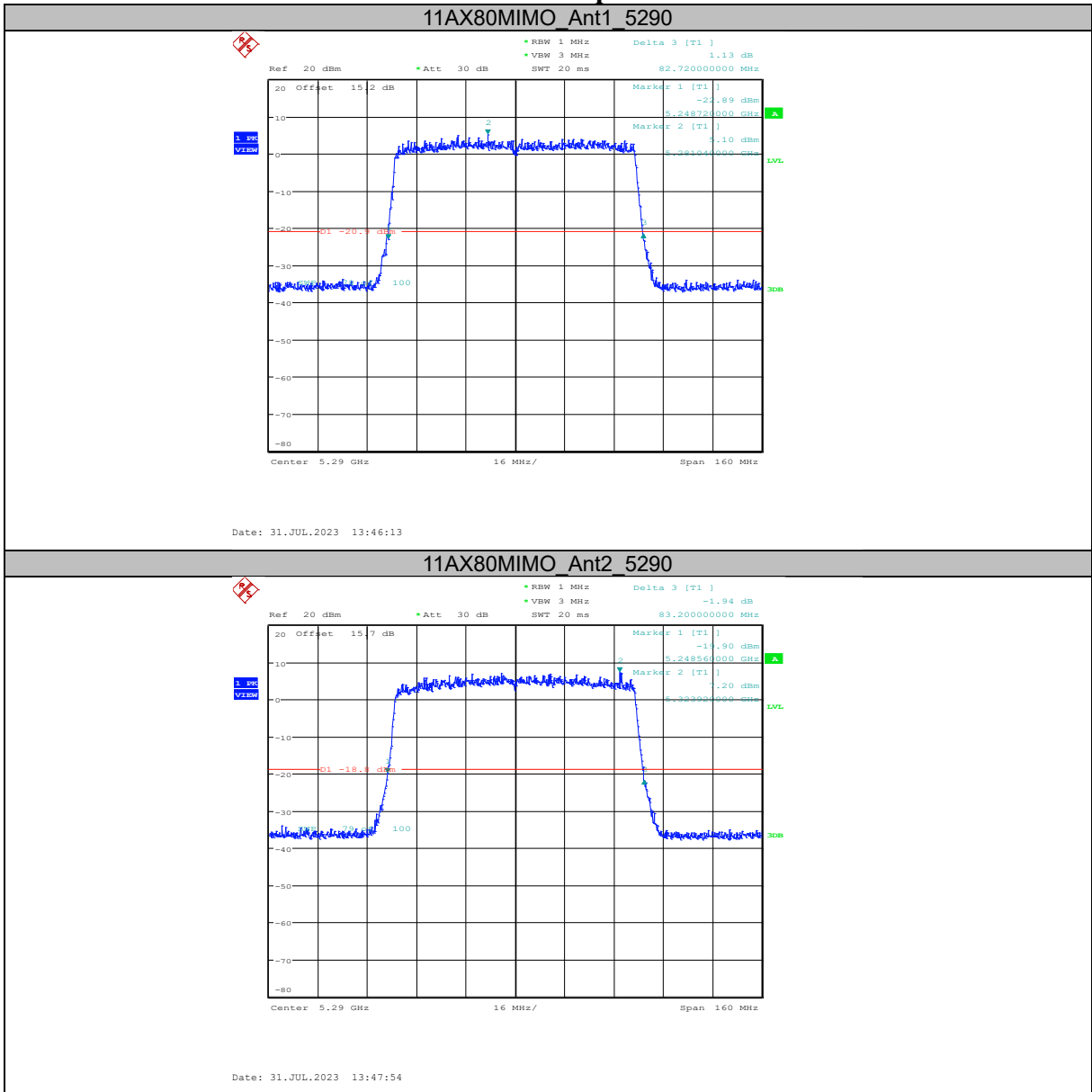


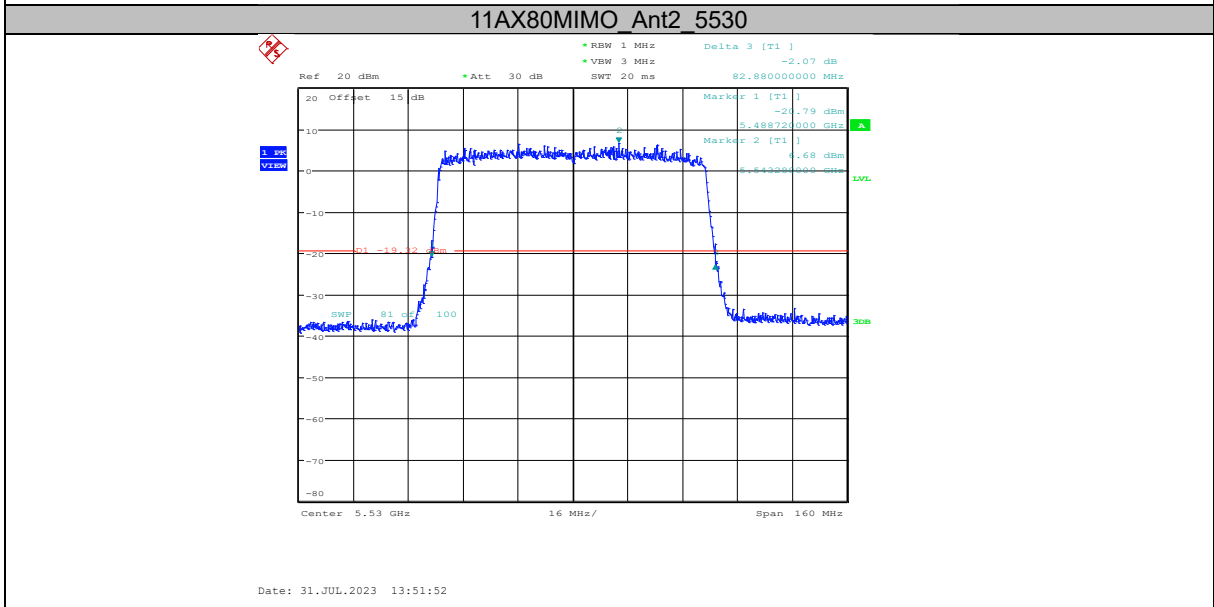
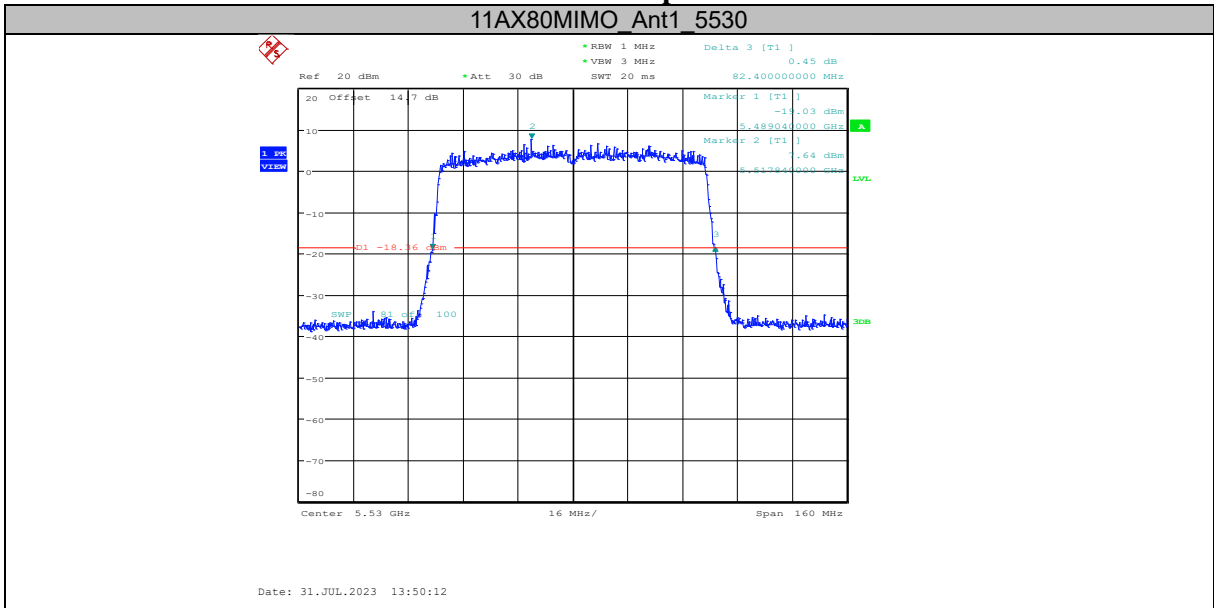
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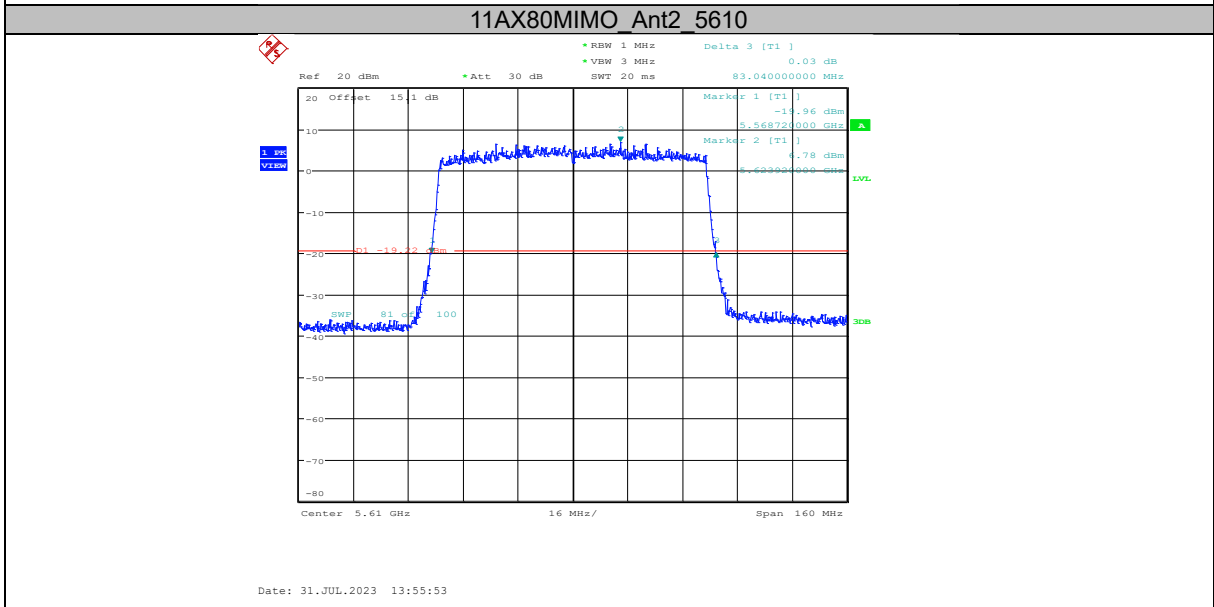
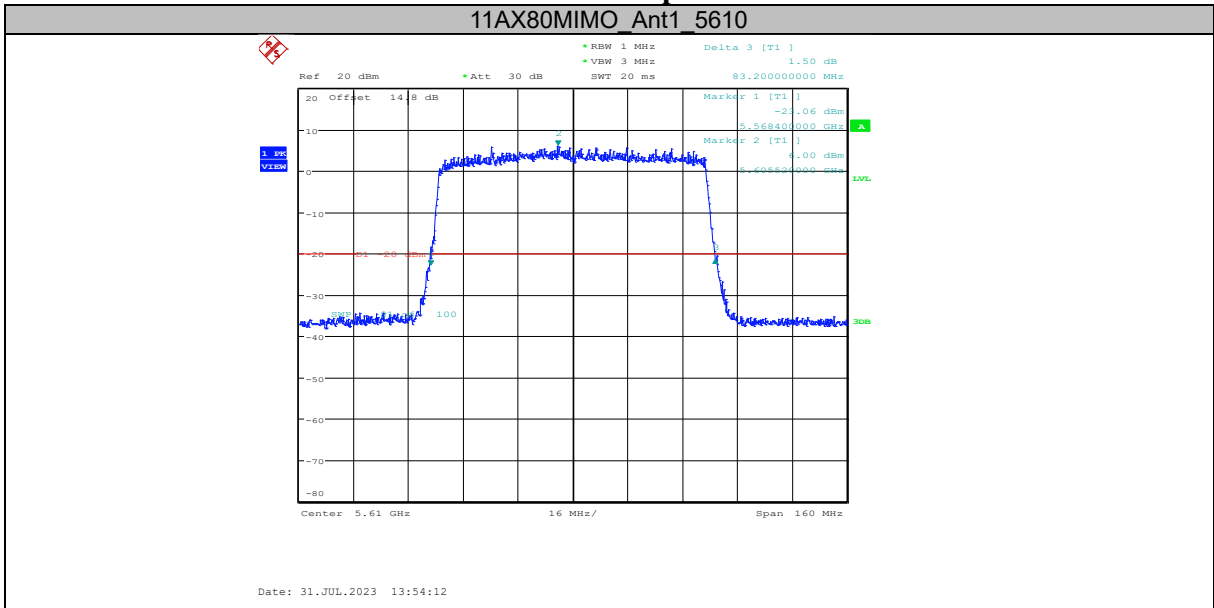
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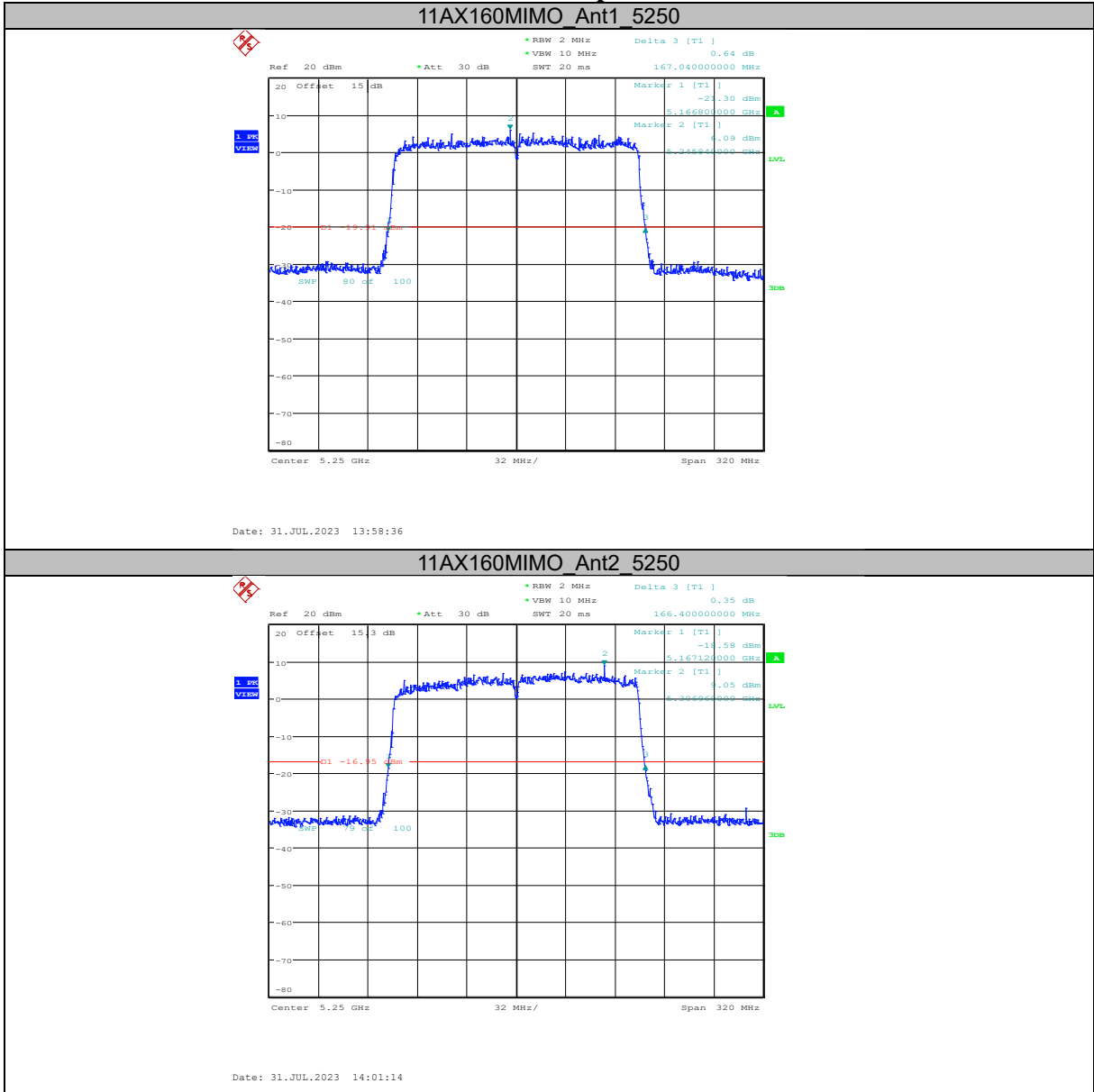
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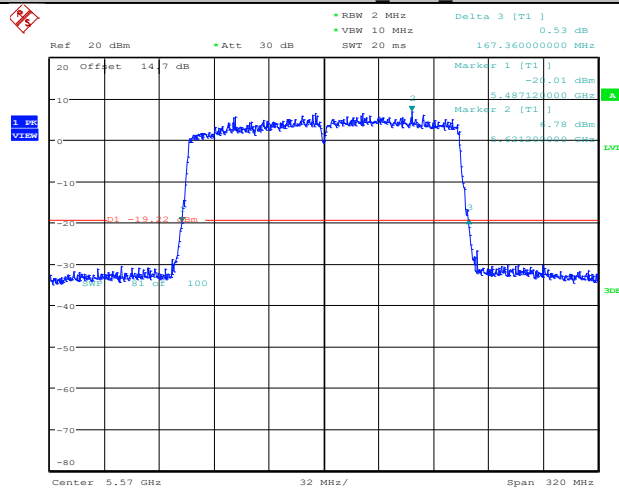
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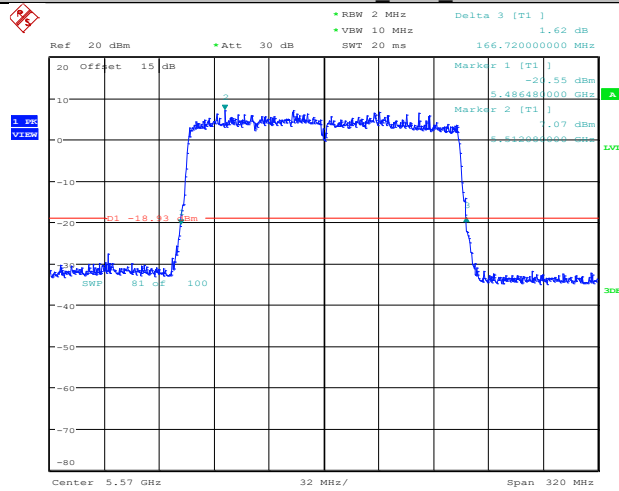
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11AX160MIMO_Ant1_5570



