

## A.5.2 Test setup

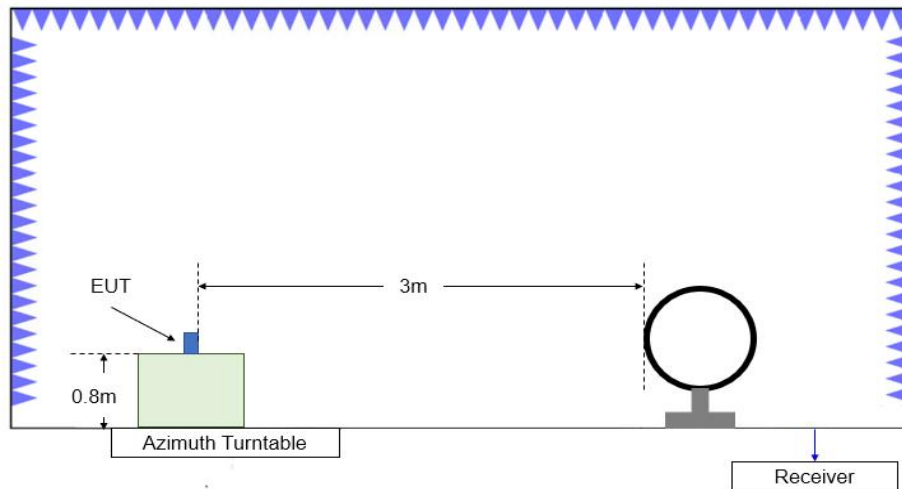


Figure A.5.1. Test Site Diagram (9kHz-30MHz)

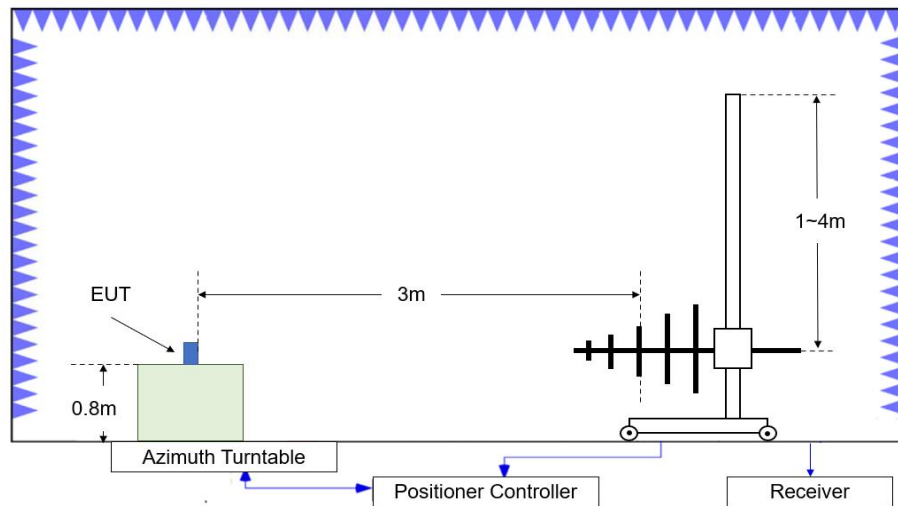


Figure A.5.2. Test Site Diagram (30MHz-1GHz)

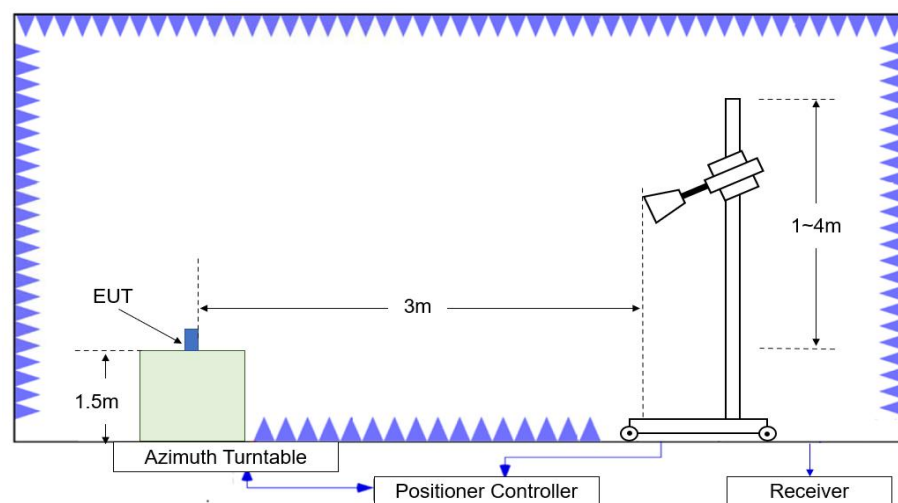


Figure A.5.3. Test Site Diagram (1GHz-40GHz)

### A.5.3 Test Procedures

Radiated unwanted emissions from the EUT were measured according to ANSI C63.10 and KDB 789033 D02 v02r01.

Test setting

| Frequency of emission (MHz) | RBW/VBW       |
|-----------------------------|---------------|
| 30-1000                     | 100kHz/300kHz |
| 1000-4000                   | 1MHz/3MHz     |
| 4000-18000                  | 1MHz/3MHz     |
| 18000-26500                 | 1MHz/3MHz     |
| 26500-40000                 | 1MHz/3MHz     |

### A.5.4 Calculation

1. The measurement results reported below is calculated by:

Measurement Results (dB $\mu$ V/m) =  $P_{\text{measurement}}$  (dB $\mu$ V) + Cable Loss (dB) + Antenna Factor (dB/m)

Where:  $P_{\text{measurement}}$  is the field strength recorded from the instrument

2. Convert the resultant EIRP level to an equivalent electric field strength using the following relationship:

$$E = \text{EIRP} - 20 \log(D) + 104.77$$

Where:

$E$  is the field strength in dB $\mu$ V/m

$D$  is the measurement distance in meters

EIRP is the equivalent isotropically radiated power in dBm

### Test note

1. The EUT is operating at its maximum duty cycle and its maximum power control level.
2. Investigation has been done on all modes and modulations/data rates. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.
3. Spurious emissions for all channels were investigated and almost the same below 1GHz. According to FCC 47 CFR §15.31, emission levels are not report much lower than the limit by over 20dB
4. The test is carried out on both vertical and horizontal polarization and only maximization result of both polarizations is kept.
5. EUT in each of three orthogonal axis emissions had been tested out only the worst case (axis data) recorded in the report.
6. Measurement frequencies were performed from 9 kHz to the 10<sup>th</sup> harmonic of highest fundamental frequency or 40GHz, whichever is lower.
7. No spurious emissions were detected within 20dB of the limit below 30MHz. OFS and semi-chamber comparison testing had been performed and the result came out very similar. (KDB 414788)

**Measurement Results:**
**Average Results:**
**802.11a**
**Channel 36**

| Frequency (MHz) | Measurement Result (dBuV/m) | Cable Loss (dB) | Antenna Factor (dB/m) | Receiver Reading (dBuV) | Limit (dBuV/m) | Margin (dB) | Antenna Pol. (H/V) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17904.850       | 43.39                       | -25.55          | 42.30                 | 26.64                   | 54.00          | 10.61       | V                  |
| 17919.150       | 43.33                       | -25.55          | 42.30                 | 26.58                   | 54.00          | 10.67       | H                  |
| 13277.150       | 38.27                       | -29.75          | 40.30                 | 27.72                   | 54.00          | 15.73       | V                  |
| 13283.750       | 38.03                       | -29.75          | 40.30                 | 27.48                   | 54.00          | 15.97       | H                  |
| 5149.340        | 51.05                       | -27.27          | 32.70                 | 45.62                   | 54.00          | 2.95        | H                  |
| 5148.060        | 50.84                       | -27.34          | 32.70                 | 45.48                   | 54.00          | 3.16        | H                  |

**Channel 64**

| Frequency (MHz) | Measurement Result (dBuV/m) | Cable Loss (dB) | Antenna Factor (dB/m) | Receiver Reading (dBuV) | Limit (dBuV/m) | Margin (dB) | Antenna Pol. (H/V) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17932.350       | 43.09                       | -25.55          | 42.30                 | 26.34                   | 54.00          | 10.91       | V                  |
| 17923.000       | 43.05                       | -25.55          | 42.30                 | 26.30                   | 54.00          | 10.95       | V                  |
| 10635.500       | 42.70                       | -32.88          | 38.70                 | 36.88                   | 54.00          | 11.30       | V                  |
| 10637.700       | 42.52                       | -32.88          | 38.70                 | 36.70                   | 54.00          | 11.48       | V                  |
| 5350.384        | 46.35                       | -27.08          | 33.50                 | 39.93                   | 54.00          | 7.65        | H                  |
| 5350.176        | 46.33                       | -27.08          | 33.50                 | 39.91                   | 54.00          | 7.67        | H                  |

**Channel 100**

| Frequency (MHz) | Measurement Result (dBuV/m) | Cable Loss (dB) | Antenna Factor (dB/m) | Receiver Reading (dBuV) | Limit (dBuV/m) | Margin (dB) | Antenna Pol. (H/V) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 7332.750        | 44.48                       | -34.16          | 37.50                 | 41.14                   | 54.00          | 9.52        | V                  |
| 7333.300        | 44.47                       | -34.16          | 37.50                 | 41.13                   | 54.00          | 9.53        | V                  |
| 17908.150       | 42.90                       | -25.55          | 42.30                 | 26.15                   | 54.00          | 11.10       | H                  |
| 17914.200       | 42.86                       | -25.55          | 42.30                 | 26.11                   | 54.00          | 11.14       | H                  |
| 5458.225        | 44.24                       | -27.06          | 33.70                 | 37.60                   | 54.00          | 9.76        | H                  |
| 5455.885        | 44.17                       | -27.06          | 33.70                 | 37.53                   | 54.00          | 9.83        | H                  |

### 802.11n-HT20

#### Channel 36

| Frequency (MHz) | Measurement Result (dBuV/m) | Cable Loss (dB) | Antenna Factor (dB/m) | Receiver Reading (dBuV) | Limit (dBuV/m) | Margin (dB) | Antenna Pol. (H/V) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17905.400       | 43.49                       | -25.55          | 42.30                 | 26.74                   | 54.00          | 10.51       | H                  |
| 17886.150       | 43.43                       | -25.55          | 42.30                 | 26.68                   | 54.00          | 10.57       | H                  |
| 13261.750       | 37.97                       | -29.75          | 40.20                 | 27.52                   | 54.00          | 16.03       | V                  |
| 13281.000       | 37.83                       | -29.75          | 40.30                 | 27.28                   | 54.00          | 16.17       | H                  |
| 5149.840        | 50.54                       | -27.27          | 32.70                 | 45.11                   | 54.00          | 3.46        | H                  |
| 5149.280        | 50.41                       | -27.27          | 32.70                 | 44.98                   | 54.00          | 3.59        | H                  |

#### Channel 64

| Frequency (MHz) | Measurement Result (dBuV/m) | Cable Loss (dB) | Antenna Factor (dB/m) | Receiver Reading (dBuV) | Limit (dBuV/m) | Margin (dB) | Antenna Pol. (H/V) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17912.550       | 43.09                       | -25.55          | 42.30                 | 26.34                   | 54.00          | 10.91       | H                  |
| 17934.000       | 42.89                       | -25.55          | 42.30                 | 26.14                   | 54.00          | 11.11       | H                  |
| 10639.350       | 42.77                       | -32.88          | 38.70                 | 36.95                   | 54.00          | 11.23       | V                  |
| 10634.950       | 41.99                       | -32.88          | 38.70                 | 36.17                   | 54.00          | 12.01       | V                  |
| 5350.112        | 46.11                       | -27.08          | 33.50                 | 39.69                   | 54.00          | 7.89        | H                  |
| 5351.488        | 46.00                       | -27.08          | 33.50                 | 39.58                   | 54.00          | 8.00        | H                  |

#### Channel 100

| Frequency (MHz) | Measurement Result (dBuV/m) | Cable Loss (dB) | Antenna Factor (dB/m) | Receiver Reading (dBuV) | Limit (dBuV/m) | Margin (dB) | Antenna Pol. (H/V) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 7333.300        | 45.69                       | -34.16          | 37.50                 | 42.35                   | 54.00          | 8.31        | V                  |
| 7332.750        | 45.56                       | -34.16          | 37.50                 | 42.22                   | 54.00          | 8.44        | V                  |
| 17931.250       | 43.34                       | -25.55          | 42.30                 | 26.59                   | 54.00          | 10.66       | H                  |
| 17925.750       | 42.97                       | -25.55          | 42.30                 | 26.22                   | 54.00          | 11.03       | V                  |
| 5459.575        | 44.27                       | -27.06          | 33.70                 | 37.63                   | 54.00          | 9.73        | H                  |
| 5459.500        | 44.16                       | -27.06          | 33.70                 | 37.52                   | 54.00          | 9.84        | H                  |

