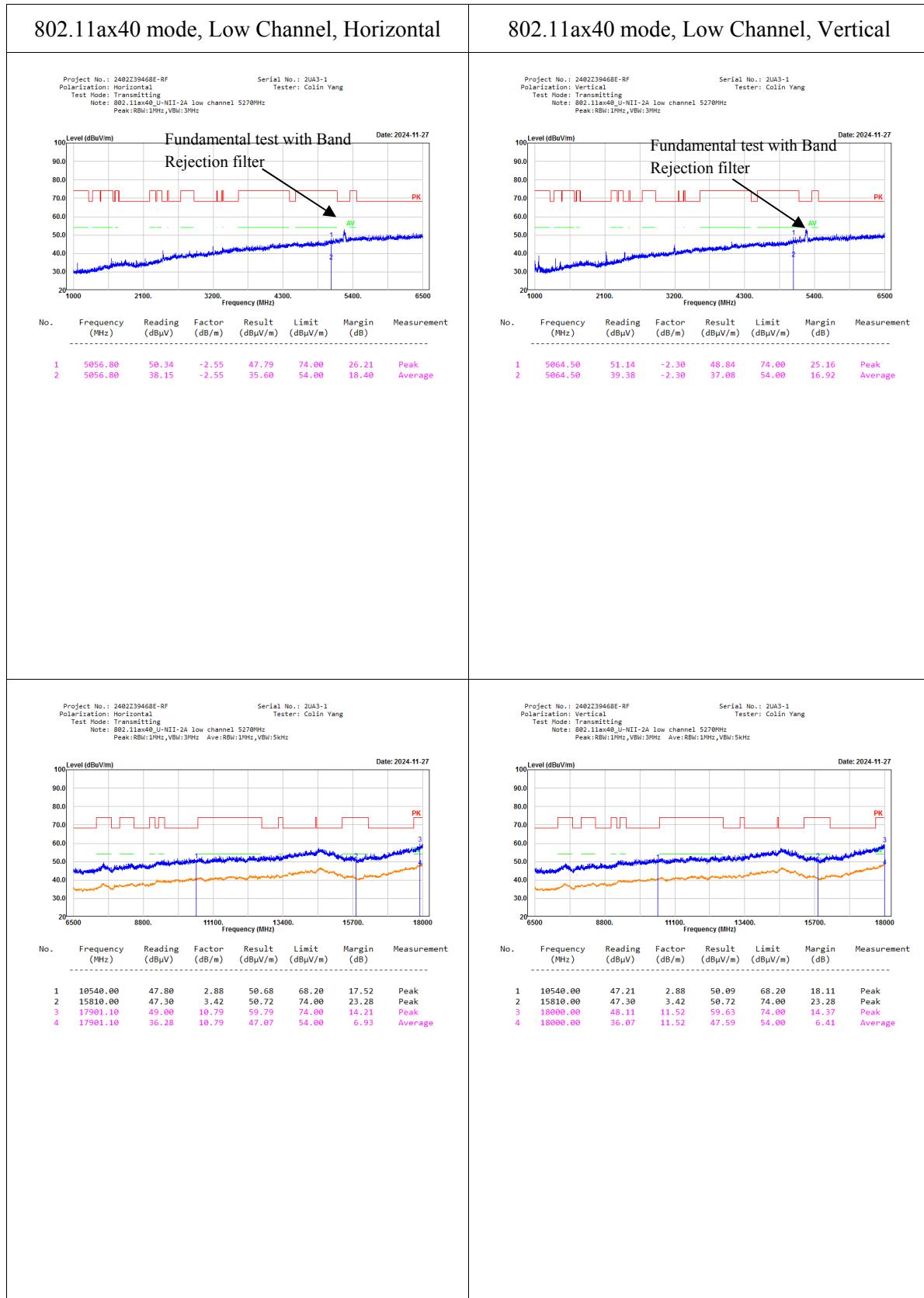


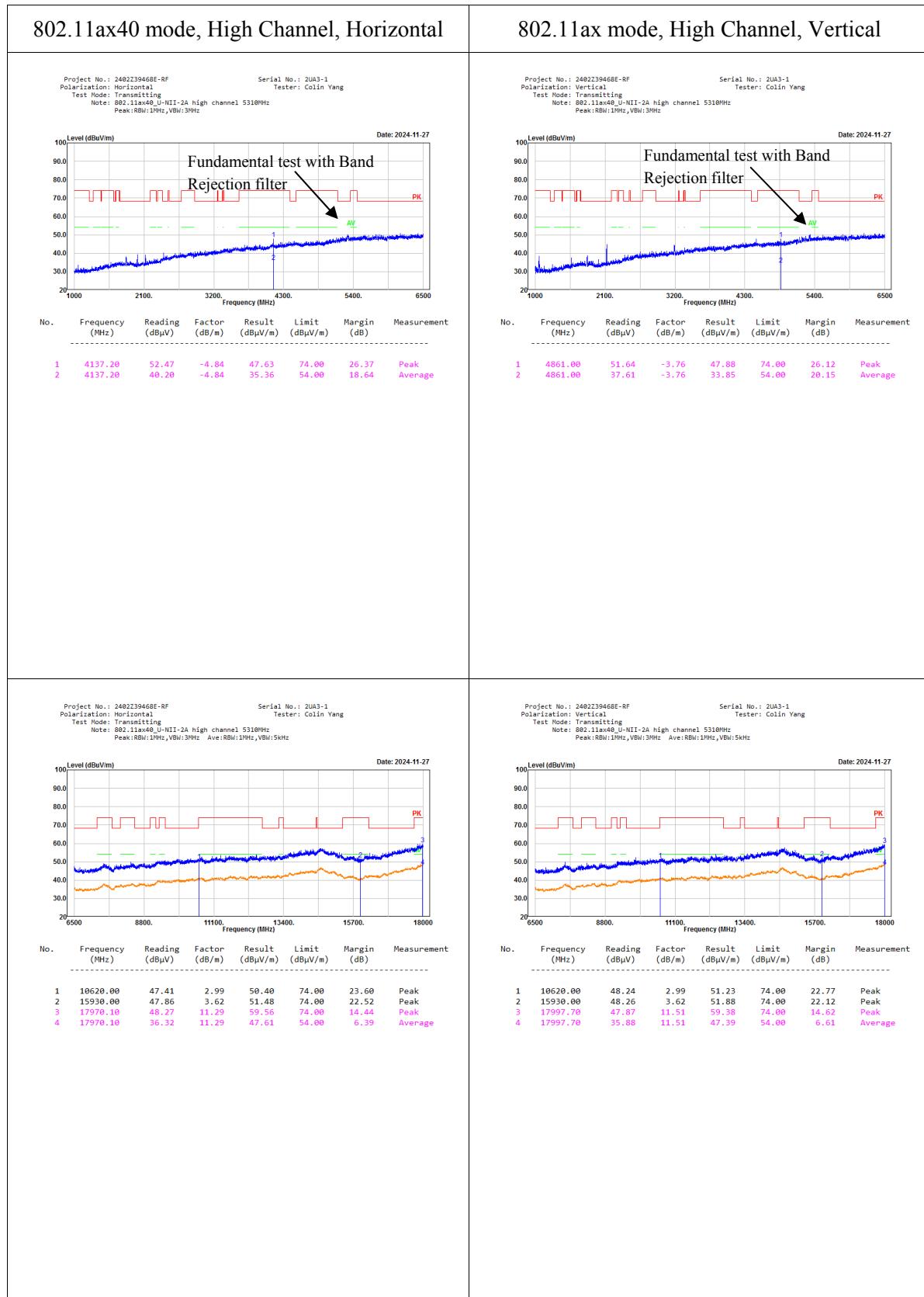


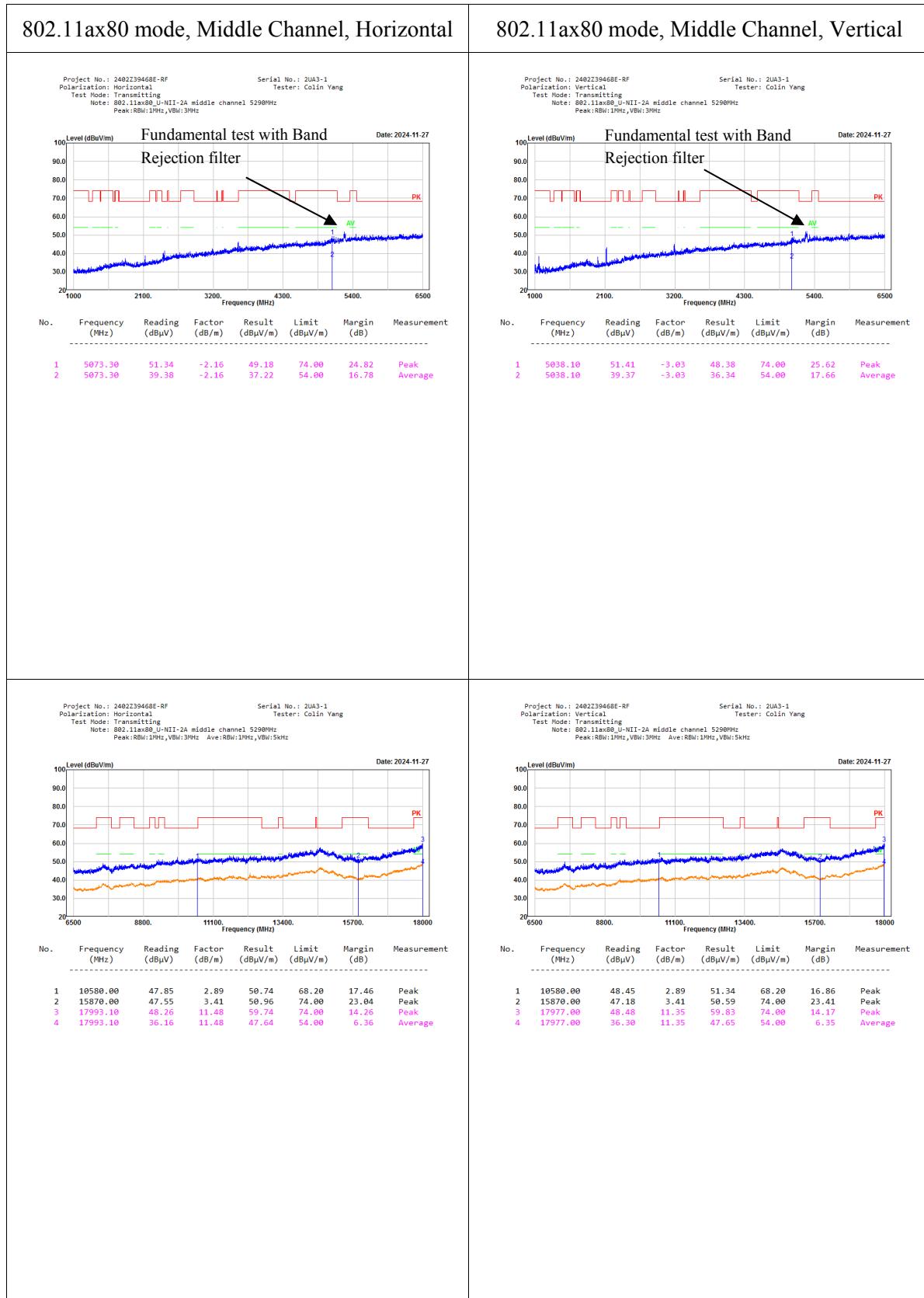




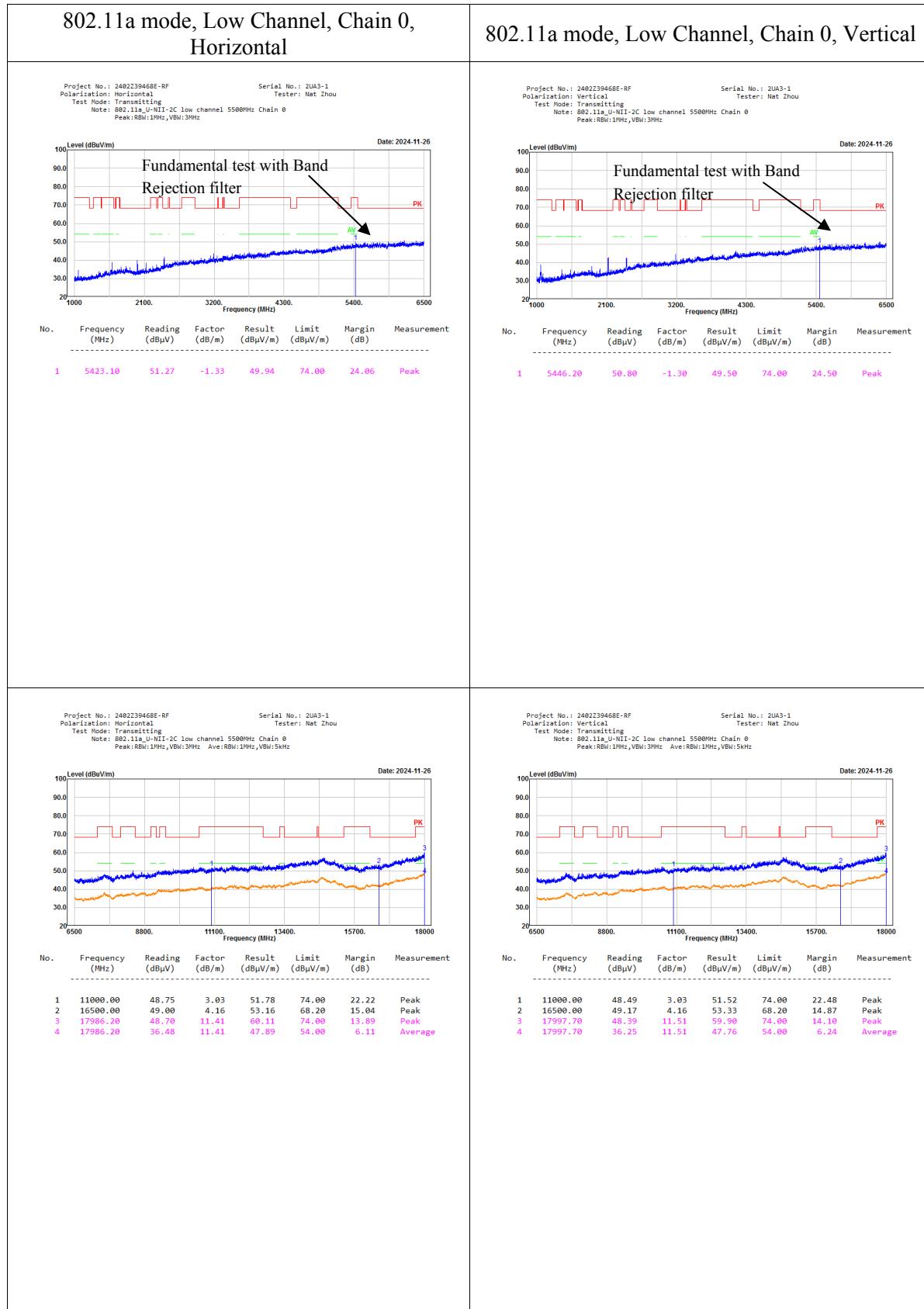


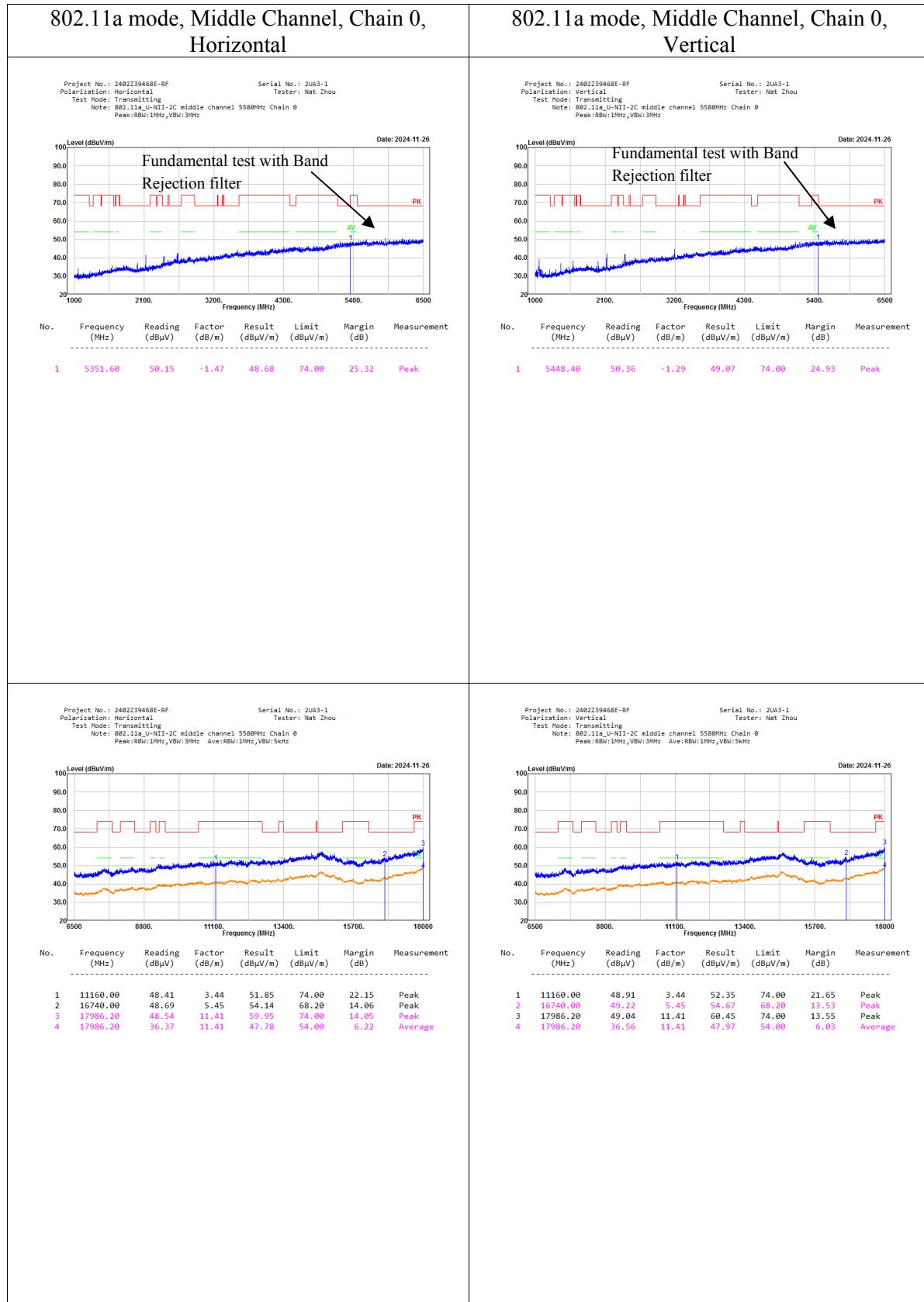


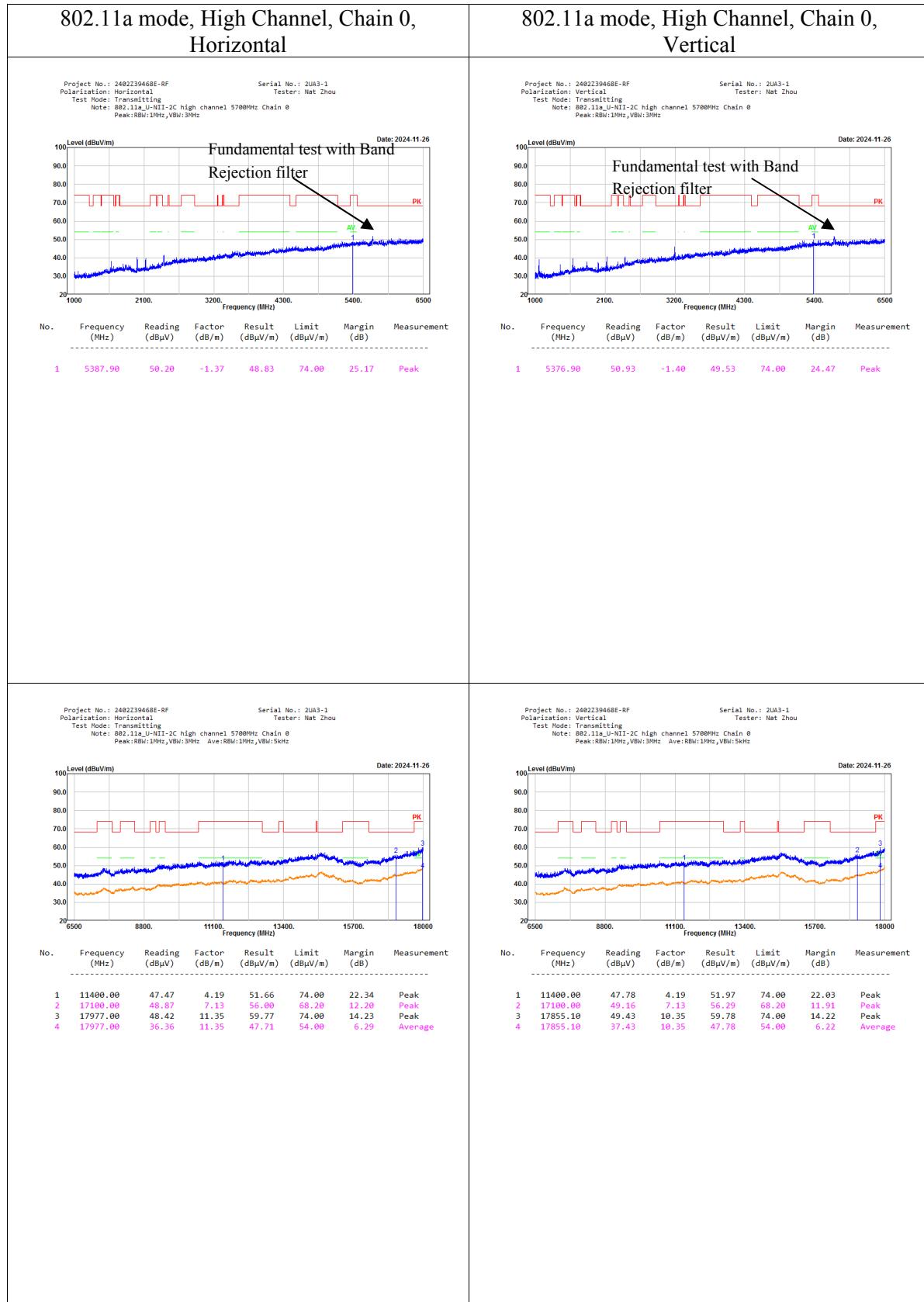


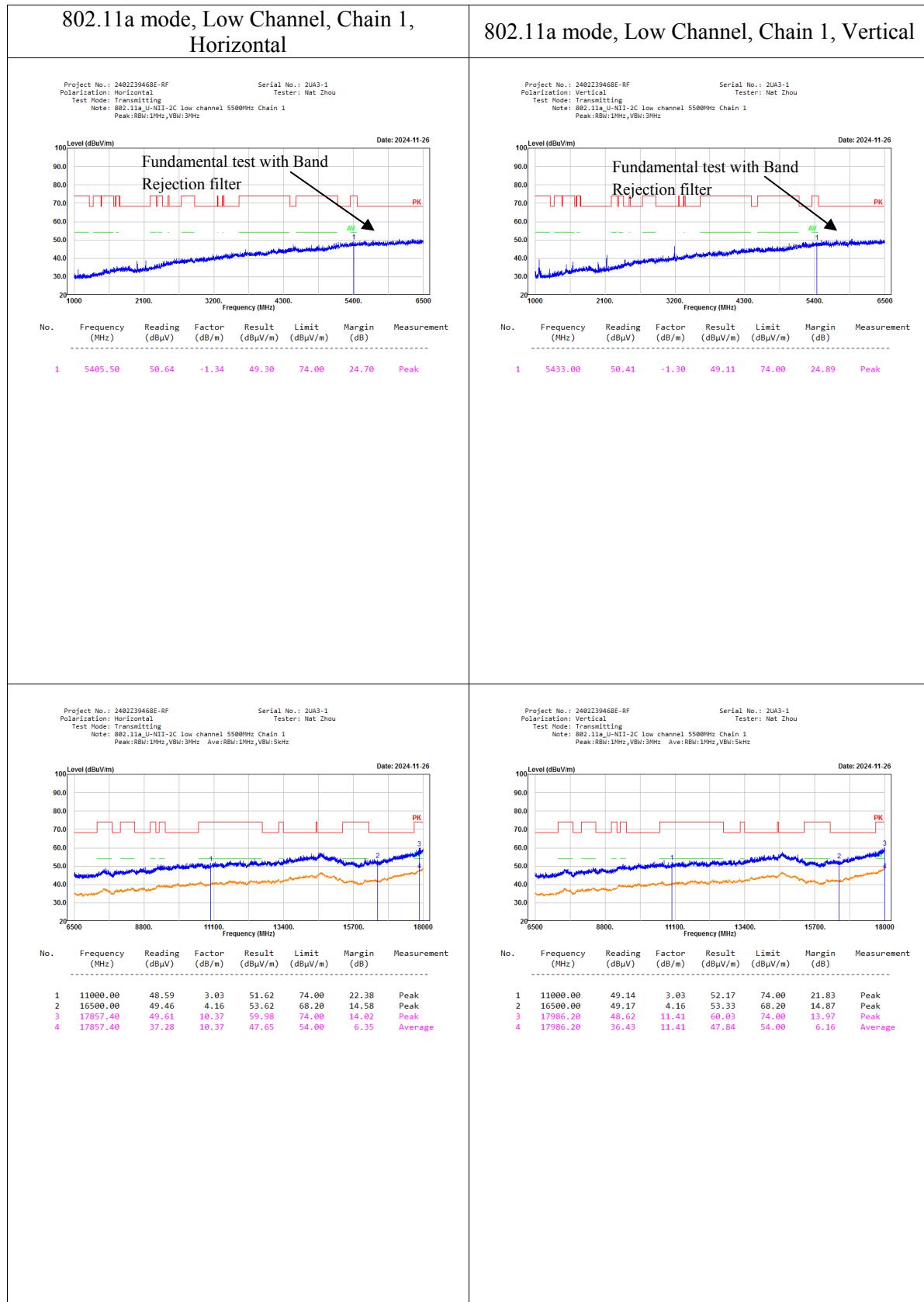


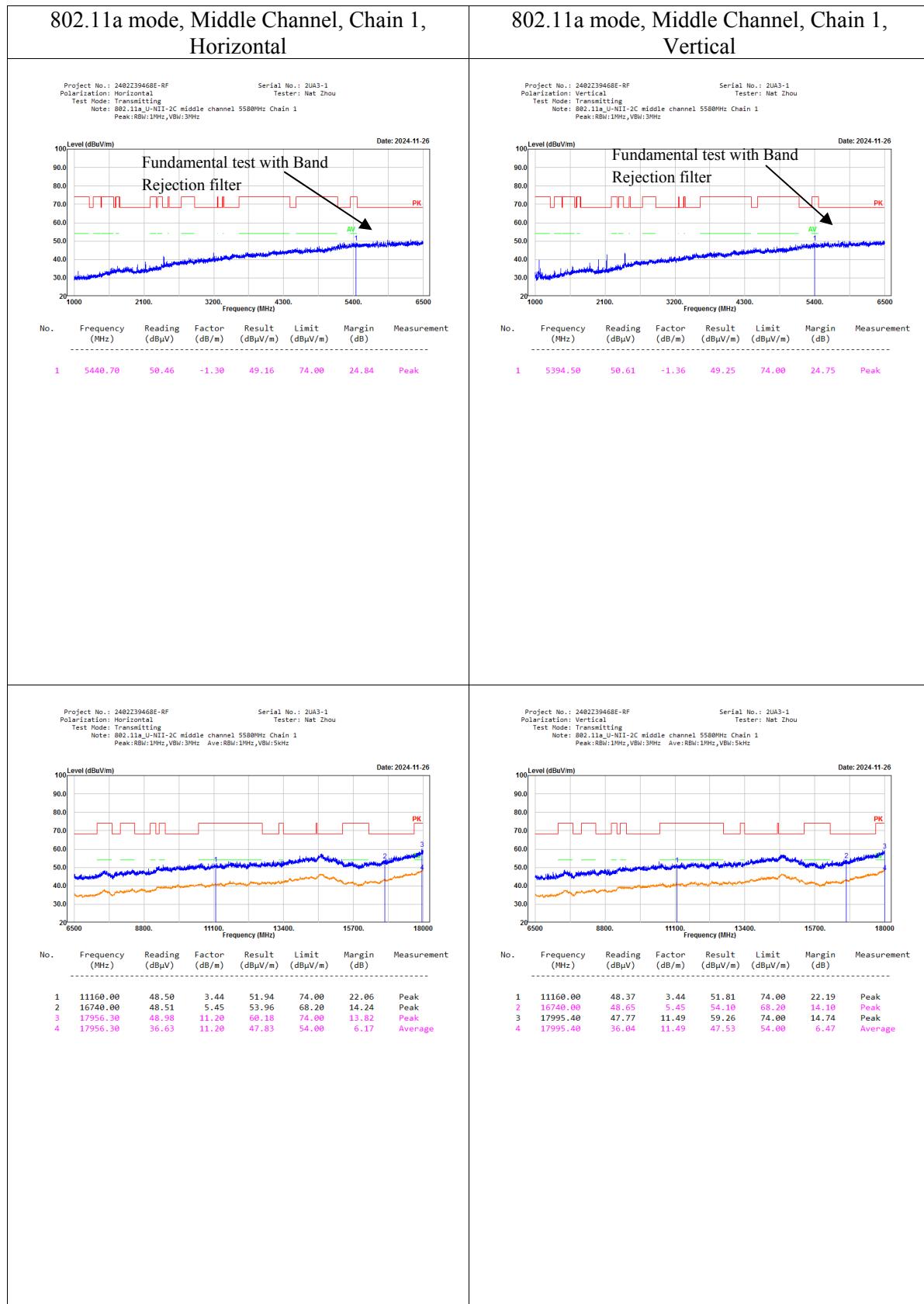
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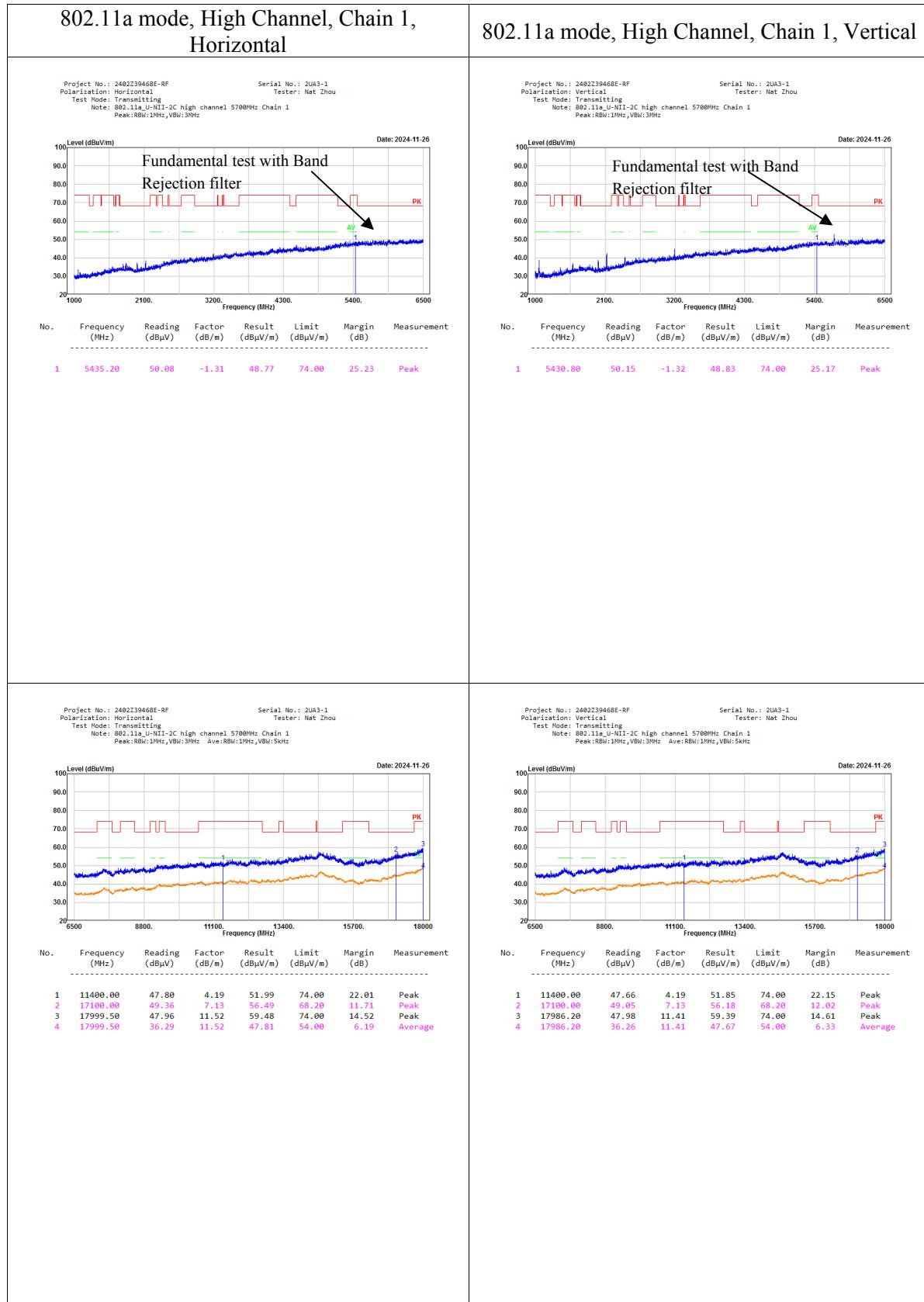




