

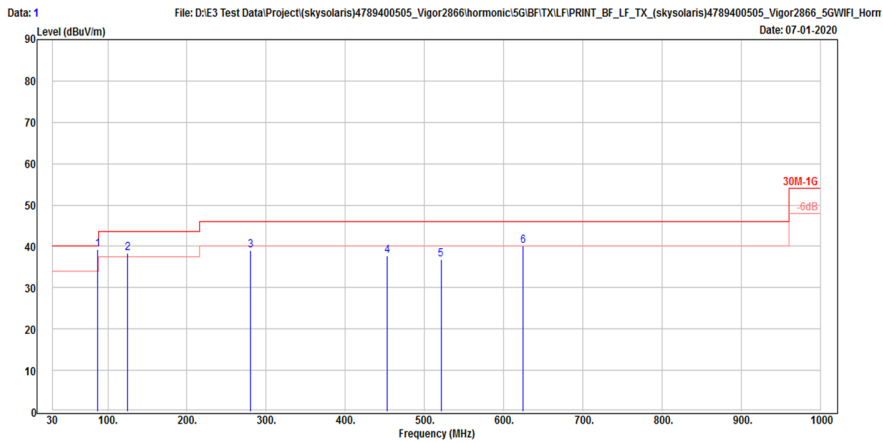


Beamforming Mode

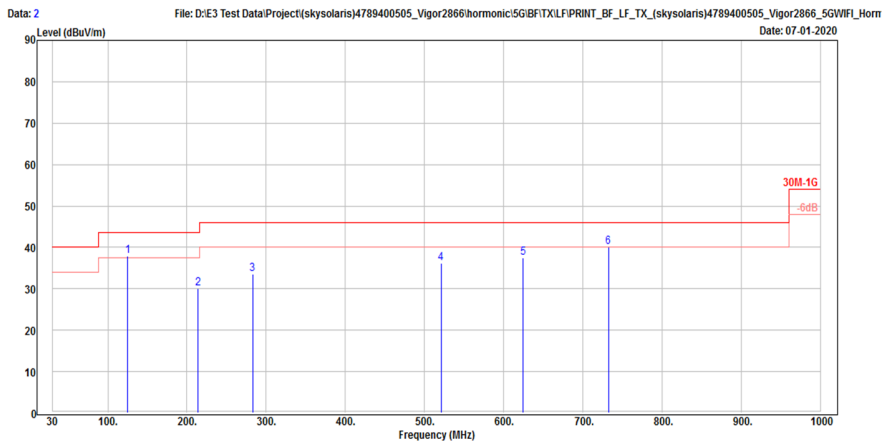
802.11ac (VHT40)

| EUT Test Condition | | Measurement Detail | |
|--------------------|-------------|--------------------|----------------|
| Channel | Channel 159 | Frequency Range | 30 MHz ~ 1 GHz |

Horizontal



Vertical



Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan
Telephone : +886-2-7737-3000
Facsimile (FAX) : +886-3-583-7948



Test report No. : 4789400505A-US-R1-V0
Page : 104 of 142
Issued date : Nov. 27, 2020
FCC ID : VGY2865

| Antenna Polarity & Test Distance: Horizontal at 3 m | | | | | | | |
|---|-----------|----------|---------|----------|----------|--------|--------|
| Notation | Frequency | Reading | Correct | Result | Limit | Margin | Remark |
| | (MHz) | (dBuV/m) | dB/m | (dBuV/m) | (dBuV/m) | (dB) | |
| - | 87.23 | 57.17 | -17.92 | 39.25 | 40 | -0.75 | Peak |
| - | 125.06 | 52.25 | -13.95 | 38.3 | 43.5 | -5.2 | Peak |
| - | 280.26 | 50.04 | -11.14 | 38.9 | 46 | -7.1 | Peak |
| - | 452.92 | 44.29 | -6.68 | 37.61 | 46 | -8.39 | Peak |
| - | 520.82 | 41.8 | -4.97 | 36.83 | 46 | -9.17 | Peak |
| - | 624.61 | 42.56 | -2.49 | 40.07 | 46 | -5.93 | Peak |

| Antenna Polarity & Test Distance: Vertical at 3 m | | | | | | | |
|---|-----------|----------|---------|----------|----------|--------|--------|
| Notation | Frequency | Reading | Correct | Result | Limit | Margin | Remark |
| | (MHz) | (dBuV/m) | dB/m | (dBuV/m) | (dBuV/m) | (dB) | |
| - | 125.06 | 51.89 | -13.95 | 37.94 | 43.5 | -5.56 | Peak |
| - | 214.3 | 44.4 | -14.24 | 30.16 | 43.5 | -13.34 | Peak |
| - | 283.17 | 44.74 | -11.13 | 33.61 | 46 | -12.39 | Peak |
| - | 520.82 | 41.2 | -4.97 | 36.23 | 46 | -9.77 | Peak |
| - | 624.61 | 39.95 | -2.49 | 37.46 | 46 | -8.54 | Peak |
| - | 732.28 | 40.99 | -1 | 39.99 | 46 | -6.01 | Peak |

Remarks:

1. Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
2. Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
3. Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
4. The peak result complies with QP limit, QP result is deemed to comply with QP limit.
5. The other emission levels were very low against the limit.

Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan
Telephone : +886-2-7737-3000
Facsimile (FAX) : +886-3-583-7948

Doc No: 17-EM-F0878 / 5.0

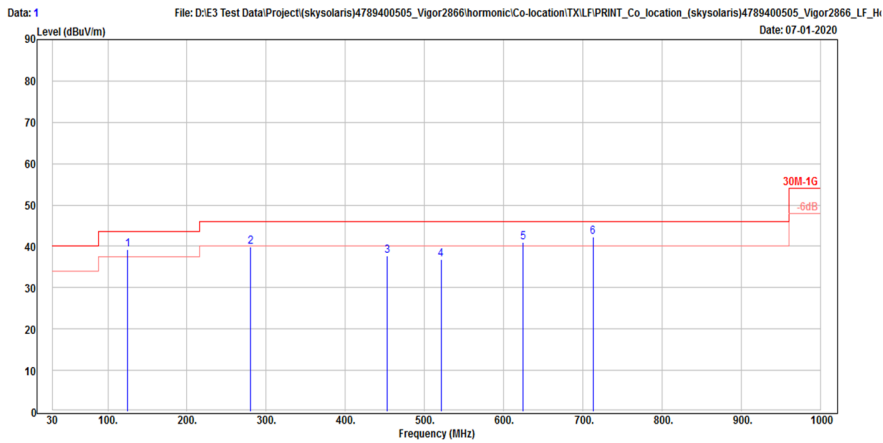


Co-Location Mode

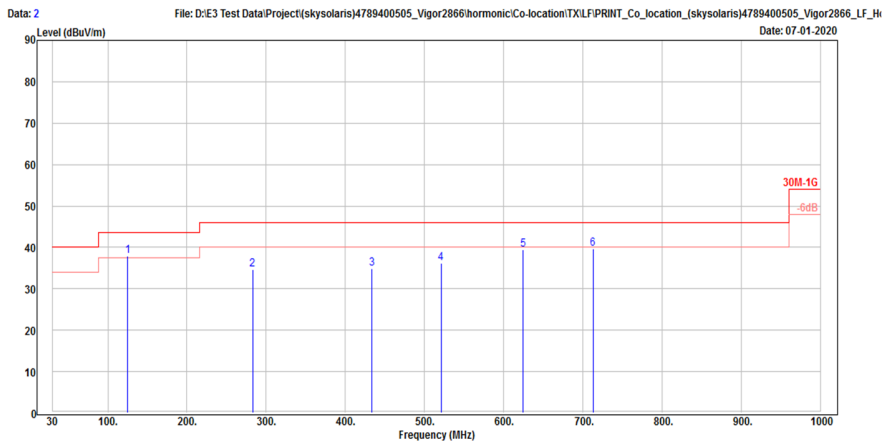
802.11n (HT20) + 802.11a

| EUT Test Condition | | Measurement Detail | |
|--------------------|-------------------------|--------------------|----------------|
| Channel | Channel 6 + Channel 157 | Frequency Range | 30 MHz ~ 1 GHz |

Horizontal



Vertical



Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan
Telephone : +886-2-7737-3000
Facsimile (FAX) : +886-3-583-7948