### 802.11n-HT40

#### Channel 38

| Frequency (MHz) | Measurement Result (dBuV/m) | Cable Loss (dB) | Antenna Factor (dB/m) | Receiver Reading (dBuV) | Limit (dBuV/m) | Margin (dB) | Antenna Pol. (H/V) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17919.700       | 43.41                       | -25.55          | 42.30                 | 26.66                   | 54.00          | 10.59       | H                  |
| 17913.650       | 43.33                       | -25.55          | 42.30                 | 26.58                   | 54.00          | 10.67       | H                  |
| 13260.100       | 38.37                       | -29.75          | 40.20                 | 27.92                   | 54.00          | 15.63       | V                  |
| 13271.650       | 38.18                       | -29.75          | 40.30                 | 27.63                   | 54.00          | 15.82       | V                  |
| 5148.800        | 45.86                       | -27.27          | 32.70                 | 40.43                   | 54.00          | 8.14        | H                  |
| 5146.880        | 44.93                       | -27.34          | 32.70                 | 39.57                   | 54.00          | 9.07        | H                  |

#### Channel 62

| Frequency (MHz) | Measurement Result (dBuV/m) | Cable Loss (dB) | Antenna Factor (dB/m) | Receiver Reading (dBuV) | Limit (dBuV/m) | Margin (dB) | Antenna Pol. (H/V) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17934.000       | 42.99                       | -25.55          | 42.30                 | 26.24                   | 54.00          | 11.01       | V                  |
| 17920.800       | 42.87                       | -25.55          | 42.30                 | 26.12                   | 54.00          | 11.13       | H                  |
| 10620.100       | 39.14                       | -32.88          | 38.70                 | 33.32                   | 54.00          | 14.86       | V                  |
| 10619.550       | 38.81                       | -32.88          | 38.70                 | 32.99                   | 54.00          | 15.19       | V                  |
| 5350.224        | 44.94                       | -27.08          | 33.50                 | 38.52                   | 54.00          | 9.06        | H                  |
| 5350.080        | 44.35                       | -27.08          | 33.50                 | 37.93                   | 54.00          | 9.65        | H                  |

#### Channel 102

| Frequency (MHz) | Measurement Result (dBuV/m) | Cable Loss (dB) | Antenna Factor (dB/m) | Receiver Reading (dBuV) | Limit (dBuV/m) | Margin (dB) | Antenna Pol. (H/V) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 7346.500        | 46.59                       | -34.16          | 37.50                 | 43.25                   | 54.00          | 7.41        | V                  |
| 7345.950        | 43.43                       | -34.16          | 37.50                 | 40.09                   | 54.00          | 10.57       | V                  |
| 17924.650       | 42.84                       | -25.55          | 42.30                 | 26.09                   | 54.00          | 11.16       | H                  |
| 17925.200       | 42.57                       | -25.55          | 42.30                 | 25.82                   | 54.00          | 11.43       | H                  |
| 5459.905        | 50.05                       | -27.06          | 33.70                 | 43.41                   | 54.00          | 3.95        | H                  |
| 5459.815        | 49.53                       | -27.06          | 33.70                 | 42.89                   | 54.00          | 4.47        | H                  |

### 802.11ac-HT20

#### Channel 36

| Frequency (MHz) | Measurement Result (dBuV/m) | Cable Loss (dB) | Antenna Factor (dB/m) | Receiver Reading (dBuV) | Limit (dBuV/m) | Margin (dB) | Antenna Pol. (H/V) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17931.800       | 42.72                       | -25.55          | 42.30                 | 25.97                   | 54.00          | 11.28       | H                  |
| 17932.900       | 42.60                       | -25.55          | 42.30                 | 25.85                   | 54.00          | 11.40       | H                  |
| 13284.300       | 37.85                       | -29.75          | 40.30                 | 27.30                   | 54.00          | 16.15       | H                  |
| 13265.050       | 37.53                       | -29.75          | 40.20                 | 27.08                   | 54.00          | 16.47       | H                  |
| 5149.640        | 47.69                       | -27.27          | 32.70                 | 42.26                   | 54.00          | 6.31        | H                  |
| 5149.920        | 47.61                       | -27.27          | 32.70                 | 42.18                   | 54.00          | 6.39        | H                  |

#### Channel 64

| Frequency (MHz) | Measurement Result (dBuV/m) | Cable Loss (dB) | Antenna Factor (dB/m) | Receiver Reading (dBuV) | Limit (dBuV/m) | Margin (dB) | Antenna Pol. (H/V) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 10639.900       | 43.25                       | -32.88          | 38.70                 | 37.43                   | 54.00          | 10.75       | V                  |
| 17921.350       | 42.67                       | -25.55          | 42.30                 | 25.92                   | 54.00          | 11.33       | H                  |
| 17929.050       | 42.59                       | -25.55          | 42.30                 | 25.84                   | 54.00          | 11.41       | V                  |
| 10634.400       | 42.27                       | -32.88          | 38.70                 | 36.45                   | 54.00          | 11.73       | V                  |
| 5350.096        | 46.05                       | -27.08          | 33.50                 | 39.63                   | 54.00          | 7.95        | H                  |
| 5350.368        | 45.86                       | -27.08          | 33.50                 | 39.44                   | 54.00          | 8.14        | H                  |

#### Channel 100

| Frequency (MHz) | Measurement Result (dBuV/m) | Cable Loss (dB) | Antenna Factor (dB/m) | Receiver Reading (dBuV) | Limit (dBuV/m) | Margin (dB) | Antenna Pol. (H/V) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 7333.300        | 44.91                       | -34.16          | 37.50                 | 41.57                   | 54.00          | 9.09        | V                  |
| 7332.750        | 44.73                       | -34.16          | 37.50                 | 41.39                   | 54.00          | 9.27        | V                  |
| 17909.250       | 42.82                       | -25.55          | 42.30                 | 26.07                   | 54.00          | 11.18       | V                  |
| 17915.850       | 42.70                       | -25.55          | 42.30                 | 25.95                   | 54.00          | 11.30       | V                  |
| 5459.680        | 44.09                       | -27.06          | 33.70                 | 37.45                   | 54.00          | 9.91        | H                  |
| 5458.510        | 44.01                       | -27.06          | 33.70                 | 37.37                   | 54.00          | 9.99        | H                  |

### 802.11ac-HT40

#### Channel 38

| Frequency (MHz) | Measurement Result (dBuV/m) | Cable Loss (dB) | Antenna Factor (dB/m) | Receiver Reading (dBuV) | Limit (dBuV/m) | Margin (dB) | Antenna Pol. (H/V) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17946.650       | 42.80                       | -25.55          | 42.30                 | 26.05                   | 54.00          | 11.20       | V                  |
| 17926.850       | 42.57                       | -25.55          | 42.30                 | 25.82                   | 54.00          | 11.43       | V                  |
| 13252.400       | 38.22                       | -29.75          | 40.20                 | 27.77                   | 54.00          | 15.78       | H                  |
| 13298.050       | 37.69                       | -29.75          | 40.30                 | 27.14                   | 54.00          | 16.31       | H                  |
| 5143.680        | 46.08                       | -27.34          | 32.70                 | 40.72                   | 54.00          | 7.92        | H                  |
| 5149.100        | 45.87                       | -27.27          | 32.70                 | 40.44                   | 54.00          | 8.13        | H                  |

#### Channel 62

| Frequency (MHz) | Measurement Result (dBuV/m) | Cable Loss (dB) | Antenna Factor (dB/m) | Receiver Reading (dBuV) | Limit (dBuV/m) | Margin (dB) | Antenna Pol. (H/V) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17918.600       | 42.68                       | -25.55          | 42.30                 | 25.93                   | 54.00          | 11.32       | H                  |
| 17921.900       | 42.68                       | -25.55          | 42.30                 | 25.93                   | 54.00          | 11.32       | H                  |
| 10619.000       | 38.50                       | -32.88          | 38.70                 | 32.68                   | 54.00          | 15.50       | V                  |
| 10624.500       | 38.39                       | -32.88          | 38.70                 | 32.57                   | 54.00          | 15.61       | V                  |
| 5351.040        | 53.62                       | -27.08          | 33.50                 | 47.20                   | 54.00          | 0.38        | H                  |
| 5350.032        | 53.44                       | -27.08          | 33.50                 | 47.02                   | 54.00          | 0.56        | H                  |

#### Channel 102

| Frequency (MHz) | Measurement Result (dBuV/m) | Cable Loss (dB) | Antenna Factor (dB/m) | Receiver Reading (dBuV) | Limit (dBuV/m) | Margin (dB) | Antenna Pol. (H/V) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 7346.500        | 45.99                       | -34.16          | 37.50                 | 42.65                   | 54.00          | 8.01        | V                  |
| 17915.850       | 42.80                       | -25.55          | 42.30                 | 26.05                   | 54.00          | 11.20       | V                  |
| 17924.100       | 42.80                       | -25.55          | 42.30                 | 26.05                   | 54.00          | 11.20       | H                  |
| 7345.950        | 42.32                       | -34.16          | 37.50                 | 38.98                   | 54.00          | 11.68       | V                  |
| 5459.815        | 43.74                       | -27.06          | 33.70                 | 37.10                   | 54.00          | 10.26       | H                  |
| 5459.305        | 43.61                       | -27.06          | 33.70                 | 36.97                   | 54.00          | 10.39       | H                  |

### 802.11ac-HT80

#### Channel 42

| Frequency (MHz) | Measurement Result (dBuV/m) | Cable Loss (dB) | Antenna Factor (dB/m) | Receiver Reading (dBuV) | Limit (dBuV/m) | Margin (dB) | Antenna Pol. (H/V) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17898.800       | 42.70                       | -25.55          | 42.30                 | 25.95                   | 54.00          | 11.30       | H                  |
| 17930.700       | 42.68                       | -25.55          | 42.30                 | 25.93                   | 54.00          | 11.32       | H                  |
| 14487.150       | 37.68                       | -28.78          | 40.00                 | 26.46                   | 54.00          | 16.32       | V                  |
| 13290.350       | 37.63                       | -29.75          | 40.30                 | 27.08                   | 54.00          | 16.37       | H                  |
| 5137.640        | 49.43                       | -27.34          | 32.70                 | 44.07                   | 54.00          | 4.57        | H                  |
| 5141.040        | 49.10                       | -27.34          | 32.70                 | 43.74                   | 54.00          | 4.90        | H                  |

#### Channel 58

| Frequency (MHz) | Measurement Result (dBuV/m) | Cable Loss (dB) | Antenna Factor (dB/m) | Receiver Reading (dBuV) | Limit (dBuV/m) | Margin (dB) | Antenna Pol. (H/V) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17914.200       | 42.92                       | -25.55          | 42.30                 | 26.17                   | 54.00          | 11.08       | H                  |
| 17905.950       | 42.52                       | -25.55          | 42.30                 | 25.77                   | 54.00          | 11.48       | V                  |
| 13265.050       | 37.93                       | -29.75          | 40.20                 | 27.48                   | 54.00          | 16.07       | H                  |
| 13293.100       | 37.65                       | -29.75          | 40.30                 | 27.10                   | 54.00          | 16.35       | H                  |
| 5352.832        | 47.28                       | -27.08          | 33.50                 | 40.86                   | 54.00          | 6.72        | H                  |
| 5352.720        | 47.23                       | -27.08          | 33.50                 | 40.81                   | 54.00          | 6.77        | H                  |

#### Channel 106

| Frequency (MHz) | Measurement Result (dBuV/m) | Cable Loss (dB) | Antenna Factor (dB/m) | Receiver Reading (dBuV) | Limit (dBuV/m) | Margin (dB) | Antenna Pol. (H/V) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 7372.900        | 46.84                       | -34.16          | 37.50                 | 43.50                   | 54.00          | 7.16        | V                  |
| 7373.450        | 44.21                       | -34.16          | 37.50                 | 40.87                   | 54.00          | 9.79        | V                  |
| 17913.100       | 42.86                       | -25.55          | 42.30                 | 26.11                   | 54.00          | 11.14       | V                  |
| 17920.800       | 42.69                       | -25.55          | 42.30                 | 25.94                   | 54.00          | 11.31       | V                  |
| 5459.605        | 47.13                       | -27.06          | 33.70                 | 40.49                   | 54.00          | 6.87        | H                  |
| 5459.425        | 46.95                       | -27.06          | 33.70                 | 40.31                   | 54.00          | 7.05        | H                  |



