

No.	Frequency (MHz)	Reading (dBµV)	Correction factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Antenna Polaxis
IEEE 802.11ax-HE20_Channel 140								
1	11400	22.2	5.1	27.2	54	-26.8	Average	Horizontal
2	11400	36.0	5.1	41.0	74	-33.0	Peak	Horizontal
3	17100	19.8	13.3	33.1	54	-20.9	Average	Horizontal
4	17100	32.0	13.3	45.4	68.2	-22.8	Peak	Horizontal
5	11400	22.1	5.1	27.1	54	-26.9	Average	Vertical
6	11400	35.5	5.1	40.5	74	-33.5	Peak	Vertical
7	17100	20.2	13.3	33.6	54	-20.4	Average	Vertical
8	17100	33.2	13.3	46.5	68.2	-21.7	Peak	Vertical
IEEE 802.11ax-HE20_Channel 144								
1	11440	21.7	5.0	26.7	54	-27.3	Average	Horizontal
2	11440	35.0	5.0	40.0	74	-34.0	Peak	Horizontal
3	17160	20.9	13.6	34.5	54	-19.5	Average	Horizontal
4	17160	33.5	13.6	47.1	68.2	-21.1	Peak	Horizontal
5	11440	22.1	5.0	27.1	54	-26.9	Average	Vertical
6	11440	35.4	5.0	40.4	74	-33.6	Peak	Vertical
7	17160	21.3	13.6	34.9	54	-19.1	Average	Vertical
8	17160	33.2	13.6	46.8	68.2	-21.4	Peak	Vertical
IEEE 802.11ax-HE20_Channel 149								
1	11490	20.9	5.0	25.9	54	-28.1	Average	Horizontal
2	11490	34.4	5.0	39.4	74	-34.6	Peak	Horizontal
3	17235	20.3	13.8	34.2	54	-19.9	Average	Horizontal
4	17235	33.5	13.8	47.3	68.2	-20.9	Peak	Horizontal
5	11490	20.9	5.0	25.9	54	-28.1	Average	Vertical
6	11490	34.4	5.0	39.4	74	-34.6	Peak	Vertical
7	17235	20.2	13.8	34.0	54	-20.0	Average	Vertical
8	17235	32.4	13.8	46.2	68.2	-22.0	Peak	Vertical
IEEE 802.11ax-HE20_Channel 157								
1	11570	21.8	5.0	26.8	54	-27.2	Average	Horizontal
2	11570	35.1	5.0	40.1	74	-33.9	Peak	Horizontal
3	17355	20.3	14.3	34.5	54	-19.5	Average	Horizontal
4	17355	33.8	14.3	48.1	68.2	-20.1	Peak	Horizontal
5	11570	21.7	5.0	26.6	54	-27.4	Average	Vertical
6	11570	35.3	5.0	40.2	74	-33.8	Peak	Vertical
7	17355	20.1	14.3	34.4	54	-19.6	Average	Vertical
8	17355	32.7	14.3	47.0	68.2	-21.2	Peak	Vertical

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No.	Frequency (MHz)	Reading (dBµV)	Correction factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Antenna Polaxis
IEEE 802.11ax-HE20_Channel 165								
1	11650	21.7	4.9	26.6	54	-27.4	Average	Horizontal
2	11650	35.4	4.9	40.3	74	-33.7	Peak	Horizontal
3	17475	20.9	14.7	35.6	54	-18.4	Average	Horizontal
4	17475	32.6	14.7	47.3	68.2	-20.9	Peak	Horizontal
5	11650	21.9	4.9	26.9	54	-27.2	Average	Vertical
6	11650	35.2	4.9	40.1	74	-33.9	Peak	Vertical
7	17475	20.3	14.7	35.0	54	-19.0	Average	Vertical
8	17475	33.0	14.7	47.7	68.2	-20.5	Peak	Vertical
IEEE 802.11ax-HE40_Channel 38								
1	10380	24.3	6.1	30.5	54	-23.5	Average	Horizontal
2	10380	38.5	6.1	44.6	68.2	-23.6	Peak	Horizontal
3	15570	20.4	11.1	31.5	54	-22.5	Average	Horizontal
4	15570	32.6	11.1	43.7	74	-30.3	Peak	Horizontal
5	10380	24.2	6.1	30.3	54	-23.7	Average	Vertical
6	10380	38.0	6.1	44.1	68.2	-24.1	Peak	Vertical
7	15570	20.6	11.1	31.7	54	-22.3	Average	Vertical
8	15570	33.0	11.1	44.1	74	-29.9	Peak	Vertical
IEEE 802.11ax-HE40_Channel 46								
1	10460	24.4	6.0	30.4	54	-23.6	Average	Horizontal
2	10460	38.5	6.0	44.5	68.2	-23.7	Peak	Horizontal
3	15690	20.7	11.1	31.8	54	-22.2	Average	Horizontal
4	15690	34.0	11.1	45.1	74	-28.9	Peak	Horizontal
5	10460	24.4	6.0	30.4	54	-23.6	Average	Vertical
6	10460	38.0	6.0	44.0	68.2	-24.2	Peak	Vertical
7	15690	20.6	11.1	31.6	54	-22.4	Average	Vertical
8	15690	34.1	11.1	45.2	74	-28.8	Peak	Vertical
IEEE 802.11ax-HE40_Channel 54								
1	10540	22.3	5.9	28.1	54	-25.9	Average	Horizontal
2	10540	36.3	5.9	42.2	68.2	-26.0	Peak	Horizontal
3	15810	21.7	11.1	32.8	54	-21.2	Average	Horizontal
4	15810	33.8	11.1	44.9	74	-29.1	Peak	Horizontal
5	10540	22.0	5.9	27.9	54	-26.1	Average	Vertical
6	10540	37.0	5.9	42.9	68.2	-25.3	Peak	Vertical
7	15810	21.2	11.1	32.3	54	-21.7	Average	Vertical
8	15810	34.6	11.1	45.6	74	-28.4	Peak	Vertical

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No.	Frequency (MHz)	Reading (dBµV)	Correction factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Antenna Polaxis
IEEE 802.11ax-HE40_Channel 62								
1	10620	22.2	5.8	28.0	54	-26.1	Average	Horizontal
2	10620	35.4	5.8	41.2	74	-32.9	Peak	Horizontal
3	15930	21.0	11.0	32.0	54	-22.0	Average	Horizontal
4	15930	33.5	11.0	44.5	74	-29.5	Peak	Horizontal
5	10620	22.0	5.8	27.8	54	-26.2	Average	Vertical
6	10620	35.6	5.8	41.4	74	-32.7	Peak	Vertical
7	15930	21.1	11.0	32.1	54	-21.9	Average	Vertical
8	15930	33.2	11.0	44.2	74	-29.8	Peak	Vertical
IEEE 802.11ax-HE40_Channel 102								
1	11020	23.7	5.3	29.0	54	-25.0	Average	Horizontal
2	11020	37.3	5.3	42.6	74	-31.4	Peak	Horizontal
3	16530	20.5	12.2	32.7	54	-21.3	Average	Horizontal
4	16530	33.1	12.2	45.3	68.2	-22.9	Peak	Horizontal
5	11020	23.1	5.3	28.4	54	-25.6	Average	Vertical
6	11020	37.7	5.3	43.0	74	-31.0	Peak	Vertical
7	16530	20.4	12.2	32.6	54	-21.4	Average	Vertical
8	16530	32.6	12.2	44.8	68.2	-23.4	Peak	Vertical
IEEE 802.11ax-HE40_Channel 110								
1	11100	22.3	5.3	27.5	54	-26.5	Average	Horizontal
2	11100	36.6	5.3	41.9	74	-32.1	Peak	Horizontal
3	16650	19.8	12.4	32.2	54	-21.8	Average	Horizontal
4	16650	31.9	12.4	44.3	68.2	-23.9	Peak	Horizontal
5	11100	22.5	5.3	27.7	54	-26.3	Average	Vertical
6	11100	36.3	5.3	41.6	74	-32.4	Peak	Vertical
7	16650	19.9	12.4	32.3	54	-21.7	Average	Vertical
8	16650	32.1	12.4	44.5	68.2	-23.7	Peak	Vertical
IEEE 802.11ax-HE40_Channel 134								
1	11340	21.3	5.1	26.4	54	-27.6	Average	Horizontal
2	11340	34.7	5.1	39.8	74	-34.3	Peak	Horizontal
3	17010	20.5	13.0	33.5	54	-20.5	Average	Horizontal
4	17010	32.7	13.0	45.7	68.2	-22.5	Peak	Horizontal
5	11340	21.6	5.1	26.7	54	-27.3	Average	Vertical
6	11340	35.9	5.1	41.0	74	-33.0	Peak	Vertical
7	17010	20.5	13.0	33.5	54	-20.5	Average	Vertical
8	17010	33.2	13.0	46.2	68.2	-22.0	Peak	Vertical

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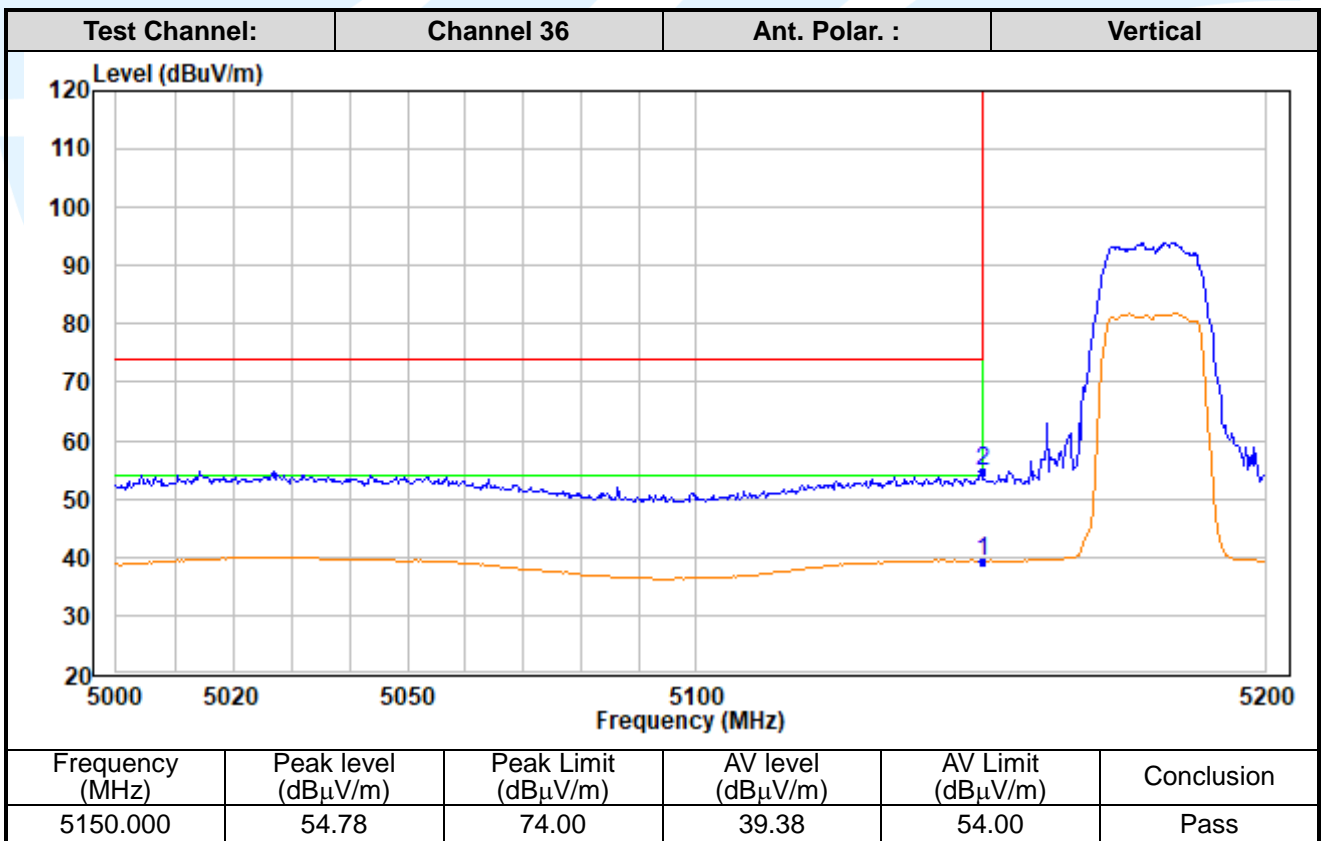
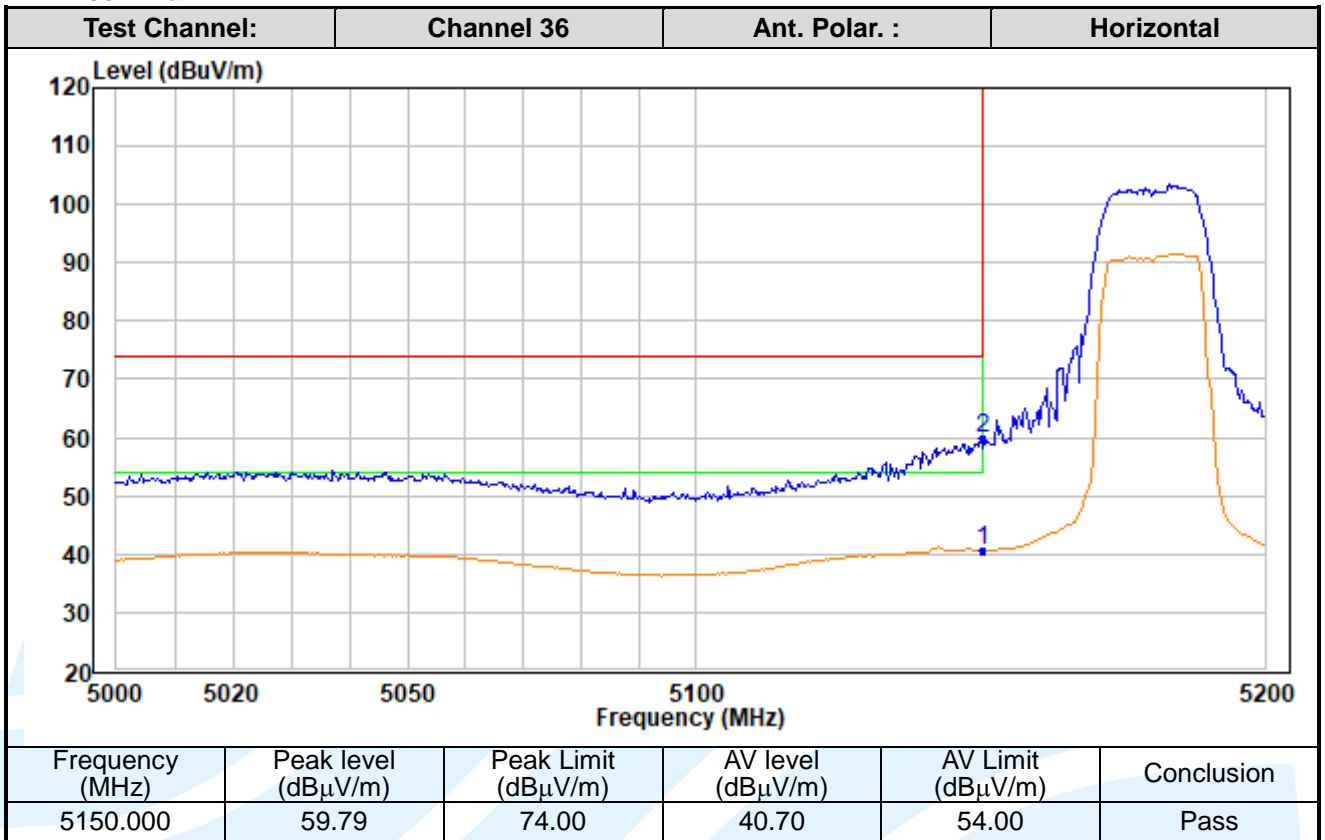
No.	Frequency (MHz)	Reading (dBμV)	Correction factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Antenna Polaxis
IEEE 802.11ax-HE40_Channel 142								
1	11420	20.7	5.0	25.7	54	-28.3	Average	Horizontal
2	11420	35.8	5.0	40.8	74	-33.2	Peak	Horizontal
3	17130	20.4	13.5	33.9	54	-20.1	Average	Horizontal
4	17130	32.4	13.5	45.9	68.2	-22.3	Peak	Horizontal
5	11420	21.7	5.0	26.7	54	-27.3	Average	Vertical
6	11420	34.4	5.0	39.4	74	-34.6	Peak	Vertical
7	17130	20.5	13.5	34.0	54	-20.0	Average	Vertical
8	17130	33.6	13.5	47.1	68.2	-21.1	Peak	Vertical
IEEE 802.11ax-HE40_Channel 151								
1	11510	20.6	5.0	25.5	54	-28.5	Average	Horizontal
2	11510	34.9	5.0	39.9	74	-34.1	Peak	Horizontal
3	17265	20.1	13.9	34.0	54	-20.0	Average	Horizontal
4	17265	31.9	13.9	45.8	68.2	-22.4	Peak	Horizontal
5	11510	21.1	5.0	26.1	54	-27.9	Average	Vertical
6	11510	34.3	5.0	39.3	74	-34.7	Peak	Vertical
7	17265	20.2	13.9	34.2	54	-19.9	Average	Vertical
8	17265	33.0	13.9	47.0	68.2	-21.2	Peak	Vertical
IEEE 802.11ax-HE40_Channel 159								
1	11590	21.3	4.9	26.3	54	-27.7	Average	Horizontal
2	11590	36.1	4.9	41.1	74	-32.9	Peak	Horizontal
3	17385	20.0	14.4	34.4	54	-19.6	Average	Horizontal
4	17385	31.8	14.4	46.2	68.2	-22.0	Peak	Horizontal
5	11590	21.9	4.9	26.9	54	-27.1	Average	Vertical
6	11590	35.5	4.9	40.5	74	-33.5	Peak	Vertical
7	17385	19.9	14.4	34.2	54	-19.8	Average	Vertical
8	17385	32.3	14.4	46.7	68.2	-21.5	Peak	Vertical

Remark:

1. Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain, the value was added to Original Receiver Reading by the software automatically.
2. Result = Reading + Correct Factor.
3. Margin = Result – Limit

Band Edge Measurements (Radiated)

