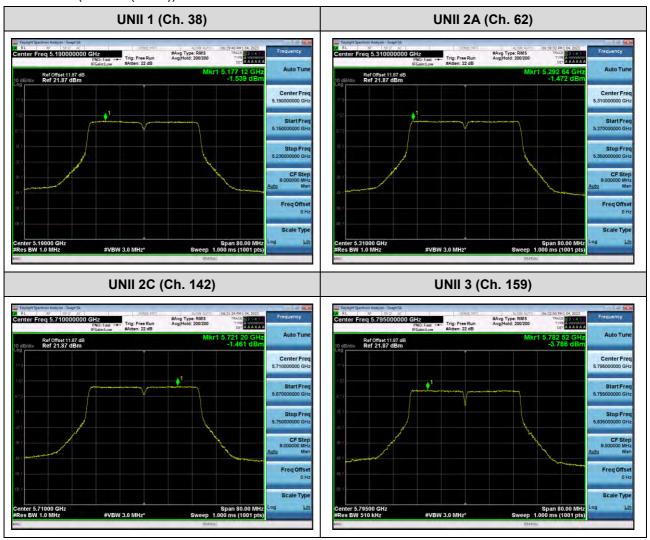


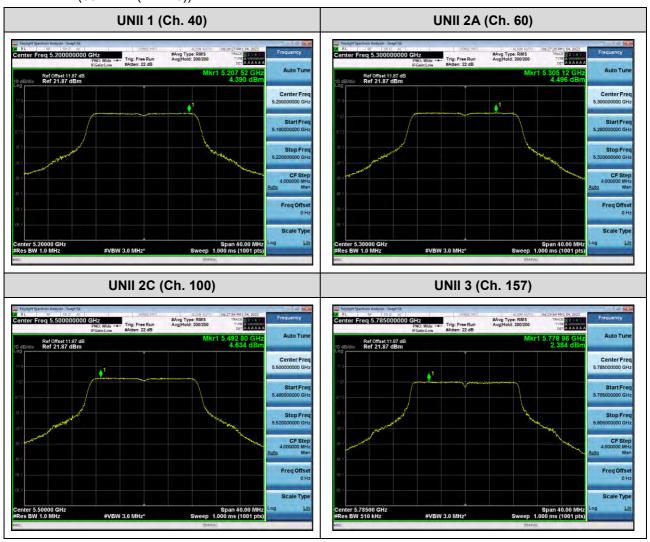
## ■ Test Plots(802.11n(HT40))



F-TP22-03 (Rev.00) 1 0 2 / 231 **HCT CO.,LTD.** 



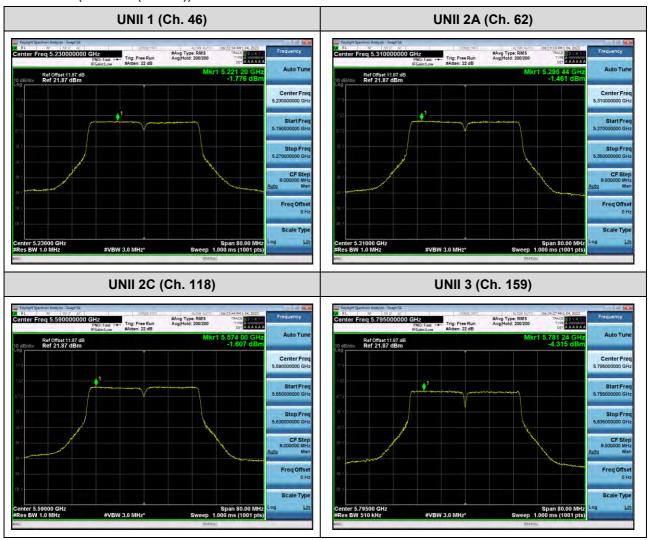
## ■ Test Plots(802.11ac(VHT20))



F-TP22-03 (Rev.00) 1 0 3 / 231 **HCT CO.,LTD.** 



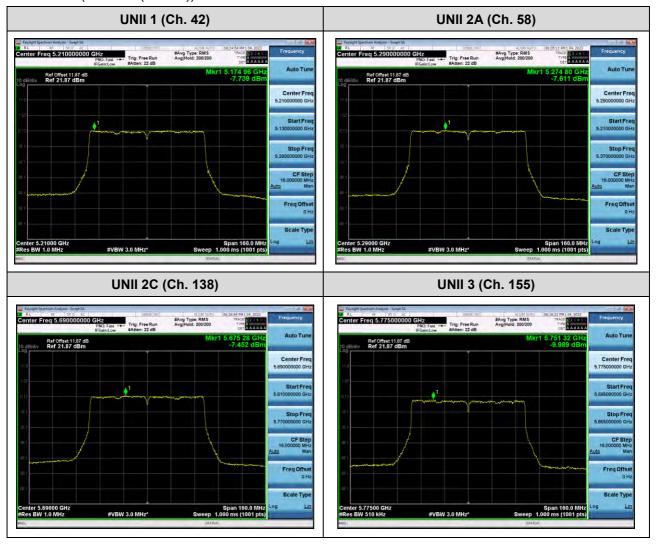
## ■ Test Plots(802.11ac(VHT40))



F-TP22-03 (Rev.00) 1 0 4 / 231 **HCT CO.,LTD.** 



## ■ Test Plots(802.11ac(VHT80))

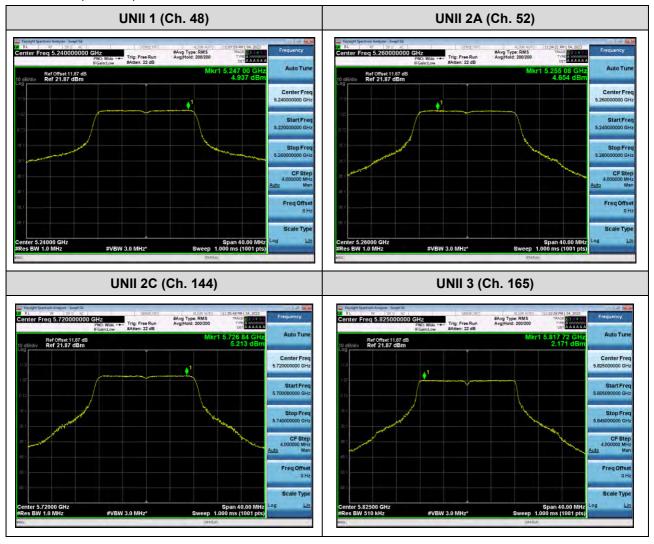


F-TP22-03 (Rev.00) 1 0 5 / 231 **HCT CO.,LTD.** 



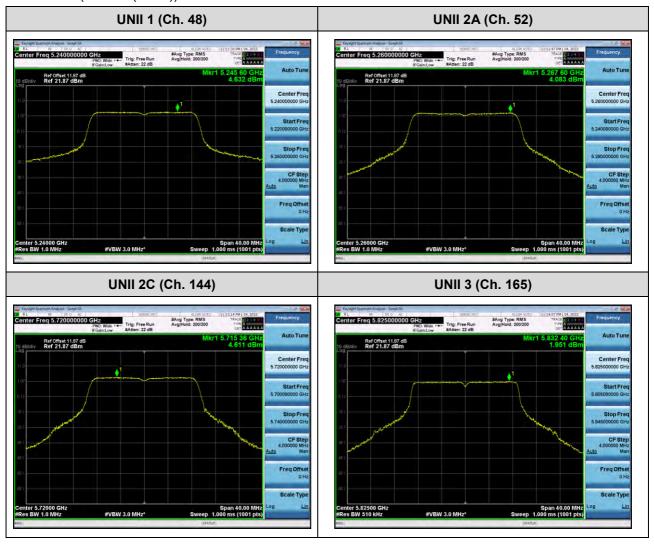
## [MIMO Ant.2]

## ■ Test Plots(802.11a)





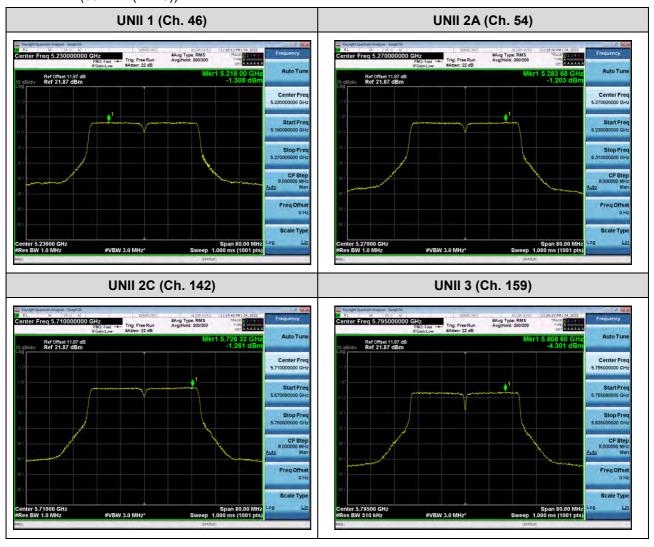
## ■ Test Plots(802.11n(HT20))



F-TP22-03 (Rev.00) 1 0 7 / 231 **HCT CO.,LTD.** 



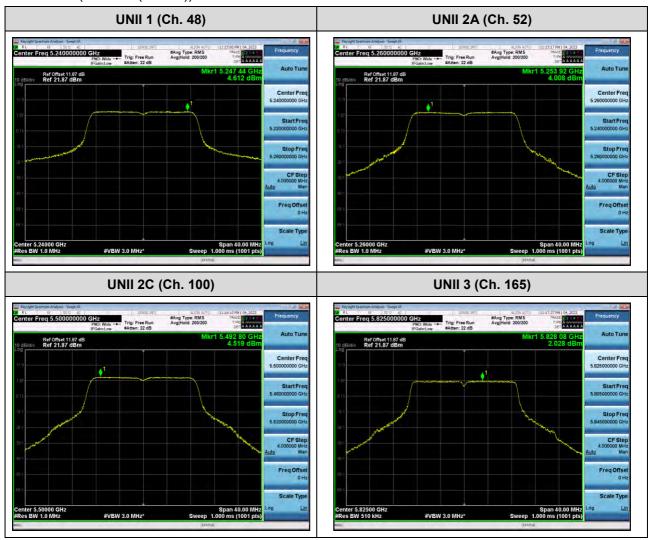
## ■ Test Plots(802.11n(HT40))



F-TP22-03 (Rev.00) 1 0 8 / 231 **HCT CO.,LTD.** 



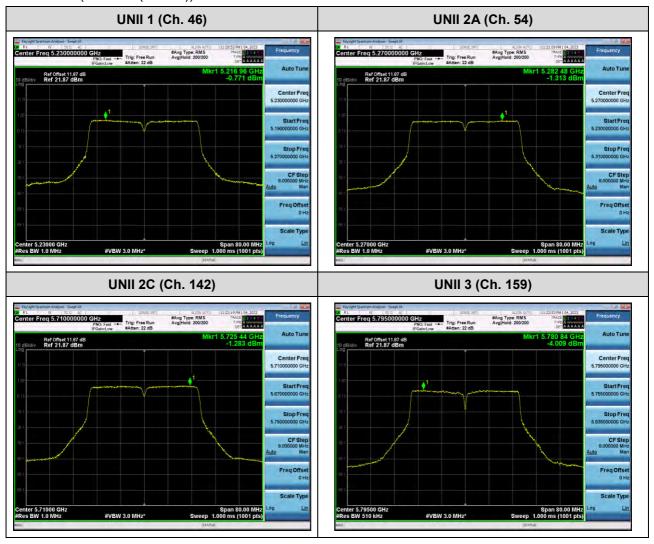
## ■ Test Plots(802.11ac(VHT20))



F-TP22-03 (Rev.00) 1 0 9 / 231 **HCT CO.,LTD.** 



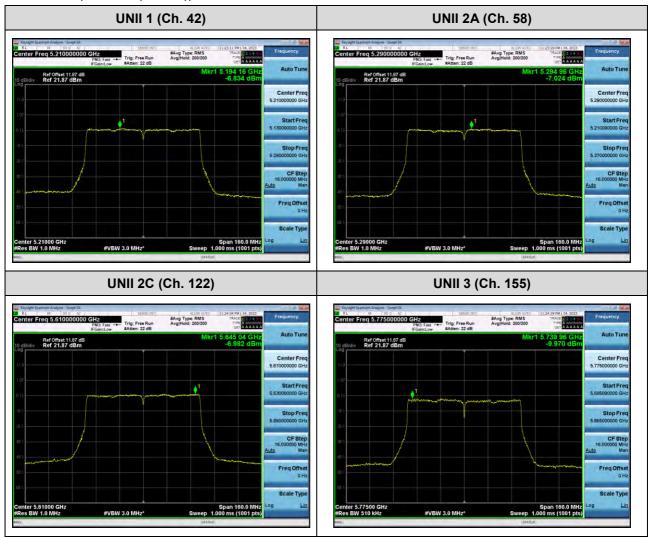
## ■ Test Plots(802.11ac(VHT40))



F-TP22-03 (Rev.00) 1 1 0 / 231 **HCT CO.,LTD.** 



## ■ Test Plots(802.11ac(VHT80))



F-TP22-03 (Rev.00) 1 1 1 / 231 **HCT CO.,LTD.** 



# 10.6 FREQUENCY STABILITY. 10.6.1 80 MHz BW

### [SISO Ant.2]

### Startup after the EUT is energized

OPERATING BAND: UNII Band 1

OPERATING FREQUENCY: 5,210,000,000 Hz

CHANNEL: 42

REFERENCE VOLTAGE: 3.85 VDC

| Voltage | Power | Temp.    | Frequency  | Frequency   |
|---------|-------|----------|------------|-------------|
| (%)     | (VDC) | (℃)      | (kHz)      | Error (kHz) |
| 100%    |       | +20(Ref) | 5210046.93 | 46.93       |
| 100%    |       | -30      | 5210009.93 | 9.93        |
| 100%    |       | -20      | 5210091.62 | 91.62       |
| 100%    |       | -10      | 5210047.37 | 47.37       |
| 100%    | 3.85  | 0        | 5210037.10 | 37.10       |
| 100%    |       | +10      | 5210098.15 | 98.15       |
| 100%    |       | +30      | 5210033.36 | 33.36       |
| 100%    |       | +40      | 5210057.15 | 57.15       |
| 100%    |       | +50      | 5210007.19 | 7.19        |
| High    | 4.4   | +20      | 5210007.08 | 7.08        |
| Low     | 3.65  | +20      | 5210019.96 | 19.96       |

#### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 1 2 / 231 **HCT CO.,LTD.** 



OPERATING BAND: UNII Band 2A

OPERATING FREQUENCY: 5,290,000,000 Hz

CHANNEL: 58

REFERENCE VOLTAGE: 3.85 VDC

| Voltage | Power | Temp.    | Frequency  | Frequency   |
|---------|-------|----------|------------|-------------|
| (%)     | (VDC) | (℃)      | (kHz)      | Error (kHz) |
| 100%    |       | +20(Ref) | 5290022.16 | 22.16       |
| 100%    |       | -30      | 5290037.50 | 37.50       |
| 100%    |       | -20      | 5290004.51 | 4.51        |
| 100%    |       | -10      | 5290021.74 | 21.74       |
| 100%    | 3.85  | 0        | 5290080.88 | 80.88       |
| 100%    |       | +10      | 5290061.40 | 61.4        |
| 100%    |       | +30      | 5290001.45 | 1.45        |
| 100%    |       | +40      | 5290034.31 | 34.31       |
| 100%    |       | +50      | 5290011.06 | 11.06       |
| High    | 4.4   | +20      | 5210041.91 | 41.91       |
| Low     | 3.65  | +20      | 5210038.32 | 38.32       |

### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 1 3 / 231 **HCT CO.,LTD.** 



OPERATING BAND: UNII Band 2C
OPERATING FREQUENCY: 5,530,000,000 Hz
CHANNEL: 106
REFERENCE VOLTAGE: 3.85 VDC

| Voltage | Power | Temp.    | Frequency  | Frequency   |
|---------|-------|----------|------------|-------------|
| (%)     | (VDC) | (°C)     | (kHz)      | Error (kHz) |
| 100%    |       | +20(Ref) | 5530060.98 | 60.98       |
| 100%    |       | -30      | 5530016.83 | 16.83       |
| 100%    |       | -20      | 5530093.16 | 93.16       |
| 100%    |       | -10      | 5530033.95 | 33.95       |
| 100%    | 3.85  | 0        | 5530049.28 | 49.28       |
| 100%    |       | +10      | 5530071.94 | 71.94       |
| 100%    |       | +30      | 5530087.81 | 87.81       |
| 100%    |       | +40      | 5530049.47 | 49.47       |
| 100%    |       | +50      | 5530083.28 | 83.28       |
| High    | 4.4   | +20      | 5210063.11 | 63.11       |
| Low     | 3.65  | +20      | 5210005.49 | 5.49        |

### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 1 4 / 231 **HCT CO.,LTD.** 



OPERATING BAND: UNII Band 3

OPERATING FREQUENCY: 5,775,000,000 Hz

CHANNEL: 155

REFERENCE VOLTAGE: 3.85 VDC

| Voltage | Power | Temp.    | Frequency  | Frequency   |
|---------|-------|----------|------------|-------------|
| (%)     | (VDC) | (℃)      | (kHz)      | Error (kHz) |
| 100%    |       | +20(Ref) | 5775085.94 | 85.94       |
| 100%    |       | -30      | 5775043.45 | 43.45       |
| 100%    |       | -20      | 5775004.94 | 4.94        |
| 100%    |       | -10      | 5775009.69 | 9.69        |
| 100%    | 3.85  | 0        | 5775088.84 | 88.84       |
| 100%    |       | +10      | 5775015.60 | 15.6        |
| 100%    |       | +30      | 5775047.48 | 47.48       |
| 100%    |       | +40      | 5775083.75 | 83.75       |
| 100%    |       | +50      | 5775019.57 | 19.57       |
| High    | 4.4   | +20      | 5210090.57 | 90.57       |
| Low     | 3.65  | +20      | 5210087.73 | 87.73       |

### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 1 5 / 231 **HCT CO.,LTD.** 



### 2 minutes after the EUT is energized

OPERATING BAND: UNII Band 1

OPERATING FREQUENCY: 5,210,000,000 Hz

CHANNEL: 42

REFERENCE VOLTAGE: 3.85 VDC

| Voltage | Power | Temp.    | Frequency  | Frequency   |
|---------|-------|----------|------------|-------------|
| (%)     | (VDC) | (℃)      | (kHz)      | Error (kHz) |
| 100%    |       | +20(Ref) | 5210080.37 | 80.37       |
| 100%    |       | -30      | 5210062.03 | 62.03       |
| 100%    |       | -20      | 5210063.39 | 63.39       |
| 100%    |       | -10      | 5210014.81 | 14.81       |
| 100%    | 3.85  | 0        | 5210073.13 | 73.13       |
| 100%    |       | +10      | 5210063.67 | 63.67       |
| 100%    |       | +30      | 5210009.07 | 9.07        |
| 100%    |       | +40      | 5210062.91 | 62.91       |
| 100%    |       | +50      | 5210042.08 | 42.08       |
| High    | 4.4   | +20      | 5210008.94 | 8.94        |
| Low     | 3.65  | +20      | 5210014.67 | 14.67       |

#### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 1 6 / 231 **HCT CO.,LTD.** 



OPERATING BAND: UNII Band 2A

OPERATING FREQUENCY: 5,290,000,000 Hz

CHANNEL: 58

REFERENCE VOLTAGE: 3.85 VDC

| Voltage | Power | Temp.    | Frequency  | Frequency   |
|---------|-------|----------|------------|-------------|
| (%)     | (VDC) | (℃)      | (kHz)      | Error (kHz) |
| 100%    |       | +20(Ref) | 5290020.12 | 20.12       |
| 100%    |       | -30      | 5290014.97 | 14.97       |
| 100%    |       | -20      | 5290063.97 | 63.97       |
| 100%    |       | -10      | 5290059.67 | 59.67       |
| 100%    | 3.85  | 0        | 5290032.57 | 32.57       |
| 100%    |       | +10      | 5290047.42 | 47.42       |
| 100%    |       | +30      | 5290028.09 | 28.09       |
| 100%    |       | +40      | 5290073.44 | 73.44       |
| 100%    |       | +50      | 5290072.05 | 72.05       |
| High    | 4.4   | +20      | 5210067.76 | 67.76       |
| Low     | 3.65  | +20      | 5210015.08 | 15.08       |

### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 1 7 / 231 **HCT CO.,LTD.** 



OPERATING BAND: UNII Band 2C
OPERATING FREQUENCY: 5,530,000,000 Hz
CHANNEL: 106

REFERENCE VOLTAGE: 3.85 VDC

| Voltage | Power | Temp.    | Frequency  | Frequency   |
|---------|-------|----------|------------|-------------|
| (%)     | (VDC) | (℃)      | (kHz)      | Error (kHz) |
| 100%    |       | +20(Ref) | 5530016.68 | 16.68       |
| 100%    |       | -30      | 5530038.26 | 38.26       |
| 100%    |       | -20      | 5530085.97 | 85.97       |
| 100%    |       | -10      | 5530092.39 | 92.39       |
| 100%    | 3.85  | 0        | 5530024.84 | 24.84       |
| 100%    |       | +10      | 5530091.39 | 91.39       |
| 100%    |       | +30      | 5530094.97 | 94.97       |
| 100%    |       | +40      | 5530093.19 | 93.19       |
| 100%    |       | +50      | 5530050.35 | 50.35       |
| High    | 4.4   | +20      | 5210010.14 | 10.14       |
| Low     | 3.65  | +20      | 5210051.59 | 51.59       |

### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 1 8 / 231 **HCT CO.,LTD.** 



OPERATING BAND: UNII Band 3

OPERATING FREQUENCY: 5,775,000,000 Hz

CHANNEL: 155

REFERENCE VOLTAGE: 3.85 VDC

| Voltage | Power | Temp.    | Frequency  | Frequency   |
|---------|-------|----------|------------|-------------|
| (%)     | (VDC) | (℃)      | (kHz)      | Error (kHz) |
| 100%    |       | +20(Ref) | 5775015.36 | 15.36       |
| 100%    |       | -30      | 5775040.84 | 40.84       |
| 100%    |       | -20      | 5775042.87 | 42.87       |
| 100%    |       | -10      | 5775068.26 | 68.26       |
| 100%    | 3.85  | 0        | 5775004.29 | 4.29        |
| 100%    |       | +10      | 5775041.69 | 41.69       |
| 100%    |       | +30      | 5775065.08 | 65.08       |
| 100%    |       | +40      | 5775068.16 | 68.16       |
| 100%    |       | +50      | 5775042.09 | 42.09       |
| High    | 4.4   | +20      | 5210097.90 | 97.90       |
| Low     | 3.65  | +20      | 5210036.87 | 36.87       |

### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 1 9 / 231 **HCT CO.,LTD.** 



### 5 minutes after the EUT is energized

OPERATING BAND: UNII Band 1

OPERATING FREQUENCY: 5,210,000,000 Hz

CHANNEL: 42

REFERENCE VOLTAGE: 3.85 VDC

| Voltage | Power | Temp.    | Frequency  | Frequency   |
|---------|-------|----------|------------|-------------|
| (%)     | (VDC) | (℃)      | (kHz)      | Error (kHz) |
| 100%    |       | +20(Ref) | 5210035.35 | 35.35       |
| 100%    |       | -30      | 5210084.57 | 84.57       |
| 100%    |       | -20      | 5210099.93 | 99.93       |
| 100%    |       | -10      | 5210062.47 | 62.47       |
| 100%    | 3.85  | 0        | 5210053.34 | 53.34       |
| 100%    |       | +10      | 5210044.70 | 44.70       |
| 100%    |       | +30      | 5210055.47 | 55.47       |
| 100%    |       | +40      | 5210076.62 | 76.62       |
| 100%    |       | +50      | 5210022.42 | 22.42       |
| High    | 4.4   | +20      | 5210037.51 | 37.51       |
| Low     | 3.65  | +20      | 5210066.72 | 66.72       |

#### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 2 0 / 231 **HCT CO.,LTD.** 