# PEAK Results:

## 802.11a

### Channel 36

| Frequency (MHz) | Measurement Result (dBuV/m) | Cable Loss (dB) | Antenna Factor (dB/m) | Receiver Reading (dBuV) | Limit (dBuV/m) | Margin (dB) | Antenna Pol. (H/V) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17873.500       | 53.59                       | -25.55          | 42.30                 | 36.84                   | 74.00          | 20.41       | V                  |
| 17935.100       | 53.53                       | -25.55          | 42.30                 | 36.78                   | 74.00          | 20.47       | H                  |
| 13974.000       | 50.04                       | -29.33          | 40.70                 | 38.67                   | 68.20          | 18.16       | H                  |
| 13881.600       | 49.48                       | -29.33          | 40.90                 | 37.91                   | 68.20          | 18.72       | H                  |
| 5146.820        | 62.97                       | -27.34          | 32.70                 | 57.61                   | 74.00          | 11.03       | H                  |
| 5146.940        | 62.57                       | -27.34          | 32.70                 | 57.21                   | 74.00          | 11.43       | H                  |

### Channel 64

| Frequency (MHz) | Measurement Result (dBuV/m) | Cable Loss (dB) | Antenna Factor (dB/m) | Receiver Reading (dBuV) | Limit (dBuV/m) | Margin (dB) | Antenna Pol. (H/V) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17900.450       | 53.86                       | -25.55          | 42.30                 | 37.11                   | 74.00          | 20.14       | V                  |
| 17911.450       | 53.45                       | -25.55          | 42.30                 | 36.70                   | 74.00          | 20.55       | H                  |
| 10636.050       | 52.25                       | -32.88          | 38.70                 | 46.43                   | 74.00          | 21.75       | V                  |
| 10637.700       | 51.52                       | -32.88          | 38.70                 | 45.70                   | 74.00          | 22.48       | V                  |
| 5352.032        | 57.59                       | -27.08          | 33.50                 | 51.17                   | 74.00          | 16.41       | H                  |
| 5350.400        | 56.92                       | -27.08          | 33.50                 | 50.50                   | 74.00          | 17.08       | H                  |

### Channel 100

| Frequency (MHz) | Measurement Result (dBuV/m) | Cable Loss (dB) | Antenna Factor (dB/m) | Receiver Reading (dBuV) | Limit (dBuV/m) | Margin (dB) | Antenna Pol. (H/V) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17933.450       | 53.24                       | -25.55          | 42.30                 | 36.49                   | 74.00          | 20.76       | V                  |
| 17912.550       | 53.14                       | -25.55          | 42.30                 | 36.39                   | 74.00          | 20.86       | V                  |
| 14148.900       | 49.87                       | -28.86          | 40.50                 | 38.23                   | 68.20          | 18.33       | V                  |
| 7332.750        | 49.83                       | -34.16          | 37.50                 | 46.49                   | 74.00          | 24.17       | V                  |
| 5448.010        | 54.59                       | -27.06          | 33.70                 | 47.95                   | 74.00          | 19.41       | H                  |
| 5468.125        | 56.67                       | -27.06          | 33.70                 | 50.03                   | 68.20          | 11.53       | H                  |

**802.11n-HT20**
**Channel 36**

| Frequency (MHz) | Measurement Result (dBuV/m) | Cable Loss (dB) | Antenna Factor (dB/m) | Receiver Reading (dBuV) | Limit (dBuV/m) | Margin (dB) | Antenna Pol. (H/V) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17896.600       | 53.69                       | -25.55          | 42.30                 | 36.94                   | 74.00          | 20.31       | H                  |
| 17939.500       | 53.67                       | -25.55          | 42.30                 | 36.92                   | 74.00          | 20.33       | V                  |
| 13822.750       | 49.82                       | -29.41          | 40.90                 | 38.33                   | 68.20          | 18.38       | H                  |
| 14102.150       | 49.81                       | -28.98          | 40.50                 | 38.29                   | 68.20          | 18.39       | V                  |
| 5146.080        | 63.60                       | -27.34          | 32.70                 | 58.24                   | 74.00          | 10.40       | H                  |
| 5146.720        | 63.07                       | -27.34          | 32.70                 | 57.71                   | 74.00          | 10.93       | H                  |

**Channel 64**

| Frequency (MHz) | Measurement Result (dBuV/m) | Cable Loss (dB) | Antenna Factor (dB/m) | Receiver Reading (dBuV) | Limit (dBuV/m) | Margin (dB) | Antenna Pol. (H/V) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17905.950       | 54.84                       | -25.55          | 42.30                 | 38.09                   | 74.00          | 19.16       | H                  |
| 17993.950       | 54.49                       | -25.55          | 42.30                 | 37.74                   | 74.00          | 19.51       | H                  |
| 10637.700       | 53.71                       | -32.88          | 38.70                 | 47.89                   | 74.00          | 20.29       | H                  |
| 10636.600       | 51.89                       | -32.88          | 38.70                 | 46.07                   | 74.00          | 22.11       | V                  |
| 5353.296        | 56.84                       | -27.08          | 33.50                 | 50.42                   | 74.00          | 17.16       | H                  |
| 5350.400        | 56.71                       | -27.08          | 33.50                 | 50.29                   | 74.00          | 17.29       | H                  |

**Channel 100**

| Frequency (MHz) | Measurement Result (dBuV/m) | Cable Loss (dB) | Antenna Factor (dB/m) | Receiver Reading (dBuV) | Limit (dBuV/m) | Margin (dB) | Antenna Pol. (H/V) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17983.500       | 52.92                       | -25.55          | 42.30                 | 36.17                   | 74.00          | 21.08       | H                  |
| 17904.850       | 52.90                       | -25.55          | 42.30                 | 36.15                   | 74.00          | 21.10       | H                  |
| 7332.750        | 49.70                       | -34.16          | 37.50                 | 46.36                   | 74.00          | 24.30       | V                  |
| 11001.800       | 49.56                       | -32.30          | 38.60                 | 43.26                   | 74.00          | 24.44       | V                  |
| 5458.885        | 54.88                       | -27.06          | 33.70                 | 48.24                   | 74.00          | 19.12       | H                  |
| 5468.875        | 57.65                       | -27.06          | 33.70                 | 51.01                   | 68.20          | 10.55       | H                  |

### 802.11n-HT40

#### Channel 38

| Frequency (MHz) | Measurement Result (dBuV/m) | Cable Loss (dB) | Antenna Factor (dB/m) | Receiver Reading (dBuV) | Limit (dBuV/m) | Margin (dB) | Antenna Pol. (H/V) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17858.650       | 53.85                       | -25.55          | 42.30                 | 37.10                   | 74.00          | 20.15       | H                  |
| 17915.850       | 53.58                       | -25.55          | 42.30                 | 36.83                   | 74.00          | 20.42       | H                  |
| 13885.450       | 49.93                       | -29.33          | 40.90                 | 38.36                   | 68.20          | 18.27       | V                  |
| 13816.700       | 49.59                       | -29.41          | 40.90                 | 38.10                   | 68.20          | 18.61       | V                  |
| 5146.800        | 56.51                       | -27.34          | 32.70                 | 51.15                   | 74.00          | 17.49       | H                  |
| 5149.360        | 55.49                       | -27.27          | 32.70                 | 50.06                   | 74.00          | 18.51       | H                  |

#### Channel 62

| Frequency (MHz) | Measurement Result (dBuV/m) | Cable Loss (dB) | Antenna Factor (dB/m) | Receiver Reading (dBuV) | Limit (dBuV/m) | Margin (dB) | Antenna Pol. (H/V) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17919.150       | 53.28                       | -25.55          | 42.30                 | 36.53                   | 74.00          | 20.72       | H                  |
| 17885.600       | 53.10                       | -25.55          | 42.30                 | 36.35                   | 74.00          | 20.90       | V                  |
| 7079.750        | 51.22                       | -33.80          | 37.10                 | 47.92                   | 68.20          | 16.98       | V                  |
| 7079.200        | 49.62                       | -33.95          | 36.90                 | 46.67                   | 68.20          | 18.58       | V                  |
| 5350.512        | 55.06                       | -27.08          | 33.50                 | 48.64                   | 74.00          | 18.94       | H                  |
| 5351.792        | 54.13                       | -27.08          | 33.50                 | 47.71                   | 74.00          | 19.87       | H                  |

#### Channel 102

| Frequency (MHz) | Measurement Result (dBuV/m) | Cable Loss (dB) | Antenna Factor (dB/m) | Receiver Reading (dBuV) | Limit (dBuV/m) | Margin (dB) | Antenna Pol. (H/V) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17914.200       | 52.81                       | -25.55          | 42.30                 | 36.06                   | 74.00          | 21.19       | H                  |
| 17845.450       | 52.73                       | -25.55          | 42.30                 | 35.98                   | 74.00          | 21.27       | V                  |
| 7346.500        | 49.36                       | -34.16          | 37.50                 | 46.02                   | 74.00          | 24.64       | V                  |
| 7345.950        | 49.16                       | -34.16          | 37.50                 | 45.82                   | 74.00          | 24.84       | V                  |
| 5459.635        | 62.12                       | -27.06          | 33.70                 | 55.48                   | 74.00          | 11.88       | H                  |
| 5467.465        | 67.73                       | -27.06          | 33.70                 | 61.09                   | 68.20          | 0.47        | H                  |

### 802.11ac-HT20

#### Channel 36

| Frequency (MHz) | Measurement Result (dBuV/m) | Cable Loss (dB) | Antenna Factor (dB/m) | Receiver Reading (dBuV) | Limit (dBuV/m) | Margin (dB) | Antenna Pol. (H/V) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17930.150       | 53.32                       | -25.55          | 42.30                 | 36.57                   | 74.00          | 20.68       | H                  |
| 17944.450       | 53.02                       | -25.55          | 42.30                 | 36.27                   | 74.00          | 20.98       | V                  |
| 10362.700       | 52.08                       | -33.02          | 38.50                 | 46.60                   | 68.20          | 16.12       | V                  |
| 14164.300       | 49.41                       | -28.86          | 40.40                 | 37.87                   | 68.20          | 18.79       | V                  |
| 5141.020        | 59.52                       | -27.34          | 32.70                 | 54.16                   | 74.00          | 14.48       | H                  |
| 5149.760        | 59.39                       | -27.27          | 32.70                 | 53.96                   | 74.00          | 14.61       | H                  |

#### Channel 64

| Frequency (MHz) | Measurement Result (dBuV/m) | Cable Loss (dB) | Antenna Factor (dB/m) | Receiver Reading (dBuV) | Limit (dBuV/m) | Margin (dB) | Antenna Pol. (H/V) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 10640.450       | 53.46                       | -32.88          | 38.70                 | 47.64                   | 74.00          | 20.54       | V                  |
| 17954.350       | 53.31                       | -25.55          | 42.30                 | 36.56                   | 74.00          | 20.69       | V                  |
| 17934.550       | 53.25                       | -25.55          | 42.30                 | 36.50                   | 74.00          | 20.75       | V                  |
| 10636.050       | 51.82                       | -32.88          | 38.70                 | 46.00                   | 74.00          | 22.18       | V                  |
| 5350.496        | 57.91                       | -27.08          | 33.50                 | 51.49                   | 74.00          | 16.09       | H                  |
| 5350.752        | 57.10                       | -27.08          | 33.50                 | 50.68                   | 74.00          | 16.90       | H                  |

#### Channel 100

| Frequency (MHz) | Measurement Result (dBuV/m) | Cable Loss (dB) | Antenna Factor (dB/m) | Receiver Reading (dBuV) | Limit (dBuV/m) | Margin (dB) | Antenna Pol. (H/V) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17919.700       | 53.88                       | -25.55          | 42.30                 | 37.13                   | 74.00          | 20.12       | H                  |
| 17919.150       | 53.41                       | -25.55          | 42.30                 | 36.66                   | 74.00          | 20.59       | H                  |
| 10994.100       | 49.59                       | -32.30          | 38.60                 | 43.29                   | 74.00          | 24.41       | V                  |
| 14142.300       | 49.56                       | -28.86          | 40.50                 | 37.92                   | 68.20          | 18.64       | V                  |
| 5457.985        | 55.16                       | -27.06          | 33.70                 | 48.52                   | 74.00          | 18.84       | H                  |
| 5469.955        | 58.28                       | -27.06          | 33.70                 | 51.64                   | 68.20          | 9.92        | H                  |

### 802.11ac-HT40

#### Channel 38

| Frequency (MHz) | Measurement Result (dBuV/m) | Cable Loss (dB) | Antenna Factor (dB/m) | Receiver Reading (dBuV) | Limit (dBuV/m) | Margin (dB) | Antenna Pol. (H/V) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17943.900       | 53.42                       | -25.55          | 42.30                 | 36.67                   | 74.00          | 20.58       | V                  |
| 17894.400       | 52.76                       | -25.55          | 42.30                 | 36.01                   | 74.00          | 21.24       | H                  |
| 13860.700       | 49.99                       | -29.41          | 40.90                 | 38.50                   | 68.20          | 18.21       | V                  |
| 13881.050       | 49.07                       | -29.33          | 40.90                 | 37.50                   | 68.20          | 19.13       | H                  |
| 5148.560        | 57.20                       | -27.27          | 32.70                 | 51.77                   | 74.00          | 16.80       | H                  |
| 5147.840        | 56.64                       | -27.34          | 32.70                 | 51.28                   | 74.00          | 17.36       | H                  |