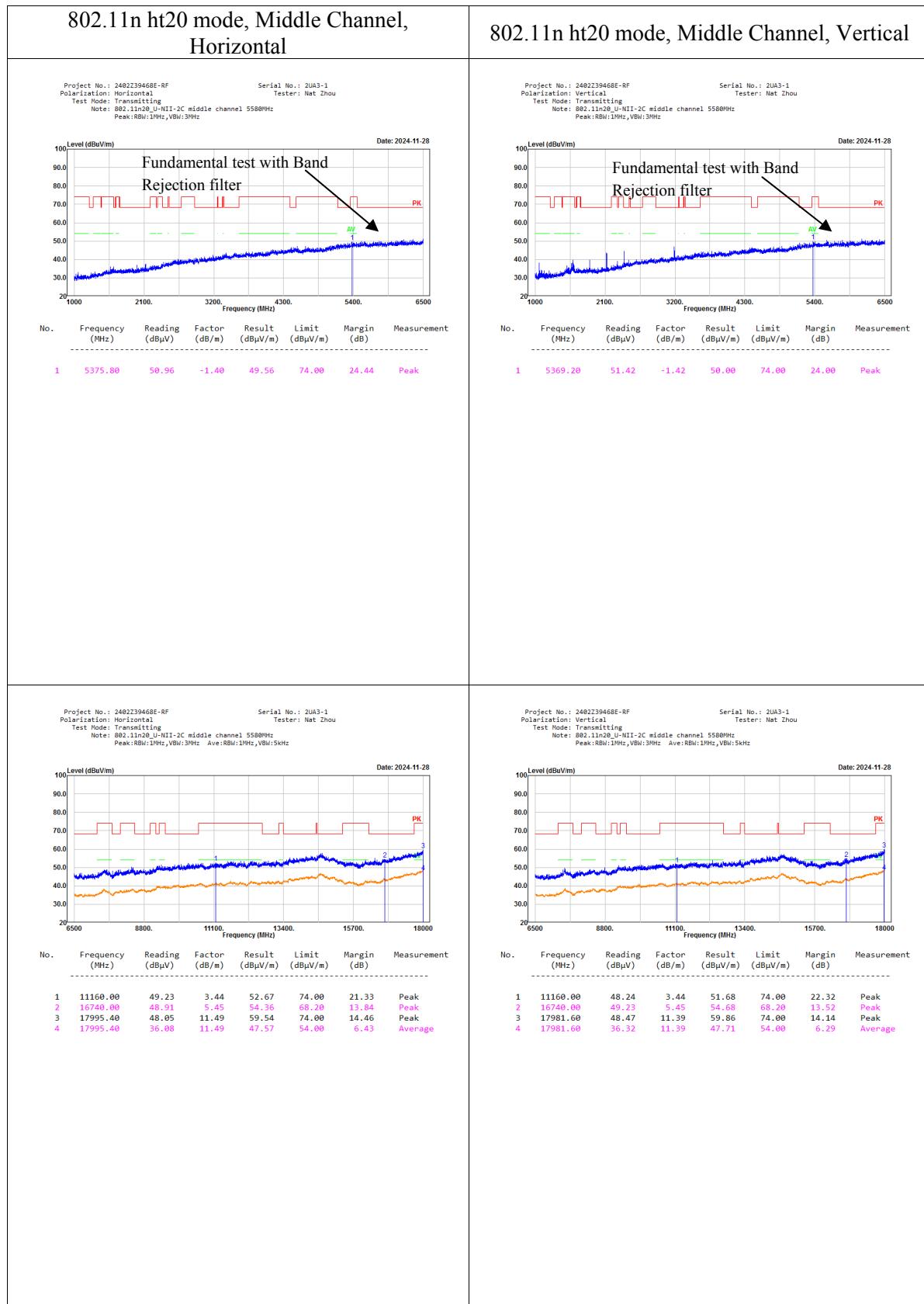




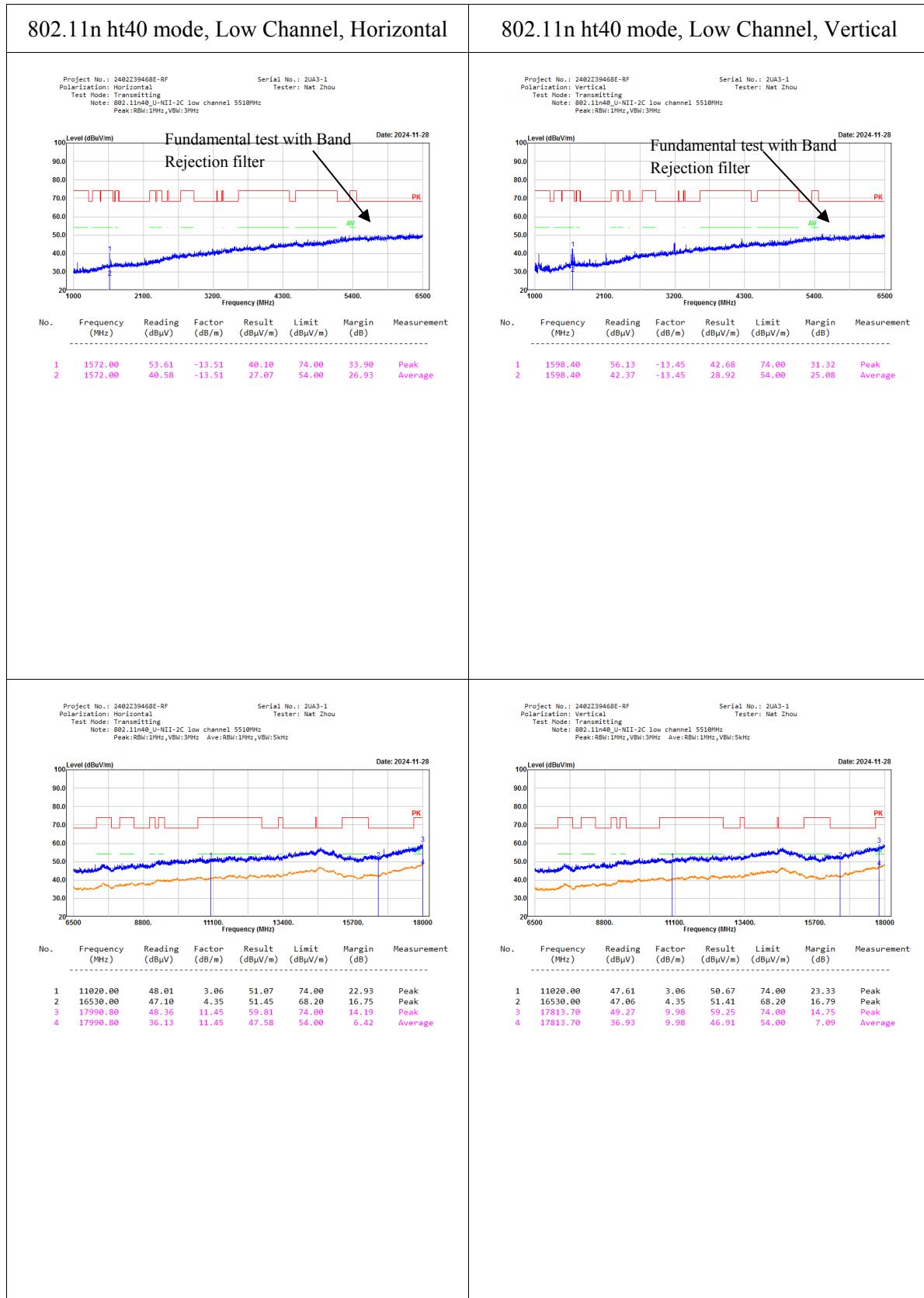


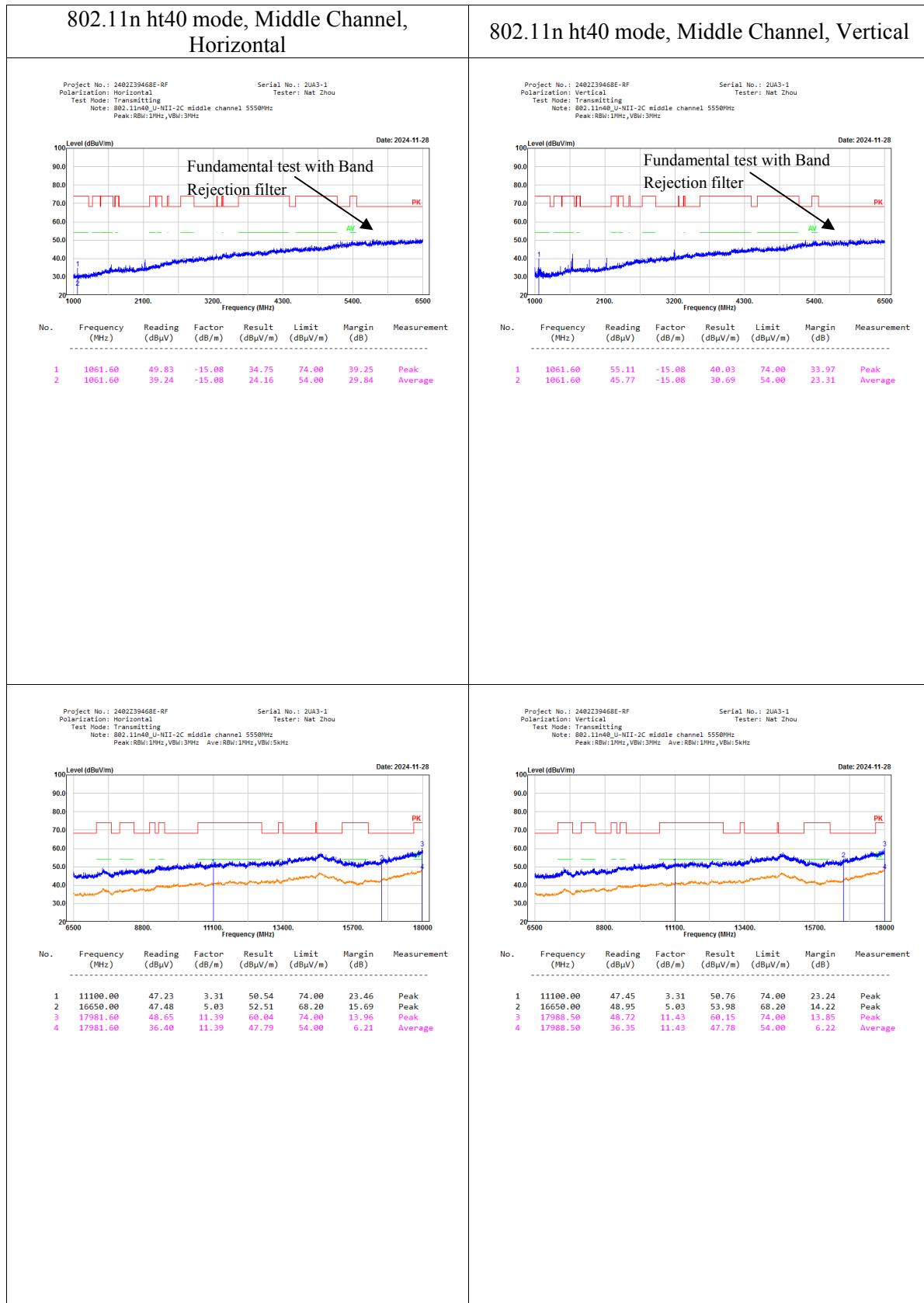


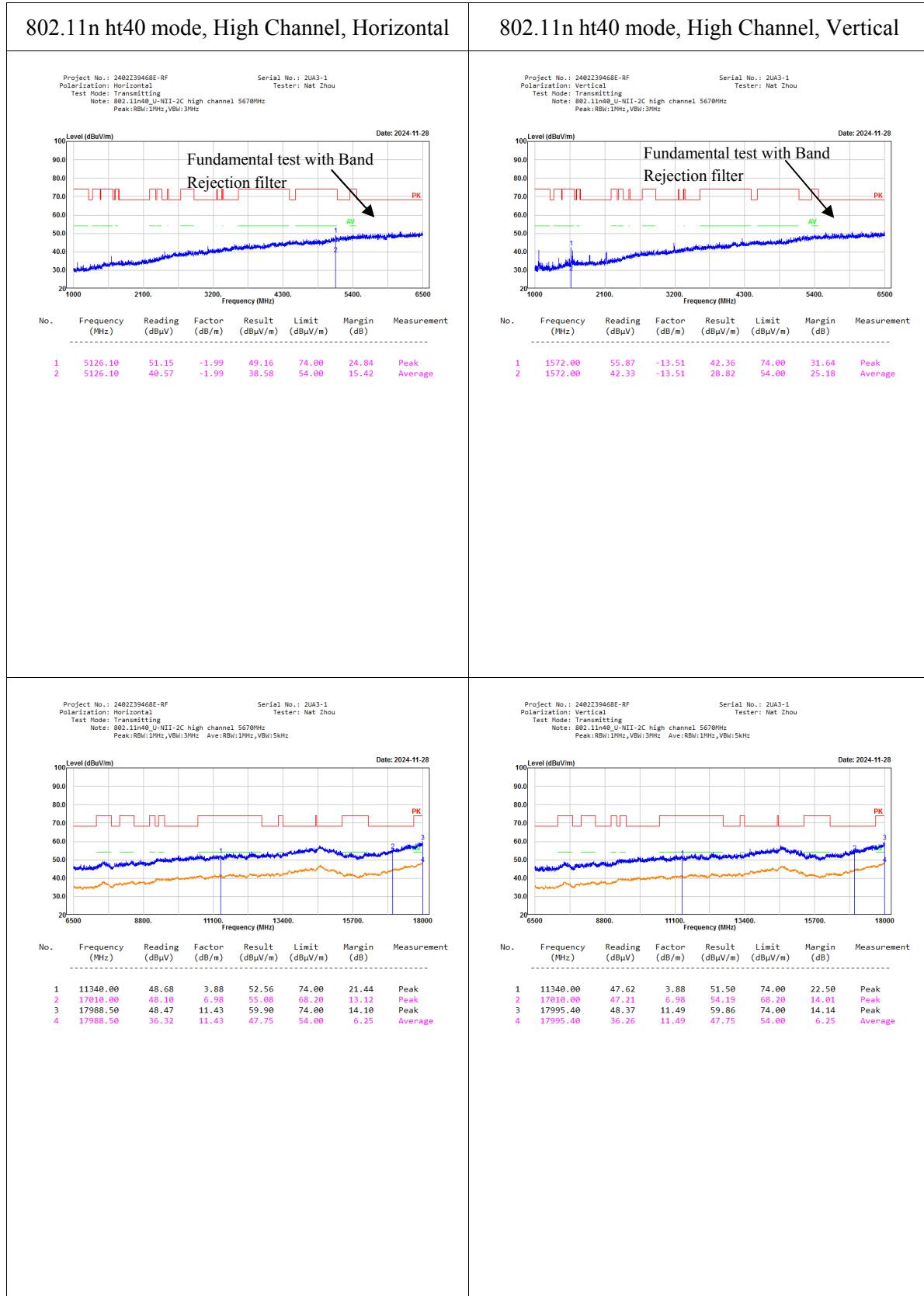


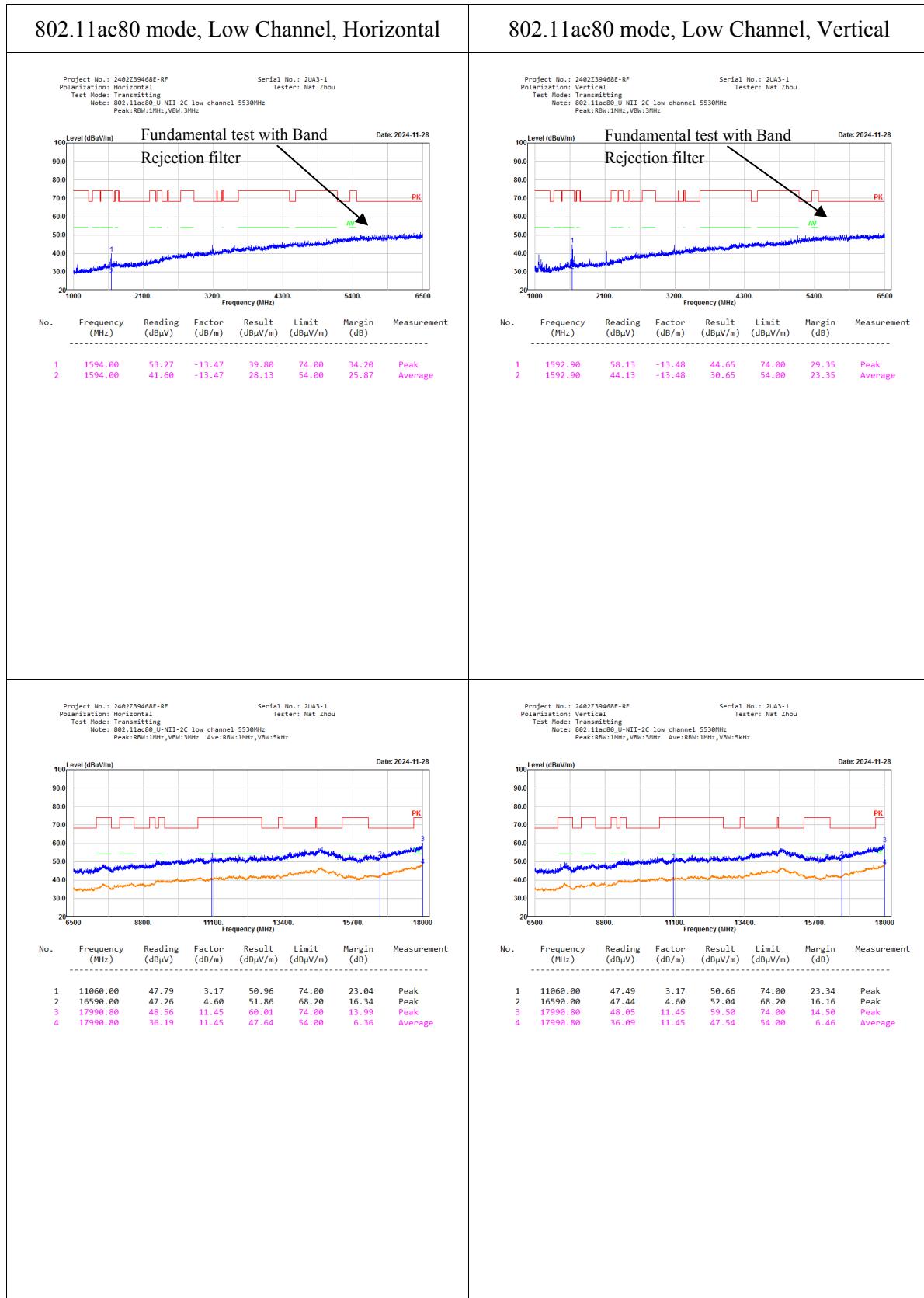


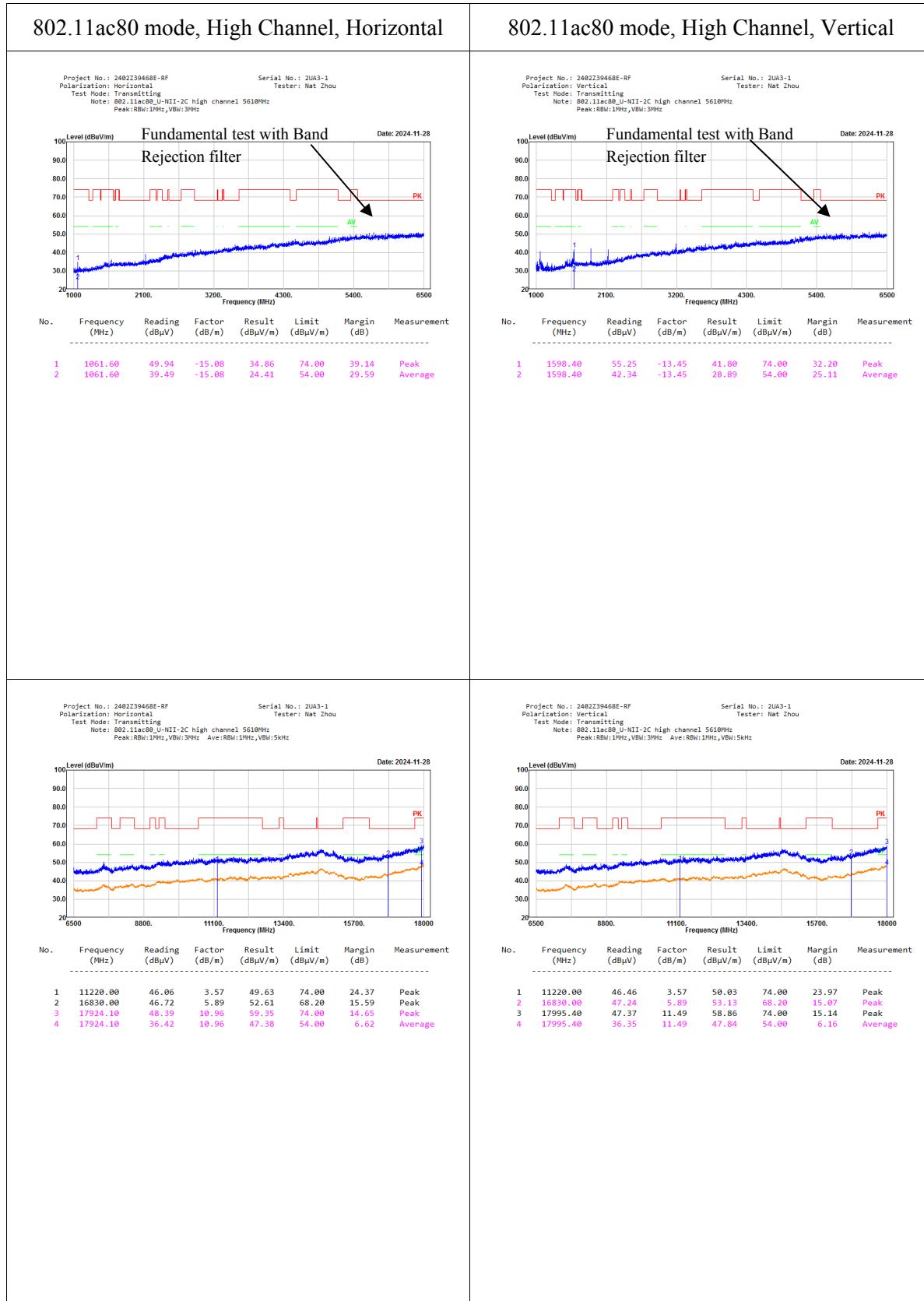


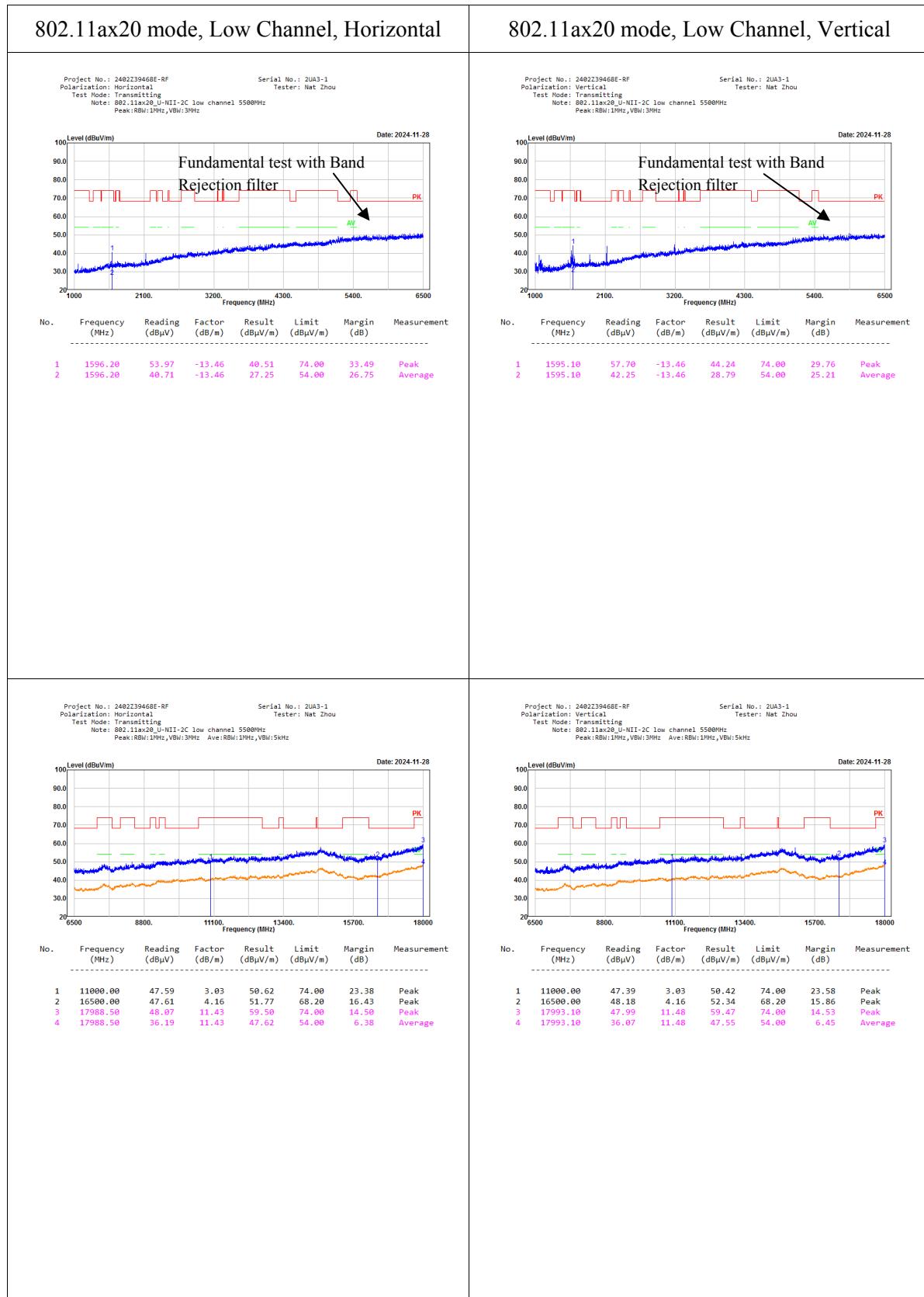