OPERATING BAND: UNII Band 2A

OPERATING FREQUENCY: 5,290,000,000 Hz

CHANNEL: 58

REFERENCE VOLTAGE: 3.85 VDC

| Voltage | Power | Temp.    | Frequency  | Frequency   |
|---------|-------|----------|------------|-------------|
| (%)     | (VDC) | (℃)      | (kHz)      | Error (kHz) |
| 100%    |       | +20(Ref) | 5290055.91 | 55.91       |
| 100%    |       | -30      | 5290083.09 | 83.09       |
| 100%    |       | -20      | 5290008.63 | 8.63        |
| 100%    |       | -10      | 5290099.95 | 99.95       |
| 100%    | 3.85  | 0        | 5290074.71 | 74.71       |
| 100%    |       | +10      | 5290082.47 | 82.47       |
| 100%    |       | +30      | 5290068.87 | 68.87       |
| 100%    |       | +40      | 5290072.37 | 72.37       |
| 100%    |       | +50      | 5290028.13 | 28.13       |
| High    | 4.4   | +20      | 5210024.11 | 24.11       |
| Low     | 3.65  | +20      | 5210018.98 | 18.98       |

#### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 2 1 / 231 **HCT CO.,LTD.** 



OPERATING BAND: UNII Band 2C
OPERATING FREQUENCY: 5,530,000,000 Hz
CHANNEL: 106
REFERENCE VOLTAGE: 3.85 VDC

Voltage **Power** Temp. Frequency Frequency (VDC) Error (kHz) (%) (°C) (kHz) 100% +20(Ref) 5530055.37 55.37 100% -30 5530016.63 16.63 100% -20 5530009.61 9.61 -10 86.74 100% 5530086.74 3.85 0 100% 5530033.63 33.63 100% +10 5530087.25 87.25 +30 100% 5530028.51 28.51

+40

+50

+20

+20

4.4

3.65

5530038.44

5530073.18

5210043.82

5210054.11

38.44

73.18

43.82

54.11

### Note:

100%

100%

High

Low

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 2 2 / 231 **HCT CO.,LTD.** 



OPERATING BAND: UNII Band 3

OPERATING FREQUENCY: 5,775,000,000 Hz

CHANNEL: 155

REFERENCE VOLTAGE: 3.85 VDC

| Voltage | Power | Temp.    | Frequency  | Frequency   |
|---------|-------|----------|------------|-------------|
| (%)     | (VDC) | (℃)      | (kHz)      | Error (kHz) |
| 100%    |       | +20(Ref) | 5775069.99 | 69.99       |
| 100%    |       | -30      | 5775015.89 | 15.89       |
| 100%    |       | -20      | 5775030.34 | 30.34       |
| 100%    |       | -10      | 5775083.34 | 83.34       |
| 100%    | 3.85  | 0        | 5775051.58 | 51.58       |
| 100%    |       | +10      | 5775009.67 | 9.67        |
| 100%    |       | +30      | 5775045.34 | 45.34       |
| 100%    |       | +40      | 5775043.38 | 43.38       |
| 100%    |       | +50      | 5775056.44 | 56.44       |
| High    | 4.4   | +20      | 5210092.53 | 92.53       |
| Low     | 3.65  | +20      | 5210059.19 | 59.19       |

### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 2 3 / 231 **HCT CO.,LTD.** 



### 10 minutes after the EUT is energized

OPERATING BAND: UNII Band 1

OPERATING FREQUENCY: 5,210,000,000 Hz

CHANNEL: 42

REFERENCE VOLTAGE: 3.85 VDC

| Voltage | Power | Temp.    | Frequency  | Frequency   |
|---------|-------|----------|------------|-------------|
| (%)     | (VDC) | (℃)      | (kHz)      | Error (kHz) |
| 100%    |       | +20(Ref) | 5210053.55 | 53.55       |
| 100%    |       | -30      | 5210045.82 | 45.82       |
| 100%    |       | -20      | 5210052.12 | 52.12       |
| 100%    |       | -10      | 5210038.61 | 38.61       |
| 100%    | 3.85  | 0        | 5210096.75 | 96.75       |
| 100%    |       | +10      | 5210016.70 | 16.70       |
| 100%    |       | +30      | 5210091.84 | 91.84       |
| 100%    |       | +40      | 5210060.11 | 60.11       |
| 100%    |       | +50      | 5210097.82 | 97.82       |
| High    | 4.4   | +20      | 5210073.86 | 73.86       |
| Low     | 3.65  | +20      | 5210077.56 | 77.56       |

#### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 2 4 / 231 **HCT CO.,LTD.** 



OPERATING BAND: UNII Band 2A

OPERATING FREQUENCY: 5,290,000,000 Hz

CHANNEL: 58

REFERENCE VOLTAGE: 3.85 VDC

| Voltage | Power | Temp.    | Frequency  | Frequency   |
|---------|-------|----------|------------|-------------|
| (%)     | (VDC) | (℃)      | (kHz)      | Error (kHz) |
| 100%    |       | +20(Ref) | 5290005.10 | 5.10        |
| 100%    |       | -30      | 5290023.94 | 23.94       |
| 100%    |       | -20      | 5290082.14 | 82.14       |
| 100%    |       | -10      | 5290039.73 | 39.73       |
| 100%    | 3.85  | 0        | 5290053.33 | 53.33       |
| 100%    |       | +10      | 5290053.94 | 53.94       |
| 100%    |       | +30      | 5290022.08 | 22.08       |
| 100%    |       | +40      | 5290014.66 | 14.66       |
| 100%    |       | +50      | 5290021.04 | 21.04       |
| High    | 4.4   | +20      | 5210095.82 | 95.82       |
| Low     | 3.65  | +20      | 5210059.33 | 59.33       |

### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 2 5 / 231 **HCT CO.,LTD.** 



OPERATING BAND: UNII Band 2C
OPERATING FREQUENCY: 5,530,000,000 Hz
CHANNEL: 106
REFERENCE VOLTAGE: 3.85 VDC

Voltage **Power** Temp. Frequency Frequency (VDC) Error (kHz) (%) (°C) (kHz) 100% +20(Ref) 5530068.85 68.85 100% -30 5530082.59 82.59 100% -20 5530071.92 71.92 -10 100% 5530026.30 26.3 3.85 0 100% 39.91 5530039.91 100% +10 5530029.82 29.82 +30 13.76 100% 5530013.76 100% +40 5530039.89 39.89 100% +50 5530096.77 96.77 +20 High 4.4 5210014.60 14.60 Low 3.65 +20 5210076.63 76.63

### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 2 6 / 231 **HCT CO.,LTD.** 



OPERATING BAND: UNII Band 3

OPERATING FREQUENCY: 5,775,000,000 Hz

CHANNEL: 155

REFERENCE VOLTAGE: 3.85 VDC

| Voltage | Power | Temp.    | Frequency  | Frequency   |
|---------|-------|----------|------------|-------------|
| (%)     | (VDC) | (℃)      | (kHz)      | Error (kHz) |
| 100%    |       | +20(Ref) | 5775046.92 | 46.92       |
| 100%    |       | -30      | 5775099.57 | 99.57       |
| 100%    |       | -20      | 5775019.52 | 19.52       |
| 100%    |       | -10      | 5775088.81 | 88.81       |
| 100%    | 3.85  | 0        | 5775083.61 | 83.61       |
| 100%    |       | +10      | 5775092.90 | 92.9        |
| 100%    |       | +30      | 5775004.79 | 4.79        |
| 100%    |       | +40      | 5775077.11 | 77.11       |
| 100%    |       | +50      | 5775074.89 | 74.89       |
| High    | 4.4   | +20      | 5210049.57 | 49.57       |
| Low     | 3.65  | +20      | 5210018.92 | 18.92       |

### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 2 7 / 231 **HCT CO.,LTD.** 



### [MIMO Ant.1]

### Startup after the EUT is energized

OPERATING BAND: UNII Band 1

OPERATING FREQUENCY: 5,210,000,000 Hz

CHANNEL: 42

REFERENCE VOLTAGE: 3.85 VDC

| Voltage | Power | Temp.    | Frequency  | Frequency   |
|---------|-------|----------|------------|-------------|
| (%)     | (VDC) | (℃)      | (kHz)      | Error (kHz) |
| 100%    |       | +20(Ref) | 5210063.73 | 63.73       |
| 100%    |       | -30      | 5210027.38 | 27.38       |
| 100%    |       | -20      | 5210030.43 | 30.43       |
| 100%    |       | -10      | 5210089.85 | 89.85       |
| 100%    | 3.85  | 0        | 5210096.22 | 96.22       |
| 100%    |       | +10      | 5210002.73 | 2.73        |
| 100%    |       | +30      | 5210062.44 | 62.44       |
| 100%    | 1     | +40      | 5210009.30 | 9.30        |
| 100%    | 1     | +50      | 5210064.88 | 64.88       |
| High    | 4.4   | +20      | 5210042.24 | 42.24       |
| Low     | 3.65  | +20      | 5210033.35 | 33.35       |

### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 2 8 / 231 HCT CO.,LTD.



OPERATING BAND: UNII Band 2A

OPERATING FREQUENCY: 5,290,000,000 Hz

CHANNEL: 58

REFERENCE VOLTAGE: 3.85 VDC

| Voltage | Power | Temp.    | Frequency  | Frequency   |
|---------|-------|----------|------------|-------------|
| (%)     | (VDC) | (℃)      | (kHz)      | Error (kHz) |
| 100%    |       | +20(Ref) | 5290031.74 | 31.74       |
| 100%    |       | -30      | 5290032.50 | 32.50       |
| 100%    |       | -20      | 5290091.18 | 91.18       |
| 100%    |       | -10      | 5290010.41 | 10.41       |
| 100%    | 3.85  | 0        | 5290020.92 | 20.92       |
| 100%    |       | +10      | 5290067.48 | 67.48       |
| 100%    |       | +30      | 5290070.71 | 70.71       |
| 100%    |       | +40      | 5290059.07 | 59.07       |
| 100%    |       | +50      | 5290060.90 | 60.90       |
| High    | 4.4   | +20      | 5210056.54 | 56.54       |
| Low     | 3.65  | +20      | 5210022.62 | 22.62       |

### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 2 9 / 231 **HCT CO.,LTD.** 



OPERATING BAND: UNII Band 2C
OPERATING FREQUENCY: 5,530,000,000 Hz
CHANNEL: 106
REFERENCE VOLTAGE: 3.85 VDC

| Voltage | Power | Temp.    | Frequency  | Frequency   |
|---------|-------|----------|------------|-------------|
| (%)     | (VDC) | (℃)      | (kHz)      | Error (kHz) |
| 100%    |       | +20(Ref) | 5530060.42 | 60.42       |
| 100%    |       | -30      | 5530053.71 | 53.71       |
| 100%    |       | -20      | 5530033.65 | 33.65       |
| 100%    |       | -10      | 5530096.50 | 96.5        |
| 100%    | 3.85  | 0        | 5530069.86 | 69.86       |
| 100%    |       | +10      | 5530031.63 | 31.63       |
| 100%    |       | +30      | 5530007.80 | 7.8         |
| 100%    |       | +40      | 5530085.03 | 85.03       |
| 100%    |       | +50      | 5530013.79 | 13.79       |
| High    | 4.4   | +20      | 5210078.33 | 78.33       |
| Low     | 3.65  | +20      | 5210095.28 | 95.28       |

### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 3 0 / 231 **HCT CO.,LTD.** 



OPERATING BAND: UNII Band 3

OPERATING FREQUENCY: 5,775,000,000 Hz

CHANNEL: 155

REFERENCE VOLTAGE: 3.85 VDC

| Voltage | Power | Temp.    | Frequency  | Frequency   |
|---------|-------|----------|------------|-------------|
| (%)     | (VDC) | (℃)      | (kHz)      | Error (kHz) |
| 100%    |       | +20(Ref) | 5775077.76 | 77.76       |
| 100%    |       | -30      | 5775023.06 | 23.06       |
| 100%    |       | -20      | 5775007.11 | 7.11        |
| 100%    |       | -10      | 5775003.68 | 3.68        |
| 100%    | 3.85  | 0        | 5775072.98 | 72.98       |
| 100%    |       | +10      | 5775014.87 | 14.87       |
| 100%    |       | +30      | 5775001.93 | 1.93        |
| 100%    |       | +40      | 5775041.29 | 41.29       |
| 100%    |       | +50      | 5775089.92 | 89.92       |
| High    | 4.4   | +20      | 5210088.42 | 88.42       |
| Low     | 3.65  | +20      | 5210008.24 | 8.24        |

### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 3 1 / 231 **HCT CO.,LTD.** 



### 2 minutes after the EUT is energized

OPERATING BAND: UNII Band 1

OPERATING FREQUENCY: 5,210,000,000 Hz

CHANNEL: 42

REFERENCE VOLTAGE: 3.85 VDC

| Voltage | Power | Temp.    | Frequency  | Frequency   |
|---------|-------|----------|------------|-------------|
| (%)     | (VDC) | (°C)     | (kHz)      | Error (kHz) |
| 100%    |       | +20(Ref) | 5210030.05 | 30.05       |
| 100%    |       | -30      | 5210055.24 | 55.24       |
| 100%    |       | -20      | 5210046.60 | 46.60       |
| 100%    |       | -10      | 5210015.84 | 15.84       |
| 100%    | 3.85  | 0        | 5210036.99 | 36.99       |
| 100%    | ]     | +10      | 5210033.83 | 33.83       |
| 100%    |       | +30      | 5210089.94 | 89.94       |
| 100%    | ]     | +40      | 5210035.85 | 35.85       |
| 100%    |       | +50      | 5210054.33 | 54.33       |
| High    | 4.4   | +20      | 5210025.37 | 25.37       |
| Low     | 3.65  | +20      | 5210070.91 | 70.91       |

#### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 3 2 / 231 **HCT CO.,LTD.** 



OPERATING BAND: UNII Band 2A

OPERATING FREQUENCY: 5,290,000,000 Hz

CHANNEL: 58

REFERENCE VOLTAGE: 3.85 VDC

| Voltage | Power | Temp.    | Frequency  | Frequency   |
|---------|-------|----------|------------|-------------|
| (%)     | (VDC) | (℃)      | (kHz)      | Error (kHz) |
| 100%    |       | +20(Ref) | 5290021.12 | 21.12       |
| 100%    |       | -30      | 5290044.23 | 44.23       |
| 100%    |       | -20      | 5290045.07 | 45.07       |
| 100%    |       | -10      | 5290054.76 | 54.76       |
| 100%    | 3.85  | 0        | 5290052.18 | 52.18       |
| 100%    |       | +10      | 5290061.18 | 61.18       |
| 100%    |       | +30      | 5290025.82 | 25.82       |
| 100%    |       | +40      | 5290075.54 | 75.54       |
| 100%    |       | +50      | 5290026.55 | 26.55       |
| High    | 4.4   | +20      | 5210016.56 | 16.56       |
| Low     | 3.65  | +20      | 5210073.42 | 73.42       |

#### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 3 3 / 231 **HCT CO.,LTD.** 



OPERATING BAND: UNII Band 2C
OPERATING FREQUENCY: 5,530,000,000 Hz

CHANNEL: 106

REFERENCE VOLTAGE: 3.85 VDC

| Voltage | Power | Temp.    | Frequency  | Frequency   |
|---------|-------|----------|------------|-------------|
| (%)     | (VDC) | (℃)      | (kHz)      | Error (kHz) |
| 100%    |       | +20(Ref) | 5530045.20 | 45.20       |
| 100%    |       | -30      | 5530014.56 | 14.56       |
| 100%    |       | -20      | 5530065.31 | 65.31       |
| 100%    |       | -10      | 5530075.69 | 75.69       |
| 100%    | 3.85  | 0        | 5530079.84 | 79.84       |
| 100%    |       | +10      | 5530088.99 | 88.99       |
| 100%    |       | +30      | 5530003.32 | 3.32        |
| 100%    |       | +40      | 5530042.27 | 42.27       |
| 100%    |       | +50      | 5530027.51 | 27.51       |
| High    | 4.4   | +20      | 5210008.95 | 8.95        |
| Low     | 3.65  | +20      | 5210035.77 | 35.77       |

### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 3 4 / 231 **HCT CO.,LTD.** 



OPERATING BAND: UNII Band 3

OPERATING FREQUENCY: 5,775,000,000 Hz

CHANNEL: 155

REFERENCE VOLTAGE: 3.85 VDC

| Voltage | Power | Temp.    | Frequency  | Frequency   |
|---------|-------|----------|------------|-------------|
| (%)     | (VDC) | (℃)      | (kHz)      | Error (kHz) |
| 100%    |       | +20(Ref) | 5775083.51 | 83.51       |
| 100%    |       | -30      | 5775054.14 | 54.14       |
| 100%    |       | -20      | 5775007.36 | 7.36        |
| 100%    |       | -10      | 5775014.10 | 14.1        |
| 100%    | 3.85  | 0        | 5775016.81 | 16.81       |
| 100%    |       | +10      | 5775003.17 | 3.17        |
| 100%    |       | +30      | 5775020.19 | 20.19       |
| 100%    |       | +40      | 5775069.86 | 69.86       |
| 100%    |       | +50      | 5775005.56 | 5.56        |
| High    | 4.4   | +20      | 5210077.48 | 77.48       |
| Low     | 3.65  | +20      | 5210046.12 | 46.12       |

#### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 3 5 / 231 **HCT CO.,LTD.** 



### 5 minutes after the EUT is energized

OPERATING BAND: UNII Band 1

OPERATING FREQUENCY: 5,210,000,000 Hz

CHANNEL: 42

REFERENCE VOLTAGE: 3.85 VDC

| Voltage | Power | Temp.    | Frequency  | Frequency   |
|---------|-------|----------|------------|-------------|
| (%)     | (VDC) | (℃)      | (kHz)      | Error (kHz) |
| 100%    |       | +20(Ref) | 5210033.47 | 33.47       |
| 100%    |       | -30      | 5210064.89 | 64.89       |
| 100%    |       | -20      | 5210011.11 | 11.11       |
| 100%    |       | -10      | 5210012.91 | 12.91       |
| 100%    | 3.85  | 0        | 5210020.50 | 20.50       |
| 100%    |       | +10      | 5210004.12 | 4.12        |
| 100%    |       | +30      | 5210096.07 | 96.07       |
| 100%    |       | +40      | 5210081.66 | 81.66       |
| 100%    |       | +50      | 5210082.13 | 82.13       |
| High    | 4.4   | +20      | 5210034.59 | 34.59       |
| Low     | 3.65  | +20      | 5210081.61 | 81.61       |

#### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 3 6 / 231 **HCT CO.,LTD.** 



OPERATING BAND: UNII Band 2A

OPERATING FREQUENCY: 5,290,000,000 Hz

CHANNEL: 58

REFERENCE VOLTAGE: 3.85 VDC

| Voltage | Power | Temp.    | Frequency  | Frequency   |
|---------|-------|----------|------------|-------------|
| (%)     | (VDC) | (℃)      | (kHz)      | Error (kHz) |
| 100%    |       | +20(Ref) | 5290048.52 | 48.52       |
| 100%    |       | -30      | 5290042.06 | 42.06       |
| 100%    |       | -20      | 5290020.97 | 20.97       |
| 100%    |       | -10      | 5290043.28 | 43.28       |
| 100%    | 3.85  | 0        | 5290090.28 | 90.28       |
| 100%    |       | +10      | 5290058.37 | 58.37       |
| 100%    |       | +30      | 5290007.40 | 7.4         |
| 100%    |       | +40      | 5290079.66 | 79.66       |
| 100%    |       | +50      | 5290030.22 | 30.22       |
| High    | 4.4   | +20      | 5210094.89 | 94.89       |
| Low     | 3.65  | +20      | 5210083.76 | 83.76       |

### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 3 7 / 231 **HCT CO.,LTD.** 



OPERATING BAND: UNII Band 2C
OPERATING FREQUENCY: 5,530,000,000 Hz
CHANNEL: 106

REFERENCE VOLTAGE: 3.85 VDC

\_\_\_\_

| Voltage | Power | Temp.    | Frequency  | Frequency   |
|---------|-------|----------|------------|-------------|
| (%)     | (VDC) | (℃)      | (kHz)      | Error (kHz) |
| 100%    |       | +20(Ref) | 5530054.63 | 54.63       |
| 100%    |       | -30      | 5530094.29 | 94.29       |
| 100%    |       | -20      | 5530041.20 | 41.2        |
| 100%    |       | -10      | 5530005.21 | 5.21        |
| 100%    | 3.85  | 0        | 5530013.10 | 13.1        |
| 100%    |       | +10      | 5530017.05 | 17.05       |
| 100%    |       | +30      | 5530005.59 | 5.59        |
| 100%    |       | +40      | 5530023.66 | 23.66       |
| 100%    |       | +50      | 5530049.17 | 49.17       |
| High    | 4.4   | +20      | 5210019.41 | 19.41       |
| Low     | 3.65  | +20      | 5210019.68 | 19.68       |

#### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 3 8 / 231 **HCT CO.,LTD.** 



OPERATING BAND: UNII Band 3

OPERATING FREQUENCY: 5,775,000,000 Hz

CHANNEL: 155

REFERENCE VOLTAGE: 3.85 VDC

| Voltage | Power | Temp.    | Frequency  | Frequency   |
|---------|-------|----------|------------|-------------|
| (%)     | (VDC) | (°C)     | (kHz)      | Error (kHz) |
| 100%    |       | +20(Ref) | 5775076.79 | 76.79       |
| 100%    |       | -30      | 5775094.11 | 94.11       |
| 100%    |       | -20      | 5775094.37 | 94.37       |
| 100%    |       | -10      | 5775053.78 | 53.78       |
| 100%    | 3.85  | 0        | 5775008.95 | 8.95        |
| 100%    |       | +10      | 5775065.92 | 65.92       |
| 100%    |       | +30      | 5775093.47 | 93.47       |
| 100%    |       | +40      | 5775060.38 | 60.38       |
| 100%    |       | +50      | 5775021.51 | 21.51       |
| High    | 4.4   | +20      | 5210023.04 | 23.04       |
| Low     | 3.65  | +20      | 5210047.52 | 47.52       |

#### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 3 9 / 231 **HCT CO.,LTD.** 



#### 10 minutes after the EUT is energized

OPERATING BAND: UNII Band 1

OPERATING FREQUENCY: 5,210,000,000 Hz

CHANNEL: 42

REFERENCE VOLTAGE: 3.85 VDC

| Voltage | Power | Temp.    | Frequency  | Frequency   |
|---------|-------|----------|------------|-------------|
| (%)     | (VDC) | (℃)      | (kHz)      | Error (kHz) |
| 100%    |       | +20(Ref) | 5210018.28 | 18.28       |
| 100%    |       | -30      | 5210056.18 | 56.18       |
| 100%    |       | -20      | 5210057.56 | 57.56       |
| 100%    |       | -10      | 5210016.19 | 16.19       |
| 100%    | 3.85  | 0        | 5210021.46 | 21.46       |
| 100%    |       | +10      | 5210021.78 | 21.78       |
| 100%    |       | +30      | 5210071.13 | 71.13       |
| 100%    |       | +40      | 5210029.39 | 29.39       |
| 100%    |       | +50      | 5210060.87 | 60.87       |
| High    | 4.4   | +20      | 5210065.22 | 65.22       |
| Low     | 3.65  | +20      | 5210032.19 | 32.19       |

#### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 4 0 / 231 **HCT CO.,LTD.** 



OPERATING BAND: UNII Band 2A

OPERATING FREQUENCY: 5,290,000,000 Hz

CHANNEL: 58

REFERENCE VOLTAGE: 3.85 VDC

| Voltage | Power | Temp.    | Frequency  | Frequency   |
|---------|-------|----------|------------|-------------|
| (%)     | (VDC) | (℃)      | (kHz)      | Error (kHz) |
| 100%    |       | +20(Ref) | 5290086.91 | 86.91       |
| 100%    |       | -30      | 5290001.21 | 1.21        |
| 100%    |       | -20      | 5290086.41 | 86.41       |
| 100%    |       | -10      | 5290038.61 | 38.61       |
| 100%    | 3.85  | 0        | 5290036.66 | 36.66       |
| 100%    |       | +10      | 5290001.10 | 1.1         |
| 100%    |       | +30      | 5290065.51 | 65.51       |
| 100%    |       | +40      | 5290009.78 | 9.78        |
| 100%    |       | +50      | 5290066.76 | 66.76       |
| High    | 4.4   | +20      | 5210084.64 | 84.64       |
| Low     | 3.65  | +20      | 5210016.98 | 16.98       |

#### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 4 1 / 231 **HCT CO.,LTD.** 



OPERATING BAND: UNII Band 2C
OPERATING FREQUENCY: 5,530,000,000 Hz
CHANNEL: 106

REFERENCE VOLTAGE: 3.85 VDC

| Voltage | Power | Temp.    | Frequency  | Frequency   |
|---------|-------|----------|------------|-------------|
| (%)     | (VDC) | (℃)      | (kHz)      | Error (kHz) |
| 100%    |       | +20(Ref) | 5530072.36 | 72.36       |
| 100%    |       | -30      | 5530026.62 | 26.62       |
| 100%    |       | -20      | 5530083.73 | 83.73       |
| 100%    |       | -10      | 5530097.22 | 97.22       |
| 100%    | 3.85  | 0        | 5530045.46 | 45.46       |
| 100%    |       | +10      | 5530083.14 | 83.14       |
| 100%    |       | +30      | 5530007.04 | 7.04        |
| 100%    |       | +40      | 5530080.85 | 80.85       |
| 100%    |       | +50      | 5530043.75 | 43.75       |
| High    | 4.4   | +20      | 5210012.21 | 12.21       |
| Low     | 3.65  | +20      | 5210088.54 | 88.54       |

#### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 4 2 / 231 **HCT CO.,LTD.** 



OPERATING BAND: UNII Band 3

OPERATING FREQUENCY: 5,775,000,000 Hz

CHANNEL: 155

REFERENCE VOLTAGE: 3.85 VDC

| Voltage | Power | Temp.    | Frequency  | Frequency   |
|---------|-------|----------|------------|-------------|
| (%)     | (VDC) | (°C)     | (kHz)      | Error (kHz) |
| 100%    |       | +20(Ref) | 5775050.25 | 50.25       |
| 100%    |       | -30      | 5775062.42 | 62.42       |
| 100%    |       | -20      | 5775023.53 | 23.53       |
| 100%    |       | -10      | 5775029.13 | 29.13       |
| 100%    | 3.85  | 0        | 5775097.77 | 97.77       |
| 100%    |       | +10      | 5775067.89 | 67.89       |
| 100%    |       | +30      | 5775090.04 | 90.04       |
| 100%    |       | +40      | 5775018.48 | 18.48       |
| 100%    |       | +50      | 5775002.05 | 2.05        |
| High    | 4.4   | +20      | 5210092.84 | 92.84       |
| Low     | 3.65  | +20      | 5210053.44 | 53.44       |

#### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 4 3 / 231 **HCT CO.,LTD.** 



#### [MIMO Ant.2]

#### Startup after the EUT is energized

OPERATING BAND: UNII Band 1

OPERATING FREQUENCY: 5,210,000,000 Hz

CHANNEL: 42

REFERENCE VOLTAGE: 3.85 VDC

| Voltage | Power | Temp.    | Frequency  | Frequency   |
|---------|-------|----------|------------|-------------|
| (%)     | (VDC) | (℃)      | (kHz)      | Error (kHz) |
| 100%    |       | +20(Ref) | 5210020.80 | 20.80       |
| 100%    |       | -30      | 5210015.99 | 15.99       |
| 100%    |       | -20      | 5210025.45 | 25.45       |
| 100%    |       | -10      | 5210077.51 | 77.51       |
| 100%    | 3.85  | 0        | 5210097.60 | 97.60       |
| 100%    |       | +10      | 5210091.74 | 91.74       |
| 100%    |       | +30      | 5210085.65 | 85.65       |
| 100%    |       | +40      | 5210027.95 | 27.95       |
| 100%    |       | +50      | 5210073.11 | 73.11       |
| High    | 4.4   | +20      | 5210011.10 | 11.10       |
| Low     | 3.65  | +20      | 5210021.34 | 21.34       |

#### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 4 4 / 231 **HCT CO.,LTD.** 



OPERATING BAND: UNII Band 2A

OPERATING FREQUENCY: 5,290,000,000 Hz

CHANNEL: 58

REFERENCE VOLTAGE: 3.85 VDC

| Voltage | Power | Temp.    | Frequency  | Frequency   |
|---------|-------|----------|------------|-------------|
| (%)     | (VDC) | (℃)      | (kHz)      | Error (kHz) |
| 100%    |       | +20(Ref) | 5290052.10 | 52.10       |
| 100%    |       | -30      | 5290051.28 | 51.28       |
| 100%    |       | -20      | 5290078.23 | 78.23       |
| 100%    |       | -10      | 5290018.53 | 18.53       |
| 100%    | 3.85  | 0        | 5290021.37 | 21.37       |
| 100%    |       | +10      | 5290091.52 | 91.52       |
| 100%    |       | +30      | 5290068.99 | 68.99       |
| 100%    |       | +40      | 5290008.21 | 8.21        |
| 100%    | ]     | +50      | 5290014.47 | 14.47       |
| High    | 4.4   | +20      | 5210094.56 | 94.56       |
| Low     | 3.65  | +20      | 5210072.42 | 72.42       |

#### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 4 5 / 231 **HCT CO.,LTD.** 



OPERATING BAND: UNII Band 2C
OPERATING FREQUENCY: 5,530,000,000 Hz
CHANNEL: 106

REFERENCE VOLTAGE: 3.85 VDC

| Voltage | Power | Temp.    | Frequency  | Frequency   |
|---------|-------|----------|------------|-------------|
| (%)     | (VDC) | (℃)      | (kHz)      | Error (kHz) |
| 100%    |       | +20(Ref) | 5530018.93 | 18.93       |
| 100%    |       | -30      | 5530032.75 | 32.75       |
| 100%    |       | -20      | 5530012.50 | 12.5        |
| 100%    |       | -10      | 5530073.71 | 73.71       |
| 100%    | 3.85  | 0        | 5530052.95 | 52.95       |
| 100%    |       | +10      | 5530001.09 | 1.09        |
| 100%    |       | +30      | 5530087.53 | 87.53       |
| 100%    |       | +40      | 5530049.79 | 49.79       |
| 100%    |       | +50      | 5530045.77 | 45.77       |
| High    | 4.4   | +20      | 5210099.57 | 99.57       |
| Low     | 3.65  | +20      | 5210066.67 | 66.67       |

#### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 4 6 / 231 **HCT CO.,LTD.** 



OPERATING BAND: UNII Band 3

OPERATING FREQUENCY: 5,775,000,000 Hz

CHANNEL: 155

REFERENCE VOLTAGE: 3.85 VDC

| Voltage | Power | Temp.    | Frequency  | Frequency   |
|---------|-------|----------|------------|-------------|
| (%)     | (VDC) | (°C)     | (kHz)      | Error (kHz) |
| 100%    |       | +20(Ref) | 5775073.82 | 73.82       |
| 100%    |       | -30      | 5775022.95 | 22.95       |
| 100%    |       | -20      | 5775082.88 | 82.88       |
| 100%    |       | -10      | 5775076.33 | 76.33       |
| 100%    | 3.85  | 0        | 5775042.83 | 42.83       |
| 100%    |       | +10      | 5775021.63 | 21.63       |
| 100%    |       | +30      | 5775070.69 | 70.69       |
| 100%    |       | +40      | 5775005.21 | 5.21        |
| 100%    |       | +50      | 5775080.66 | 80.66       |
| High    | 4.4   | +20      | 5210049.69 | 49.69       |
| Low     | 3.65  | +20      | 5210073.04 | 73.04       |

#### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 4 7 / 231 **HCT CO.,LTD.** 



#### 2 minutes after the EUT is energized

OPERATING BAND: UNII Band 1

OPERATING FREQUENCY: 5,210,000,000 Hz

CHANNEL: 42

REFERENCE VOLTAGE: 3.85 VDC

| Voltage | Power | Temp.    | Frequency  | Frequency   |
|---------|-------|----------|------------|-------------|
| (%)     | (VDC) | (℃)      | (kHz)      | Error (kHz) |
| 100%    |       | +20(Ref) | 5210040.54 | 40.54       |
| 100%    |       | -30      | 5210005.06 | 5.06        |
| 100%    |       | -20      | 5210031.17 | 31.17       |
| 100%    |       | -10      | 5210009.95 | 9.95        |
| 100%    | 3.85  | 0        | 5210054.48 | 54.48       |
| 100%    |       | +10      | 5210042.67 | 42.67       |
| 100%    |       | +30      | 5210013.29 | 13.29       |
| 100%    |       | +40      | 5210066.84 | 66.84       |
| 100%    |       | +50      | 5210090.57 | 90.57       |
| High    | 4.4   | +20      | 5210081.05 | 81.05       |
| Low     | 3.65  | +20      | 5210094.60 | 94.60       |

#### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 4 8 / 231 **HCT CO.,LTD.** 



OPERATING BAND: UNII Band 2A

OPERATING FREQUENCY: 5,290,000,000 Hz

CHANNEL: 58

REFERENCE VOLTAGE: 3.85 VDC

| Voltage | Power | Temp.    | Frequency  | Frequency   |
|---------|-------|----------|------------|-------------|
| (%)     | (VDC) | (℃)      | (kHz)      | Error (kHz) |
| 100%    |       | +20(Ref) | 5290027.44 | 27.44       |
| 100%    |       | -30      | 5290040.34 | 40.34       |
| 100%    |       | -20      | 5290092.96 | 92.96       |
| 100%    |       | -10      | 5290017.69 | 17.69       |
| 100%    | 3.85  | 0        | 5290015.43 | 15.43       |
| 100%    |       | +10      | 5290074.63 | 74.63       |
| 100%    |       | +30      | 5290091.38 | 91.38       |
| 100%    |       | +40      | 5290085.22 | 85.22       |
| 100%    |       | +50      | 5290087.82 | 87.82       |
| High    | 4.4   | +20      | 5210027.93 | 27.93       |
| Low     | 3.65  | +20      | 5210093.32 | 93.32       |

#### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 4 9 / 231 **HCT CO.,LTD.** 



OPERATING BAND: UNII Band 2C
OPERATING FREQUENCY: 5,530,000,000 Hz
CHANNEL: 106
REFERENCE VOLTAGE: 3.85 VDC

Voltage **Power** Temp. Frequency Frequency (VDC) Error (kHz) (%) (°C) (kHz) 100% +20(Ref) 5530041.40 41.40 100% -30 5530011.16 11.16 100% -20 5530041.14 41.14 -10 39.53 100% 5530039.53 3.85 0 100% 66.68 5530066.68 100% +10 5530058.93 58.93 +30 100% 5530061.13 61.13 100% +40 5530039.57 39.57 100% +50 5530013.82 13.82 +20 85.74 High 4.4 5210085.74 Low 3.65 +20 5210003.87 3.87

#### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 5 0 / 231 **HCT CO.,LTD.** 



OPERATING BAND: UNII Band 3

OPERATING FREQUENCY: 5,775,000,000 Hz

CHANNEL: 155

REFERENCE VOLTAGE: 3.85 VDC

| Voltage | Power | Temp.    | Frequency  | Frequency   |
|---------|-------|----------|------------|-------------|
| (%)     | (VDC) | (℃)      | (kHz)      | Error (kHz) |
| 100%    |       | +20(Ref) | 5775084.84 | 84.84       |
| 100%    |       | -30      | 5775094.54 | 94.54       |
| 100%    |       | -20      | 5775054.88 | 54.88       |
| 100%    |       | -10      | 5775040.29 | 40.29       |
| 100%    | 3.85  | 0        | 5775068.55 | 68.55       |
| 100%    |       | +10      | 5775084.51 | 84.51       |
| 100%    |       | +30      | 5775081.57 | 81.57       |
| 100%    |       | +40      | 5775066.05 | 66.05       |
| 100%    |       | +50      | 5775022.12 | 22.12       |
| High    | 4.4   | +20      | 5210080.65 | 80.65       |
| Low     | 3.65  | +20      | 5210069.44 | 69.44       |

#### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 5 1 / 231 **HCT CO.,LTD.** 



#### 5 minutes after the EUT is energized

OPERATING BAND: UNII Band 1

OPERATING FREQUENCY: 5,210,000,000 Hz

CHANNEL: 42

REFERENCE VOLTAGE: 3.85 VDC

| Voltage | Power | Temp.    | Frequency  | Frequency   |
|---------|-------|----------|------------|-------------|
| (%)     | (VDC) | (℃)      | (kHz)      | Error (kHz) |
| 100%    |       | +20(Ref) | 5210038.10 | 38.10       |
| 100%    |       | -30      | 5210080.17 | 80.17       |
| 100%    |       | -20      | 5210004.85 | 4.85        |
| 100%    |       | -10      | 5210028.89 | 28.89       |
| 100%    | 3.85  | 0        | 5210095.29 | 95.29       |
| 100%    |       | +10      | 5210048.96 | 48.96       |
| 100%    |       | +30      | 5210065.39 | 65.39       |
| 100%    |       | +40      | 5210053.92 | 53.92       |
| 100%    |       | +50      | 5210093.15 | 93.15       |
| High    | 4.4   | +20      | 5210002.49 | 2.49        |
| Low     | 3.65  | +20      | 5210024.12 | 24.12       |

#### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 5 2 / 231 **HCT CO.,LTD.** 



OPERATING BAND: UNII Band 2A

OPERATING FREQUENCY: 5,290,000,000 Hz

CHANNEL: 58

REFERENCE VOLTAGE: 3.85 VDC

| Voltage | Power | Temp.    | Frequency  | Frequency   |  |
|---------|-------|----------|------------|-------------|--|
| (%)     | (VDC) | (℃)      | (kHz)      | Error (kHz) |  |
| 100%    |       | +20(Ref) | 5290007.23 | 7.23        |  |
| 100%    |       | -30      | 5290070.35 | 70.35       |  |
| 100%    |       | -20      | 5290040.90 | 40.9        |  |
| 100%    |       | -10      | 5290071.58 | 71.58       |  |
| 100%    | 3.85  | 0        | 5290038.16 | 38.16       |  |
| 100%    |       | +10      | 5290060.23 | 60.23       |  |
| 100%    |       | +30      | 5290053.35 | 53.35       |  |
| 100%    |       | +40      | 5290013.77 | 13.77       |  |
| 100%    |       | +50      | 5290043.21 | 43.21       |  |
| High    | 4.4   | +20      | 5210036.18 | 36.18       |  |
| Low     | 3.65  | +20      | 5210077.49 | 77.49       |  |

#### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 5 3 / 231 **HCT CO.,LTD.** 



OPERATING BAND: UNII Band 2C
OPERATING FREQUENCY: 5,530,000,000 Hz
CHANNEL: 106

REFERENCE VOLTAGE: 3.85 VDC

| Voltage | Power | Temp.    | Frequency  | Frequency   |
|---------|-------|----------|------------|-------------|
| (%)     | (VDC) | (℃)      | (kHz)      | Error (kHz) |
| 100%    |       | +20(Ref) | 5530096.56 | 96.56       |
| 100%    |       | -30      | 5530098.23 | 98.23       |
| 100%    |       | -20      | 5530072.63 | 72.63       |
| 100%    |       | -10      | 5530011.92 | 11.92       |
| 100%    | 3.85  | 0        | 5530044.79 | 44.79       |
| 100%    |       | +10      | 5530005.09 | 5.09        |
| 100%    |       | +30      | 5530038.14 | 38.14       |
| 100%    |       | +40      | 5530056.96 | 56.96       |
| 100%    |       | +50      | 5530052.10 | 52.10       |
| High    | 4.4   | +20      | 5210028.37 | 28.37       |
| Low     | 3.65  | +20      | 5210041.76 | 41.76       |

#### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 5 4 / 231 **HCT CO.,LTD.** 



OPERATING BAND: UNII Band 3

OPERATING FREQUENCY: 5,775,000,000 Hz

CHANNEL: 155

REFERENCE VOLTAGE: 3.85 VDC

| Voltage | Power | Temp.    | Frequency  | Frequency   |  |
|---------|-------|----------|------------|-------------|--|
| (%)     | (VDC) | (°C)     | (kHz)      | Error (kHz) |  |
| 100%    |       | +20(Ref) | 5775035.21 | 35.21       |  |
| 100%    |       | -30      | 5775004.65 | 4.65        |  |
| 100%    |       | -20      | 5775046.12 | 46.12       |  |
| 100%    |       | -10      | 5775010.64 | 10.64       |  |
| 100%    | 3.85  | 0        | 5775025.77 | 25.77       |  |
| 100%    |       | +10      | 5775056.88 | 56.88       |  |
| 100%    |       | +30      | 5775097.74 | 97.74       |  |
| 100%    |       | +40      | 5775062.54 | 62.54       |  |
| 100%    |       | +50      | 5775067.74 | 67.74       |  |
| High    | 4.4   | +20      | 5210072.77 | 72.77       |  |
| Low     | 3.65  | +20      | 5210023.49 | 23.49       |  |

#### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 5 5 / 231 **HCT CO.,LTD.** 



#### 10 minutes after the EUT is energized

OPERATING BAND: UNII Band 1

OPERATING FREQUENCY: 5,210,000,000 Hz

CHANNEL: 42

REFERENCE VOLTAGE: 3.85 VDC

| Voltage | Power | Temp.    | Frequency  | Frequency   |
|---------|-------|----------|------------|-------------|
| (%)     | (VDC) | (℃)      | (kHz)      | Error (kHz) |
| 100%    |       | +20(Ref) | 5210018.70 | 18.70       |
| 100%    |       | -30      | 5210061.95 | 61.95       |
| 100%    |       | -20      | 5210003.31 | 3.31        |
| 100%    |       | -10      | 5210034.65 | 34.65       |
| 100%    | 3.85  | 0        | 5210053.34 | 53.34       |
| 100%    | 1     | +10      | 5210082.25 | 82.25       |
| 100%    |       | +30      | 5210025.17 | 25.17       |
| 100%    | 1     | +40      | 5210081.43 | 81.43       |
| 100%    |       | +50      | 5210050.19 | 50.19       |
| High    | 4.4   | +20      | 5210098.70 | 98.70       |
| Low     | 3.65  | +20      | 5210057.88 | 57.88       |

#### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 5 6 / 231 **HCT CO.,LTD.** 



OPERATING BAND: UNII Band 2A

OPERATING FREQUENCY: 5,290,000,000 Hz

CHANNEL: 58

REFERENCE VOLTAGE: 3.85 VDC

| Voltage | Power | Temp.    | Frequency  | Frequency   |
|---------|-------|----------|------------|-------------|
| (%)     | (VDC) | (℃)      | (kHz)      | Error (kHz) |
| 100%    |       | +20(Ref) | 5290054.50 | 54.50       |
| 100%    |       | -30      | 5290090.46 | 90.46       |
| 100%    |       | -20      | 5290012.30 | 12.3        |
| 100%    |       | -10      | 5290010.71 | 10.71       |
| 100%    | 3.85  | 0        | 5290093.40 | 93.4        |
| 100%    |       | +10      | 5290081.12 | 81.12       |
| 100%    |       | +30      | 5290094.28 | 94.28       |
| 100%    |       | +40      | 5290088.17 | 88.17       |
| 100%    |       | +50      | 5290094.56 | 94.56       |
| High    | 4.4   | +20      | 5210075.84 | 75.84       |
| Low     | 3.65  | +20      | 5210016.54 | 16.54       |

#### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 5 7 / 231 **HCT CO.,LTD.** 



OPERATING BAND: UNII Band 2C
OPERATING FREQUENCY: 5,530,000,000 Hz
CHANNEL: 106

REFERENCE VOLTAGE: 3.85 VDC

3.65

Low

Voltage **Power** Temp. Frequency Frequency (%) (VDC) (kHz) Error (kHz) (°C) 100% +20(Ref) 5530075.54 75.54 100% -30 5530069.19 69.19

| 100% |      | -20 | 5530068.84 | 68.84 |
|------|------|-----|------------|-------|
| 100% |      | -10 | 5530066.94 | 66.94 |
| 100% | 3.85 | 0   | 5530051.64 | 51.64 |
| 100% |      | +10 | 5530093.63 | 93.63 |
| 100% |      | +30 | 5530011.34 | 11.34 |
| 100% |      | +40 | 5530088.19 | 88.19 |
| 100% |      | +50 | 5530040.79 | 40.79 |
| High | 4.4  | +20 | 5210047.44 | 47.44 |

+20

5210007.70

7.70

#### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 5 8 / 231 **HCT CO.,LTD.** 



OPERATING BAND: UNII Band 3

OPERATING FREQUENCY: 5,775,000,000 Hz

CHANNEL: 155

REFERENCE VOLTAGE: 3.85 VDC

| Voltage | Power | Temp.    | Frequency  | Frequency   |
|---------|-------|----------|------------|-------------|
| (%)     | (VDC) | (℃)      | (kHz)      | Error (kHz) |
| 100%    |       | +20(Ref) | 5775020.79 | 20.79       |
| 100%    |       | -30      | 5775049.42 | 49.42       |
| 100%    |       | -20      | 5775049.42 | 49.42       |
| 100%    |       | -10      | 5775087.28 | 87.28       |
| 100%    | 3.85  | 0        | 5775051.57 | 51.57       |
| 100%    | ı     | +10      | 5775007.64 | 7.64        |
| 100%    |       | +30      | 5775075.38 | 75.38       |
| 100%    |       | +40      | 5775091.08 | 91.08       |
| 100%    |       | +50      | 5775029.55 | 29.55       |
| High    | 4.4   | +20      | 5210017.96 | 17.96       |
| Low     | 3.65  | +20      | 5210091.82 | 91.82       |

#### Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

F-TP22-03 (Rev.00) 1 5 9 / 231 **HCT CO.,LTD.** 



# 10.7 STRADDLE CHANNEL 10.7.1 26 dB Bandwidth

# [SISO Ant.2]

|                 |         | Frequency |         | Measured  | 26 dB     |
|-----------------|---------|-----------|---------|-----------|-----------|
| Mode            | Band    | [MHz]     | Channel | Frequency | Bandwidth |
|                 |         |           |         | [MHz]     | [MHz]     |
| 802.11a         | UNII 2C | 5720      | 144     | 5707.48   | 17.52     |
| 802.11n(HT20)   |         |           |         | 5704.88   | 20.12     |
| 802.11ac(VHT20) |         |           |         | 5704.80   | 20.20     |
| 802.11a         |         |           |         | 5733.04   | 8.04      |
| 802.11n(HT20)   | UNII 3  | 5720      | 144     | 5735.36   | 10.36     |
| 802.11ac(VHT20) |         |           |         | 5735.36   | 10.36     |

| Mode            | Band      | Frequency<br>[MHz] | Channel | Measured<br>Frequency<br>[MHz] | 26 dB<br>Bandwidth<br>[MHz] |
|-----------------|-----------|--------------------|---------|--------------------------------|-----------------------------|
| 802.11n(HT40)   | LINIII OO | 5710               | 142     | 5686.96                        | 38.04                       |
| 802.11ac(VHT40) | UNII 2C   |                    |         | 5686.88                        | 38.12                       |
| 802.11n(HT40)   |           | ==10               | 142     | 5733.04                        | 8.04                        |
| 802.11ac(VHT40) | UNII 3    | 5710               |         | 5732.88                        | 7.88                        |

| Mode             | Band    | Frequency<br>[MHz] | Channel | Measured<br>Frequency<br>[MHz] | 26 dB<br>Bandwidth<br>[MHz] |
|------------------|---------|--------------------|---------|--------------------------------|-----------------------------|
| 902 11ac(\/UT90\ | UNII 2C | 5690               | 138     | 5646.00                        | 79.00                       |
| 802.11ac(VHT80)  | UNII 3  | 5690               | 138     | 5734.16                        | 9.16                        |

#### Note:

[UNII 2C] 26 dB Bandwidth = 5 725 MHz - Measured Frequency[MHz]

[UNII 3C] 26 dB Bandwidth = Measured Frequency[MHz] - 5 725 MHz

F-TP22-03 (Rev.00) 1 6 0 / 231 **HCT CO.,LTD.** 



# [MIMO Ant.1]

|                 |         | Eroguenov |         | Measured  | 26 dB     |
|-----------------|---------|-----------|---------|-----------|-----------|
| Mode            | Band    | Frequency | Channel | Frequency | Bandwidth |
|                 |         | [MHz]     |         | [MHz]     | [MHz]     |
| 802.11a         |         |           | 144     | 5706.40   | 18.60     |
| 802.11n(HT20)   | UNII 2C | 5720      |         | 5704.68   | 20.32     |
| 802.11ac(VHT20) |         |           |         | 5705.08   | 19.92     |
| 802.11a         |         |           |         | 5734.00   | 9.00      |
| 802.11n(HT20)   | UNII 3  | 5720      | 144     | 5735.28   | 10.28     |
| 802.11ac(VHT20) |         |           |         | 5735.00   | 10.00     |

| Mode            | Band    | Frequency<br>[MHz] | Channel | Measured<br>Frequency<br>[MHz] | 26 dB<br>Bandwidth<br>[MHz] |
|-----------------|---------|--------------------|---------|--------------------------------|-----------------------------|
| 802.11n(HT40)   | LINILOO | 5710               | 142     | 5686.48                        | 38.52                       |
| 802.11ac(VHT40) | UNII 2C |                    |         | 5685.68                        | 39.32                       |
| 802.11n(HT40)   | LIMILO  | E710               | 140     | 5733.28                        | 8.28                        |
| 802.11ac(VHT40) | UNII 3  | 5710               | 142     | 5732.80                        | 7.80                        |

| Mode             | Band    | Frequency<br>[MHz] | Channel | Measured<br>Frequency<br>[MHz] | 26 dB<br>Bandwidth<br>[MHz] |
|------------------|---------|--------------------|---------|--------------------------------|-----------------------------|
| 902 11ac(\/UT90\ | UNII 2C | 5690               | 138     | 5646.96                        | 78.04                       |
| 802.11ac(VHT80)  | UNII 3  | 5690               | 138     | 5733.04                        | 8.04                        |