IEEE 802.11a



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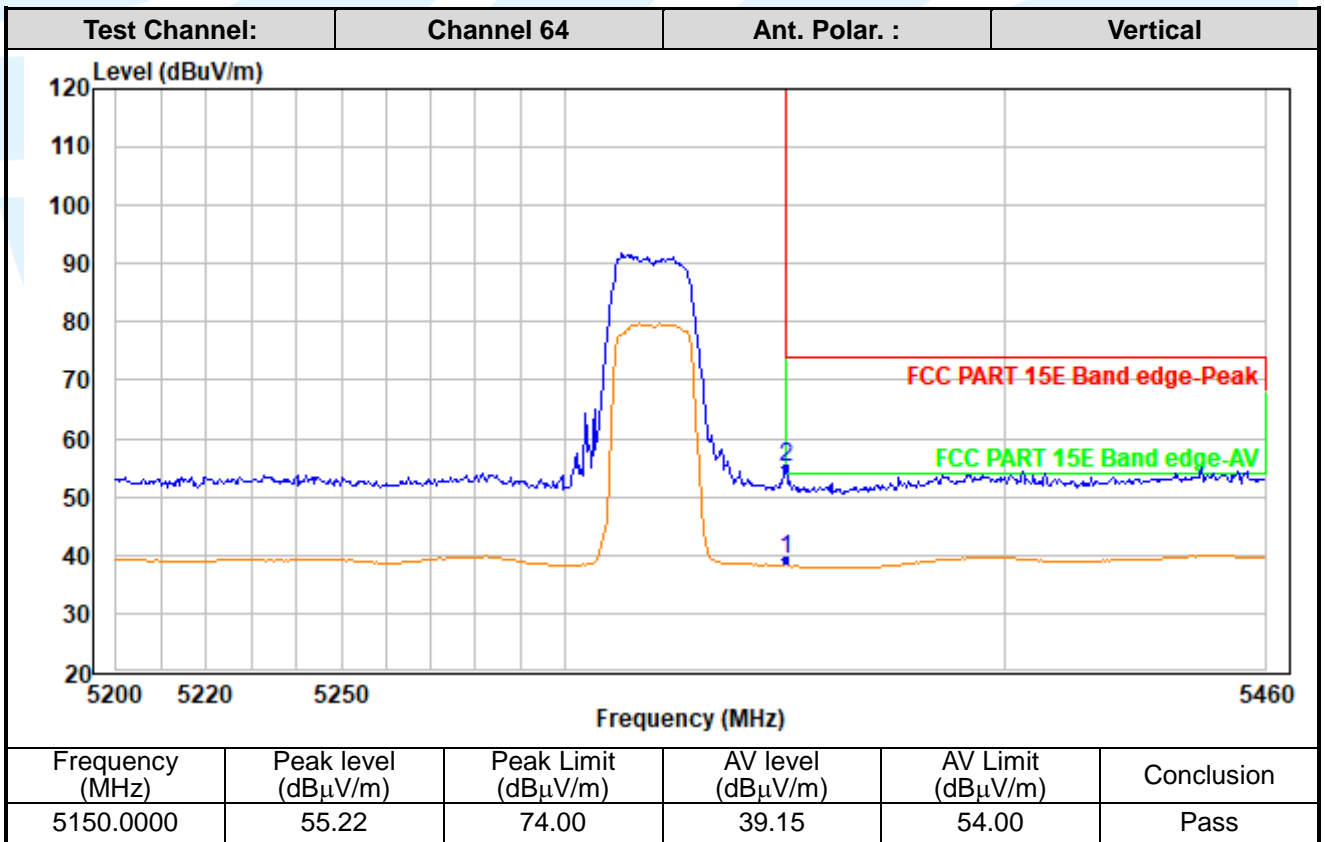
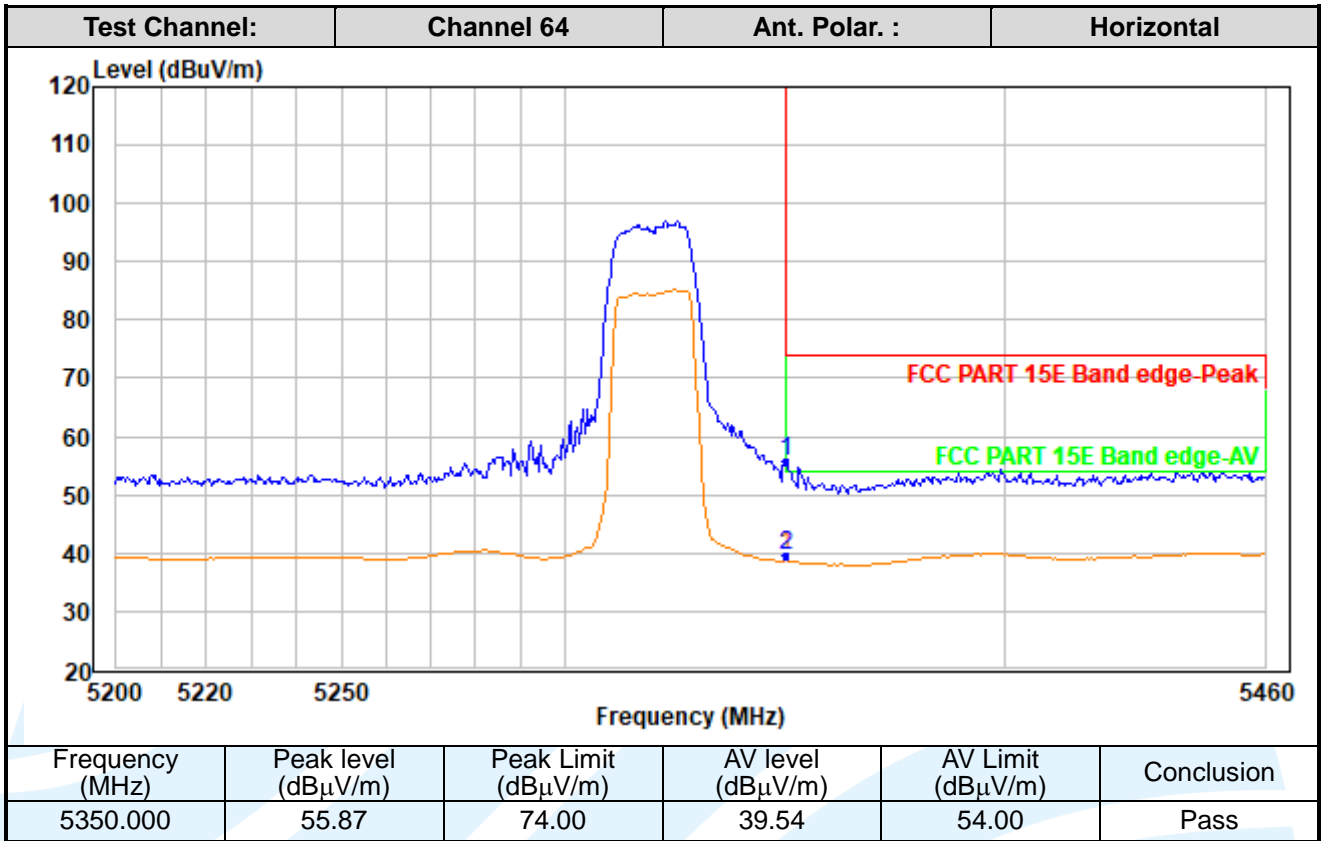
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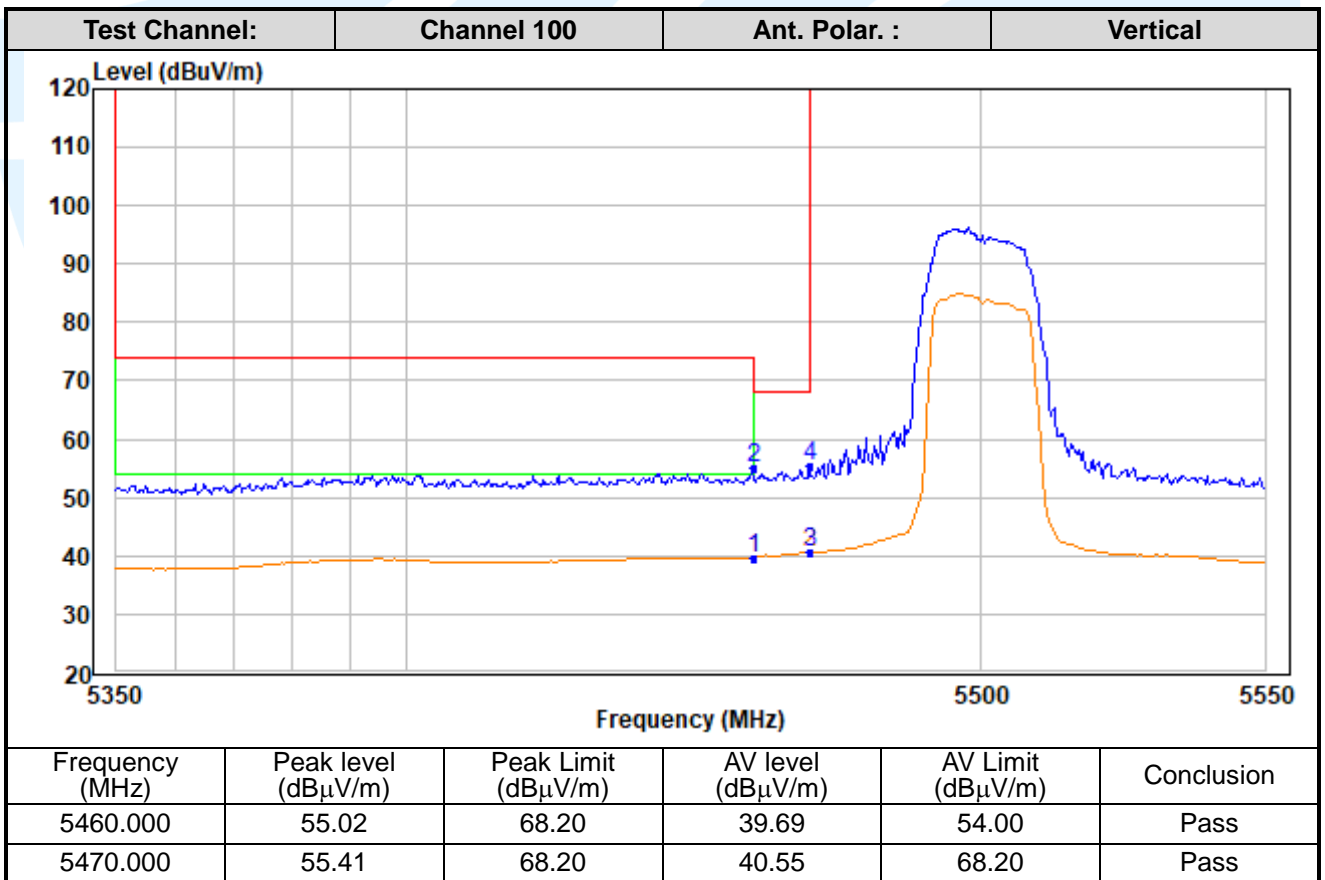
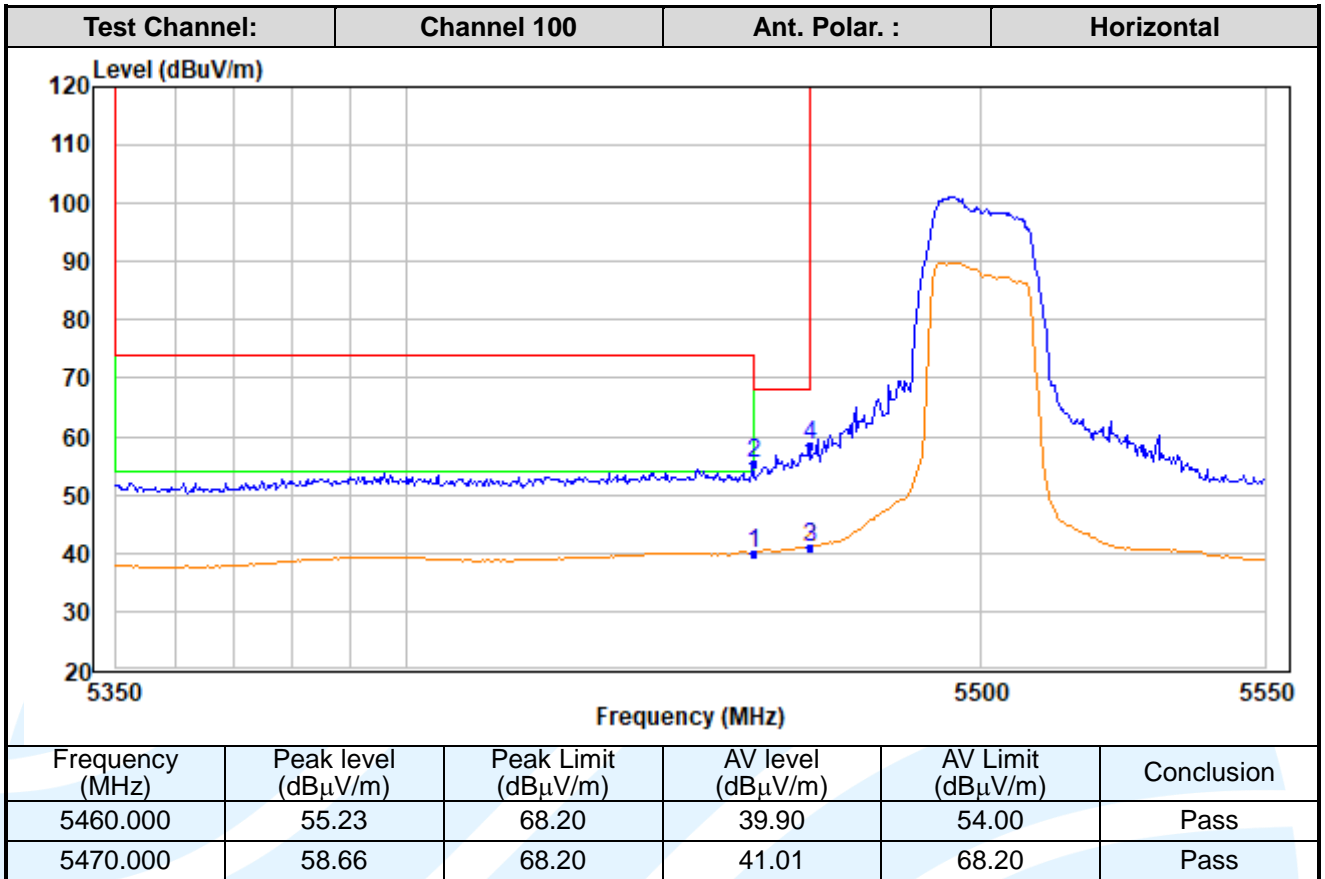
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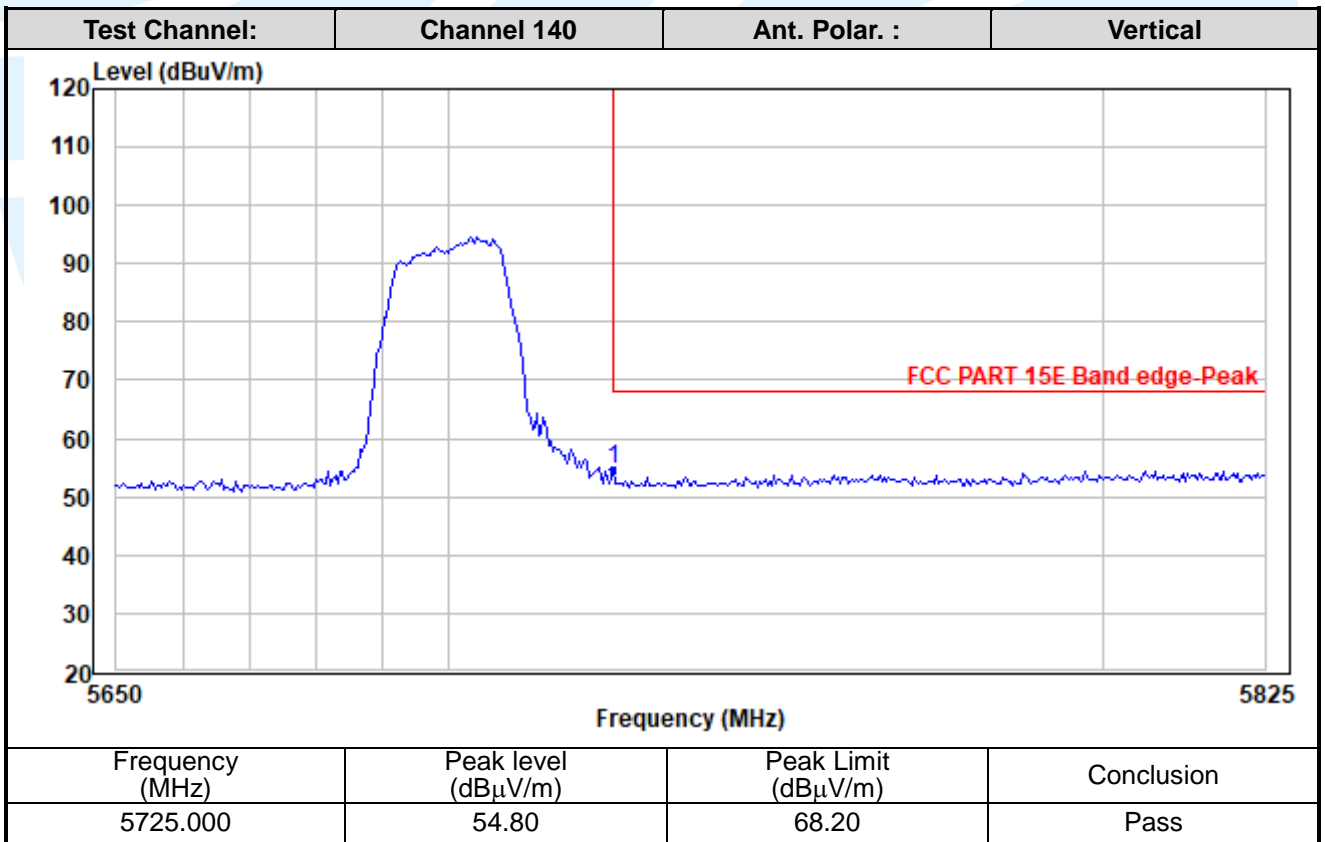
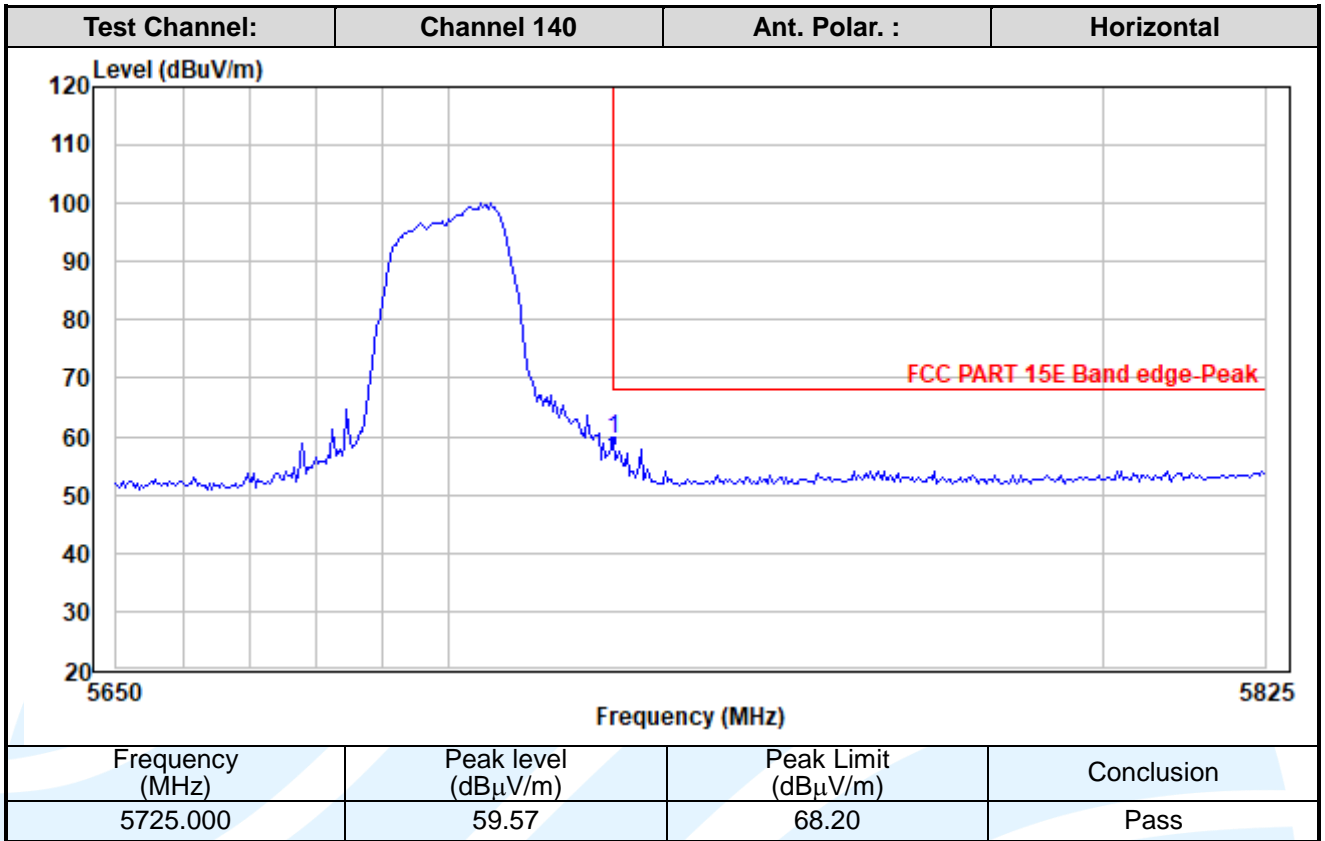
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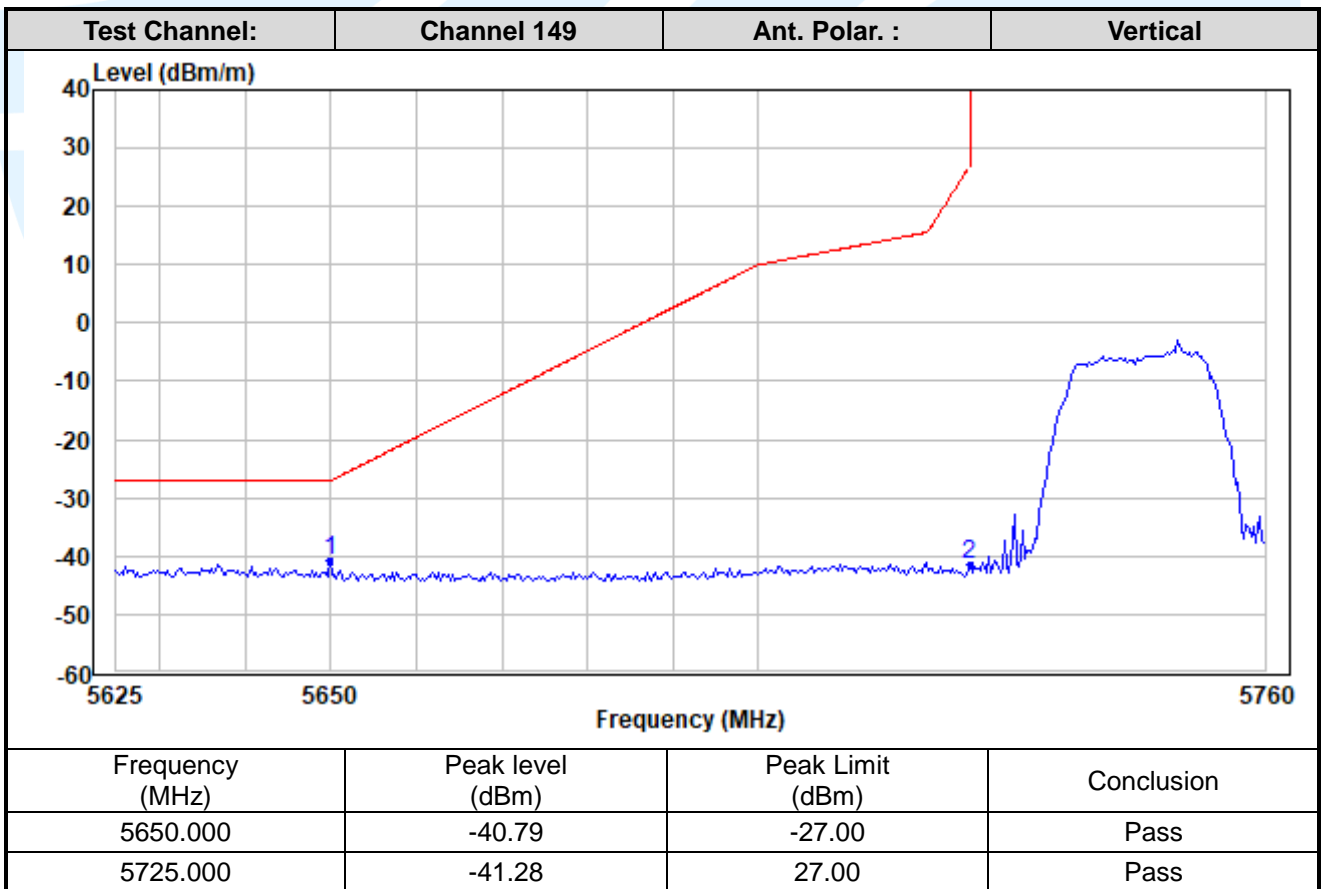
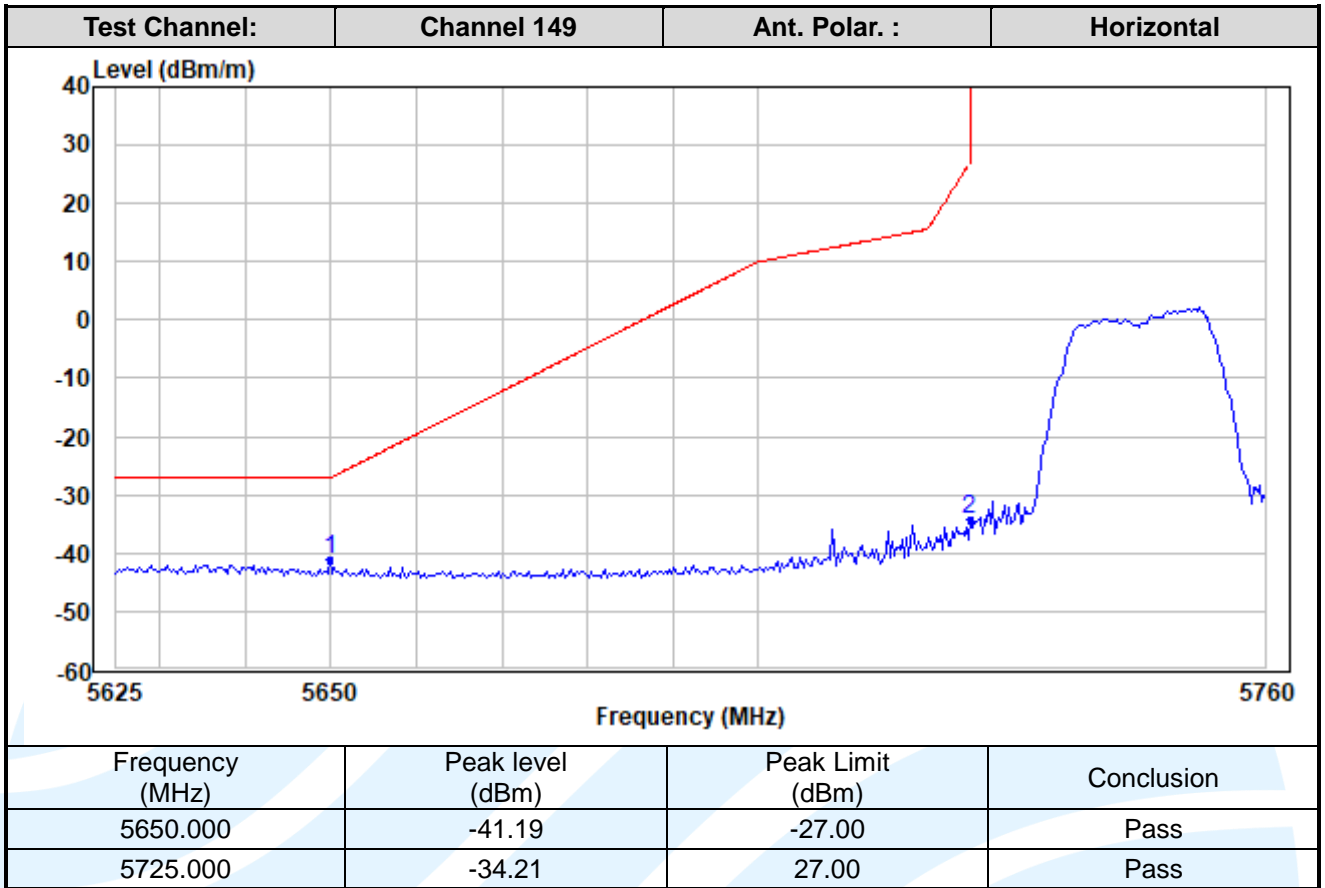
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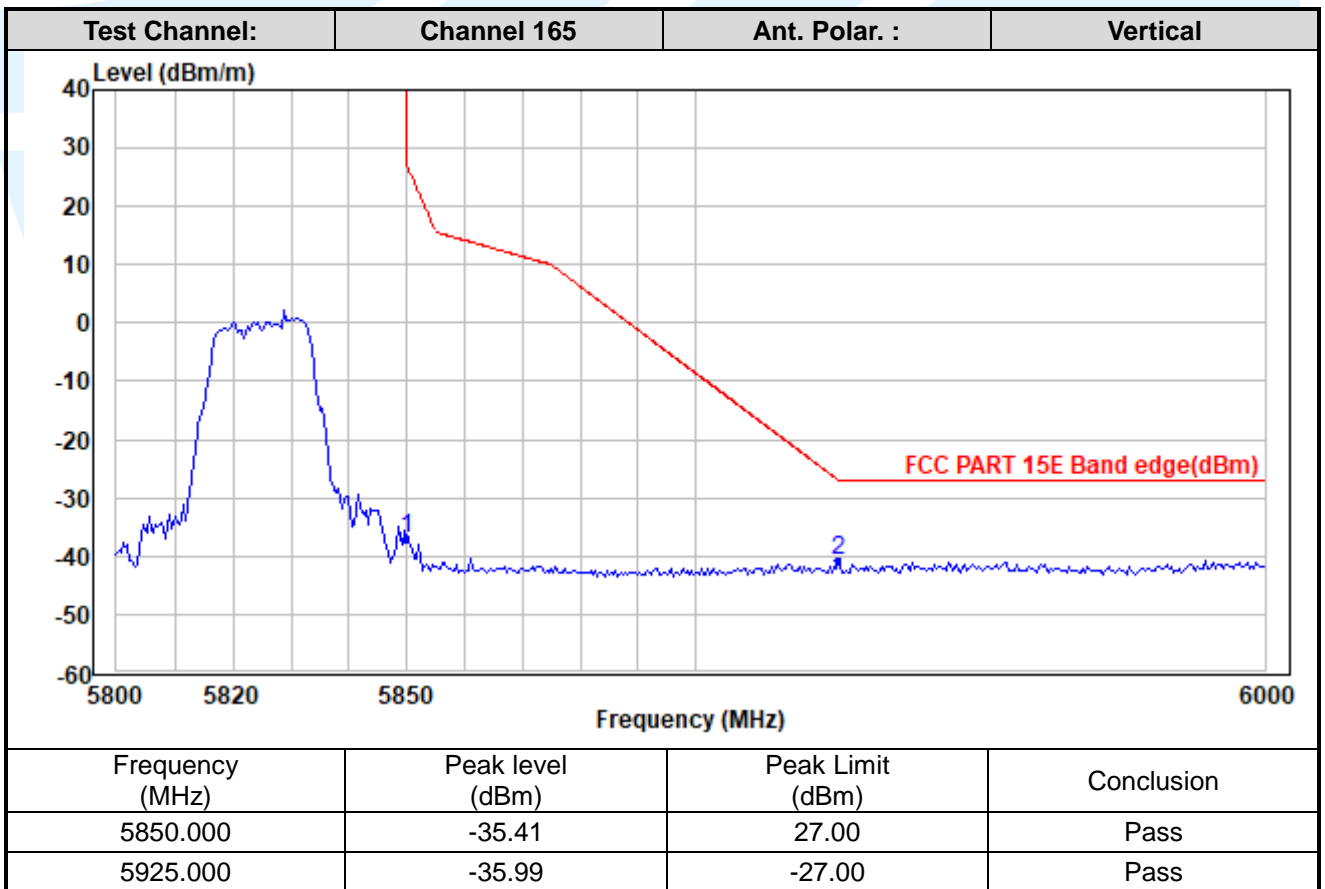