Date: 31.JUL.2023 14:05:28

11AX160MIMO_Ant2_5570



Date: 31.JUL.2023 14:07:32

6.7 Band Edges Compliance

Specifications:	15.209 & 15.407(b)
DUT Serial Number:	S8 S11
Test conditions:	Ambient Temperature:20°C Relative Humidity:40% Air pressure: 90kPa
Test Results:	Pass

Limit Level Construction:

Above 1G, non-restricted band

Standard	EIRP Limit
15.407(b)	< -27dBm/MHz

Above 1G, Restricted band

Standard	EIRP Limit	
15.407(b)	< -27dBm/MHz	
15.209	Peak	74dBμV/m
	Average	54dBμV/m

$$\text{EIRP}[\text{dBm}] = \text{E}[\text{dB}\mu\text{V/m}] + 20 \log(d[\text{m}]) - 104.7$$

$$\text{E}[\text{dB}\mu\text{V/m}] = \text{EIRP}[\text{dBm}] - 20 \log(d[\text{m}]) + 104.7$$

$$\text{E}[\text{dB}\mu\text{V/m}] = \text{EIRP}[\text{dBm}] + 95.2 = 68.2, \text{ for } d = 3\text{m}$$

Measurement Uncertainty:

Measurement Uncertainty	1 GHz to 6 GHz: 4.84 dB (k=2).
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Test Procedure:

The measurement is made according to KDB 789033.

Marker-Delta Method: The marker-delta method, as described in ANSI C63.10, can be used to perform measurements of the radiated unwanted emissions level of emissions provided that the 99% occupied bandwidth of the fundamental is within 2 MHz of the authorized band-edge.

Procedure for peak unwanted emissions measurements above 1000 MHz

The procedure for peak unwanted emissions measurements above 1000 MHz is as follows:

- a) Follow the requirements in 12.7.4.
- b) Peak emission levels are measured by setting the instrument as follows:
 - 1) RBW = 1 MHz.
 - 2) VBW ≥ [3 × RBW].

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3) Detector = peak.

4) Sweep time = auto.

5) Trace mode = max hold.

6) Allow sweeps to continue until the trace stabilizes. Note that if the transmission is not continuous, then the time required for the trace to stabilize will increase by a factor of approximately $1 / D$, where D is the duty cycle. For example, at 50% duty cycle, the measurement time will increase by a factor of two, relative to measurement time for continuous transmission.

Procedures for average unwanted emissions measurements above 1000 MHz

a) RBW = 1 MHz.

b) Video bandwidth:

1) If the EUT is configured to transmit with $D \geq 98\%$, then set $VBW \leq RBW / 100$ (i.e., 10 kHz), but not less than 10 Hz.

2) If the EUT D is $< 98\%$, then set $VBW \geq 1 / T$, where T is defined in item a1) of 12.2.

c) Video bandwidth mode or display mode:

1) The instrument shall be set with video filtering applied in the power domain. Typically, this requires setting the detector mode to RMS (power averaging) and setting the average-VBW type to power (rms).

2) As an alternative, the instrument may be set to linear detector mode. Video filtering shall be applied in linear voltage domain (rather than in a log or dB domain). Some instruments require linear display mode to accomplish this. Others have a setting for average-VBW type, which can be set to “voltage” regardless of the display mode.

d) Detector = peak.

e) Sweep time = auto.

f) Trace mode = max hold.

g) Allow max hold to run for at least 50 traces if the transmitted signal is continuous or has at least 98% duty cycle. For lower duty cycles, increase the minimum number of traces by a factor of $1/x$, where D is the duty cycle. For example, use at least 200 traces if the duty cycle is 25%. (If a specific emission is demonstrated to be continuous—i.e., 100% duty cycle—then rather than turning ON and OFF with the transmit cycle, at least 50 traces should be averaged.)

The measurement was applied in a fully anechoic chamber. While testing for spurious emission higher than 1GHz, if applied, the pre-amplifier would be equipped just at the output terminal of the antenna. Tabletop

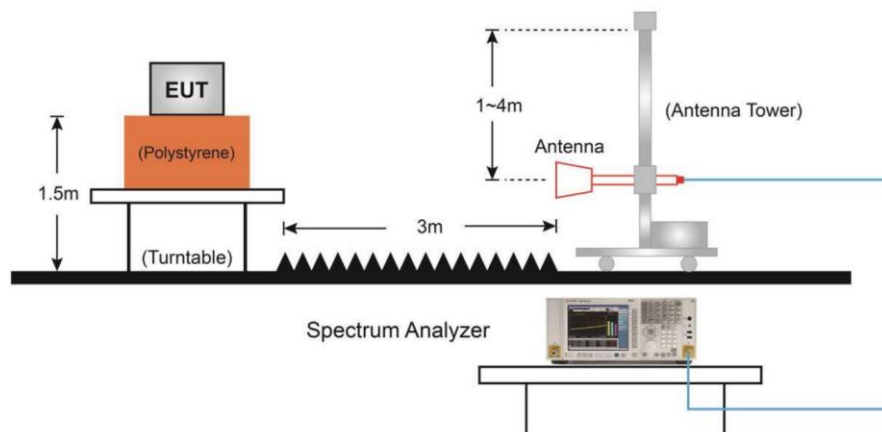
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devices shall be placed on a nonconducting platform with nominal top surface dimensions 1 m by 1.5 m. For emission measurements above 1 GHz, the table height shall be 1.5 m. The turntable rotated 360 degrees to determine the position of the maximum emission level. The EUT was set 3 meters away from the receiving antenna which was mounted on an antenna mast. During the tests, the antenna height varied from 1m to 4m and the EUT azimuth were varied from 0° to 360° in order to identify the maximum level of emissions from the EUT. In making any tests involving handheld, body-worn, or ceiling-mounted equipment, it is essential to recognize that the measured levels may be dependent on the orientation (attitude) of the three orthogonal axes of the EUT. Thus, exploratory tests as specified in 8.3.1 shall be carried out for various axes orientations to determine the attitude having maximum or near-maximum emission level. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