#### Note:

[UNII 2C] 26 dB Bandwidth = 5 725 MHz - Measured Frequency[MHz] [UNII 3C] 26 dB Bandwidth = Measured Frequency[MHz] - 5 725 MHz

F-TP22-03 (Rev.00) 1 6 1 / 231 **HCT CO.,LTD.** 



# [MIMO Ant.2]

|                 |         | Eroguanov          |         | Measured  | 26 dB     |
|-----------------|---------|--------------------|---------|-----------|-----------|
| Mode            | Band    | Frequency<br>[MHz] | Channel | Frequency | Bandwidth |
|                 |         | [1411.12]          |         | [MHz]     | [MHz]     |
| 802.11a         |         |                    | 144     | 5707.48   | 17.52     |
| 802.11n(HT20)   | UNII 2C | 5720               |         | 5705.68   | 19.32     |
| 802.11ac(VHT20) |         |                    |         | 5705.48   | 19.52     |
| 802.11a         |         |                    |         | 5733.80   | 8.80      |
| 802.11n(HT20)   | UNII 3  | 5720               | 144     | 5734.16   | 9.16      |
| 802.11ac(VHT20) |         |                    |         | 5735.00   | 10.00     |

| Mode                   | Band    | Frequency<br>[MHz] | Channel | Measured<br>Frequency<br>[MHz] | 26 dB<br>Bandwidth<br>[MHz] |
|------------------------|---------|--------------------|---------|--------------------------------|-----------------------------|
| 802.11n(HT40)          | UNII 2C | 5710               | 142     | 5687.36                        | 37.64                       |
| 802.11ac(VHT40)        | UNII 2C |                    |         | 5688.00                        | 37.00                       |
| 802.11n(HT40)          | LIMILO  | 5740               | 440     | 5731.76                        | 6.76                        |
| 802.11ac(VHT40) UNII 3 |         | 5710               | 142     | 5732.24                        | 7.24                        |

| Mode            | Band    | Frequency<br>[MHz] | Channel | Measured<br>Frequency<br>[MHz] | 26 dB<br>Bandwidth<br>[MHz] |
|-----------------|---------|--------------------|---------|--------------------------------|-----------------------------|
| 802.11ac(VHT80) | UNII 2C | 5690               | 138     | 5646.96                        | 78.04                       |
| 002.11ac(VH100) | UNII 3  | 5690               | 138     | 5732.88                        | 7.88                        |

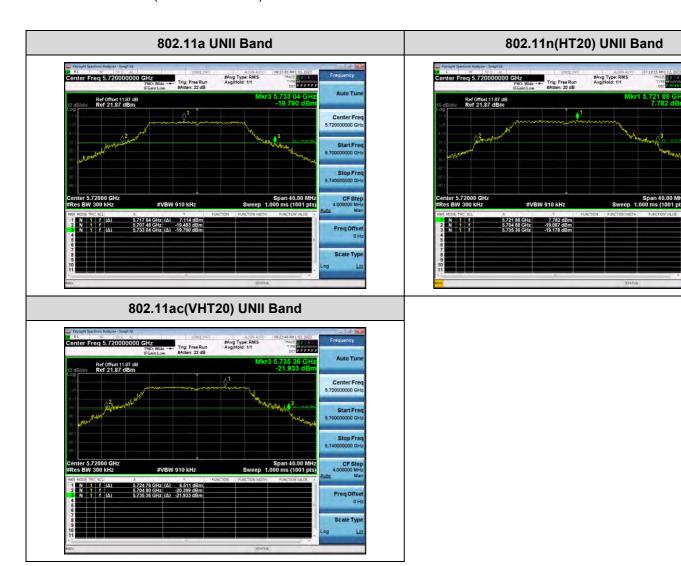
#### Note:

[UNII 2C] 26 dB Bandwidth = 5 725 MHz - Measured Frequency[MHz] [UNII 3C] 26 dB Bandwidth = Measured Frequency[MHz] - 5 725 MHz

F-TP22-03 (Rev.00) 1 6 2 / 231 **HCT CO.,LTD.** 

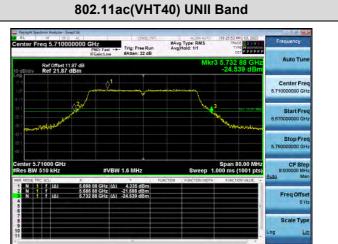


#### [SISO Ant.2]









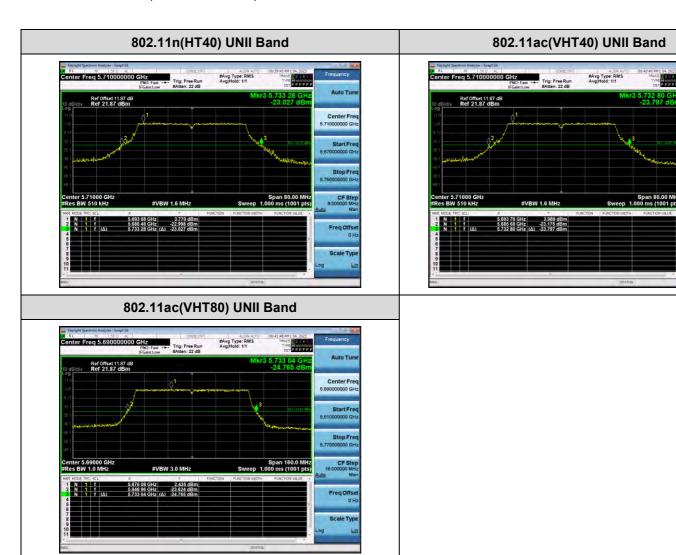


#### [MIMO Ant.1]





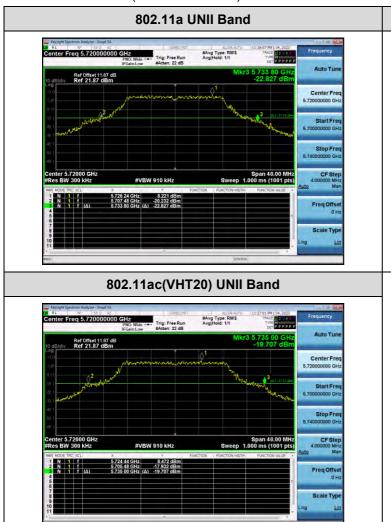
#### ■ Test Plots (26 dB Bandwidth)

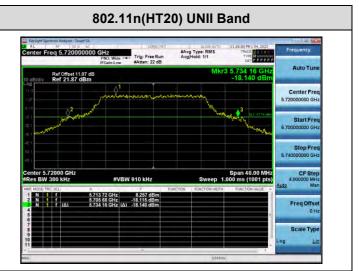


F-TP22-03 (Rev.00) 1 6 6 / 231 **HCT CO.,LTD.** 

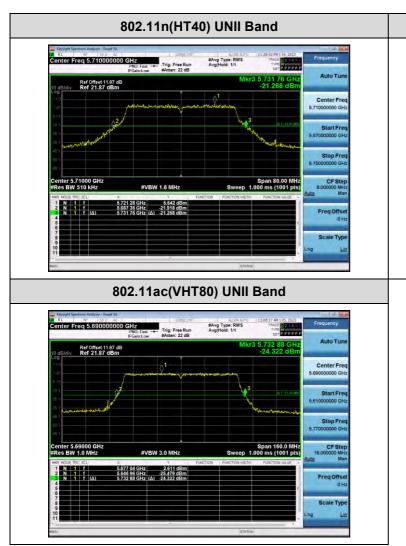


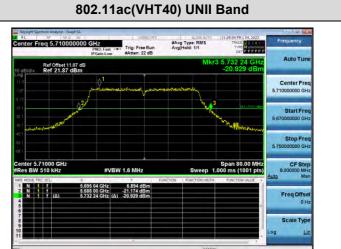
#### [MIMO Ant.2]













#### 10.7.2 6 dB Bandwidth

#### Note:

6 dB Bandwidth = Measured Frequency[MHz] - 5 725MHz

# [SISO Ant.2]

| Mode            | Band   | Frequency<br>[MHz] | Channel | Measured<br>Frequency<br>[MHz] | 6 dB<br>Bandwidth<br>[MHz] | Limit<br>[MHz] |
|-----------------|--------|--------------------|---------|--------------------------------|----------------------------|----------------|
| 802.11a         |        |                    |         | 5728.28                        | 3.28                       | > 0.5          |
| 802.11n(HT20)   | UNII 3 | 5720               | 144     | 5728.80                        | 3.80                       | > 0.5          |
| 802.11ac(VHT20) |        |                    |         | 5728.80                        | 3.80                       | > 0.5          |

| Mode            | Band   | Frequency<br>[MHz] | Channel | Measured<br>Frequency<br>[MHz] | 6 dB<br>Bandwidth<br>[MHz] | Limit<br>[MHz] |
|-----------------|--------|--------------------|---------|--------------------------------|----------------------------|----------------|
| 802.11n(HT40)   | UNII 3 | 5710               | 142     | 5728.24                        | 3.24                       | > 0.5          |
| 802.11ac(VHT40) | UNII 3 | 37 10              | 142     | 5728.24                        | 3.24                       | > 0.5          |

| Mode            | Band   | Frequency<br>[MHz] | Channel | Measured<br>Frequency<br>[MHz] | 6 dB<br>Bandwidth<br>[MHz] | Limit<br>[MHz] |
|-----------------|--------|--------------------|---------|--------------------------------|----------------------------|----------------|
| 802.11ac(VHT80) | UNII 3 | 5690               | 138     | 5728.24                        | 3.24                       | > 0.5          |

F-TP22-03 (Rev.00) 1 6 9 / 231 **HCT CO.,LTD.** 



# [MIMO Ant.1]

| Mode            | Band   | Frequency<br>[MHz] | Channel | Measured<br>Frequency<br>[MHz] | 6 dB<br>Bandwidth<br>[MHz] | Limit<br>[MHz] |
|-----------------|--------|--------------------|---------|--------------------------------|----------------------------|----------------|
| 802.11a         |        |                    |         | 5728.20                        | 3.20                       | > 0.5          |
| 802.11n(HT20)   | UNII 3 | 5720               | 144     | 5728.80                        | 3.80                       | > 0.5          |
| 802.11ac(VHT20) |        |                    |         | 5728.80                        | 3.80                       | > 0.5          |

| Mode            | Band   | Frequency<br>[MHz] | Channel | Measured<br>Frequency<br>[MHz] | 6 dB<br>Bandwidth<br>[MHz] | Limit<br>[MHz] |
|-----------------|--------|--------------------|---------|--------------------------------|----------------------------|----------------|
| 802.11n(HT40)   | LIMILO | E710               | 140     | 5728.24                        | 3.24                       | > 0.5          |
| 802.11ac(VHT40) | UNII 3 | 5710               | 142     | 5728.24                        | 3.24                       | > 0.5          |

| Mode            | Band   | Frequency<br>[MHz] | Channel | Measured<br>Frequency<br>[MHz] | 6 dB<br>Bandwidth<br>[MHz] | Limit<br>[MHz] |
|-----------------|--------|--------------------|---------|--------------------------------|----------------------------|----------------|
| 802.11ac(VHT80) | UNII 3 | 5690               | 138     | 5728.24                        | 3.24                       | > 0.5          |

F-TP22-03 (Rev.00) 1 7 0 / 231 **HCT CO.,LTD.** 



# [MIMO Ant.2]

| Mode            | Band   | Frequency<br>[MHz] | Channel | Measured<br>Frequency<br>[MHz] | 6 dB<br>Bandwidth<br>[MHz] | Limit<br>[MHz] |
|-----------------|--------|--------------------|---------|--------------------------------|----------------------------|----------------|
| 802.11a         | UNII 3 | 5720               | 144     | 5728.20                        | 3.20                       | > 0.5          |
| 802.11n(HT20)   |        |                    |         | 5728.84                        | 3.84                       | > 0.5          |
| 802.11ac(VHT20) |        |                    |         | 5728.80                        | 3.80                       | > 0.5          |

| Mode            | Band   | Frequency<br>[MHz] | Channel | Measured<br>Frequency<br>[MHz] | 6 dB<br>Bandwidth<br>[MHz] | Limit<br>[MHz] |
|-----------------|--------|--------------------|---------|--------------------------------|----------------------------|----------------|
| 802.11n(HT40)   | UNII 3 | 5710               | 142     | 5728.24                        | 3.24                       | > 0.5          |
| 802.11ac(VHT40) |        |                    |         | 5728.24                        | 3.24                       | > 0.5          |

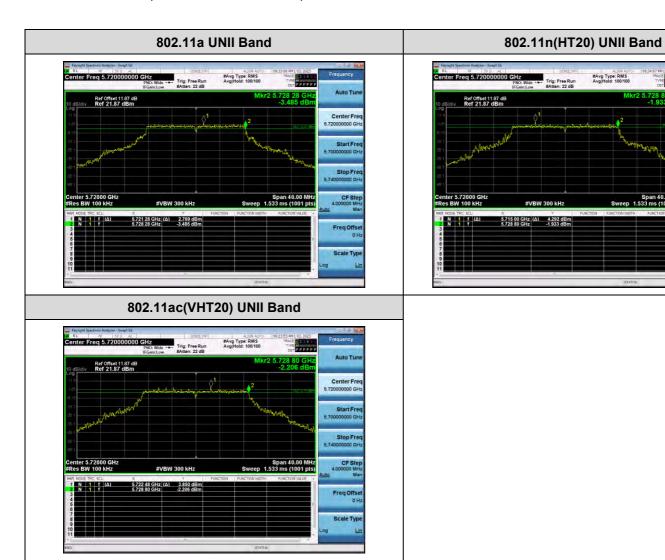
| Mode            | Band   | Frequency<br>[MHz] | Channel | Measured<br>Frequency<br>[MHz] | 6 dB<br>Bandwidth<br>[MHz] | Limit<br>[MHz] |
|-----------------|--------|--------------------|---------|--------------------------------|----------------------------|----------------|
| 802.11ac(VHT80) | UNII 3 | 5690               | 138     | 5728.24                        | 3.24                       | > 0.5          |

F-TP22-03 (Rev.00) 1 7 1 / 231 **HCT CO.,LTD.** 

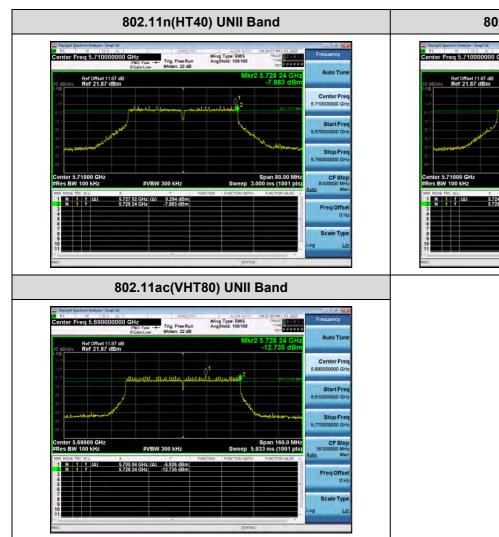


#### [SISO Ant.2]

■ Test Plots(Straddle 6 dB Bandwidth)





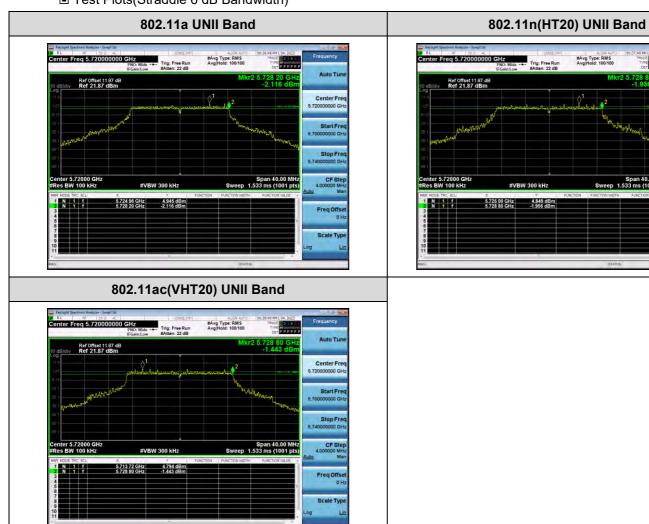


# 802.11ac(VHT40) UNII Band | Regular Spectrom Services - Services

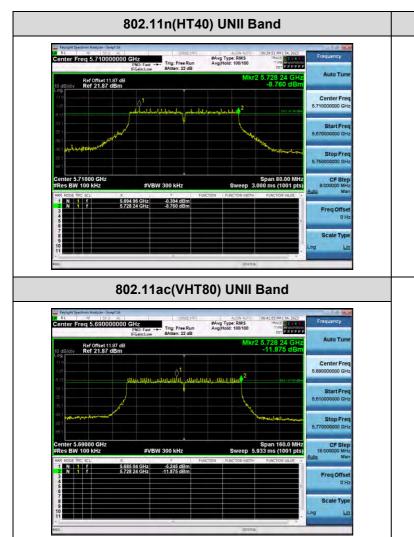


# [MIMO Ant.1]

■ Test Plots(Straddle 6 dB Bandwidth)





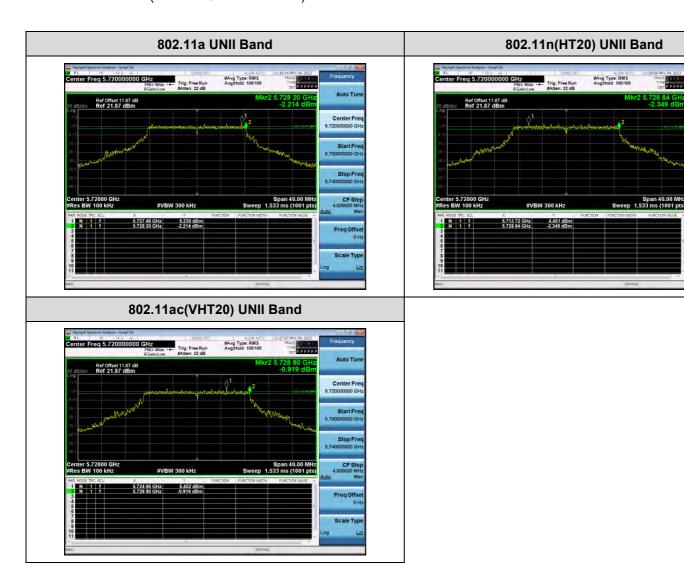


# 802.11ac(VHT40) UNII Band | Sequence | Sequ

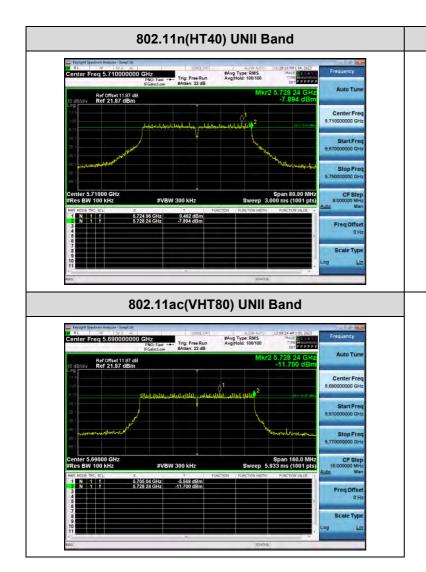


# [MIMO Ant.2]

■ Test Plots(Straddle 6 dB Bandwidth)







# 802.11ac(VHT40) UNII Band | Same | S

# 10.7.3 Output Power

# [SISO Ant.2]

| Mode            | Frequency<br>[MHz] | Channel | Measured<br>Power<br>[dBm] | Duty<br>Cycle<br>Factor<br>[dB] | Total<br>Power<br>[dBm] | Limit<br>[dBm] | Worstcase<br>Datarate |
|-----------------|--------------------|---------|----------------------------|---------------------------------|-------------------------|----------------|-----------------------|
| 802.11a         | 5720               |         | 14.45                      | 0.379                           | 14.83                   | 23.44          | 6 Mbps                |
| 802.11n(HT20)   | (UNII 2C           | 144     | 14.30                      | 0.374                           | 14.67                   | 23.98          | MCS0                  |
| 802.11ac(VHT20) | Band)              |         | 14.41                      | 0.372                           | 14.79                   | 23.98          | MCS0                  |
| 802.11a         | 5720               |         | 8.49                       | 0.379                           | 8.87                    | 30.00          | 6 Mbps                |
| 802.11n(HT20)   | (UNII 3            | 144     | 8.81                       | 0.374                           | 9.19                    | 30.00          | MCS0                  |
| 802.11ac(VHT20) | Band)              |         | 9.07                       | 0.372                           | 9.45                    | 30.00          | MCS0                  |

| Mode            | Frequency [MHz]  | Channel | Measured<br>Power<br>[dBm] | Duty<br>Cycle<br>Factor<br>[dB] | Total<br>Power<br>[dBm] | Limit<br>[dBm] | Worstcase<br>Datarate |
|-----------------|------------------|---------|----------------------------|---------------------------------|-------------------------|----------------|-----------------------|
| 802.11n(HT40)   | 5710<br>(UNII 2C | 140     | 13.34                      | 0.654                           | 14.00                   | 23.98          | MCS0                  |
| 802.11ac(VHT40) | Band)            | 142     | 13.32                      | 0.707                           | 14.03                   | 23.98          | MCS0                  |
| 802.11n(HT40)   | 5710             | 440     | 3.40                       | 0.654                           | 4.05                    | 30.00          | MCS0                  |
| 802.11ac(VHT40) | (UNII 3<br>Band) | 142     | 3.62                       | 0.707                           | 4.33                    | 30.00          | MCS0                  |

| Mode             | Frequency<br>[MHz] | Channel | Measured<br>Power<br>[dBm] | Duty<br>Cycle<br>Factor<br>[dB] | Total<br>Power<br>[dBm] | Limit<br>[dBm] | Worstcase<br>Datarate |
|------------------|--------------------|---------|----------------------------|---------------------------------|-------------------------|----------------|-----------------------|
|                  | 5690               |         |                            |                                 |                         |                |                       |
|                  | (UNII 2C           | 138     | 9.65                       | 1.321                           | 10.97                   | 23.98          | MCS0                  |
| 000 4455(V/UT00) | Band)              |         |                            |                                 |                         |                |                       |
| 802.11ac(VHT80)  | 5690               |         |                            |                                 |                         |                |                       |
|                  | (UNII 3            | 138     | -3.40                      | 1.321                           | -2.08                   | 30.00          | MCS0                  |
|                  | Band)              |         |                            |                                 |                         |                |                       |

F-TP22-03 (Rev.00) 1 7 8 / 231 **HCT CO.,LTD.** 

# [MIMO Ant.1]

| Mode            | Frequency<br>[MHz] | Channel | Measured<br>Power<br>[dBm] | Duty<br>Cycle<br>Factor<br>[dB] | Total<br>Power<br>[dBm] | Limit<br>[dBm] | Worstcase<br>Datarate |
|-----------------|--------------------|---------|----------------------------|---------------------------------|-------------------------|----------------|-----------------------|
| 802.11a         | 5720               |         | 14.80                      | 0.379                           | 15.18                   | 23.70          | 6 Mbps                |
| 802.11n(HT20)   | (UNII 2C           | 144     | 14.70                      | 0.575                           | 15.27                   | 23.98          | MCS8                  |
| 802.11ac(VHT20) | Band)              |         | 14.55                      | 0.680                           | 15.23                   | 23.98          | MCS0                  |
| 802.11a         | 5720               |         | 8.89                       | 0.379                           | 9.27                    | 30.00          | 6 Mbps                |
| 802.11n(HT20)   | (UNII 3            | 144     | 9.25                       | 0.575                           | 9.82                    | 30.00          | MCS8                  |
| 802.11ac(VHT20) | Band)              |         | 9.15                       | 0.680                           | 9.83                    | 30.00          | MCS0                  |

| Mode            | Frequency [MHz]   | Channel | Measured<br>Power<br>[dBm] | Duty<br>Cycle<br>Factor<br>[dB] | Total<br>Power<br>[dBm] | Limit<br>[dBm] | Worstcase<br>Datarate |
|-----------------|-------------------|---------|----------------------------|---------------------------------|-------------------------|----------------|-----------------------|
| 802.11n(HT40)   | 5710              | 140     | 12.86                      | 1.243                           | 14.11                   | 23.98          | MCS8                  |
| 802.11ac(VHT40) | (UNII 2C<br>Band) | 142     | 12.52                      | 1.321                           | 13.84                   | 23.98          | MCS0                  |
| 802.11n(HT40)   | 5710              | 140     | 2.81                       | 1.243                           | 4.06                    | 30.00          | MCS8                  |
| 802.11ac(VHT40) | (UNII 3<br>Band)  | 142     | 2.72                       | 1.321                           | 4.04                    | 30.00          | MCS0                  |

| Mode             | Frequency<br>[MHz] | Channel | Measured<br>Power<br>[dBm] | Duty<br>Cycle<br>Factor<br>[dB] | Total<br>Power<br>[dBm] | Limit<br>[dBm] | Worstcase<br>Datarate |
|------------------|--------------------|---------|----------------------------|---------------------------------|-------------------------|----------------|-----------------------|
|                  | 5690               |         |                            |                                 |                         |                |                       |
|                  | (UNII 2C           | 138     | 9.75                       | 2.081                           | 11.83                   | 23.98          | MCS0                  |
| 902 11aa/\/UT90\ | Band)              |         |                            |                                 |                         |                |                       |
| 802.11ac(VHT80)  | 5690               |         |                            |                                 |                         |                |                       |
|                  | (UNII 3            | 138     | -3.55                      | 2.081                           | -1.47                   | 30.00          | MCS0                  |
|                  | Band)              |         |                            |                                 |                         |                |                       |