#### Channel 62

| Frequency (MHz) | Measurement Result (dBuV/m) | Cable Loss (dB) | Antenna Factor (dB/m) | Receiver Reading (dBuV) | Limit (dBuV/m) | Margin (dB) | Antenna Pol. (H/V) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17912.000       | 53.15                       | -25.55          | 42.30                 | 36.40                   | 74.00          | 20.85       | H                  |
| 17921.900       | 53.06                       | -25.55          | 42.30                 | 36.31                   | 74.00          | 20.94       | V                  |
| 7079.750        | 51.34                       | -33.80          | 37.10                 | 48.04                   | 68.20          | 16.86       | V                  |
| 7079.200        | 49.87                       | -33.95          | 36.90                 | 46.92                   | 68.20          | 18.33       | V                  |
| 5352.944        | 65.22                       | -27.08          | 33.50                 | 58.80                   | 74.00          | 8.78        | H                  |
| 5350.592        | 65.05                       | -27.08          | 33.50                 | 58.63                   | 74.00          | 8.95        | H                  |

#### Channel 102

| Frequency (MHz) | Measurement Result (dBuV/m) | Cable Loss (dB) | Antenna Factor (dB/m) | Receiver Reading (dBuV) | Limit (dBuV/m) | Margin (dB) | Antenna Pol. (H/V) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17915.300       | 53.62                       | -25.55          | 42.30                 | 36.87                   | 74.00          | 20.38       | H                  |
| 17909.800       | 53.20                       | -25.55          | 42.30                 | 36.45                   | 74.00          | 20.80       | H                  |
| 13935.500       | 49.78                       | -29.33          | 40.90                 | 38.21                   | 68.20          | 18.42       | V                  |
| 7346.500        | 49.45                       | -34.16          | 37.50                 | 46.11                   | 74.00          | 24.55       | V                  |
| 5451.040        | 54.11                       | -27.06          | 33.70                 | 47.47                   | 74.00          | 19.89       | H                  |
| 5466.670        | 56.10                       | -27.06          | 33.70                 | 49.46                   | 68.20          | 12.10       | H                  |

**802.11ac-HT80**
**Channel 42**

| Frequency (MHz) | Measurement Result (dBuV/m) | Cable Loss (dB) | Antenna Factor (dB/m) | Receiver Reading (dBuV) | Limit (dBuV/m) | Margin (dB) | Antenna Pol. (H/V) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17950.500       | 54.03                       | -25.55          | 42.30                 | 37.28                   | 74.00          | 19.97       | H                  |
| 17993.950       | 52.96                       | -25.55          | 42.30                 | 36.21                   | 74.00          | 21.04       | V                  |
| 13934.400       | 49.39                       | -29.33          | 40.90                 | 37.82                   | 68.20          | 18.81       | H                  |
| 14129.100       | 49.25                       | -28.86          | 40.50                 | 37.61                   | 68.20          | 18.95       | V                  |
| 5139.720        | 60.81                       | -27.34          | 32.70                 | 55.45                   | 74.00          | 13.19       | H                  |
| 5141.180        | 60.04                       | -27.34          | 32.70                 | 54.68                   | 74.00          | 13.96       | H                  |

**Channel 58**

| Frequency (MHz) | Measurement Result (dBuV/m) | Cable Loss (dB) | Antenna Factor (dB/m) | Receiver Reading (dBuV) | Limit (dBuV/m) | Margin (dB) | Antenna Pol. (H/V) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17933.450       | 53.58                       | -25.55          | 42.30                 | 36.83                   | 74.00          | 20.42       | V                  |
| 17887.250       | 53.07                       | -25.55          | 42.30                 | 36.32                   | 74.00          | 20.93       | H                  |
| 7053.350        | 52.25                       | -33.95          | 36.90                 | 49.30                   | 68.20          | 15.95       | V                  |
| 7052.800        | 52.05                       | -33.95          | 36.90                 | 49.10                   | 68.20          | 16.15       | V                  |
| 5359.072        | 58.20                       | -27.08          | 33.50                 | 51.78                   | 74.00          | 15.80       | H                  |
| 5362.448        | 57.90                       | -27.08          | 33.50                 | 51.48                   | 74.00          | 16.10       | H                  |

**Channel 106**

| Frequency (MHz) | Measurement Result (dBuV/m) | Cable Loss (dB) | Antenna Factor (dB/m) | Receiver Reading (dBuV) | Limit (dBuV/m) | Margin (dB) | Antenna Pol. (H/V) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17886.700       | 53.79                       | -25.55          | 42.30                 | 37.04                   | 74.00          | 20.21       | V                  |
| 17945.550       | 52.92                       | -25.55          | 42.30                 | 36.17                   | 74.00          | 21.08       | H                  |
| 7372.900        | 50.54                       | -34.16          | 37.50                 | 47.20                   | 74.00          | 23.46       | V                  |
| 7373.450        | 49.92                       | -34.16          | 37.50                 | 46.58                   | 74.00          | 24.08       | V                  |
| 5459.680        | 58.18                       | -27.06          | 33.70                 | 51.54                   | 74.00          | 15.82       | H                  |
| 5464.945        | 58.63                       | -27.06          | 33.70                 | 51.99                   | 68.20          | 9.57        | H                  |

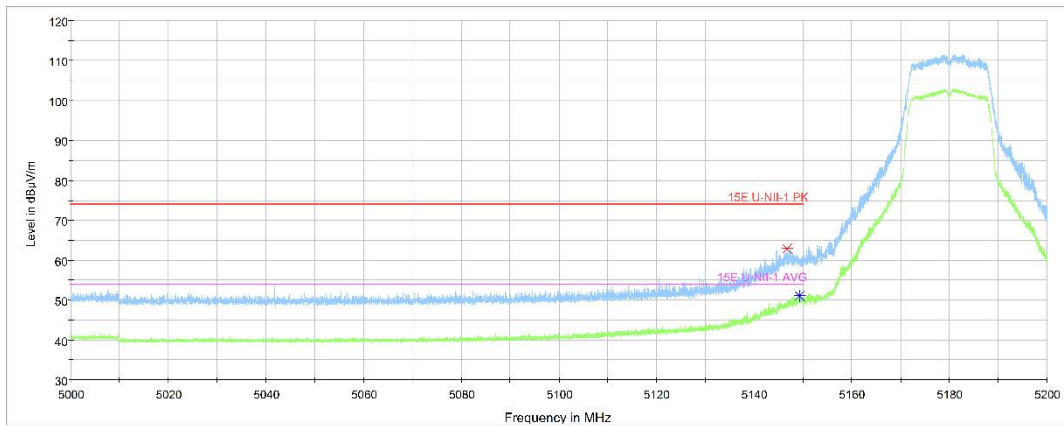
**Conclusion: PASS**

### Band edge compliance

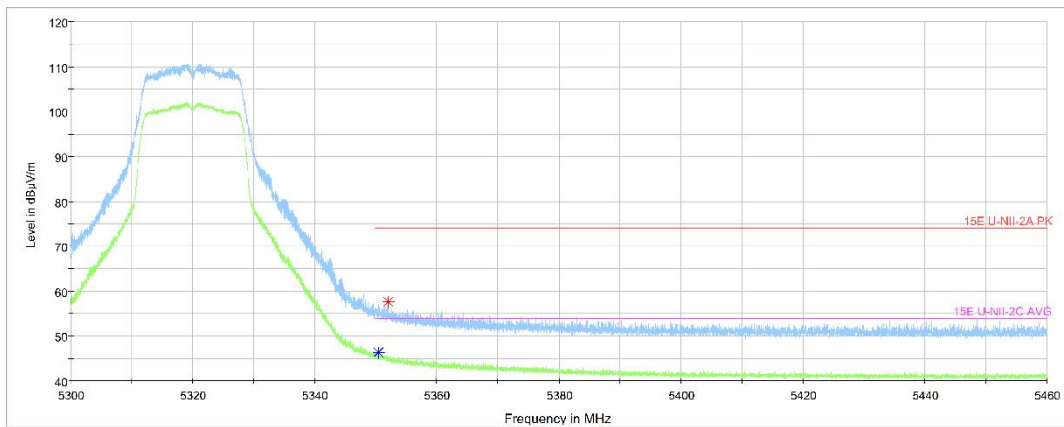
| Mode          | Channel  | Test Results | Conclusion |
|---------------|----------|--------------|------------|
| 802.11a       | 5180 MHz | Fig.1        | P          |
|               | 5320 MHz | Fig.2        | P          |
|               | 5500 MHz | Fig.3        | P          |
|               | 5700 MHz | Fig.4        | P          |
| 802.11n HT20  | 5180 MHz | Fig.5        | P          |
|               | 5320 MHz | Fig.6        | P          |
|               | 5500 MHz | Fig.7        | P          |
|               | 5700 MHz | Fig.8        | P          |
| 802.11n HT40  | 5190 MHz | Fig.9        | P          |
|               | 5310 MHz | Fig.10       | P          |
|               | 5510 MHz | Fig.11       | P          |
|               | 5670 MHz | Fig.12       | P          |
| 802.11ac HT20 | 5180 MHz | Fig.13       | P          |
|               | 5320 MHz | Fig.14       | P          |
|               | 5500 MHz | Fig.15       | P          |
|               | 5700 MHz | Fig.16       | P          |
| 802.11ac HT40 | 5190 MHz | Fig.17       | P          |
|               | 5310 MHz | Fig.18       | P          |
|               | 5510 MHz | Fig.19       | P          |
|               | 5670 MHz | Fig.20       | P          |
| 802.11ac HT80 | 5210MHz  | Fig.21       | P          |
|               | 5290MHz  | Fig.22       | P          |
|               | 5530MHz  | Fig.23       | P          |
|               | 5610MHz  | Fig.24       | P          |