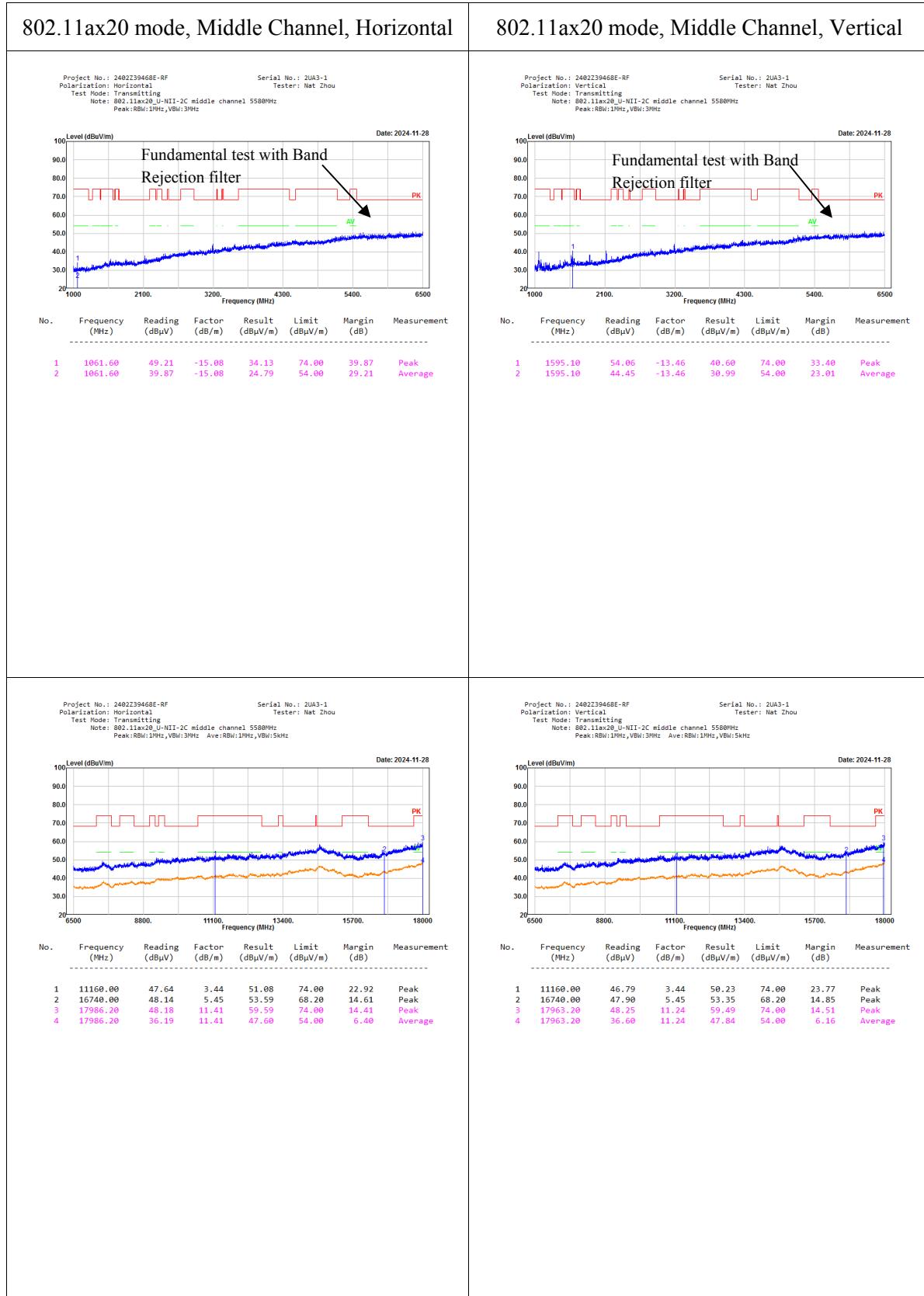


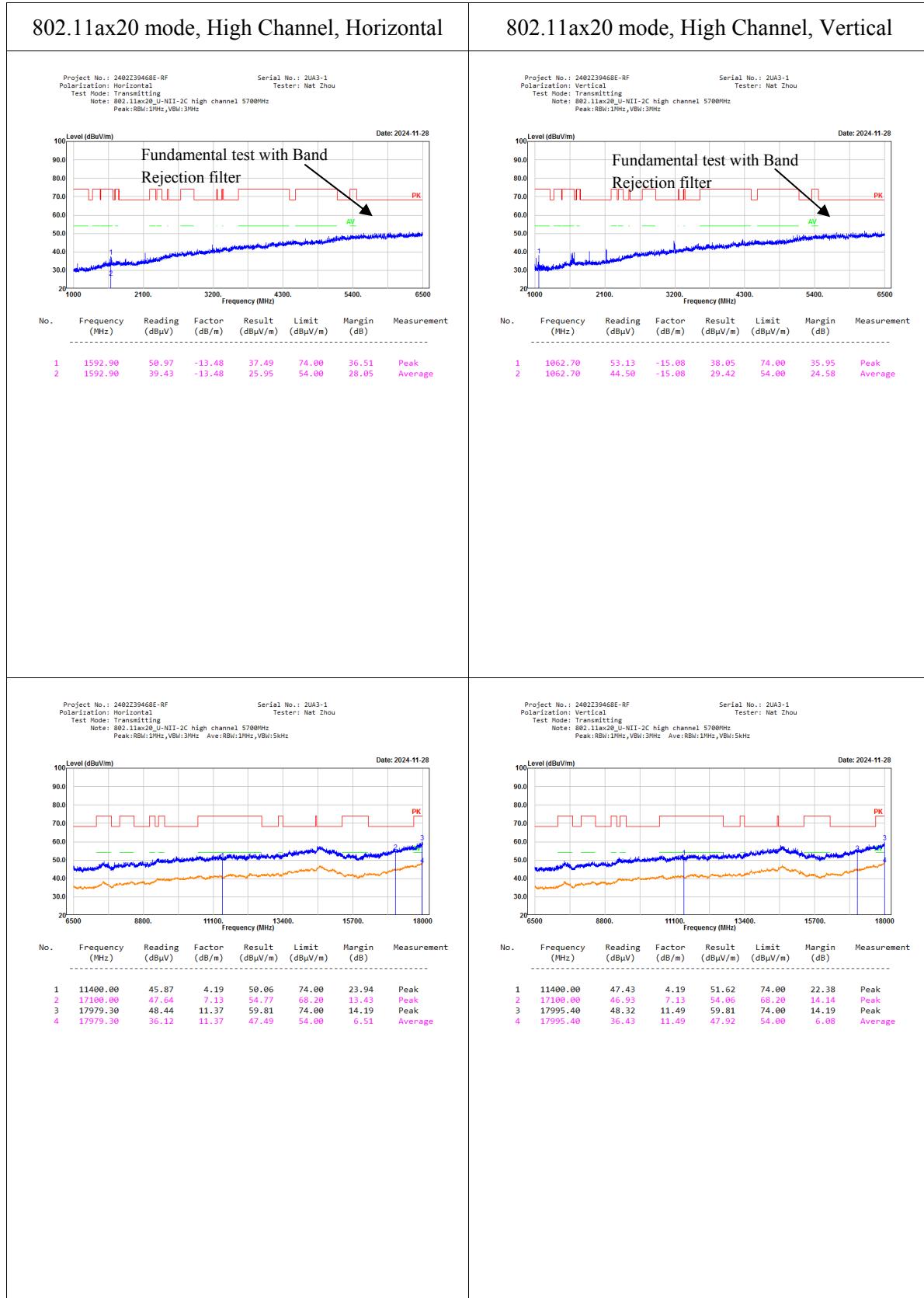


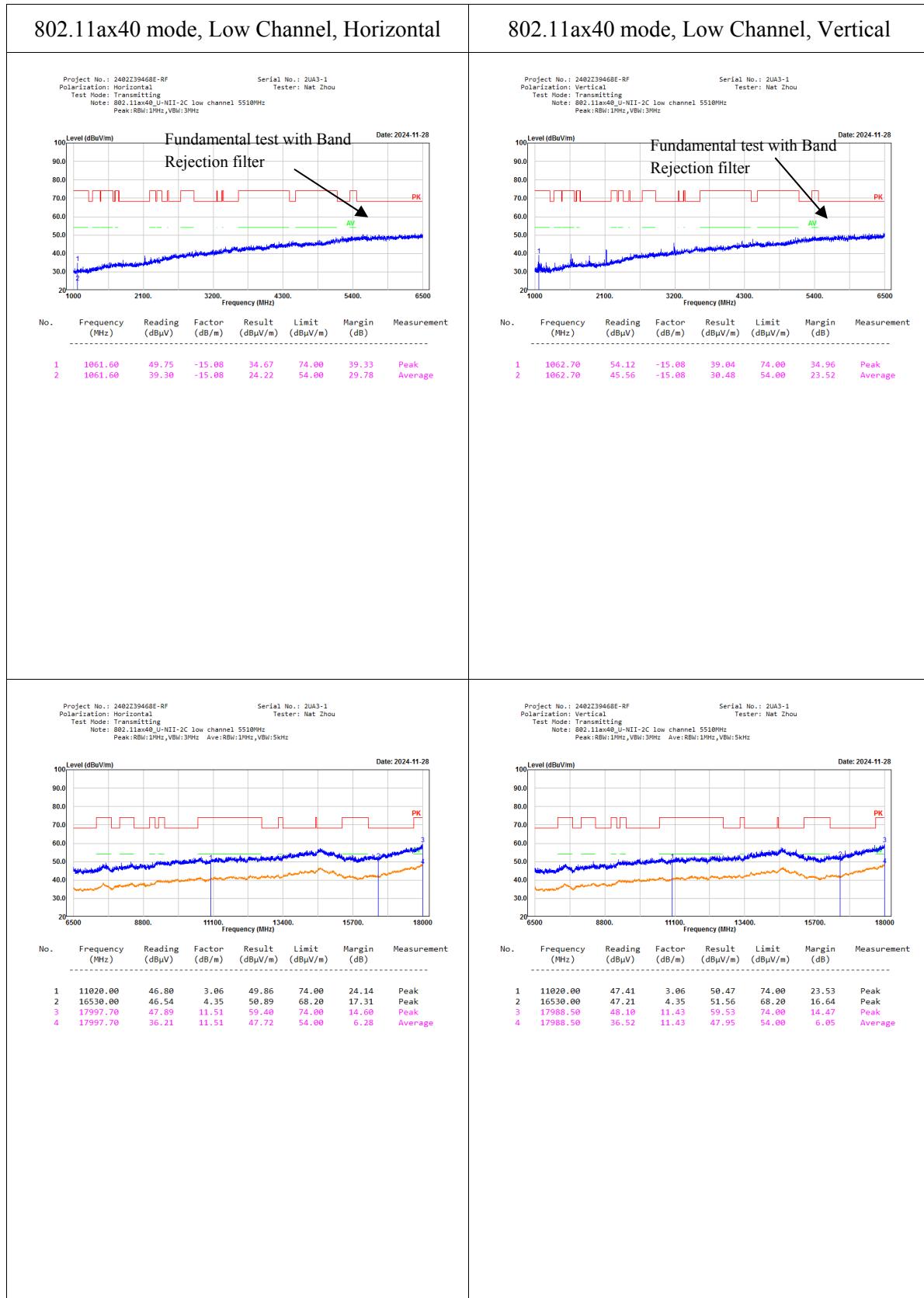


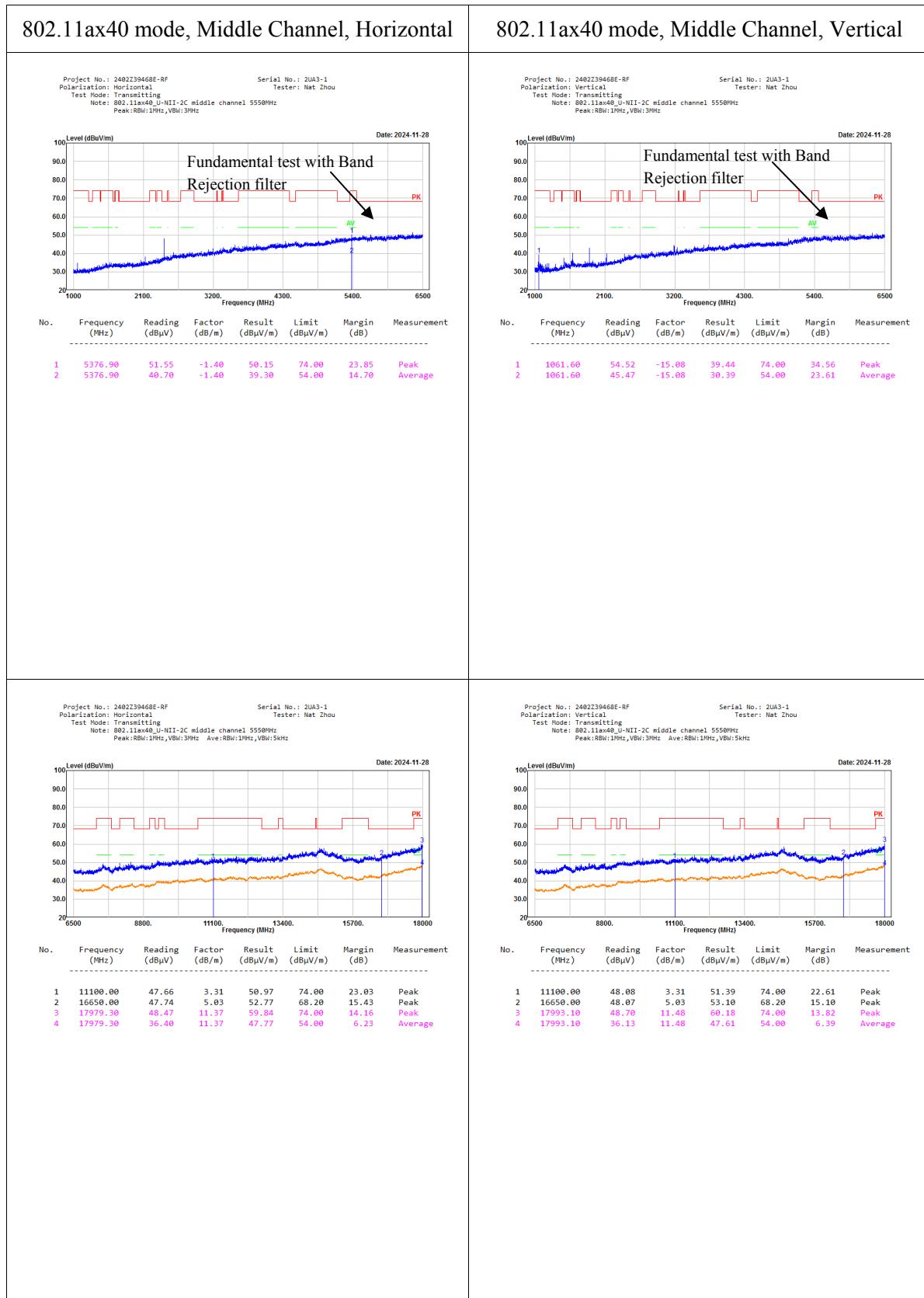


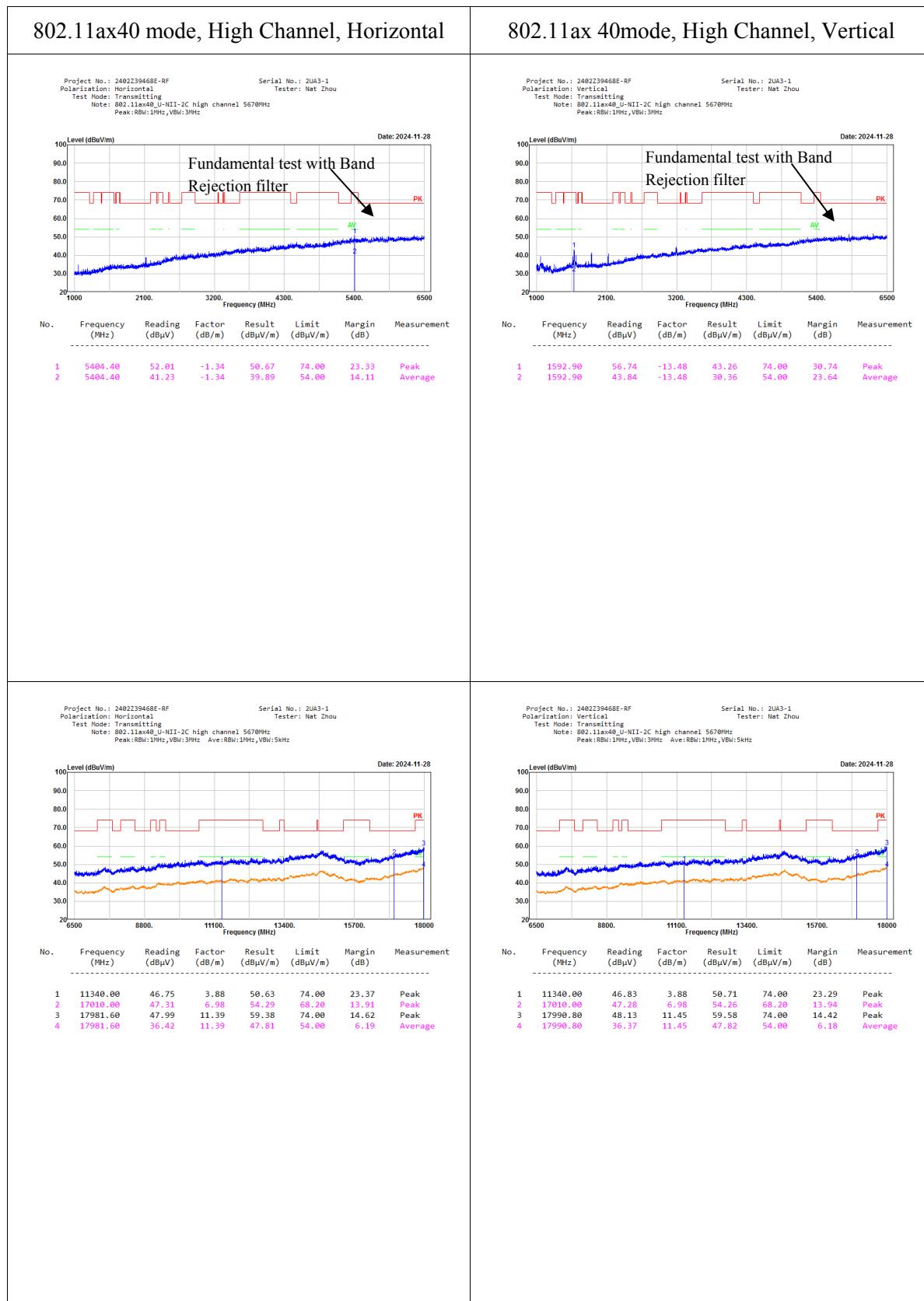


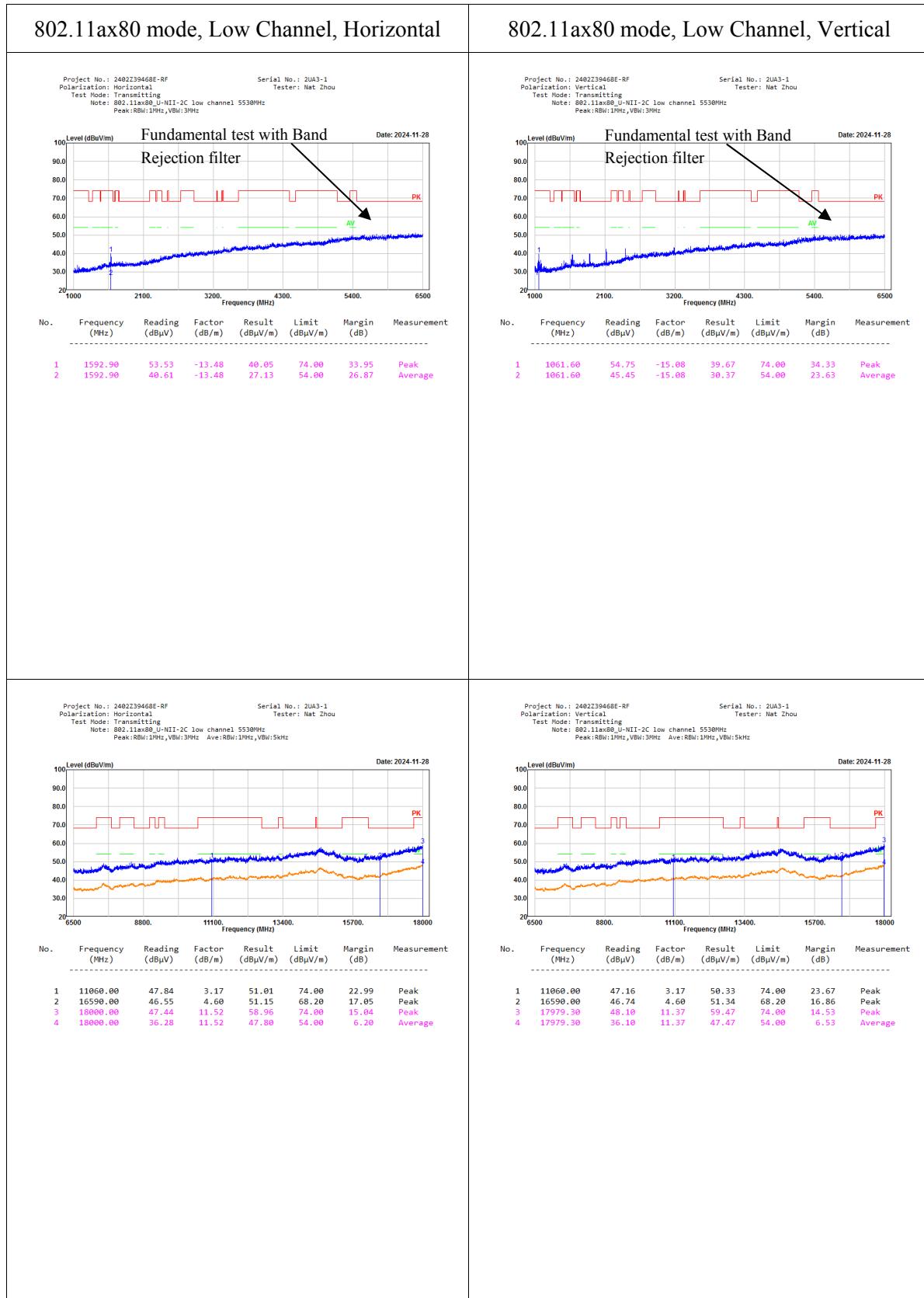