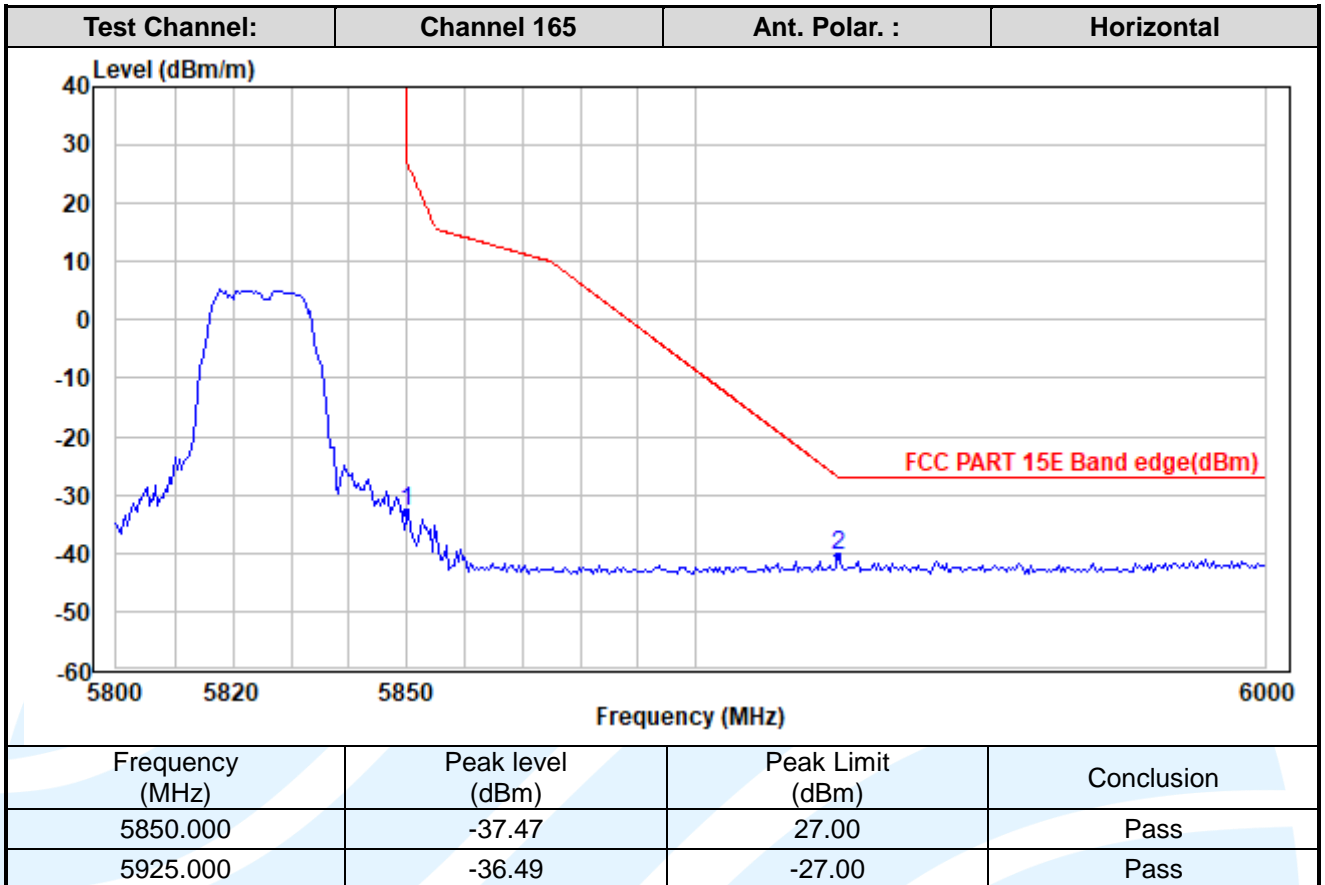
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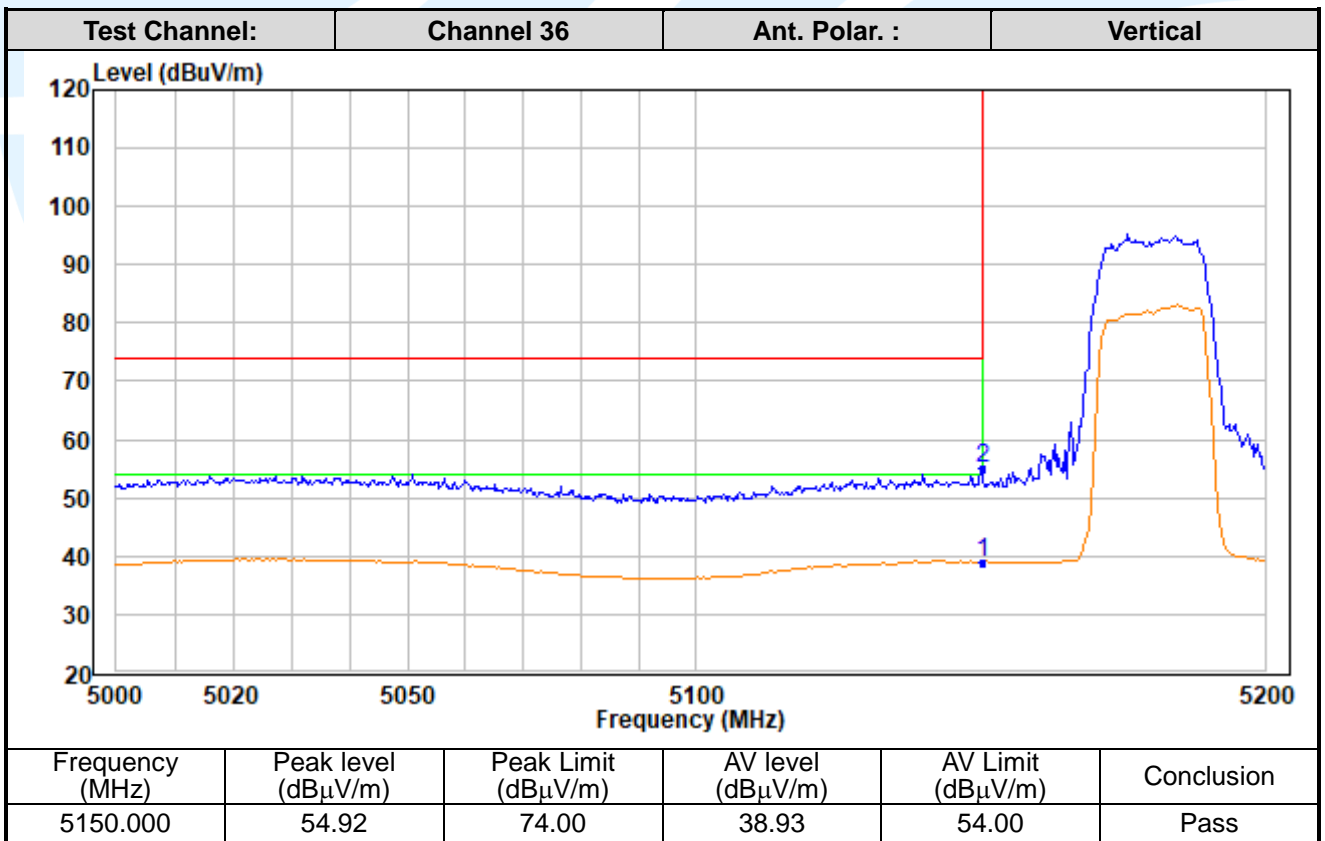
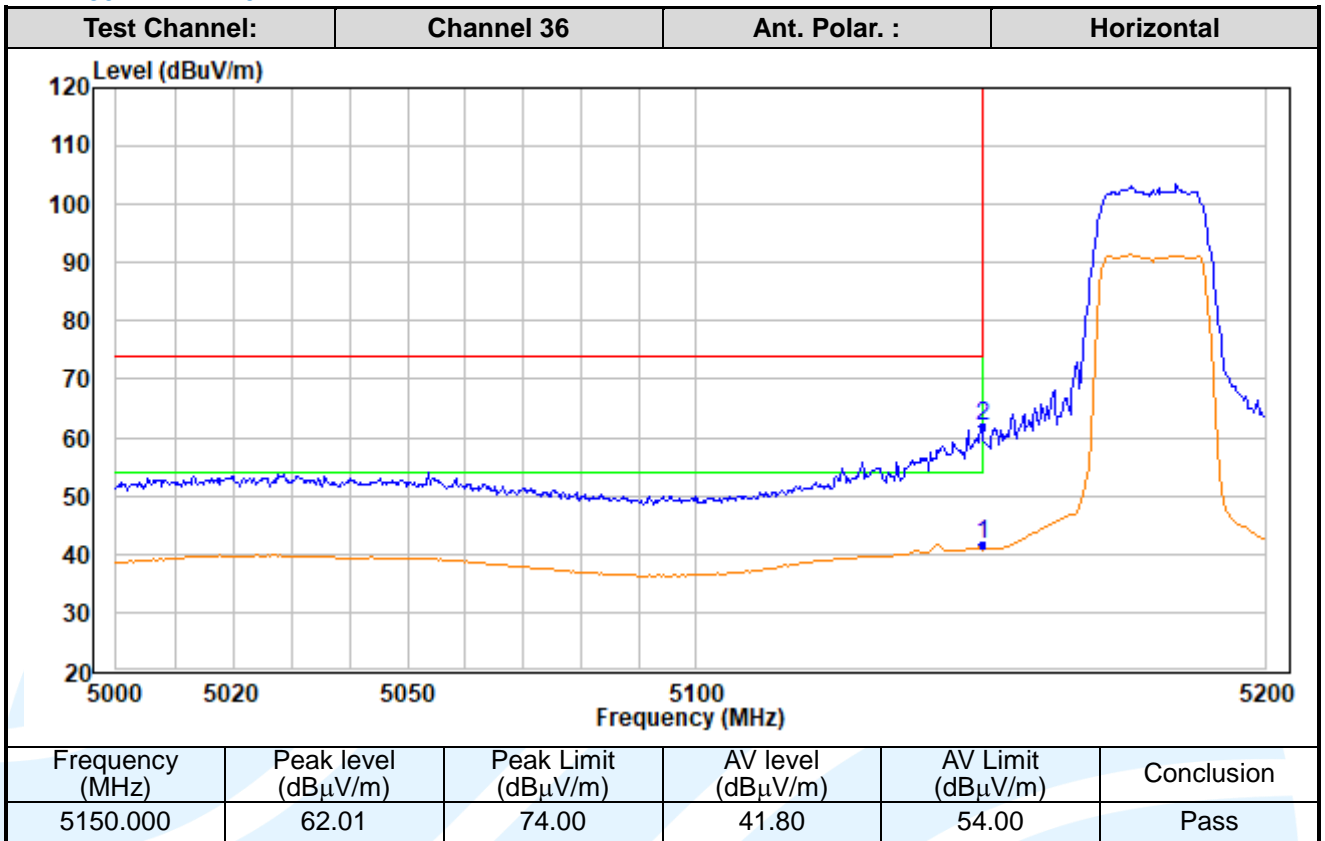
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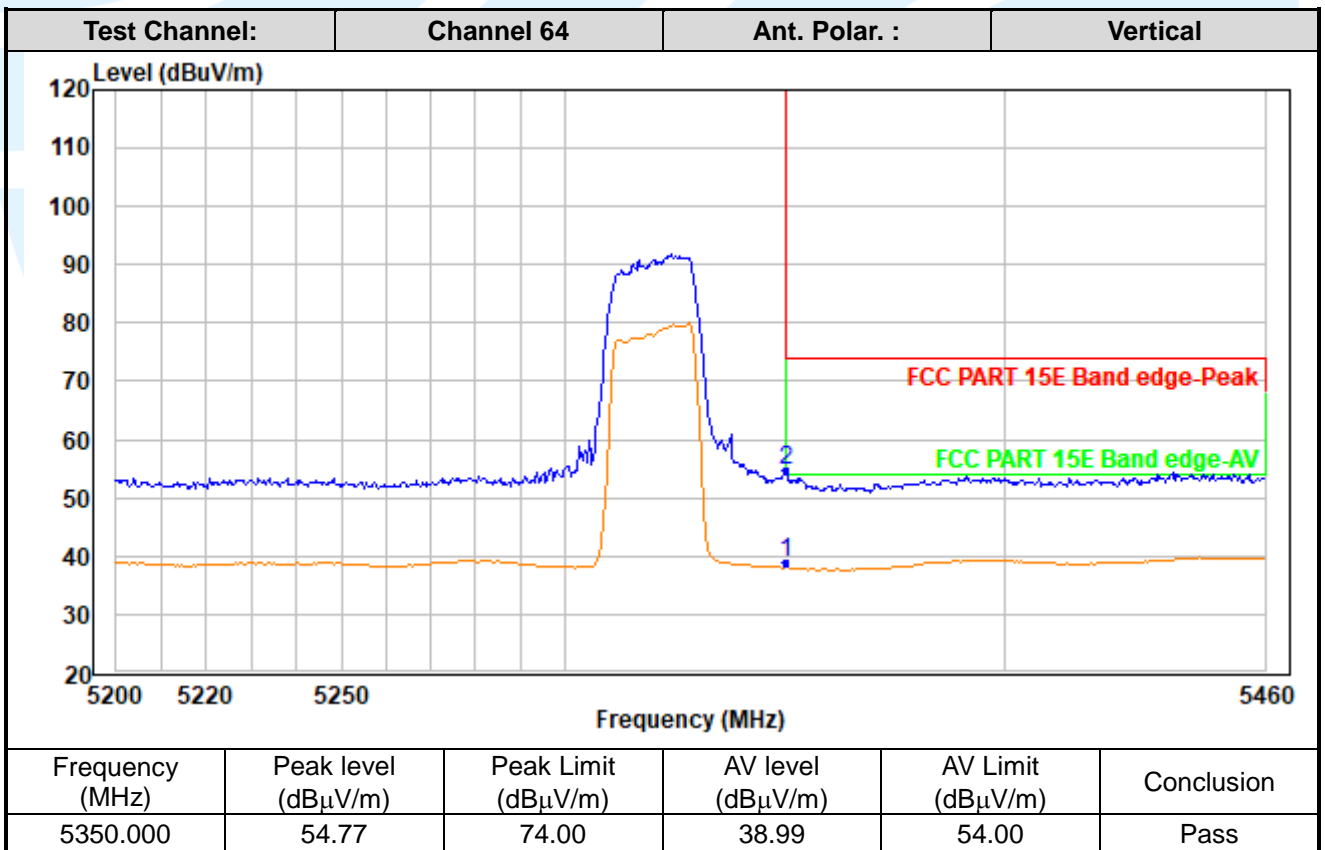
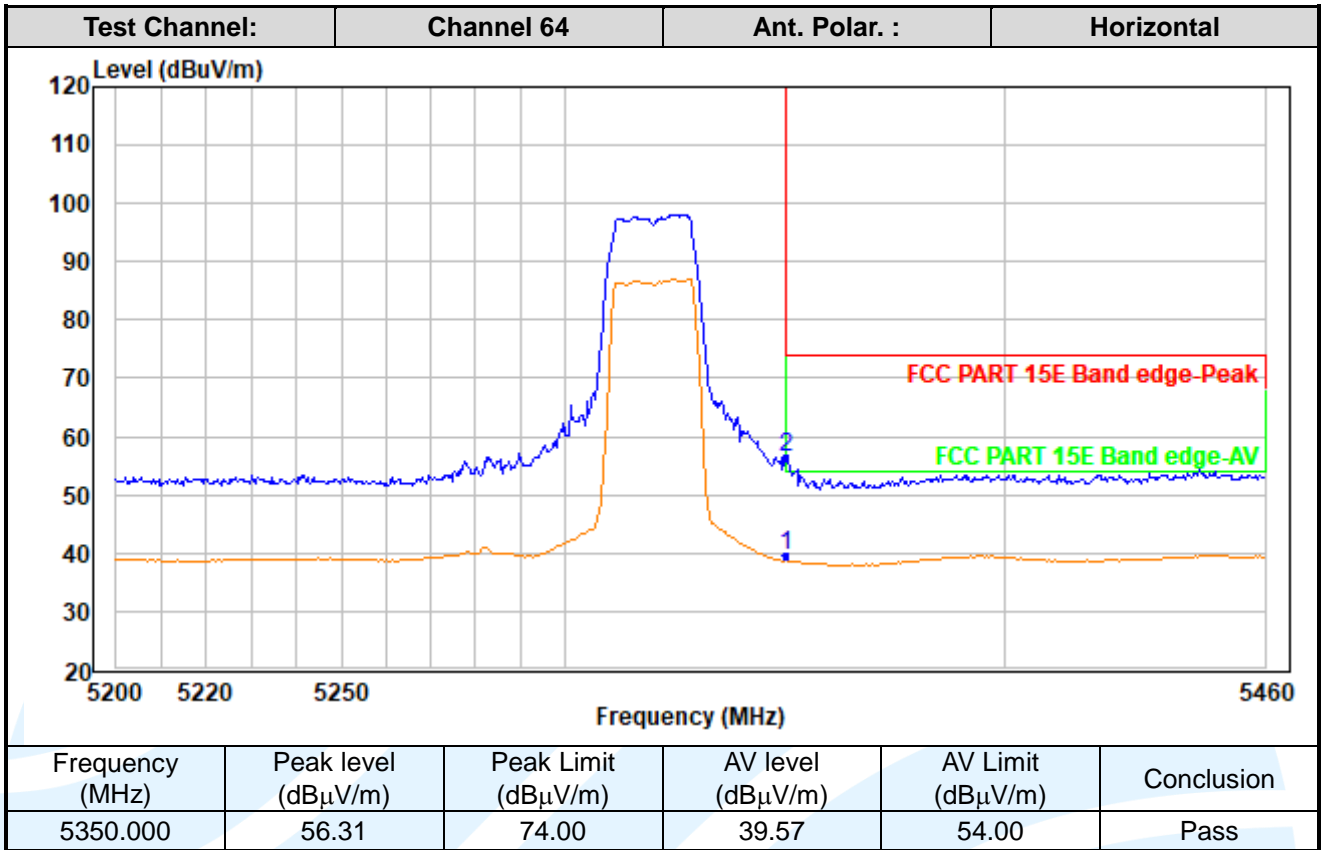
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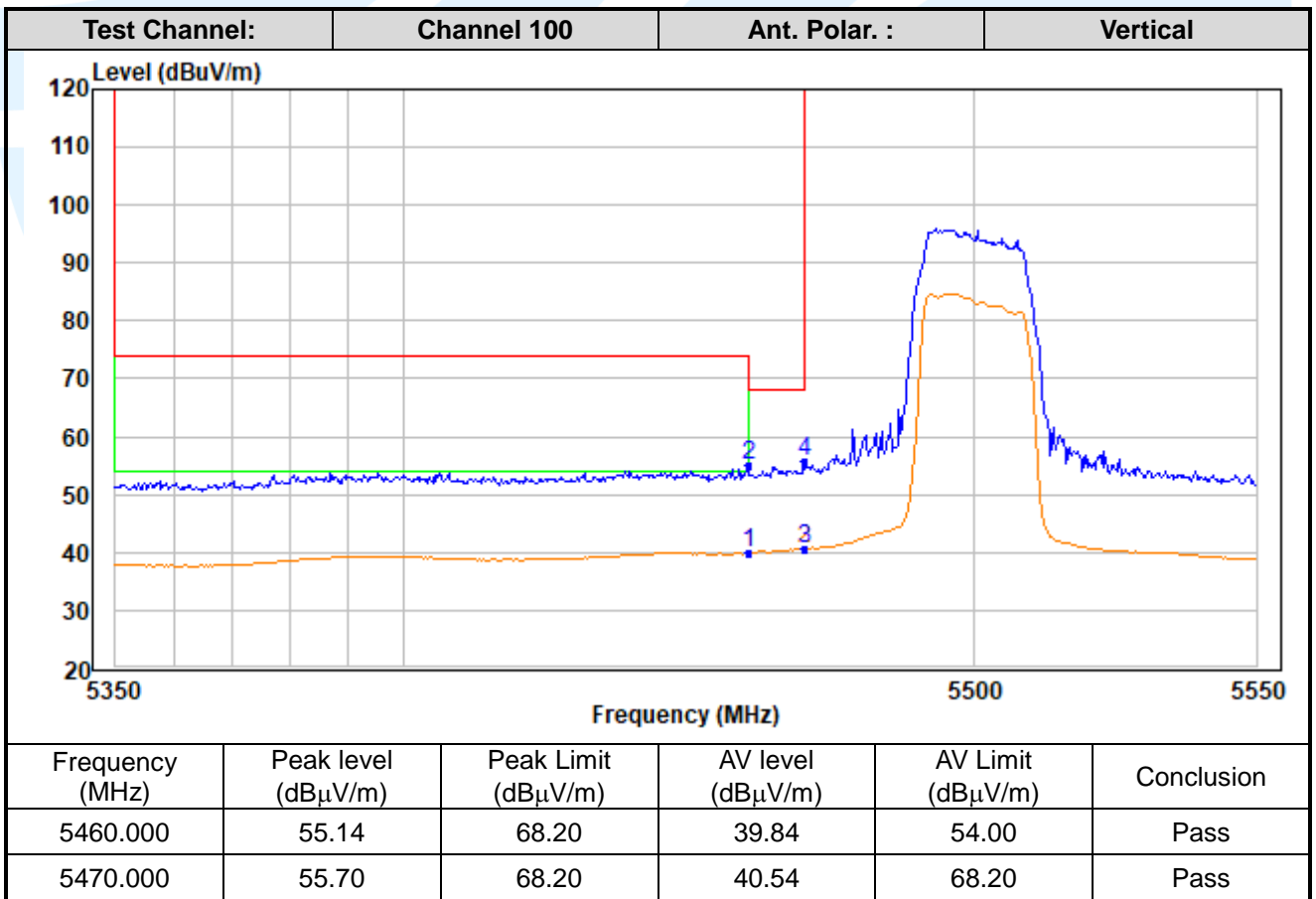
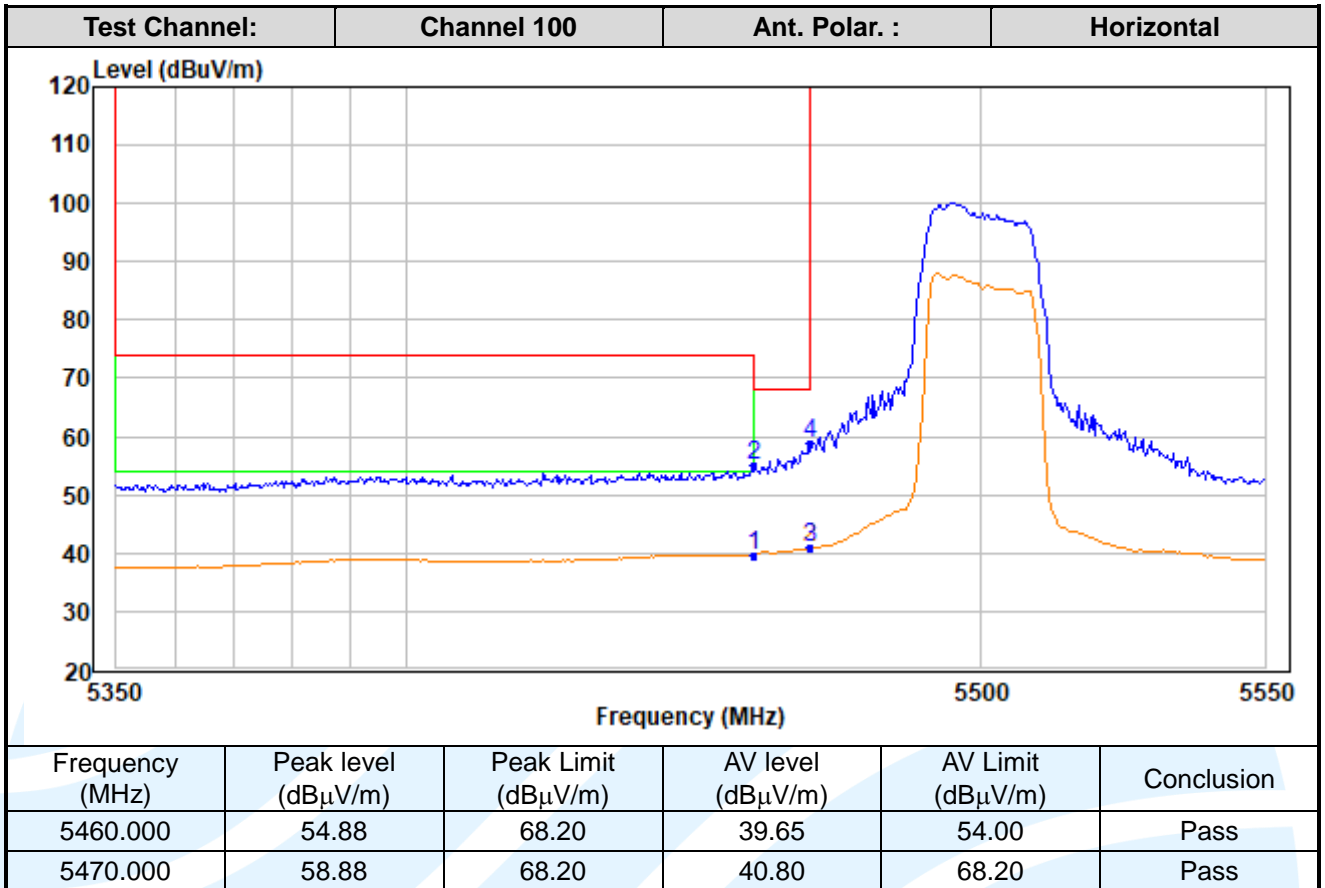
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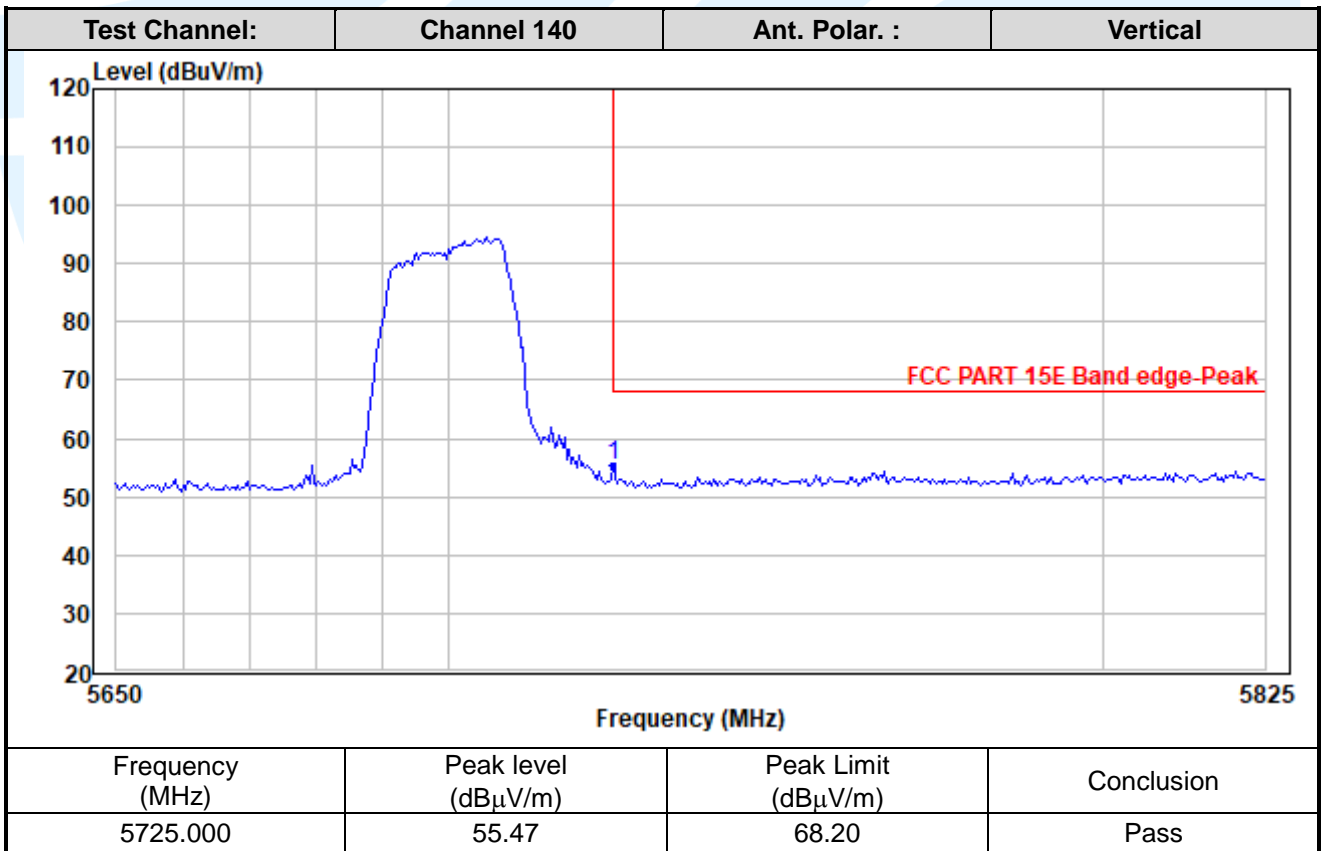
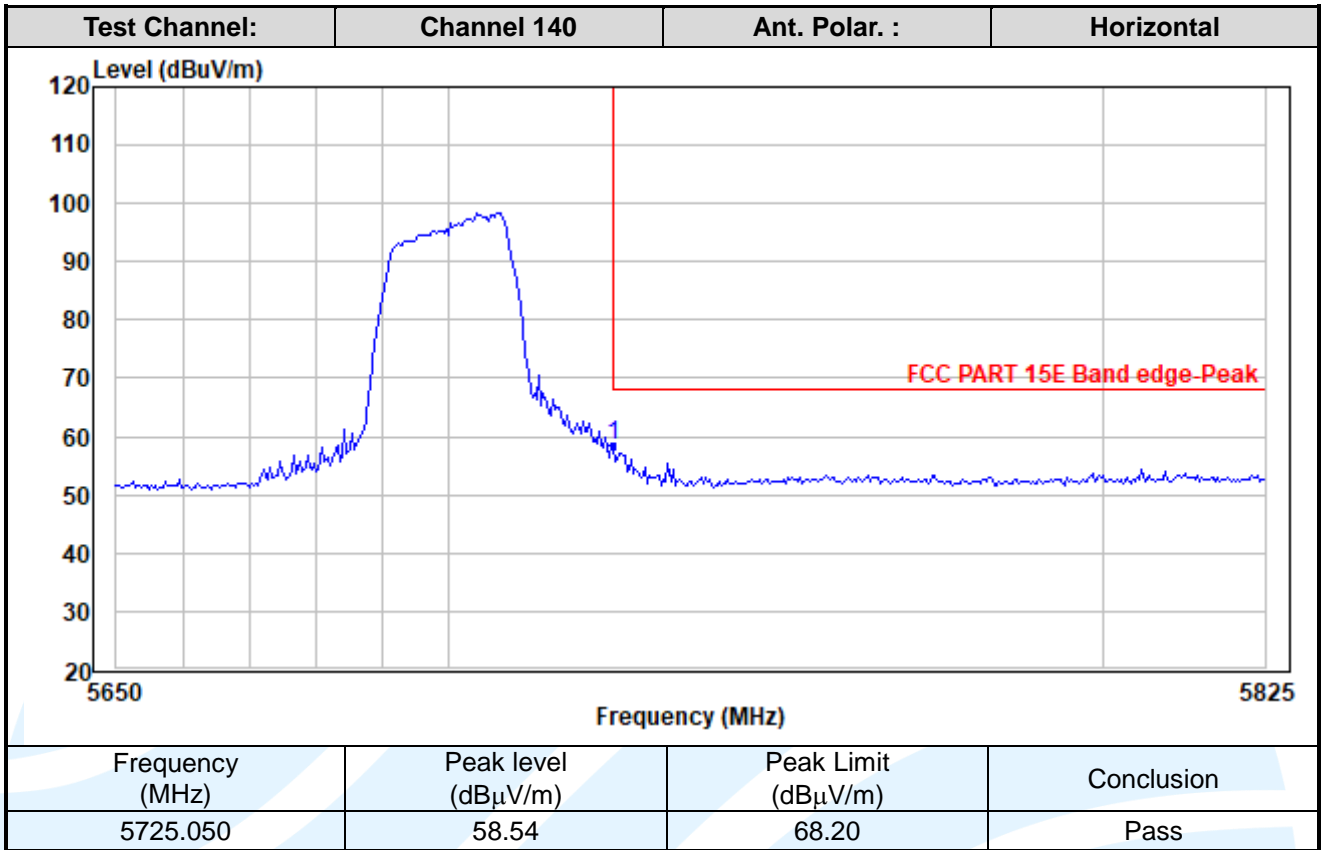