Test Setup

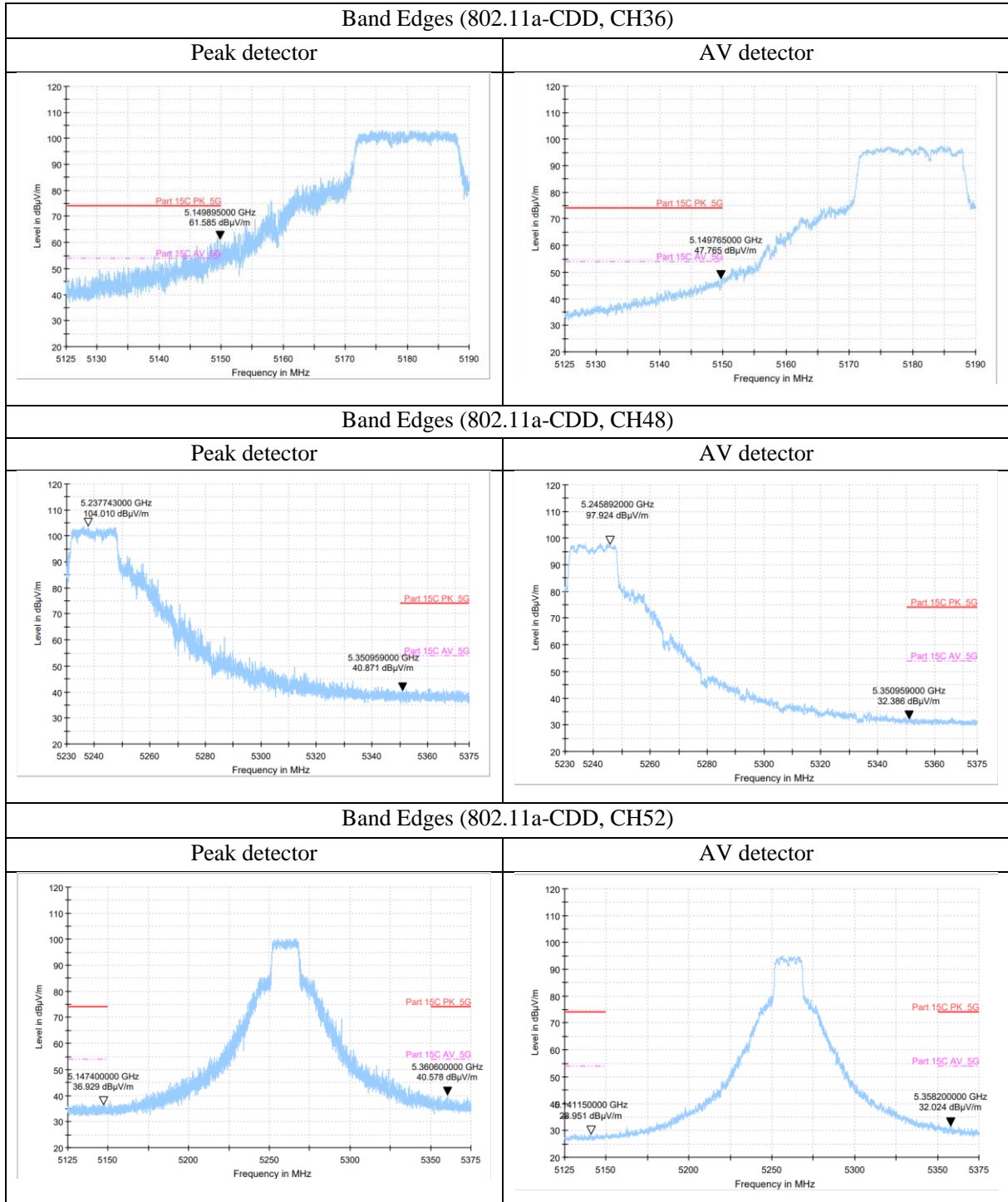


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Measurement Results:

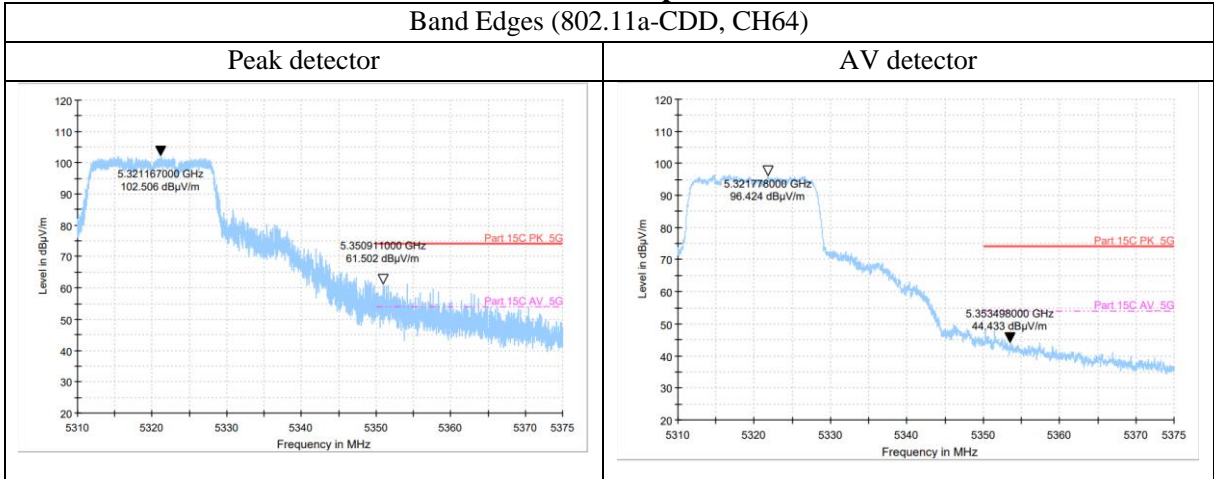
Mainly Supply (S8 L15A1)



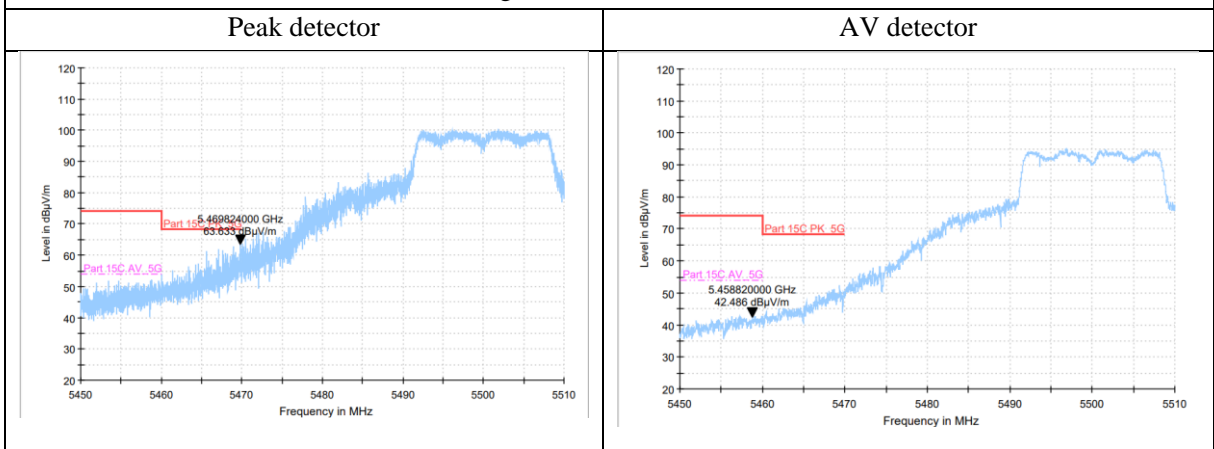
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Band Edges (802.11a-CDD, CH64)



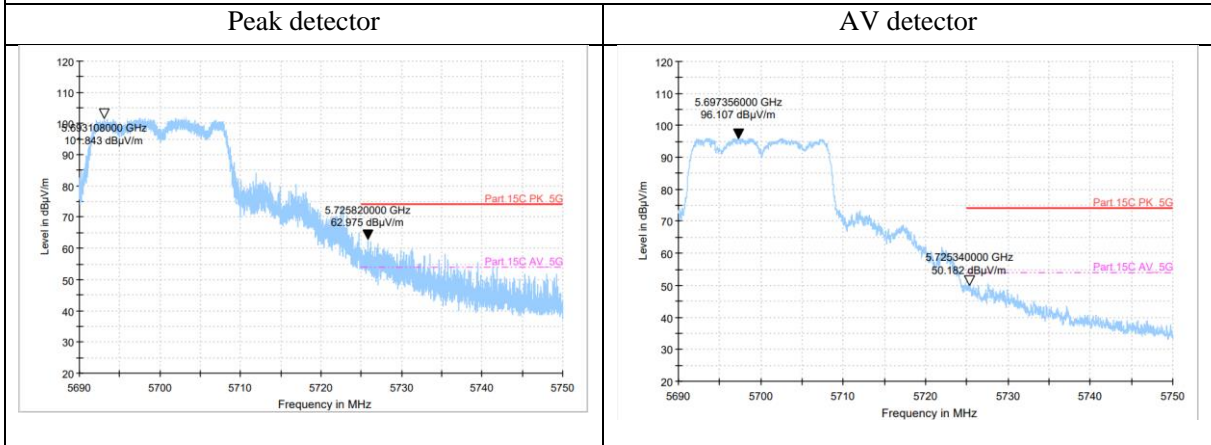
Band Edges (802.11a-CDD, CH100)



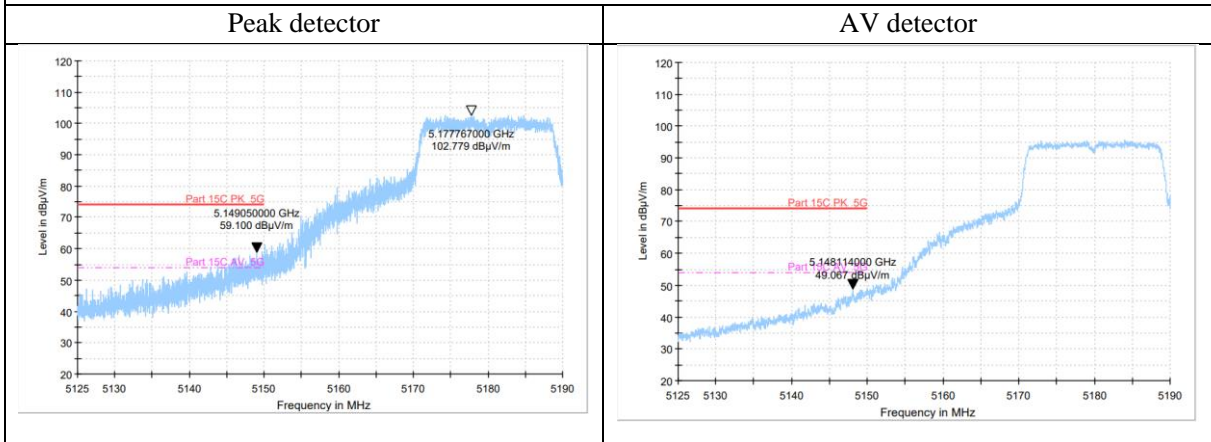
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Band Edges (802.11a-CDD, CH140)



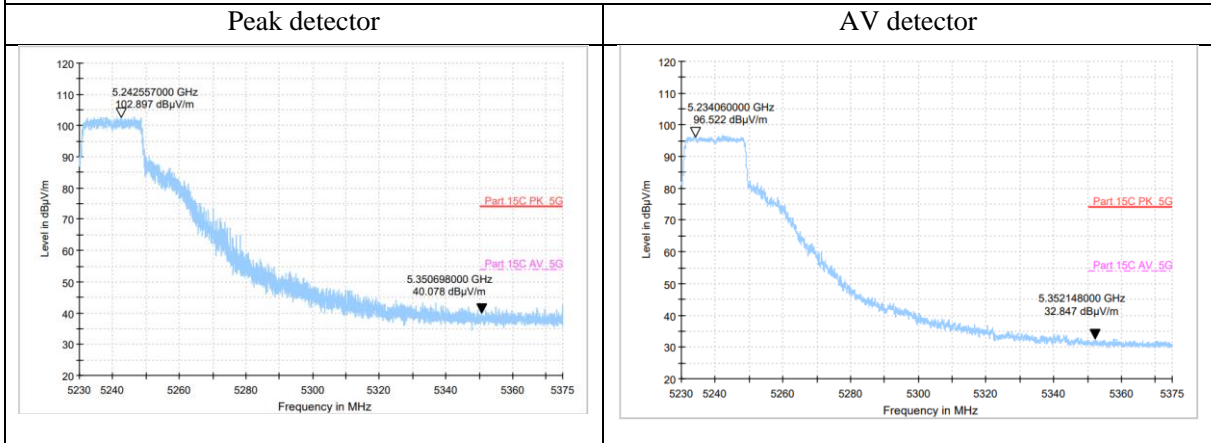
Band Edges (802.11n 20M-MIMO, CH36)