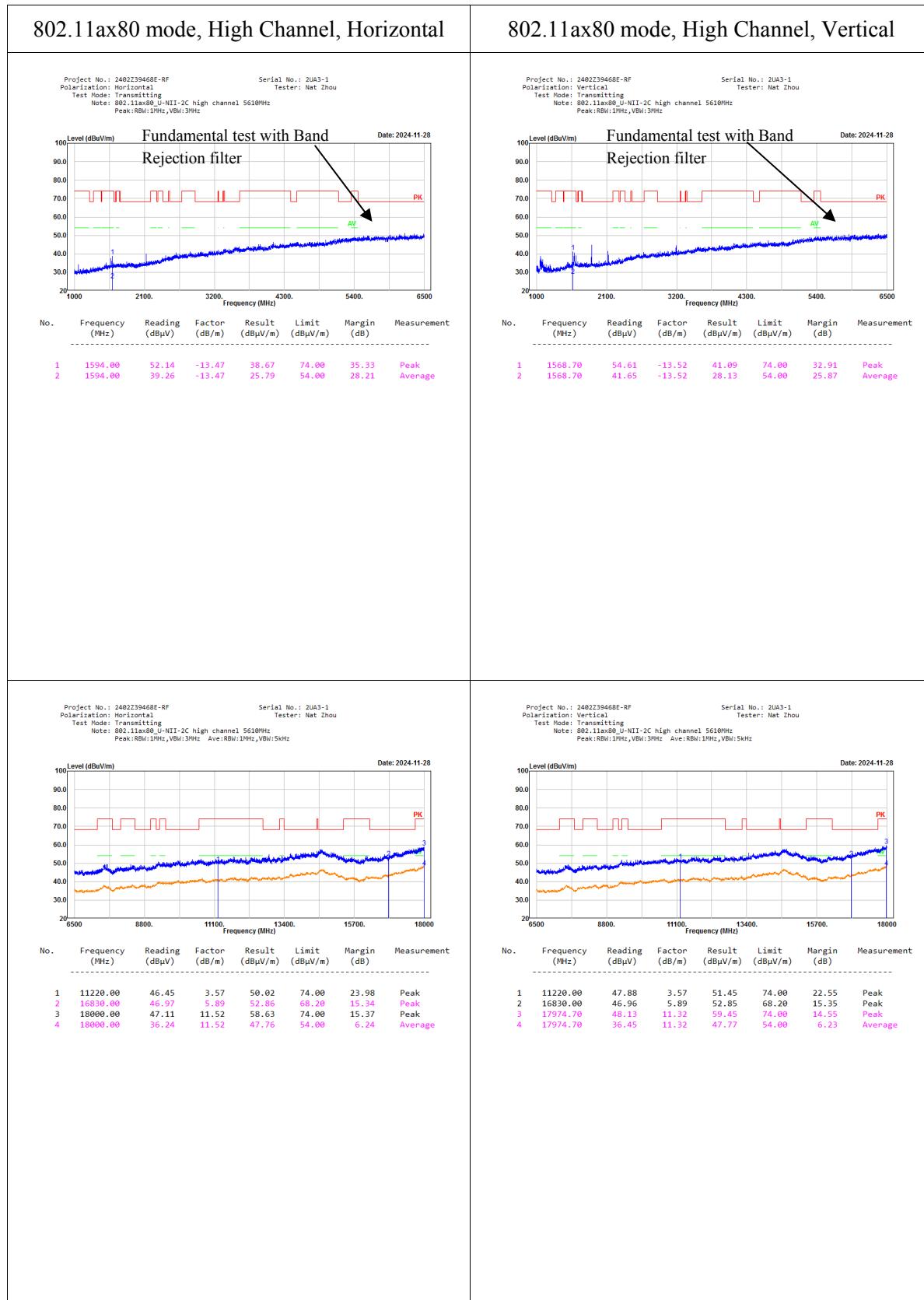




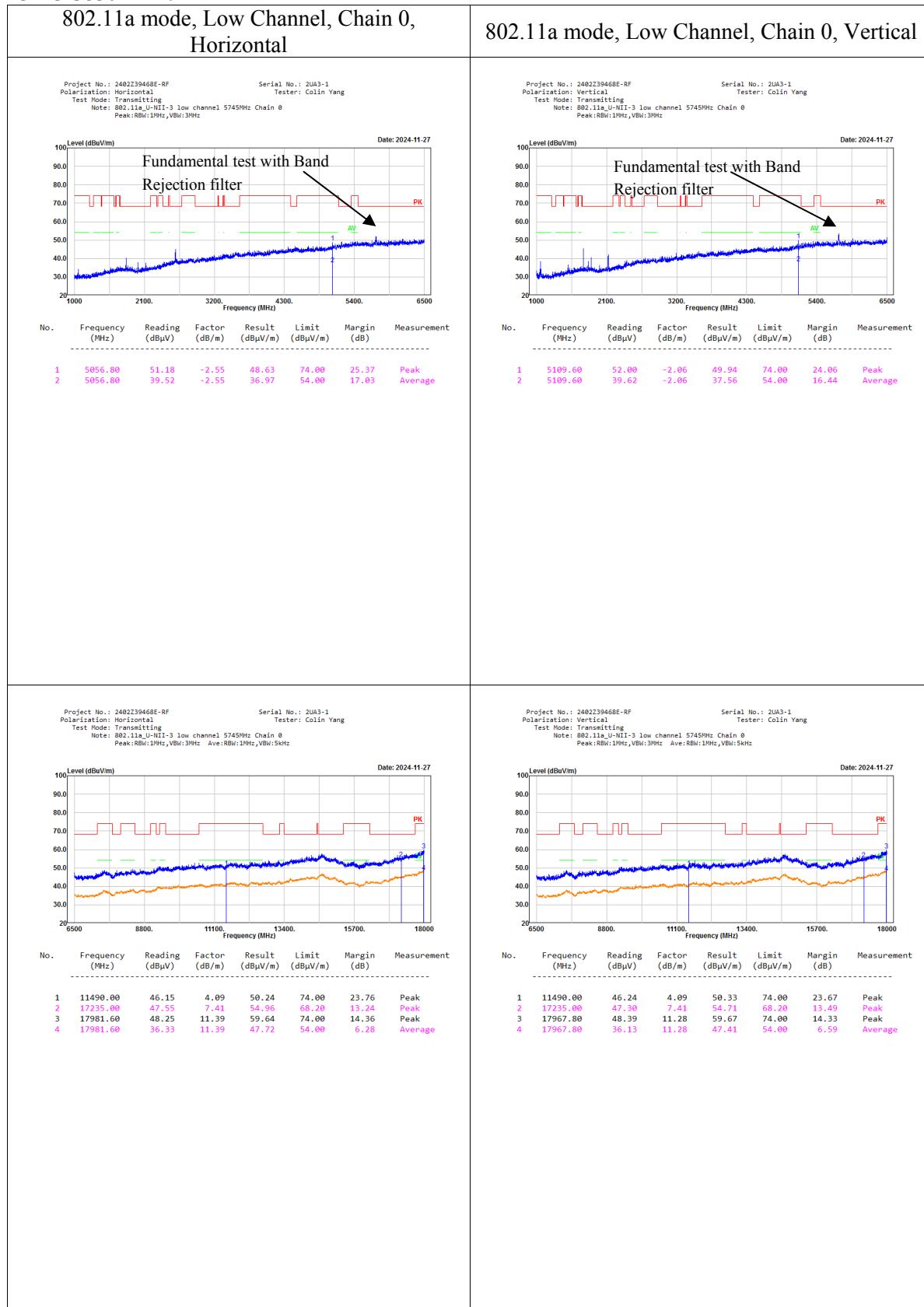


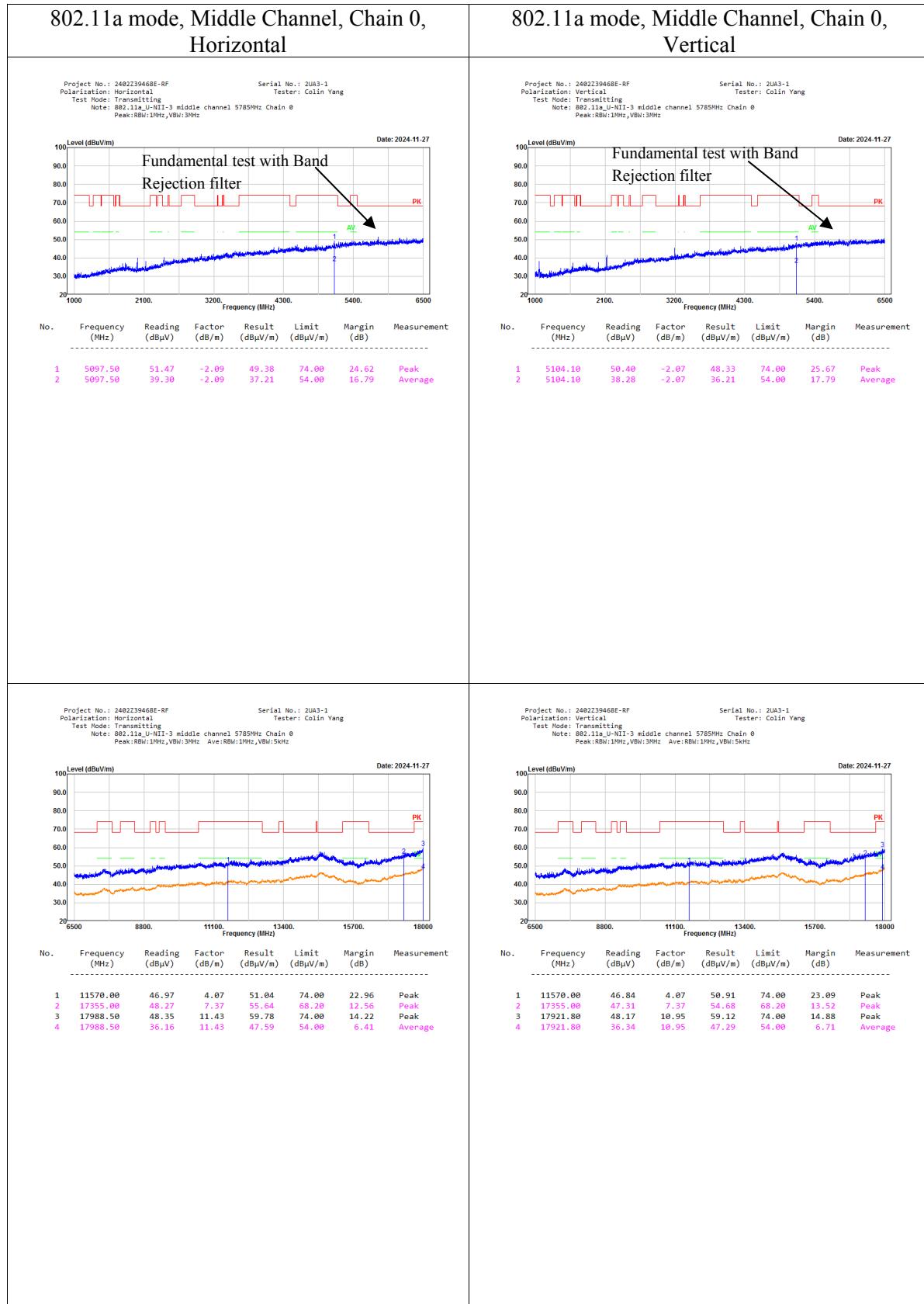


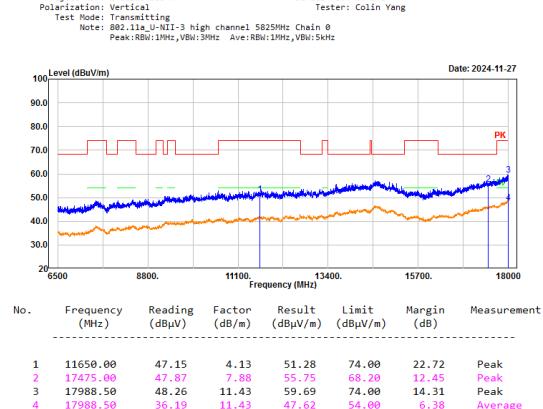
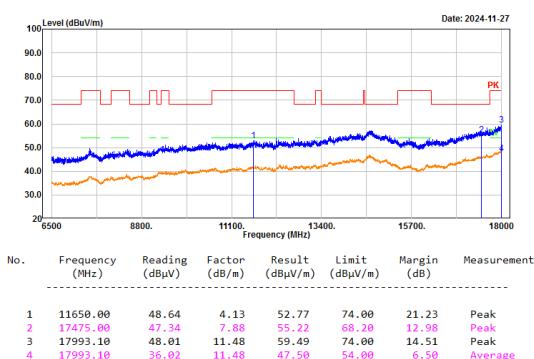
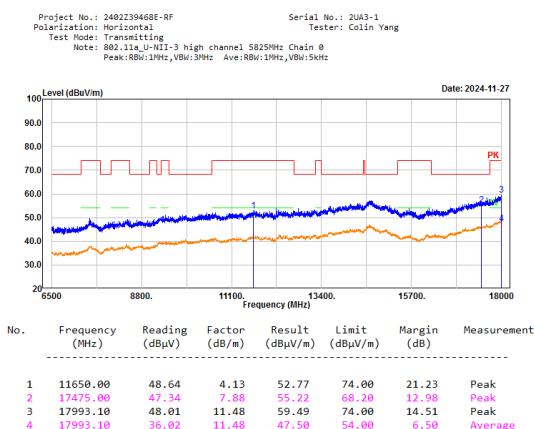
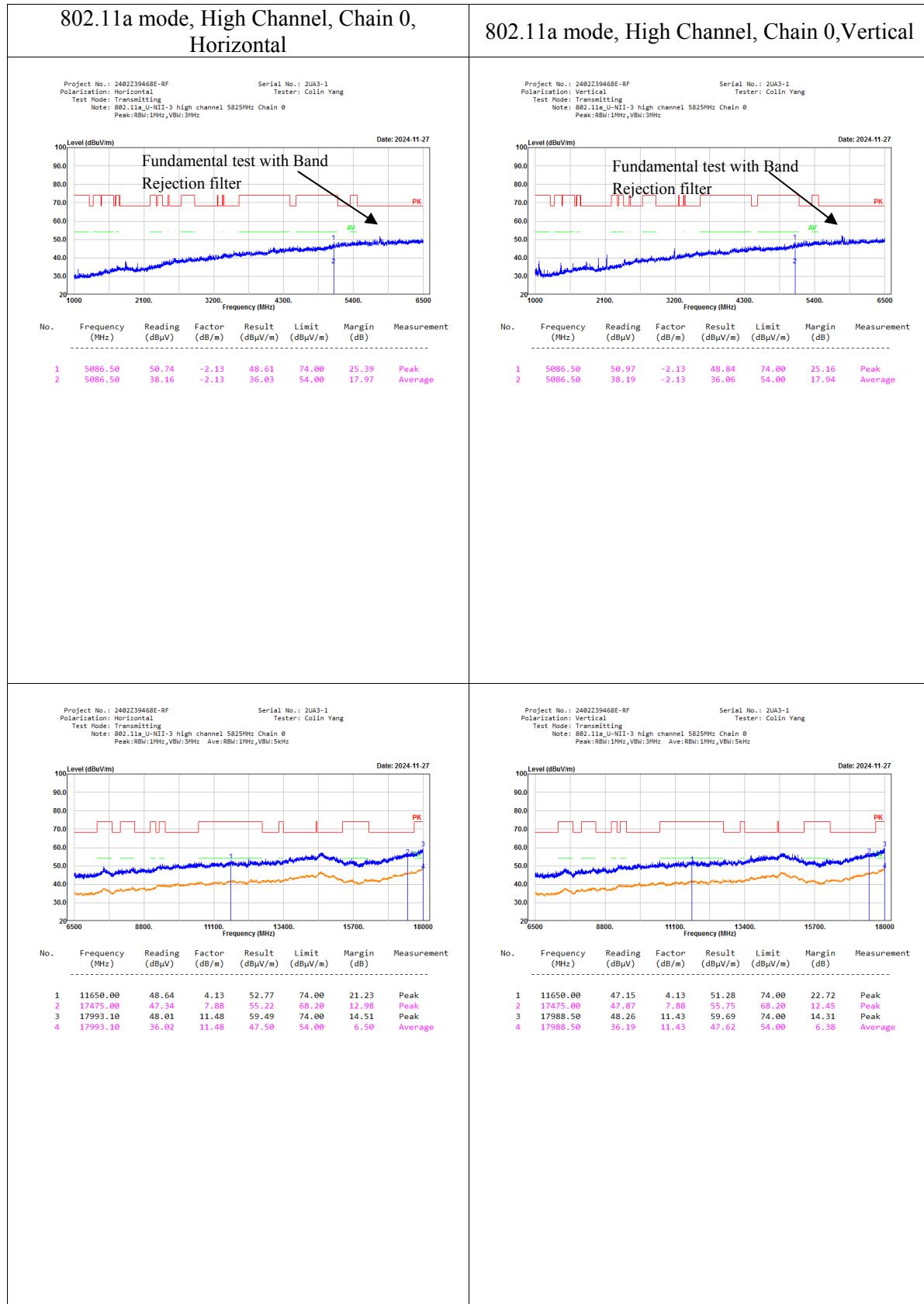