F-TP22-03 (Rev.00) 1 7 9 / 231 **HCT CO.,LTD.** 



# [MIMO Ant.2]

| Mode            | Frequency<br>[MHz] | Channel | Measured<br>Power<br>[dBm] | Duty<br>Cycle<br>Factor<br>[dB] | Total<br>Power<br>[dBm] | Limit<br>[dBm] | Worstcase<br>Datarate |
|-----------------|--------------------|---------|----------------------------|---------------------------------|-------------------------|----------------|-----------------------|
| 802.11a         | 5720               |         | 15.17                      | 0.379                           | 15.55                   | 23.44          | 6 Mbps                |
| 802.11n(HT20)   | (UNII 2C           | 144     | 14.86                      | 0.575                           | 15.43                   | 23.86          | MCS8                  |
| 802.11ac(VHT20) | Band)              |         | 14.81                      | 0.680                           | 15.49                   | 23.90          | MCS0                  |
| 802.11a         | 5720               |         | 9.25                       | 0.379                           | 9.63                    | 30.00          | 6 Mbps                |
| 802.11n(HT20)   | (UNII 3            | 144     | 9.41                       | 0.575                           | 9.98                    | 30.00          | MCS8                  |
| 802.11ac(VHT20) | Band)              |         | 9.40                       | 0.680                           | 10.08                   | 30.00          | MCS0                  |

| Mode            | Frequency<br>[MHz] | Channel | Measured<br>Power<br>[dBm] | Duty<br>Cycle<br>Factor<br>[dB] | Total<br>Power<br>[dBm] | Limit<br>[dBm] | Worstcase<br>Datarate |
|-----------------|--------------------|---------|----------------------------|---------------------------------|-------------------------|----------------|-----------------------|
| 802.11n(HT40)   | 5710<br>(UNII 2C   | 140     | 12.79                      | 1.243                           | 14.03                   | 23.98          | MCS8                  |
| 802.11ac(VHT40) | Band)              | 142     | 12.81                      | 1.321                           | 14.13                   | 23.98          | MCS0                  |
| 802.11n(HT40)   | 5710               | 440     | 2.81                       | 1.243                           | 4.05                    | 30.00          | MCS8                  |
| 802.11ac(VHT40) | (UNII 3<br>Band)   | 142     | 2.81                       | 1.321                           | 4.13                    | 30.00          | MCS0                  |

| Mode             | Frequency<br>[MHz] | Channel | Measured<br>Power<br>[dBm] | Duty<br>Cycle<br>Factor<br>[dB] | Total<br>Power<br>[dBm] | Limit<br>[dBm] | Worstcase<br>Datarate |
|------------------|--------------------|---------|----------------------------|---------------------------------|-------------------------|----------------|-----------------------|
|                  | 5690               |         |                            |                                 |                         |                |                       |
|                  | (UNII 2C           | 138     | 9.11                       | 2.081                           | 11.19                   | 23.98          | MCS0                  |
| 802.11ac(VHT80)  | Band)              |         |                            |                                 |                         |                |                       |
| 002.11do(V11100) | 5690               |         |                            |                                 |                         |                |                       |
|                  | (UNII 3            | 138     | -4.11                      | 2.081                           | -2.03                   | 30.00          | MCS0                  |
|                  | Band)              |         |                            |                                 |                         |                |                       |

F-TP22-03 (Rev.00) 1 8 0 / 231 **HCT CO.,LTD.** 

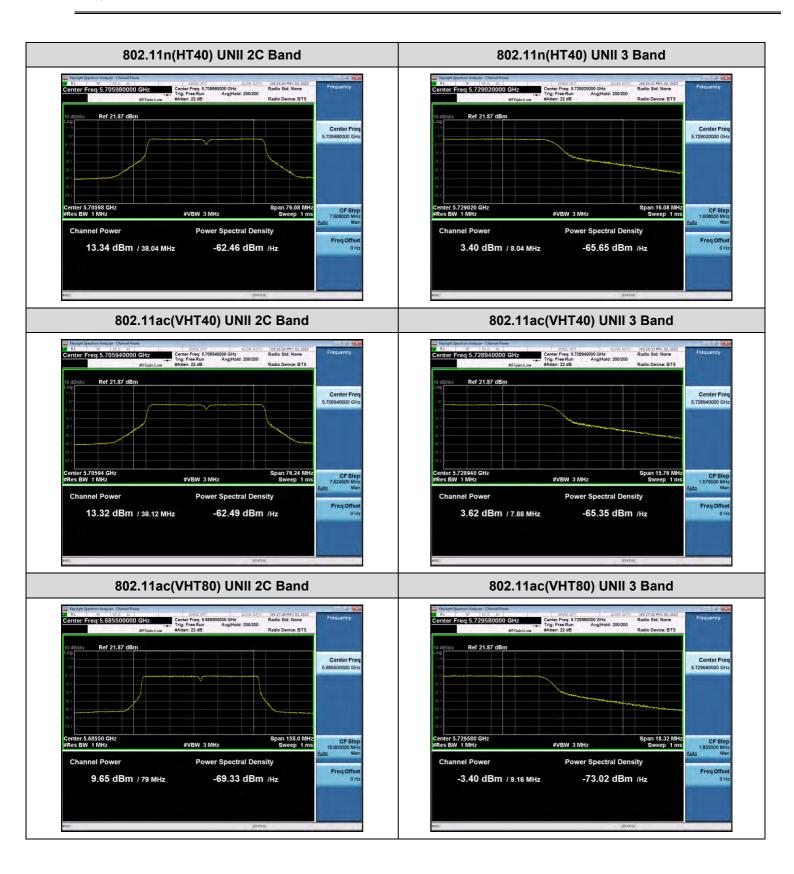


## [SISO Ant.2]



HCT CO.,LTD. F-TP22-03 (Rev.00) 1 8 1 / 231





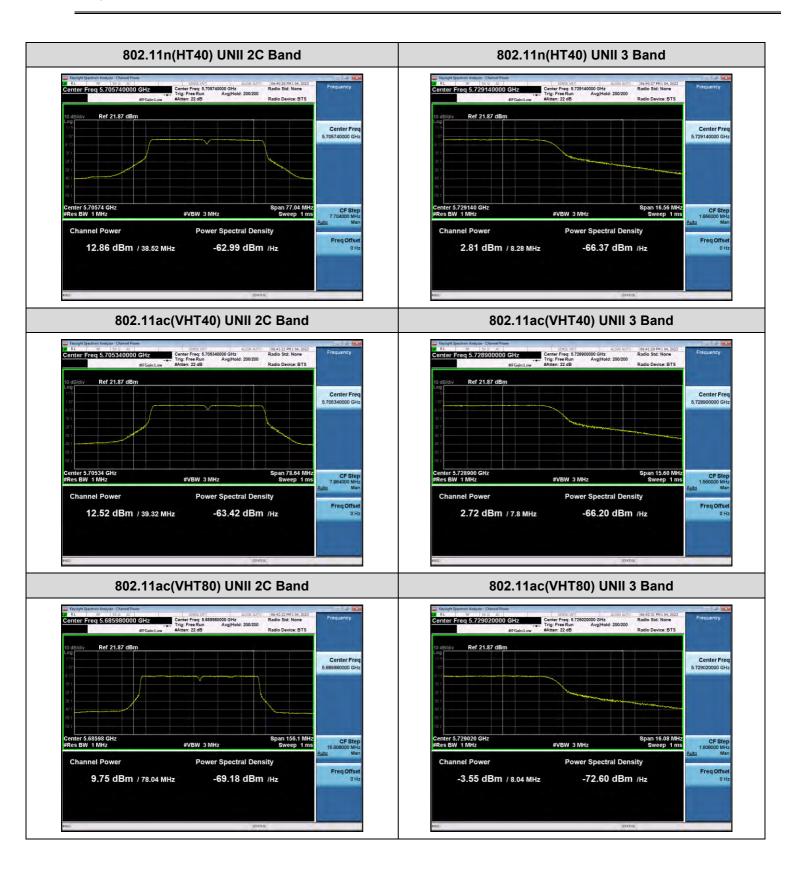


# [MIMO Ant.1]

#### **■ Test Plots**









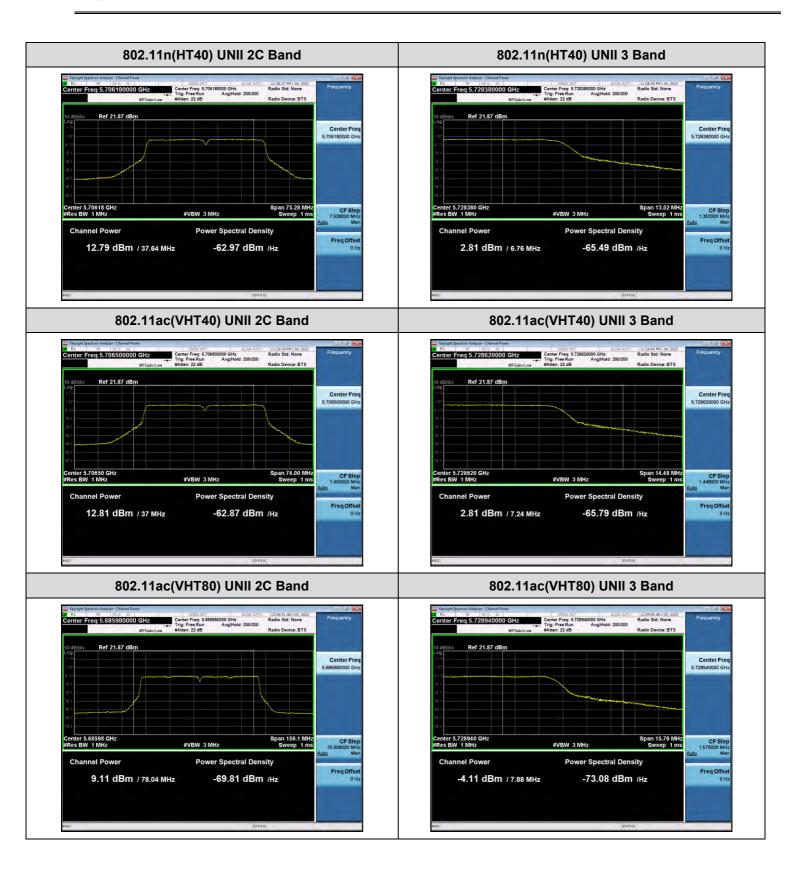
# [MIMO Ant.2]

#### **■ Test Plots**



F-TP22-03 (Rev.00) 1 8 5 / 231 **HCT CO.,LTD.** 







# 10.7.4 Power Spectral Density

# [SISO Ant.2]

| Mode            | Frequency<br>[MHz] | Channel | Measured<br>Density<br>[dBm] | Duty<br>Cycle<br>Factor<br>[dB] | Total<br>PSD<br>[dBm] | Limit<br>[dBm] | Worstcase<br>Datarate |
|-----------------|--------------------|---------|------------------------------|---------------------------------|-----------------------|----------------|-----------------------|
| 802.11a         | 5720               |         | 3.933                        | 0.379                           | 4.313                 | 11 dBm/        | 6 Mbps                |
| 802.11n(HT20)   | (UNII 2C           | 144     | 3.771                        | 0.374                           | 4.145                 |                | MCS0                  |
| 802.11ac(VHT20) | Band)              |         | 3.987                        | 0.372                           | 4.359                 | MHz            | MCS0                  |
| 802.11a         | 5720               |         | 1.202                        | 0.379                           | 1.582                 | 20 dDm/        | 6 Mbps                |
| 802.11n(HT20)   | (UNII 3            | 144     | 0.744                        | 0.374                           | 1.118                 | 30 dBm/        | MCS0                  |
| 802.11ac(VHT20) | Band)              |         | 0.925                        | 0.372                           | 1.297                 | 500 kHz        | MCS0                  |

| Mode            | Frequency<br>[MHz] | Channel | Measured<br>Density<br>[dBm] | Duty<br>Cycle<br>Factor<br>[dB] | Total<br>PSD<br>[dBm] | Limit<br>[dBm] | Worstcase<br>Datarate |
|-----------------|--------------------|---------|------------------------------|---------------------------------|-----------------------|----------------|-----------------------|
| 802.11n(HT40)   | 5710<br>(UNII 2C   | 142     | -0.726                       | 0.654                           | -0.071                | 11 dBm/        | MCS0                  |
| 802.11ac(VHT40) | Band)              | 142     | -0.863                       | 0.707                           | -0.155                | MHz            | MCS0                  |
| 802.11n(HT40)   | 5710               | 140     | -3.758                       | 0.654                           | -3.103                | 30 dBm/        | MCS0                  |
| 802.11ac(VHT40) | (UNII 3<br>Band)   | 142     | -3.944                       | 0.707                           | -3.237                | 500 kHz        | MCS0                  |

| Mode            | Frequency<br>[MHz]        | Channel | Measured<br>Density<br>[dBm] | Duty<br>Cycle<br>Factor<br>[dB] | Total<br>PSD<br>[dBm] | Limit<br>[dBm]     | Worstcase<br>Datarate |
|-----------------|---------------------------|---------|------------------------------|---------------------------------|-----------------------|--------------------|-----------------------|
| 802.11ac(VHT80) | 5690<br>(UNII 2C<br>Band) | 138     | -7.931                       | 1.321                           | -6.610                | 11 dBm/<br>MHz     | MCS0                  |
|                 | 5690<br>(UNII 3<br>Band)  | 138     | -10.781                      | 1.321                           | -9.460                | 30 dBm/<br>500 kHz | MCS0                  |

F-TP22-03 (Rev.00) 1 8 7 / 231 **HCT CO.,LTD.** 



# [MIMO Ant.1]

| Mode            | Frequency<br>[MHz] | Channel | Measured<br>Density<br>[dBm] | Duty<br>Cycle<br>Factor<br>[dB] | Total<br>PSD<br>[dBm] | Limit<br>[dBm] | Worstcase<br>Datarate |
|-----------------|--------------------|---------|------------------------------|---------------------------------|-----------------------|----------------|-----------------------|
| 802.11a         | 5720               |         | 4.459                        | 0.379                           | 4.838                 | 11 dDm/        | 6 Mbps                |
| 802.11n(HT20)   | (UNII 2C           | 144     | 4.274                        | 0.575                           | 4.849                 | 11 dBm/        | MCS8                  |
| 802.11ac(VHT20) | Band)              |         | 3.988                        | 0.680                           | 4.668                 | MHz            | MCS0                  |
| 802.11a         | 5720               |         | 1.582                        | 0.379                           | 1.961                 | 20 dDm/        | 6 Mbps                |
| 802.11n(HT20)   | (UNII 3            | 144     | 1.303                        | 0.575                           | 1.878                 | 30 dBm/        | MCS8                  |
| 802.11ac(VHT20) | Band)              |         | 0.873                        | 0.680                           | 1.553                 | 500 kHz        | MCS0                  |

| Mode            | Frequency<br>[MHz] | Channel | Measured<br>Density<br>[dBm] | Duty<br>Cycle<br>Factor<br>[dB] | Total<br>PSD<br>[dBm] | Limit<br>[dBm] | Worstcase<br>Datarate |
|-----------------|--------------------|---------|------------------------------|---------------------------------|-----------------------|----------------|-----------------------|
| 802.11n(HT40)   | 5710<br>(UNII 2C   | 140     | -1.471                       | 1.243                           | -0.228                | 11 dBm/        | MCS8                  |
| 802.11ac(VHT40) | Band)              | 142     | -1.549                       | 1.321                           | -0.228                | MHz            | MCS0                  |
| 802.11n(HT40)   | 5710               | 440     | -4.350                       | 1.243                           | -3.107                | 30 dBm/        | MCS8                  |
| 802.11ac(VHT40) | (UNII 3<br>Band)   | 142     | -4.800                       | 1.321                           | -3.478                | 500 kHz        | MCS0                  |

| Mode            | Frequency<br>[MHz]        | Channel | Measured<br>Density<br>[dBm] | Duty<br>Cycle<br>Factor<br>[dB] | Total<br>PSD<br>[dBm] | Limit<br>[dBm]     | Worstcase<br>Datarate |
|-----------------|---------------------------|---------|------------------------------|---------------------------------|-----------------------|--------------------|-----------------------|
| 802.11ac(VHT80) | 5690<br>(UNII 2C<br>Band) | 138     | -7.735                       | 2.081                           | -5.655                | 11 dBm/<br>MHz     | MCS0                  |
|                 | 5690<br>(UNII 3<br>Band)  | 138     | -10.874                      | 2.081                           | -8.793                | 30 dBm/<br>500 kHz | MCS0                  |

F-TP22-03 (Rev.00) 1 8 8 / 231 **HCT CO.,LTD.** 

# [MIMO Ant.2]

| Mode            | Frequency<br>[MHz] | Channel | Measured<br>Density<br>[dBm] | Duty<br>Cycle<br>Factor<br>[dB] | Total<br>PSD<br>[dBm] | Limit<br>[dBm] | Worstcase<br>Datarate |
|-----------------|--------------------|---------|------------------------------|---------------------------------|-----------------------|----------------|-----------------------|
| 802.11a         | 5720               |         | 4.851                        | 0.379                           | 5.231                 | 11 dBm/        | 6 Mbps                |
| 802.11n(HT20)   | (UNII 2C           | 144     | 4.383                        | 0.575                           | 4.958                 |                | MCS8                  |
| 802.11ac(VHT20) | Band)              |         | 4.253                        | 0.680                           | 4.933                 | MHz            | MCS0                  |
| 802.11a         | 5720               |         | 2.050                        | 0.379                           | 2.429                 | 20 dDm/        | 6 Mbps                |
| 802.11n(HT20)   | (UNII 3            | 144     | 1.384                        | 0.575                           | 1.959                 | 30 dBm/        | MCS8                  |
| 802.11ac(VHT20) | Band)              |         | 1.426                        | 0.680                           | 2.106                 | 500 kHz        | MCS0                  |

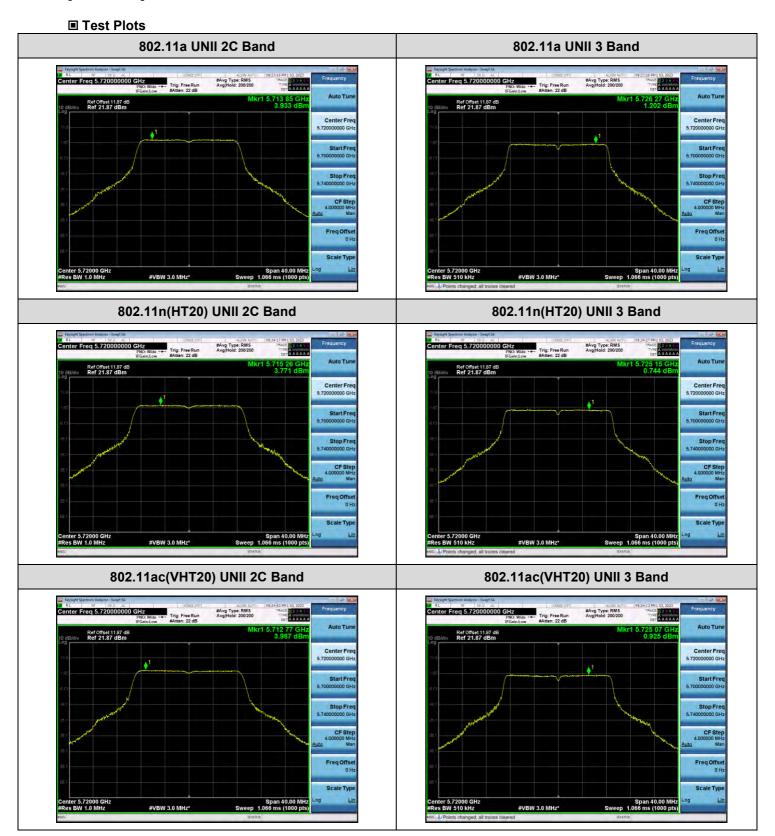
| Mode            | Frequency<br>[MHz] | Channel | Measured<br>Density<br>[dBm] | Duty<br>Cycle<br>Factor<br>[dB] | Total<br>PSD<br>[dBm] | Limit<br>[dBm] | Worstcase<br>Datarate |
|-----------------|--------------------|---------|------------------------------|---------------------------------|-----------------------|----------------|-----------------------|
| 802.11n(HT40)   | 5710               | 140     | -1.327                       | 1.243                           | -0.084                | 11 dBm/        | MCS8                  |
| 802.11ac(VHT40) | (UNII 2C<br>Band)  | 142     | -1.256                       | 1.321                           | 0.065                 | MHz            | MCS0                  |
| 802.11n(HT40)   | 5710               | 440     | -4.043                       | 1.243                           | -2.799                | 30 dBm/        | MCS8                  |
| 802.11ac(VHT40) | (UNII 3<br>Band)   | 142     | -4.208                       | 1.321                           | -2.887                | 500 kHz        | MCS0                  |

| Mode            | Frequency<br>[MHz]        | Channel | Measured<br>Density<br>[dBm] | Duty<br>Cycle<br>Factor<br>[dB] | Total<br>PSD<br>[dBm] | Limit<br>[dBm]     | Worstcase<br>Datarate |
|-----------------|---------------------------|---------|------------------------------|---------------------------------|-----------------------|--------------------|-----------------------|
| 802.11ac(VHT80) | 5690<br>(UNII 2C<br>Band) | 138     | -8.209                       | 2.081                           | -6.129                | 11 dBm/<br>MHz     | MCS0                  |
|                 | 5690<br>(UNII 3<br>Band)  | 138     | -11.186                      | 2.081                           | -9.106                | 30 dBm/<br>500 kHz | MCS0                  |