Test report No. : 4789400505A-US-R1-V0
Page : 106 of 142
Issued date : Nov. 27, 2020
FCC ID : VGY2865

| Antenna Polarity & Test Distance: Horizontal at 3 m | | | | | | | |
|---|-----------|----------|---------|----------|----------|--------|--------|
| Notation | Frequency | Reading | Correct | Result | Limit | Margin | Remark |
| | (MHz) | (dBuV/m) | dB/m | (dBuV/m) | (dBuV/m) | (dB) | |
| - | 125.06 | 53.25 | -13.95 | 39.3 | 43.5 | -4.2 | Peak |
| - | 280.26 | 51.04 | -11.14 | 39.9 | 46 | -6.1 | Peak |
| - | 452.92 | 44.29 | -6.68 | 37.61 | 46 | -8.39 | Peak |
| - | 520.82 | 41.8 | -4.97 | 36.83 | 46 | -9.17 | Peak |
| - | 624.61 | 43.56 | -2.49 | 41.07 | 46 | -4.93 | Peak |
| - | 712.88 | 43.95 | -1.59 | 42.36 | 46 | -3.64 | Peak |

| Antenna Polarity & Test Distance: Vertical at 3 m | | | | | | | |
|---|-----------|----------|---------|----------|----------|--------|--------|
| Notation | Frequency | Reading | Correct | Result | Limit | Margin | Remark |
| | (MHz) | (dBuV/m) | dB/m | (dBuV/m) | (dBuV/m) | (dB) | |
| - | 125.06 | 51.89 | -13.95 | 37.94 | 43.5 | -5.56 | Peak |
| - | 283.17 | 45.74 | -11.13 | 34.61 | 46 | -11.39 | Peak |
| - | 433.52 | 42.09 | -7.24 | 34.85 | 46 | -11.15 | Peak |
| - | 520.82 | 41.2 | -4.97 | 36.23 | 46 | -9.77 | Peak |
| - | 624.61 | 41.95 | -2.49 | 39.46 | 46 | -6.54 | Peak |
| - | 712.88 | 41.22 | -1.59 | 39.63 | 46 | -6.37 | Peak |

Remarks:

1. Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
2. Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
3. Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
4. The peak result complies with QP limit, QP result is deemed to comply with QP limit.
5. The other emission levels were very low against the limit.

Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan
Telephone : +886-2-7737-3000
Facsimile (FAX) : +886-3-583-7948

Doc No: 17-EM-F0878 / 5.0



9.8. AC Power Line Conducted Emission

Requirements

| Frequency (MHz) | Conducted limit (dB μ V) | |
|-----------------|------------------------------|---------|
| | Quasi-peak | Average |
| 0.15 - 0.5 | 66 - 56 | 56 - 46 |
| 0.50 - 5.0 | 56 | 46 |
| 5.0 - 30 | 60 | 50 |

Note:

1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

Test Procedures

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

NOTE:

1. The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.

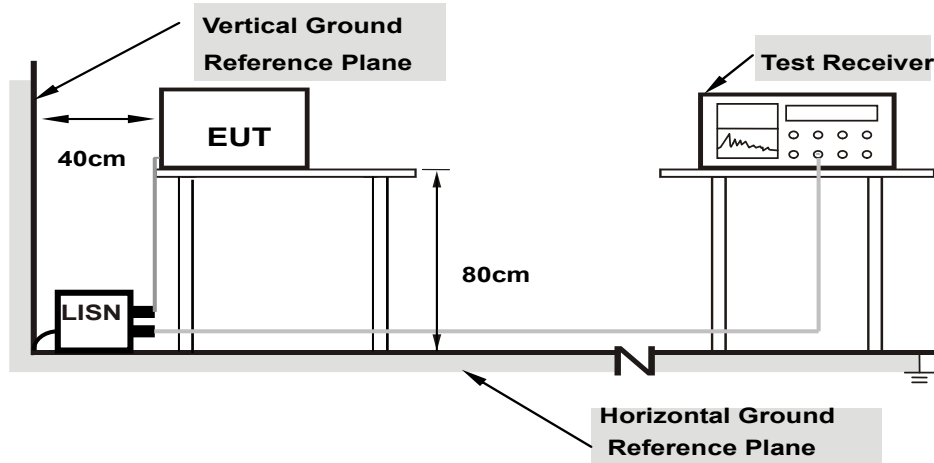
Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan
Telephone : +886-2-7737-3000
Facsimile (FAX) : +886-3-583-7948

Doc No: 17-EM-F0878 / 5.0



Test Setup



Note: 1.Support units were connected to second LISN.

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

Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan
Telephone : +886-2-7737-3000
Facsimile (FAX) : +886-3-583-7948

Doc No: 17-EM-F0878 / 5.0

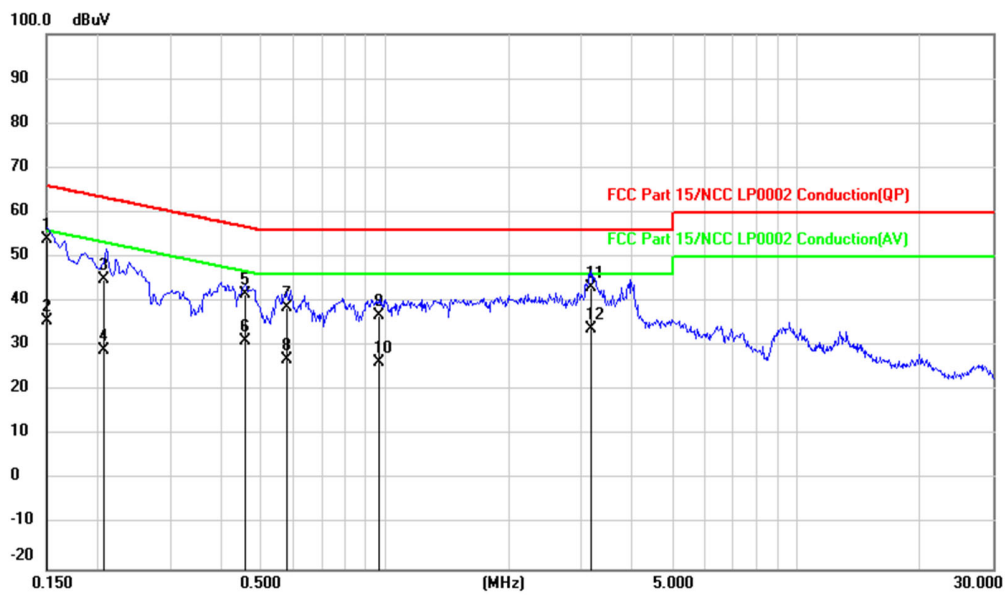


Test Data

802.11a

| EUT Test Condition | | Measurement Detail | |
|--------------------|-------------|--------------------|------------------|
| Channel | Channel 157 | Frequency Range | 150 kHz ~ 30 MHz |

Phase of Power : Line (L)



Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan
Telephone : +886-2-7737-3000
Facsimile (FAX) : +886-3-583-7948



Test report No. : 4789400505A-US-R1-V0
Page : 110 of 142
Issued date : Nov. 27, 2020
FCC ID : VGY2865

| No. | Frequency (MHz) | Reading (dBuV) | Correct dB | Result (dBuV) | Limit (dBuV) | Margin (dB) | Remark |
|-----|--------------------|-------------------|---------------|------------------|-----------------|----------------|--------|
| 1 | 0.1507 | 34.34 | 19.47 | 53.81 | 65.96 | -12.15 | QP |
| 2 | 0.1507 | 16.05 | 19.47 | 35.52 | 55.96 | -20.44 | AVG |
| 3 | 0.2066 | 25.42 | 19.47 | 44.89 | 63.34 | -18.45 | QP |
| 4 | 0.2066 | 9.57 | 19.47 | 29.04 | 53.34 | -24.30 | AVG |
| 5 | 0.4559 | 22.16 | 19.48 | 41.64 | 56.77 | -15.13 | QP |
| 6 | 0.4559 | 11.54 | 19.48 | 31.02 | 46.77 | -15.75 | AVG |
| 7 | 0.5819 | 19.03 | 19.48 | 38.51 | 56.00 | -17.49 | QP |
| 8 | 0.5819 | 7.62 | 19.48 | 27.10 | 46.00 | -18.90 | AVG |
| 9 | 0.9677 | 17.41 | 19.50 | 36.91 | 56.00 | -19.09 | QP |
| 10 | 0.9677 | 6.73 | 19.50 | 26.23 | 46.00 | -19.77 | AVG |
| 11 | 3.1662 | 23.50 | 19.55 | 43.05 | 56.00 | -12.95 | QP |
| 12 | 3.1662 | 14.42 | 19.55 | 33.97 | 46.00 | -12.03 | AVG |

Remarks:

1. Result value (dBuV) = Reading value (dBuV) + Correction Factor (dB)
2. Margin(dB) = Result value (dBuV) - Limit value (dBuV)
3. Correction Factor(dB) = Insertion loss(dB) + Cable loss(dB)
4. The other emission levels were very low against the limit.

Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

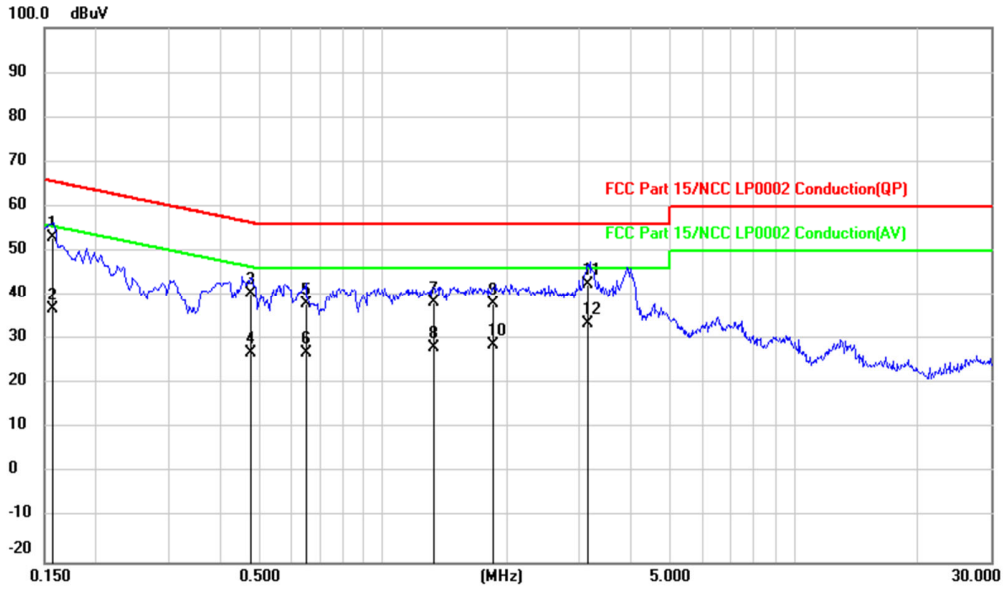
Telephone :+886-2-7737-3000

Facsimile (FAX) :+886-3-583-7948

Doc No: 17-EM-F0878 / 5.0



Phase of Power : Neutral (N)



Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan
Telephone : +886-2-7737-3000
Facsimile (FAX) : +886-3-583-7948



Test report No. : 4789400505A-US-R1-V0
Page : 112 of 142
Issued date : Nov. 27, 2020
FCC ID : VGY2865

| No. | Frequency (MHz) | Reading (dBuV) | Correct dB | Result (dBuV) | Limit (dBuV) | Margin (dB) | Remark |
|-----|--------------------|-------------------|---------------|------------------|-----------------|----------------|--------|
| 1 | 0.1558 | 33.58 | 19.47 | 53.05 | 65.68 | -12.63 | QP |
| 2 | 0.1558 | 17.38 | 19.47 | 36.85 | 55.68 | -18.83 | AVG |
| 3 | 0.4771 | 20.84 | 19.49 | 40.33 | 56.39 | -16.06 | QP |
| 4 | 0.4771 | 7.32 | 19.49 | 26.81 | 46.39 | -19.58 | AVG |
| 5 | 0.6476 | 18.45 | 19.49 | 37.94 | 56.00 | -18.06 | QP |
| 6 | 0.6476 | 7.42 | 19.49 | 26.91 | 46.00 | -19.09 | AVG |
| 7 | 1.3227 | 18.78 | 19.51 | 38.29 | 56.00 | -17.71 | QP |
| 8 | 1.3227 | 8.55 | 19.51 | 28.06 | 46.00 | -17.94 | AVG |
| 9 | 1.8586 | 18.57 | 19.54 | 38.11 | 56.00 | -17.89 | QP |
| 10 | 1.8586 | 9.23 | 19.54 | 28.77 | 46.00 | -17.23 | AVG |
| 11 | 3.1656 | 22.95 | 19.57 | 42.52 | 56.00 | -13.48 | QP |
| 12 | 3.1656 | 14.01 | 19.57 | 33.58 | 46.00 | -12.42 | AVG |

Remarks:

1. Result value (dBuV) = Reading value (dBuV) + Correction Factor (dB)
2. Margin(dB) = Result value (dBuV) - Limit value (dBuV)
3. Correction Factor(dB) = Insertion loss(dB) + Cable loss(dB)
4. The other emission levels were very low against the limit.

Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

Telephone : +886-2-7737-3000

Facsimile (FAX) : +886-3-583-7948

Doc No: 17-EM-F0878 / 5.0

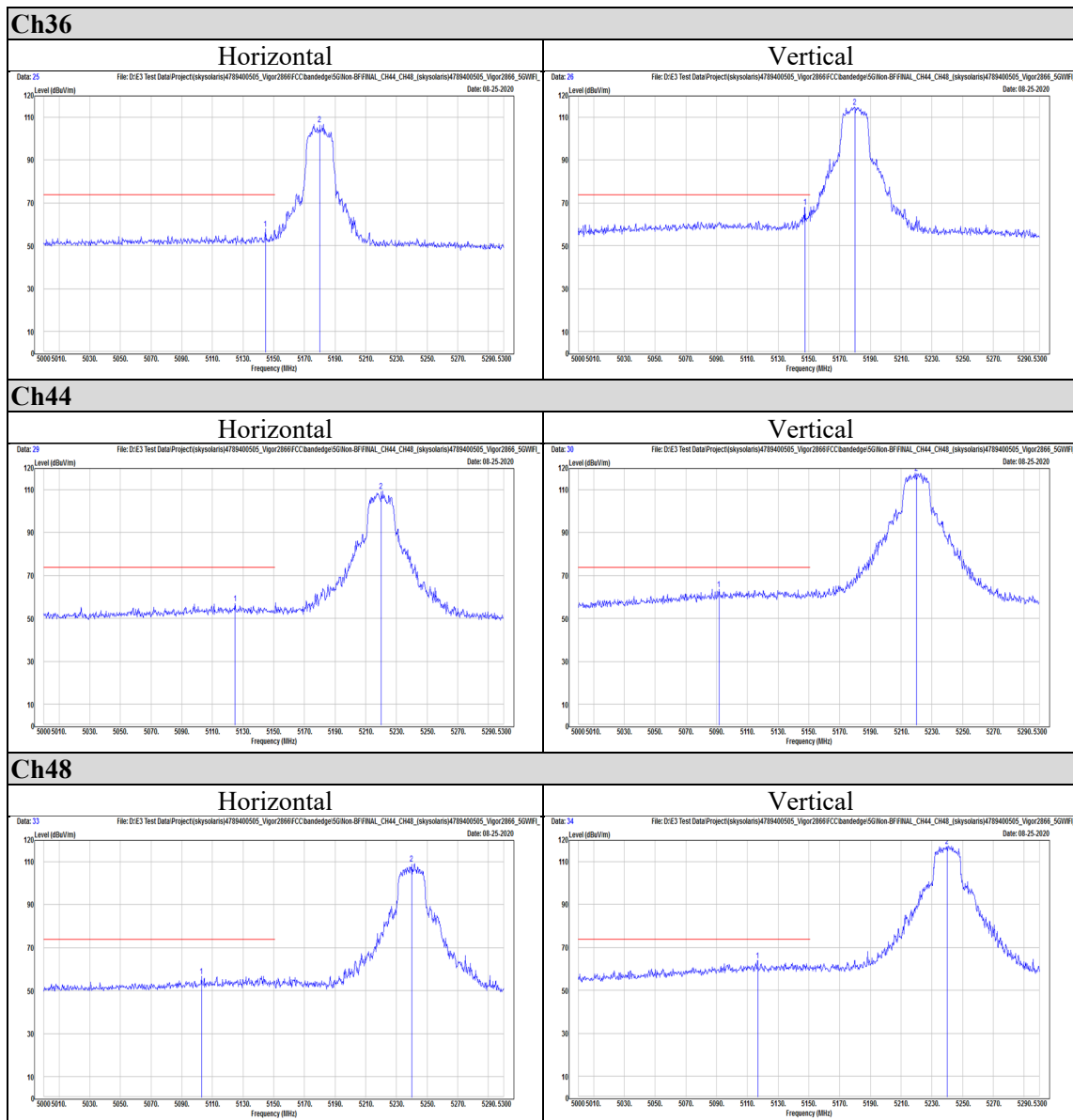


Appendix I Radiated Band Edge and OOB Measurement

Non-Beamforming Mode

802.11a

Peak



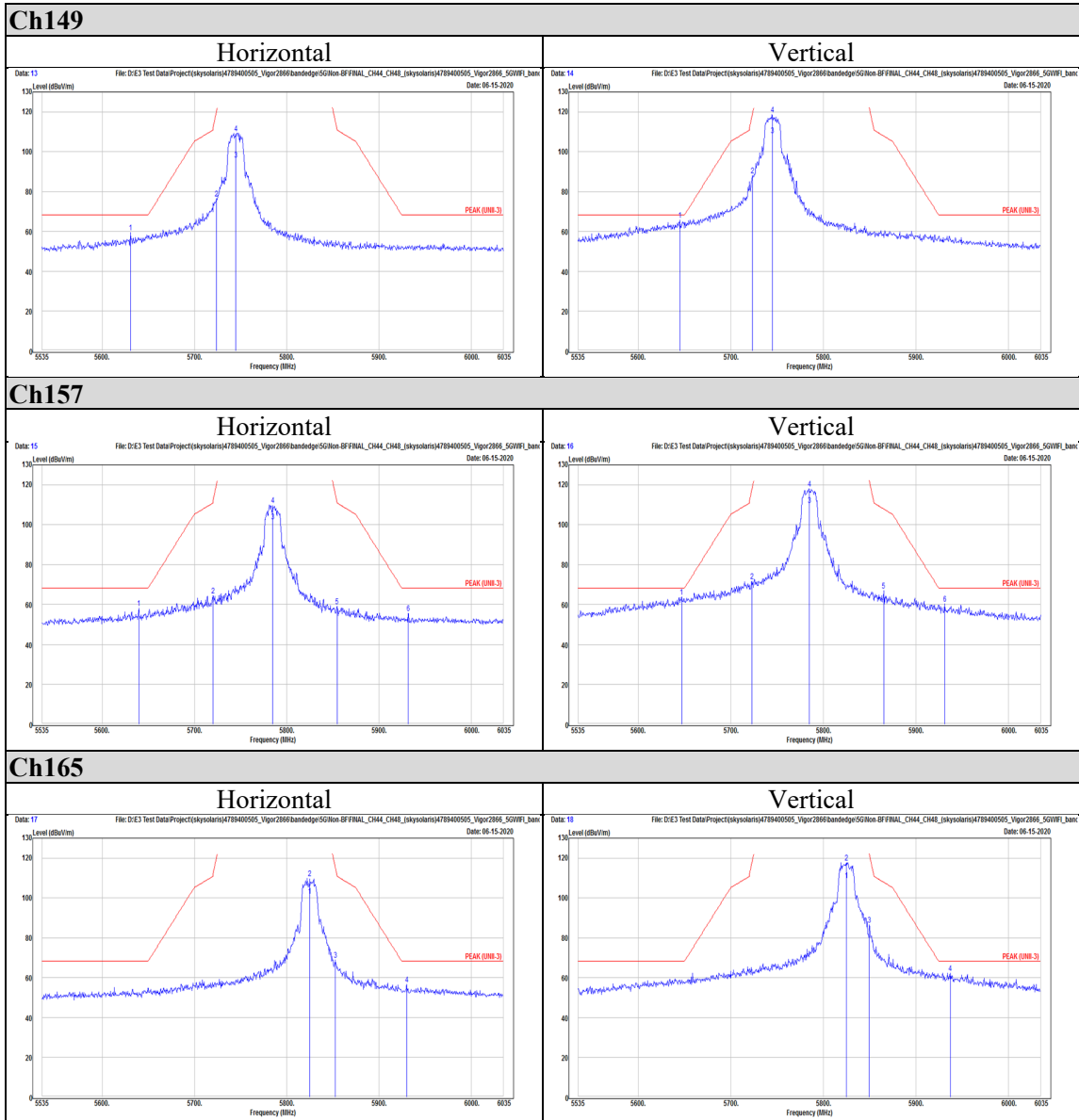
Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

Telephone : +886-2-7737-3000

Facsimile (FAX) : +886-3-583-7948

Doc No: 17-EM-F0878 / 5.0

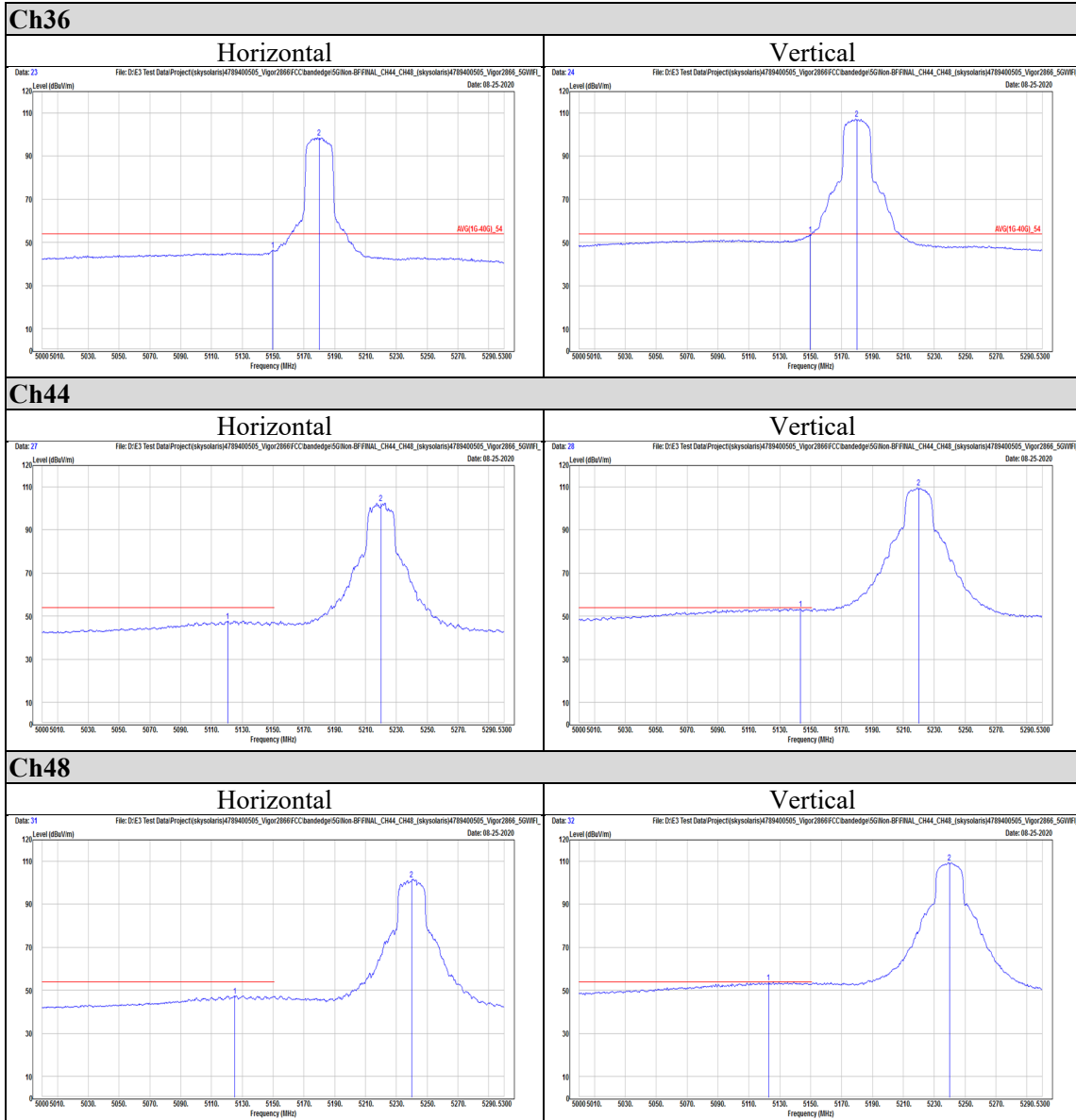


Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan
Telephone : +886-2-7737-3000
Facsimile (FAX) : +886-3-583-7948