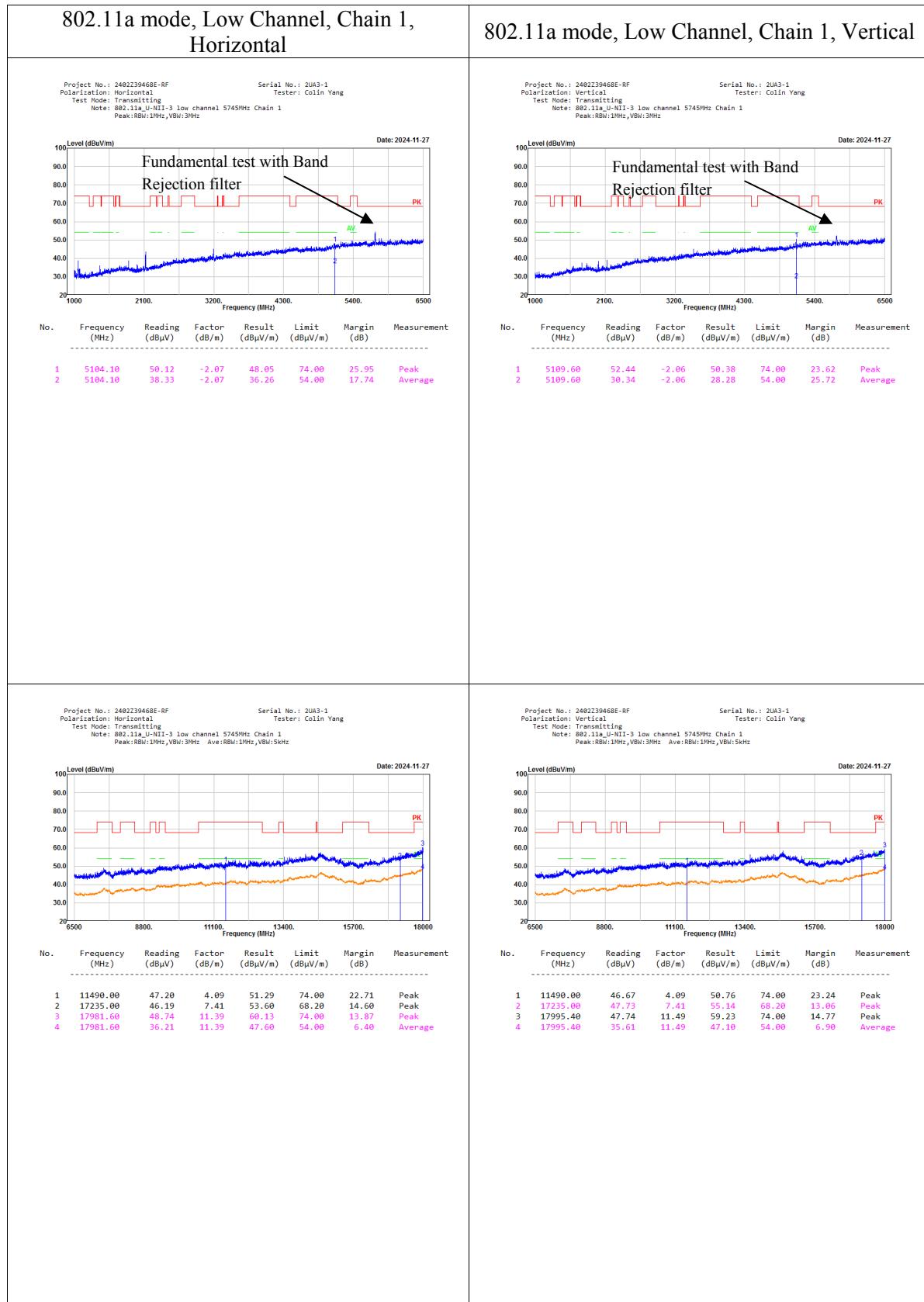


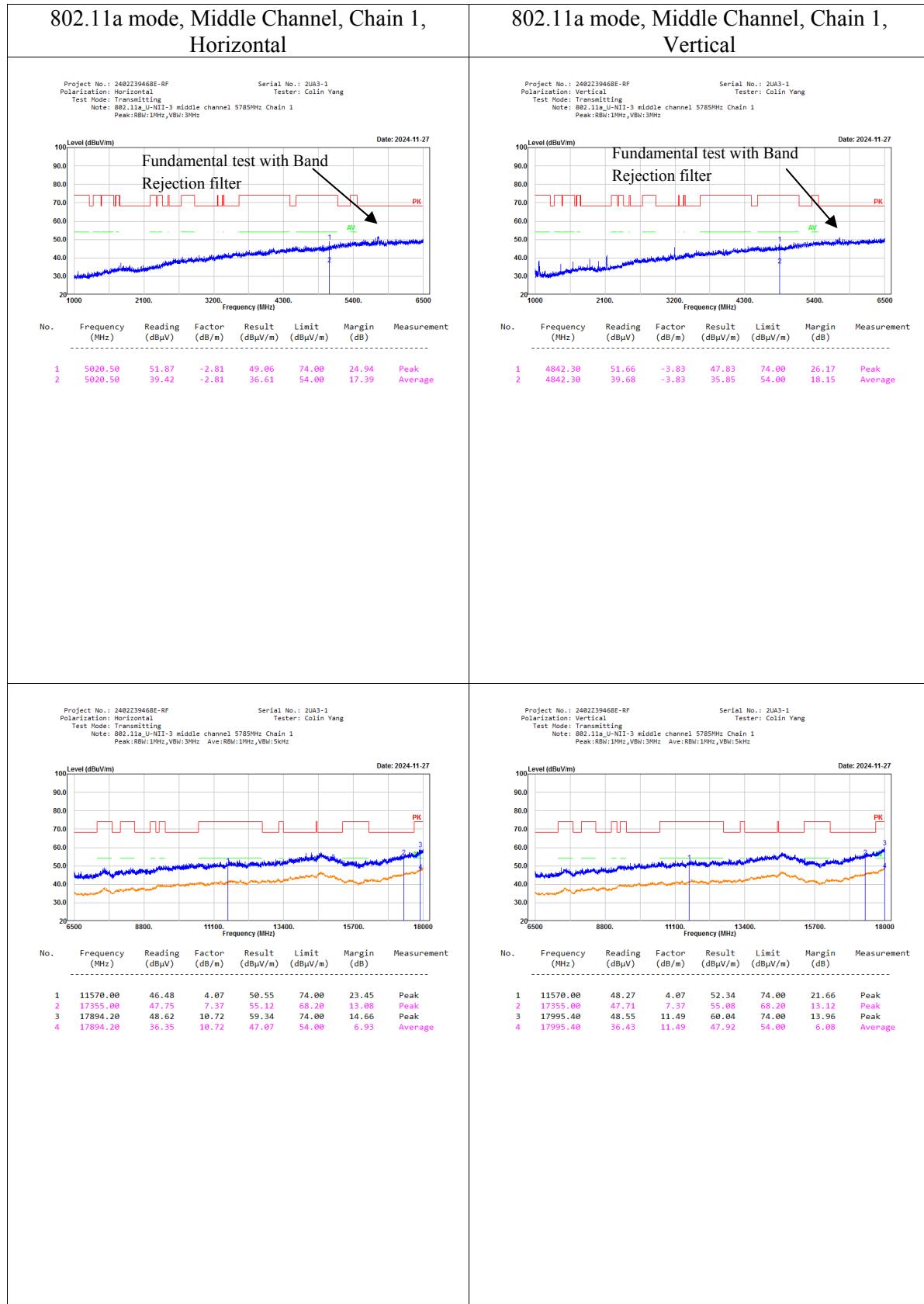
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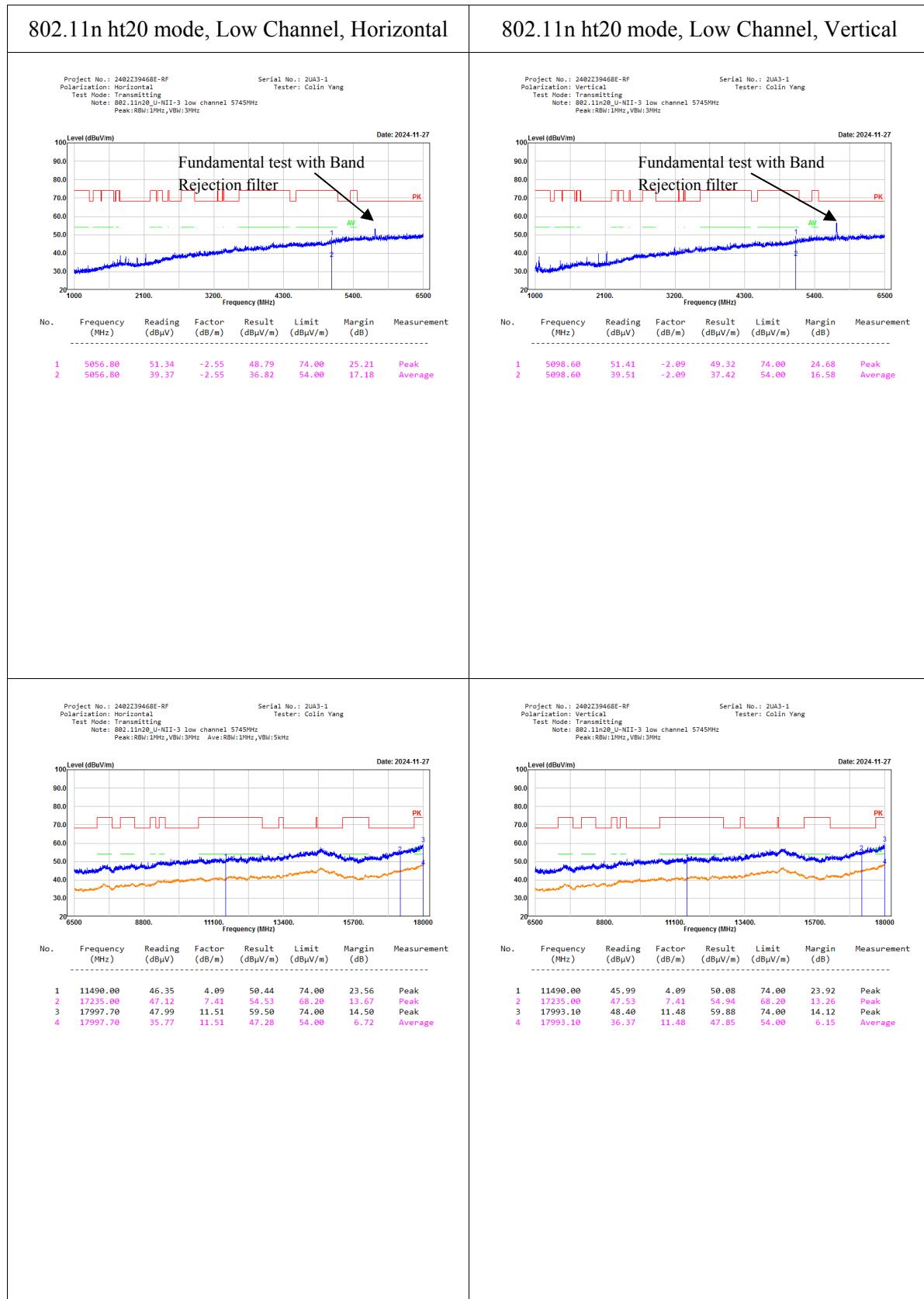