F-TP22-03 (Rev.00) 1 8 9 / 231 **HCT CO.,LTD.** 

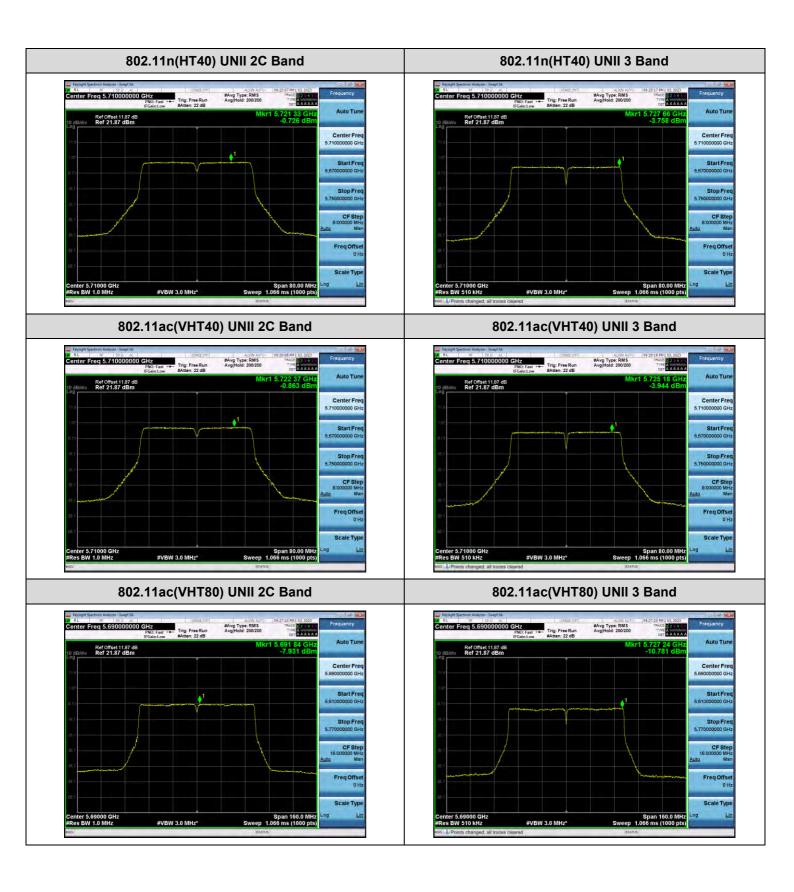


# [SISO Ant.2]



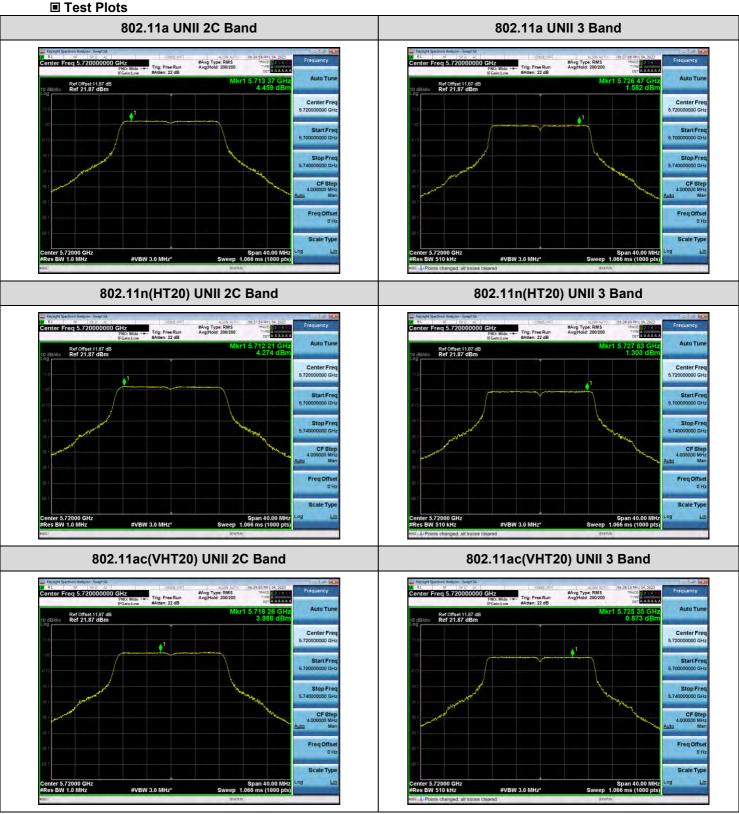
F-TP22-03 (Rev.00) 1 9 0 / 231 **HCT CO.,LTD.** 





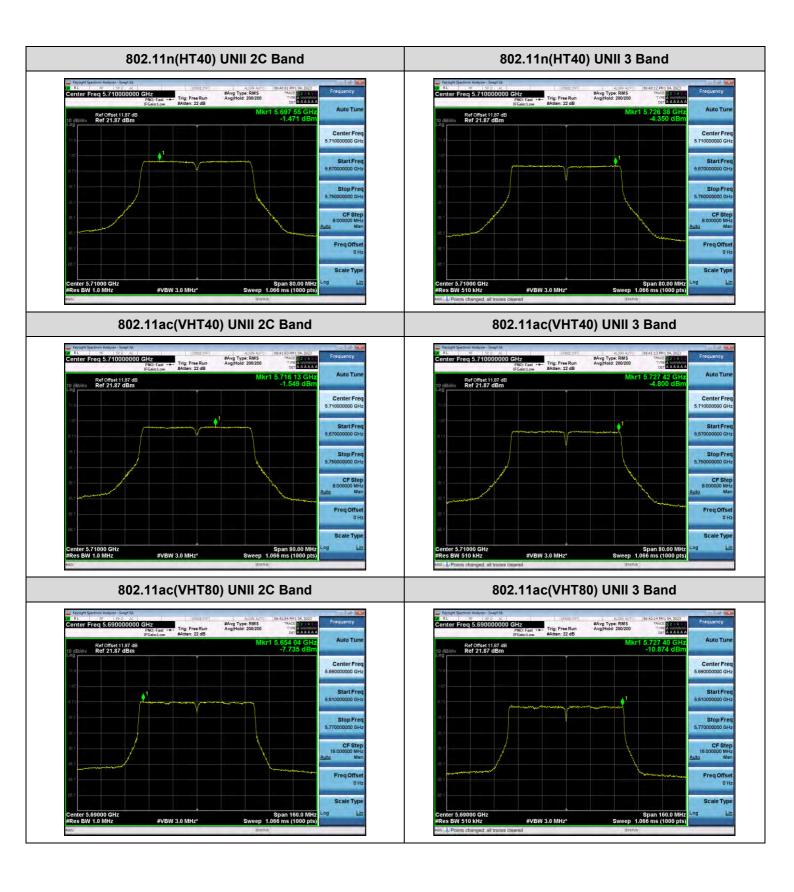


## [MIMO Ant.1]



HCT CO.,LTD. F-TP22-03 (Rev.00) 1 9 2 / 231

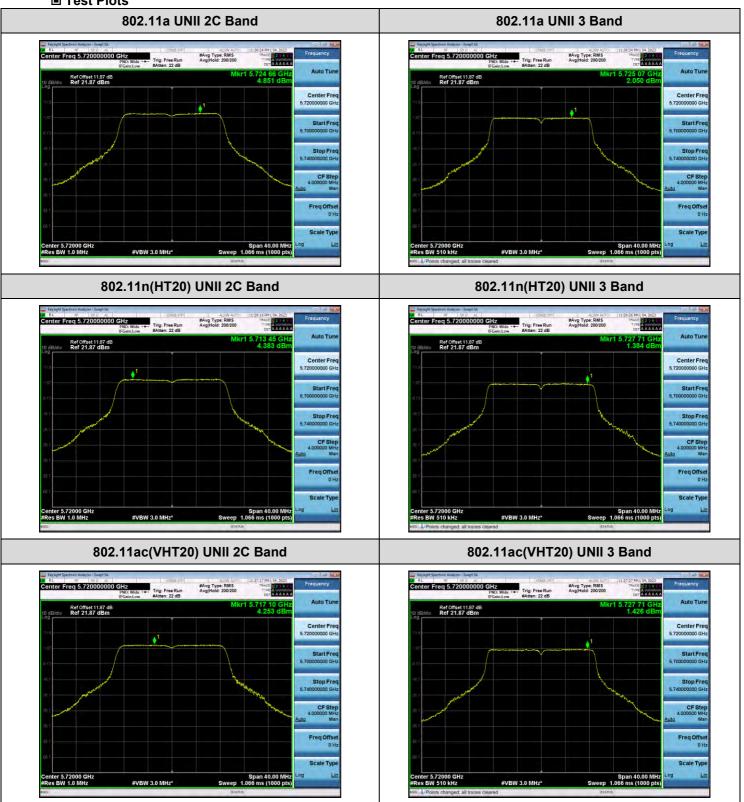




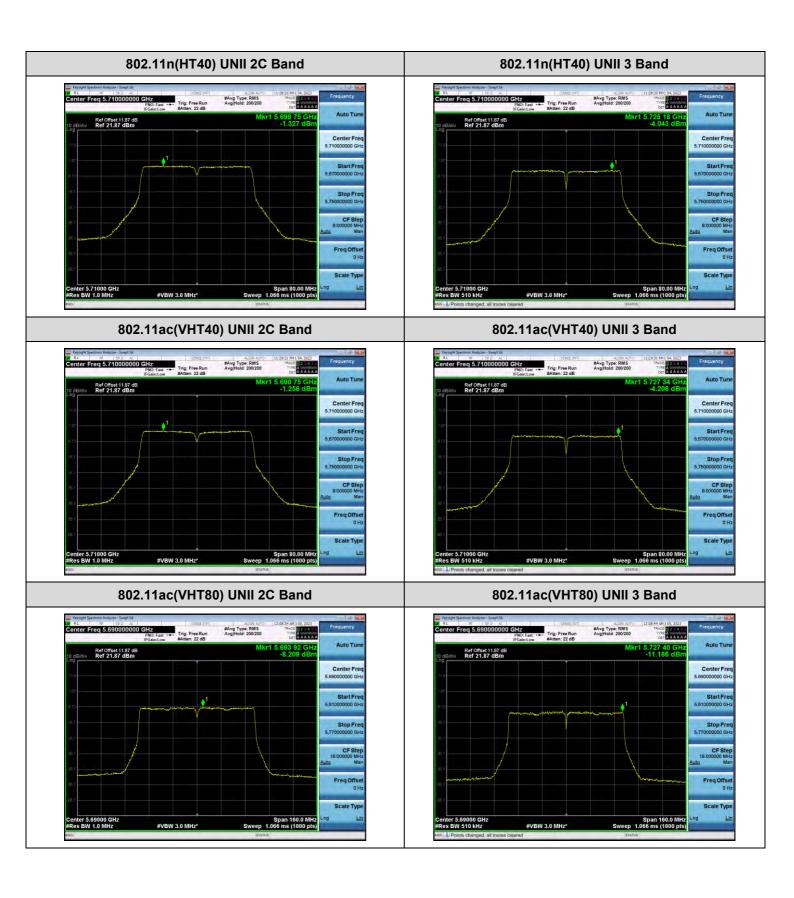


# [MIMO Ant.2]

## **■ Test Plots**









#### **10.8 RADIATED SPURIOUS EMISSIONS**

Frequency Range: 9 kHz - 30 MHz

| Frequency | Measured<br>Value       | A.F+D.F+C.L | POL   | Total    | Limit    | Margin |  |  |
|-----------|-------------------------|-------------|-------|----------|----------|--------|--|--|
| [MHz]     | [dBµV]                  | [dB/m]      | [H/V] | [dBµV/m] | [dBµV/m] | [dB]   |  |  |
|           | No Critical peaks found |             |       |          |          |        |  |  |

## Note:

- 1. The Measured Value of emissions are attenuated more than 20 dB below the permissible limits or the field strength is too small to be measured.
- 2. Distance extrapolation factor = 40log (specific distance / test distance) (dB)
- 3. Limit line = specific Limits ( $dB\mu V$ ) + Distance extrapolation factor

Frequency Range: Below 1 GHz

| Frequency | Measured<br>Value       | A.F+C.L | POL   | Total    | Limit    | Margin |  |  |
|-----------|-------------------------|---------|-------|----------|----------|--------|--|--|
| [MHz]     | [dBµV]                  | [dB/m]  | [H/V] | [dBµV/m] | [dBµV/m] | [dB]   |  |  |
|           | No Critical peaks found |         |       |          |          |        |  |  |

## Note:

1. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Quasi peak detector mode

F-TP22-03 (Rev.00) 1 9 6 / 231 **HCT CO.,LTD.** 



# [Ant.1&Ant.2\_MIMO(CDD)]

Frequency Range : Above 1 GHz

Band: UNII 1

Operation Mode: 802.11 a

Transfer Rate: 6 Mbps

Operating Frequency 5180 MHz

Channel No. 36 Ch

| Frequency | Measured<br>Value | CL+AF+DF-AG | POL   | Total    | Limit    | Margin | Measurement |
|-----------|-------------------|-------------|-------|----------|----------|--------|-------------|
| [MHz]     | [dBµV]            | [dB/m]      | [H/V] | [dBµV/m] | [dBµV/m] | [dB]   | Туре        |
| 10360     | 48.26             | 4.05        | V     | 52.31    | 68.20    | 15.89  | PK          |
| 15540     | 47.72             | 5.45        | V     | 53.17    | 73.98    | 20.81  | PK          |
| 15540     | 34.08             | 5.45        | V     | 39.53    | 53.98    | 14.45  | AV          |
| 10360     | 48.45             | 4.05        | Н     | 52.50    | 68.20    | 15.70  | PK          |
| 15540     | 47.63             | 5.45        | Н     | 53.08    | 73.98    | 20.90  | PK          |
| 15540     | 33.92             | 5.45        | Н     | 39.37    | 53.98    | 14.61  | AV          |

Band: UNII 1

Operation Mode: 802.11 a

Transfer Rate: 6 Mbps

Operating Frequency 5200 MHz

Channel No. 40 Ch

| Frequency | Measured<br>Value | CL+AF+DF-AG | POL   | Total    | Limit    | Margin | Measurement |
|-----------|-------------------|-------------|-------|----------|----------|--------|-------------|
| [MHz]     | [dBµV]            | [dB/m]      | [H/V] | [dBµV/m] | [dBµV/m] | [dB]   | Туре        |
| 10400     | 49.58             | 4.24        | V     | 53.82    | 68.20    | 14.38  | PK          |
| 15600     | 48.61             | 4.10        | V     | 52.71    | 73.98    | 21.27  | PK          |
| 15600     | 34.30             | 4.10        | V     | 38.40    | 53.98    | 15.58  | AV          |
| 10400     | 50.20             | 4.24        | Н     | 54.44    | 68.20    | 13.76  | PK          |
| 15600     | 48.52             | 4.10        | Н     | 52.62    | 73.98    | 21.36  | PK          |
| 15600     | 34.29             | 4.10        | Н     | 38.39    | 53.98    | 15.59  | AV          |

F-TP22-03 (Rev.00) 1 9 7 / 231 **HCT CO.,LTD.** 



Band: UNII 1

Operation Mode: 802.11 a

Transfer Rate: 6 Mbps

Operating Frequency 5240 MHz

Channel No. 48 Ch

| Frequency | Measured<br>Value | CL+AF+DF-AG | POL   | Total    | Limit    | Margin | Measurement<br>Type |
|-----------|-------------------|-------------|-------|----------|----------|--------|---------------------|
| [MHz]     | [dBµV]            | [dB/m]      | [H/V] | [dBµV/m] | [dBµV/m] | [dB]   |                     |
| 10480     | 49.63             | 3.81        | V     | 53.44    | 68.20    | 14.76  | PK                  |
| 15720     | 47.92             | 3.78        | V     | 51.70    | 73.98    | 22.28  | PK                  |
| 15720     | 34.23             | 3.78        | V     | 38.01    | 53.98    | 15.97  | AV                  |
| 10480     | 50.12             | 3.81        | Н     | 53.93    | 68.20    | 14.27  | PK                  |
| 15720     | 47.58             | 3.78        | Η     | 51.36    | 73.98    | 22.62  | PK                  |
| 15720     | 34.22             | 3.78        | Н     | 38.00    | 53.98    | 15.98  | AV                  |

F-TP22-03 (Rev.00) 1 9 8 / 231 **HCT CO.,LTD.** 



Band: UNII 2A
Operation Mode: 802.11 a
Transfer Rate: 6 Mbps
Operating Frequency 5260 MHz

Channel No. 52 Ch

| Frequency | Measured<br>Value | CL+AF+DF-AG | POL   | Total    | Limit    | Margin | Measurement<br>Type |
|-----------|-------------------|-------------|-------|----------|----------|--------|---------------------|
| [MHz]     | [dBµV]            | [dB/m]      | [H/V] | [dBµV/m] | [dBµV/m] | [dB]   |                     |
| 10520     | 49.02             | 4.89        | V     | 53.91    | 68.20    | 14.29  | PK                  |
| 15780     | 47.80             | 4.11        | V     | 51.91    | 73.98    | 22.07  | PK                  |
| 15780     | 33.86             | 4.11        | V     | 37.97    | 53.98    | 16.01  | AV                  |
| 10520     | 50.25             | 4.89        | Н     | 55.14    | 68.20    | 13.06  | PK                  |
| 15780     | 47.29             | 4.11        | Н     | 51.40    | 73.98    | 22.58  | PK                  |
| 15780     | 33.61             | 4.11        | Н     | 37.72    | 53.98    | 16.26  | AV                  |

Band: UNII 2A
Operation Mode: 802.11 a
Transfer Rate: 6 Mbps
Operating Frequency 5300 MHz
Channel No. 60 Ch

| Frequency | Measured<br>Value | CL+AF+DF-AG | POL   | Total    | Limit    | Margin | Measurement<br>Type |
|-----------|-------------------|-------------|-------|----------|----------|--------|---------------------|
| [MHz]     | [dBµV]            | [dB/m]      | [H/V] | [dBµV/m] | [dBµV/m] | [dB]   | .,,,,               |
| 10600     | 49.61             | 4.79        | V     | 54.40    | 73.98    | 19.58  | PK                  |
| 10600     | 32.45             | 4.79        | V     | 37.24    | 53.98    | 16.74  | AV                  |
| 15900     | 47.00             | 5.90        | V     | 52.90    | 73.98    | 21.08  | PK                  |
| 15900     | 33.09             | 5.90        | V     | 38.99    | 53.98    | 14.99  | AV                  |
| 10600     | 49.81             | 4.79        | Н     | 54.60    | 73.98    | 19.38  | PK                  |
| 10600     | 32.72             | 4.79        | Н     | 37.51    | 53.98    | 16.47  | AV                  |
| 15900     | 46.62             | 5.90        | Н     | 52.52    | 73.98    | 21.46  | PK                  |
| 15900     | 32.75             | 5.90        | Н     | 38.65    | 53.98    | 15.33  | AV                  |

F-TP22-03 (Rev.00) 1 9 9 / 231 **HCT CO.,LTD.** 



Band: UNII 2A
Operation Mode: 802.11 a
Transfer Rate: 6 Mbps

Operating Frequency 5320 MHz

Channel No. 64 Ch

| Frequency | Measured<br>Value | CL+AF+DF-AG | POL   | Total    | Limit    | Margin | Measurement<br>Type |
|-----------|-------------------|-------------|-------|----------|----------|--------|---------------------|
| [MHz]     | [dBµV]            | [dB/m]      | [H/V] | [dBµV/m] | [dBµV/m] | [dB]   |                     |
| 10640     | 51.33             | 4.36        | V     | 55.69    | 73.98    | 18.29  | PK                  |
| 10640     | 38.27             | 4.36        | V     | 42.63    | 53.98    | 11.35  | AV                  |
| 15960     | 48.39             | 4.80        | V     | 53.19    | 73.98    | 20.79  | PK                  |
| 15960     | 33.63             | 4.80        | V     | 38.43    | 53.98    | 15.55  | AV                  |
| 10640     | 51.53             | 4.36        | Н     | 55.89    | 73.98    | 18.09  | PK                  |
| 10640     | 38.39             | 4.36        | Н     | 42.75    | 53.98    | 11.23  | AV                  |
| 15960     | 48.31             | 4.80        | Н     | 53.11    | 73.98    | 20.87  | PK                  |
| 15960     | 33.51             | 4.80        | Н     | 38.31    | 53.98    | 15.67  | AV                  |

Band: UNII 2C

Operation Mode: 802.11 a

Transfer Rate: 6 Mbps

Operating Frequency 5500 MHz

Channel No. 100 Ch

| Frequency | Measured<br>Value | CL+AF+DF-AG | POL   | Total    | Limit    | Margin | Measurement<br>Type |
|-----------|-------------------|-------------|-------|----------|----------|--------|---------------------|
| [MHz]     | [dBµV]            | [dB/m]      | [H/V] | [dBµV/m] | [dBµV/m] | [dB]   | 31.                 |
| 11000     | 49.28             | 4.35        | V     | 53.63    | 73.98    | 20.35  | PK                  |
| 11000     | 38.58             | 4.35        | V     | 42.93    | 53.98    | 11.05  | AV                  |
| 16500     | 46.82             | 7.38        | V     | 54.20    | 68.20    | 14.00  | PK                  |
| 11000     | 50.51             | 4.35        | Н     | 54.86    | 73.98    | 19.12  | PK                  |
| 11000     | 39.29             | 4.35        | Н     | 43.64    | 53.98    | 10.34  | AV                  |
| 16500     | 46.69             | 7.38        | Н     | 54.07    | 68.20    | 14.13  | PK                  |

F-TP22-03 (Rev.00) 2 0 0 / 231 **HCT CO.,LTD.** 



Band: UNII 2C
Operation Mode: 802.11 a
Transfer Rate: 6 Mbps

Operating Frequency 5600 MHz

Channel No. 120 Ch

| Frequency | Measured<br>Value | CL+AF+DF-AG | POL   | Total    | Limit    | Margin | Measurement<br>Type |
|-----------|-------------------|-------------|-------|----------|----------|--------|---------------------|
| [MHz]     | [dBµV]            | [dB/m]      | [H/V] | [dBµV/m] | [dBµV/m] | [dB]   |                     |
| 11200     | 49.32             | 6.03        | V     | 55.35    | 73.98    | 18.63  | PK                  |
| 11200     | 38.51             | 6.03        | V     | 44.54    | 53.98    | 9.44   | AV                  |
| 16800     | 46.20             | 8.76        | V     | 54.96    | 68.20    | 13.24  | PK                  |
| 11200     | 50.30             | 6.03        | Н     | 56.33    | 73.98    | 17.65  | PK                  |
| 11200     | 38.83             | 6.03        | Н     | 44.86    | 53.98    | 9.12   | AV                  |
| 16800     | 45.94             | 8.76        | Н     | 54.70    | 68.20    | 13.50  | PK                  |

Band : UNII 2C

Operation Mode: 802.11 a

5720 MHz

Transfer Rate: 6 Mbps

Operating Frequency

Channel No. 144 Ch

| Frequency | Measured<br>Value | CL+AF+DF-AG | POL   | Total    | Limit    | Margin | Measurement<br>Type |
|-----------|-------------------|-------------|-------|----------|----------|--------|---------------------|
| [MHz]     | [dBµV]            | [dB/m]      | [H/V] | [dBµV/m] | [dBµV/m] | [dB]   | Турс                |
| 11440     | 49.14             | 4.52        | V     | 53.66    | 73.98    | 20.32  | PK                  |
| 11440     | 37.32             | 4.52        | V     | 41.84    | 53.98    | 12.14  | AV                  |
| 17160     | 46.27             | 8.48        | V     | 54.75    | 68.20    | 13.45  | PK                  |
| 11440     | 49.21             | 4.52        | Н     | 53.73    | 73.98    | 20.25  | PK                  |
| 11440     | 37.47             | 4.52        | Н     | 41.99    | 53.98    | 11.99  | AV                  |
| 17160     | 46.52             | 8.48        | Н     | 55.00    | 68.20    | 13.20  | PK                  |

F-TP22-03 (Rev.00) 2 0 1 / 231 **HCT CO.,LTD.** 



 Band :
 UNII 3

 Operation Mode:
 802.11 a

 Transfer Rate:
 6 Mbps

 Operating Frequency
 5745MHz

Channel No. 149 Ch

| Frequency | Measured<br>Value | CL+AF+DF-AG | POL   | Total    | Limit    | Margin | Measurement<br>Type |
|-----------|-------------------|-------------|-------|----------|----------|--------|---------------------|
| [MHz]     | [dBµV]            | [dB/m]      | [H/V] | [dBµV/m] | [dBµV/m] | [dB]   | 1900                |
| 11490     | 48.11             | 4.48        | V     | 52.59    | 73.98    | 21.39  | PK                  |
| 11490     | 36.42             | 4.48        | V     | 40.90    | 53.98    | 13.08  | AV                  |
| 17235     | 46.87             | 9.67        | V     | 56.54    | 68.20    | 11.66  | PK                  |
| 11490     | 48.36             | 4.48        | Н     | 52.84    | 73.98    | 21.14  | PK                  |
| 11490     | 36.58             | 4.48        | Н     | 41.06    | 53.98    | 12.92  | AV                  |
| 17235     | 46.94             | 9.67        | Н     | 56.61    | 68.20    | 11.59  | PK                  |

Band: UNII 3

Operation Mode: 802.11 a

Transfer Rate: 6 Mbps

Operating Frequency 5785 MHz

Channel No. 157 Ch

| Frequency | Measured<br>Value | CL+AF+DF-AG | POL   | Total    | Limit    | Margin | Measurement<br>Type |
|-----------|-------------------|-------------|-------|----------|----------|--------|---------------------|
| [MHz]     | [dBµV]            | [dB/m]      | [H/V] | [dBµV/m] | [dBµV/m] | [dB]   | Турс                |
| 11570     | 47.36             | 5.01        | V     | 52.37    | 73.98    | 21.61  | PK                  |
| 11570     | 35.38             | 5.01        | V     | 40.39    | 53.98    | 13.59  | AV                  |
| 17355     | 46.59             | 9.97        | V     | 56.56    | 68.20    | 11.64  | PK                  |
| 11570     | 47.89             | 5.01        | Н     | 52.90    | 73.98    | 21.08  | PK                  |
| 11570     | 35.46             | 5.01        | Н     | 40.47    | 53.98    | 13.51  | AV                  |
| 17355     | 46.74             | 9.97        | Н     | 56.71    | 68.20    | 11.49  | PK                  |

F-TP22-03 (Rev.00) 2 0 2 / 231 **HCT CO.,LTD.** 



Band: UNII 3

Operation Mode: 802.11 a

Transfer Rate: 6 Mbps

Operating Frequency 5825 MHz

Channel No. 165 Ch

| Frequency [MHz] | Measured<br>Value<br>[dBµV] | CL+AF+DF-AG [dB/m] | POL<br>[H/V] | Total | Limit<br>[dBµV/m] | Margin<br>[dB] | Measurement<br>Type |
|-----------------|-----------------------------|--------------------|--------------|-------|-------------------|----------------|---------------------|
| 11650           | 47.99                       | 4.94               | V            | 52.93 | 73.98             | 21.05          | PK                  |
| 11650           | 35.57                       | 4.94               | V            | 40.51 | 53.98             | 13.47          | AV                  |
| 17475           | 47.59                       | 10.07              | V            | 57.66 | 68.20             | 10.54          | PK                  |
| 11650           | 48.24                       | 4.94               | Н            | 53.18 | 73.98             | 20.80          | PK                  |
| 11650           | 35.73                       | 4.94               | Н            | 40.67 | 53.98             | 13.31          | AV                  |
| 17475           | 47.85                       | 10.07              | Н            | 57.92 | 68.20             | 10.28          | PK                  |

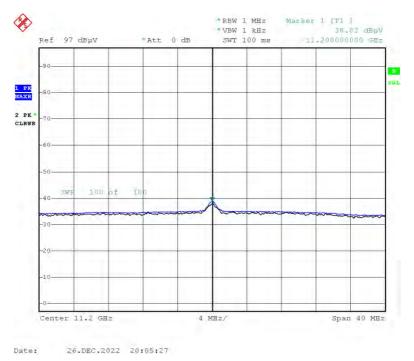
F-TP22-03 (Rev.00) 2 0 3 / 231 **HCT CO.,LTD.** 



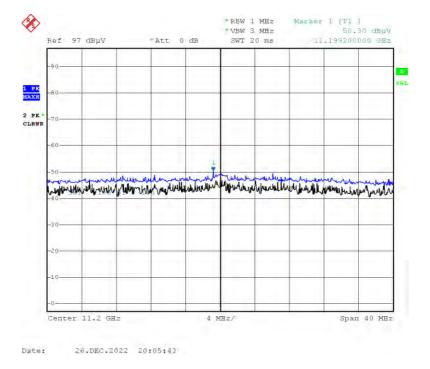
#### **■ Test Plots**

# [Ant.1&Ant.2\_MIMO(CDD)]

Radiated Spurious Emissions plot – Average Result (802.11a, Ch.120, 2nd, Spurious Emissions, Y-H)



Radiated Spurious Emissions plot – Peak Result (802.11a, Ch.120, 2nd, Spurious Emissions, Y-H)



#### Note:

Only the worst case plots for Radiated Spurious Emissions.