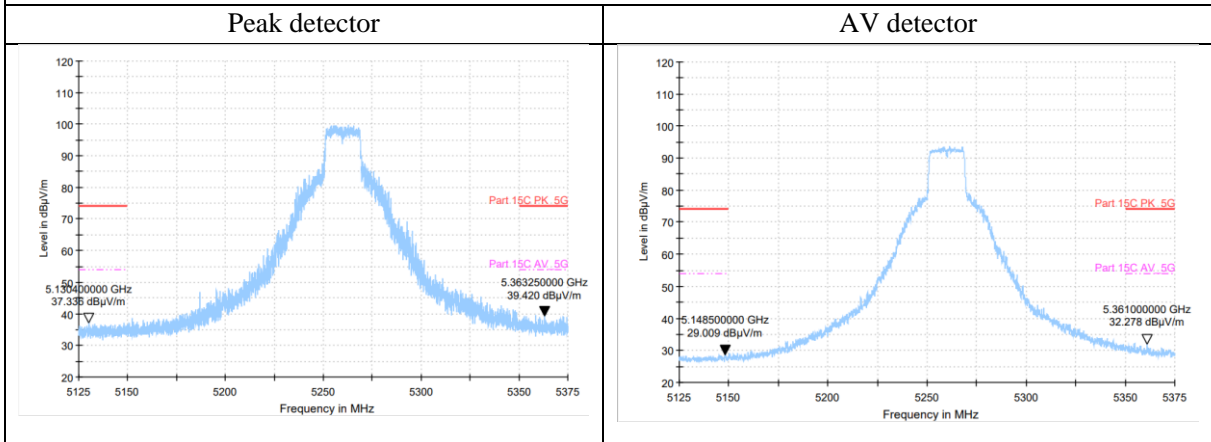
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Band Edges (802.11n 20M-MIMO, CH48)



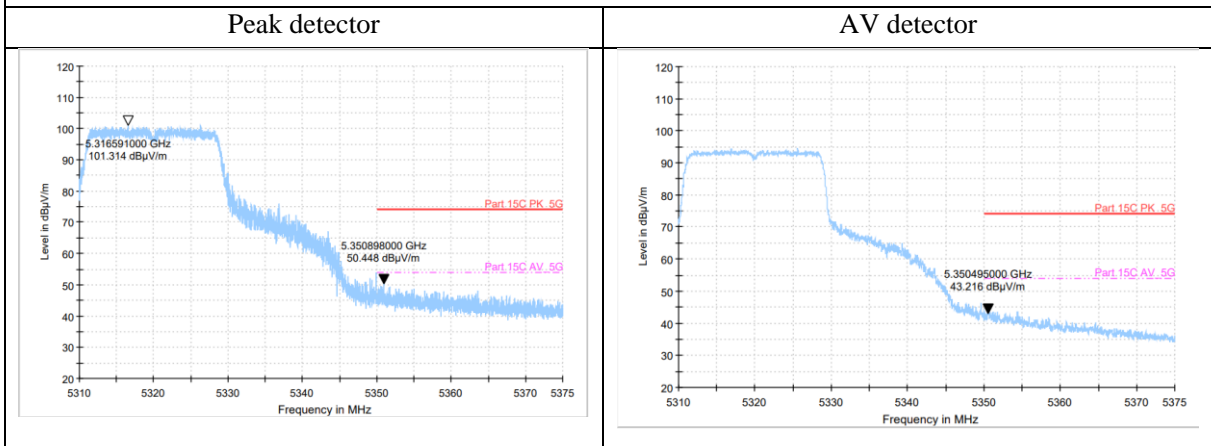
Band Edges (802.11n 20M-MIMO, CH52)



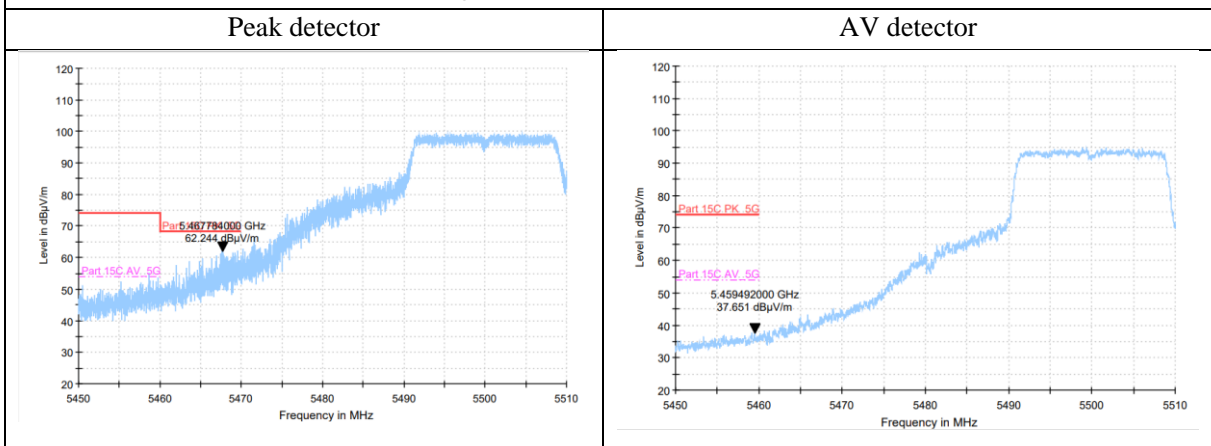
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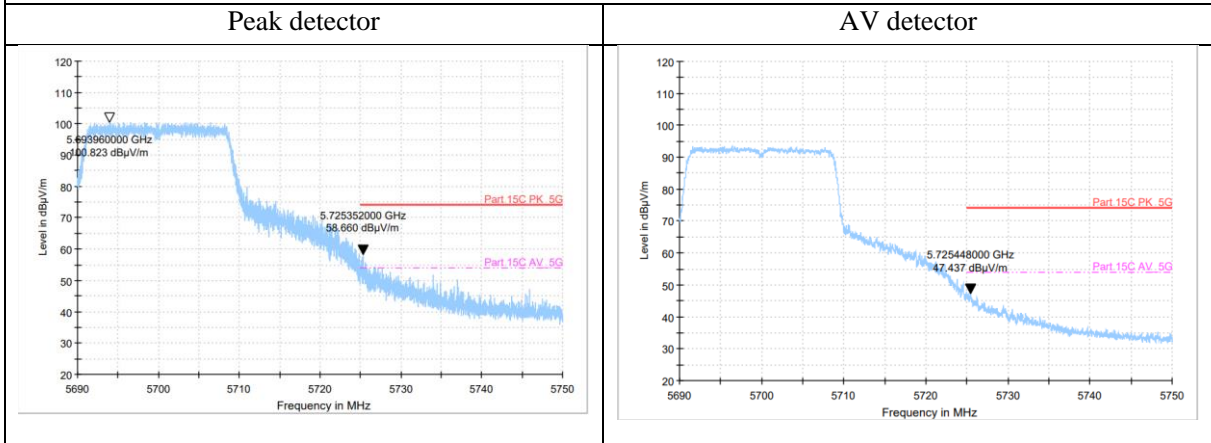
Band Edges (802.11n 20M-MIMO, CH64)



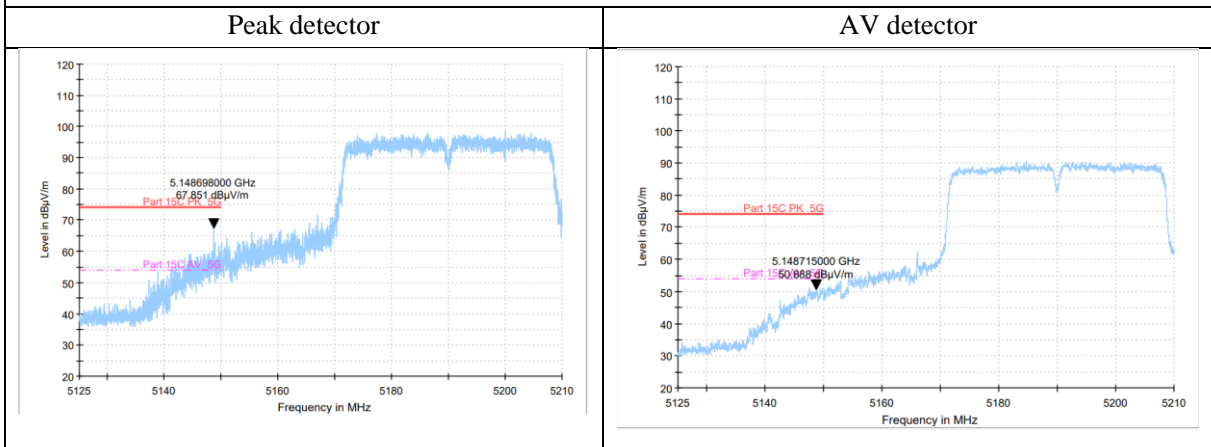
Band Edges (802.11n 20M-MIMO, CH100)



Band Edges (802.11n 20M-MIMO, CH140)



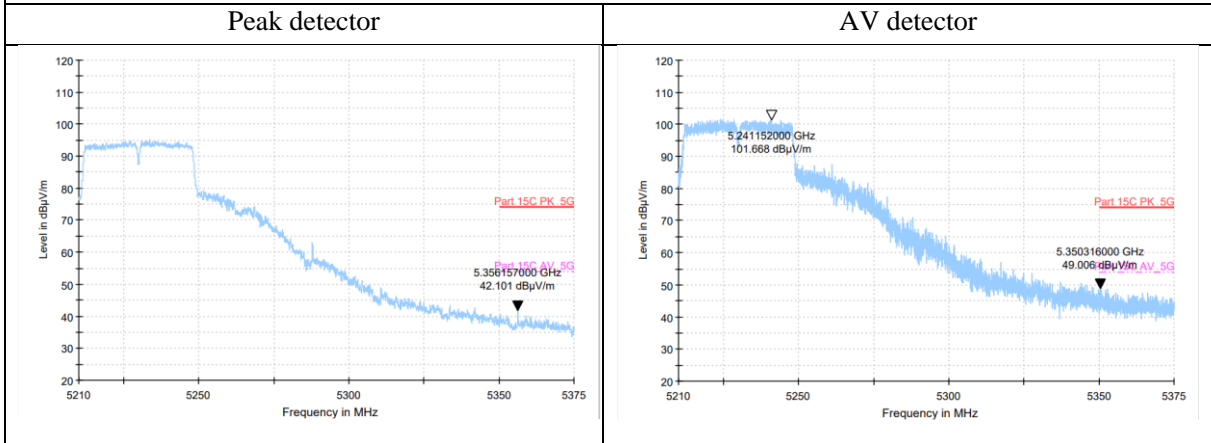
Band Edges (802.11n 40M-MIMO, CH38)