**Conclusion: PASS**

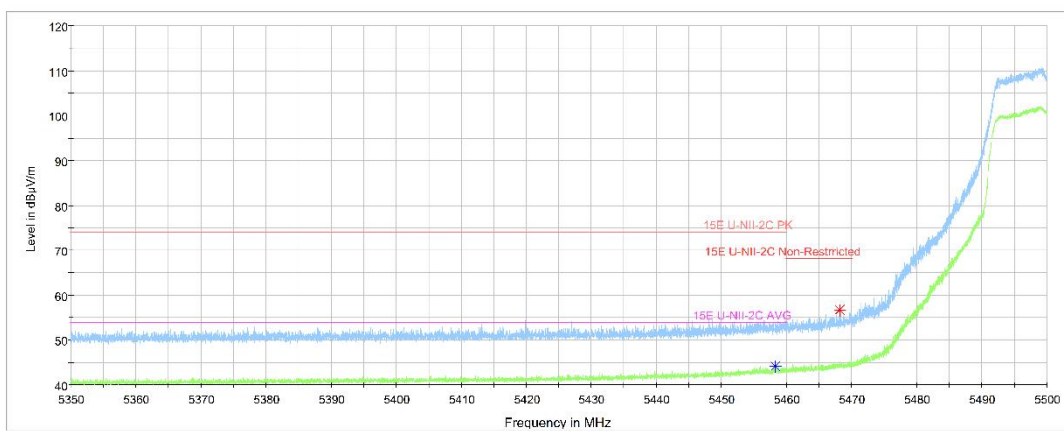
**Test graphs as below:**



**Fig. 1 Band Edges (802.11a Ch36, 5180MHz)**

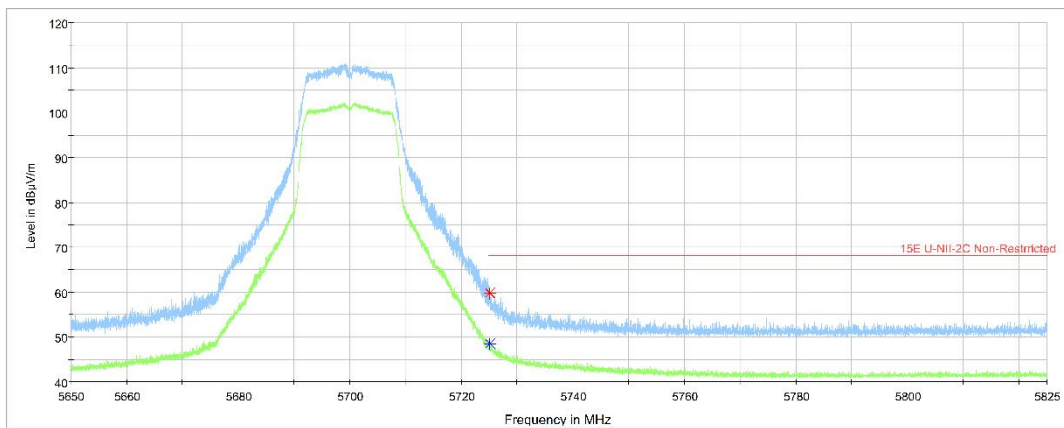


**Fig. 2 Band Edges (802.11a Ch64, 5320MHz)**

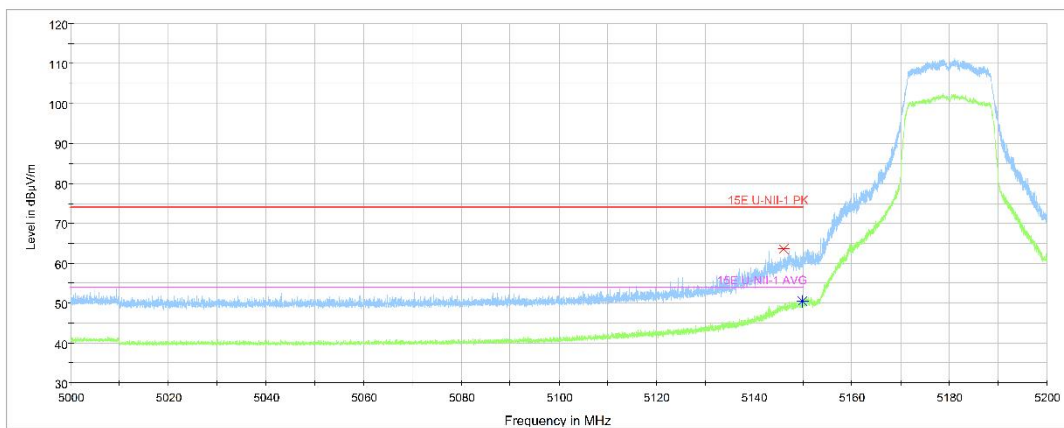


**Fig. 3 Band Edges (802.11a Ch100, 5500MHz)**

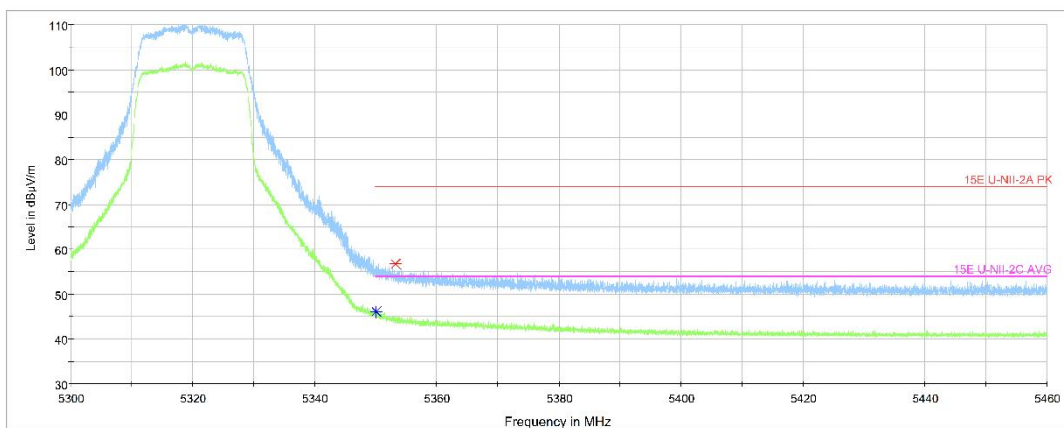




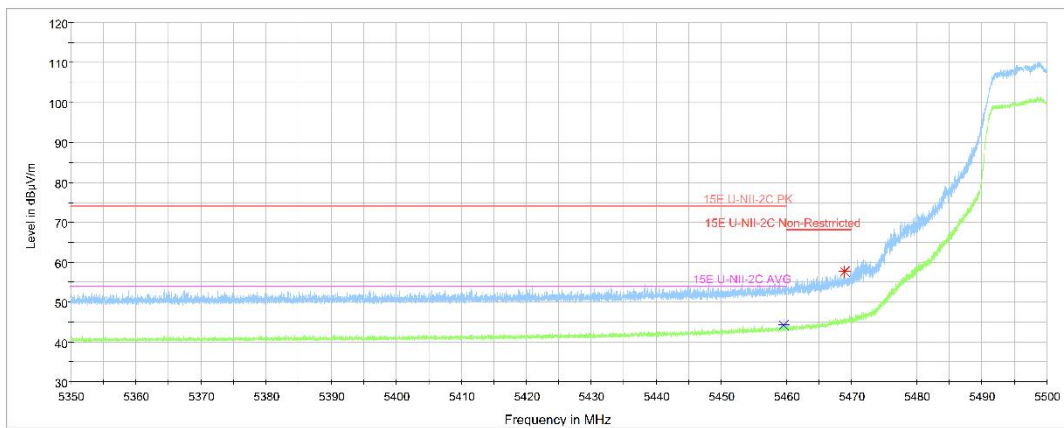
**Fig. 4 Band Edges (802.11a Ch140, 5700MHz)**



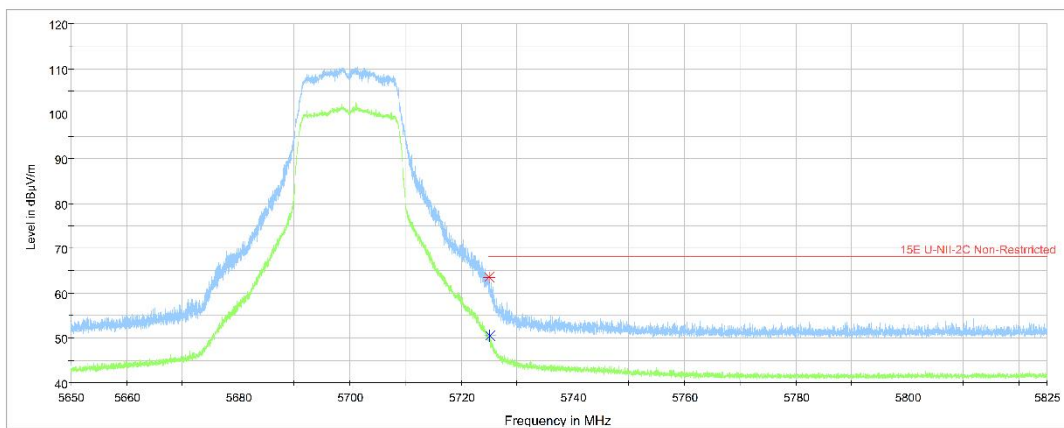
**Fig. 5 Band Edges (802.11n-HT20 Ch36, 5180MHz)**



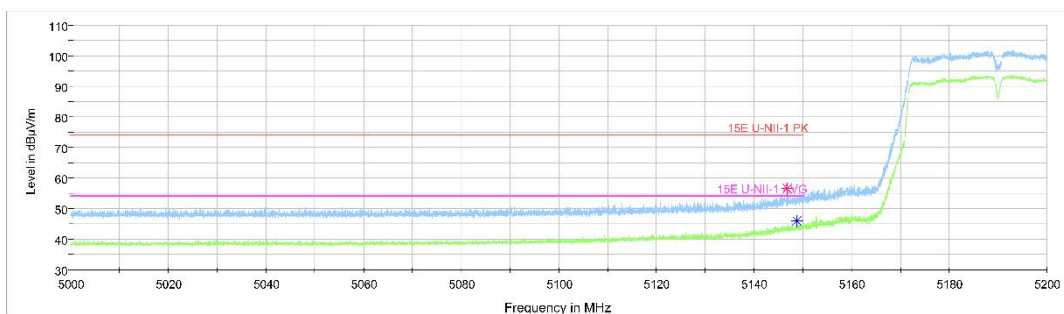
**Fig. 6 Band Edges (802.11n-HT20 Ch64, 5320MHz)**



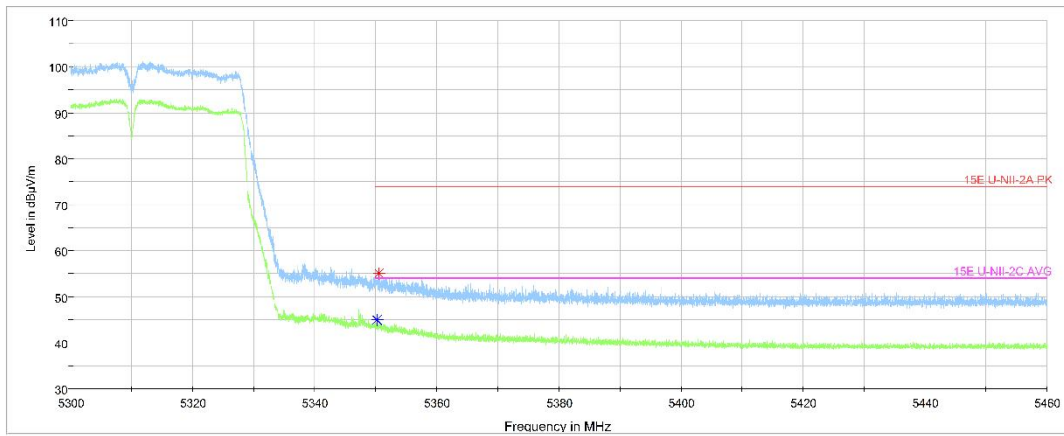
**Fig. 7 Band Edges (802.11n-HT20 Ch100, 5500MHz)**



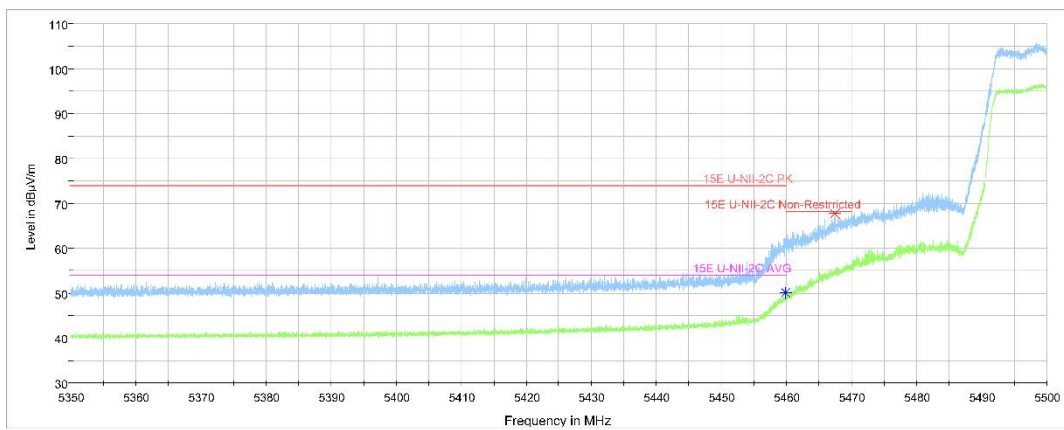
**Fig. 8 Band Edges (802.11n-HT20 Ch140, 5700MHz)**



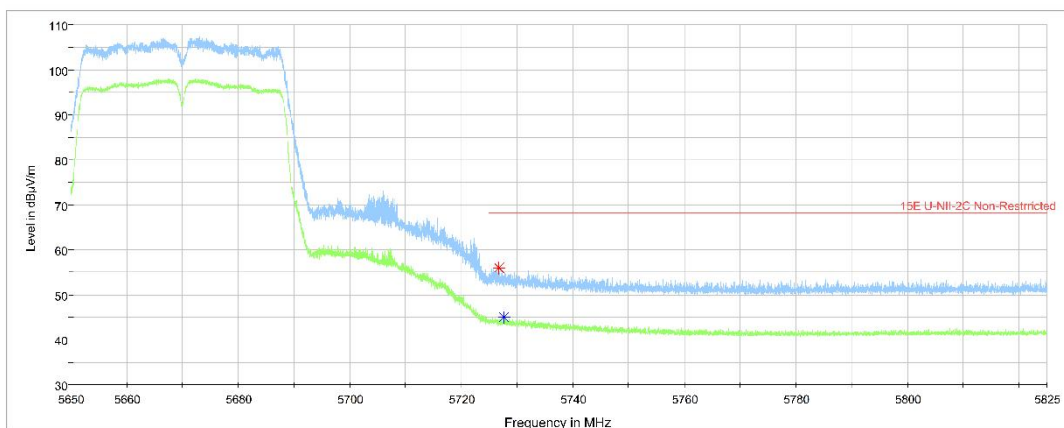
**Fig. 9 Band Edges (802.11n-HT40 Ch38, 5190MHz)**