F-TP22-03 (Rev.00) 2 0 4 / 231 **HCT CO.,LTD.** 



## 10.9 RADIATED RESTRICTED BAND EDGE

[MIMO]

Band: UNII 1

Operation Mode: 802.11 a

Transfer Rate: 6 Mbps

Operating Frequency 5180 MHz

Channel No. 36 Ch

| Frequency | Measured<br>Value | Duty Cycle<br>Factor | CL+AF+DF | ANT. POL | Total    | Limit    | Margin | Measurement<br>Type |
|-----------|-------------------|----------------------|----------|----------|----------|----------|--------|---------------------|
| [MHz]     | [dBµV]            | [dB]                 | [dB/m]   | [H/V]    | [dBµV/m] | [dBµV/m] | [dB]   |                     |
| 5150      | 25.94             | 0.00                 | 42.01    | Н        | 67.94    | 73.98    | 6.04   | PK                  |
| 5150      | 3.51              | 0.38                 | 42.01    | Н        | 45.90    | 53.98    | 8.08   | AV                  |
| 5150      | 26.02             | 0.00                 | 42.01    | V        | 68.02    | 73.98    | 5.96   | PK                  |
| 5150      | 3.57              | 0.38                 | 42.01    | V        | 45.96    | 53.98    | 8.02   | AV                  |

Band: UNII 2A

Operation Mode: 802.11 a

Transfer Rate: 6 Mbps

Operating Frequency 5320 MHz

Channel No. 64 Ch

| Frequency [MHz] | Measured<br>Value<br>[dBµV] | Duty Cycle<br>Factor<br>[dB] | CL+AF+DF<br>[dB/m] | ANT. POL | Total<br>[dBµV/m] | Limit<br>[dBµV/m] | Margin | Measurement<br>Type |
|-----------------|-----------------------------|------------------------------|--------------------|----------|-------------------|-------------------|--------|---------------------|
| 5350            | 25.54                       | 0.00                         | 41.76              | Н        | 67.30             | 73.98             | 6.68   | PK                  |
| 5350            | 1.69                        | 0.38                         | 41.76              | Н        | 43.84             | 53.98             | 10.14  | AV                  |
| 5350            | 25.61                       | 0.00                         | 41.76              | V        | 67.38             | 73.98             | 6.60   | PK                  |
| 5350            | 1.74                        | 0.38                         | 41.76              | V        | 43.88             | 53.98             | 10.10  | AV                  |

F-TP22-03 (Rev.00) 2 0 5 / 231 **HCT CO.,LTD.** 



Band: UNII 2C

Operation Mode: 802.11 a

Transfer Rate: 6 Mbps

Operating Frequency 5500 MHz

Channel No. 100 Ch

| Frequency | Measured<br>Value | Duty Cycle<br>Factor | CL+AF+DF | ANT. POL | Total    | Limit    | Margin | Measurement<br>Type |
|-----------|-------------------|----------------------|----------|----------|----------|----------|--------|---------------------|
| [MHz]     | [dBµV]            | [dB]                 | [dB/m]   | [H/V]    | [dBµV/m] | [dBµV/m] | [dB]   | . 700               |
| 5460      | 47.33             | 0.00                 | 12.60    | Н        | 59.93    | 73.98    | 14.05  | PK                  |
| 5460      | 35.14             | 0.38                 | 12.60    | Н        | 48.12    | 53.98    | 5.86   | AV                  |
| 5470      | 46.72             | 0.00                 | 12.85    | Н        | 59.57    | 68.20    | 8.63   | PK                  |
| 5460      | 47.66             | 0.00                 | 12.60    | V        | 60.26    | 73.98    | 13.72  | PK                  |
| 5460      | 35.72             | 0.38                 | 12.60    | V        | 48.70    | 53.98    | 5.28   | AV                  |
| 5470      | 47.93             | 0.00                 | 12.85    | V        | 60.78    | 68.20    | 7.42   | PK                  |

F-TP22-03 (Rev.00) 2 0 6 / 231 **HCT CO.,LTD.** 



Band: UNII 1

Operation Mode: 802.11 n\_HT20

Transfer MCS Index: 8

Operating Frequency 5180 MHz

Channel No. 36 Ch

| Frequency | Measured<br>Value | Duty Cycle<br>Factor | CL+AF+DF | ANT. POL | Total    | Limit    | Margin | Measurement<br>Type |
|-----------|-------------------|----------------------|----------|----------|----------|----------|--------|---------------------|
| [MHz]     | [dBµV]            | [dB]                 | [dB/m]   | [H/V]    | [dBµV/m] | [dBµV/m] | [dB]   |                     |
| 5150      | 26.92             | 0.00                 | 42.01    | Н        | 68.93    | 73.98    | 5.05   | PK                  |
| 5150      | 8.44              | 0.58                 | 42.01    | Н        | 51.02    | 53.98    | 2.96   | AV                  |
| 5150      | 26.31             | 0.00                 | 42.01    | V        | 68.31    | 73.98    | 5.67   | PK                  |
| 5150      | 8.52              | 0.58                 | 42.01    | V        | 51.10    | 53.98    | 2.88   | AV                  |

Band: UNII 2A

Operation Mode: 802.11 n\_HT20

Transfer MCS Index: 8

Operating Frequency 5320 MHz

Channel No. 64 Ch

| Frequency | Measured<br>Value | Duty Cycle<br>Factor | CL+AF+DF | ANT. POL | Total    | Limit    | Margin | Measurement<br>Type |
|-----------|-------------------|----------------------|----------|----------|----------|----------|--------|---------------------|
| [MHz]     | [dBµV]            | [dB]                 | [dB/m]   | [H/V]    | [dBµV/m] | [dBµV/m] | [dB]   |                     |
| 5350      | 25.42             | 0.00                 | 41.76    | Н        | 67.18    | 73.98    | 6.80   | PK                  |
| 5350      | 0.64              | 0.58                 | 41.76    | Н        | 42.98    | 53.98    | 11.00  | AV                  |
| 5350      | 25.78             | 0.00                 | 41.76    | V        | 67.55    | 73.98    | 6.43   | PK                  |
| 5350      | 0.93              | 0.58                 | 41.76    | V        | 43.27    | 53.98    | 10.71  | AV                  |

F-TP22-03 (Rev.00) 2 0 7 / 231 **HCT CO.,LTD.** 



Band: UNII 2C

Operation Mode: 802.11 n\_HT20

Transfer MCS Index: 8

Operating Frequency 5500 MHz

Channel No. 100 Ch

| Frequency [MHz] | Measured<br>Value<br>[dBµV] | Duty Cycle<br>Factor<br>[dB] | CL+AF+DF | ANT. POL | Total      | Limit<br>[dBµV/m] | Margin<br>[dB] | Measurement<br>Type |
|-----------------|-----------------------------|------------------------------|----------|----------|------------|-------------------|----------------|---------------------|
| [IVITIZ]        | [авруј                      | [ub]                         | [ub/III] | [[, 4]   | [ασμν/ιιι] | [ubµv/iii]        | լսեյ           |                     |
| 5460            | 47.52                       | 0.00                         | 12.60    | Н        | 60.12      | 73.98             | 13.86          | PK                  |
| 5460            | 34.32                       | 0.58                         | 12.60    | Н        | 47.49      | 53.98             | 6.49           | AV                  |
| 5470            | 48.00                       | 0.00                         | 12.85    | Н        | 60.85      | 68.20             | 7.35           | PK                  |
| 5460            | 47.65                       | 0.00                         | 12.60    | V        | 60.25      | 73.98             | 13.73          | PK                  |
| 5460            | 35.05                       | 0.58                         | 12.60    | V        | 48.22      | 53.98             | 5.76           | AV                  |
| 5470            | 48.52                       | 0.00                         | 12.85    | V        | 61.37      | 68.20             | 6.83           | PK                  |

F-TP22-03 (Rev.00) 2 0 8 / 231 **HCT CO.,LTD.** 



Band: UNII 1

Operation Mode: 802.11 ac\_VHT20

Transfer MCS Index: 0

Operating Frequency 5180 MHz

Channel No. 36 Ch

| Frequency [MHz] | Measured<br>Value<br>[dBµV] | Duty Cycle<br>Factor<br>[dB] | CL+AF+DF | ANT. POL | Total | Limit<br>[dBµV/m] | Margin | Measurement<br>Type |
|-----------------|-----------------------------|------------------------------|----------|----------|-------|-------------------|--------|---------------------|
| 5150            | 27.63                       | 0.00                         | 42.01    | H        | 69.64 | 73.98             | 4.34   | PK                  |
| 5150            | 1.22                        | 1.25                         | 42.01    | Н        | 44.47 | 53.98             | 9.51   | AV                  |
| 5150            | 27.72                       | 0.00                         | 42.01    | V        | 69.73 | 73.98             | 4.25   | PK                  |
| 5150            | 1.28                        | 1.25                         | 42.01    | V        | 44.53 | 53.98             | 9.45   | AV                  |

Band: UNII 2A

Operation Mode: 802.11 ac\_VHT20

Transfer MCS Index: 0

Operating Frequency 5320 MHz

Channel No. 64 Ch

| Frequency | Measured<br>Value | Duty Cycle<br>Factor | CL+AF+DF | ANT. POL | Total    | Limit    | Margin | Measurement<br>Type |
|-----------|-------------------|----------------------|----------|----------|----------|----------|--------|---------------------|
| [MHz]     | [dBµV]            | [dB]                 | [dB/m]   | [H/V]    | [dBµV/m] | [dBµV/m] | [dB]   | Туре                |
| 5350      | 25.65             | 0.00                 | 41.76    | Н        | 67.41    | 73.98    | 6.57   | PK                  |
| 5350      | -0.76             | 1.25                 | 41.76    | Н        | 42.25    | 53.98    | 11.73  | AV                  |
| 5350      | 25.78             | 0.00                 | 41.76    | V        | 67.54    | 73.98    | 6.44   | PK                  |
| 5350      | -0.63             | 1.25                 | 41.76    | V        | 42.38    | 53.98    | 11.60  | AV                  |

F-TP22-03 (Rev.00) 2 0 9 / 231 **HCT CO.,LTD.** 



Band: UNII 2C

Operation Mode: 802.11 ac\_VHT20

Transfer MCS Index: 0

Operating Frequency 5500 MHz

Channel No. 100 Ch

| Frequency [MHz] | Measured<br>Value<br>[dBµV] | Duty Cycle<br>Factor<br>[dB] | CL+AF+DF | ANT. POL | Total | Limit | Margin<br>[dB] | Measurement<br>Type |
|-----------------|-----------------------------|------------------------------|----------|----------|-------|-------|----------------|---------------------|
| 5460            | 47.63                       | 0.00                         | 12.60    | Н        | 60.23 | 73.98 | 13.75          | PK                  |
| 5460            | 35.49                       | 1.25                         | 12.60    | H        | 49.33 | 53.98 | 4.65           | AV                  |
| 5470            | 48.54                       | 0.00                         | 12.85    | Н        | 61.39 | 68.20 | 6.81           | PK                  |
| 5460            | 47.79                       | 0.00                         | 12.60    | V        | 60.39 | 73.98 | 13.59          | PK                  |
| 5460            | 35.92                       | 1.25                         | 12.60    | V        | 49.76 | 53.98 | 4.22           | AV                  |
|                 |                             |                              |          |          |       |       |                |                     |
| 5470            | 48.99                       | 0.00                         | 12.85    | V        | 61.84 | 68.20 | 6.36           | PK                  |

F-TP22-03 (Rev.00) 2 1 0 / 231 **HCT CO.,LTD.** 



Band: UNII 1

Operation Mode: 802.11 n\_HT40

Transfer MCS Index: 8

Operating Frequency 5190 MHz

Channel No. 38 Ch

| Frequency [MHz] | Measured<br>Value<br>[dBµV] | Duty Cycle<br>Factor<br>[dB] | CL+AF+DF<br>[dB/m] | ANT. POL | Total<br>[dBµV/m] | Limit<br>[dBµV/m] | Margin<br>[dB] | Measurement<br>Type |
|-----------------|-----------------------------|------------------------------|--------------------|----------|-------------------|-------------------|----------------|---------------------|
| 5150            | 26.15                       | 0.00                         | 42.01              | Н        | 68.16             | 73.98             | 5.82           | PK                  |
| 5150            | 1.42                        | 0.68                         | 42.01              | Н        | 44.11             | 53.98             | 9.87           | AV                  |
| 5150            | 26.29                       | 0.00                         | 42.01              | V        | 68.29             | 73.98             | 5.69           | PK                  |
| 5150            | 1.52                        | 0.68                         | 42.01              | V        | 44.20             | 53.98             | 9.78           | AV                  |

Band: UNII 2A

Operation Mode: 802.11 n\_HT40

Transfer MCS Index: 8

Operating Frequency 5310 MHz

Channel No. 62 Ch

| Frequency | Measured<br>Value | Duty Cycle<br>Factor | CL+AF+DF | ANT. POL | Total    | Limit    | Margin | Measurement<br>Type |
|-----------|-------------------|----------------------|----------|----------|----------|----------|--------|---------------------|
| [MHz]     | [dBµV]            | [dB]                 | [dB/m]   | [H/V]    | [dBµV/m] | [dBµV/m] | [dB]   | туре                |
| 5350      | 26.68             | 0.00                 | 41.76    | Н        | 68.44    | 73.98    | 5.54   | PK                  |
| 5350      | 0.52              | 0.68                 | 41.76    | Н        | 42.97    | 53.98    | 11.01  | AV                  |
| 5350      | 26.97             | 0.00                 | 41.76    | V        | 68.74    | 73.98    | 5.24   | PK                  |
| 5350      | 0.54              | 0.68                 | 41.76    | V        | 42.98    | 53.98    | 11.00  | AV                  |

F-TP22-03 (Rev.00) 2 1 1 / 231 **HCT CO.,LTD.** 



Band: UNII 2C

Operation Mode: 802.11 n\_HT40

Transfer MCS Index: 8

Operating Frequency 5510 MHz

Channel No. 102 Ch

| Frequency | Measured<br>Value | Duty Cycle<br>Factor | CL+AF+DF | ANT. POL | Total    | Limit    | Margin | Measurement<br>Type |
|-----------|-------------------|----------------------|----------|----------|----------|----------|--------|---------------------|
| [MHz]     | [dBµV]            | [dB]                 | [dB/m]   | [H/V]    | [dBµV/m] | [dBµV/m] | [dB]   | туре                |
| 5460      | 45.24             | 0.00                 | 12.60    | Н        | 57.84    | 73.98    | 16.14  | PK                  |
| 5460      | 33.54             | 0.68                 | 12.60    | Н        | 46.82    | 53.98    | 7.16   | AV                  |
| 5470      | 46.07             | 0.00                 | 12.85    | Н        | 58.92    | 68.20    | 9.28   | PK                  |
| 5460      | 45.86             | 0.00                 | 12.60    | V        | 58.46    | 73.98    | 15.52  | PK                  |
| 5460      | 33.83             | 0.68                 | 12.60    | V        | 47.11    | 53.98    | 6.87   | AV                  |
| 5470      | 46.39             | 0.00                 | 12.85    | V        | 59.24    | 68.20    | 8.96   | PK                  |

F-TP22-03 (Rev.00) 2 1 2 / 231 **HCT CO.,LTD.** 



Band: UNII 1

Operation Mode: 802.11 ac\_VHT40

Transfer MCS Index: 0

Operating Frequency 5190 MHz

Channel No. 38 Ch

| Frequency | Measured<br>Value | Duty Cycle<br>Factor | CL+AF+DF | ANT. POL | Total    | Limit    | Margin | Measurement<br>Type |
|-----------|-------------------|----------------------|----------|----------|----------|----------|--------|---------------------|
| [MHz]     | [dBµV]            | [dB]                 | [dB/m]   | [H/V]    | [dBµV/m] | [dBµV/m] | [dB]   | . 360               |
| 5150      | 26.19             | 0.00                 | 42.01    | Н        | 68.19    | 73.98    | 5.79   | PK                  |
| 5150      | 0.12              | 1.31                 | 42.01    | Н        | 43.43    | 53.98    | 10.55  | AV                  |
| 5150      | 26.29             | 0.00                 | 42.01    | V        | 68.30    | 73.98    | 5.68   | PK                  |
| 5150      | 0.15              | 1.31                 | 42.01    | V        | 43.47    | 53.98    | 10.51  | AV                  |

Band: UNII 2A

Operation Mode: 802.11 ac\_VHT40

Transfer MCS Index: 0

Operating Frequency 5310 MHz

Channel No. 62 Ch

| Frequency | Measured<br>Value | Duty Cycle<br>Factor | CL+AF+DF | ANT. POL | Total    | Limit    | Margin | Measurement<br>Type |
|-----------|-------------------|----------------------|----------|----------|----------|----------|--------|---------------------|
| [MHz]     | [dBµV]            | [dB]                 | [dB/m]   | [H/V]    | [dBµV/m] | [dBµV/m] | [dB]   | Туре                |
| 5350      | 24.94             | 0.00                 | 41.76    | Н        | 66.70    | 73.98    | 7.28   | PK                  |
| 5350      | -0.63             | 1.31                 | 41.76    | Н        | 42.45    | 53.98    | 11.53  | AV                  |
| 5350      | 25.30             | 0.00                 | 41.76    | V        | 67.06    | 73.98    | 6.92   | PK                  |
| 5350      | -0.51             | 1.31                 | 41.76    | V        | 42.57    | 53.98    | 11.41  | AV                  |

F-TP22-03 (Rev.00) 2 1 3 / 231 **HCT CO.,LTD.** 



Band: UNII 2C

Operation Mode: 802.11 ac\_VHT40

Transfer MCS Index: 0

Operating Frequency 5510 MHz

Channel No. 102 Ch

| Frequency [MHz] | Measured<br>Value<br>[dBµV] | Duty Cycle<br>Factor<br>[dB] | CL+AF+DF | ANT. POL | Total | Limit | Margin | Measurement<br>Type |
|-----------------|-----------------------------|------------------------------|----------|----------|-------|-------|--------|---------------------|
|                 |                             |                              |          |          |       |       |        | DIC                 |
| 5460            | 45.93                       | 0.00                         | 12.60    | Н        | 58.53 | 73.98 | 15.45  | PK                  |
| 5460            | 33.75                       | 1.31                         | 12.60    | Н        | 47.66 | 53.98 | 6.32   | AV                  |
| 5470            | 45.03                       | 0.00                         | 12.85    | Н        | 57.88 | 68.20 | 10.32  | PK                  |
| 5460            | 46.09                       | 0.00                         | 12.60    | V        | 58.69 | 73.98 | 15.29  | PK                  |
| 5460            | 33.88                       | 1.31                         | 12.60    | V        | 47.79 | 53.98 | 6.19   | AV                  |
| 5470            | 45.10                       | 0.00                         | 12.85    | V        | 57.95 | 68.20 | 10.25  | PK                  |

F-TP22-03 (Rev.00) 2 1 4 / 231 **HCT CO.,LTD.** 



Band: UNII 1

Operation Mode: 802.11 ac\_VHT80

Transfer MCS Index: 0

Operating Frequency 5210 MHz

Channel No. 42 Ch

| Frequency [MHz] | Measured<br>Value<br>[dBµV] | Duty Cycle<br>Factor<br>[dB] | CL+AF+DF<br>[dB/m] | ANT. POL | Total<br>[dBµV/m] | Limit<br>[dBµV/m] | Margin<br>[dB] | Measurement<br>Type |
|-----------------|-----------------------------|------------------------------|--------------------|----------|-------------------|-------------------|----------------|---------------------|
| 5150            | 26.19                       | 0.00                         | 42.01              | Н        | 68.20             | 73.98             | 5.78           | PK                  |
| 5150            | -1.73                       | 2.07                         | 42.01              | Н        | 42.35             | 53.98             | 11.63          | AV                  |
| 5150            | 26.46                       | 0.00                         | 42.01              | V        | 68.46             | 73.98             | 5.52           | PK                  |
| 5150            | -1.67                       | 2.07                         | 42.01              | V        | 42.42             | 53.98             | 11.56          | AV                  |

Band: UNII 2A

Operation Mode: 802.11 ac\_VHT80

Transfer MCS Index: 0

Operating Frequency 5290 MHz

Channel No. 58 Ch

| Frequency | Measured<br>Value | Duty Cycle<br>Factor | CL+AF+DF | ANT. POL | Total    | Limit    | Margin | Measurement |
|-----------|-------------------|----------------------|----------|----------|----------|----------|--------|-------------|
| [MHz]     | [dBµV]            | [dB]                 | [dB/m]   | [H/V]    | [dBµV/m] | [dBµV/m] | [dB]   | Туре        |
| 5350      | 27.05             | 0.00                 | 41.76    | Н        | 68.82    | 73.98    | 5.16   | PK          |
| 5350      | -0.71             | 2.07                 | 41.76    | Н        | 43.13    | 53.98    | 10.85  | AV          |
| 5350      | 27.14             | 0.00                 | 41.76    | V        | 68.91    | 73.98    | 5.07   | PK          |
| 5350      | -0.69             | 2.07                 | 41.76    | V        | 43.15    | 53.98    | 10.83  | AV          |

F-TP22-03 (Rev.00) 2 1 5 / 231 **HCT CO.,LTD.** 



Band: UNII 2C

Operation Mode: 802.11 ac\_VHT80

Transfer MCS Index: 0

Operating Frequency 5530 MHz

Channel No. 106 Ch

| Frequency | Measured<br>Value | Duty Cycle<br>Factor | CL+AF+DF | ANT. POL | Total    | Limit    | Margin | Measurement<br>Type |
|-----------|-------------------|----------------------|----------|----------|----------|----------|--------|---------------------|
| [MHz]     | [dBµV]            | [dB]                 | [dB/m]   | [H/V]    | [dBµV/m] | [dBµV/m] | [dB]   | Type                |
| 5460      | 44.51             | 0.00                 | 12.60    | Н        | 57.11    | 73.98    | 16.87  | PK                  |
| 5460      | 32.49             | 2.07                 | 12.60    | Н        | 47.16    | 53.98    | 6.82   | AV                  |
| 5470      | 43.22             | 0.00                 | 12.85    | Н        | 56.07    | 68.20    | 12.13  | PK                  |
| 5460      | 44.76             | 0.00                 | 12.60    | V        | 57.36    | 73.98    | 16.62  | PK                  |
| 5460      | 32.74             | 2.07                 | 12.60    | V        | 47.41    | 53.98    | 6.57   | AV                  |
| 5470      | 43.57             | 0.00                 | 12.85    | V        | 56.42    | 68.20    | 11.78  | PK                  |

F-TP22-03 (Rev.00) 2 1 6 / 231 **HCT CO.,LTD.** 

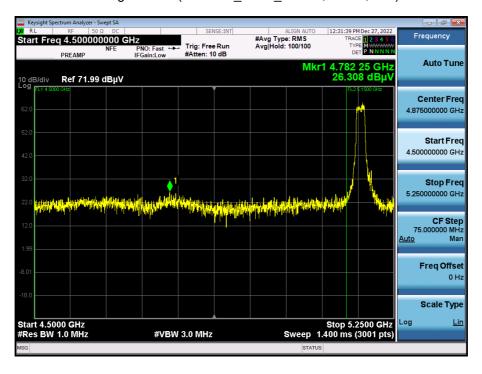


## ■ Test Plots(UNII 1, 2A, 2C) [Ant.1&Ant.2\_MIMO(CDD)]

Peak Result (802.11 n\_HT20\_ MCS8, Ch.36, Y-V)



Average Result (802.11 n\_HT20\_ MCS8, Ch.36, Y-V)



#### Note:

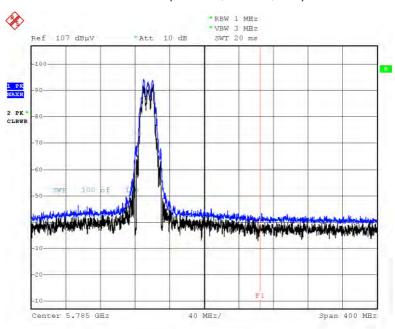
Only the worst case plots for Radiated Restricted Band Edge.