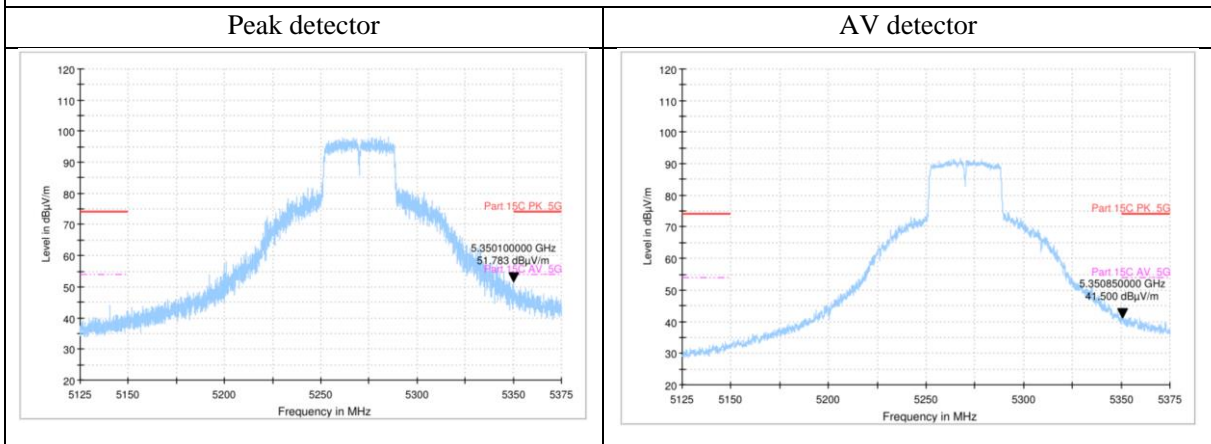
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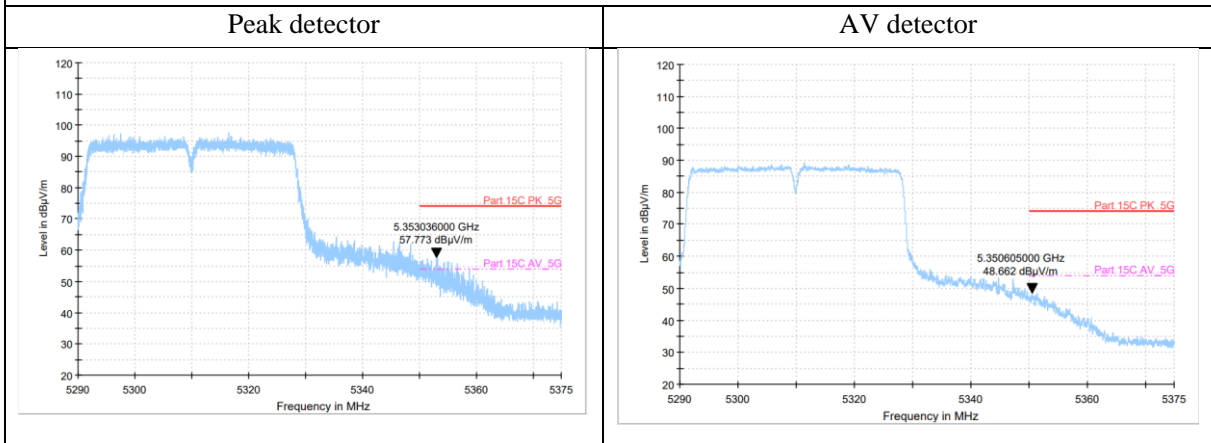
Band Edges (802.11n 40M-MIMO, CH46)



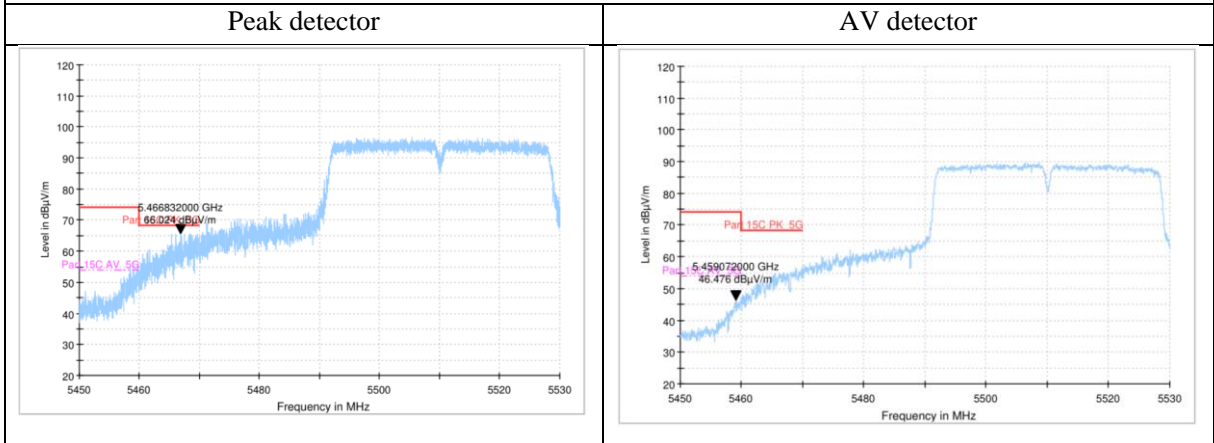
Band Edges (802.11n 40M-MIMO, CH54)



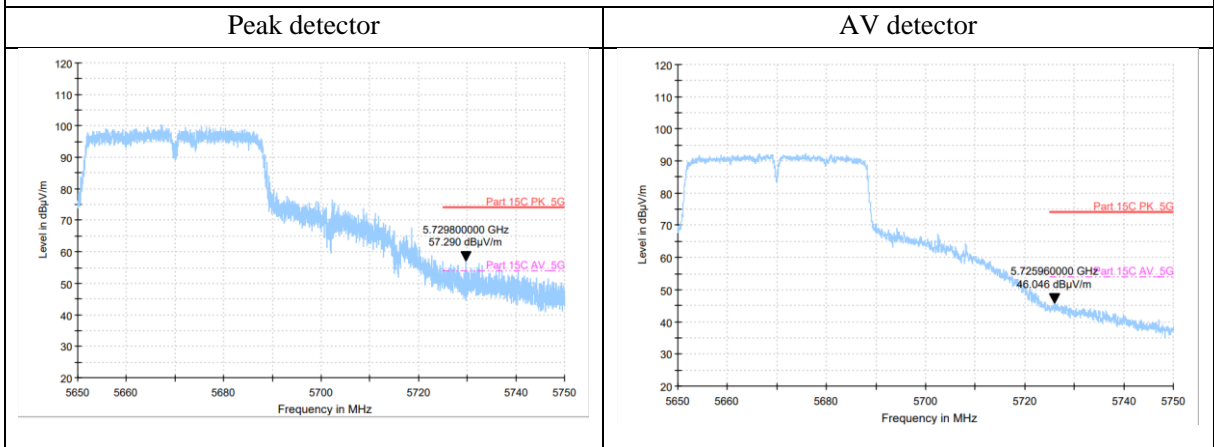
Band Edges (802.11n 40M-MIMO, CH62)



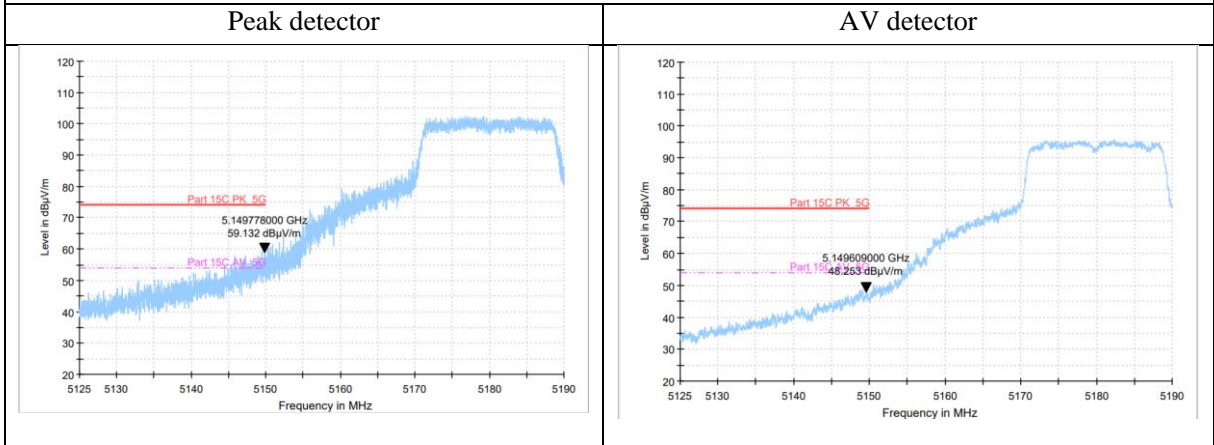
Band Edges (802.11n 40M-MIMO, CH102)



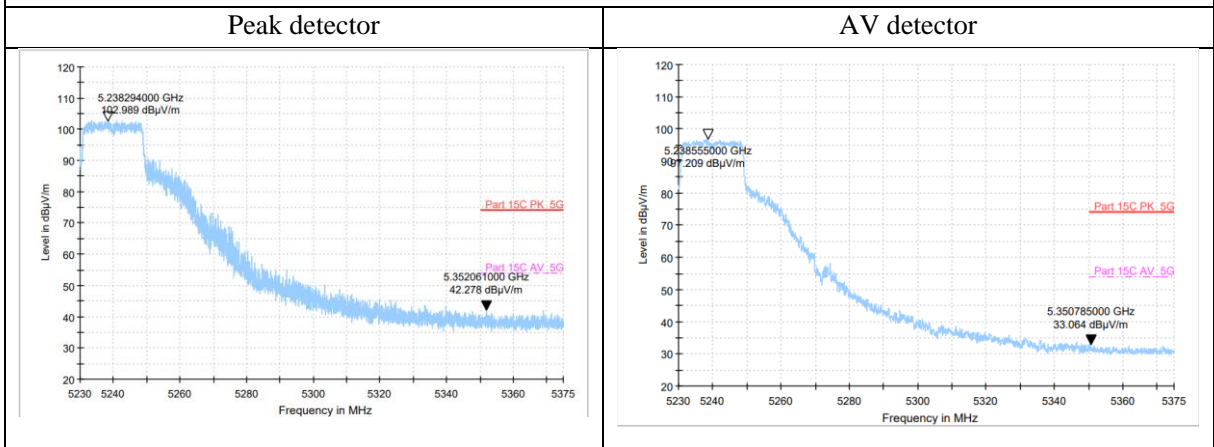
Band Edges (802.11n 40M-MIMO, CH134)



Band Edges (802.11ac 20M-MIMO, CH36)



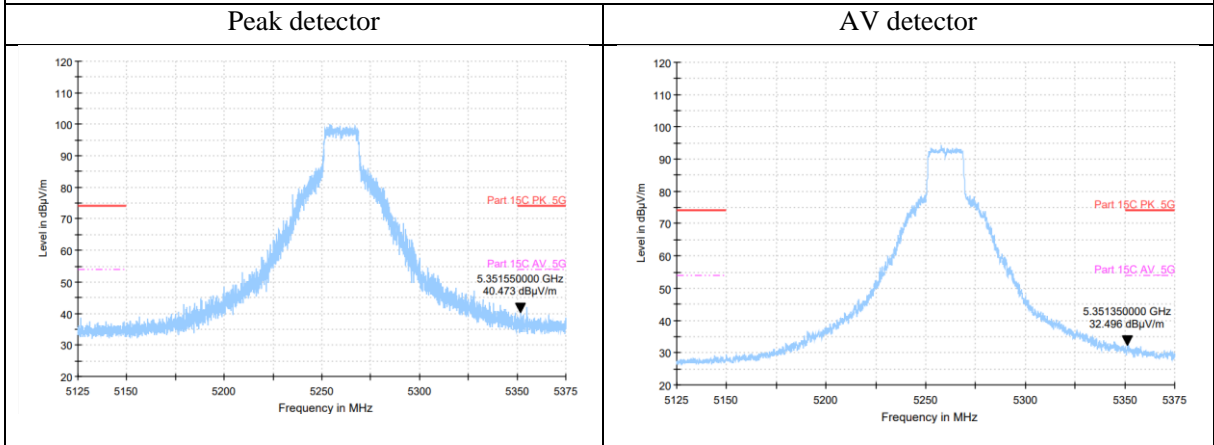
Band Edges (802.11ac 20M-MIMO, CH48)



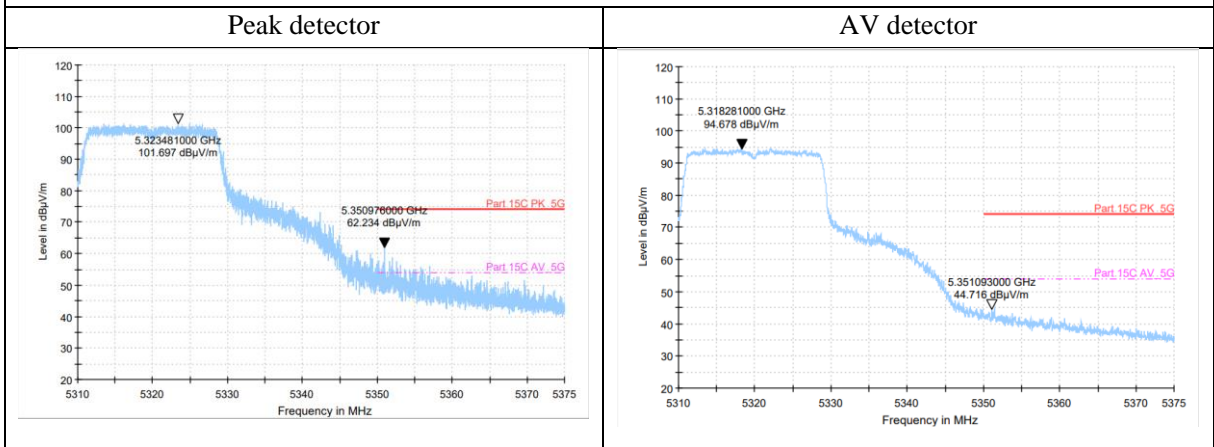
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Band Edges (802.11ac 20M-MIMO, CH52)