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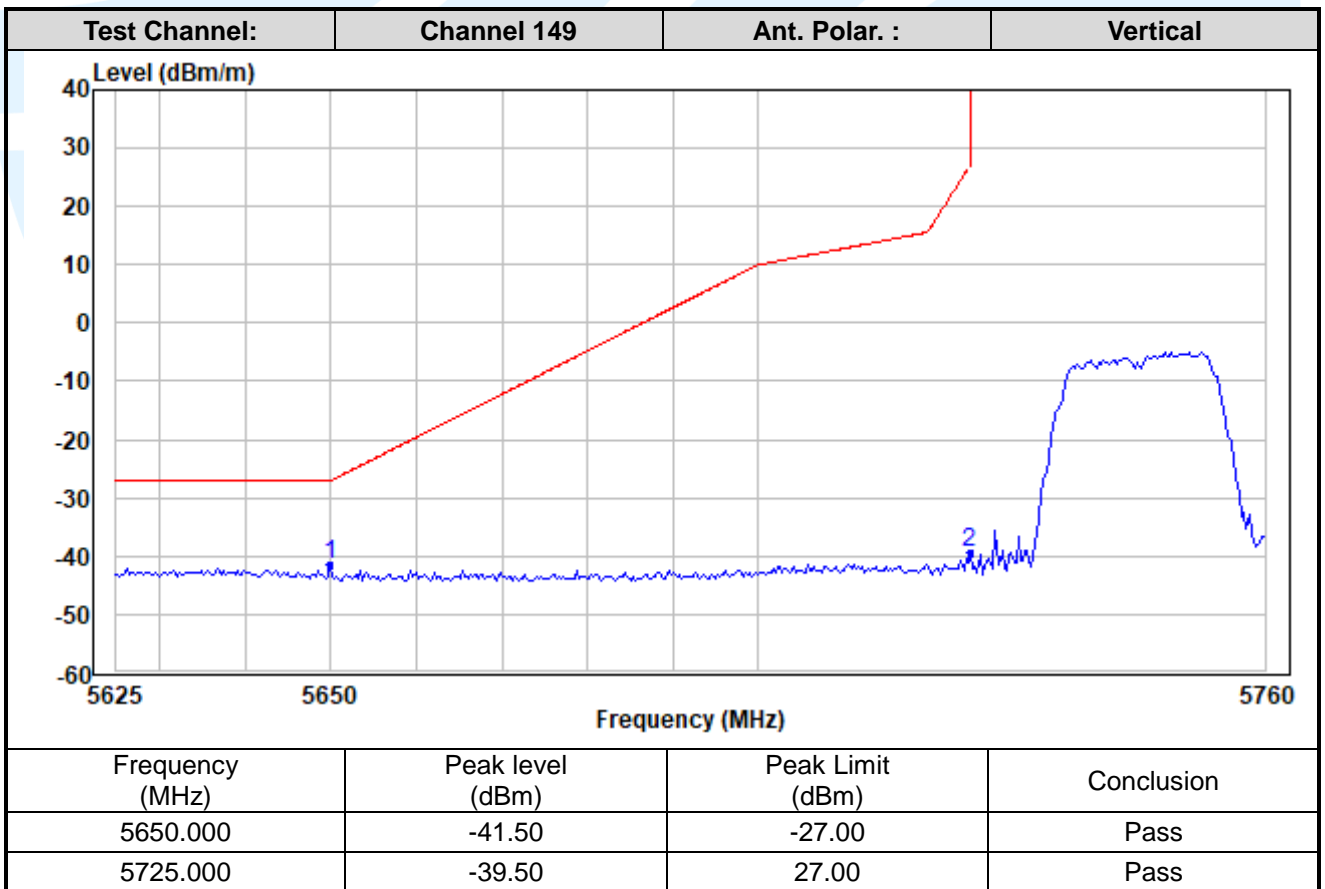
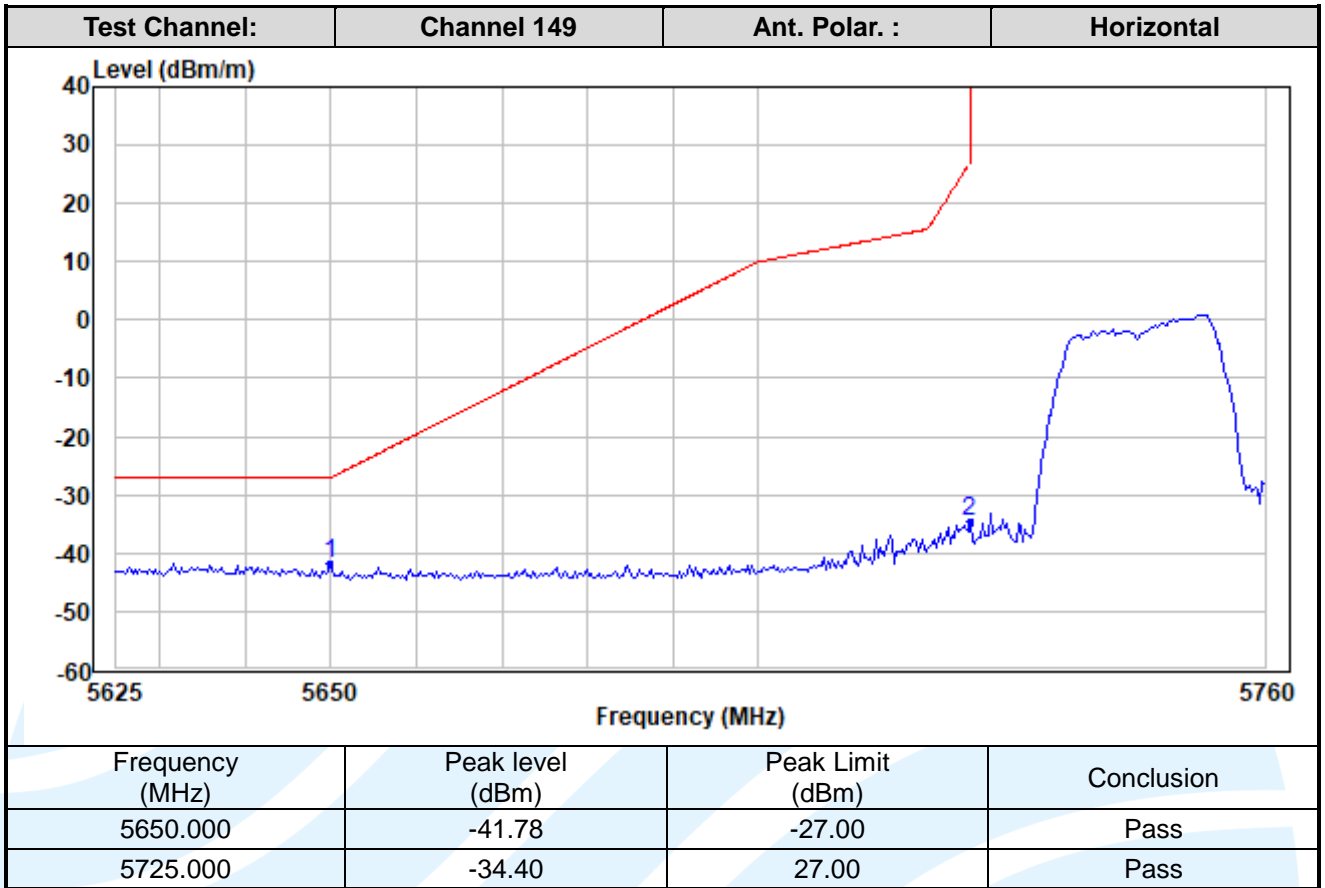
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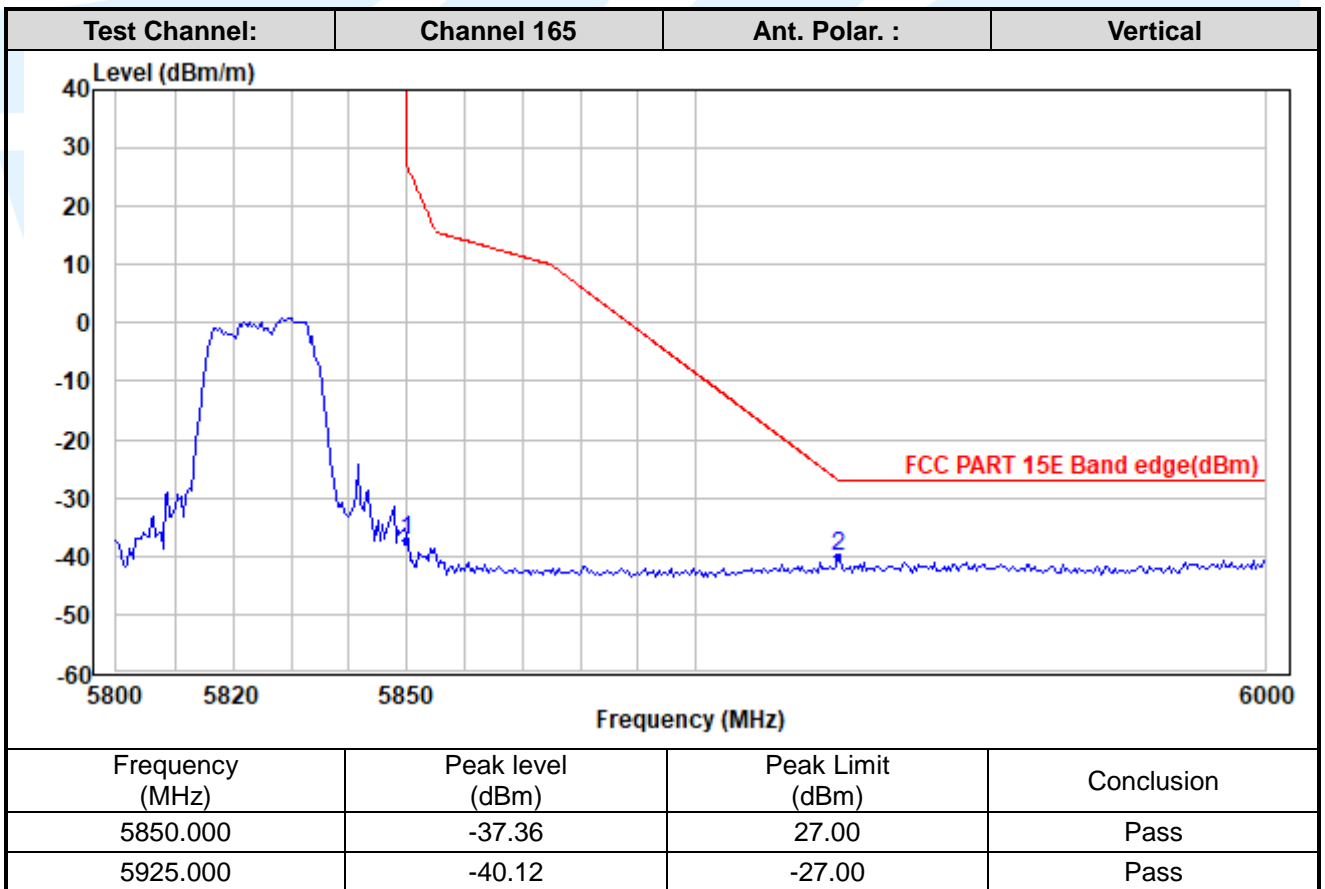
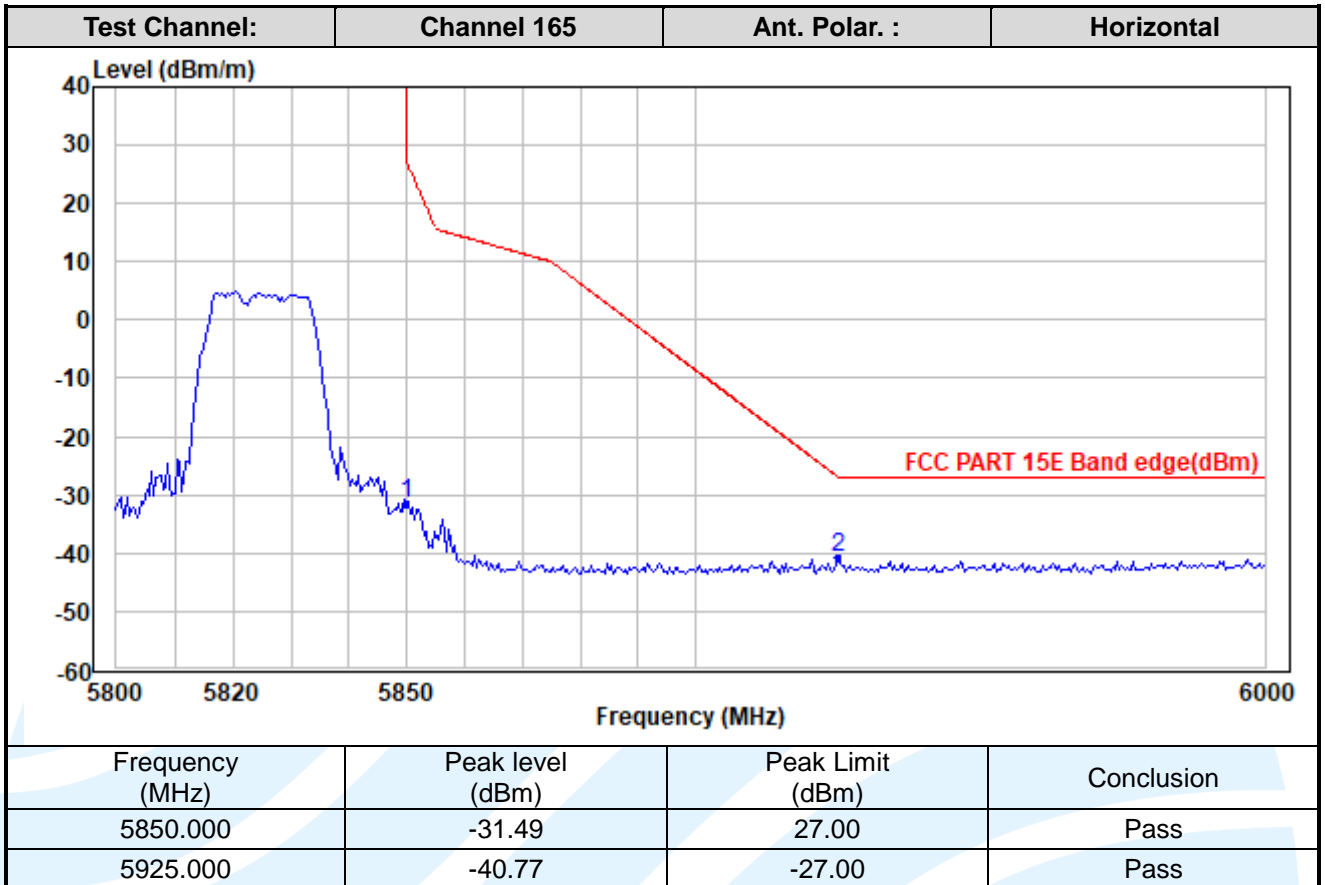
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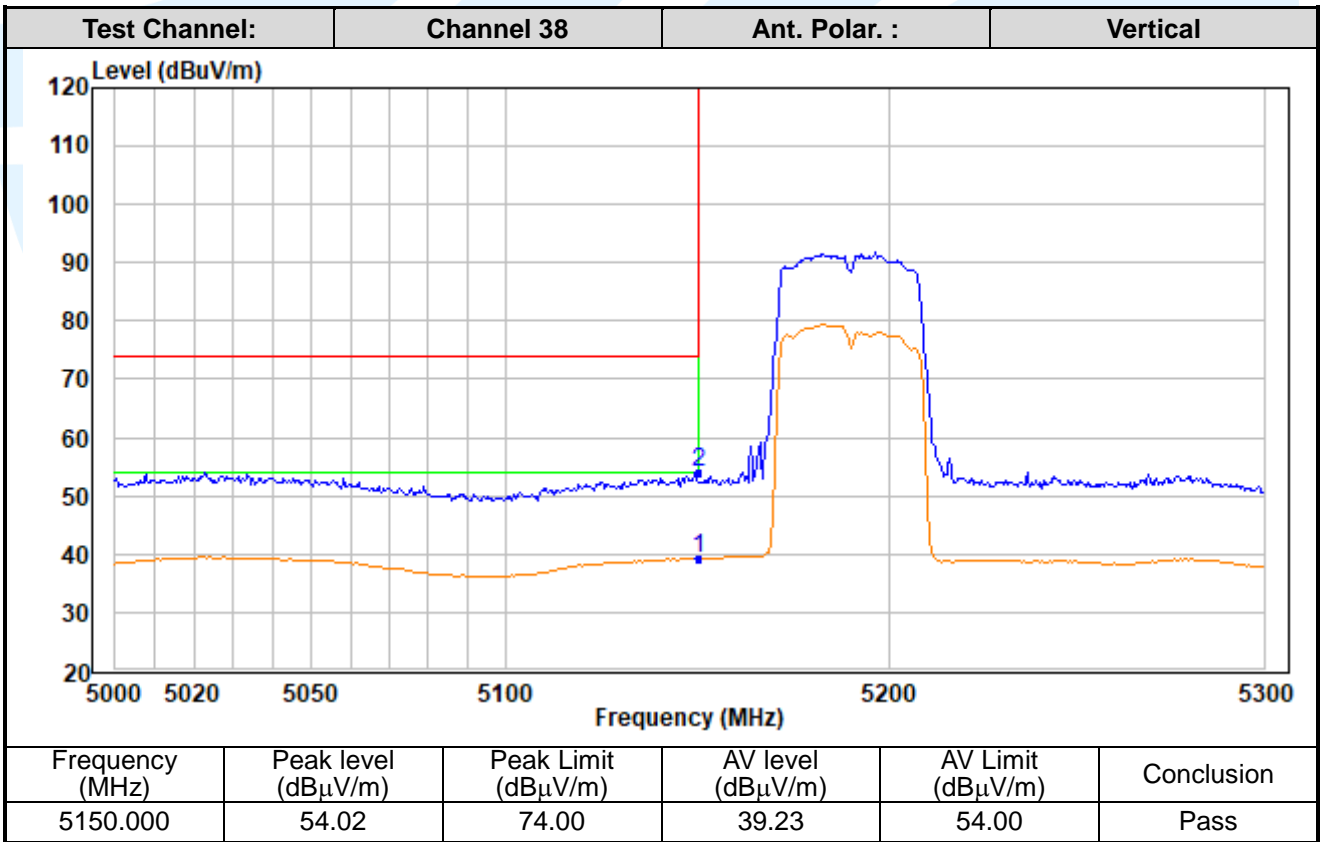
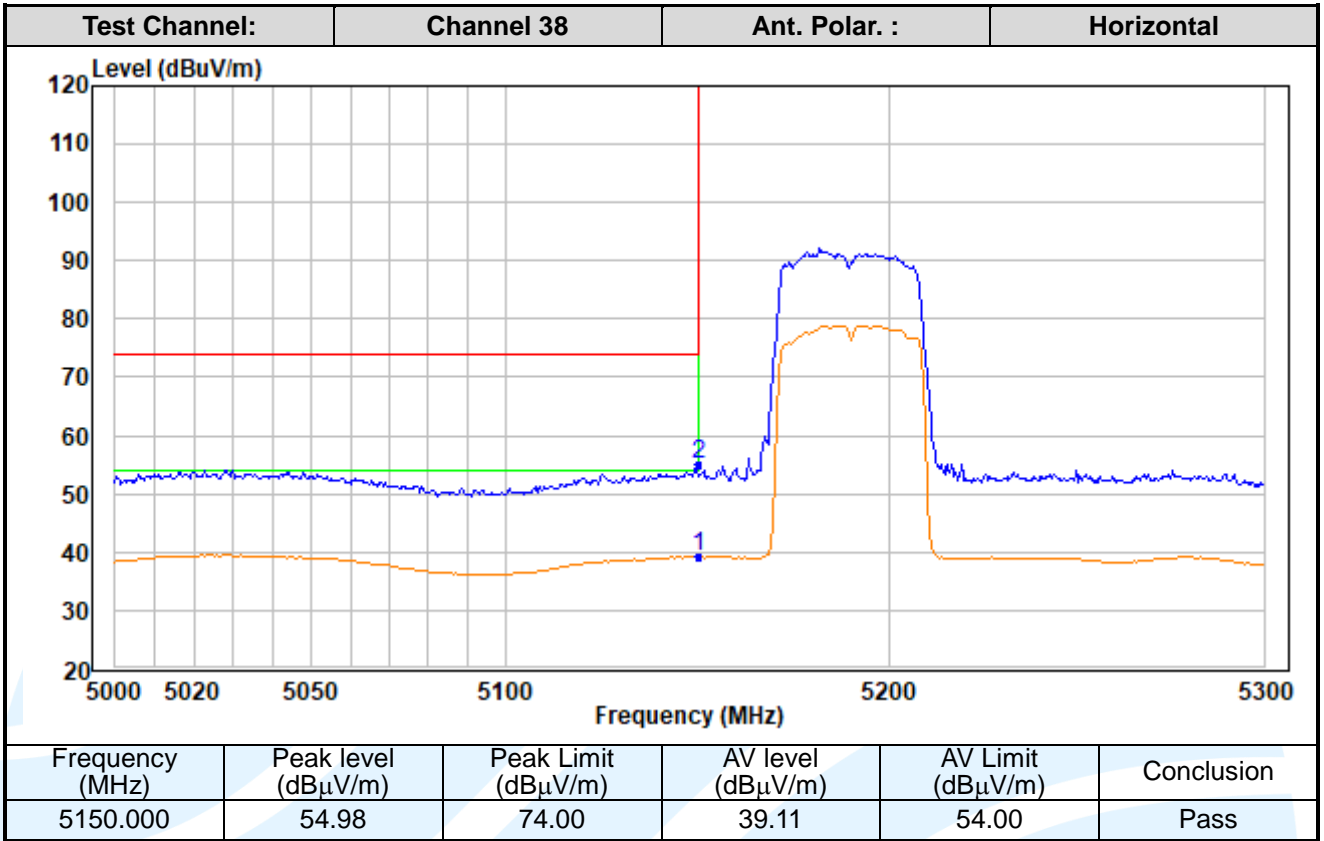
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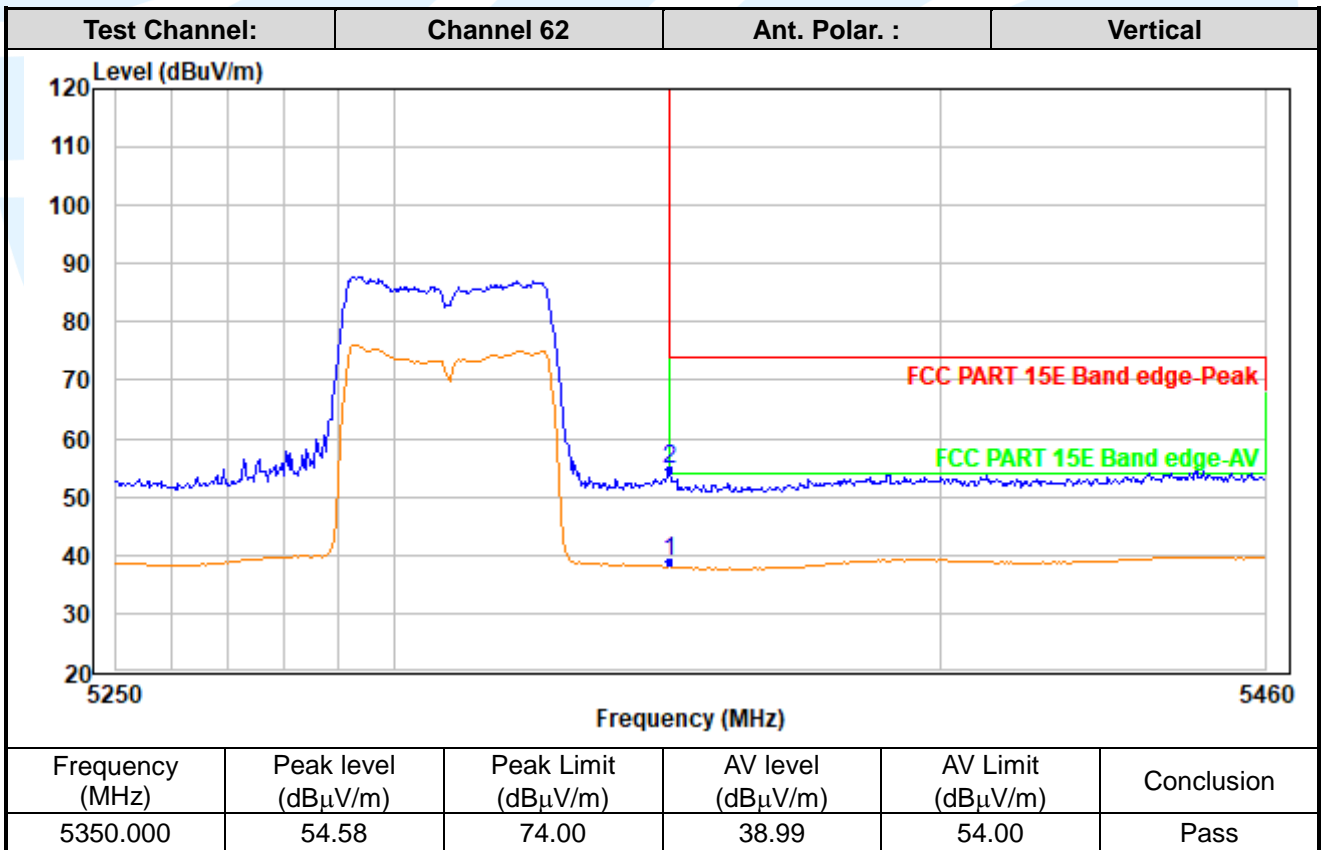
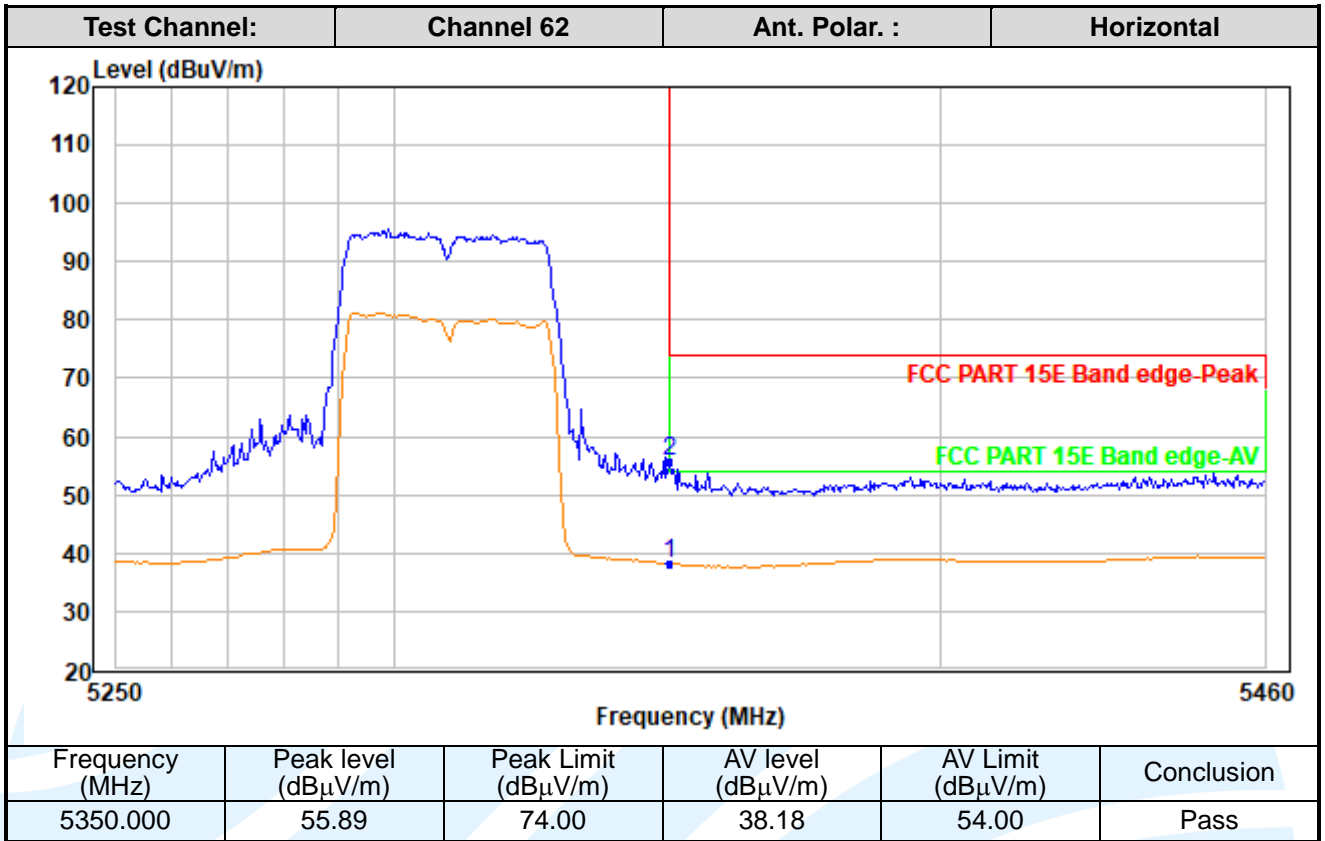
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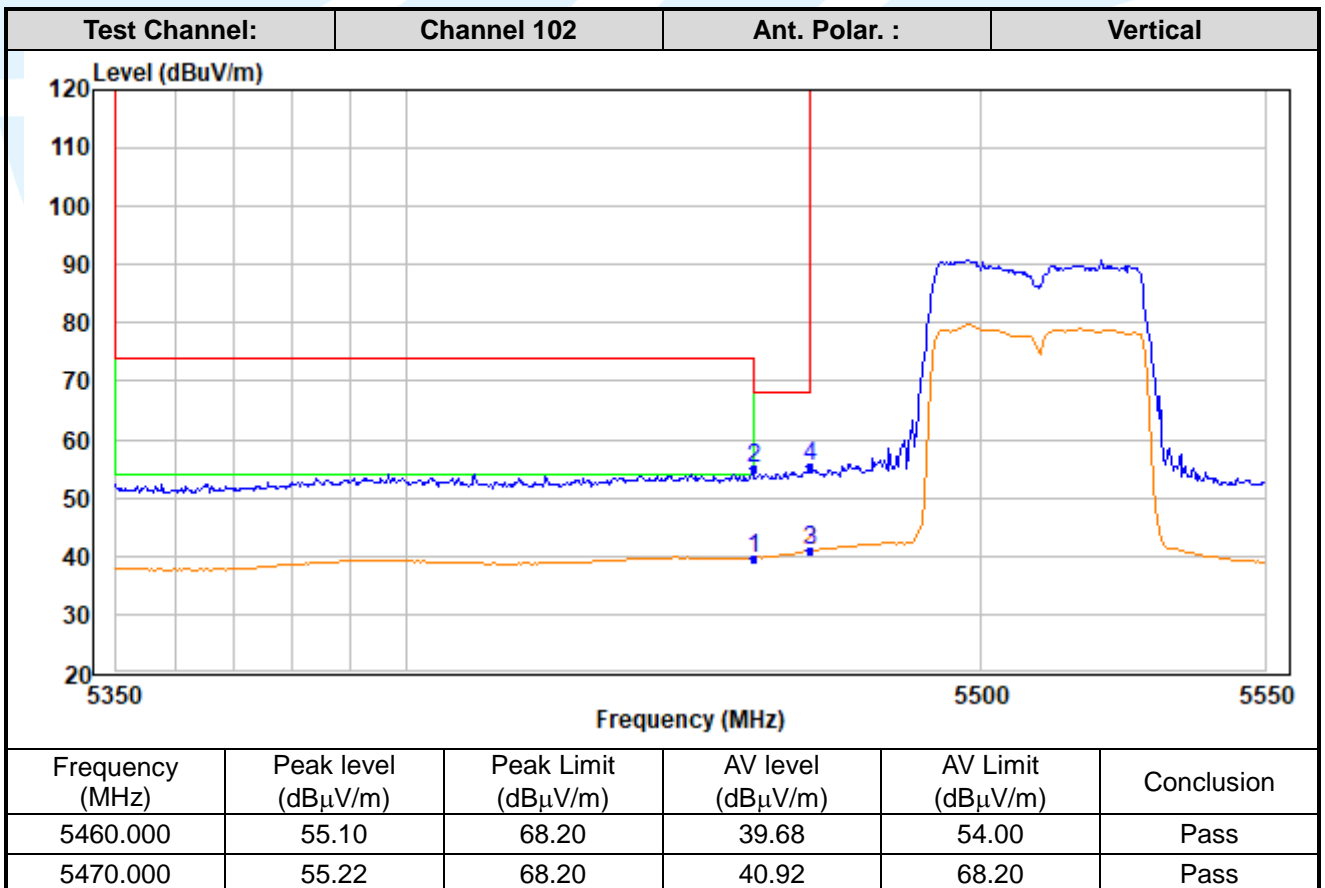
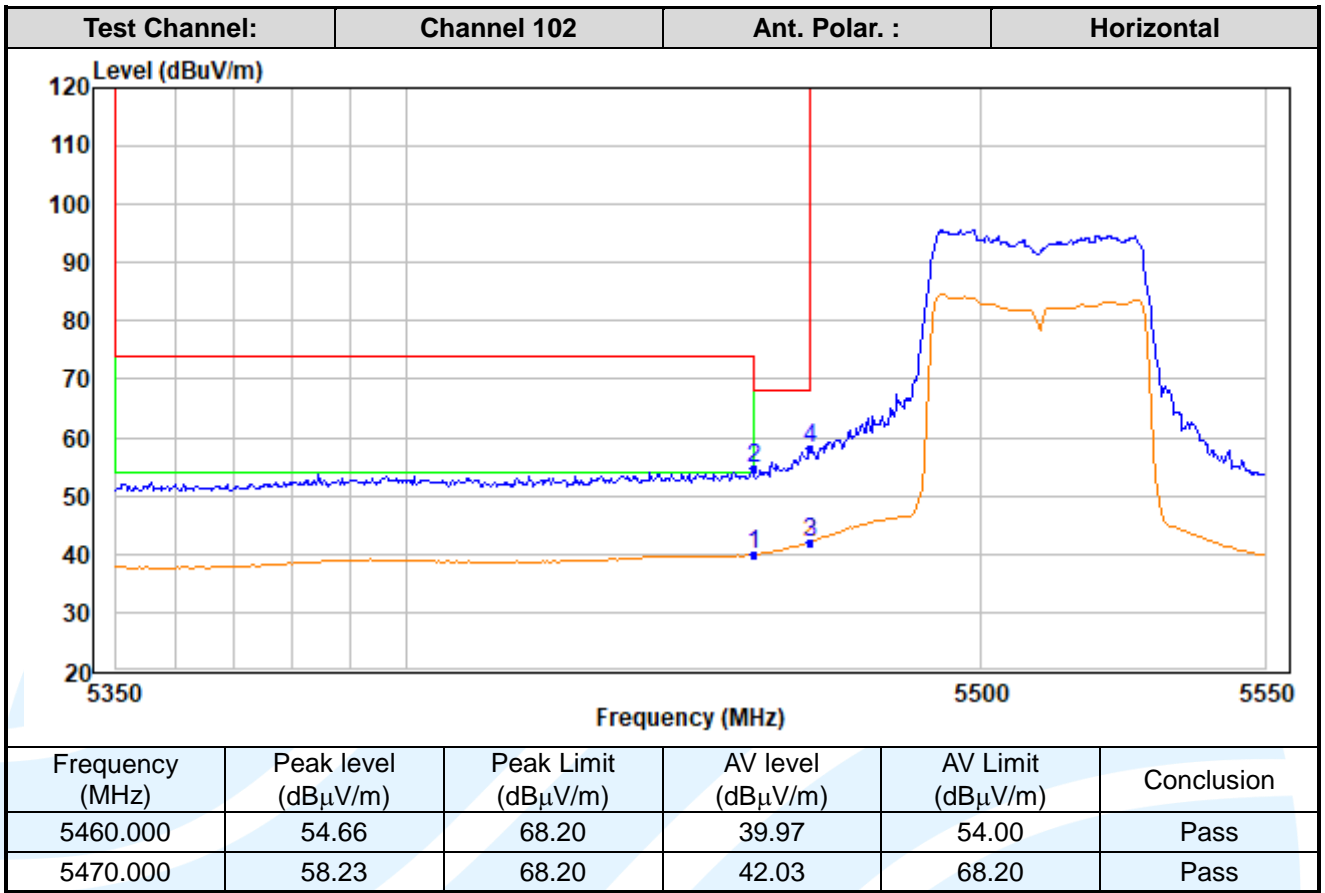