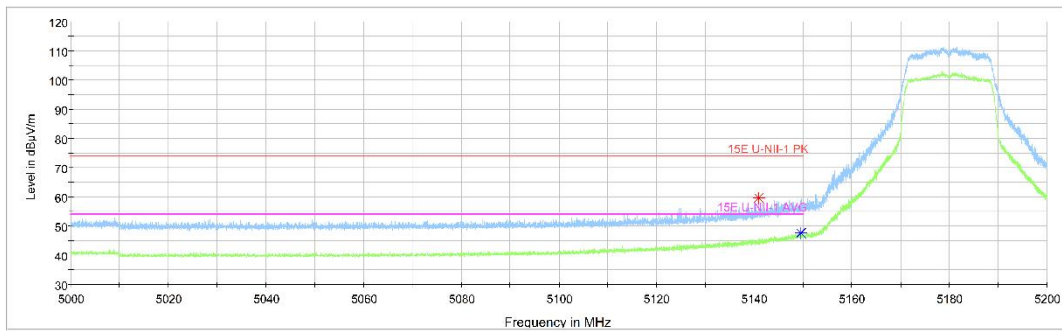
**Fig. 10 Band Edges (802.11n-HT40 Ch62, 5310MHz)**



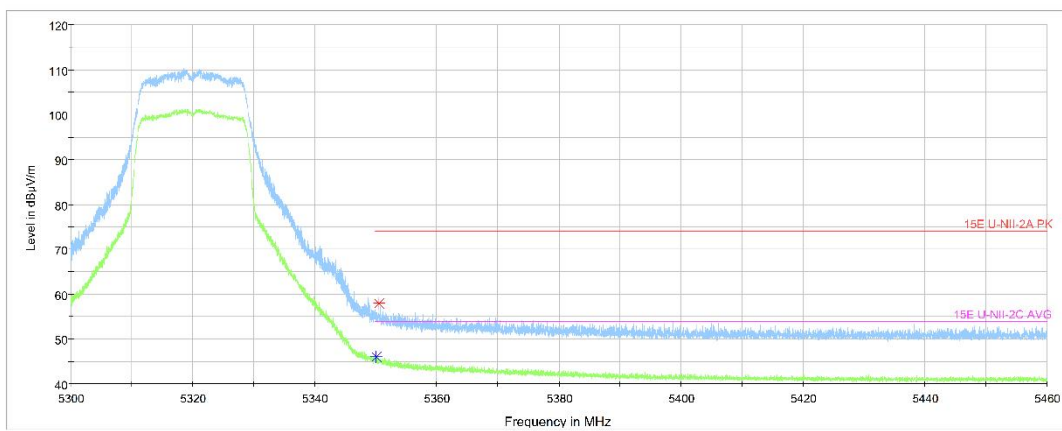
**Fig. 11 Band Edges (802.11n-HT40 Ch102, 5510MHz)**



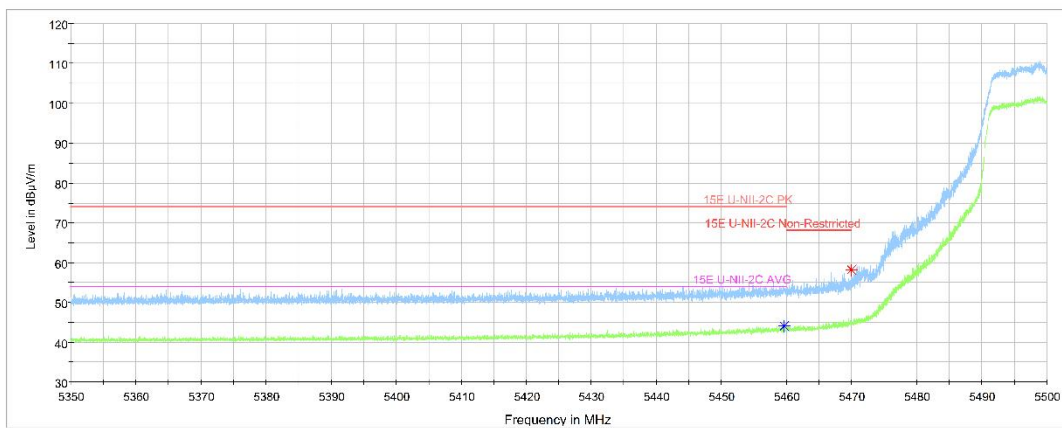
**Fig. 12 Band Edges (802.11n-HT40 Ch134, 5670MHz)**



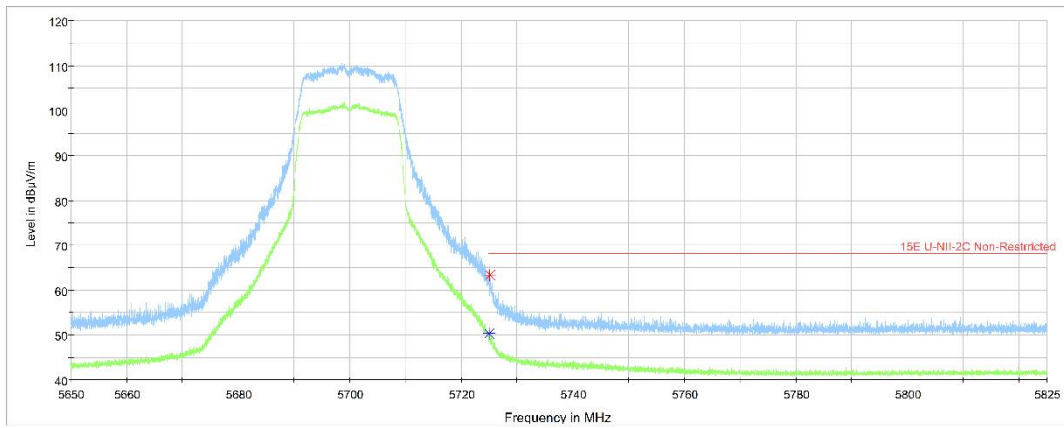
**Fig. 13 Band Edges (802.11ac-HT20 Ch36, 5180MHz)**



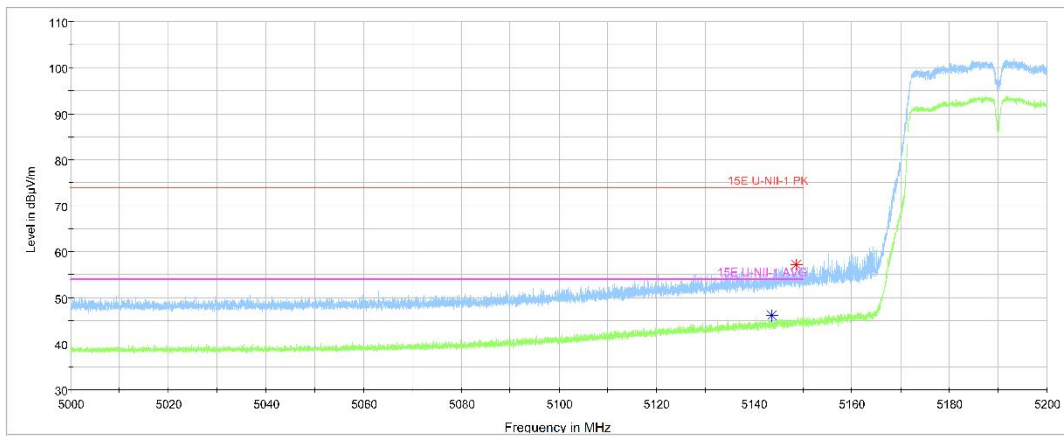
**Fig. 14 Band Edges (802.11ac-HT20 Ch64, 5320MHz)**



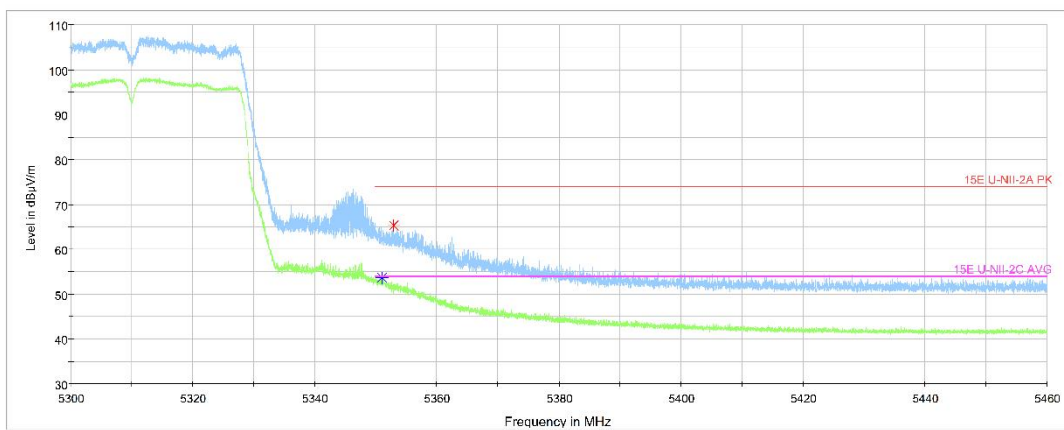
**Fig. 15 Band Edges (802.11ac-HT20 Ch100, 5500MHz)**



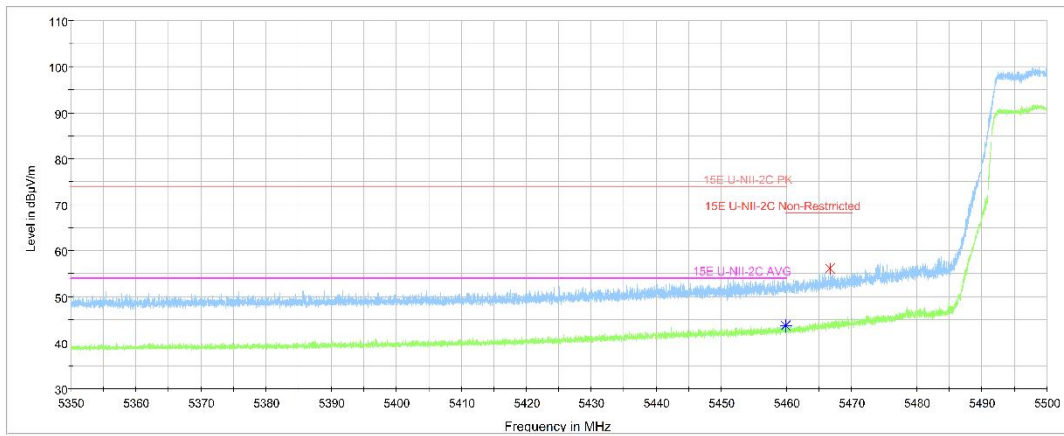
**Fig. 16 Band Edges (802.11ac-HT20 Ch140, 5700MHz)**



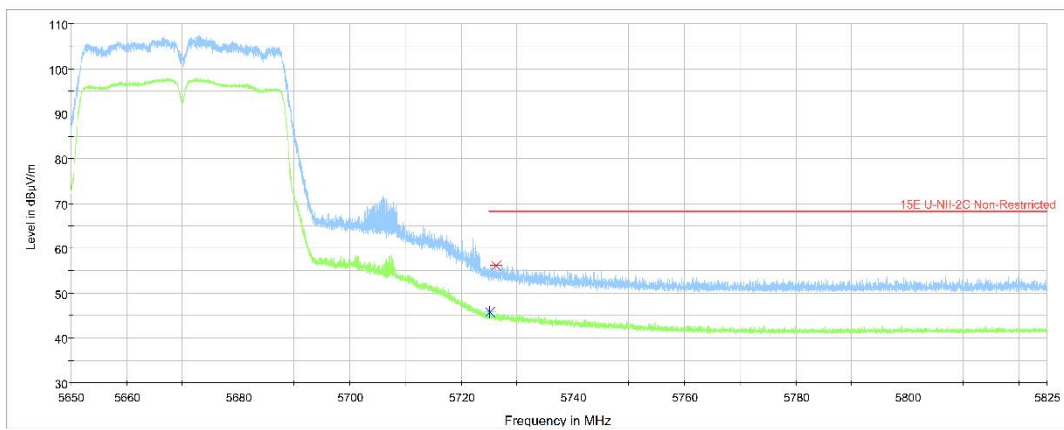
**Fig. 17 Band Edges (802.11ac-HT40 Ch38, 5190MHz)**



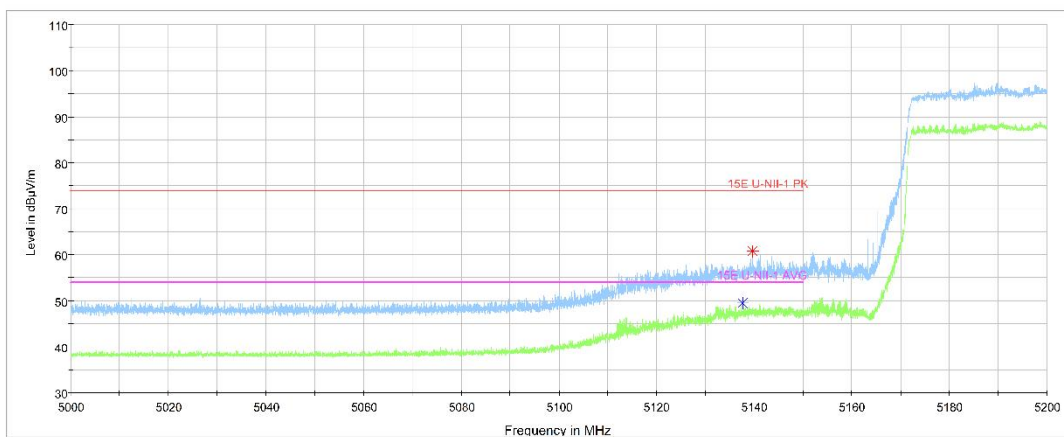
**Fig. 18 Band Edges (802.11ac-HT40 Ch62, 5310MHz)**