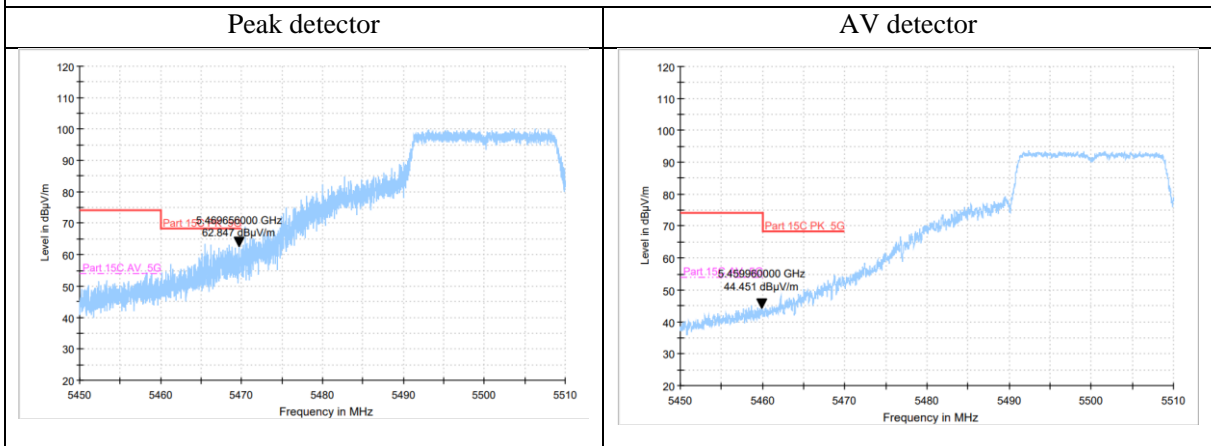
Band Edges (802.11ac 20M-MIMO, CH64)



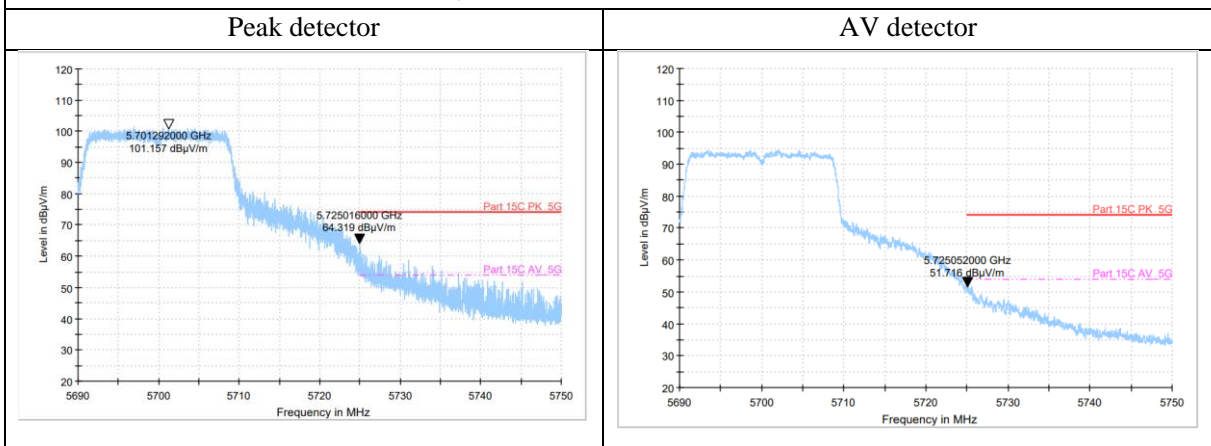
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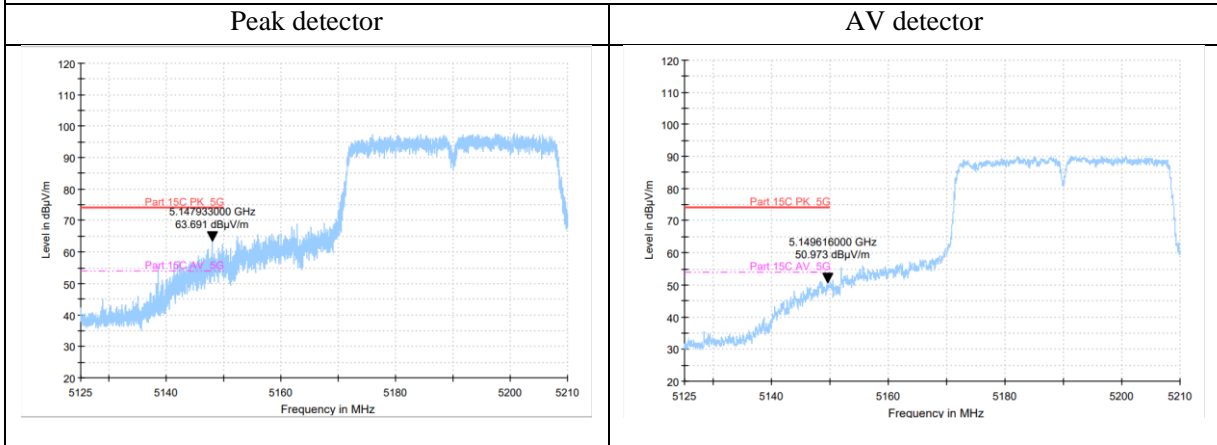
Band Edges (802.11ac 20M-MIMO, CH100)



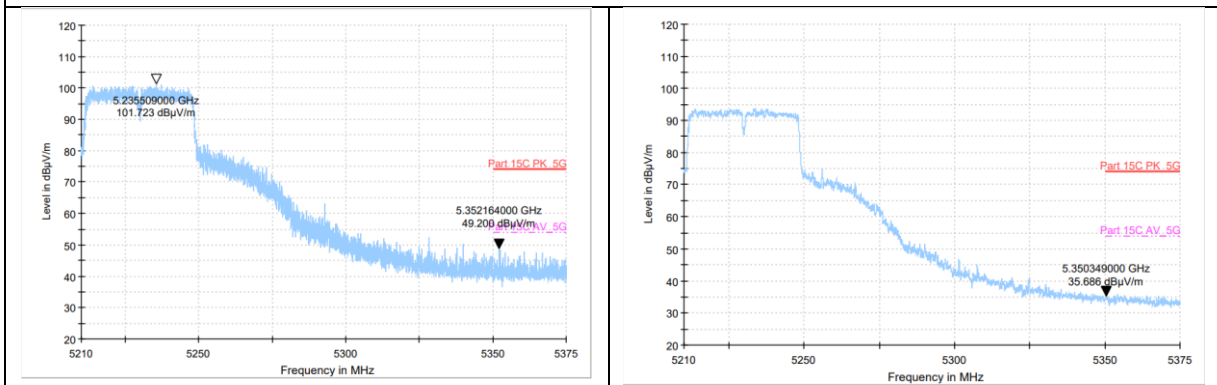
Band Edges (802.11ac 20M-MIMO, CH140)



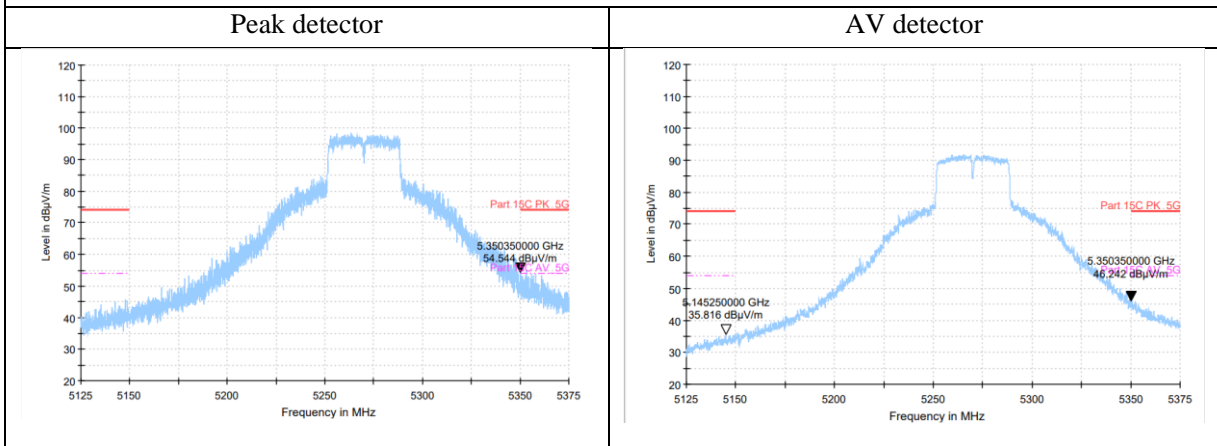
Band Edges (802.11ac 20M-MIMO 40M, CH38)



Band Edges (802.11ac 20M-MIMO 40M, CH46)



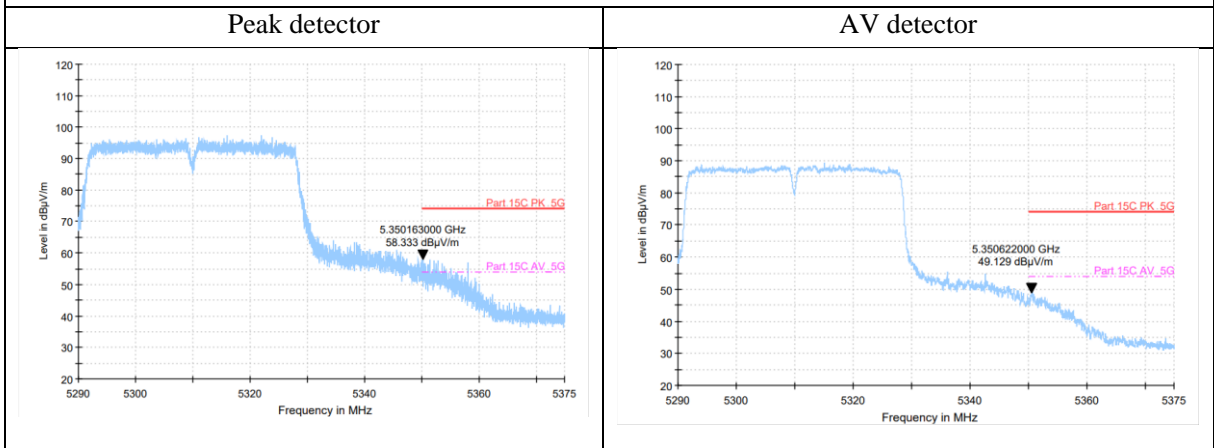
Band Edges (802.11ac 40M-MIMO, CH54)



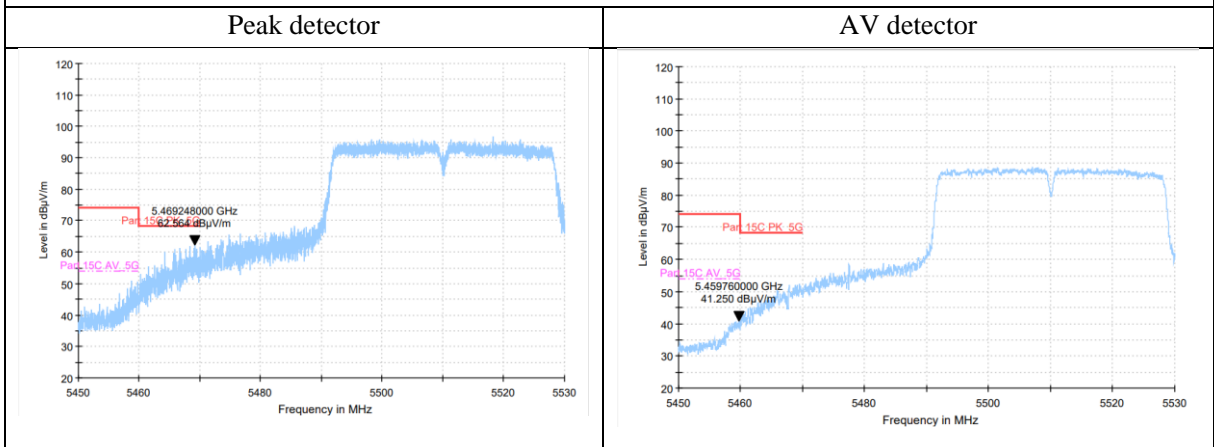
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Band Edges (802.11ac 40M-MIMO, CH62)