Average



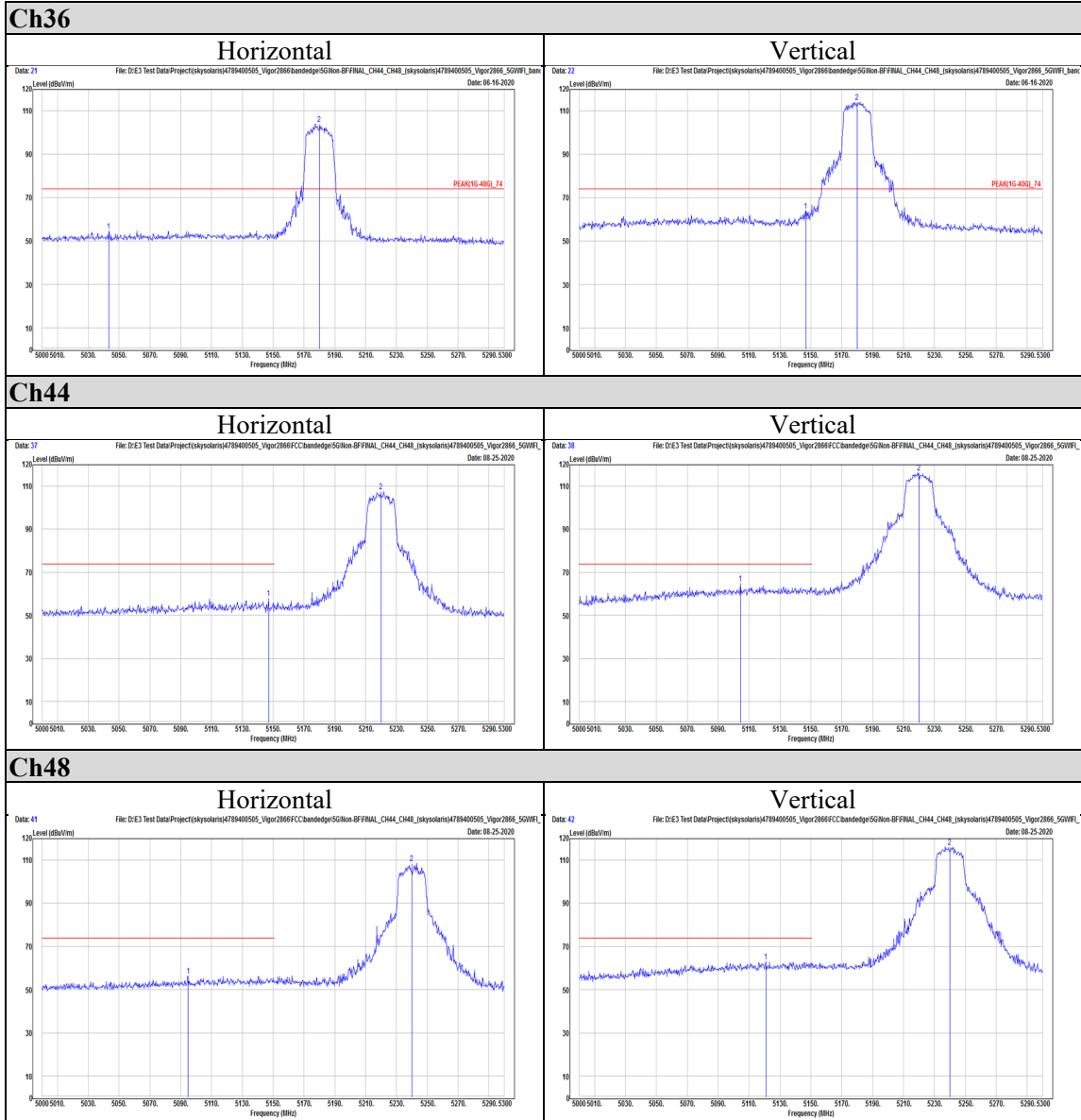
Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan
Telephone : +886-2-7737-3000
Facsimile (FAX) : +886-3-583-7948



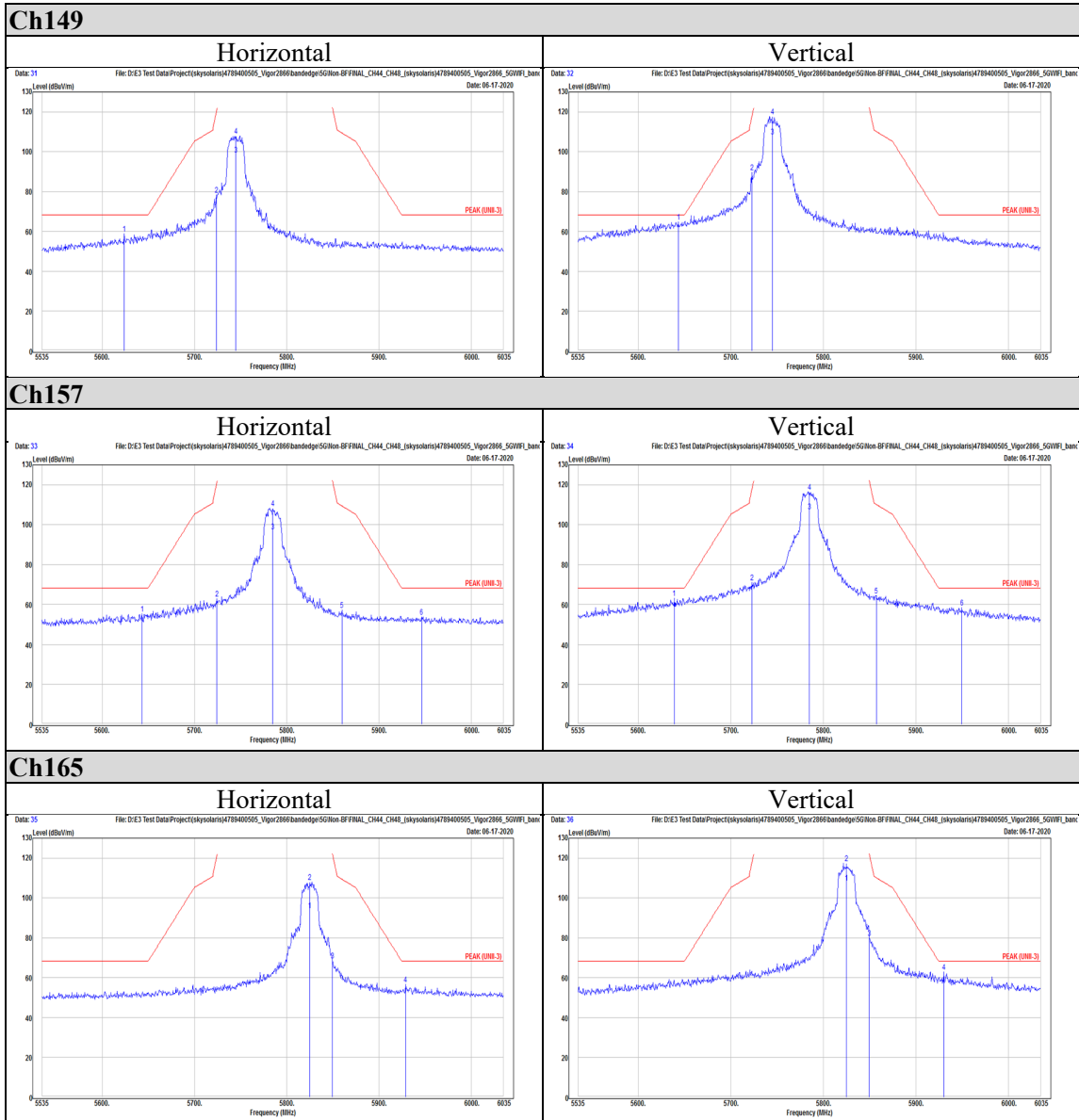
802.11ac (VHT20)

Peak



Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan
Telephone : +886-2-7737-3000
Facsimile (FAX) : +886-3-583-7948