F-TP22-03 (Rev.00) 2 1 7 / 231 **HCT CO.,LTD.** 



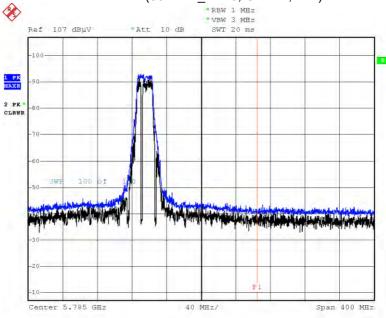
# ■ Test Plots(Straddle Channel) [MIMO]

## Peak Result (802.11a, Ch.144, Y-V)



Date: 27.DEC.2022 19:34:10

## Peak Result (802.11n\_HT20, Ch.144, Y-V)



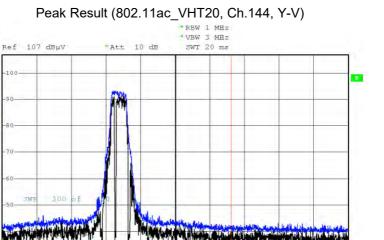
Date: 27.DEC.2022 19:35:22

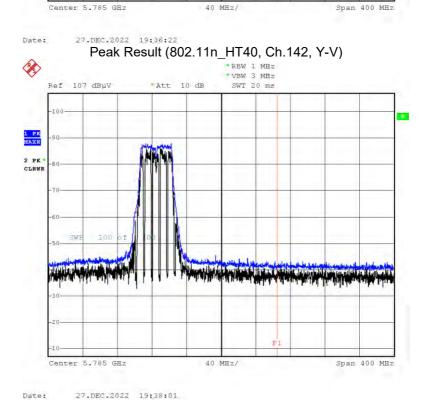
F-TP22-03 (Rev.00) 2 1 8 / 231 **HCT CO.,LTD.** 



1 PK MAXH 2 PK

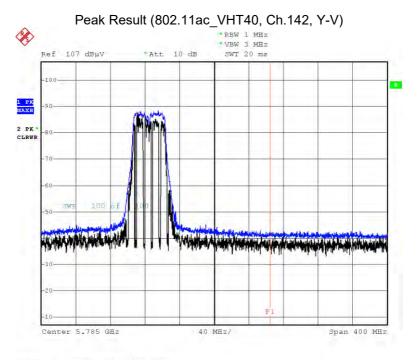
Center 5.785 GHz



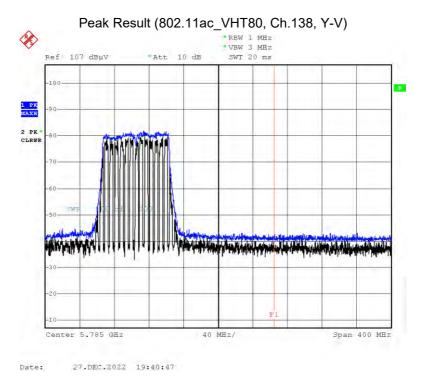


HCT CO.,LTD. F-TP22-03 (Rev.00) 2 1 9 / 231









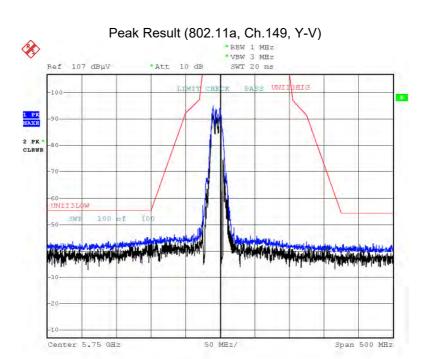
#### Note:

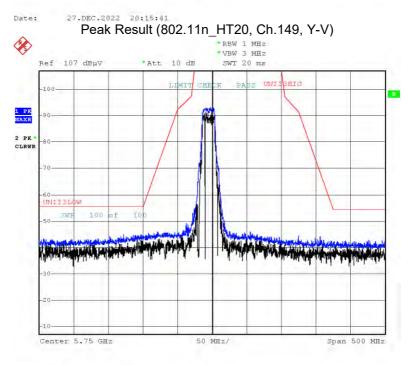
- 1. Only the worst case plots for Radiated Restricted Band Edge.
- 2. Red line: 5 850 MHz
- 3. Ambient Noise (Because of ambient noise, We attached only the worst plot without a data table)

F-TP22-03 (Rev.00) 2 2 0 / 231 HCT CO.,LTD.



# ■ Test Plots(UNII 3) [MIMO]

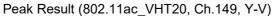


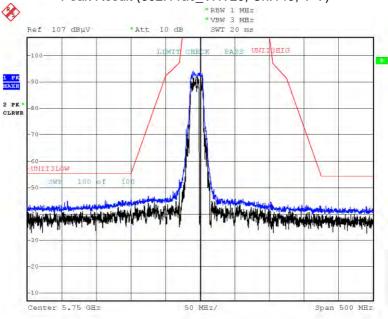


Date: 27.DEC.2022 20:20:08

F-TP22-03 (Rev.00) 2 2 1 / 231 **HCT CO.,LTD.** 

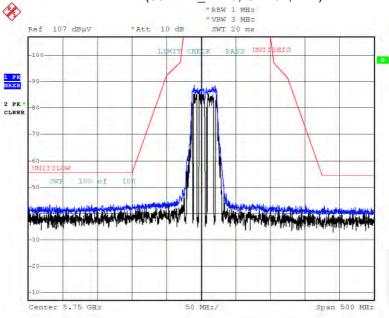






Date: 27.DEC.2022 20:18:30

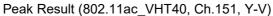
## Peak Result (802.11n\_HT40, Ch.151, Y-V)

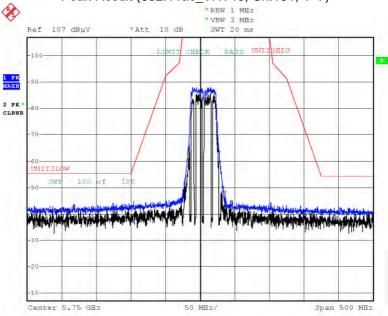


Date: 27.DEC.2022 20:21:40

F-TP22-03 (Rev.00) 2 2 2 / 231 **HCT CO.,LTD.** 

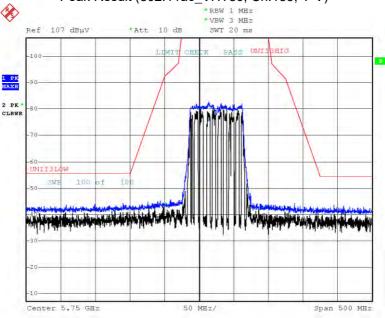






Date: 27.DEC.2022 20:23:17

## Peak Result (802.11ac\_VHT80, Ch.155, Y-V)

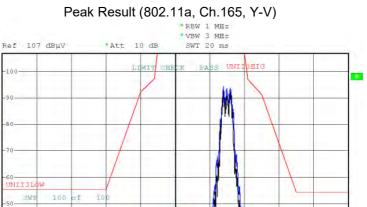


Date: 27.DEC.2022 20:09:52

F-TP22-03 (Rev.00) 2 2 3 / 231 **HCT CO.,LTD.** 



1 PK

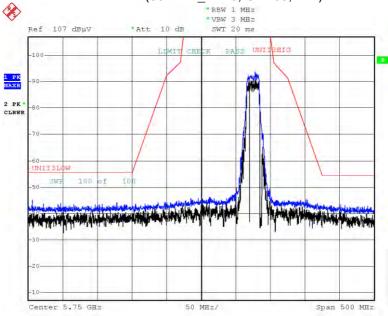


Date: 27.DEC.2022 20:11:13

Center 5.75 GHz



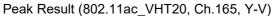
Span 500 MHz

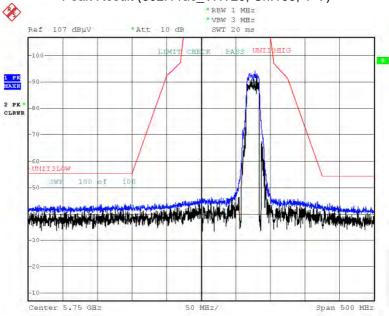


Date: 27.DEC.2022 20:12:45

F-TP22-03 (Rev.00) 2 2 4 / 231 **HCT CO.,LTD.** 

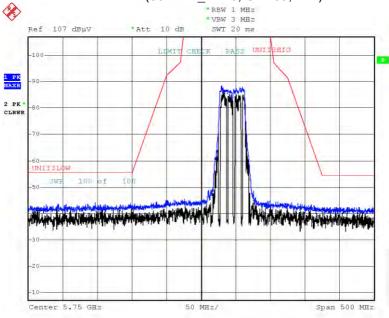






Date: 27.DEC.2022 20:14:12

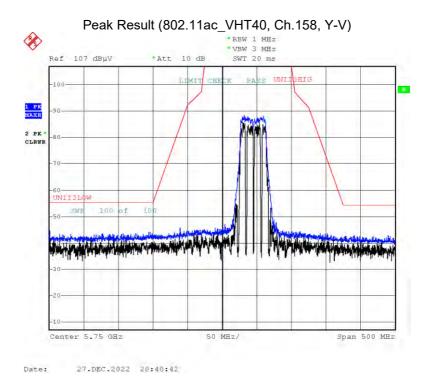
## Peak Result (802.11n\_HT40, Ch.159, Y-V)



Date: 27.DEC.2022 20:24:34

F-TP22-03 (Rev.00) 2 2 5 / 231 **HCT CO.,LTD.** 





#### Note:

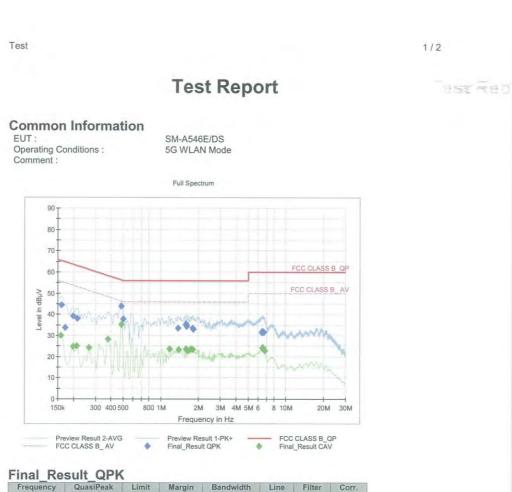
- 1. Only the worst case plots for U-NII-3 Out of Band e.i.r.p Emission.
- 2. U-NII-3 Low & High Band Edge RedLine is Final Test Limit about factor value compensation.

F-TP22-03 (Rev.00) 2 2 6 / 231 **HCT CO.,LTD.** 



### **10.10 POWERLINE CONDUCTED EMISSIONS**

## **Conducted Emissions**



| Frequency<br>(MHz) | QuasiPeak<br>(dBµV) | Limit<br>(dBµV) | Margin<br>(dB) | Bandwidth<br>(kHz) | Line | Filter | Corr.<br>(dB) |
|--------------------|---------------------|-----------------|----------------|--------------------|------|--------|---------------|
| 0.1613             | 44.48               | 65.40           | 20.92          | 9.000              | N    | OFF    | 9.6           |
| 0.1725             | 33.63               | 64.84           | 31.21          | 9.000              | L1   | OFF    | 9.7           |
| 0.1995             | 39.21               | 63.63           | 24.43          | 9.000              | N    | OFF    | 9.6           |
| 0.2153             | 38.09               | 63.00           | 24.91          | 9.000              | L1   | OFF    | 9.7           |
| 0.4830             | 43.79               | 56.29           | 12.49          | 9.000              | L1   | OFF    | 9.7           |
| 0.5000             | 37.66               | 56.00           | 18.34          | 9.000              | L1   | OFF    | 9.7           |
| 1.3798             | 33.48               | 56.00           | 22.52          | 9.000              | L1   | OFF    | 9.7           |
| 1.5935             | 35.01               | 56.00           | 20.99          | 9.000              | L1   | OFF    | 9.7           |
| 1.6003             | 35.50               | 56.00           | 20.50          | 9.000              | L1   | OFF    | 9.7           |
| 1.6048             | 34.47               | 56.00           | 21.53          | 9.000              | L1   | OFF    | 9.7           |
| 1.8050             | 33.53               | 56.00           | 22.47          | 9.000              | L1   | OFF    | 9.7           |
| 1.8163             | 32.85               | 56.00           | 23.15          | 9.000              | L1   | OFF    | 9.7           |
| 6.4355             | 31.57               | 60.00           | 28.43          | 9.000              | L1   | OFF    | 9.9           |
| 6.5120             | 32.10               | 60.00           | 27.90          | 9.000              | L1   | OFF    | 9.9           |
| 6.5278             | 31.93               | 60.00           | 28.07          | 9.000              | L1   | OFF    | 9.9           |
| 6.5413             | 31.78               | 60.00           | 28.22          | 9.000              | L1   | OFF    | 9.9           |
| 6.6313             | 31.31               | 60.00           | 28.69          | 9.000              | L1   | OFF    | 9.9           |
| 6.6718             | 31.70               | 60.00           | 28.30          | 9.000              | L1   | OFF    | 9.9           |



Test 2/2

## Final\_Result\_CAV

| Frequency<br>(MHz) | CAverage<br>(dBµV) | Limit<br>(dBµV) | Margin<br>(dB) | Bandwidth<br>(kHz) | Line | Filter | Corr.<br>(dB) |
|--------------------|--------------------|-----------------|----------------|--------------------|------|--------|---------------|
| 0.1590             | 30.11              | 55.52           | 25.41          | 9.000              | L1   | OFF    | 9.7           |
| 0.1995             | 24.80              | 53.63           | 28.84          | 9.000              | L1   | OFF    | 9.7           |
| 0.2130             | 25.10              | 53.09           | 27.99          | 9.000              | L1   | OFF    | 9.7           |
| 0.2670             | 24.35              | 51.21           | 26.87          | 9.000              | L1   | OFF    | 9.7           |
| 0.3773             | 28.34              | 48.34           | 20.00          | 9.000              | L1   | OFF    | 9.7           |
| 0.4853             | 35.11              | 46.25           | 11.14          | 9.000              | L1   | OFF    | 9.7           |
| 1.1705             | 23.63              | 46.00           | 22.37          | 9.000              | L1   | OFF    | 9.7           |
| 1.3865             | 23.48              | 46.00           | 22.52          | 9.000              | L1   | OFF    | 9.7           |
| 1.5980             | 23.73              | 46.00           | 22.27          | 9.000              | L1   | OFF    | 9.7           |
| 1.6520             | 22.86              | 46.00           | 23.14          | 9.000              | L1   | OFF    | 9.7           |
| 1.7398             | 23.62              | 46.00           | 22.38          | 9.000              | L1   | OFF    | 9.7           |
| 1.7983             | 23.47              | 46.00           | 22.53          | 9.000              | L1   | OFF    | 9.7           |
| 6.4648             | 23.93              | 50.00           | 26.07          | 9.000              | L1   | OFF    | 9.9           |
| 6.5210             | 24.09              | 50.00           | 25.91          | 9.000              | L1   | OFF    | 9.9           |
| 6.5300             | 24.02              | 50.00           | 25.98          | 9.000              | L1   | OFF    | 9.9           |
| 6.5953             | 24.11              | 50.00           | 25.89          | 9.000              | L1   | OFF    | 9.9           |
| 6.6853             | 23.20              | 50.00           | 26.80          | 9.000              | L1   | OFF    | 9.9           |
| 6.7640             | 22.66              | 50.00           | 27.34          | 9.000              | L1   | OFF    | 9.9           |

F-TP22-03 (Rev.00) 2 2 8 / 231 **HCT CO.,LTD.** 



## 11. LIST OF TEST EQUIPMENT

## **Conducted Test**

| Equipment                      | Model     | Manufacturer    | Serial No. | Due to<br>Calibration | Calibration<br>Interval |
|--------------------------------|-----------|-----------------|------------|-----------------------|-------------------------|
| LISN                           | ENV216    | Rohde & Schwarz | 102245     | 08/22/2023            | Annual                  |
| EMI Test Receiver              | ESR       | Rohde & Schwarz | 101910     | 06/07/2023            | Annual                  |
| Temperature Chamber            | SU-642    | ESPEC           | 0093008124 | 03/04/2023            | Annual                  |
| Signal Analyzer                | N9030A    | Keysight        | MY55410508 | 09/06/2023            | Annual                  |
| Power Meter                    | N1911A    | Agilent         | MY45100523 | 03/24/2023            | Annual                  |
| Power Sensor                   | N1921A    | Agilent         | MY57820067 | 03/24/2023            | Annual                  |
| Directional Coupler            | 87300B    | Agilent         | 3116A03621 | 11/02/2023            | Annual                  |
| Power Splitter                 | 11667B    | Hewlett Packard | 10545      | 02/03/2023            | Annual                  |
| DC Power Supply                | E3632A    | Agilent         | KR75305528 | 01/03/2024            | Annual                  |
| Attenuator(10 dB)(DC-26.5 GHz) | 8493C-010 | Agilent         | 08285      | 06/21/2023            | Annual                  |
| Attenuator(20 dB)              | 18N-20dB  | Rohde & Schwarz | 8          | 03/07/2023            | Annual                  |
| Software                       | EMC32     | Rohde & Schwarz | N/A        | N/A                   | N/A                     |
| FCC WLAN&BT&BLE Conducted      |           | HCT CO., LTD.   | N/A        | N/A                   | N/A                     |
| Test Software v3.0             | N/A       |                 |            |                       |                         |
| Bluetooth Tester               | СВТ       | Rohde & Schwarz | 100808     | 02/22/2023            | Annual                  |

### Note:

- 1. Equipment listed above that calibrated during the testing period was set for test after the calibration.
- 2. Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.

F-TP22-03 (Rev.00) 2 2 9 / 231 **HCT CO.,LTD.** 



## **Radiated Test**

| Equipment                           | Model                                    | Manufacturer              | Serial No.  | Due to<br>Calibration | Calibration<br>Interval |
|-------------------------------------|--|---------------------------|-------------|-----------------------|-------------------------|
| Controller(Antenna mast)            | CO3000                                   | Innco system              | CO3000-4p   | N/A                   | N/A                     |
| Antenna Position Tower              | MA4640/800-XP-EP                         | Innco system              | N/A         | N/A                   | N/A                     |
| Controller                          | EM2090                                   | Emco                      | 060520      | N/A                   | N/A                     |
| Turn Table                          | N/A                                      | Ets                       | N/A         | N/A                   | N/A                     |
| Loop Antenna                        | FMZB 1513                                | Rohde & Schwarz           | 1513-333    | 03/17/2024            | Biennial                |
| Hybrid Antenna                      | VULB 9168                                | Schwarzbeck               | 9168-0895   | 08/16/2024            | Biennial                |
| Horn Antenna                        | BBHA 9120D                               | Schwarzbeck               | 9120D-1191  | 11/18/2023            | Biennial                |
| Horn Antenna(15 GHz ~ 40 GHz)       | BBHA9170                                 | Schwarzbeck               | BBHA9170124 | 04/12/2023            | Biennial                |
| Amp & Filter Bank Switch Controller | FBSM-01A                                 | TNM system                | 0           | N/A                   | N/A                     |
| Band Reject Filter                  | WRCJV2400/2483.5-<br>2370/2520-60/12SS   | Wainwright<br>Instruments | 2           | 01/05/2024            | Annual                  |
| Band Reject Filter                  | WRCJV12-4900-<br>5100-5900-6100-<br>50SS | Wainwright<br>Instruments | 5           | 06/13/2023            | Annual                  |
| Band Reject Filter                  | WRCJV12-4900-<br>5100-5900-6100-<br>50SS | Wainwright<br>Instruments | 6           | 06/13/2023            | Annual                  |
| Band Reject Filter                  | WRCJV5100/5850-<br>40/50-8EEK            | Wainwright<br>Instruments | 1           | 02/07/2023            | Annual                  |
| ATT(3 dB) + LNA2(6~18 GHz)          | 18B-03,<br>CBL06185030                   | WEINSCHEL<br>CERNEX       | N/A         | 12/05/2023            | Annual                  |
| ATT(10 dB) + LNA1(0.1~18 GHz)       | 56-10,<br>CBLU1183540B-01                | Api tech,<br>CERNEX       | N/A         | 12/05/2023            | Annual                  |
| High Pass Filter                    | WHKX10-2700-3000-<br>18000-40SS          | Wainwright<br>Instruments | N/A         | 12/05/2023            | Annual                  |
| High Pass Filter                    | WHKX8-6090-7000-<br>18000-40SS           | Wainwright<br>Instruments | N/A         | 12/05/2023            | Annual                  |
| Thru                                | COAXIAL<br>ATTENUATOR                    | T&M SYSTEM                | N/A         | 12/05/2023            | Annual                  |
| Power Amplifier                     | CBL18265035                              | CERNEX                    | 22966       | 12/01/2023            | Annual                  |
| Power Amplifier                     | CBL26405040                              | CERNEX                    | 25956       | 03/11/2023            | Annual                  |
| Bluetooth Tester                    | TC-3000C                                 | TESCOM                    | 3000C000175 | 04/05/2023            | Annual                  |
| Spectrum Analyzer                   | FSP(9 kHz ~ 30<br>GHz)                   | Rohde & Schwarz           | 836650/016  | 09/06/2023            | Annual                  |
| Spectrum Analyzer                   | FSV40-N(9 kHz ~ 30<br>GHz)               | Rohde & Schwarz           | 101068-SZ   | 09/07/2023            | Annual                  |
| Signal Analyzer                     | N9030A                                   | Keysight                  | MY55410508  | 09/06/2023            | Annual                  |
| Signal Analyzer                     | N9030A                                   | Keysight                  | MY49431210  | 12/29/2023            | Annual                  |
| Signal Analyzer                     | N9030A                                   | Keysight                  | MY52350879  | 01/02/2024            | Annual                  |

#### Note:

- 1. Equipment listed above that calibrated during the testing period was set for test after the calibration.
- 2. Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.
- 3. Especially, all antenna for measurement is calibrated in accordance with the requirements of C63.5(Version : 2017).

F-TP22-03 (Rev.00) 2 3 0 / 231 **HCT CO.,LTD.** 



## 12. ANNEX A\_ TEST SETUP PHOTO

Please refer to test setup photo file no. as follows;

| No. | Description         |
|-----|---------------------|
| 1   | HCT-RF-2301-FC078-P |

F-TP22-03 (Rev.00) 2 3 1 / 231 **HCT CO.,LTD.**