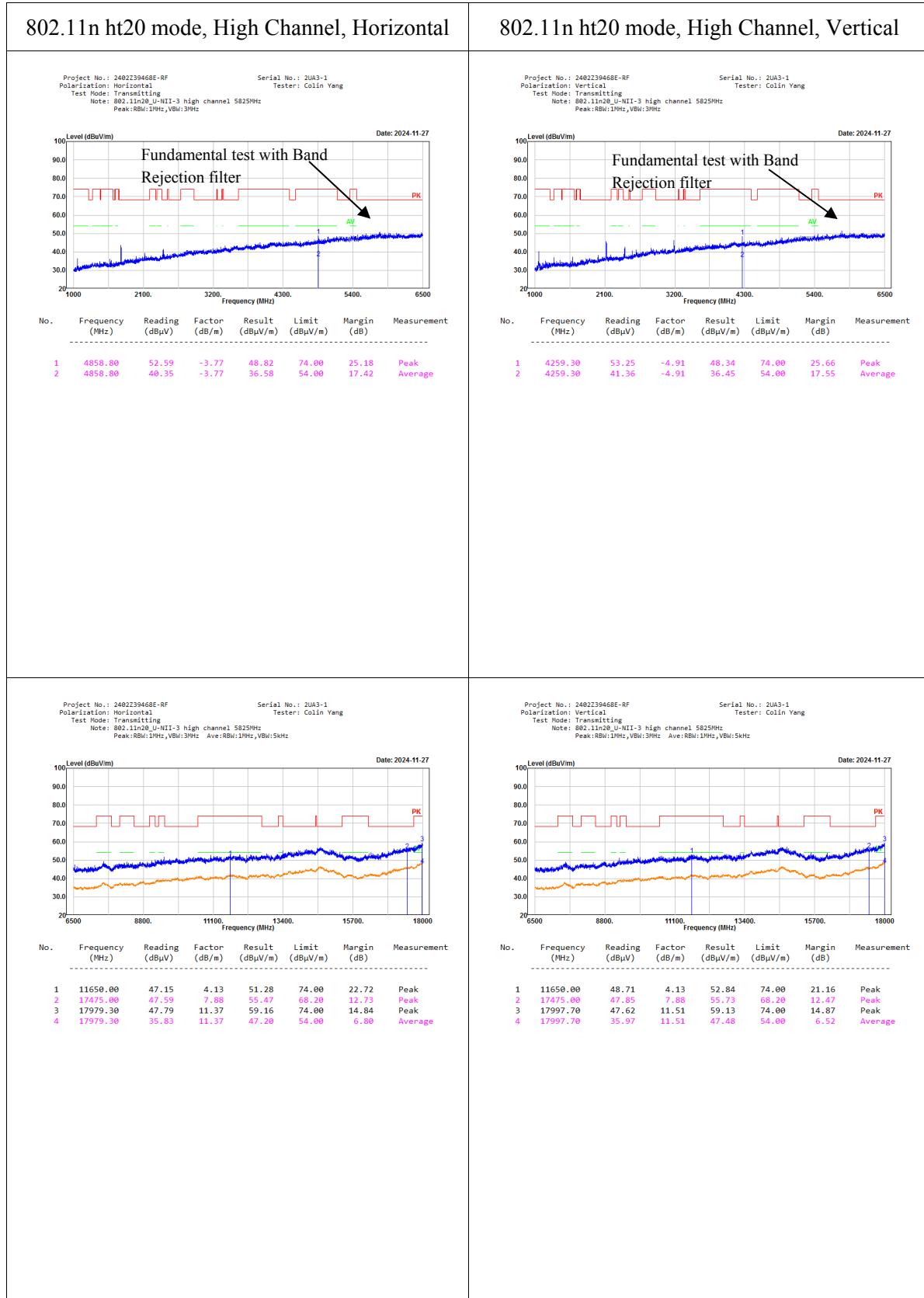


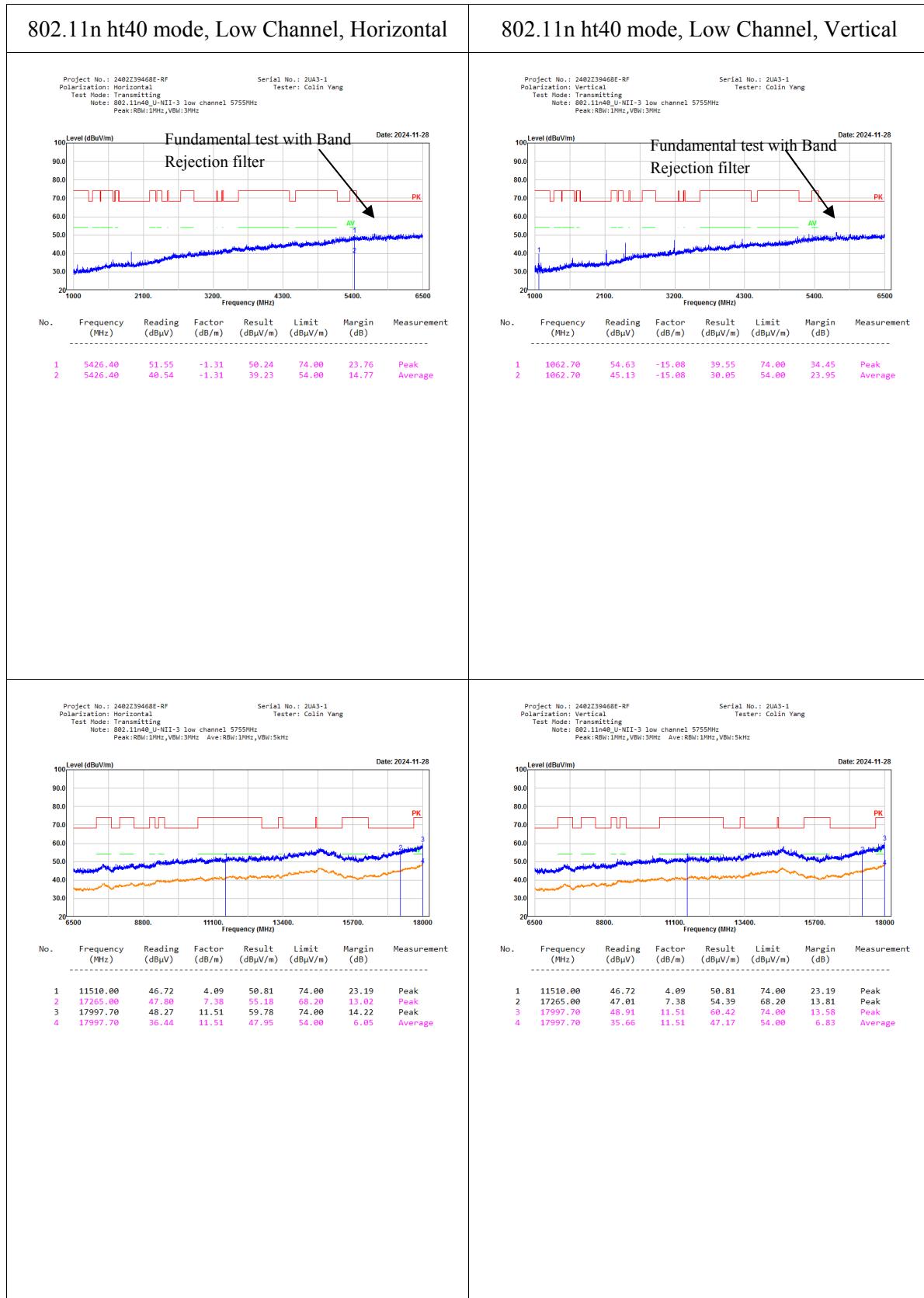


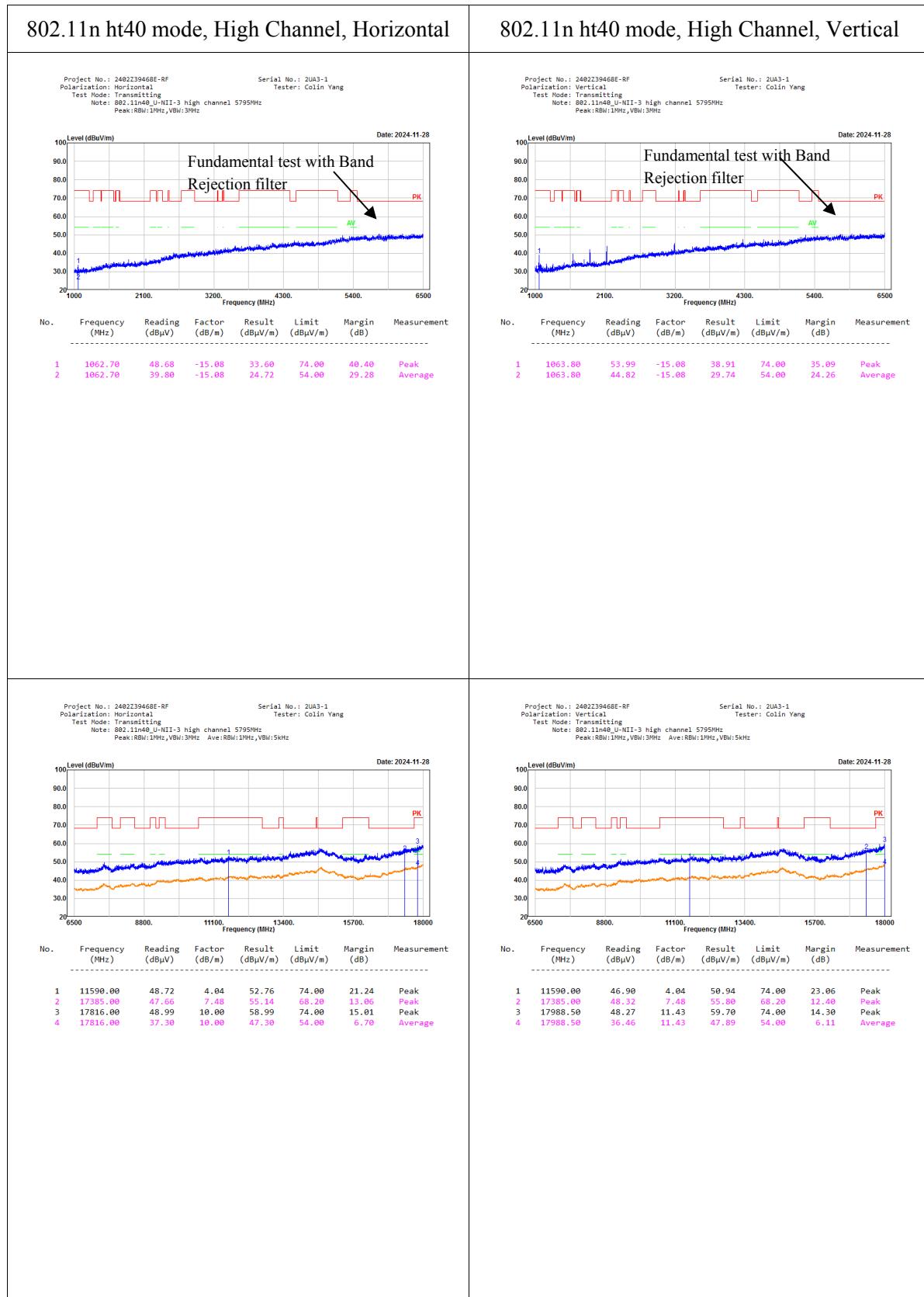


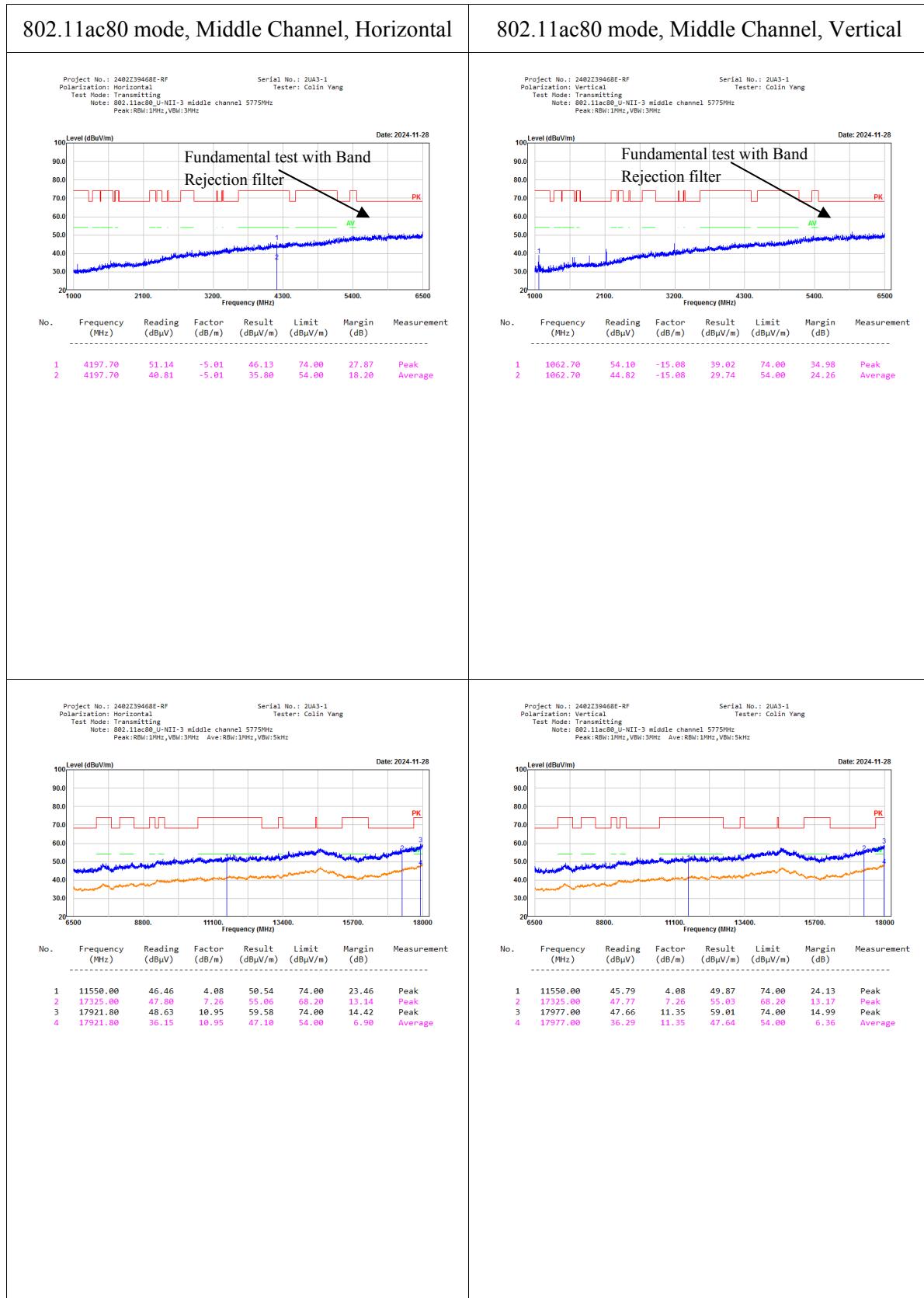


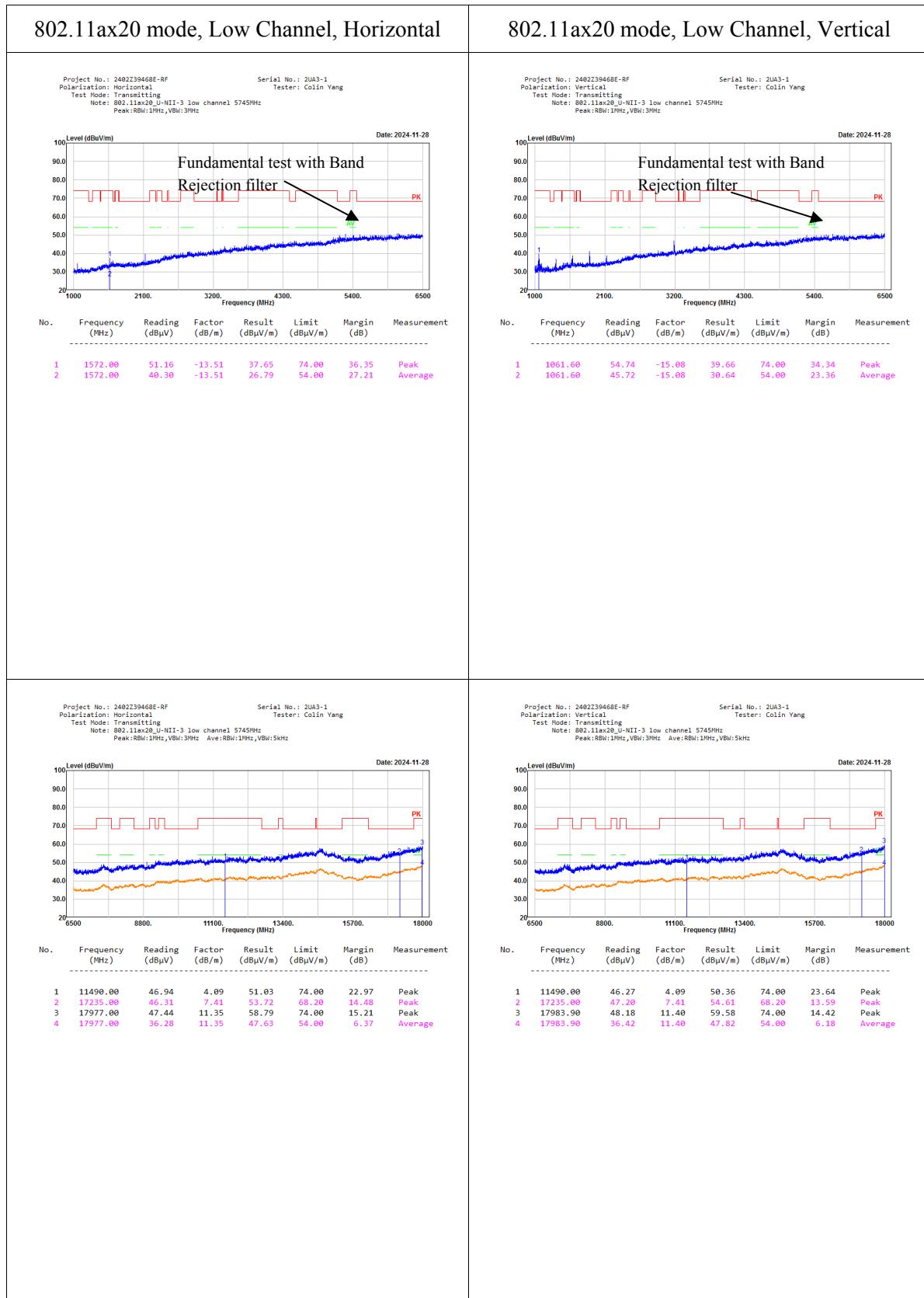
802.11n ht20 mode, Middle Channel, Horizontal	802.11n ht20 mode, Middle Channel, Vertical								
<p>Project No.: 2402Z39468E-RF Polarization: Horizontal Test Mode: Transmitting Note: 802.11n20_U-NII-3 middle channel 5785MHz Peak:RBW:1MHz,VBW:3MHz</p> <p>Serial No.: 2UA3-1 Tester: Colin Yang</p> <p>Date: 2024-11-27</p> <p>Fundamental test with Band Rejection filter</p> <p>Level (dBuV/m)</p> <p>Frequency (MHz)</p> <p>PK</p> <p>AV</p> <p>No. Frequency (MHz) Reading (dBμV) Factor (dB/m) Result (dBμV/m) Limit (dBμV/m) Margin (dB) Measurement</p> <tbody> <tr> <td>1 5062.30 51.65 -2.37 49.28 74.00 24.72 Peak</td> </tr> <tr> <td>2 5062.30 39.46 -2.37 37.09 54.00 16.91 Average</td> </tr> </tbody>	1 5062.30 51.65 -2.37 49.28 74.00 24.72 Peak	2 5062.30 39.46 -2.37 37.09 54.00 16.91 Average	<p>Project No.: 2402Z39468E-RF Polarization: Vertical Test Mode: Transmitting Note: 802.11n20_U-NII-3 middle channel 5785MHz Peak:RBW:1MHz,VBW:3MHz</p> <p>Serial No.: 2UA3-1 Tester: Colin Yang</p> <p>Date: 2024-11-27</p> <p>Fundamental test with Band Rejection filter</p> <p>Level (dBuV/m)</p> <p>Frequency (MHz)</p> <p>PK</p> <p>AV</p> <p>No. Frequency (MHz) Reading (dBμV) Factor (dB/m) Result (dBμV/m) Limit (dBμV/m) Margin (dB) Measurement</p> <tbody> <tr> <td>1 5017.20 50.91 -2.79 48.12 74.00 25.88 Peak</td> </tr> <tr> <td>2 5017.20 38.50 -2.79 35.71 54.00 18.29 Average</td> </tr> </tbody>	1 5017.20 50.91 -2.79 48.12 74.00 25.88 Peak	2 5017.20 38.50 -2.79 35.71 54.00 18.29 Average				
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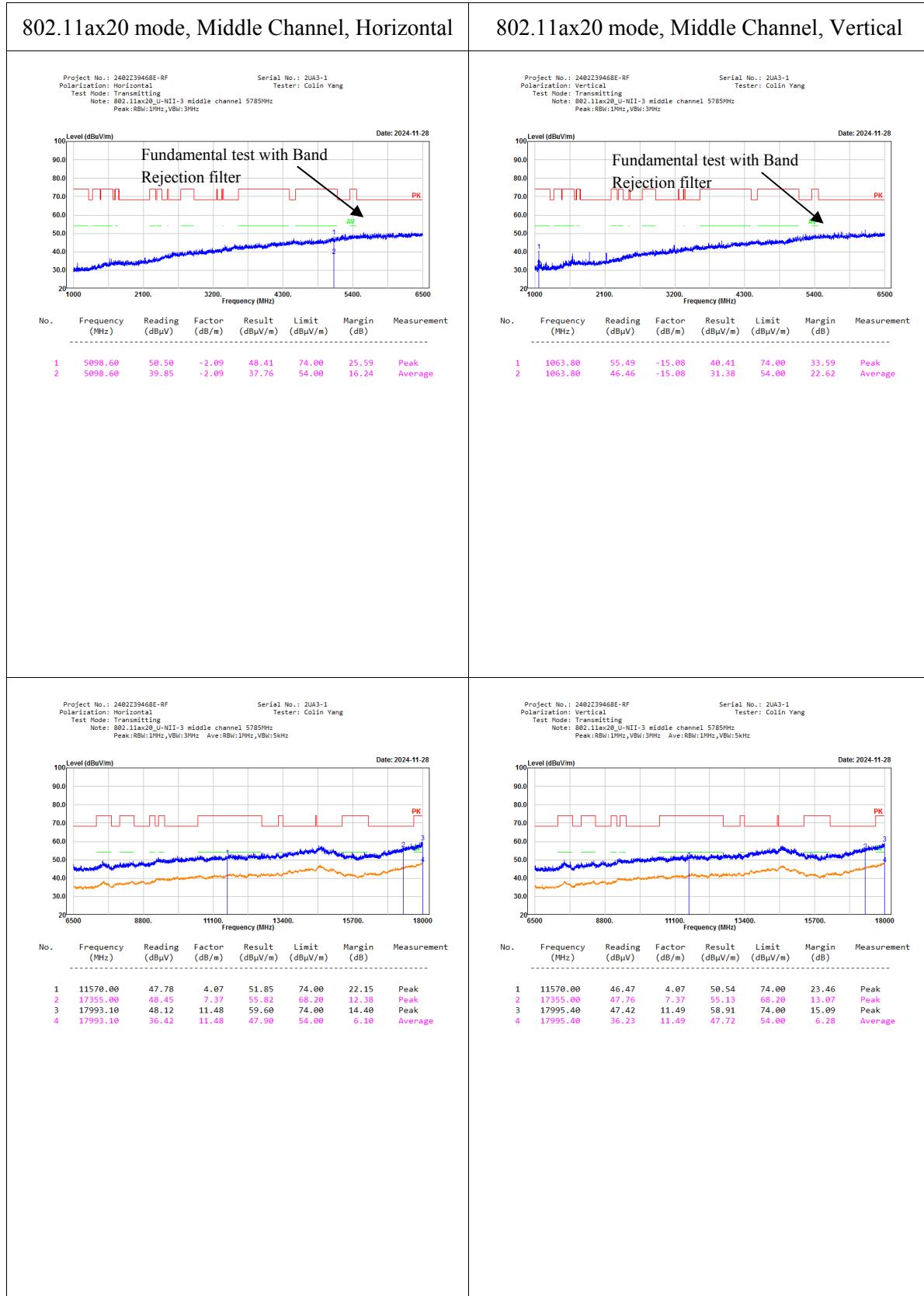