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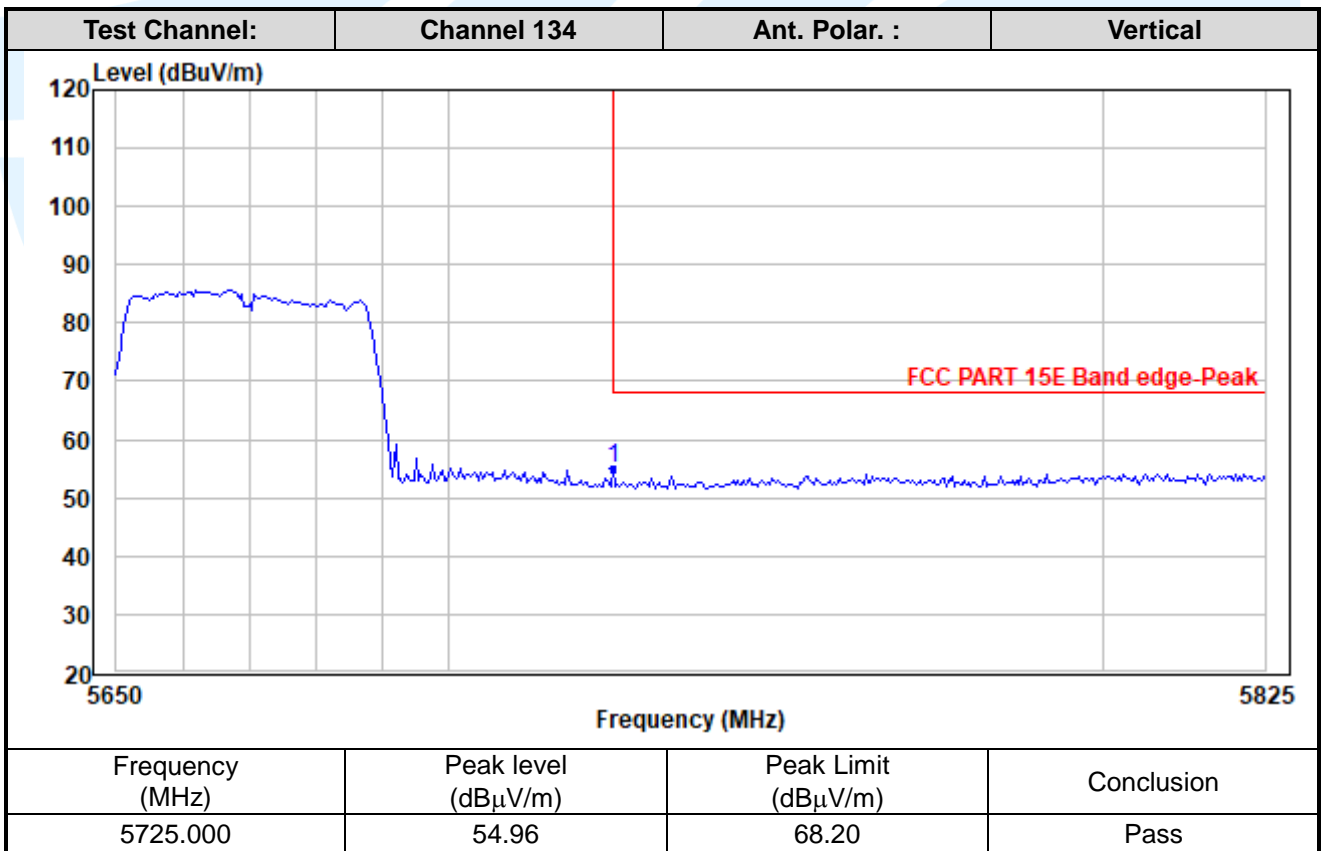
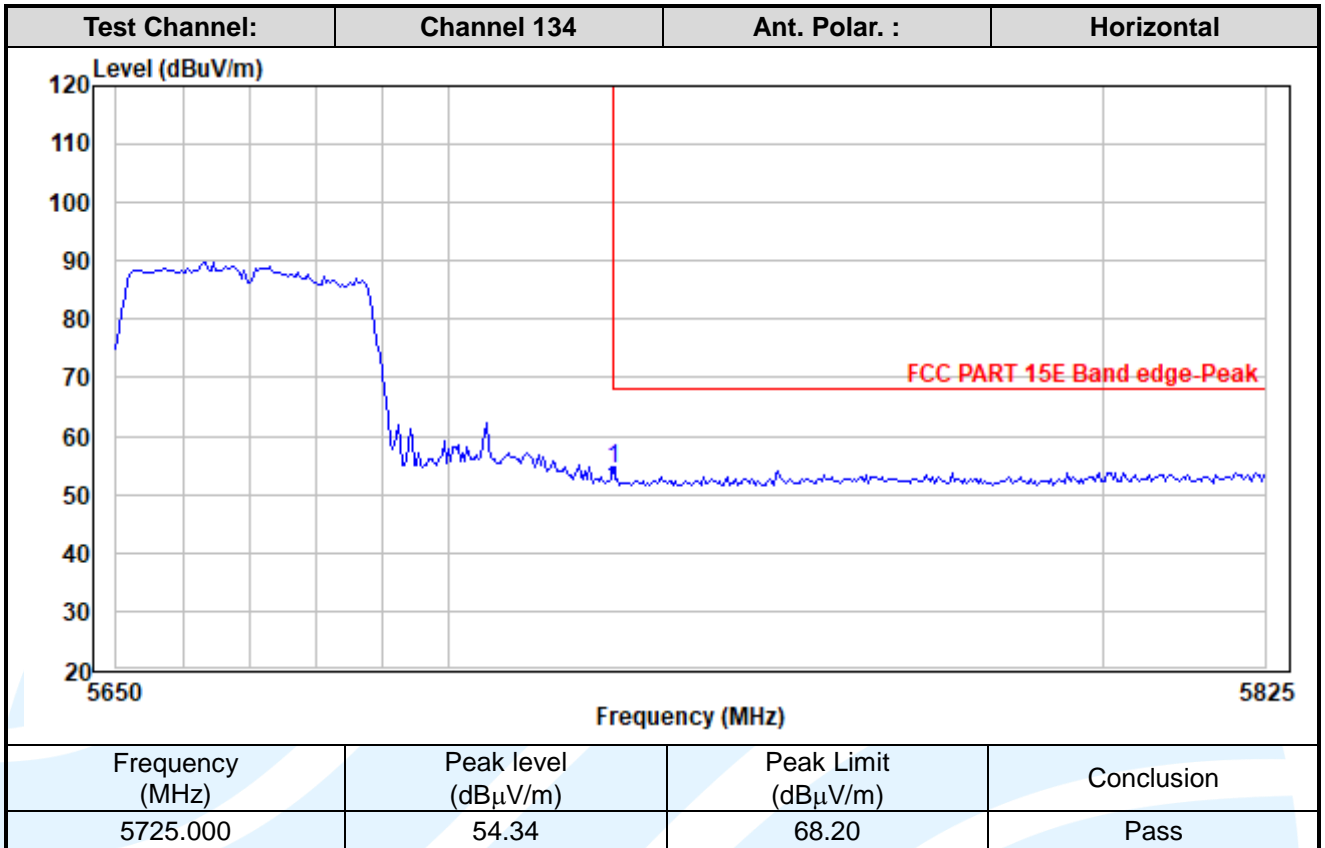
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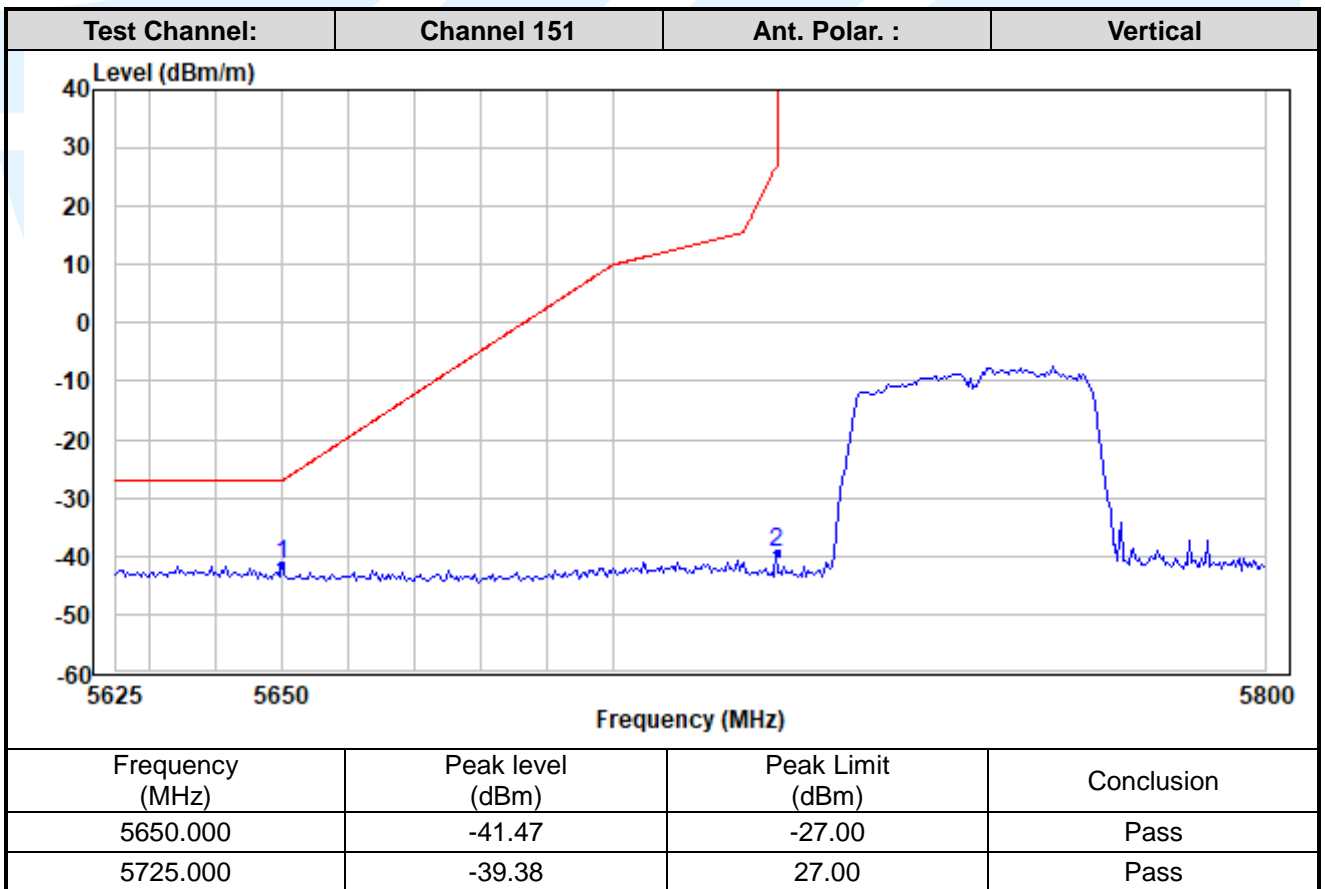
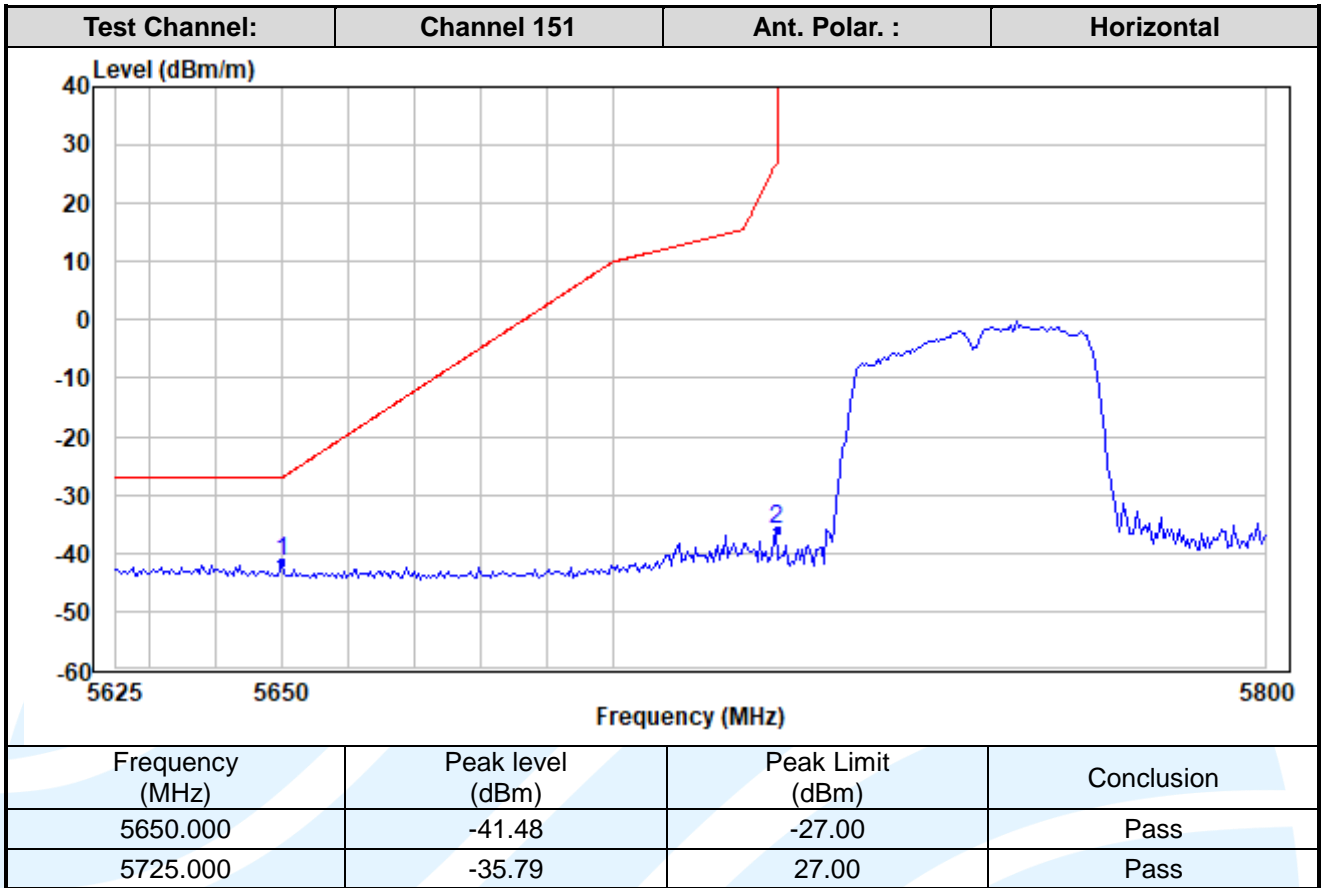
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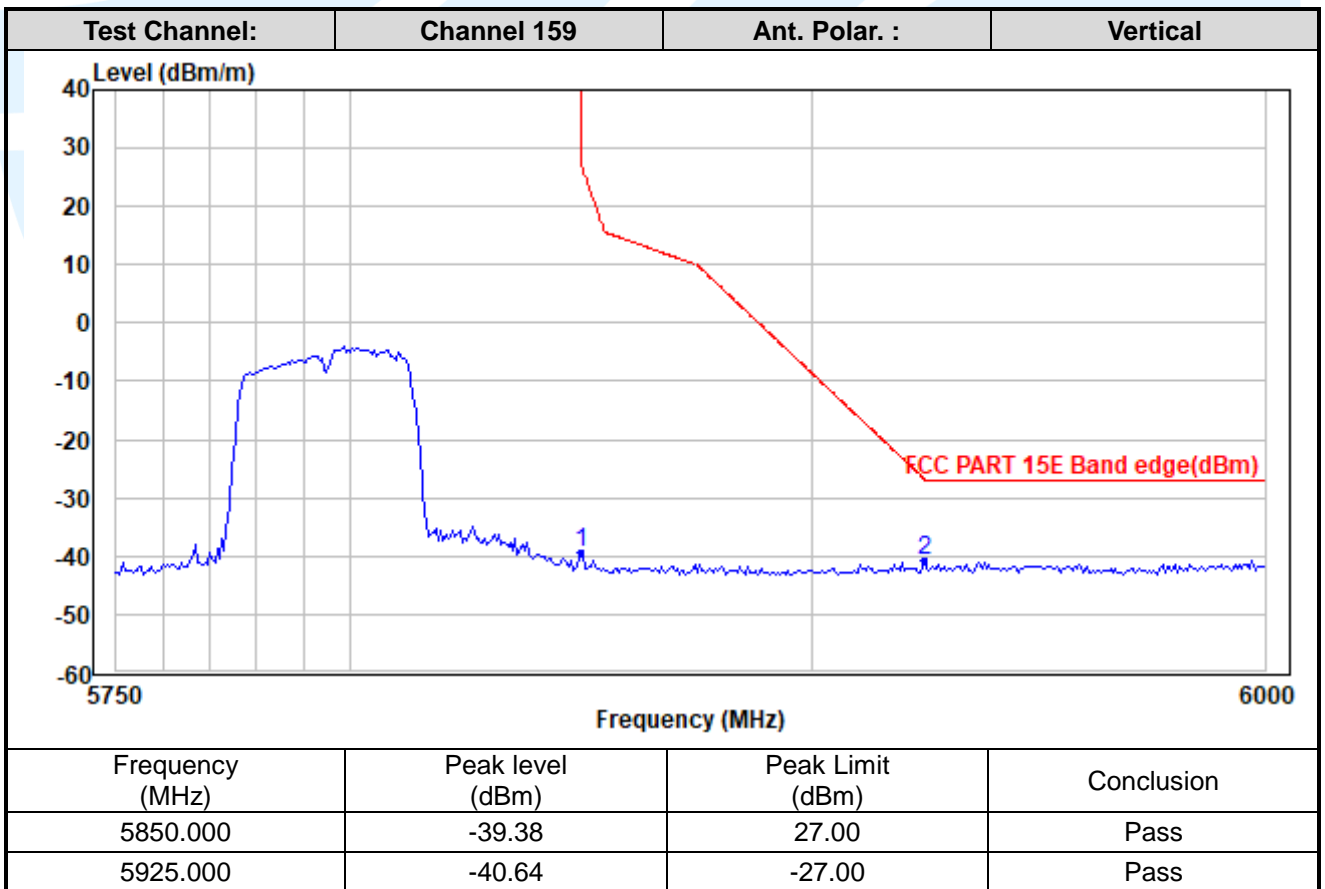
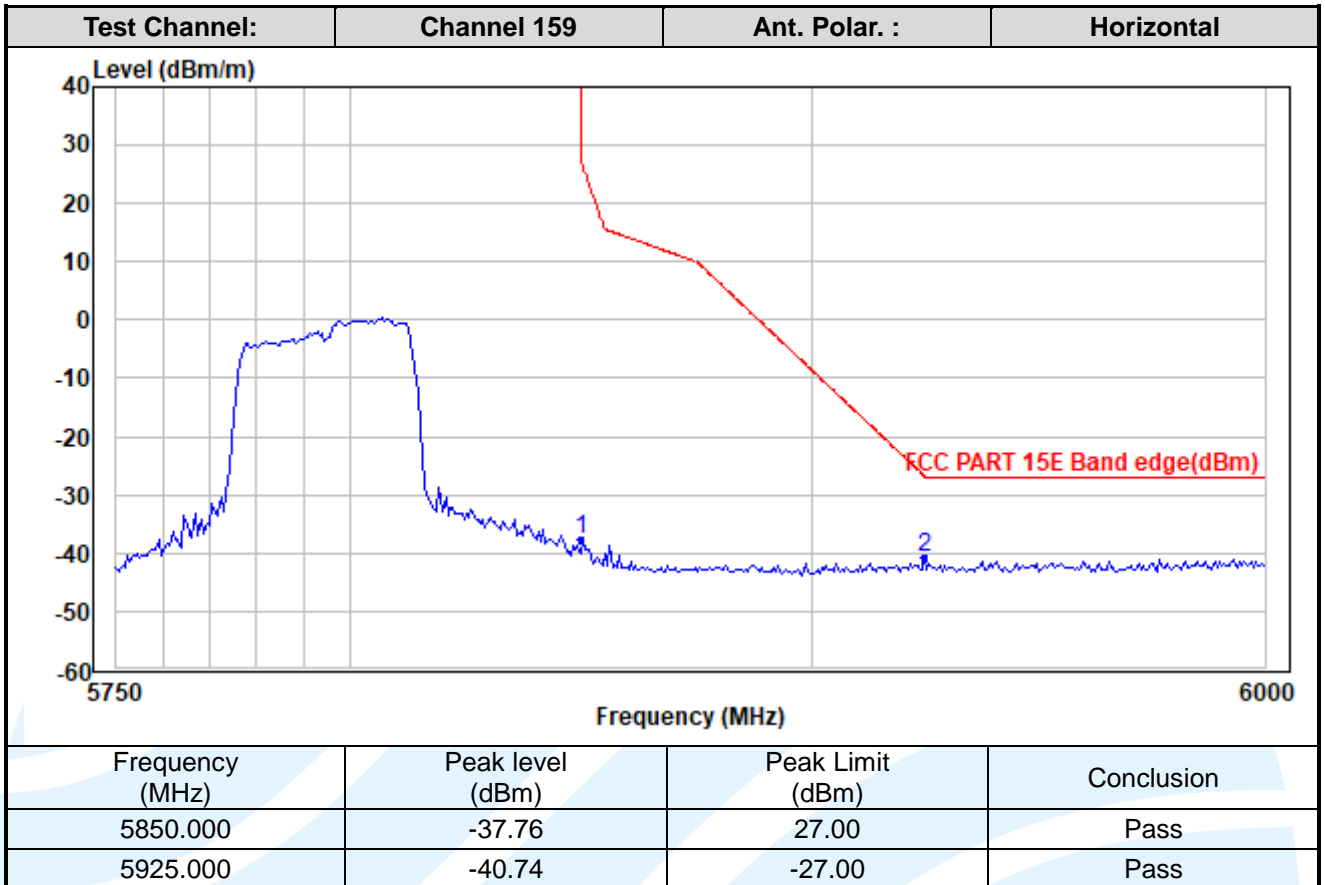
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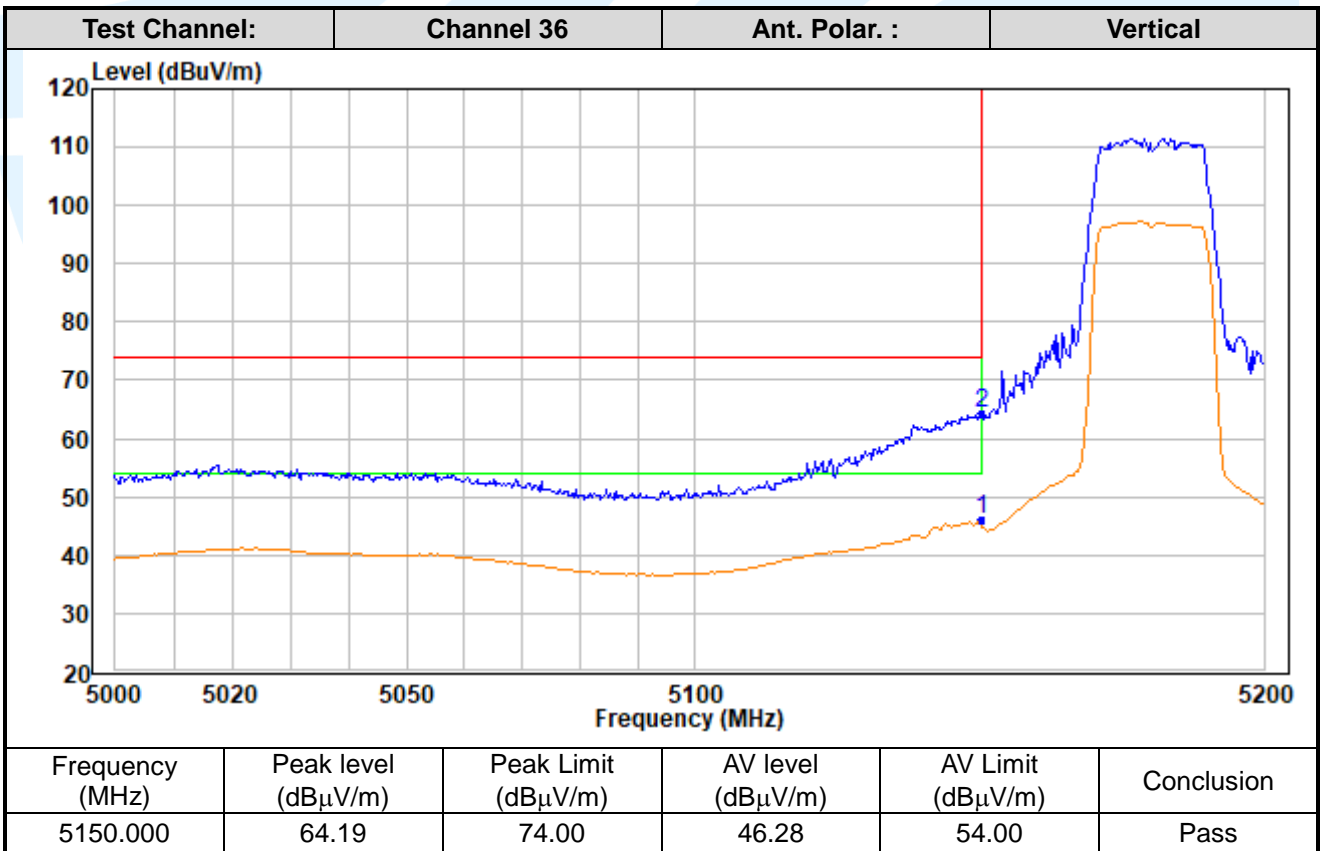
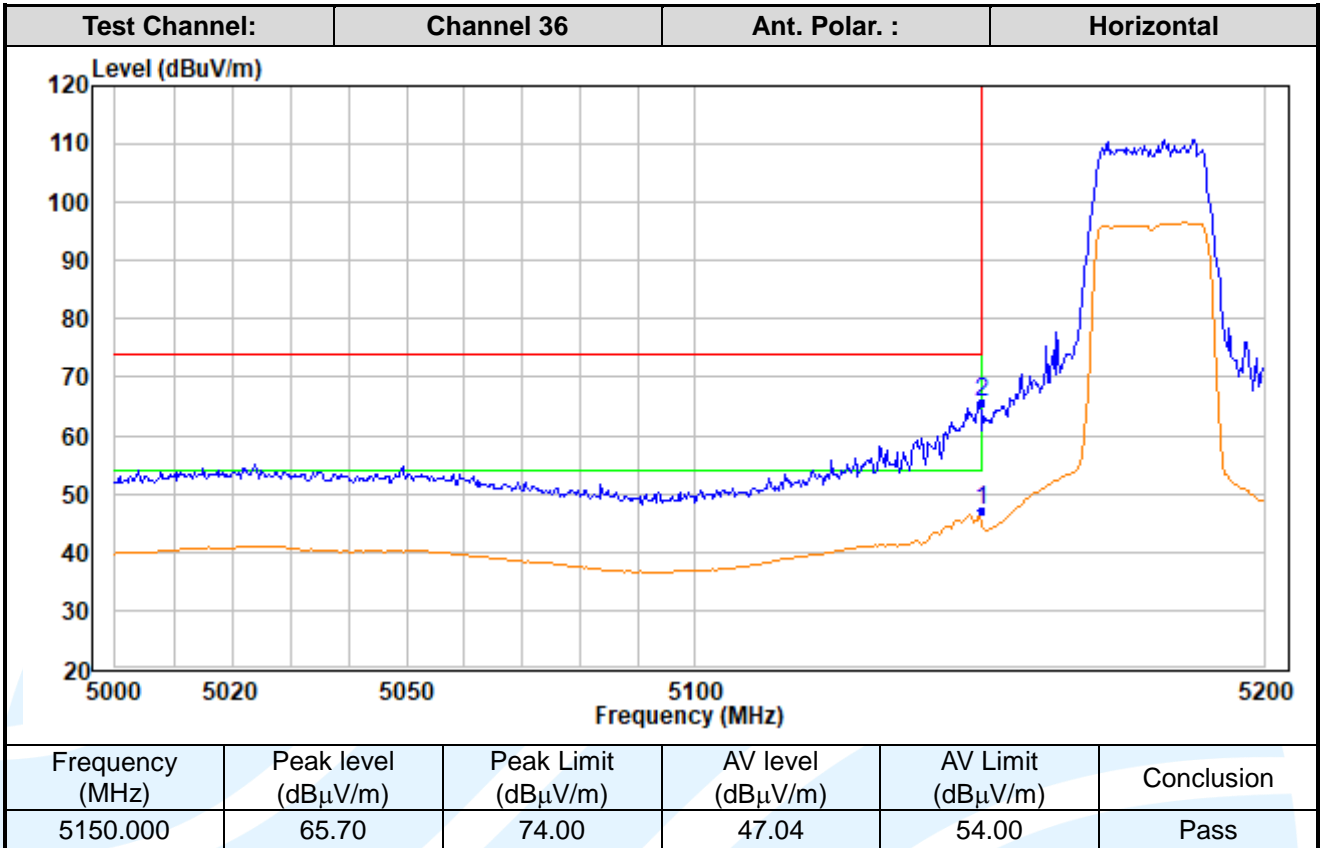
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IEEE 802.11ax-HE20