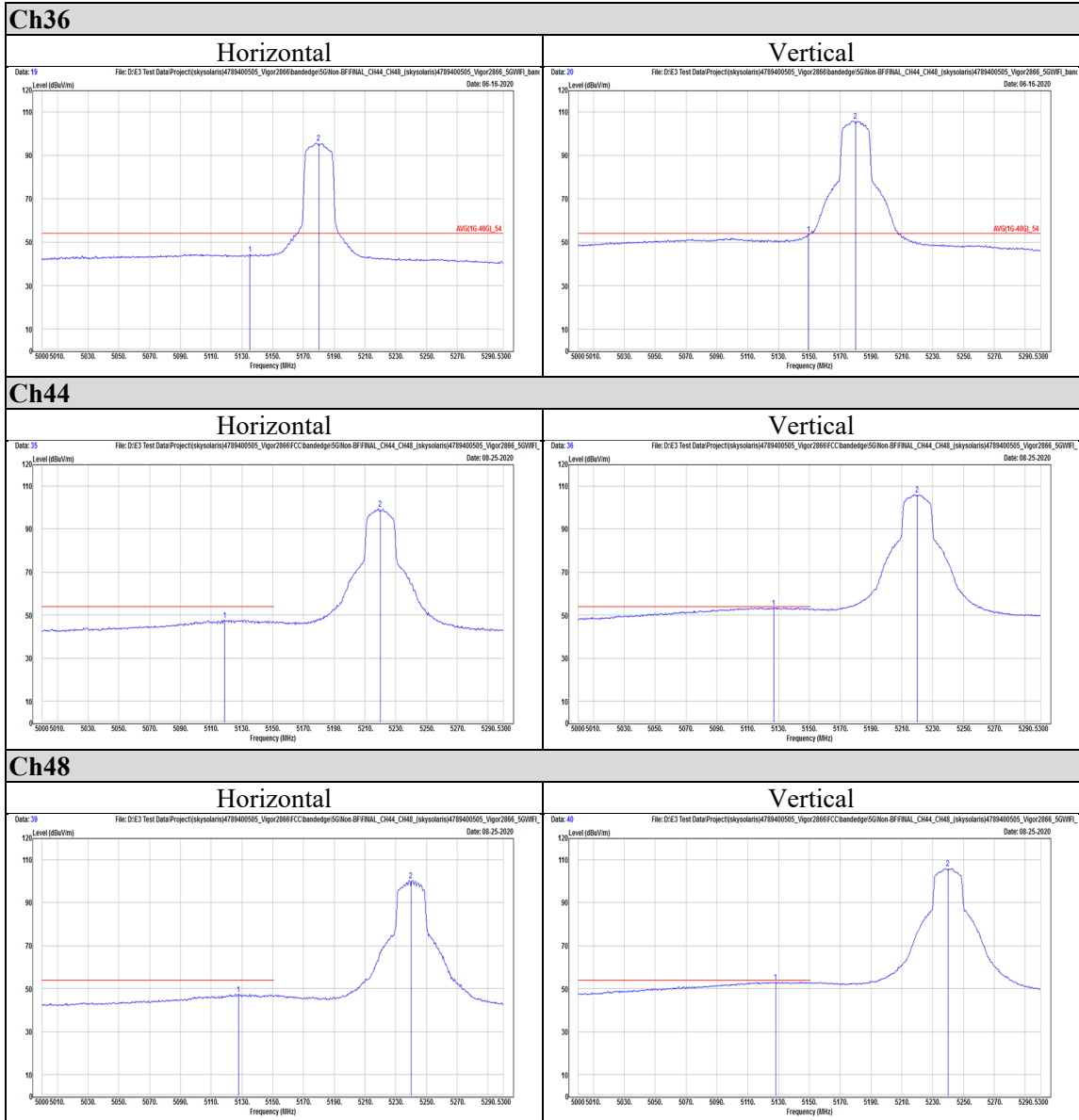


Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan
Telephone : +886-2-7737-3000
Facsimile (FAX) : +886-3-583-7948



Average



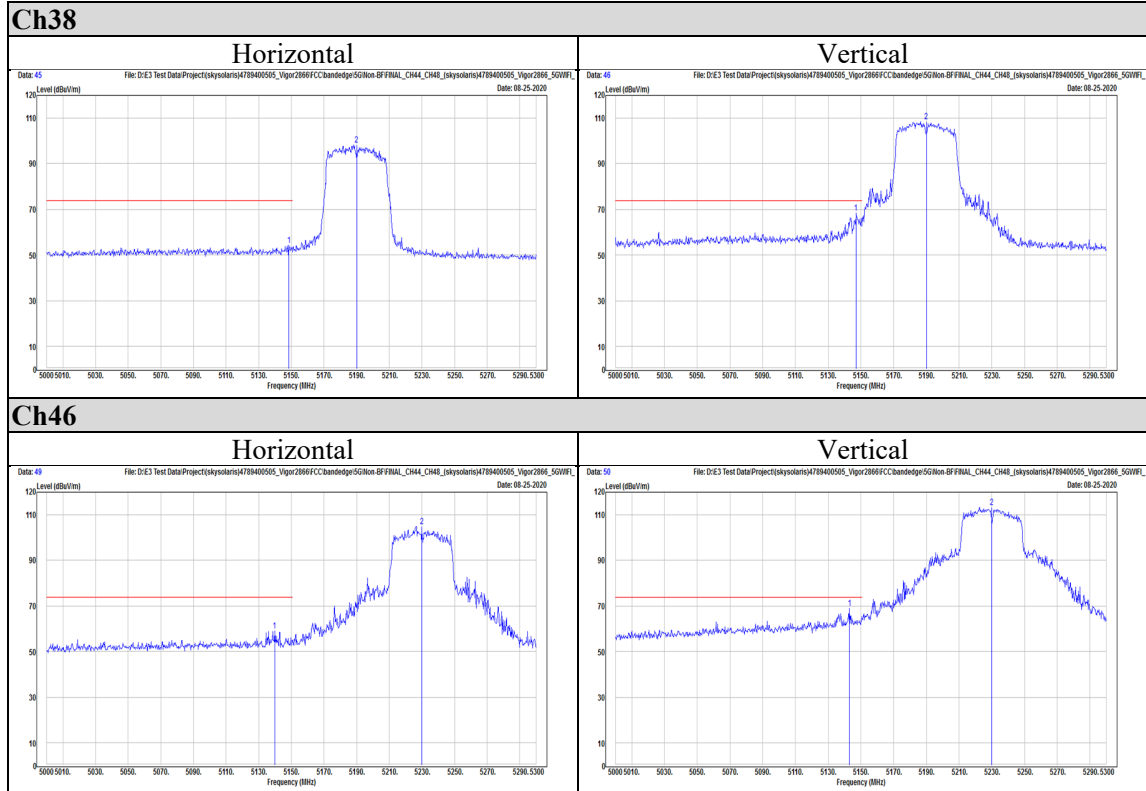
Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan
Telephone : +886-2-7737-3000
Facsimile (FAX) : +886-3-583-7948



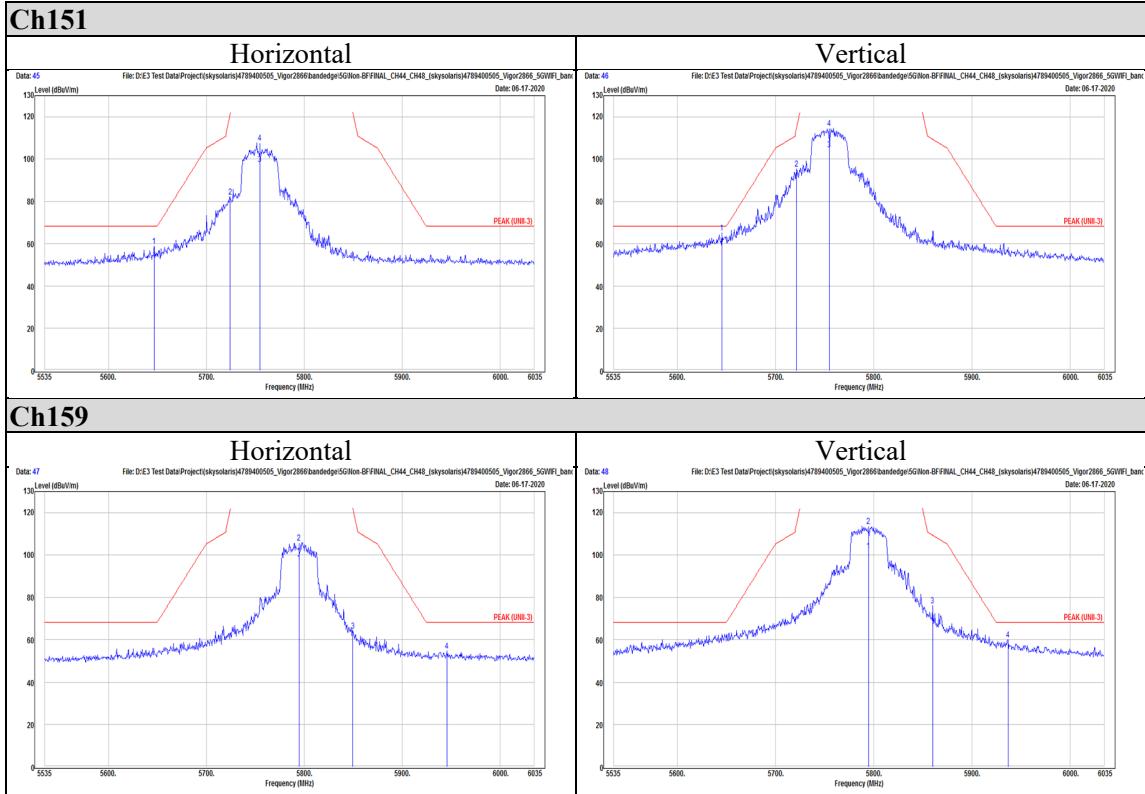
802.11ac (VHT40)