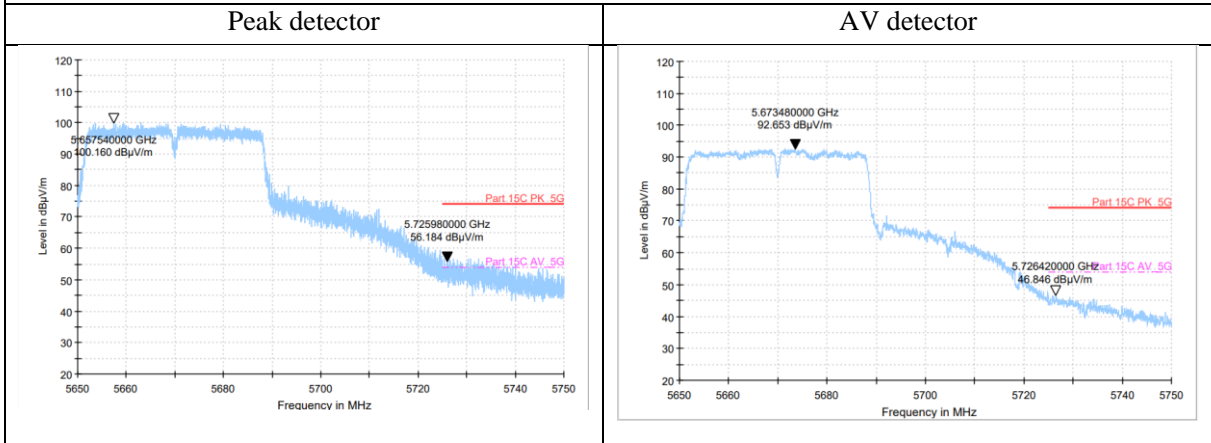
Band Edges (802.11ac 40M-MIMO, CH102)



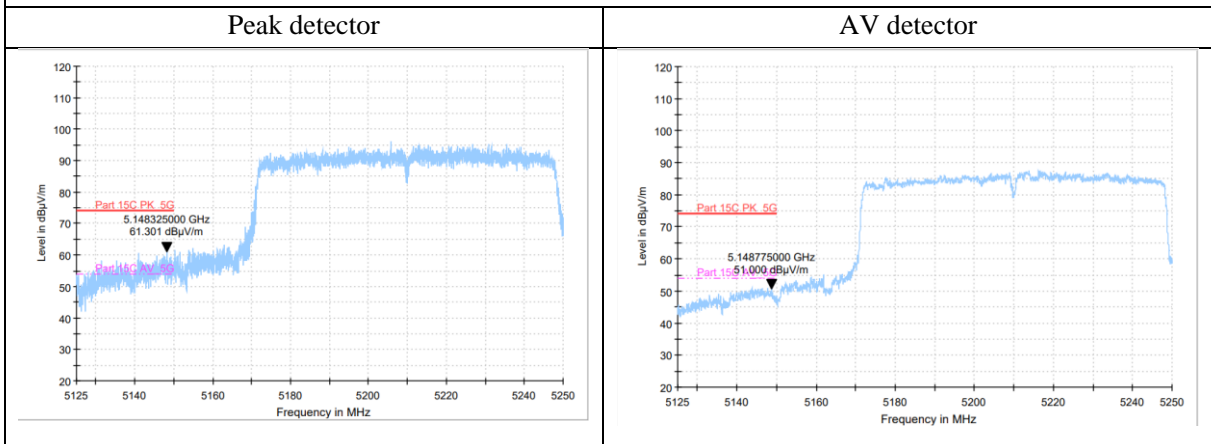
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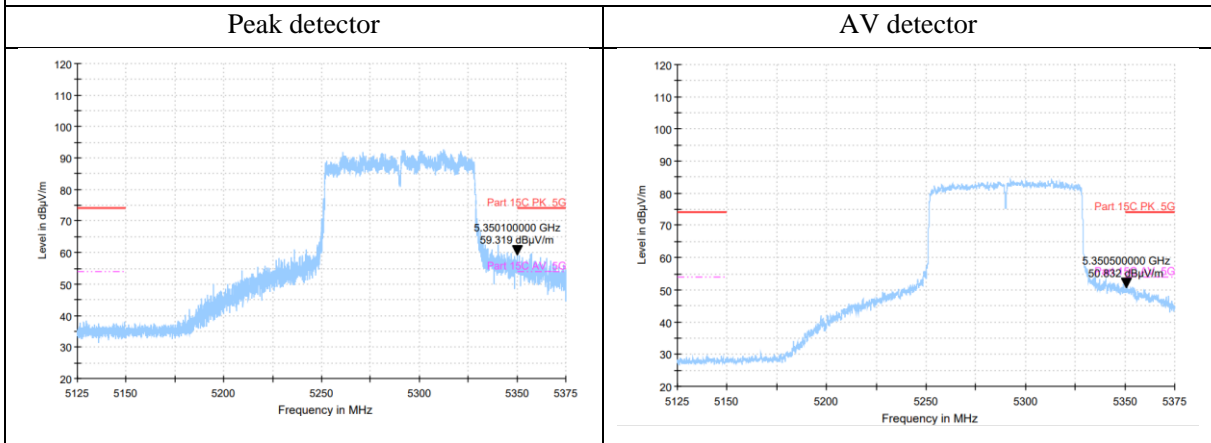
Band Edges (802.11ac 40M-MIMO, CH134)



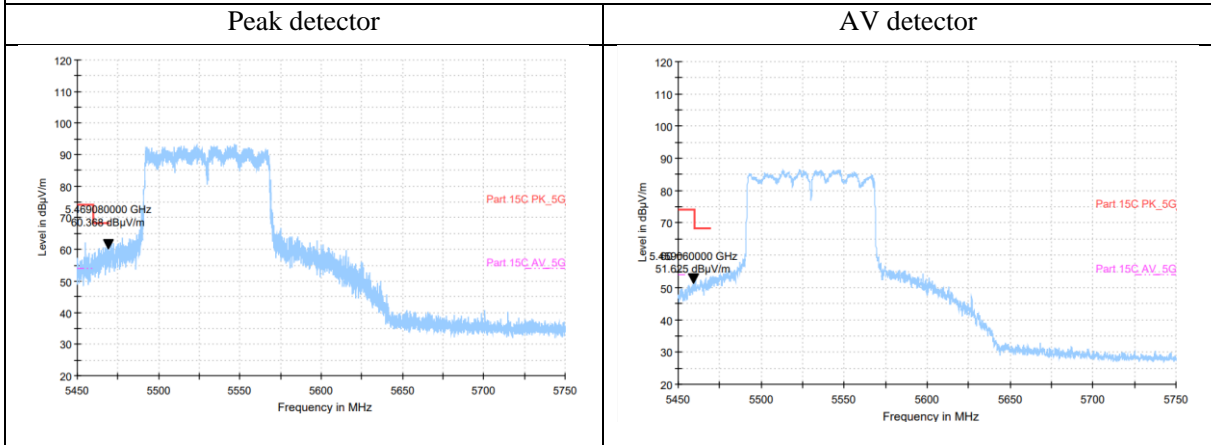
Band Edges (802.11ac 80M-MIMO, CH42)



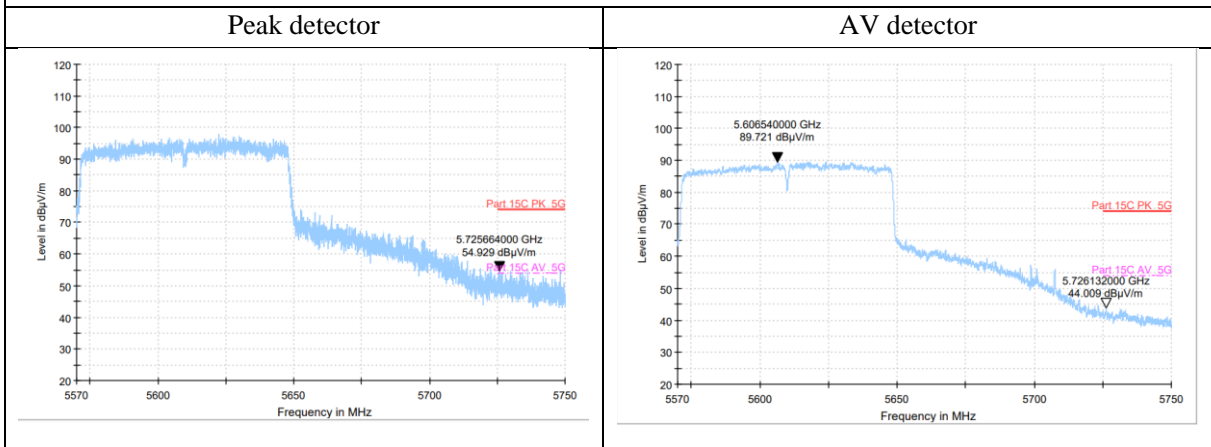
Band Edges (802.11ac 80M-MIMO, CH58)



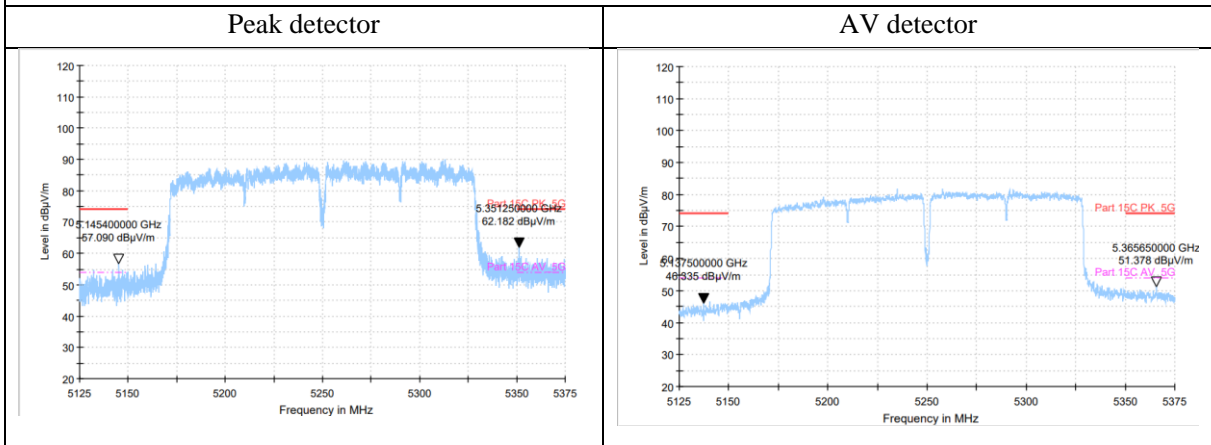
Band Edges (802.11ac 80M-MIMO, CH106)



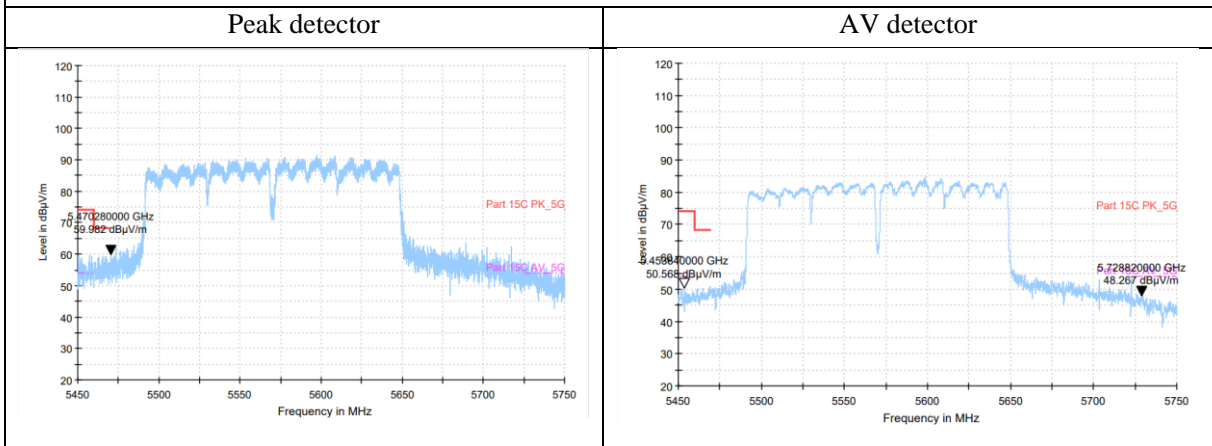
Band Edges (802.11ac 80M-MIMO, CH122)