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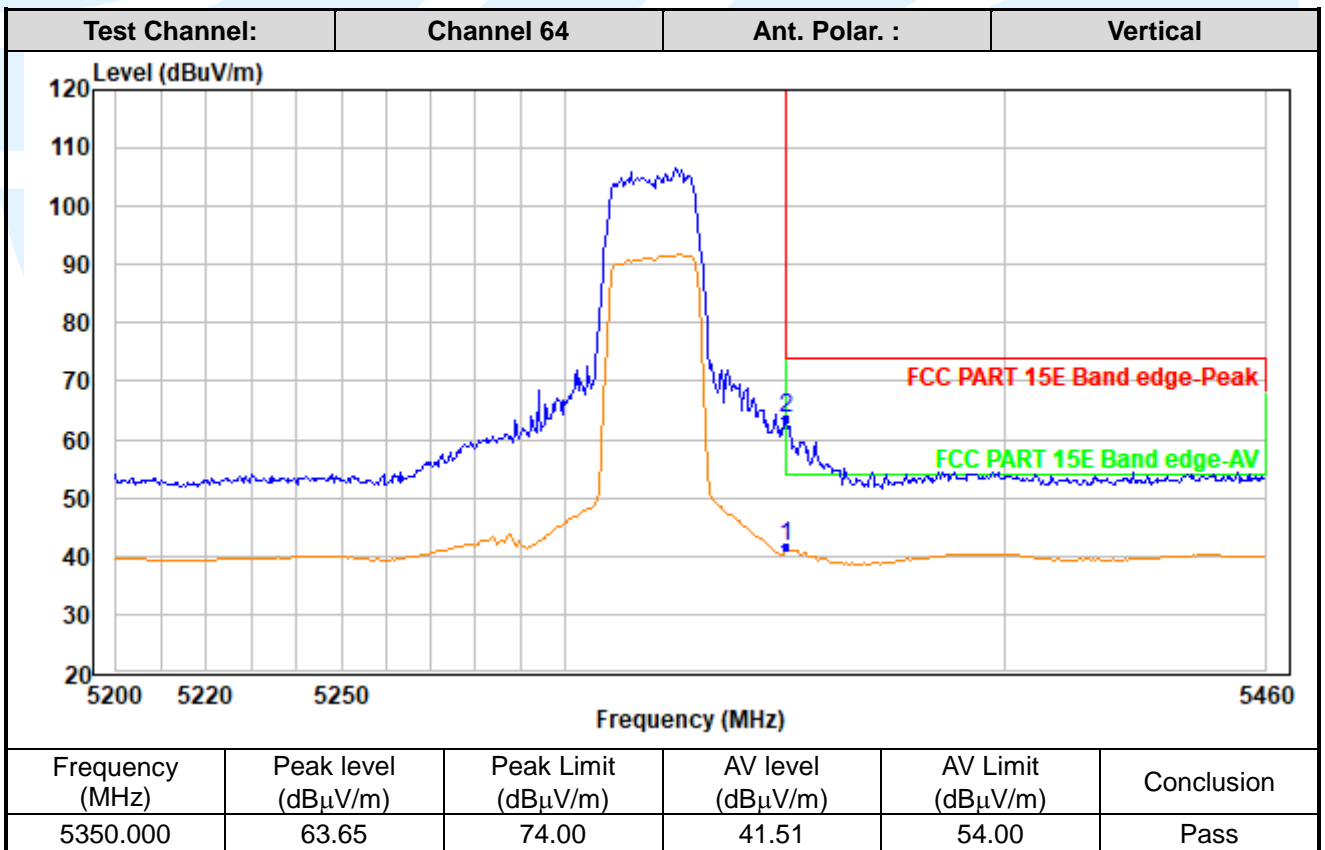
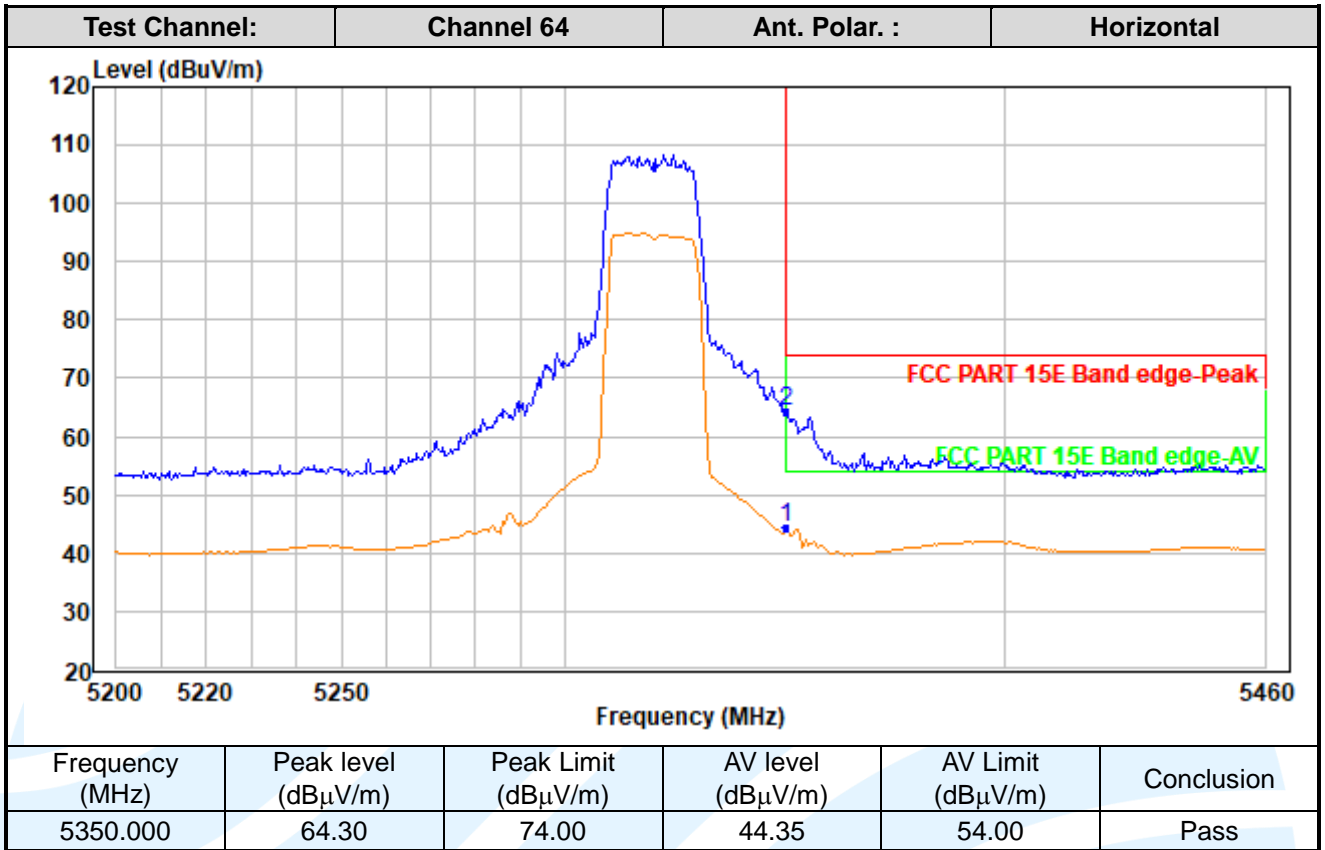
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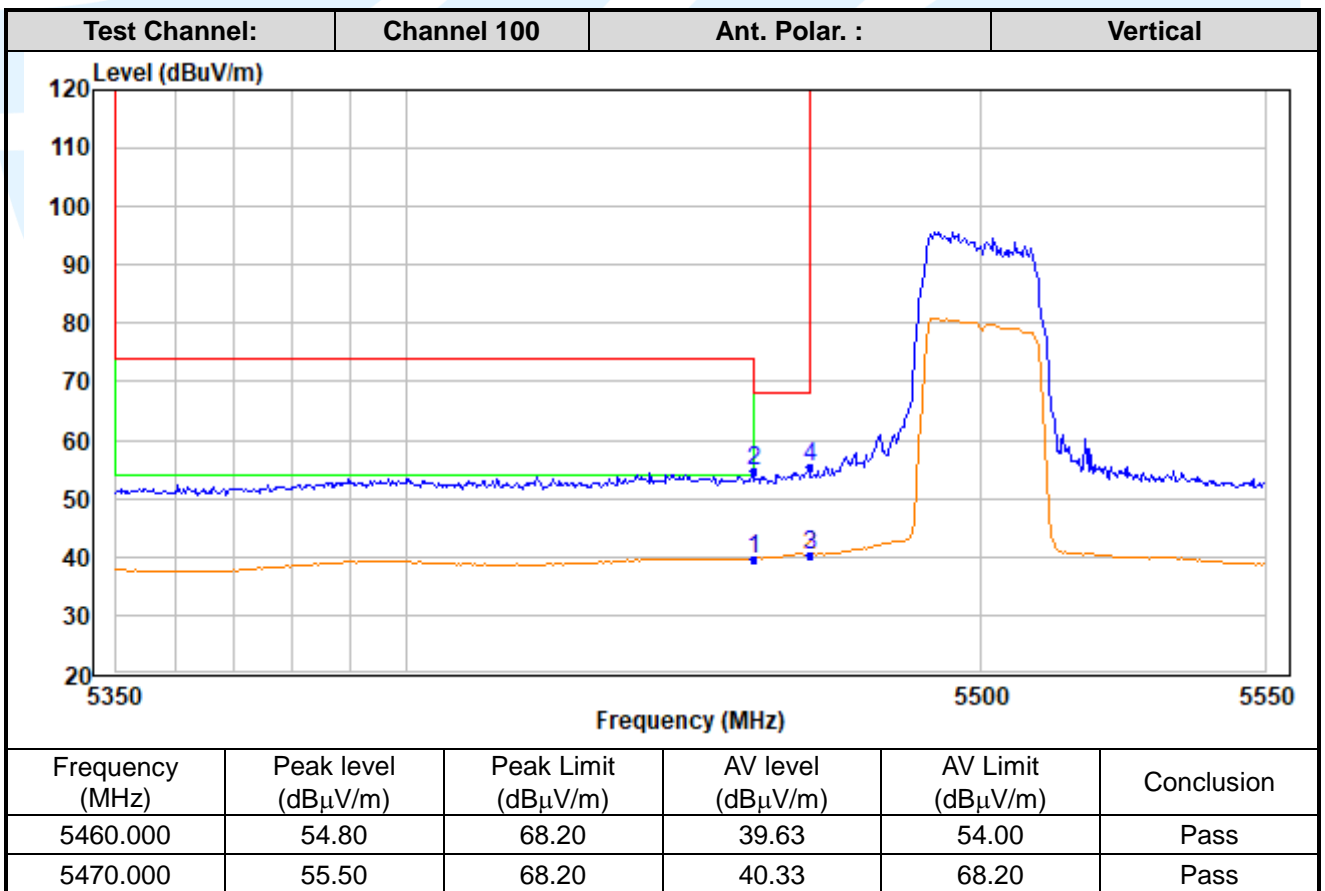
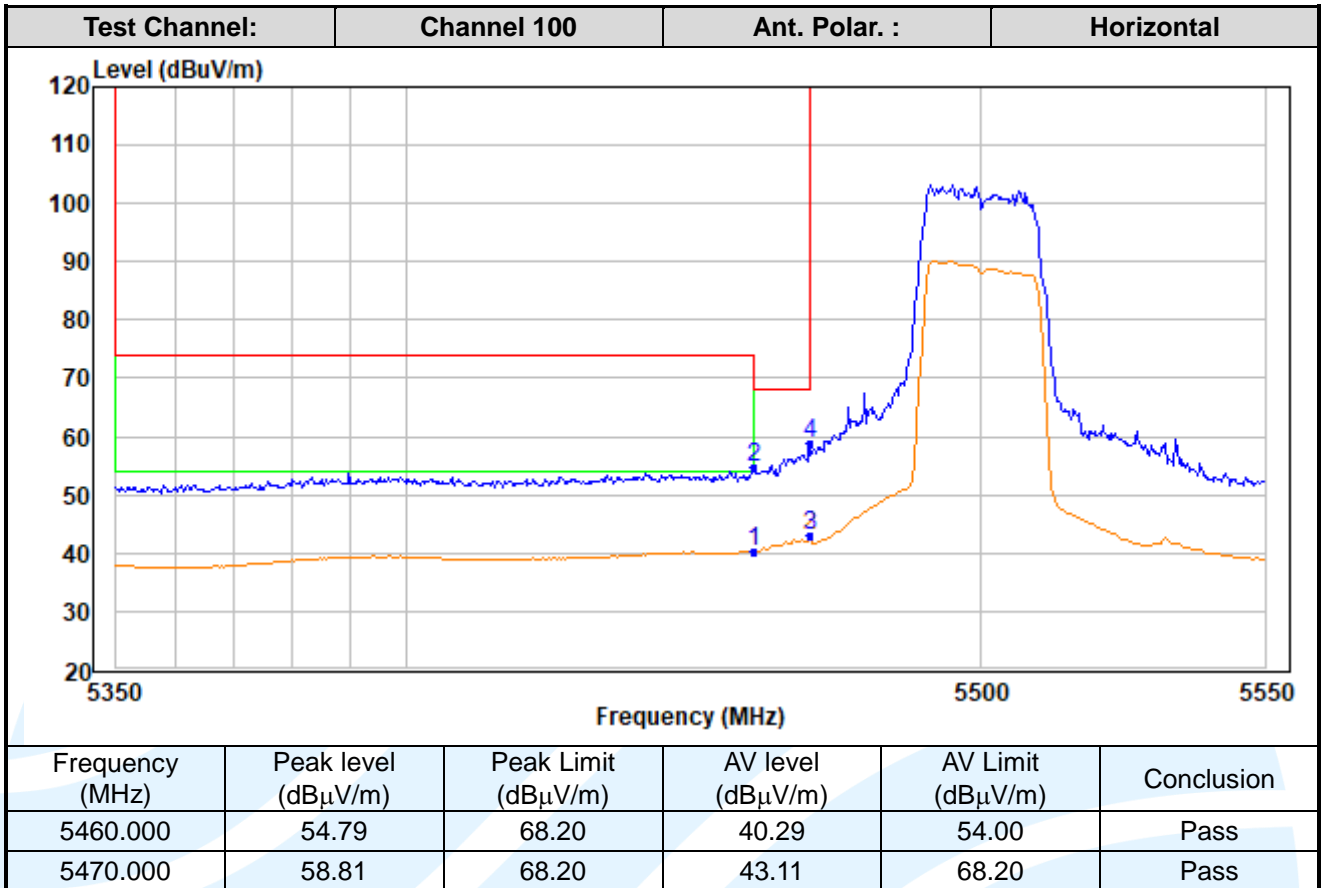
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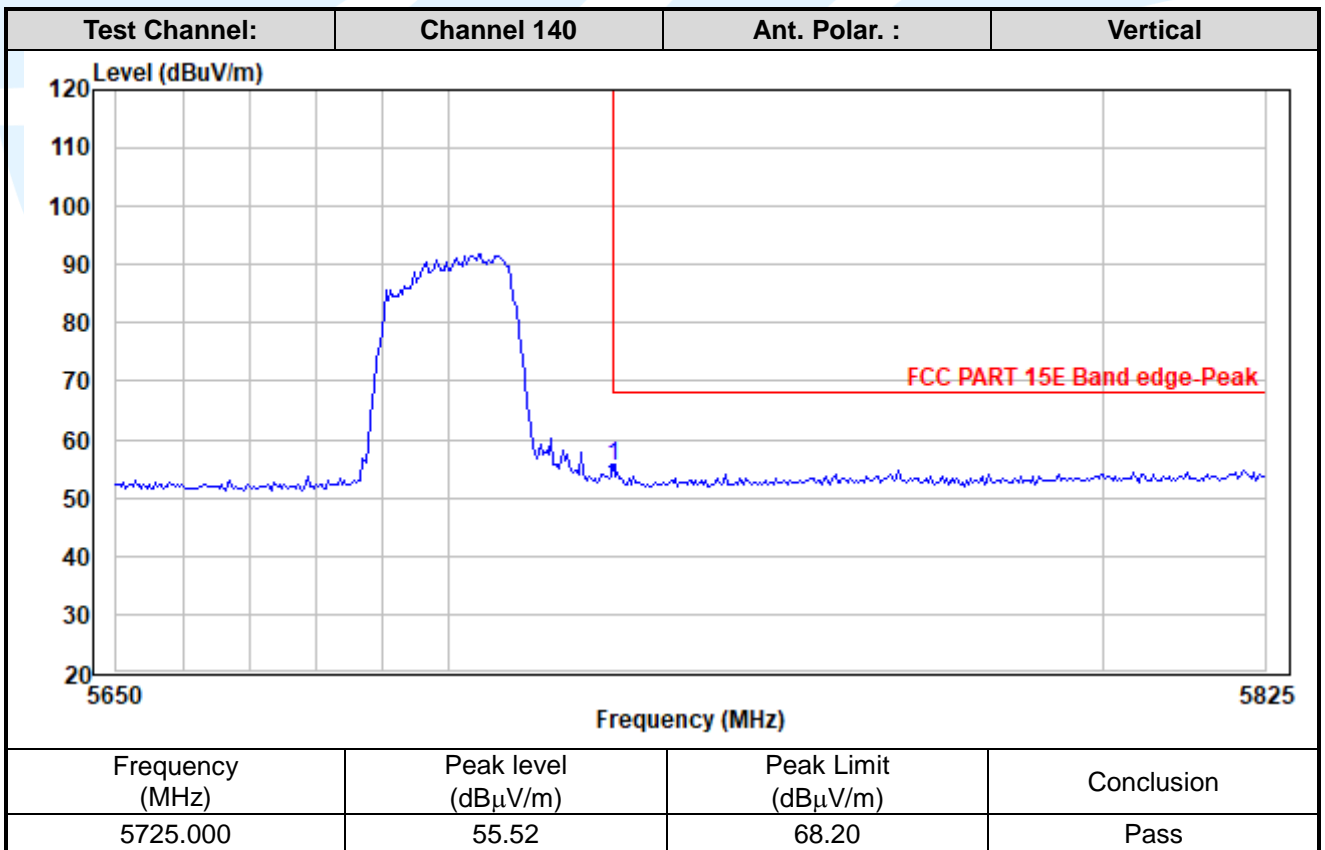
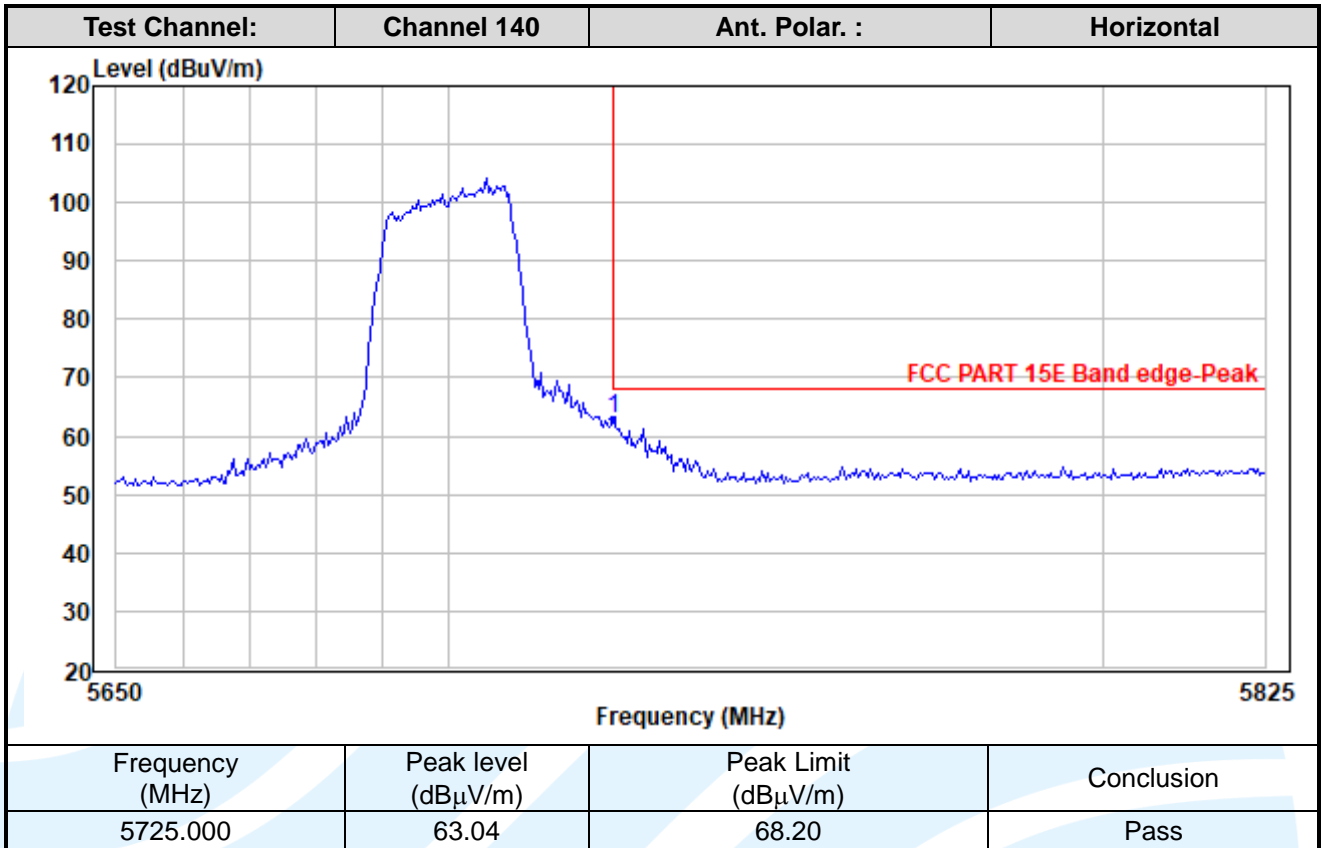
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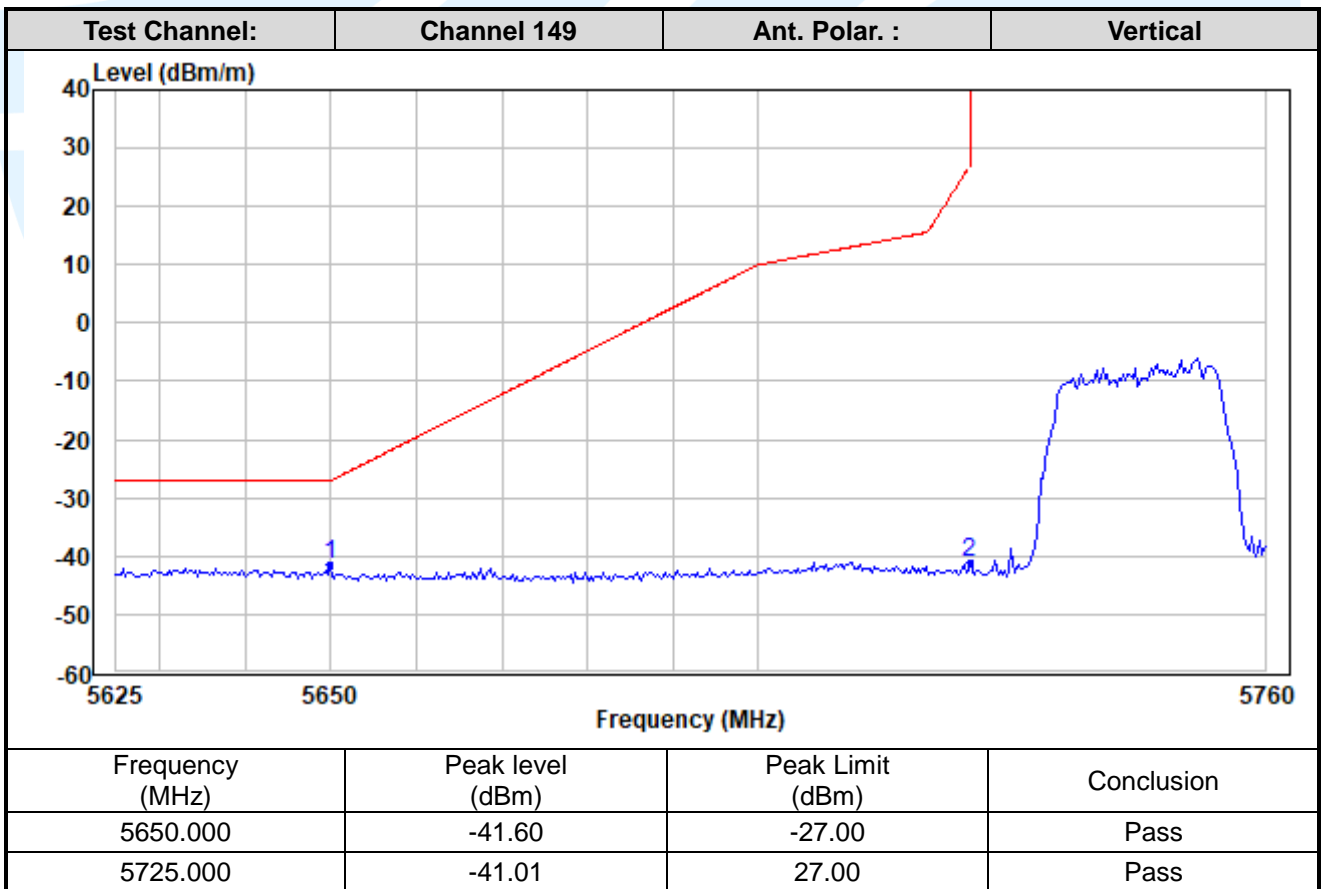
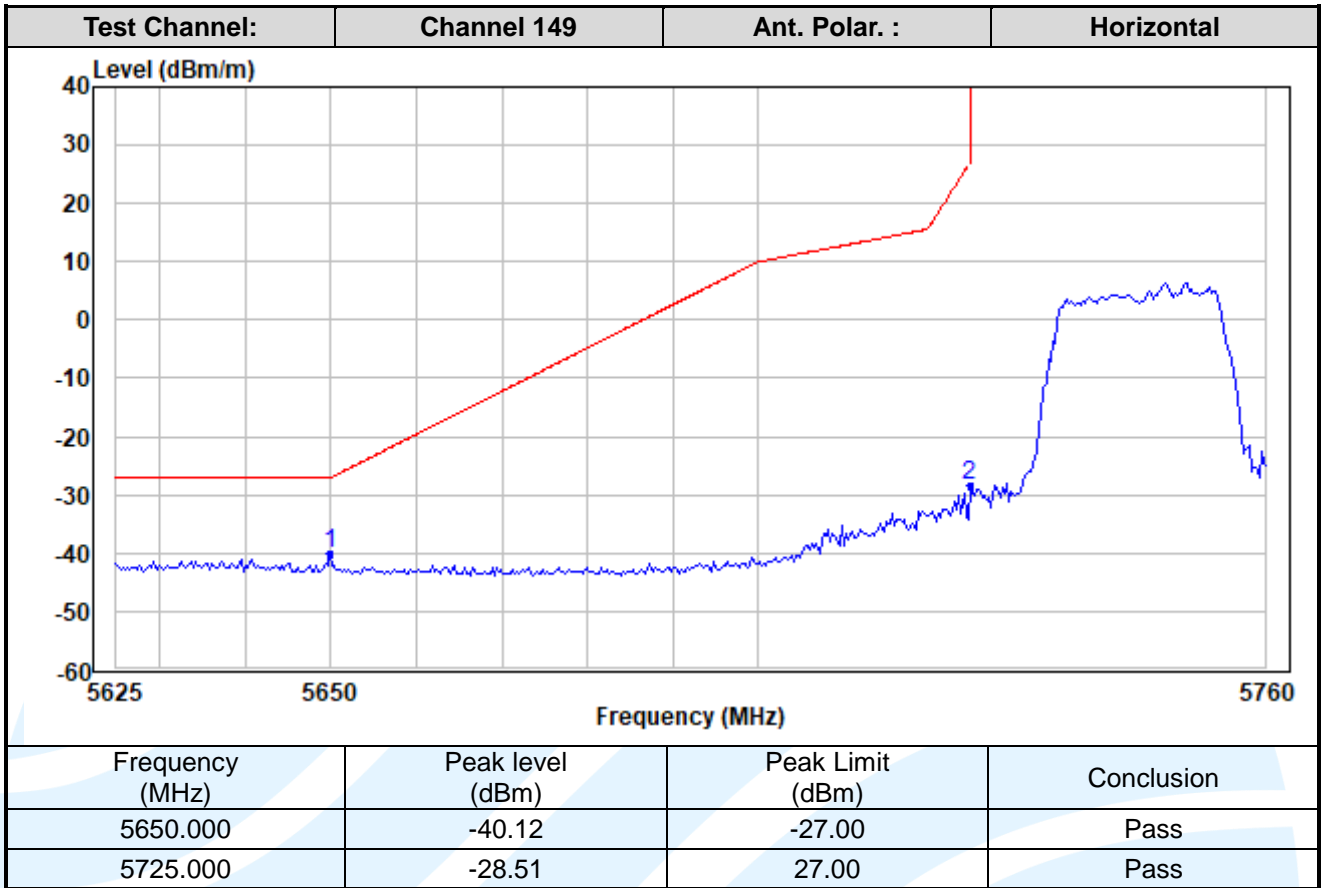
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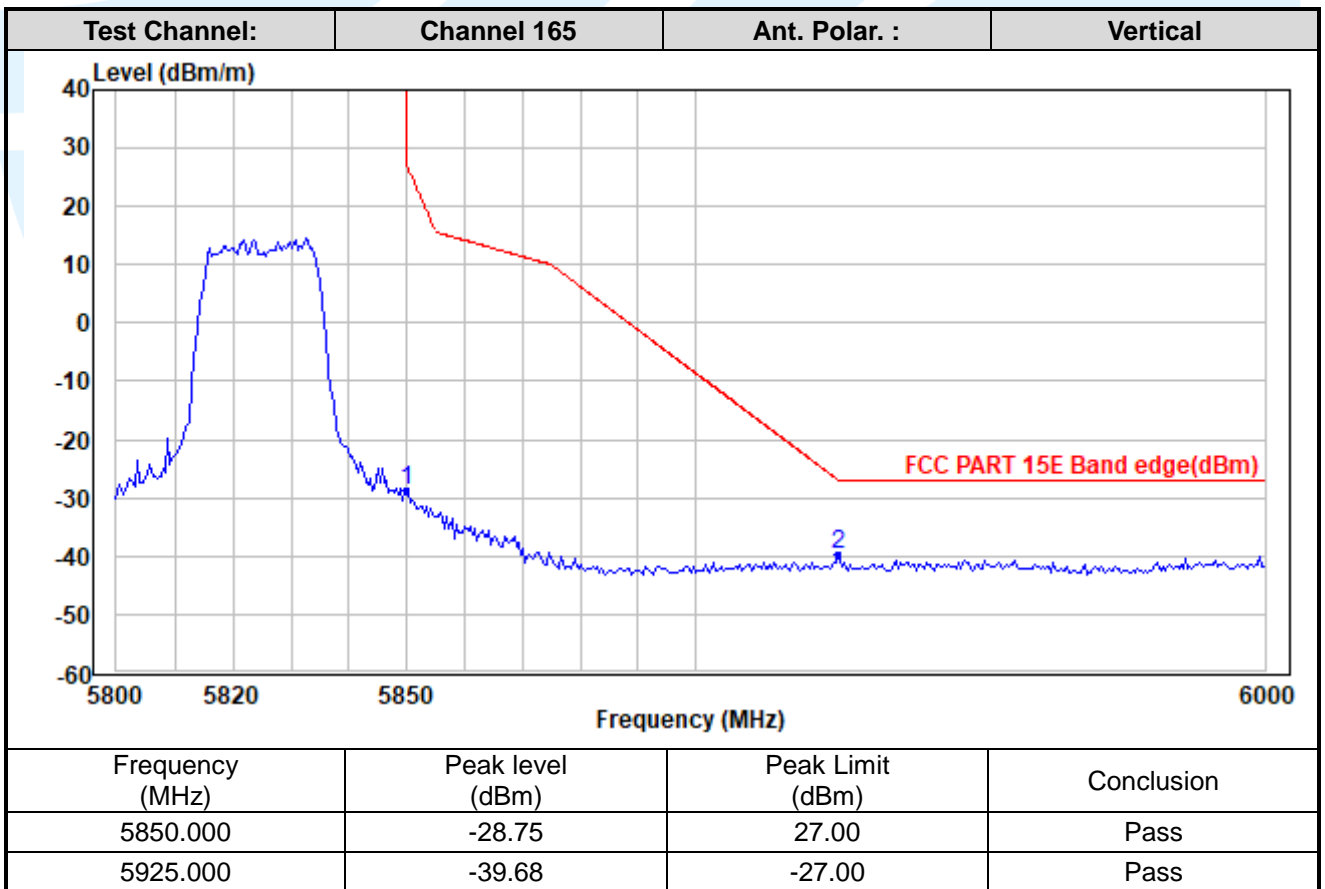
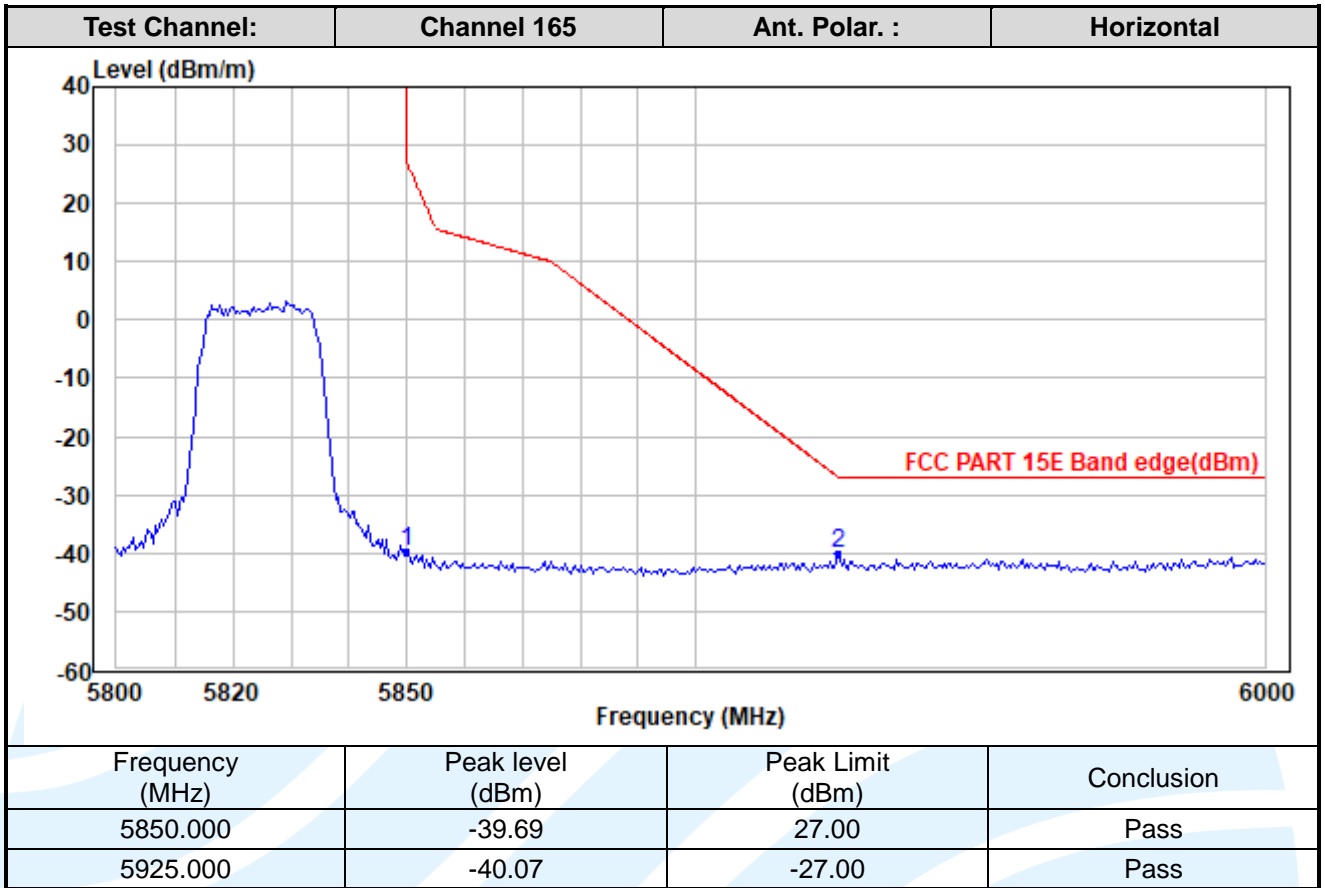
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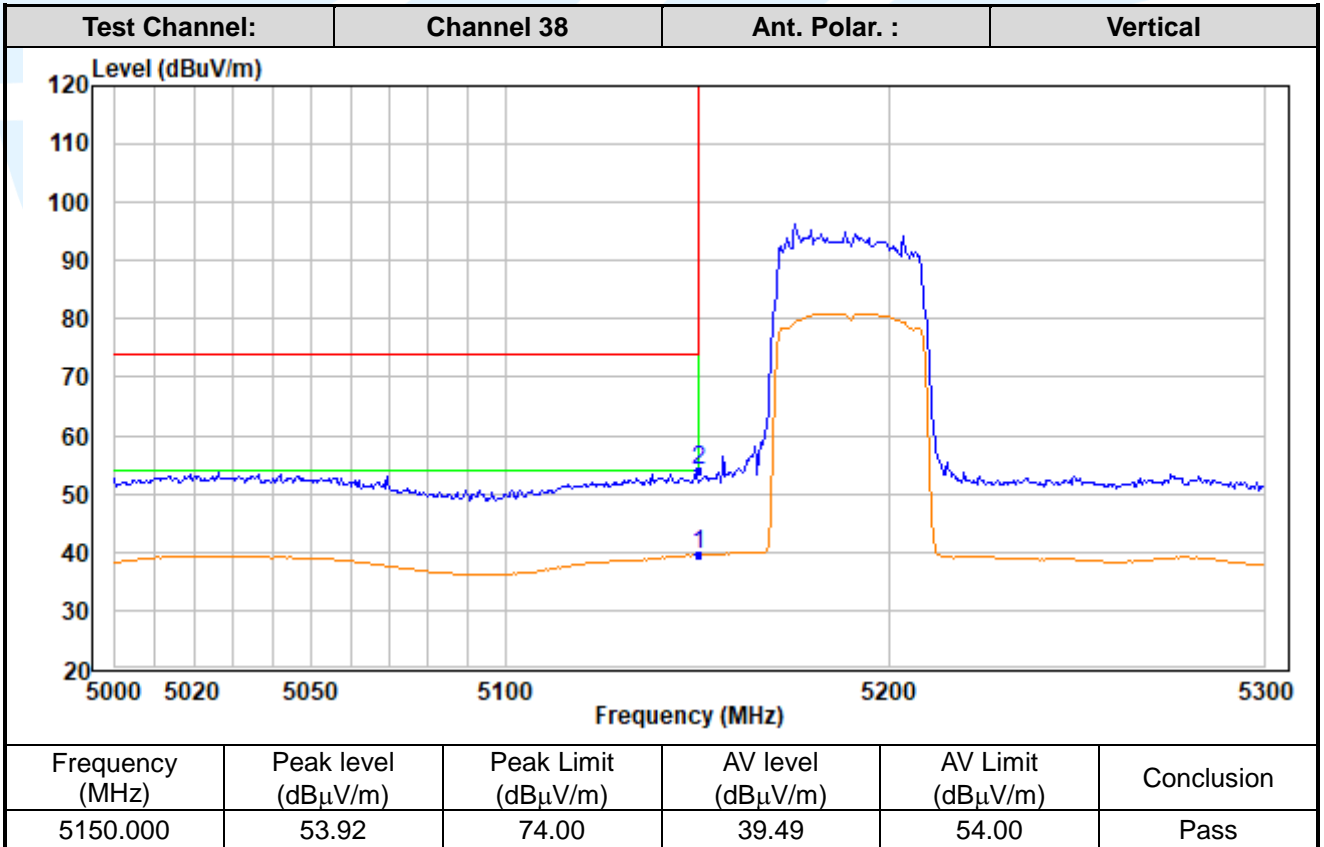
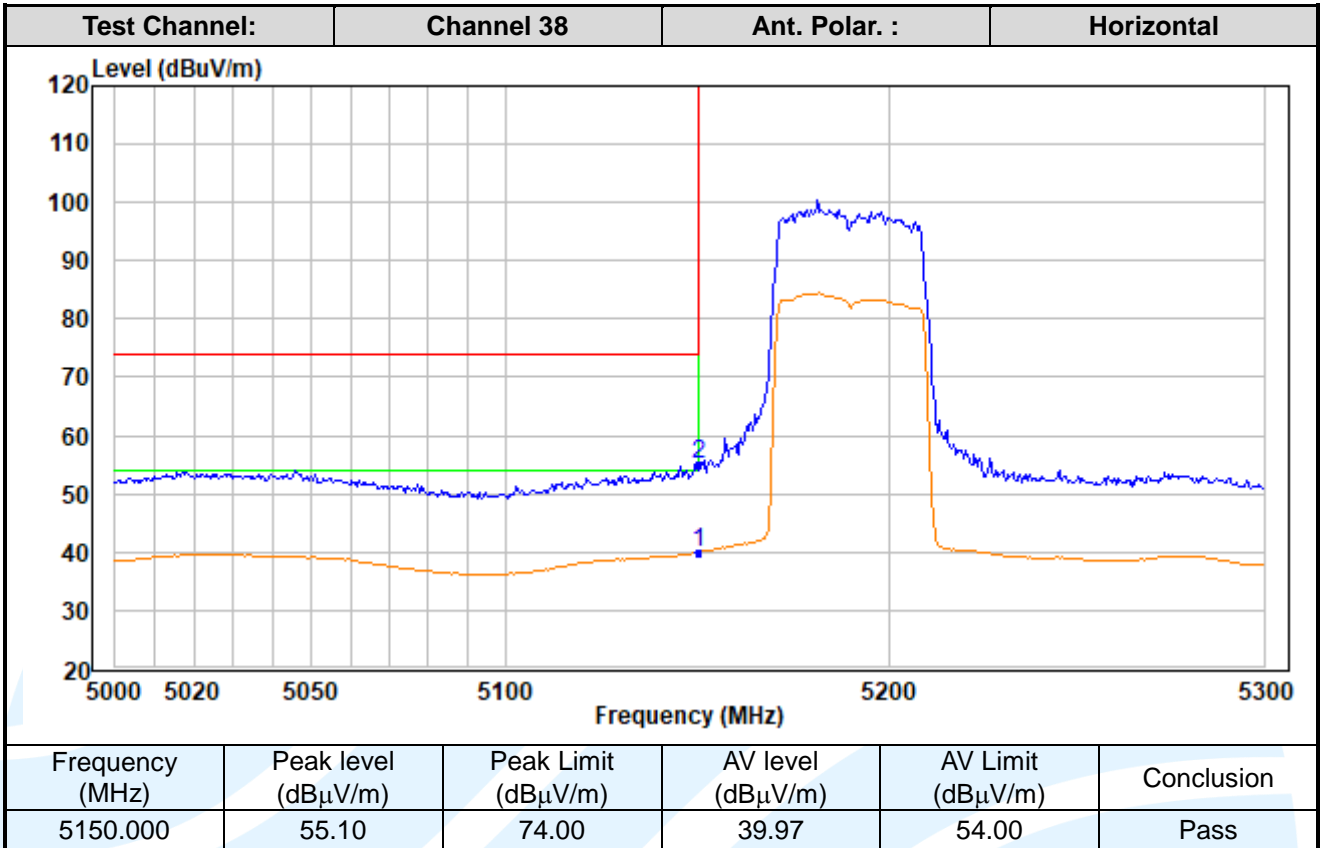
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IEEE 802.11ax-HE40