Peak



Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan
Telephone : +886-2-7737-3000
Facsimile (FAX) : +886-3-583-7948

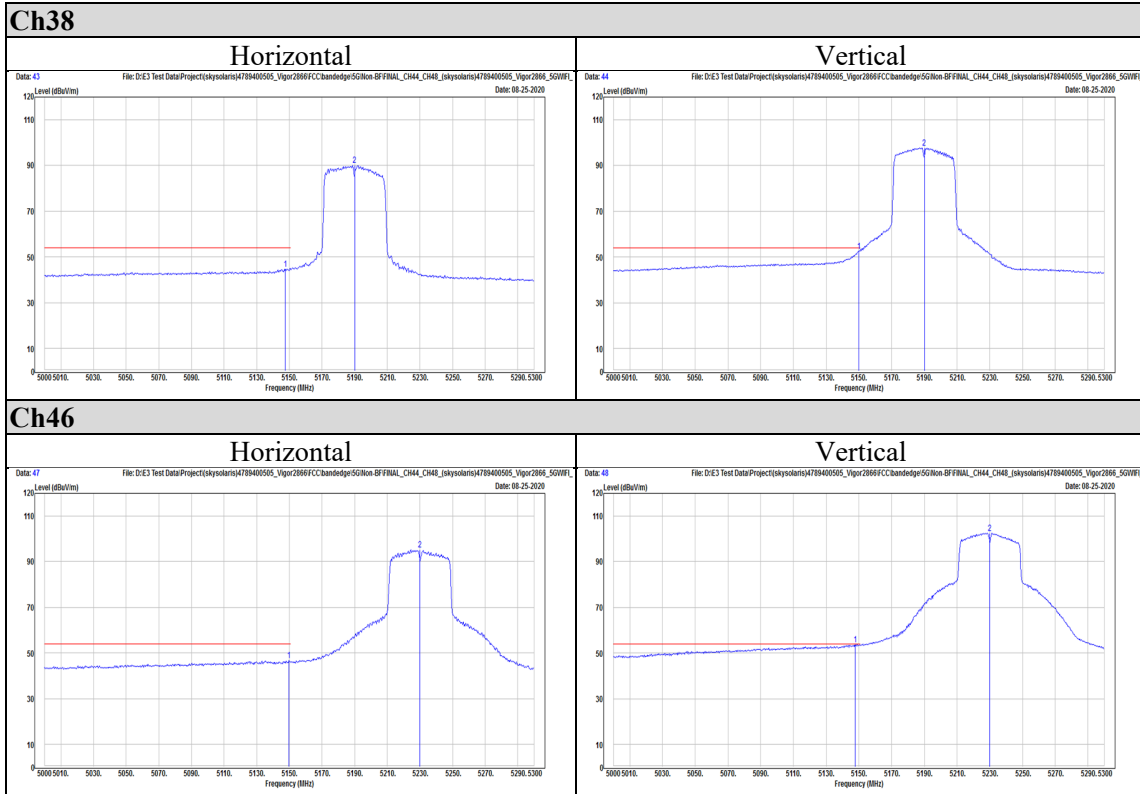


Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan
Telephone : +886-2-7737-3000
Facsimile (FAX) : +886-3-583-7948



Average



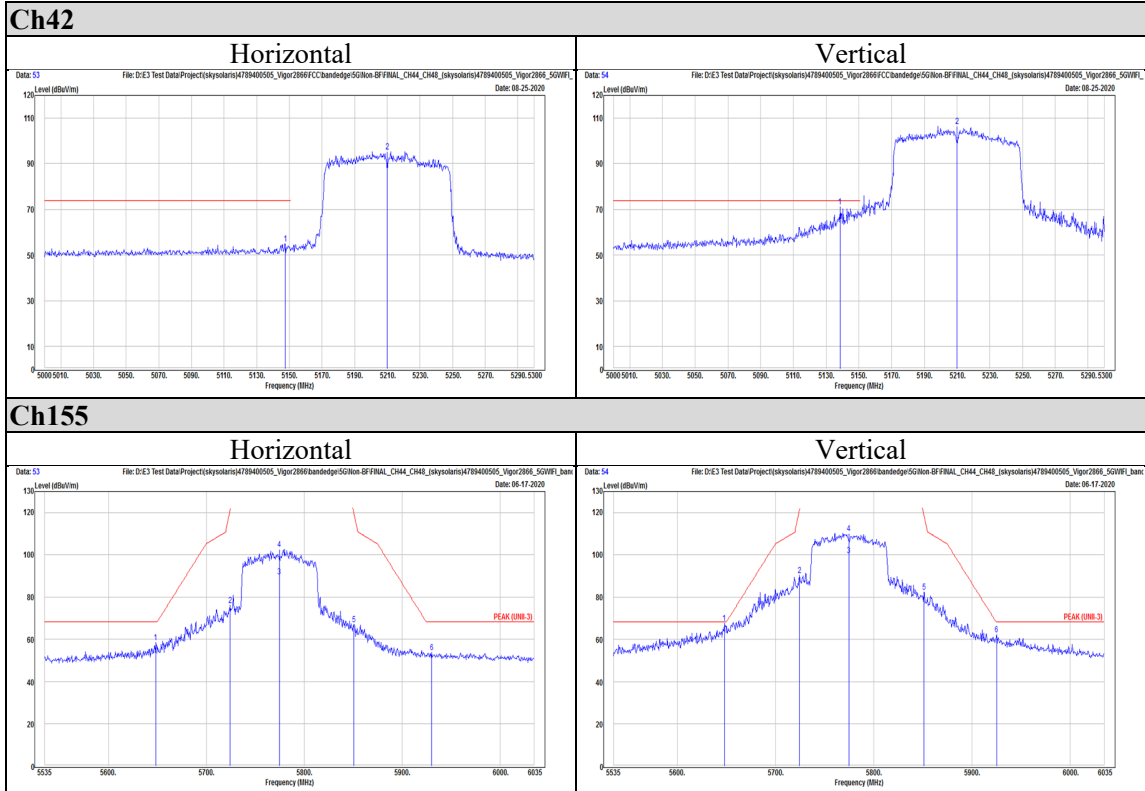
Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan
Telephone : +886-2-7737-3000
Facsimile (FAX) : +886-3-583-7948

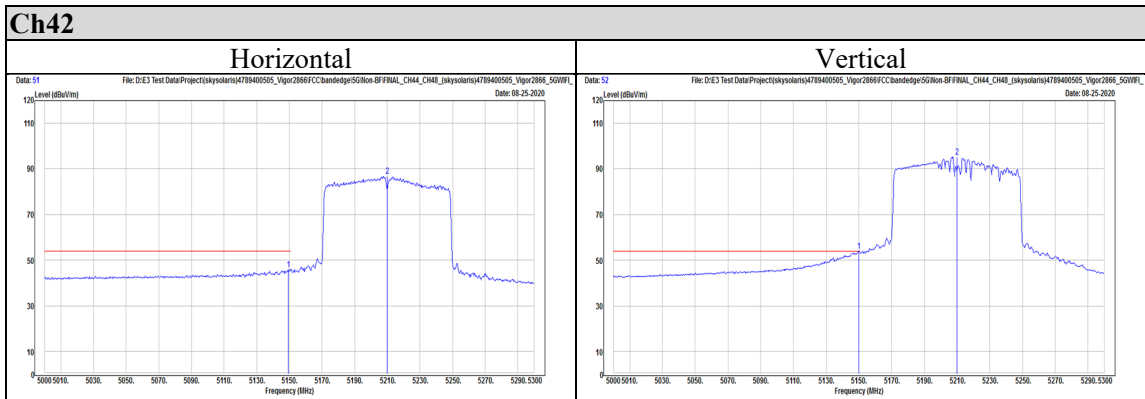


802.11ac (VHT80)

Peak



Average



Underwriters Laboratories Taiwan Co., Ltd.