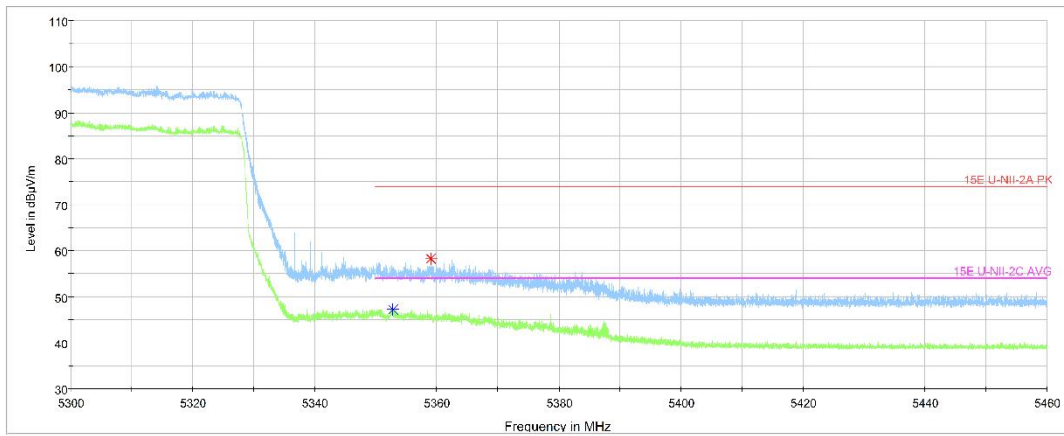
**Fig. 19 Band Edges (802.11ac-HT40 Ch102, 5510MHz)**



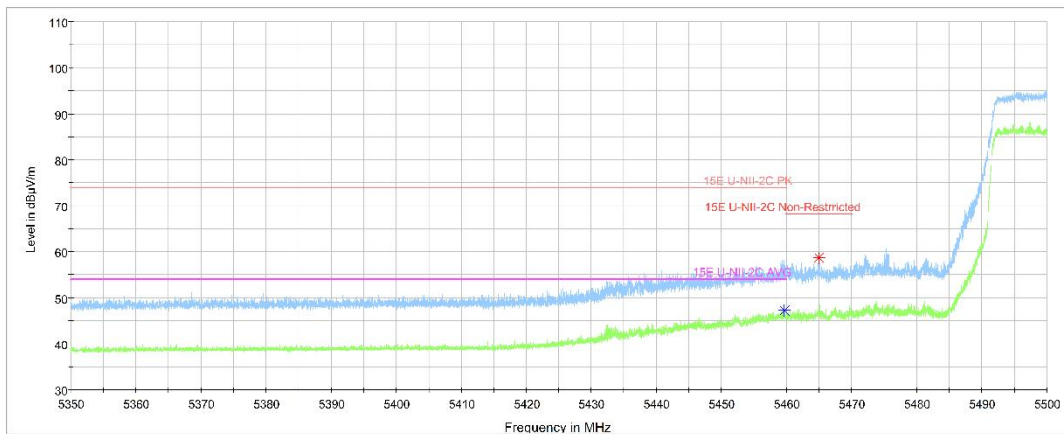
**Fig. 20 Band Edges (802.11ac-HT40 Ch134, 5670MHz)**



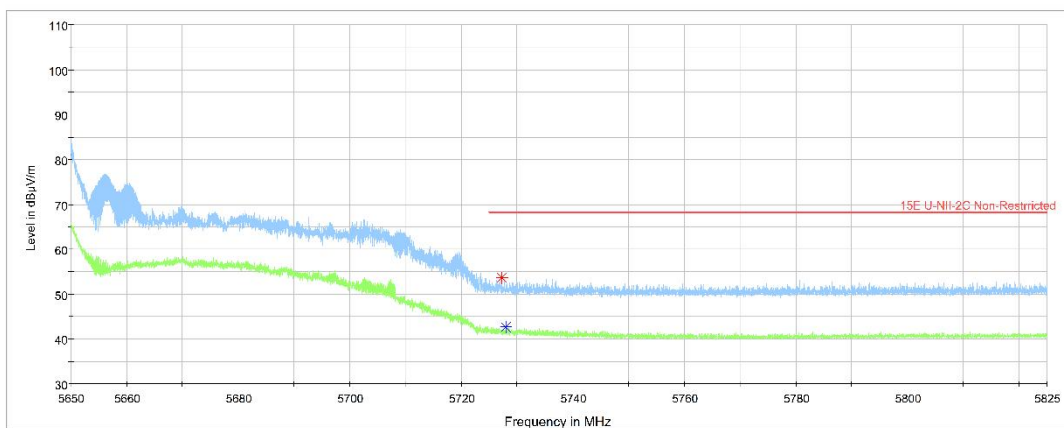
**Fig. 21 Band Edges (802.11ac-HT80 Ch42 , 5210MHz)**



**Fig. 22 Band Edges (802.11ac-HT80 Ch58, 5290MHz)**



**Fig. 23 Band Edges (802.11ac-HT80 Ch106, 5530MHz)**



**Fig. 24 Band Edges (802.11ac-HT80 Ch122, 5610MHz)**



### **A.6. AC Powerline Conducted Emission (150kHz- 30MHz)**

### A.6.1 Summary

All AC line conducted spurious emissions are measured with a receiver connected to a grounded LISN while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates and modes were investigated for conducted spurious emissions. Only the conducted emissions of the configuration that produced the worst case emissions are reported in this section

### A.6.2 Method of Measurement

See Clause 6.2 of ANSI C63.10 specifically.

See Clause 4 and Clause 5 of ANSI C63.10 generally.

The conducted emissions from the AC port of the EUT are measured in a shielding room. The EUT is connected to a Line Impedance Stabilization Network (LISN). An overview sweep with peak detection was performed. The measurements were performed with a quasi-peak detector and if required, an average detector.

The conducted emission measurements were made with the following detector of the test receiver:  
Quasi-Peak / Average Detector.

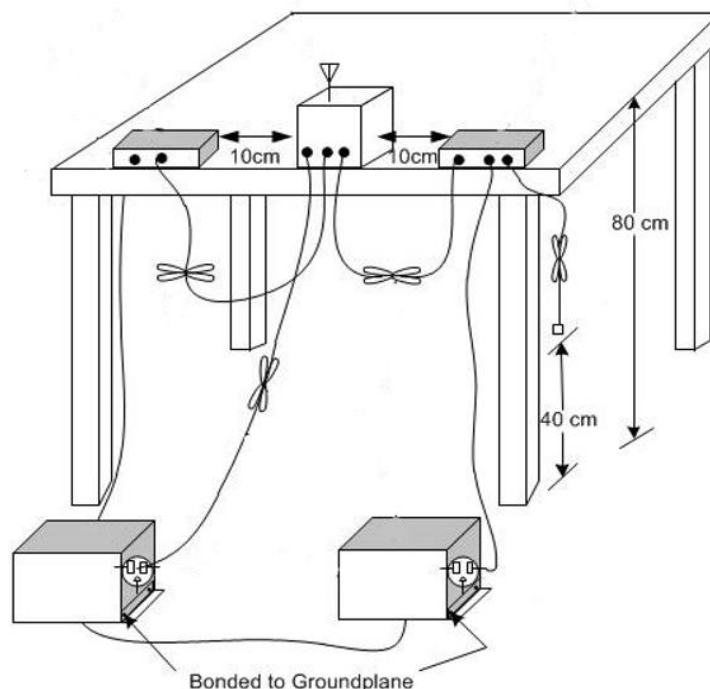
The measurement bandwidth is:

|                             |                  |
|-----------------------------|------------------|
| Frequency of Emission (MHz) | RBW/IF bandwidth |
| 0.15-30                     | 9kHz             |

### A.6.3 Test Condition

|             |                |
|-------------|----------------|
| Voltage (V) | Frequency (Hz) |
| 120         | 60             |

### A.6.4 Test setup





**Measurement Result and limit:**
**WLAN (Quasi-peak Limit)**

| Frequency range<br>(MHz) | Quasi-peak<br>Limit (dBμV) | Result (dBμV) |        | Conclusion |
|--------------------------|----------------------------|---------------|--------|------------|
|                          |                            | With charger  |        |            |
|                          |                            | 11a mode      | Idle   |            |
| 0.15 to 0.5              | 66 to 56                   | Fig.25        | Fig.26 | P          |
| 0.5 to 5                 | 56                         |               |        |            |
| 5 to 30                  | 60                         |               |        |            |

NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

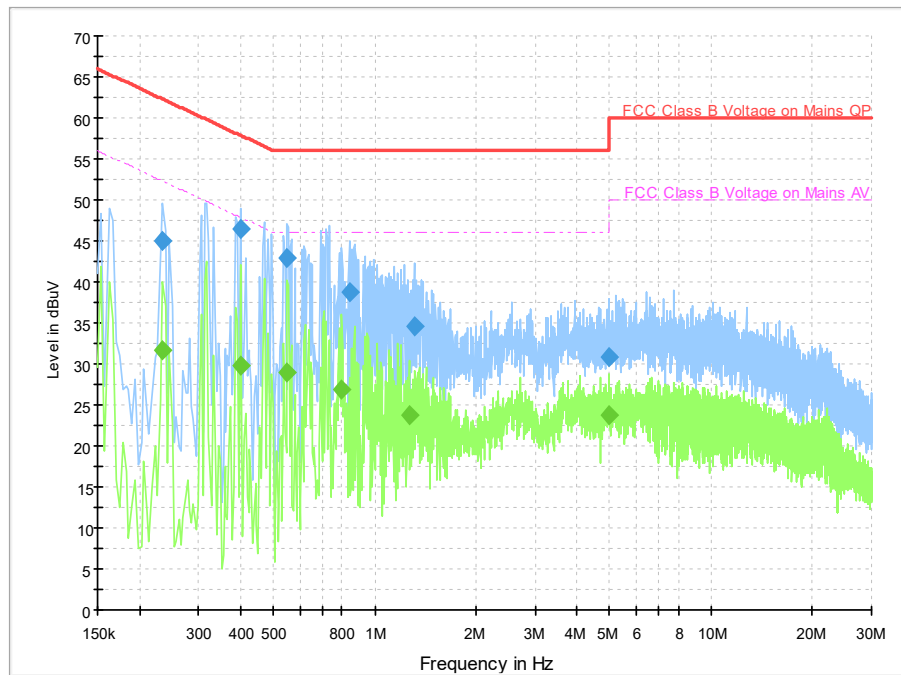
**WLAN (Average Limit)**

| Frequency range<br>(MHz) | Average Limit<br>(dBμV) | Result (dBμV) |        | Conclusion |
|--------------------------|-------------------------|---------------|--------|------------|
|                          |                         | With charger  |        |            |
|                          |                         | 11a mode      | Idle   |            |
| 0.15 to 0.5              | 56 to 46                | Fig.25        | Fig.26 | P          |
| 0.5 to 5                 | 46                      |               |        |            |
| 5 to 30                  | 50                      |               |        |            |

NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

**Conclusion: PASS**

**Test graphs as below:**



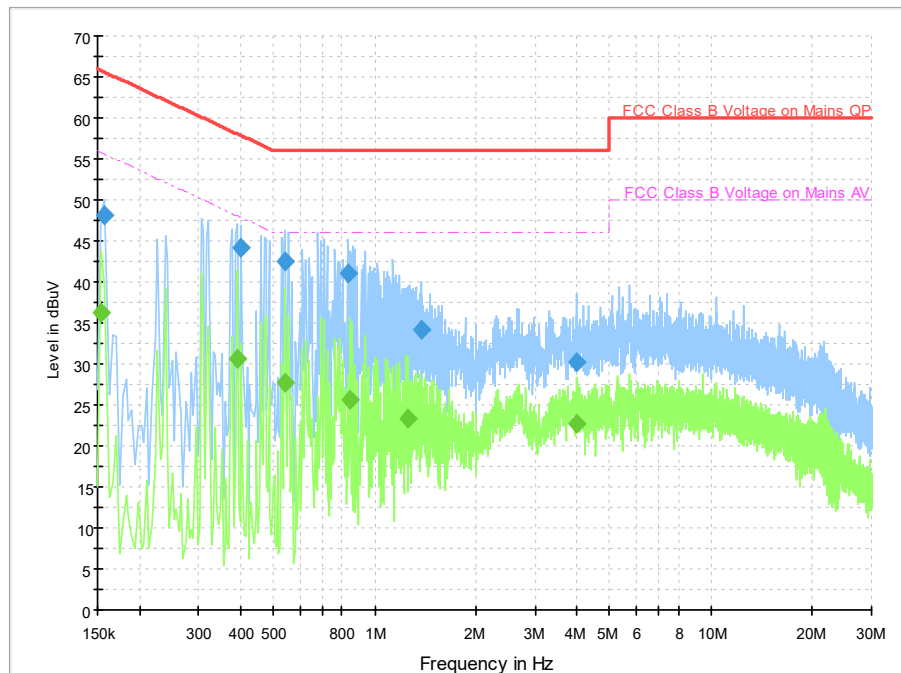
**Fig.25 Conducted Emission(802.11a, Ch40, TX)**