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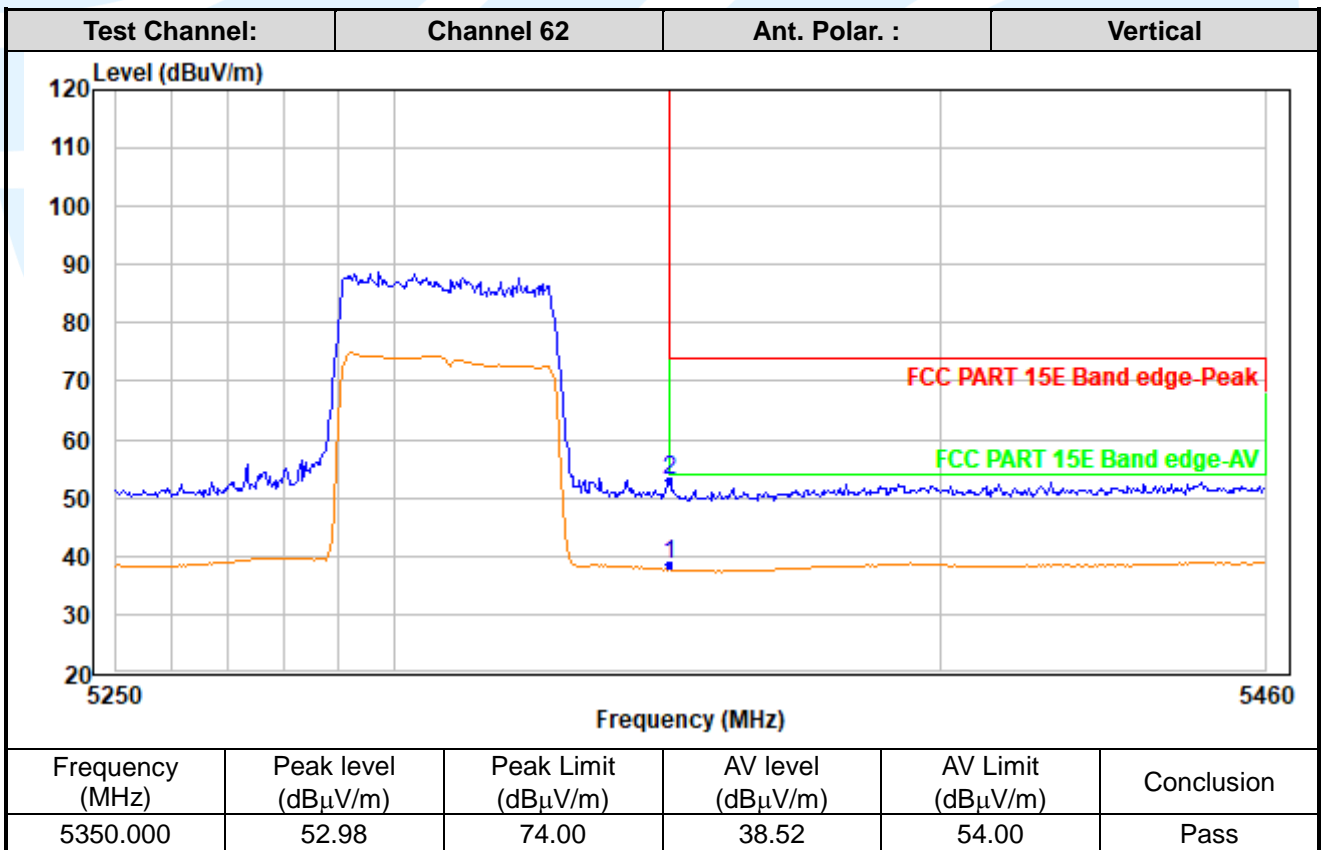
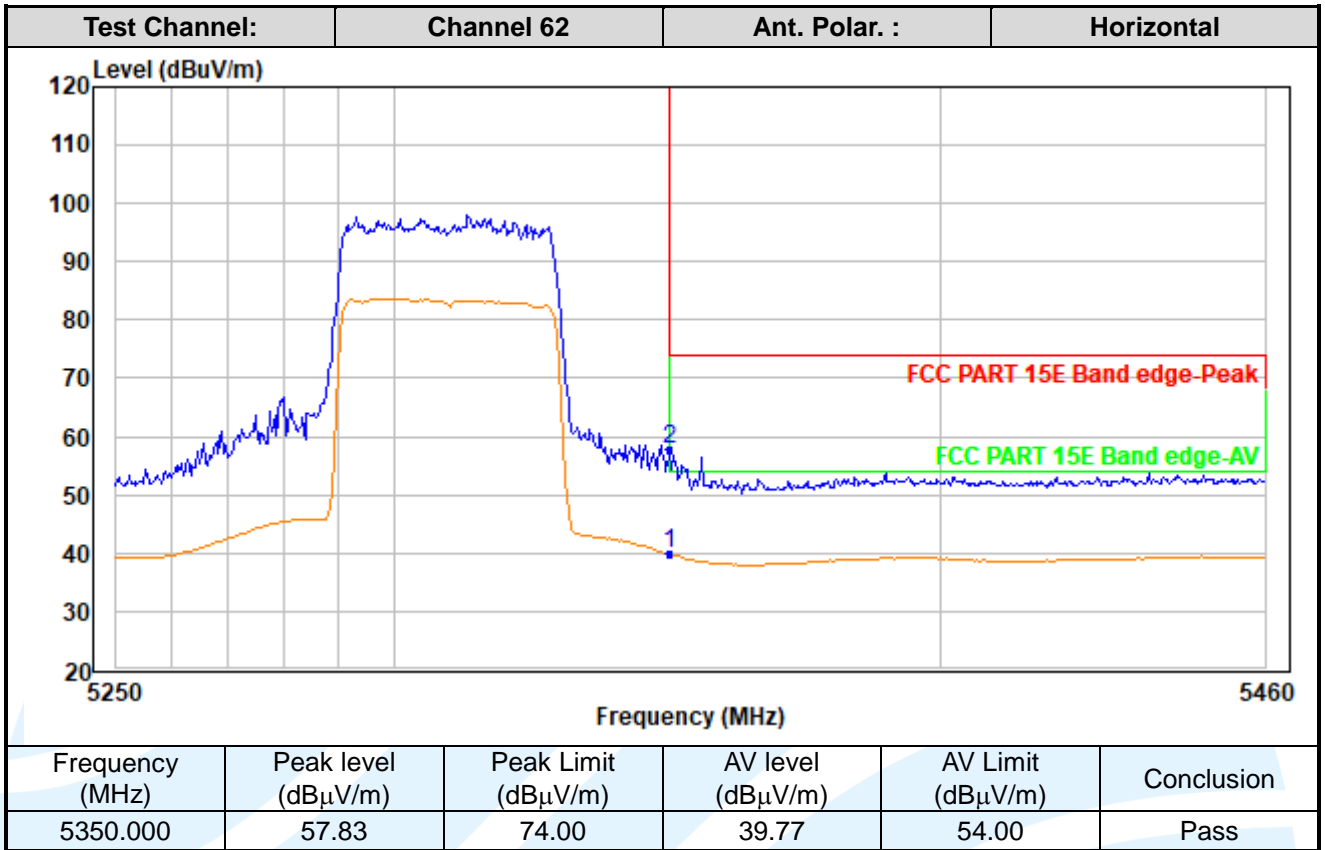
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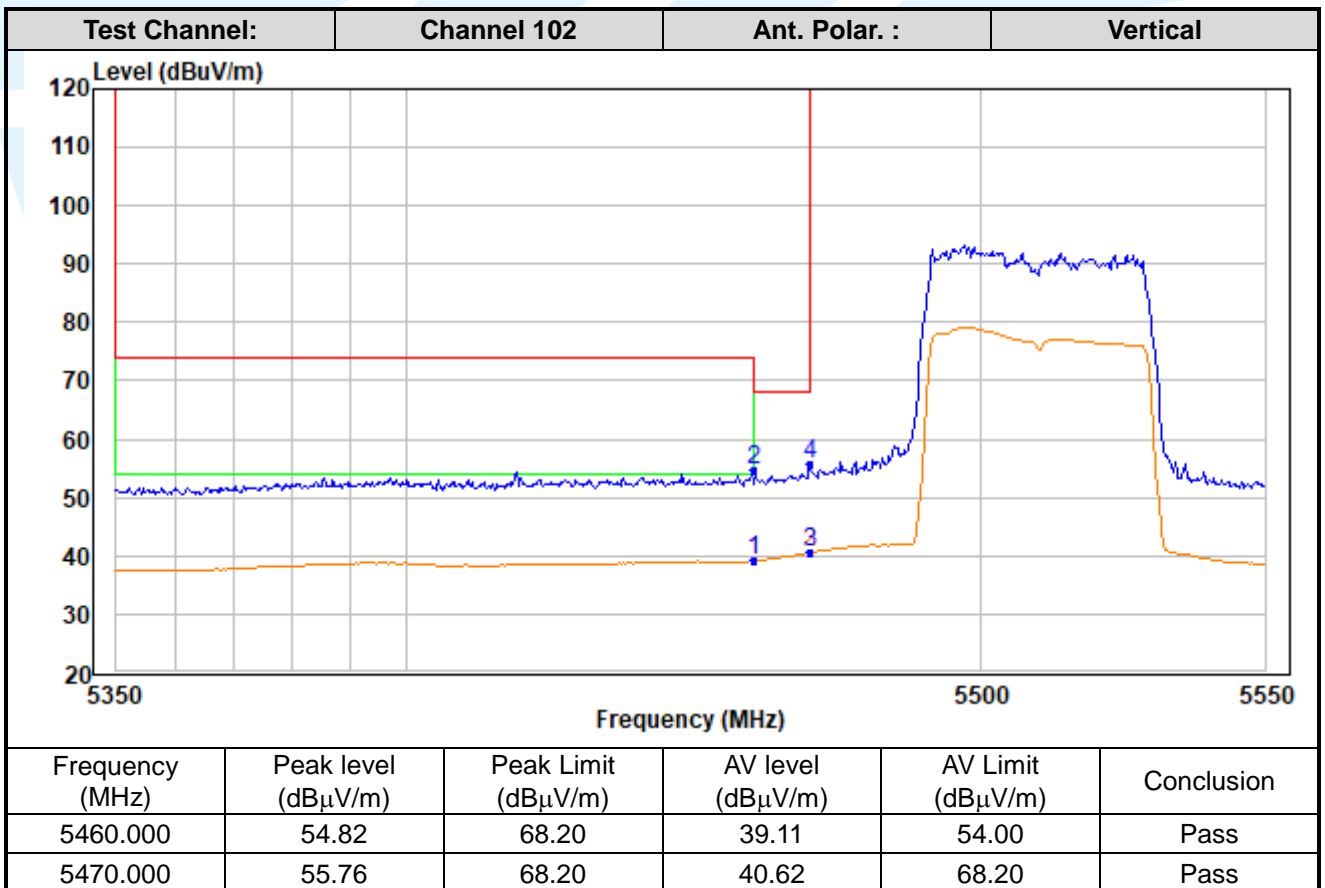
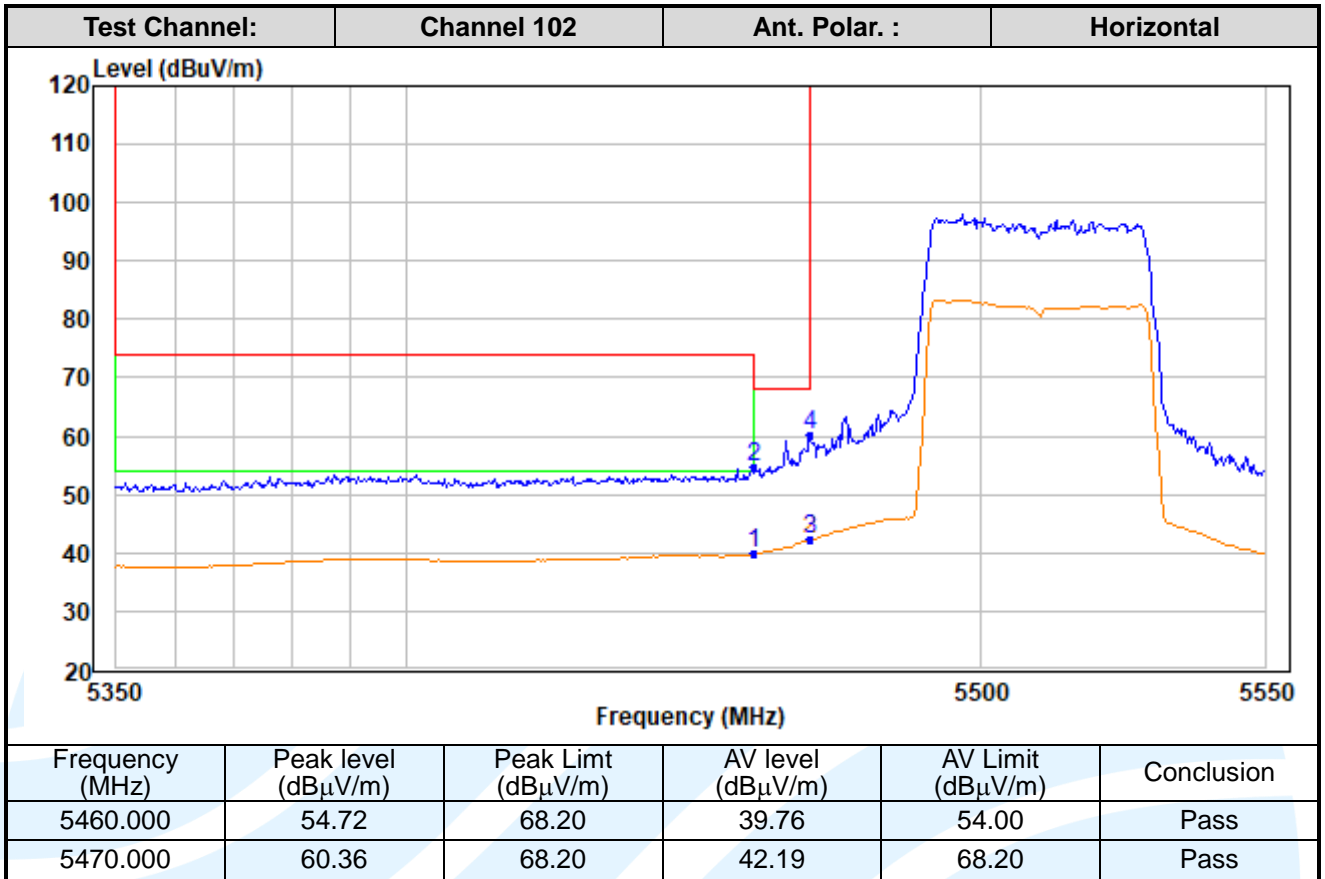
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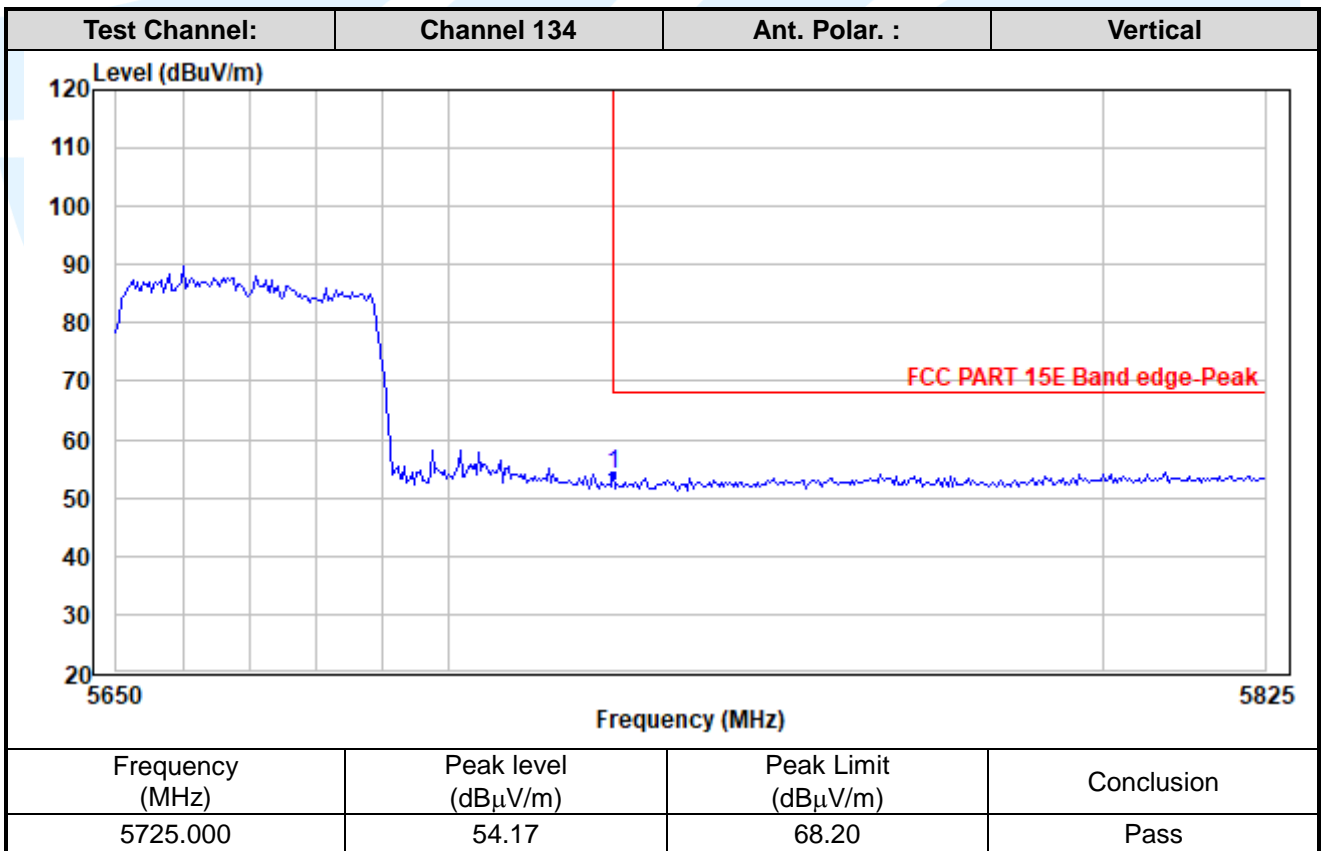
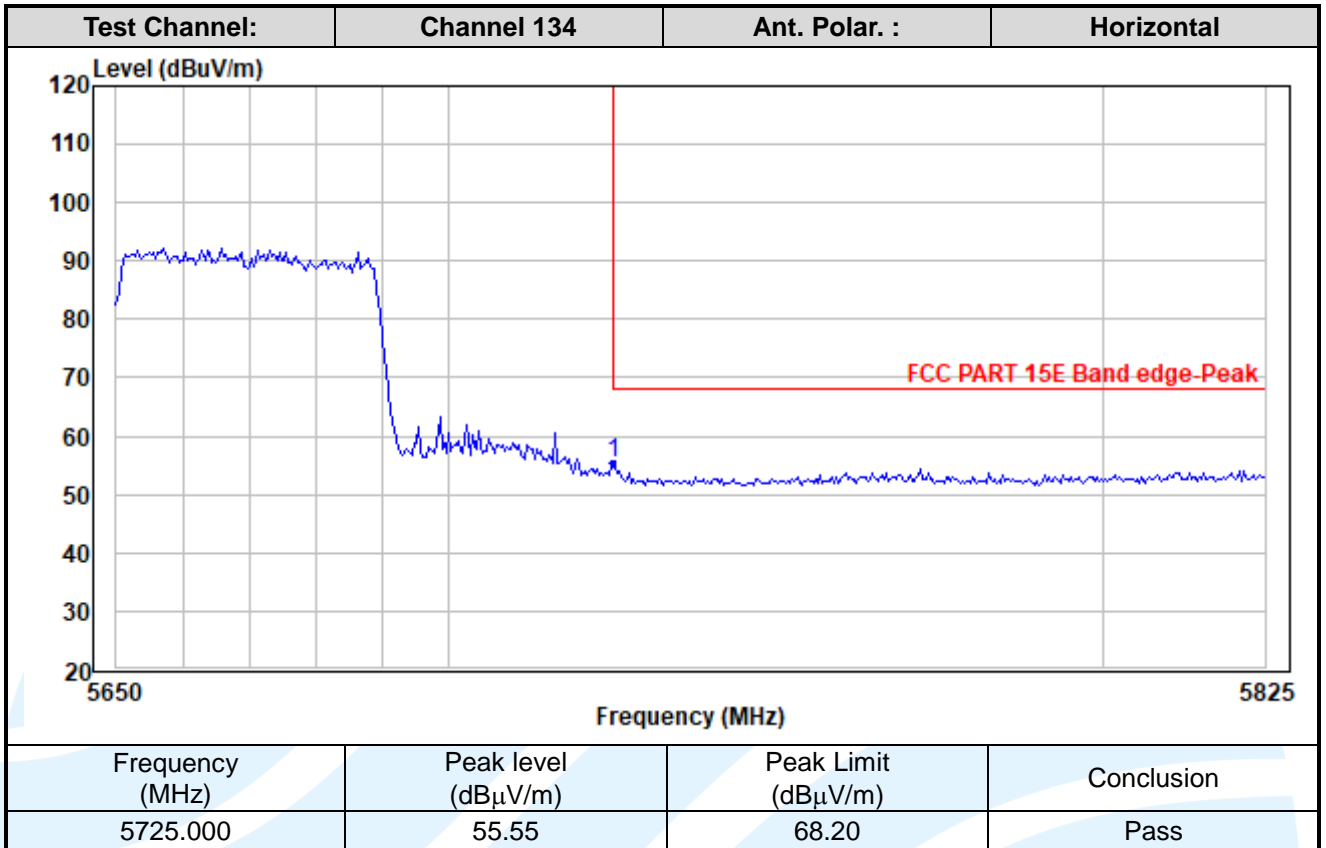
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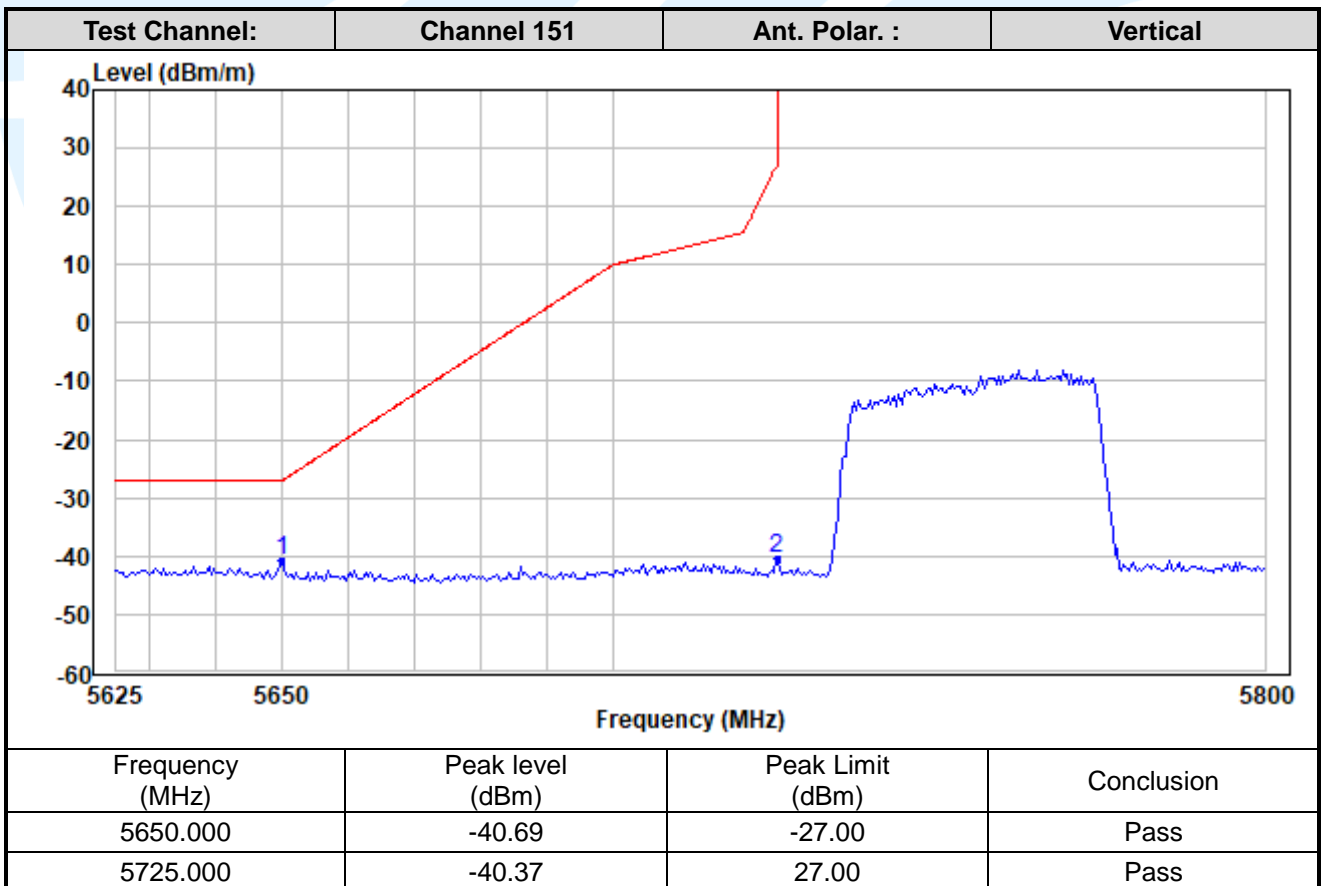
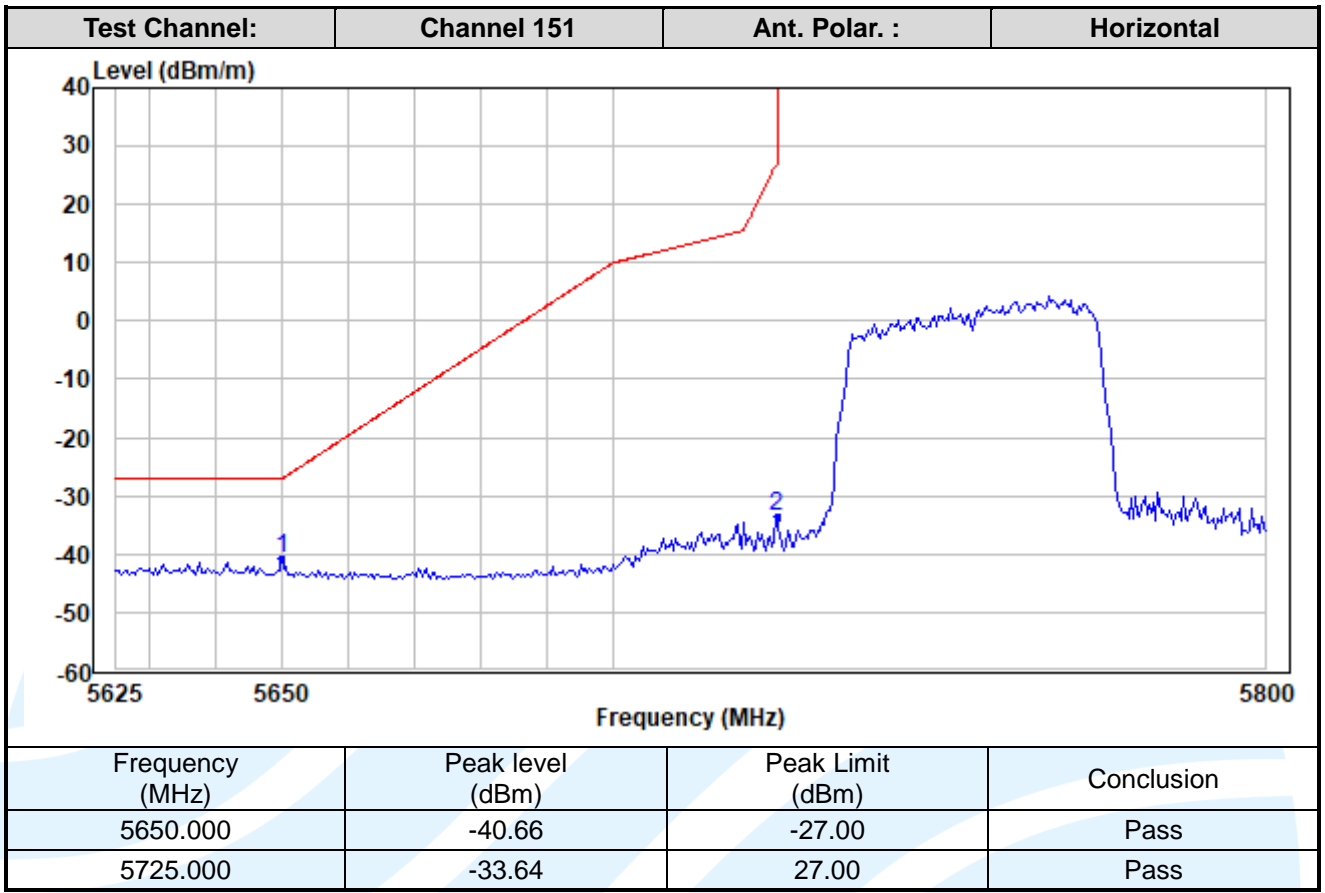
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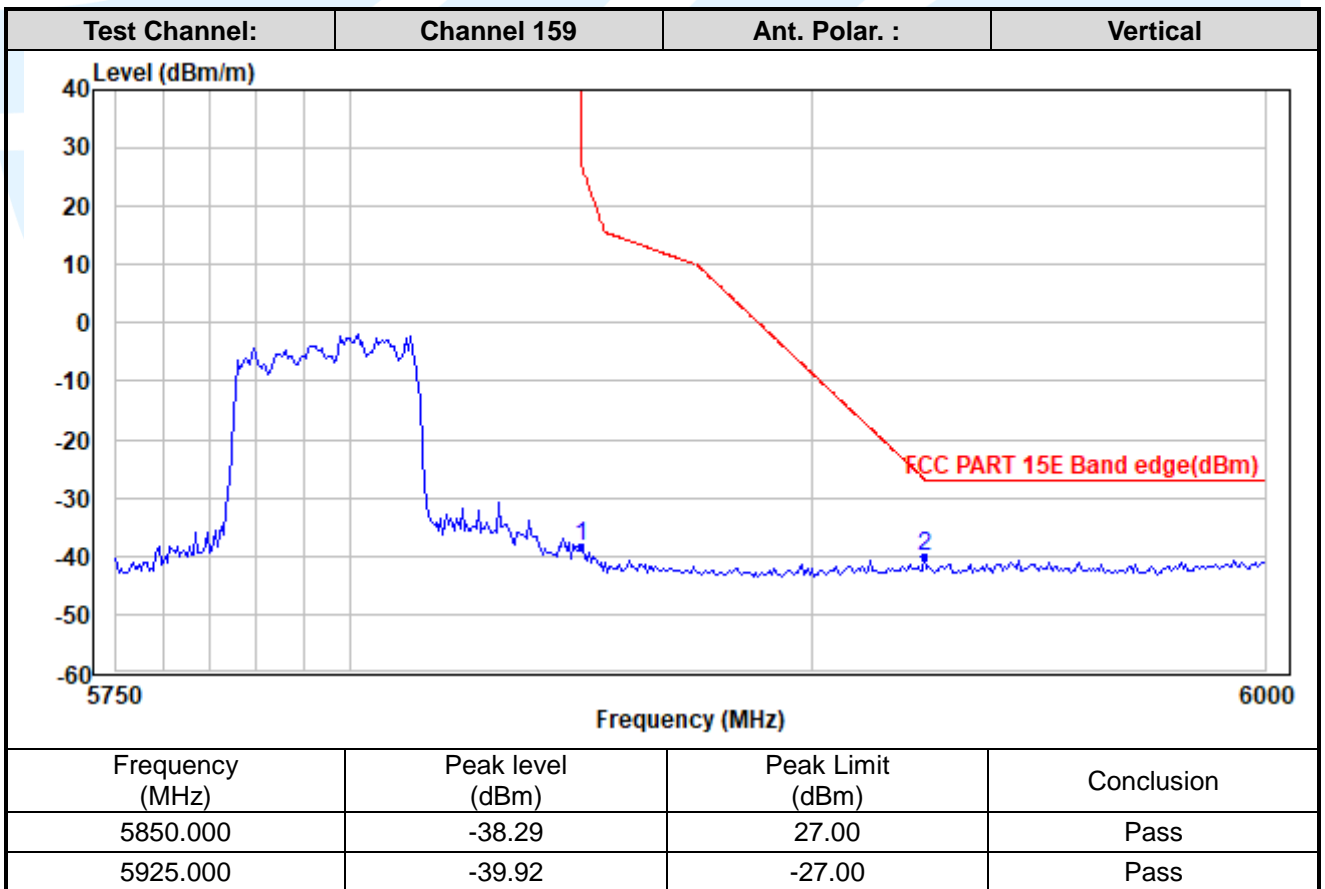
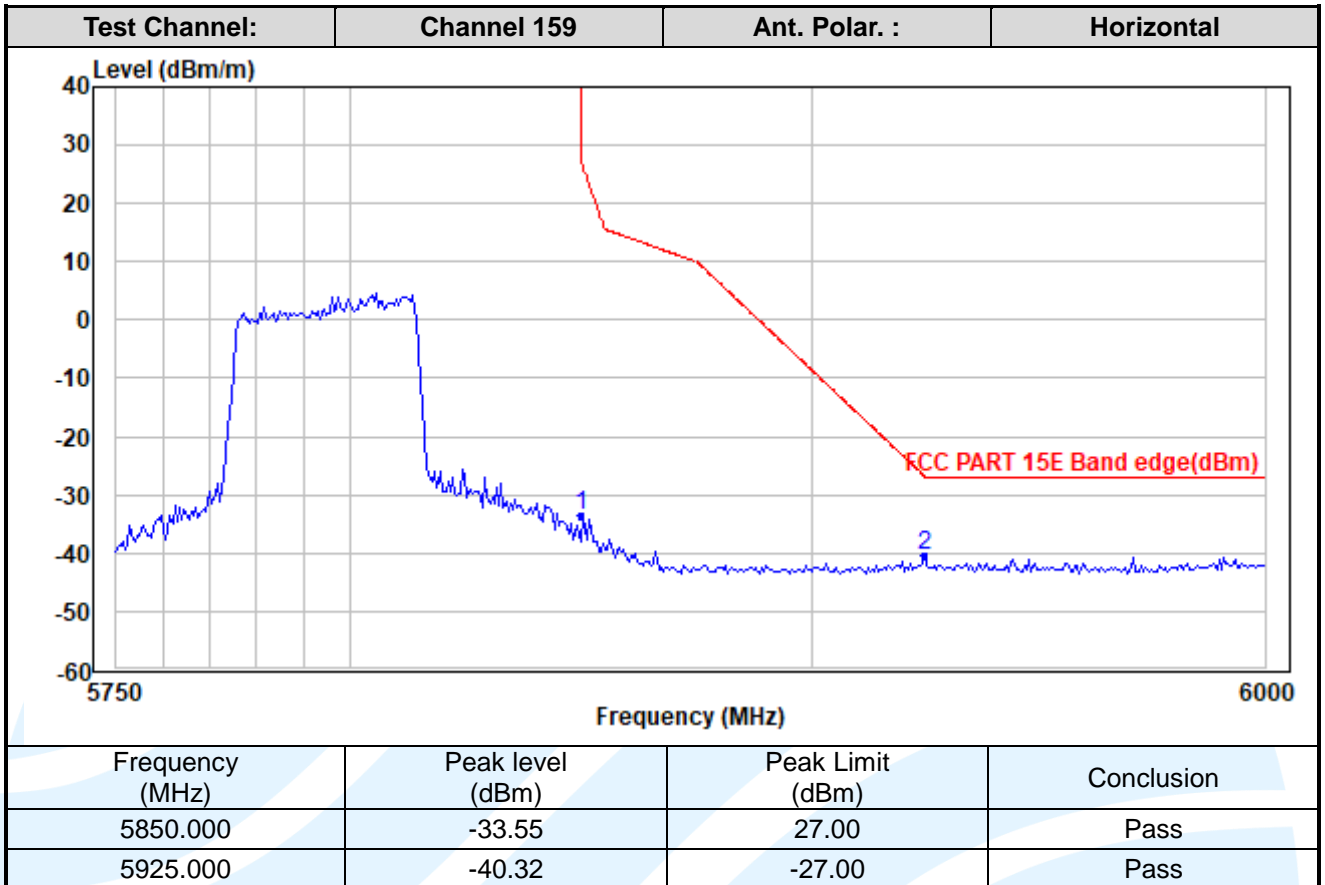
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5.8 DYNAMIC FREQUENCY SELECTION