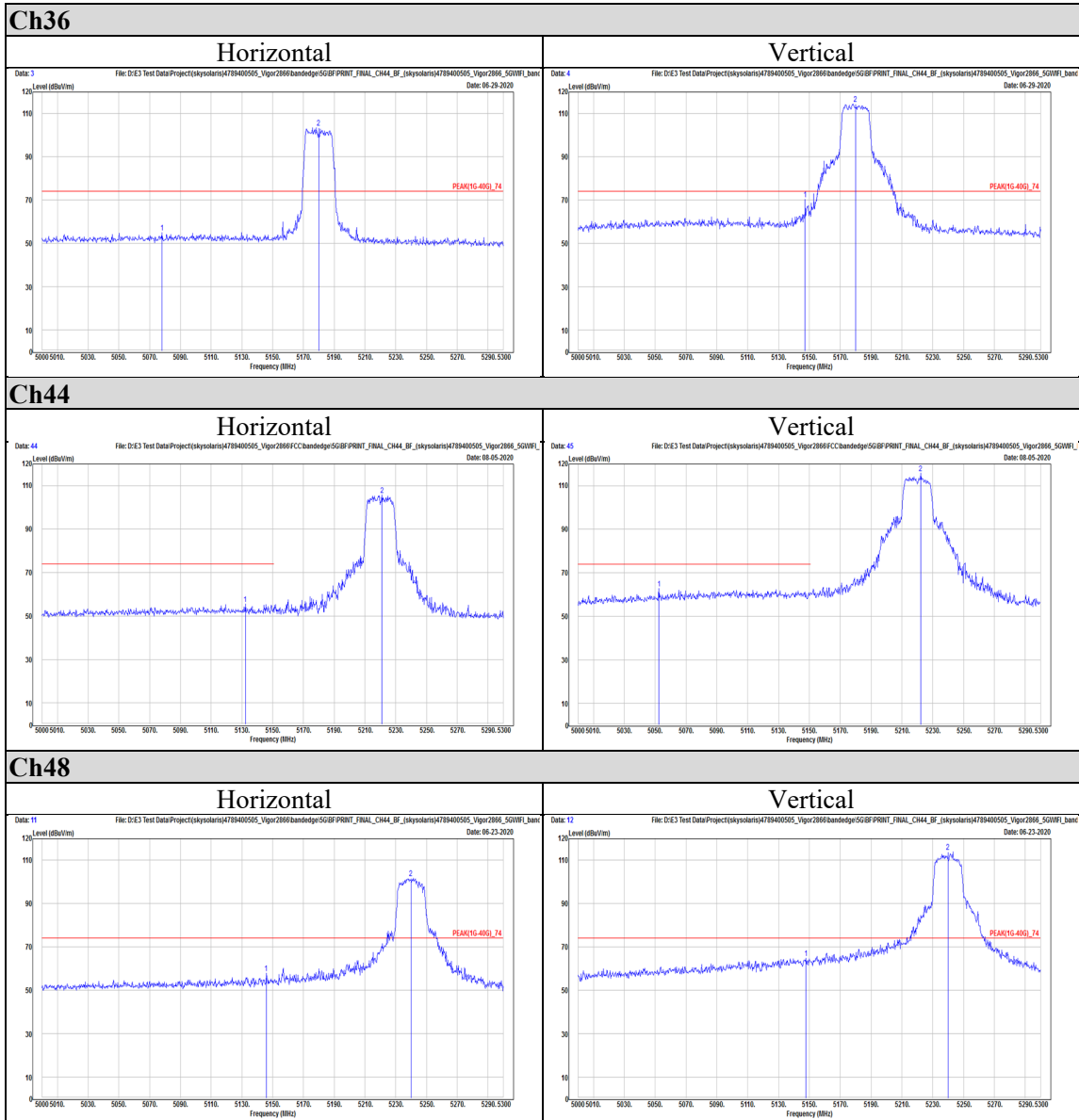
Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan
Telephone : +886-2-7737-3000
Facsimile (FAX) : +886-3-583-7948



Beamforming Mode

802.11ac (VHT20)

Peak

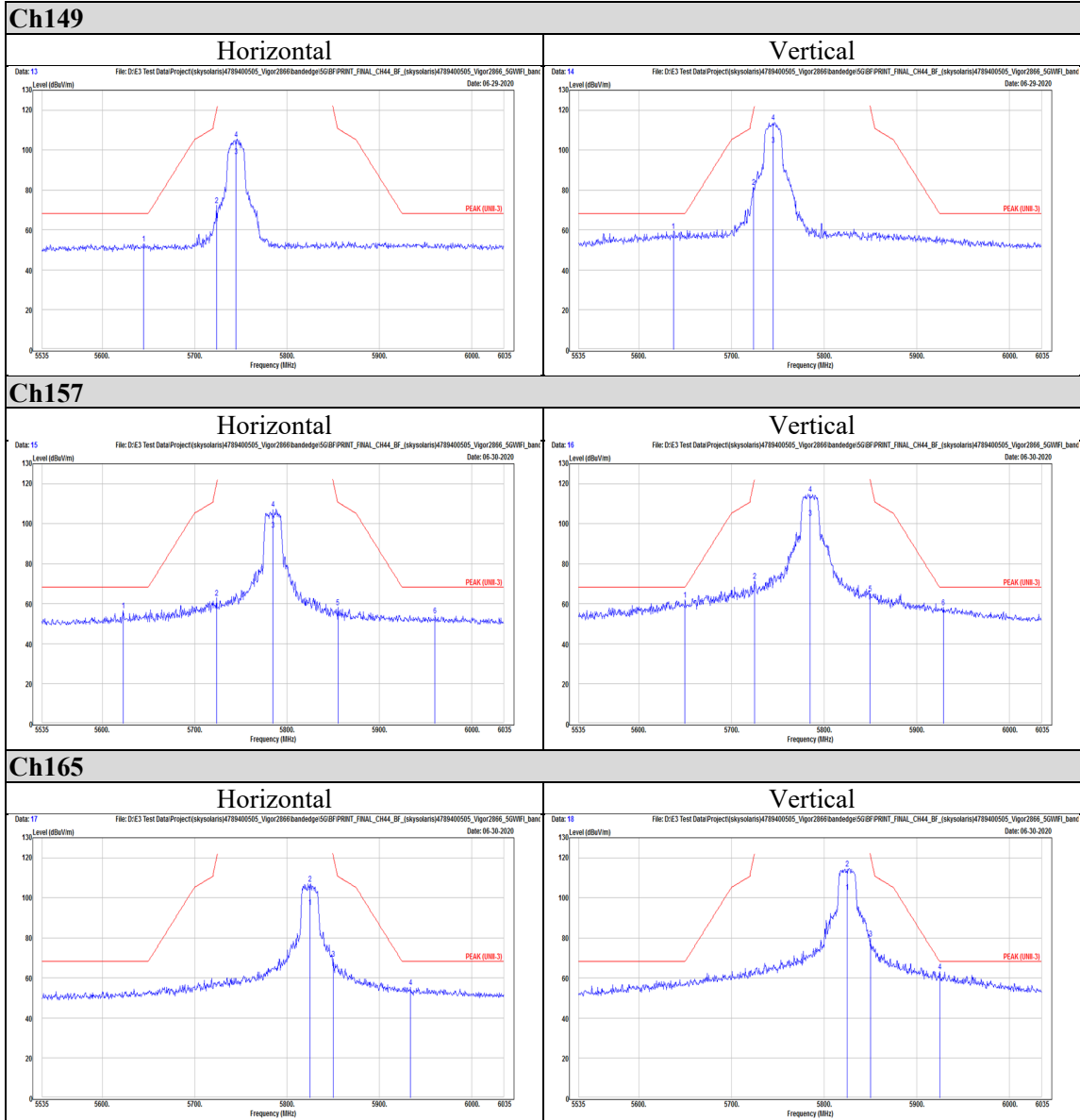


Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan
Telephone : +886-2-7737-3000
Facsimile (FAX) : +886-3-583-7948



Test report No. : 4789400505A-US-R1-V0
Page : 124 of 142
Issued date : Nov. 27, 2020
FCC ID : VGY2865



Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan
Telephone : +886-2-7737-3000
Facsimile (FAX) : +886-3-583-7948

Doc No: 17-EM-F0878 / 5.0