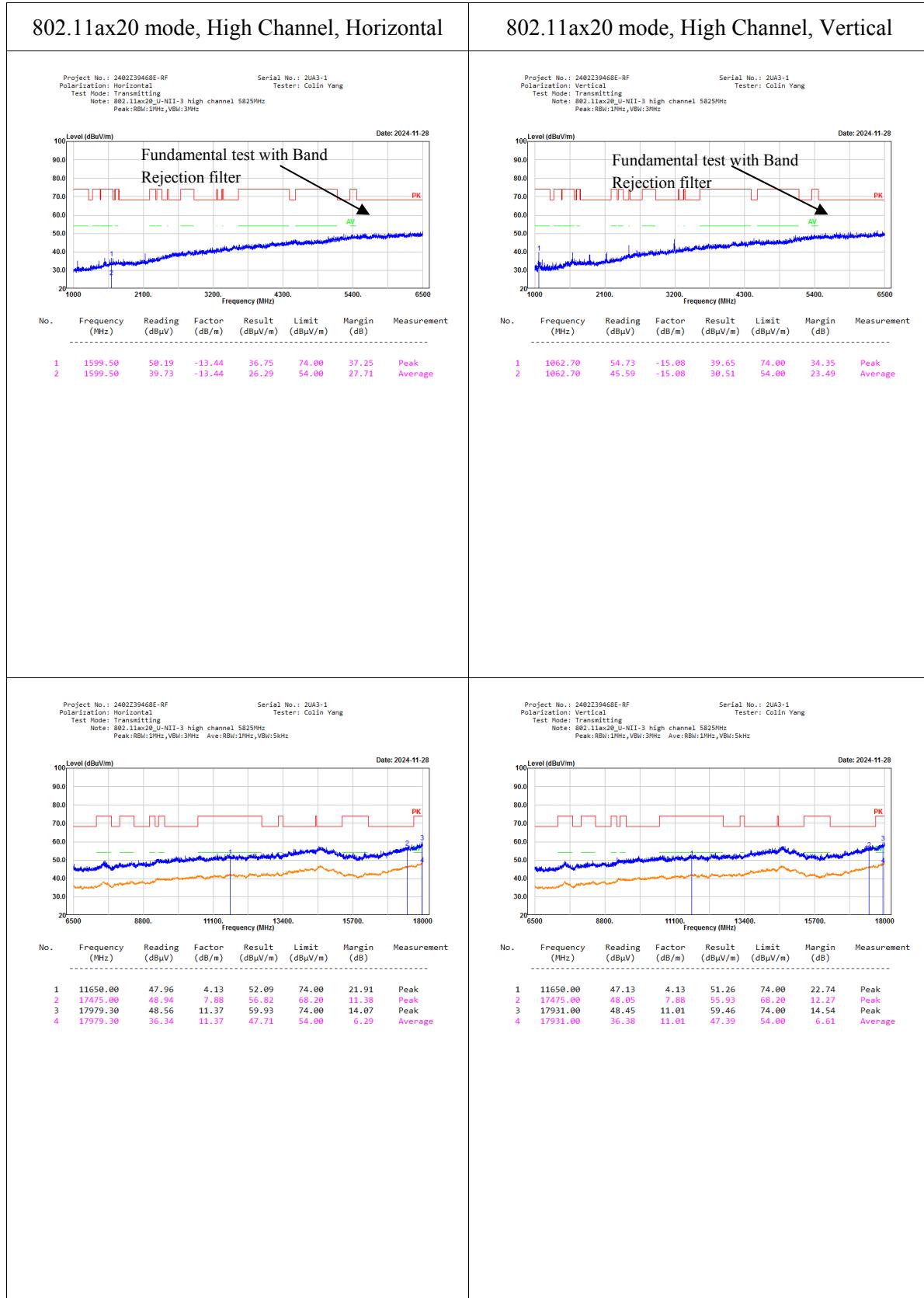


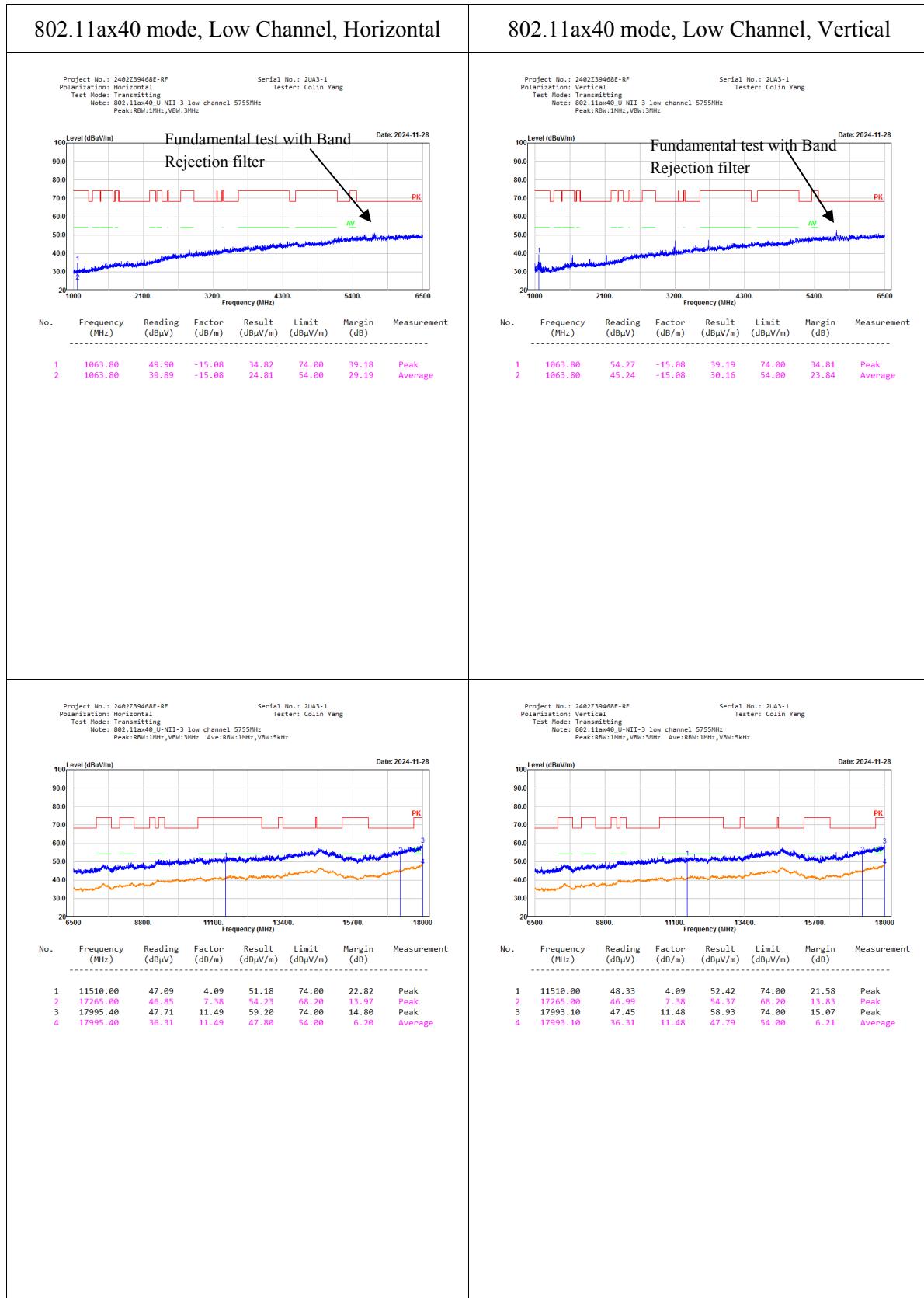


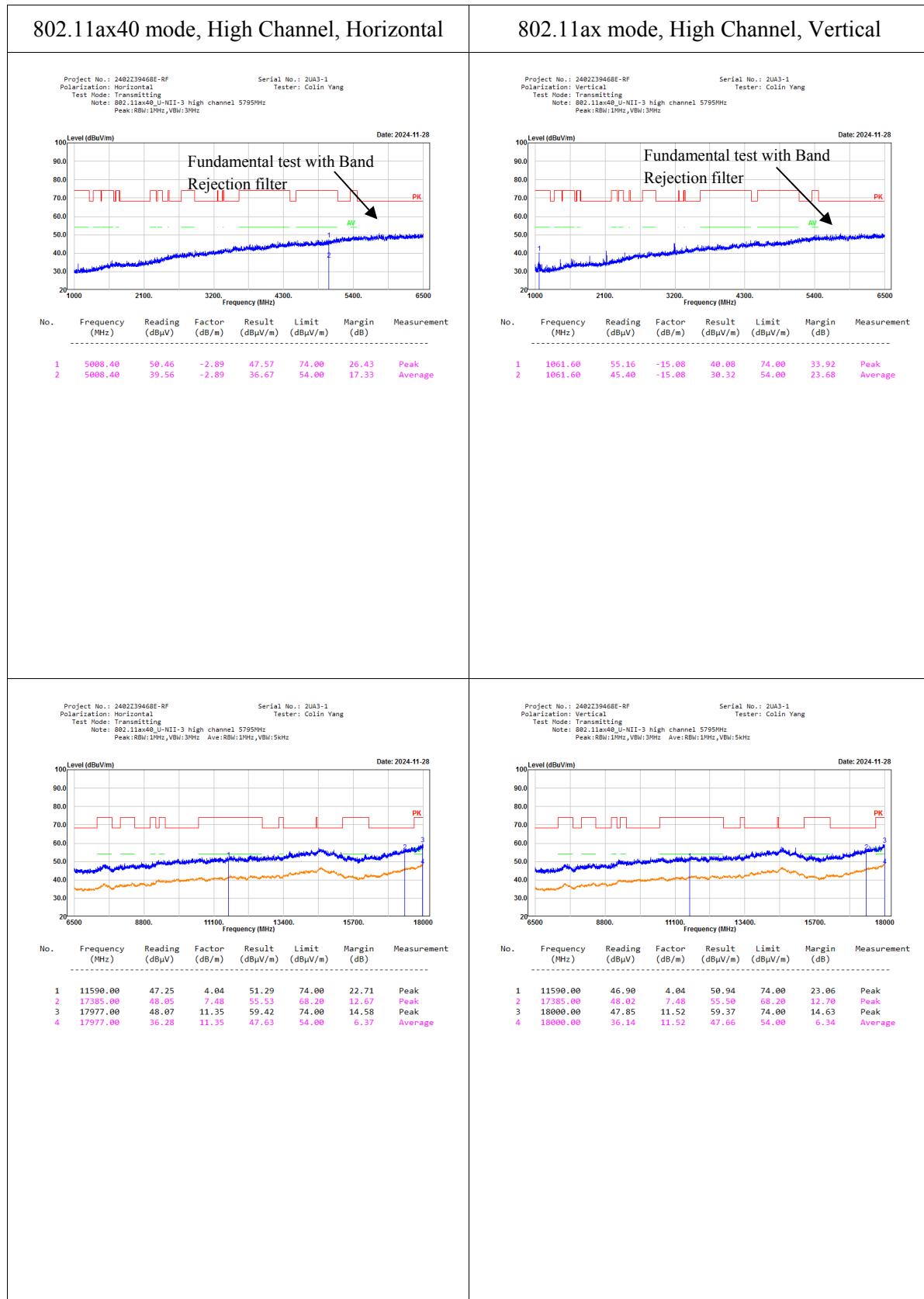


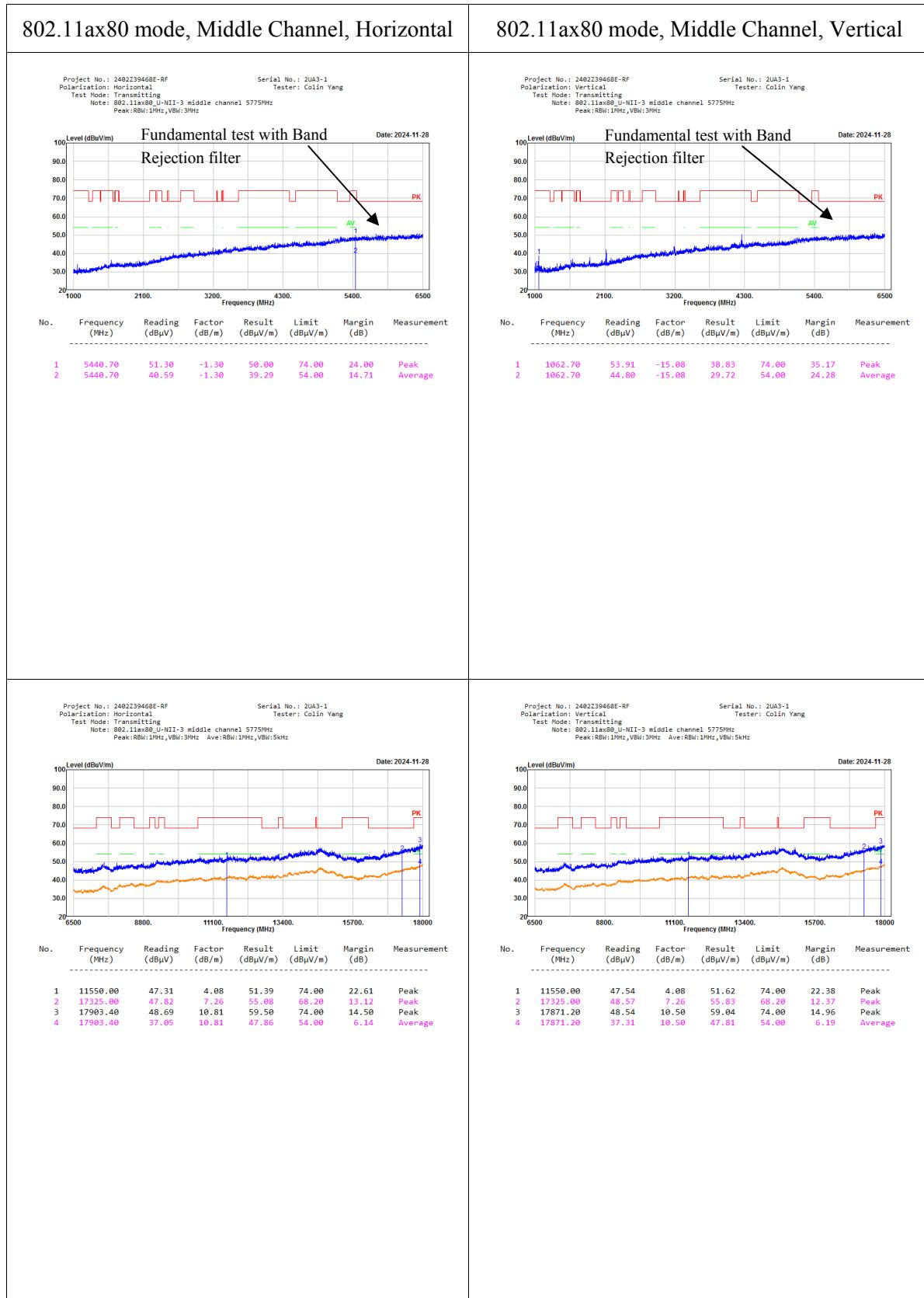






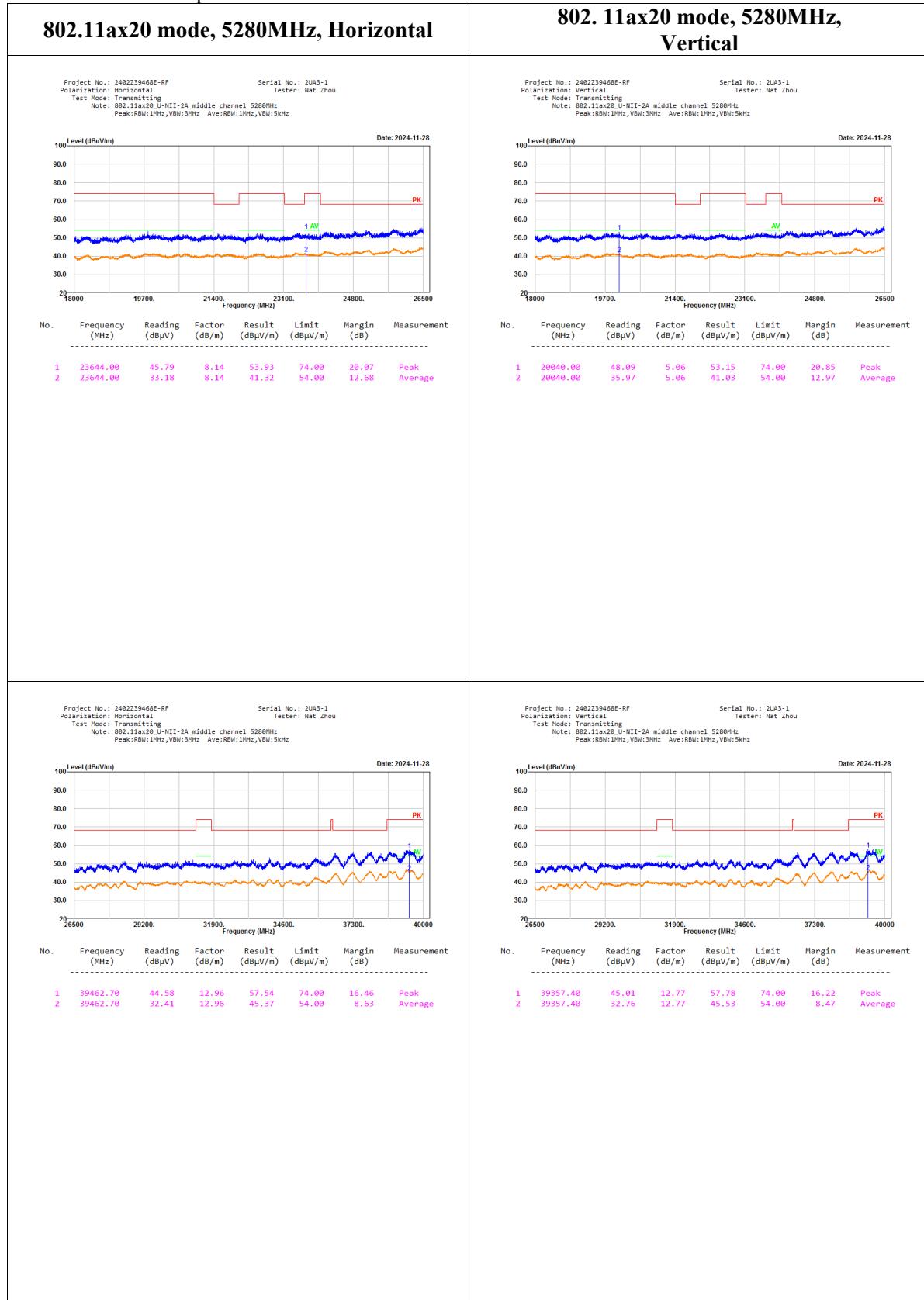


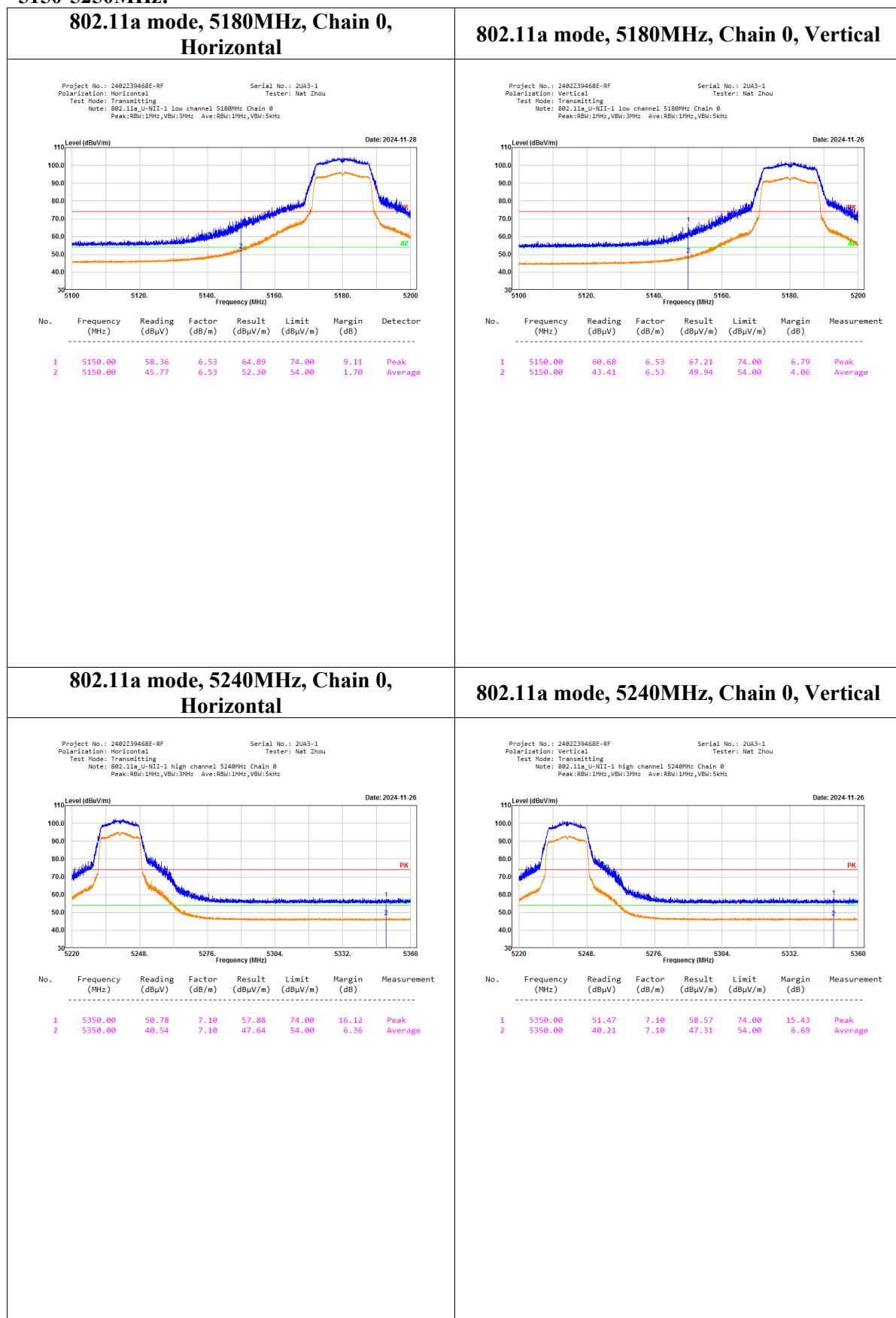


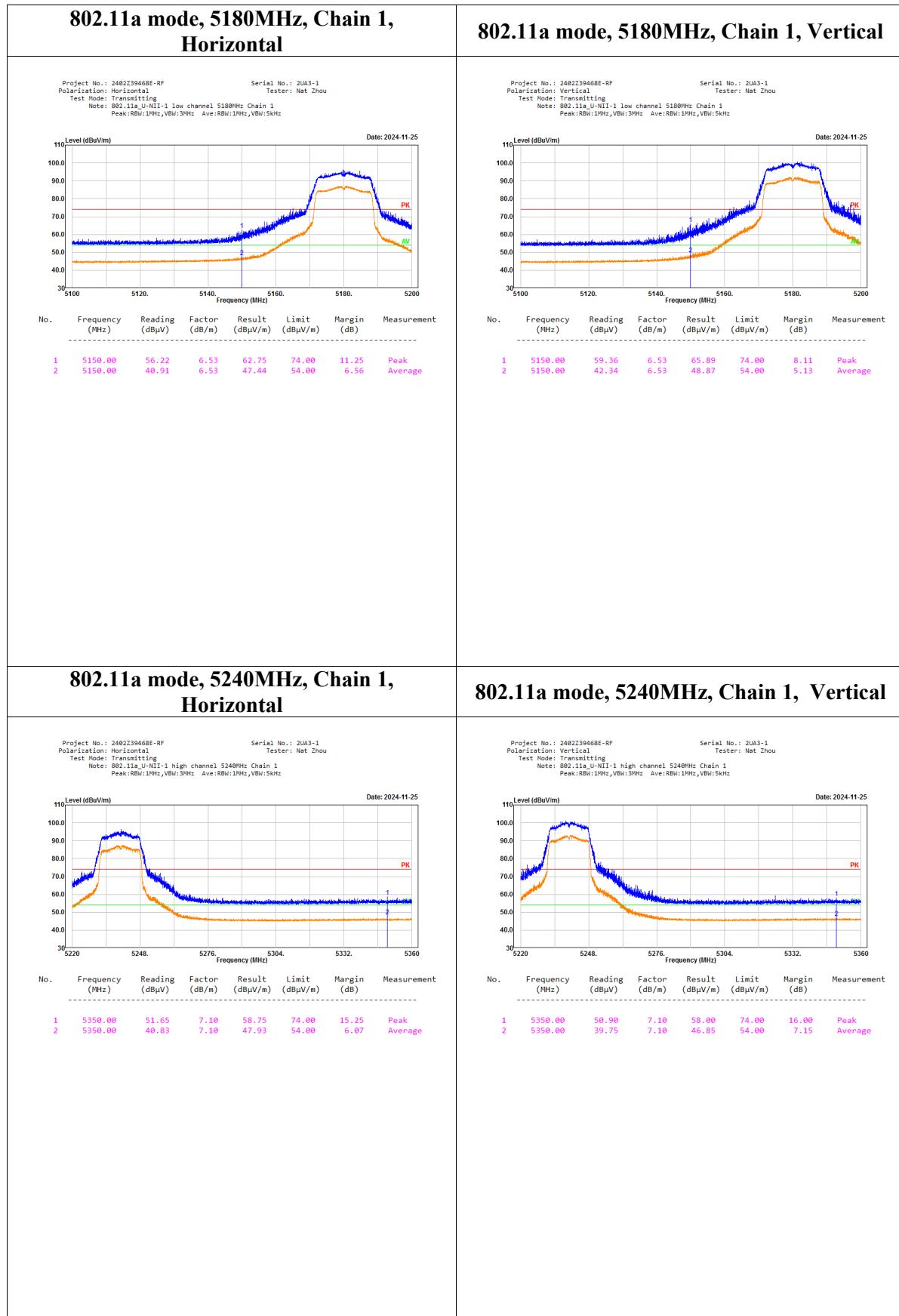


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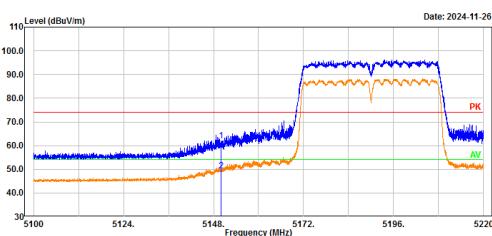
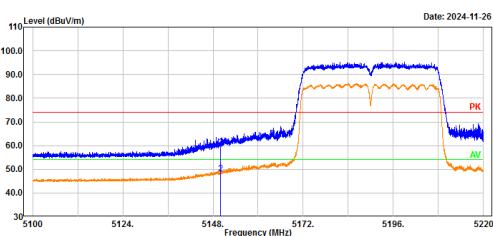
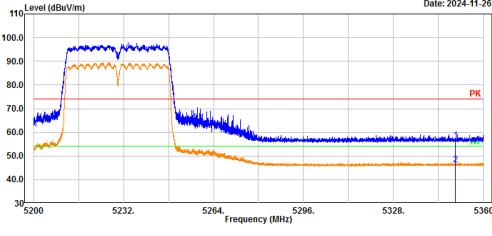
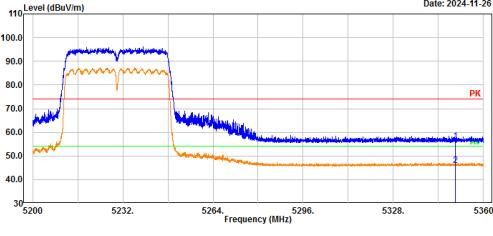
No Emission was detected in the range 18-40GHz, test was performed on the mode and channel which with the maximum power.



**Bandedge:
5150-5250MHz:**




<p>802.11n20 mode, 5180MHz, Horizontal</p> <p>Project No.: 2402Z39468E-RF Polarization: Horizontal Test Mode: Transmitting Note: 802.11n20_U-NII-1 low channel 5180MHz Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz</p> <p>Serial No.: 2UA3-1 Tester: Net Zhou</p> <p>Date: 2024-11-26</p> <p>No. Frequency (MHz) Reading (dBuV) Factor (dB/m) Result (dBuV/m) Limit (dBuV/m) Margin (dB) Measurement</p> <table border="1"> <thead> <tr> <th>No.</th> <th>Frequency (MHz)</th> <th>Reading (dBuV)</th> <th>Factor (dB/m)</th> <th>Result (dBuV/m)</th> <th>Limit (dBuV/m)</th> <th>Margin (dB)</th> <th>Measurement</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>5150.00</td> <td>53.18</td> <td>6.53</td> <td>59.71</td> <td>74.00</td> <td>14.29</td> <td>Peak</td> </tr> <tr> <td>2</td> <td>5150.00</td> <td>39.92</td> <td>6.53</td> <td>46.45</td> <td>54.00</td> <td>7.55</td> <td>Average</td> </tr> </tbody> </table>	No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Measurement	1	5150.00	53.18	6.53	59.71	74.00	14.29	Peak	2	5150.00	39.92	6.53	46.45	54.00	7.55	Average	<p>802.11n20 mode, 5180MHz, Vertical</p> <p>Project No.: 2402Z39468E-RF Polarization: Vertical Test Mode: Transmitting Note: 802.11n20_U-NII-1 low channel 5180MHz Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz</p> <p>Serial No.: 2UA3-1 Tester: Net Zhou</p> <p>Date: 2024-11-26</p> <p>No. Frequency (MHz) Reading (dBuV) Factor (dB/m) Result (dBuV/m) Limit (dBuV/m) Margin (dB) Measurement</p> <table border="1"> <thead> <tr> <th>No.</th> <th>Frequency (MHz)</th> <th>Reading (dBuV)</th> <th>Factor (dB/m)</th> <th>Result (dBuV/m)</th> <th>Limit (dBuV/m)</th> <th>Margin (dB)</th> <th>Measurement</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>5150.00</td> <td>53.34</td> <td>6.53</td> <td>59.87</td> <td>74.00</td> <td>14.13</td> <td>Peak</td> </tr> <tr> <td>2</td> <td>5150.00</td> <td>40.02</td> <td>6.53</td> <td>46.55</td> <td>54.00</td> <td>7.45</td> <td>Average</td> </tr> </tbody> </table>	No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Measurement	1	5150.00	53.34	6.53	59.87	74.00	14.13	Peak	2	5150.00	40.02	6.53	46.55	54.00	7.45	Average
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<p>802.11n20 mode, 5240MHz, Horizontal</p> <p>Project No.: 2402Z39468E-RF Polarization: Horizontal Test Mode: Transmitting Note: 802.11n20_U-NII-1 high channel 5240MHz Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz</p> <p>Serial No.: 2UA3-1 Tester: Net Zhou</p> <p>Date: 2024-11-26</p> <p>No. Frequency (MHz) Reading (dBuV) Factor (dB/m) Result (dBuV/m) Limit (dBuV/m) Margin (dB) Measurement</p> <table border="1"> <thead> <tr> <th>No.