#### Final Result 1

| Frequency (MHz) | QuasiPeak (dBμV) | Meas. Time | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) | Comment |
|-----------------|------------------|------------|-----------------|--------|------|------------|-------------|--------------|---------|
| 0.234000        | 44.9             | 2000.0     | 9.000           | On     | N    | 19.8       | 17.4        | 62.3         |         |
| 0.398000        | 46.5             | 2000.0     | 9.000           | On     | L1   | 20.0       | 11.4        | 57.9         |         |
| 0.550000        | 42.8             | 2000.0     | 9.000           | On     | L1   | 20.0       | 13.2        | 56.0         |         |
| 0.842000        | 38.8             | 2000.0     | 9.000           | On     | N    | 19.8       | 17.2        | 56.0         |         |
| 1.310000        | 34.6             | 2000.0     | 9.000           | On     | L1   | 19.9       | 21.4        | 56.0         |         |
| 4.986000        | 30.8             | 2000.0     | 9.000           | On     | L1   | 19.8       | 25.2        | 56.0         |         |

#### Final Result 2

| Frequency (MHz) | CAverage (dBμV) | Meas. Time | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) | Comment |
|-----------------|-----------------|------------|-----------------|--------|------|------------|-------------|--------------|---------|
| 0.234000        | 31.6            | 2000.0     | 9.000           | On     | N    | 19.8       | 20.7        | 52.3         |         |
| 0.398000        | 29.8            | 2000.0     | 9.000           | On     | L1   | 20.0       | 18.1        | 47.9         |         |
| 0.550000        | 28.9            | 2000.0     | 9.000           | On     | L1   | 20.0       | 17.1        | 46.0         |         |
| 0.798000        | 26.8            | 2000.0     | 9.000           | On     | L1   | 19.9       | 19.2        | 46.0         |         |
| 1.266000        | 23.7            | 2000.0     | 9.000           | On     | L1   | 19.9       | 22.3        | 46.0         |         |
| 4.974000        | 23.8            | 2000.0     | 9.000           | On     | L1   | 19.8       | 22.2        | 46.0         |         |



**Fig.26 Conducted Emission(802.11a, IDLE)**

#### Final Result 1

| Frequency (MHz) | QuasiPeak (dBμV) | Meas. Time | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) | Comment |
|-----------------|------------------|------------|-----------------|--------|------|------------|-------------|--------------|---------|
| 0.158000        | 48.1             | 2000.0     | 9.000           | On     | N    | 19.9       | 17.5        | 65.6         |         |
| 0.402000        | 44.1             | 2000.0     | 9.000           | On     | L1   | 20.0       | 13.7        | 57.8         |         |
| 0.542000        | 42.6             | 2000.0     | 9.000           | On     | N    | 19.9       | 13.4        | 56.0         |         |
| 0.830000        | 40.9             | 2000.0     | 9.000           | On     | L1   | 19.9       | 15.1        | 56.0         |         |
| 1.370000        | 34.2             | 2000.0     | 9.000           | On     | N    | 19.7       | 21.8        | 56.0         |         |
| 3.966000        | 30.2             | 2000.0     | 9.000           | On     | L1   | 19.8       | 25.8        | 56.0         |         |

#### Final Result 2

| Frequency (MHz) | CAverage (dBμV) | Meas. Time | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) | Comment |
|-----------------|-----------------|------------|-----------------|--------|------|------------|-------------|--------------|---------|
| 0.154000        | 36.2            | 2000.0     | 9.000           | On     | L1   | 20.0       | 19.6        | 55.8         |         |
| 0.390000        | 30.6            | 2000.0     | 9.000           | On     | L1   | 19.9       | 17.5        | 48.1         |         |
| 0.542000        | 27.7            | 2000.0     | 9.000           | On     | N    | 19.9       | 18.3        | 46.0         |         |
| 0.846000        | 25.7            | 2000.0     | 9.000           | On     | N    | 19.8       | 20.3        | 46.0         |         |
| 1.258000        | 23.4            | 2000.0     | 9.000           | On     | L1   | 19.9       | 22.6        | 46.0         |         |
| 3.990000        | 22.8            | 2000.0     | 9.000           | On     | L1   | 19.8       | 23.2        | 46.0         |         |

### **A.7. 99% Occupied bandwidth**

Method of Measurement: See ANSI C63.10-2013-clause 12.4.2.

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

#### **Measurement Uncertainty:**

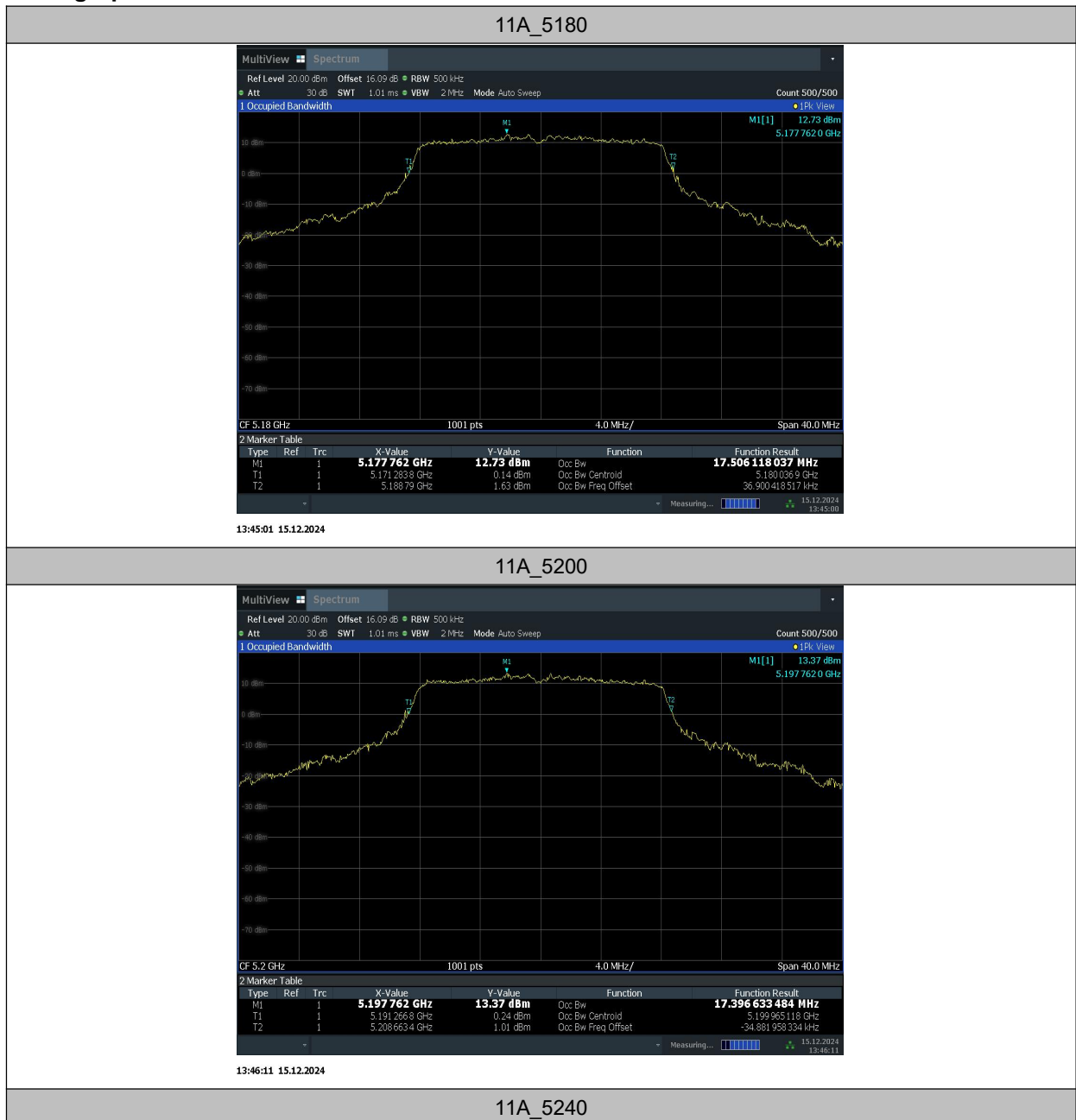
|                         |         |
|-------------------------|---------|
| Measurement Uncertainty | 60.80Hz |
|-------------------------|---------|

**EUT ID: UT48a**

#### **Measurement Result:**

| TestMode   | Frequency[MHz] | OCB [MHz] | FL[MHz]   | FH[MHz]   | Limit[MHz] | Verdict |
|------------|----------------|-----------|-----------|-----------|------------|---------|
| 11A        | 5180           | 17.506    | 5171.2838 | 5188.7900 | ---        | ---     |
|            | 5200           | 17.397    | 5191.2668 | 5208.6634 | ---        | ---     |
|            | 5240           | 17.474    | 5231.2225 | 5248.6969 | ---        | ---     |
| 11N20SISO  | 5180           | 18.56     | 5170.7828 | 5189.3429 | ---        | ---     |
|            | 5200           | 18.44     | 5190.8035 | 5209.2433 | ---        | ---     |
|            | 5240           | 18.553    | 5230.7343 | 5249.2868 | ---        | ---     |
| 11N40SISO  | 5190           | 36.473    | 5171.7865 | 5208.2591 | ---        | ---     |
|            | 5230           | 36.508    | 5211.7403 | 5248.2482 | ---        | ---     |
| 11AC80SISO | 5210           | 75.845    | 5172.0905 | 5247.9354 | ---        | ---     |

Test graphs as below:





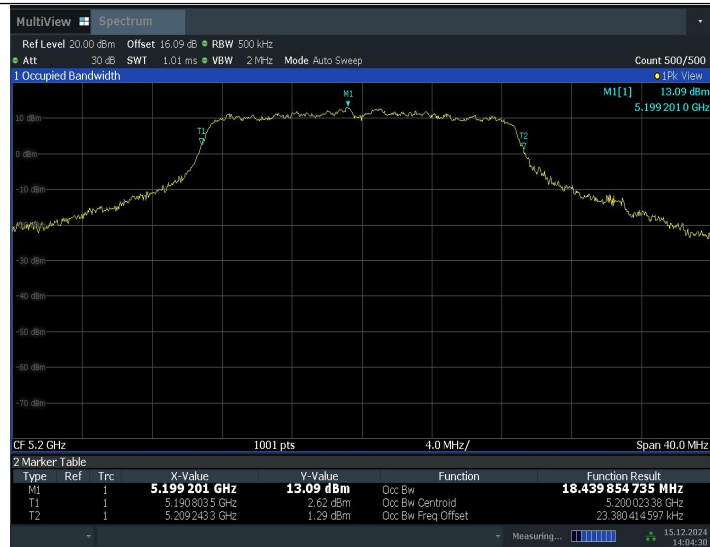
13:47:15 15.12.2024

11N20SISO\_5180



14:03:27 15.12.2024

11N20SISO\_5200



14:04:30 15.12.2024

11N20SISO\_5240



14:06:06 15.12.2024

11N40SISO\_5190



12:53:24 15.12.2024

11N40SISO\_5230



12:54:31 15.12.2024

11AC80SISO\_5210





**Conclusion: PASS**

### **A.8. Antenna Requirement**

The antenna of the device is permanently attached. There are no provisions for connection to an external antenna.

The unit complies with the requirement of FCC Part 15.203.

### **A.9. Power control**

A Transmission Power Control mechanism is not required for systems with an e.i.r.p. of less than 27dBm (500 mW).

## **ANNEX B: EUT parameters**

Disclaimer: The antenna gain and worse case provided by the client may affect the validity of the measurement results in this report, and the client shall bear the impact and consequences arising therefrom.

## **ANNEX C: Accreditation Certificate**



### **Accredited Laboratory**

A2LA has accredited

#### **TELECOMMUNICATION TECHNOLOGY LABS, CAICT**

*Beijing, People's Republic of China*

for technical competence in the field of

#### **Electrical Testing**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).



Presented this 23<sup>rd</sup> day of July 2024.



Mr. Trace McInturf, Vice President, Accreditation Services  
For the Accreditation Council  
Certificate Number 7049.01  
Valid to July 31, 2026

*For the tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.*

**\*\*\* END OF REPORT BODY \*\*\***