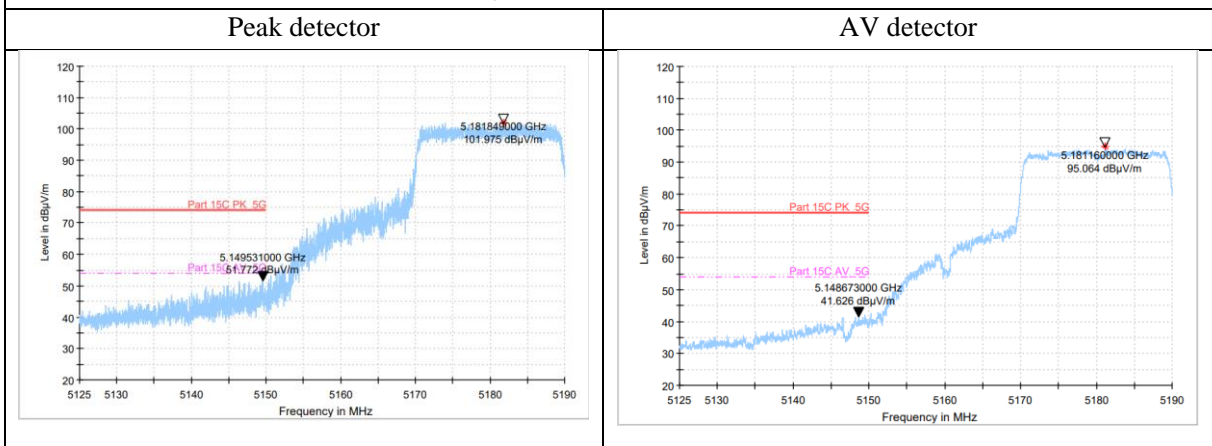
Band Edges (802.11ac 160M-MIMO, CH50)



Band Edges (802.11ac 160M-MIMO, CH114)



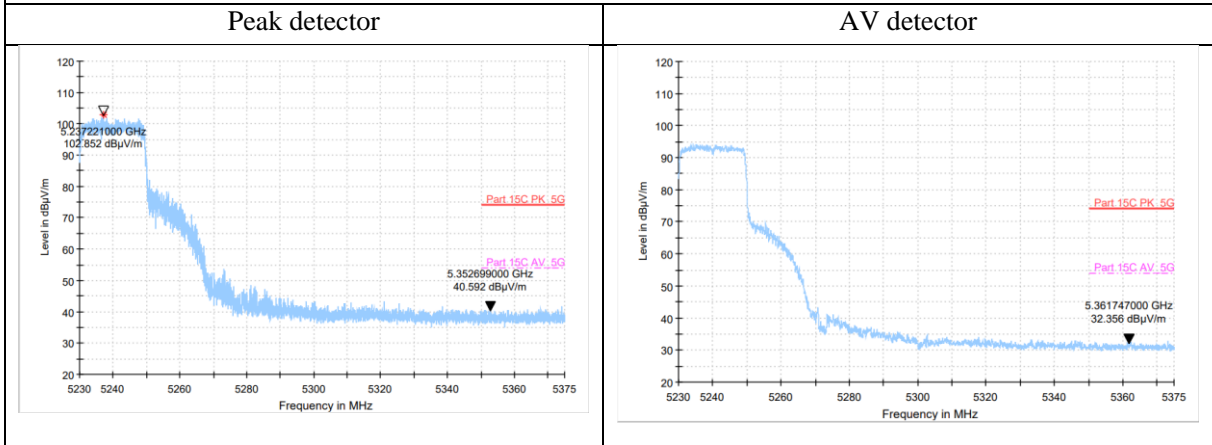
Band Edges (802.11ax-MIMO, CH36)



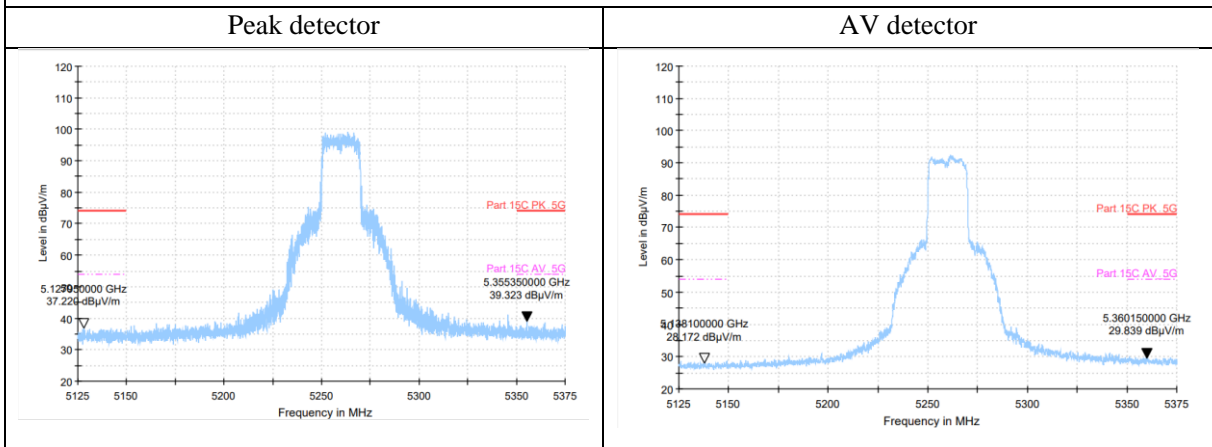
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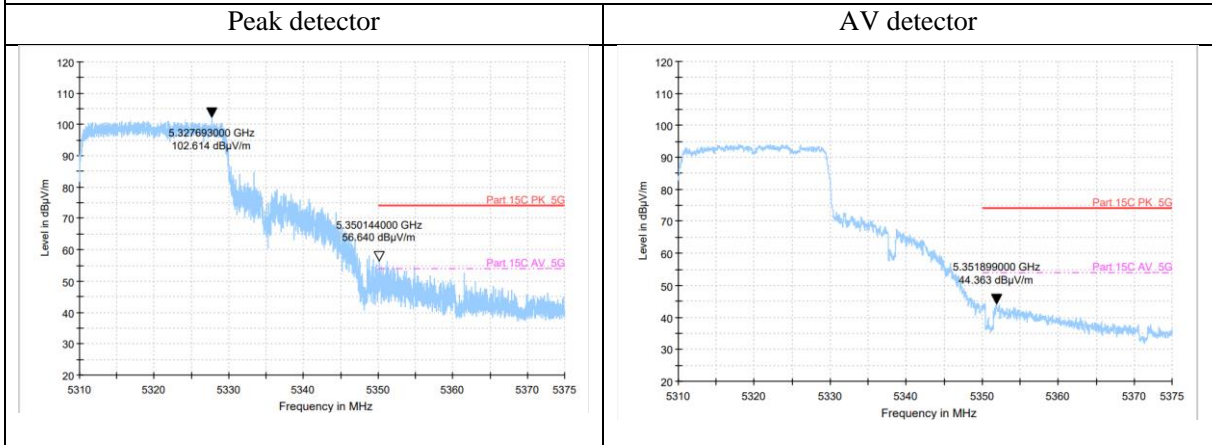
Band Edges (802.11ax 20M-MIMO, CH48)



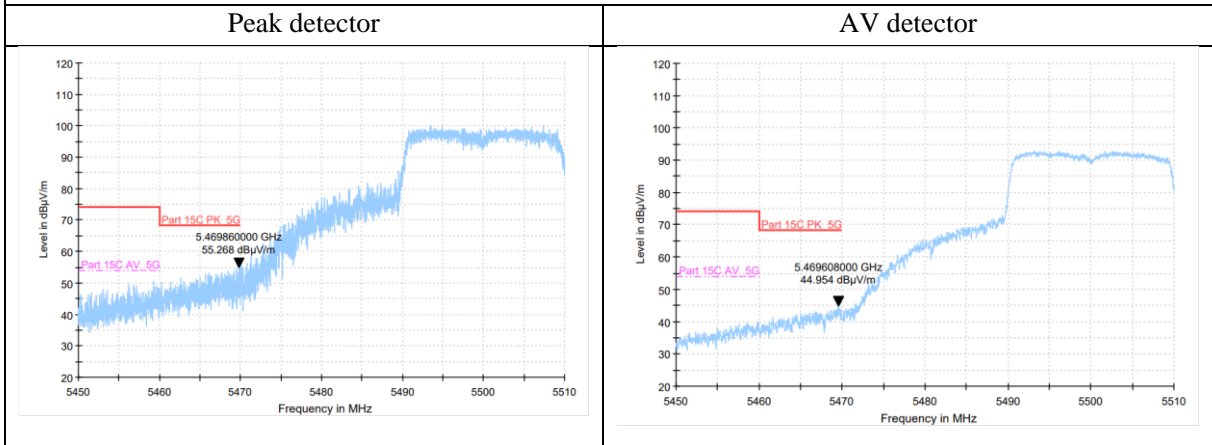
Band Edges (802.11ax 20M-MIMO, CH52)



Band Edges (802.11ax 20M-MIMO, CH64)



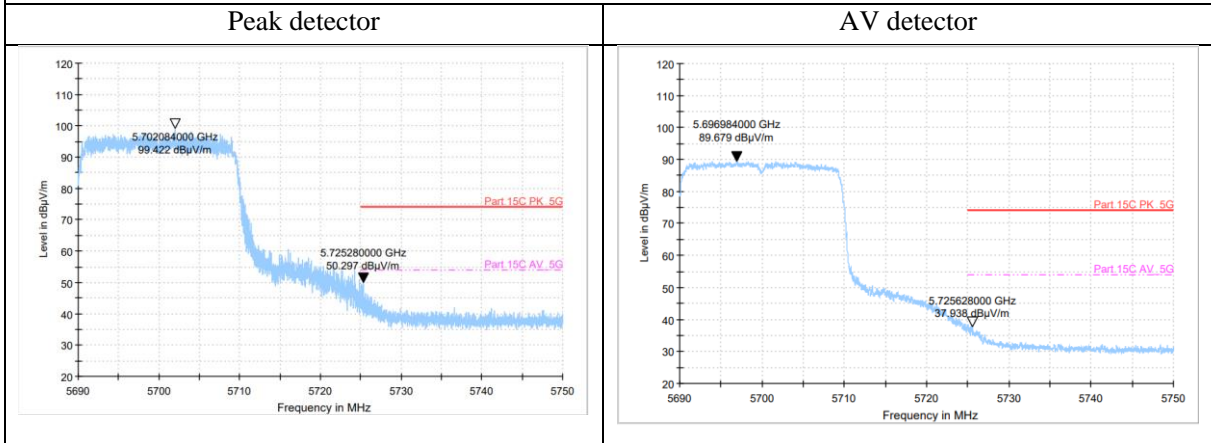
Band Edges (802.11ax 20M-MIMO, CH100)



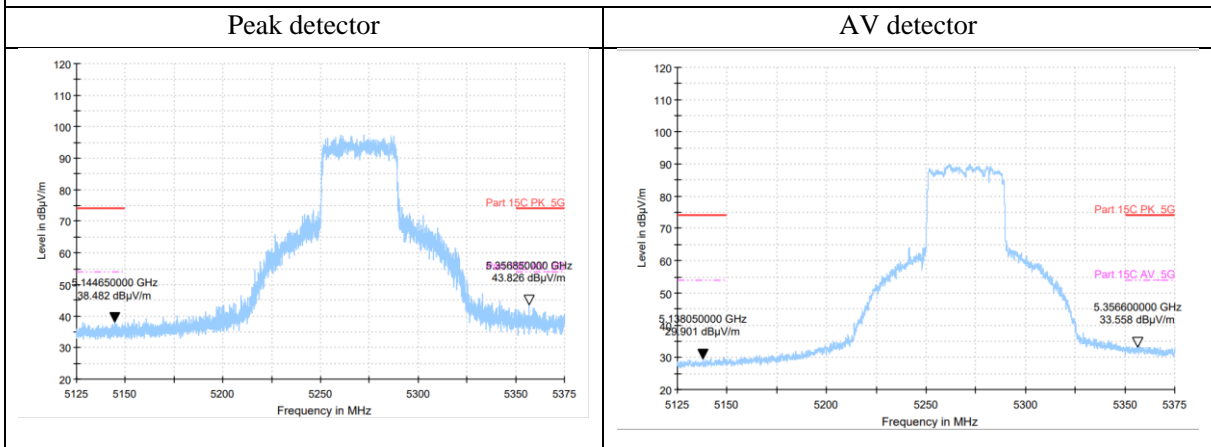
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Band Edges (802.11ax 20M-MIMO, CH140)



Band Edges (802.11ax 40M-MIMO, CH38)



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