</th> <th>Frequency (MHz)</th> <th>Reading (dBuV)</th> <th>Factor (dB/m)</th> <th>Result (dBuV/m)</th> <th>Limit (dBuV/m)</th> <th>Margin (dB)</th> <th>Measurement</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>5350.00</td> <td>48.43</td> <td>7.10</td> <td>55.53</td> <td>74.00</td> <td>18.47</td> <td>Peak</td> </tr> <tr> <td>2</td> <td>5350.00</td> <td>38.76</td> <td>7.10</td> <td>45.86</td> <td>54.00</td> <td>8.14</td> <td>Average</td> </tr> </tbody> </table>	No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Measurement	1	5350.00	48.43	7.10	55.53	74.00	18.47	Peak	2	5350.00	38.76	7.10	45.86	54.00	8.14	Average	<p>802.11n20 mode, 5240MHz, Vertical</p> <p>Project No.: 2402Z39468E-RF Polarization: Vertical Test Mode: Transmitting Note: 802.11n20_U-NII-1 high channel 5240MHz Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz</p> <p>Serial No.: 2UA3-1 Tester: Net Zhou</p> <p>Date: 2024-11-26</p> <p>No. Frequency (MHz) Reading (dBuV) Factor (dB/m) Result (dBuV/m) Limit (dBuV/m) Margin (dB) Measurement</p> <table border="1"> <thead> <tr> <th>No.</th> <th>Frequency (MHz)</th> <th>Reading (dBuV)</th> <th>Factor (dB/m)</th> <th>Result (dBuV/m)</th> <th>Limit (dBuV/m)</th> <th>Margin (dB)</th> <th>Measurement</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>5350.00</td> <td>49.58</td> <td>7.10</td> <td>56.68</td> <td>74.00</td> <td>17.32</td> <td>Peak</td> </tr> <tr> <td>2</td> <td>5350.00</td> <td>38.58</td> <td>7.10</td> <td>45.68</td> <td>54.00</td> <td>8.32</td> <td>Average</td> </tr> </tbody> </table>	No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Measurement	1	5350.00	49.58	7.10	56.68	74.00	17.32	Peak	2	5350.00	38.58	7.10	45.68	54.00	8.32	Average
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802.11n40 mode, 5190MHz, Horizontal		802.11n40 mode, 5190MHz, Vertical																																																	
<p>Project No.: 2402Z39468E-RF Polarization: Horizontal Test Mode: Transmitting Note: 802.11n40_U-NII-1 low channel 5190MHz Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz</p> <p>Serial No.: 2UA3-1 Tester: Nat Zhou</p>  <table border="1"> <thead> <tr> <th>No.</th><th>Frequency (MHz)</th><th>Reading (dBμV)</th><th>Factor (dB/m)</th><th>Result (dBμV/m)</th><th>Limit (dBμV/m)</th><th>Margin (dB)</th><th>Measurement</th></tr> </thead> <tbody> <tr> <td>1</td><td>5150.00</td><td>55.35</td><td>6.53</td><td>61.88</td><td>74.00</td><td>12.12</td><td>Peak</td></tr> <tr> <td>2</td><td>5150.00</td><td>42.89</td><td>6.53</td><td>49.42</td><td>54.00</td><td>4.58</td><td>Average</td></tr> </tbody> </table>	No.	Frequency (MHz)	Reading (dB μ V)	Factor (dB/m)	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Measurement	1	5150.00	55.35	6.53	61.88	74.00	12.12	Peak	2	5150.00	42.89	6.53	49.42	54.00	4.58	Average	<p>Project No.: 2402Z39468E-RF Polarization: Vertical Test Mode: Transmitting Note: 802.11n40_U-NII-1 low channel 5190MHz Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz</p> <p>Serial No.: 2UA3-1 Tester: Nat Zhou</p>  <table border="1"> <thead> <tr> <th>No.</th><th>Frequency (MHz)</th><th>Reading (dBμV)</th><th>Factor (dB/m)</th><th>Result (dBμV/m)</th><th>Limit (dBμV/m)</th><th>Margin (dB)</th><th>Measurement</th></tr> </thead> <tbody> <tr> <td>1</td><td>5150.00</td><td>52.99</td><td>6.53</td><td>59.52</td><td>74.00</td><td>14.48</td><td>Peak</td></tr> <tr> <td>2</td><td>5150.00</td><td>41.62</td><td>6.53</td><td>48.15</td><td>54.00</td><td>5.85</td><td>Average</td></tr> </tbody> </table>	No.	Frequency (MHz)	Reading (dB μ V)	Factor (dB/m)	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Measurement	1	5150.00	52.99	6.53	59.52	74.00	14.48	Peak	2	5150.00	41.62	6.53	48.15	54.00	5.85	Average		
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