Test Requirement: FCC 47 CFR Part 15 Subpart E Section 15.407 (h)
RSS-247 Issue 3 Section 6.3

Test Method: KDB 905462 D03 Client Without DFS New Rules v01r02

EUT Operating Mode:

DFS Operational mode	Operating Frequency Range	
	5250 MHz to 5350 MHz	5470 MHz to 5725 MHz
Slave without radar Interference detection function	✓	✓

Applicability:

The following table from KDB905462 and the lists of the applicable requirements for the DFS testing.

Applicability of DFS Requirements Prior to Use of a Channel:

Requirement	Operational Mode		
	Master	Client Without Radar Detection	Client With Radar Detection
Non-Occupancy Period	✓	Not required	Yes
DFS Detection Threshold	✓	Not required	Yes
Channel Availability Check Time	✓	Not required	Not required
U-NII Detection Bandwidth	✓	Not required	Yes

Applicability of DFS requirements during normal operation:

Requirement	Operational Mode	
	Master Device or Client with Radar Detection	Client Without Radar Detection
DFS Detection Threshold	Yes	Not required
Channel Closing Transmission Time	Yes	Yes
Channel Move Time	Yes	Yes
U-NII Detection Bandwidth	Yes	Not required
Additional requirements for devices with multiple bandwidth modes	Master Device or Client with Radar Detection	Client Without Radar Detection
U-NII Detection Bandwidth and Statistical Performance Check	All BW modes must be tested	Not required
Channel Move Time and Channel Closing Transmission Time	Test using widest BW mode available	Test using the widest BW mode available for the link
All other tests	Any single BW mode	Not required
Note: Frequencies selected for statistical performance check (Section 7.8.4) should include several frequencies within the radar detection bandwidth and frequencies near the edge of the radar detection bandwidth. For 802.11 devices it is suggested to select frequencies in each of the bonded 20 MHz channels and the channel center frequency.		

DFS Detection Thresholds for Master Devices and Client Devices with Radar Detection:

Maximum Transmit Power	Value (See Notes 1, 2, and 3)
EIRP ≥ 200 milliwatt	-64 dBm
EIRP < 200 milliwatt and power spectral density < 10 dBm/MHz	-62 dBm
EIRP < 200 milliwatt that do not meet the power spectral density requirement	-64dBm

Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna.
Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response.
Note 3: EIRP is based on the highest antenna gain. For MIMO devices refer to KDB Publication 662911 D01.

DFS Radar Signal Parameter Values:

Parameter	Value
Non-occupancy period	Minimum 30 minutes
Channel Availability Check Time	60 seconds
Channel Move Time	10 seconds (See Note 1.)
Channel Closing Transmission Time	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. (See Notes 1 and 2.)
U-NII Detection Bandwidth	Minimum 100% of the U-NII 99% transmission power bandwidth. (See Note 3.)

Note 1: Channel Move Time and the Channel Closing Transmission Time should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst.
Note 2: The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.
Note 3: During the U-NII Detection Bandwidth detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.

DFS Radar Signal Parameter:

Radar Type 0 was used in the evaluation of the Client device for the purpose of measuring the Channel Move Time and the Channel Closing Transmission Time

Table 1-Short Pulse Radar Test Waveforms

Radar Type	Pulse Width (µsec)	PRI (µsec)	Number of Pulses	Minimum Percentage of Successful Detection	Minimum Trials
0	1	1428	18	See Note 1.	See Note 1.
1	1	Test A Test B	Roundup $\left\{ \left(\frac{1}{360} \right) \left(\frac{19 \cdot 10^6}{PRI_{\mu sec}} \right) \right\}$	60%	30
2	1-5	150-230	23-29	60%	30
3	6-10	200-500	16-18	60%	30
4	11-20	200-500	12-16	60%	30
Aggregate (Radar Types 1-4)				80%	120

Note 1: Short Pulse Radar Type 0 should be used for the detection bandwidth test, channel move time, and channel closing time tests.

Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in Table 5a
 Test B: 15 unique PRI values randomly selected within the range of 518-3066 µsec, with a minimum increment of 1 µsec, excluding PRI values selected in Test A
 A minimum of 30 unique waveforms are required for each of the Short Pulse Radar Types 2 through 4. If more than 30 waveforms are used for Short Pulse Radar Types 2 through 4, then each additional waveform must also be unique and not repeated from the previous waveforms.
 If more than 30 waveforms are used for Short Pulse Radar Type 1, then each additional waveform is generated with Test B and must also be unique and not repeated from the previous waveforms in Tests A or B.
 The aggregate is the average of the percentage of successful detections of short pulse radar types

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Table 2-Long Pulse Radar Test Waveform

Radar Type	Pulse Width (μsec)	Chirp Width (MHz)	PRI (μsec)	Number of Pulses per Burst	Number of Bursts	Minimum Percentage of Successful Detection	Minimum Trials
5	50-100	5-20	1000-2000	1-3	8-20	80%	30

Table 3-Frequency Hopping Radar Test Waveform

Radar Type	Pulse Width (μsec)	PRI (μsec)	Pulses per Hop	Hopping Rate (kHz)	Hopping Sequence Length (msec)	Minimum Percentage of Successful Detection	Minimum Trials
6	1	333	9	0.333	300	70%	30

In-Service Monitoring: Channel Move Time, Channel Closing Transmission Time and Non-Occupancy Period

Limit of In-Service Monitoring:

Reference to DFS Radar Signal Parameter Values.

Test Procedures:

- a) One frequency will be chosen from the Operating Channels of the EUT within the 5250-5350 MHz or 5470-5725 MHz bands. For 802.11 devices, the test frequency must contain control signals. This can be verified by disabling channel loading and monitoring the spectrum analyzer. If no control signals are detected, another frequency must be selected within the emission bandwidth where control signals are detected.
- b) In case the EUT is a Master Device, a U-NII device operating as a Client Device will be used and it is assumed that the Client will associate with the EUT (Master). For radiated tests, the emissions of the Radar Waveform generator will be directed towards the Master Device. If the Master Device has antenna gain, the main beam of the antenna will be directed toward the radar emitter. Vertical polarization is used for testing.
- c) The TCP protocol unicast data stream was generated by the iperf software command line with at least 17% activity ratio over any 100ms period.
- d) Timing plots are reported with calculations demonstrating a minimum channel loading of approximately 17% or greater. For example, channel loading can be estimated by setting the spectrum analyzer for zero span and approximate the Time On/ (Time On + Off Time).
- e) At time T₀ the Radar Waveform generator sends a Burst of pulses for one of the Short Pulse Radar Types 1-4 at DFS Detection Threshold levels on the Operating Channel. An additional 1 dB is added to the radar test signal to ensure it is at or above the DFS Detection Threshold, accounting for equipment variations/errors.
- f) Observe the transmissions of the EUT at the end of the radar Burst on the Operating Channel for duration greater than 10 seconds. Measure and record the transmissions from the EUT during the observation time (Channel Move Time). Measure and record the Channel Closing Transmission Time if radar detection occurs.
- g) When operating as a Master Device, monitor the EUT for more than 30 minutes following instant T₂ to verify that the EUT does not resume any transmissions on this Channel. Perform this test once and record the measurement result.

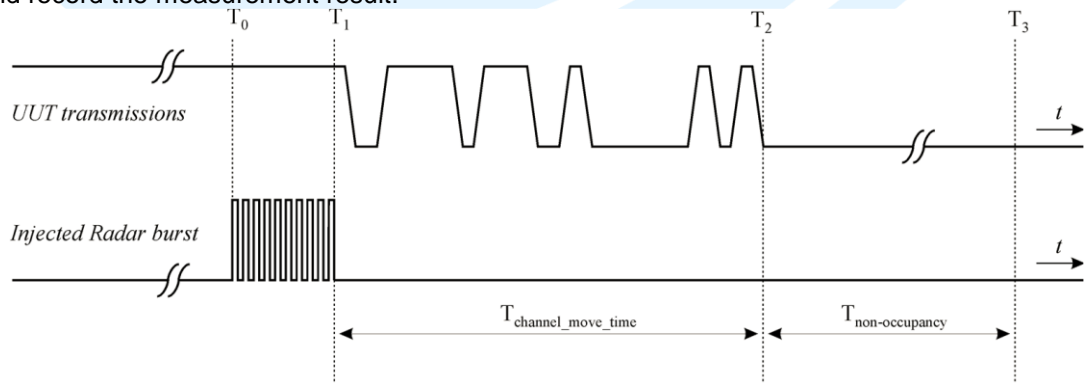


Figure 17: Channel Closing Transmission Time, Channel Move Time and Non-Occupancy Period

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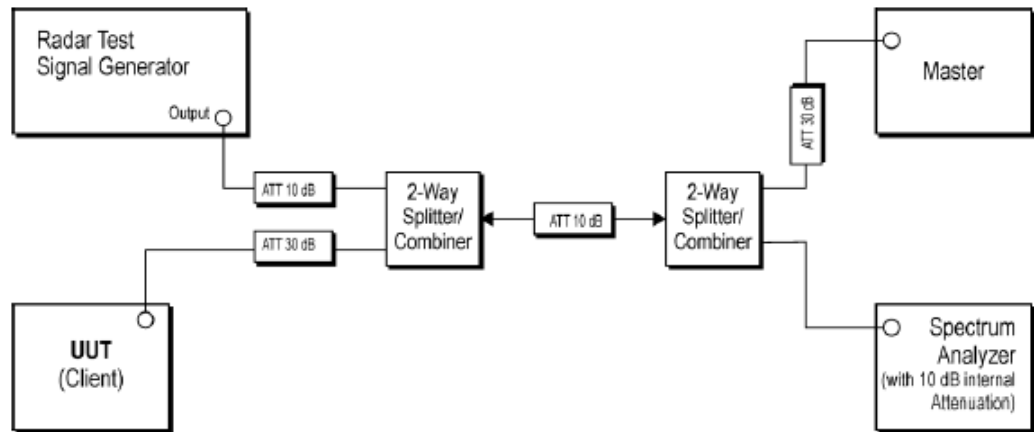
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Conducted test setup



Setup for Client with injection at the Master

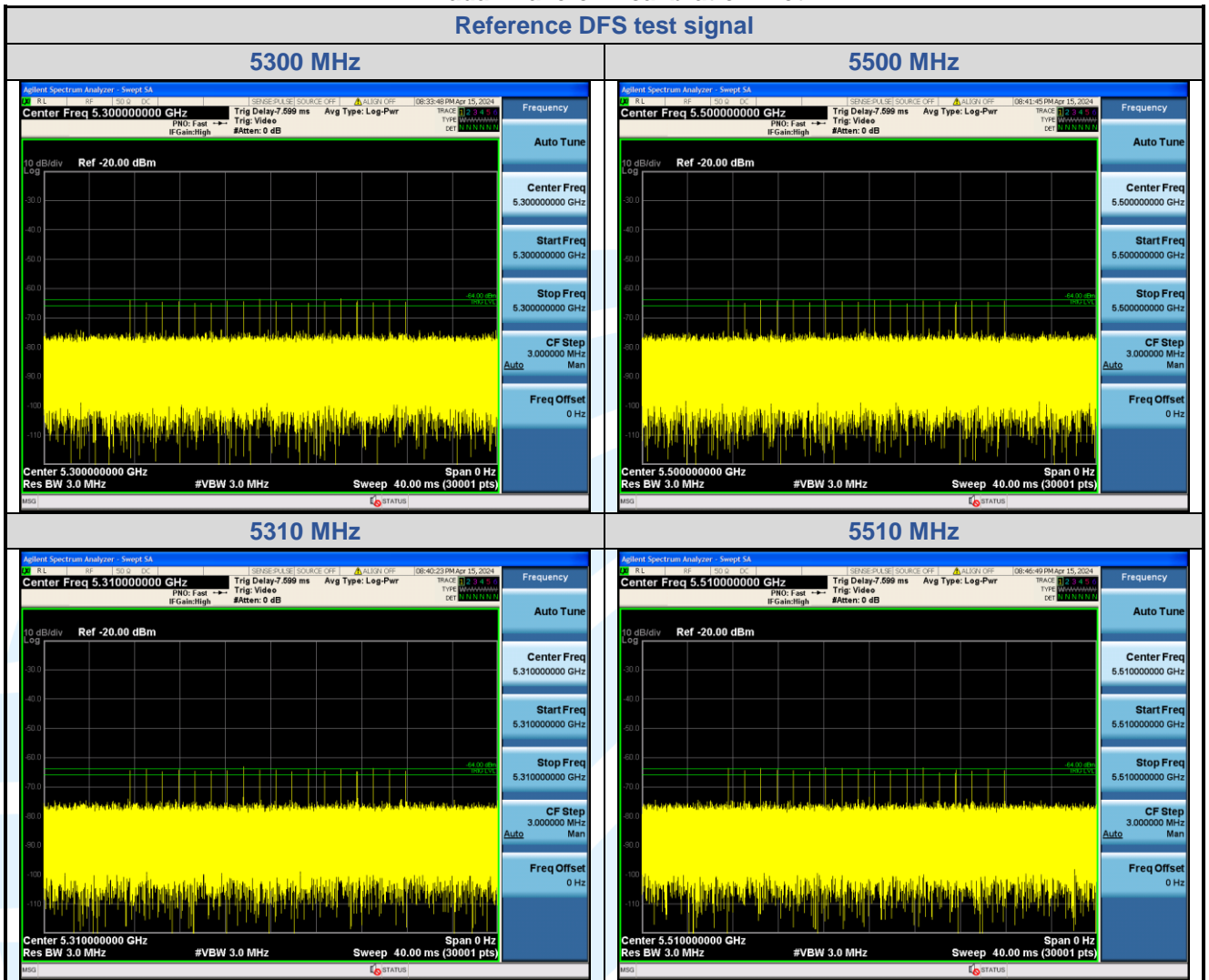
Equipment Used: Refer to section 3 for details.

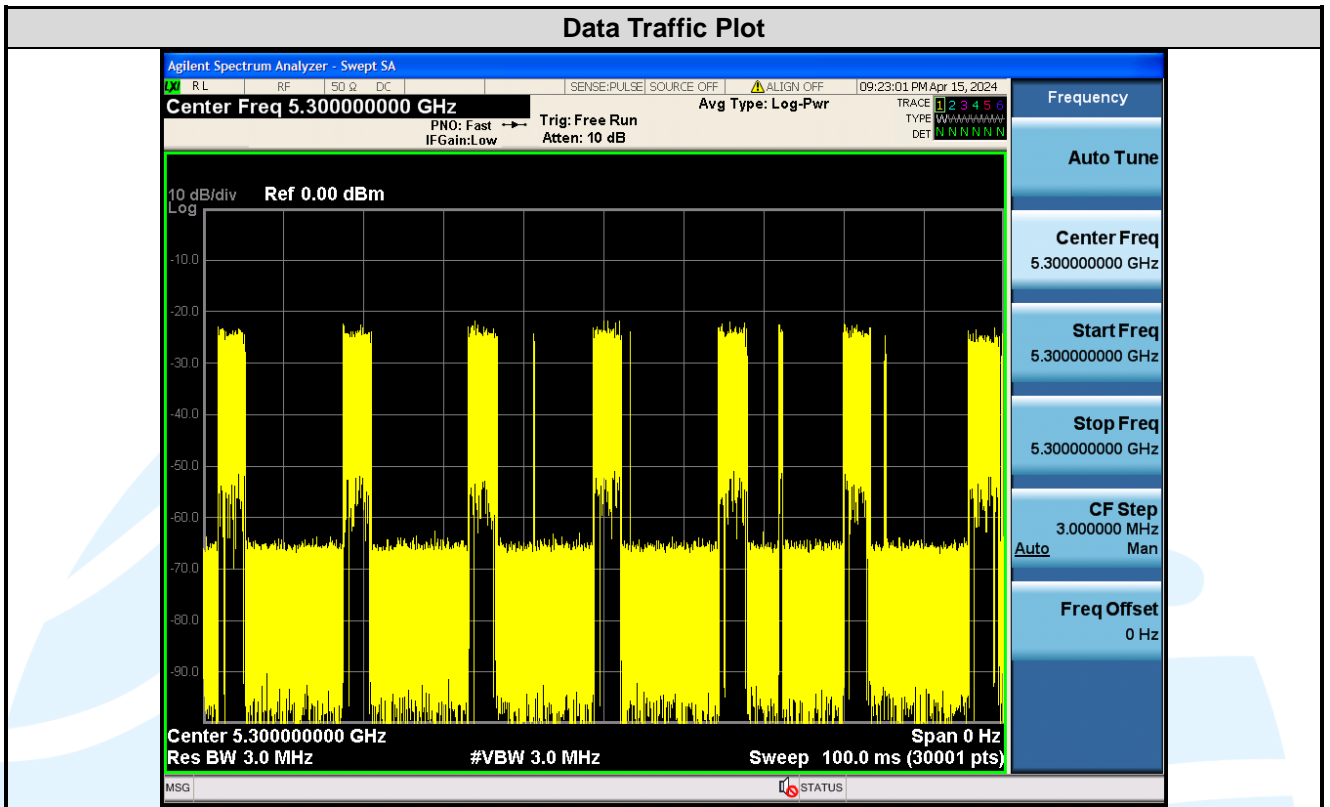
Test Result: Result of Channel Move Time, Channel Closing Transmission Time and Non-Occupancy Period for Client Beacon Test

The measurement data as follows:

BW / Channel	Test Item	Test Result	Limit	Pass/Fail
20 MHz / 5300 MHz	Channel Move Time	0.9762 s	< 10s	Pass
	Channel Closing Transmission Time	8.8 ms	< 200+60ms	Pass
	Non-Occupancy Period	No transmission	30 minutes	Pass
20 MHz / 5500 MHz	Channel Move Time	0.9430 s	< 10s	Pass
	Channel Closing Transmission Time	10 ms	< 200+60ms	Pass
	Non-Occupancy Period	No transmission	30 minutes	Pass
40MHz / 5310 MHz	Channel Move Time	1.0230 s	< 10s	Pass
	Channel Closing Transmission Time	8.4 ms	< 200+60ms	Pass
	Non-Occupancy Period	No transmission	30 minutes	Pass
40MHz / 5510 MHz	Channel Move Time	1.0130 s	< 10s	Pass
	Channel Closing Transmission Time	9.6 ms	< 200+60ms	Pass
	Non-Occupancy Period	No transmission	30 minutes	Pass

Radar Waveform calibration Plot
Reference DFS test signal





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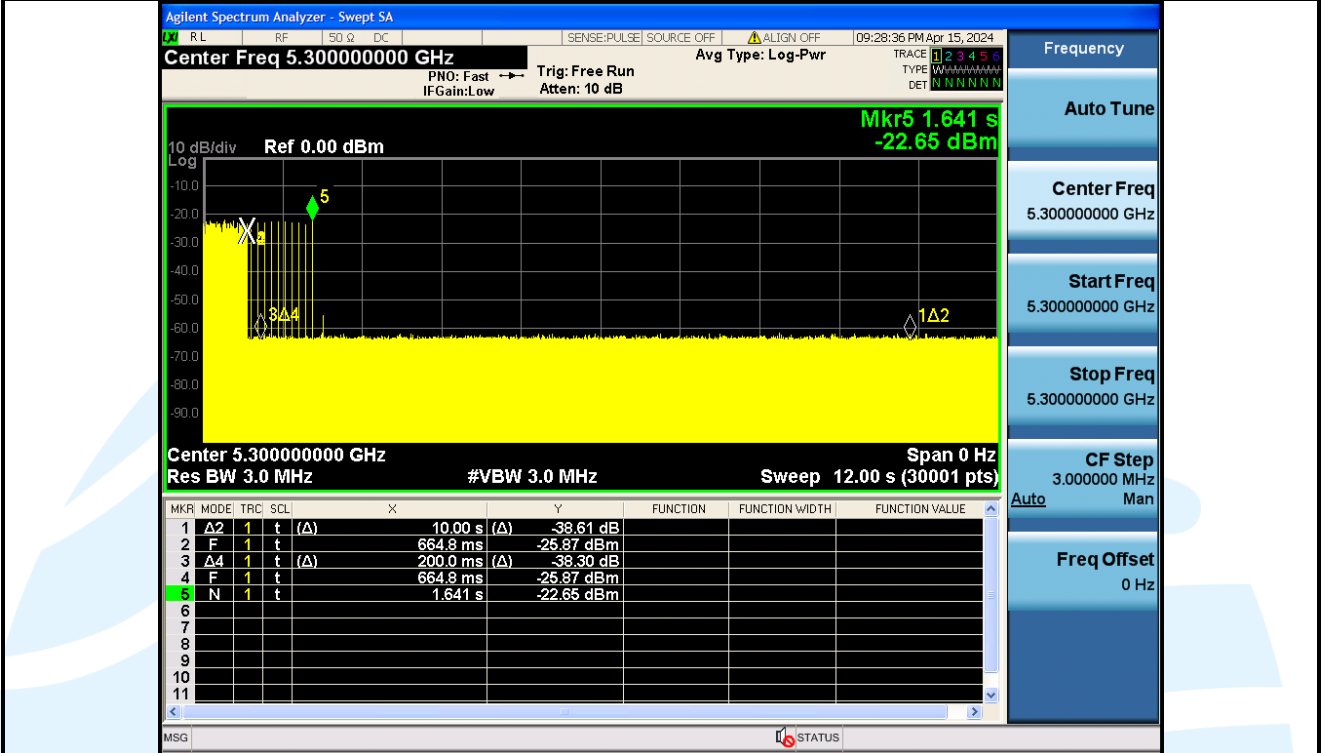
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UTTR-RF-RSS247-V1.1

Channel Move Time & Channel Closing Transmission Time
802.11a_5300 MHz



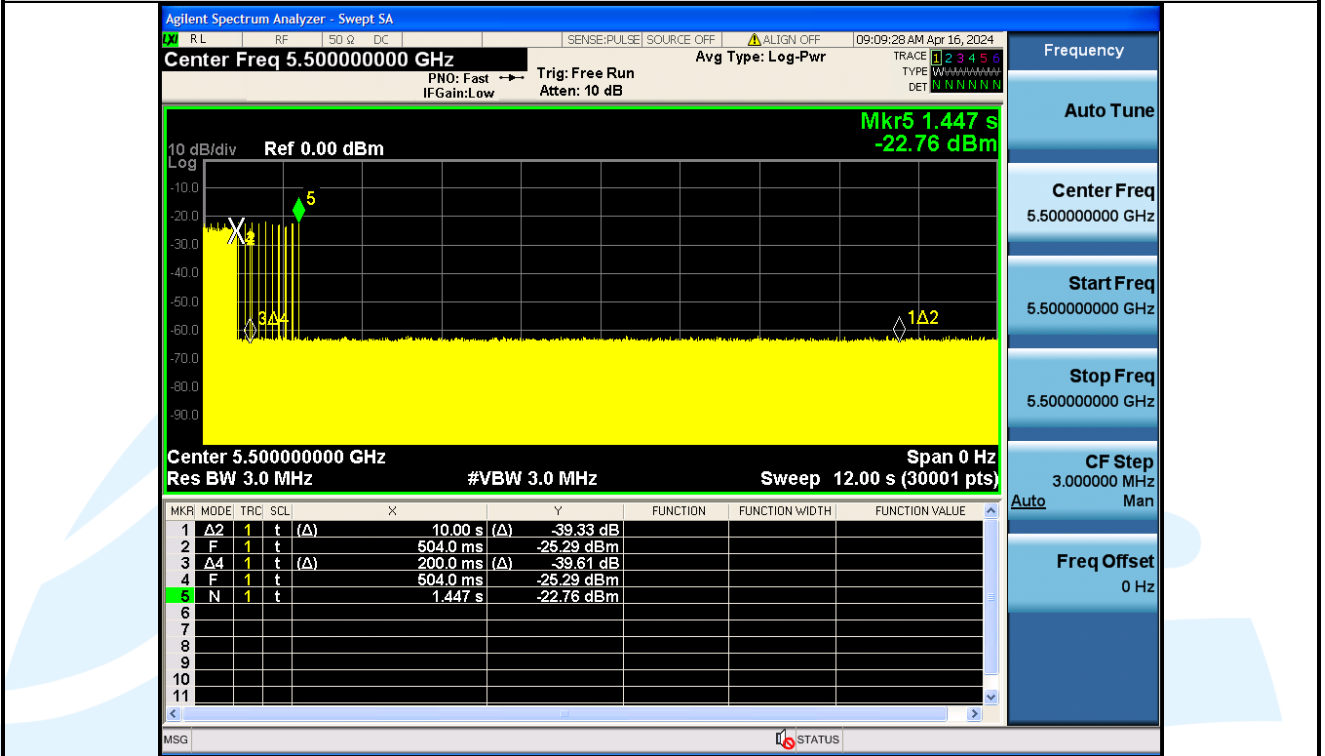
Note:

- 1) Mark1 Time: 664.8 ms, Mark2 Time: 10664.8 ms, Ontime Points: 22
- 2) Dwell = S/B = 12000 ms/30001 = 0.4 ms, C = N x Dwell = 22 x 0.4 = 8.8 ms
- 3) CMT = 1.641s - 0.6648 s = 0.9762 s

Non-Occupancy Period_802.11a_CH60_5300 MHz



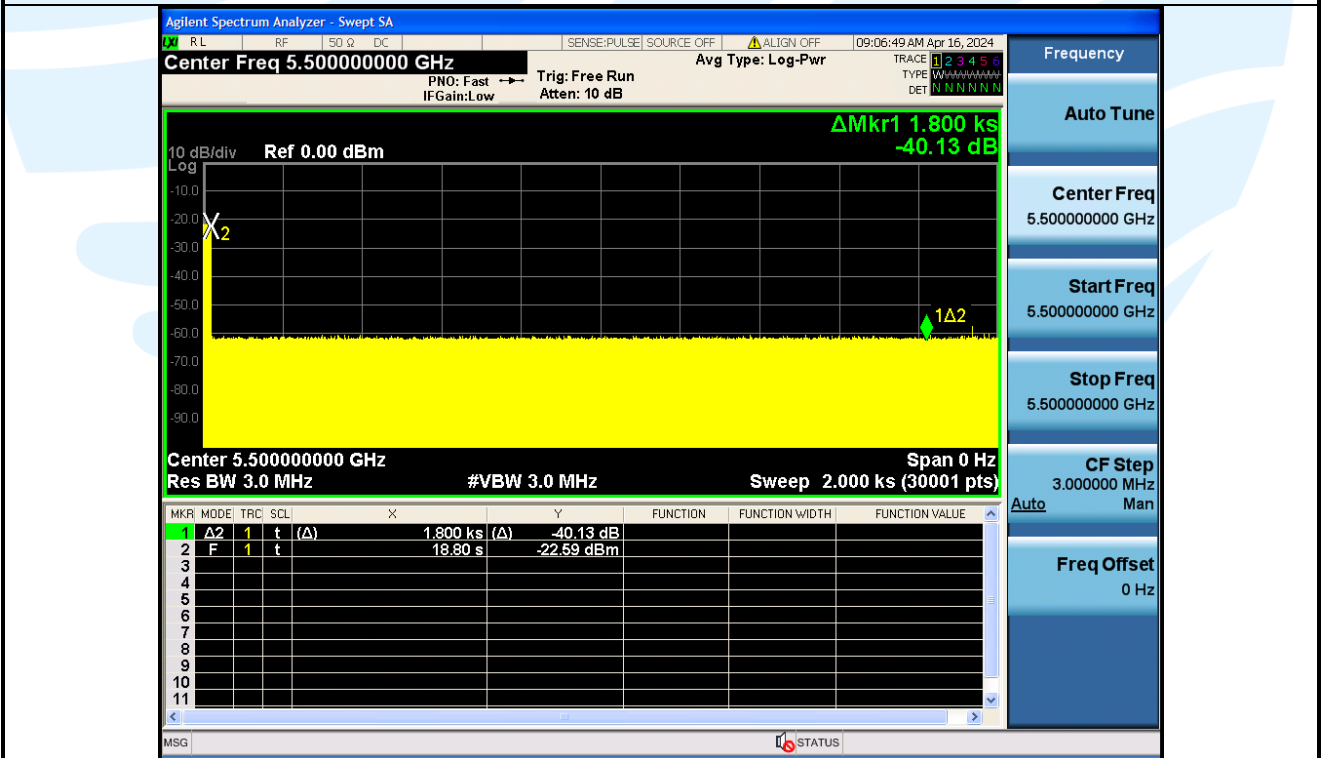
Channel Move Time & Channel Closing Transmission Time
802.11a_5500 MHz

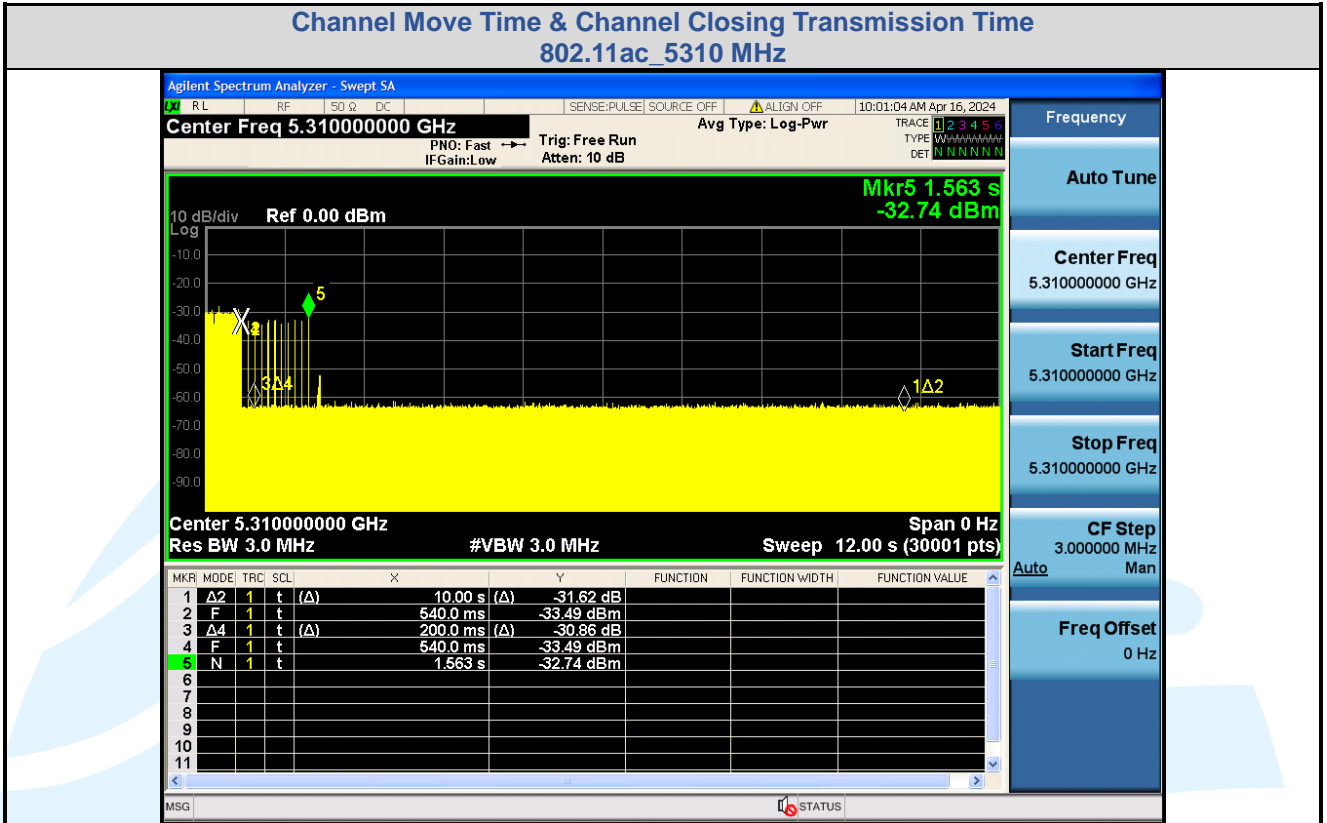


Note:

- 4) Mark1 Time: 504.0 ms, Mark2 Time: 10504.0 s, On-time Points: 25
- 5) Dwell = S/B = 12000 ms/30001 = 0.4 ms, C = N x Dwell = 25 x 0.4 = 10 ms
- 6) CMT = 1.447 s - 0.504s = 0.9430 s

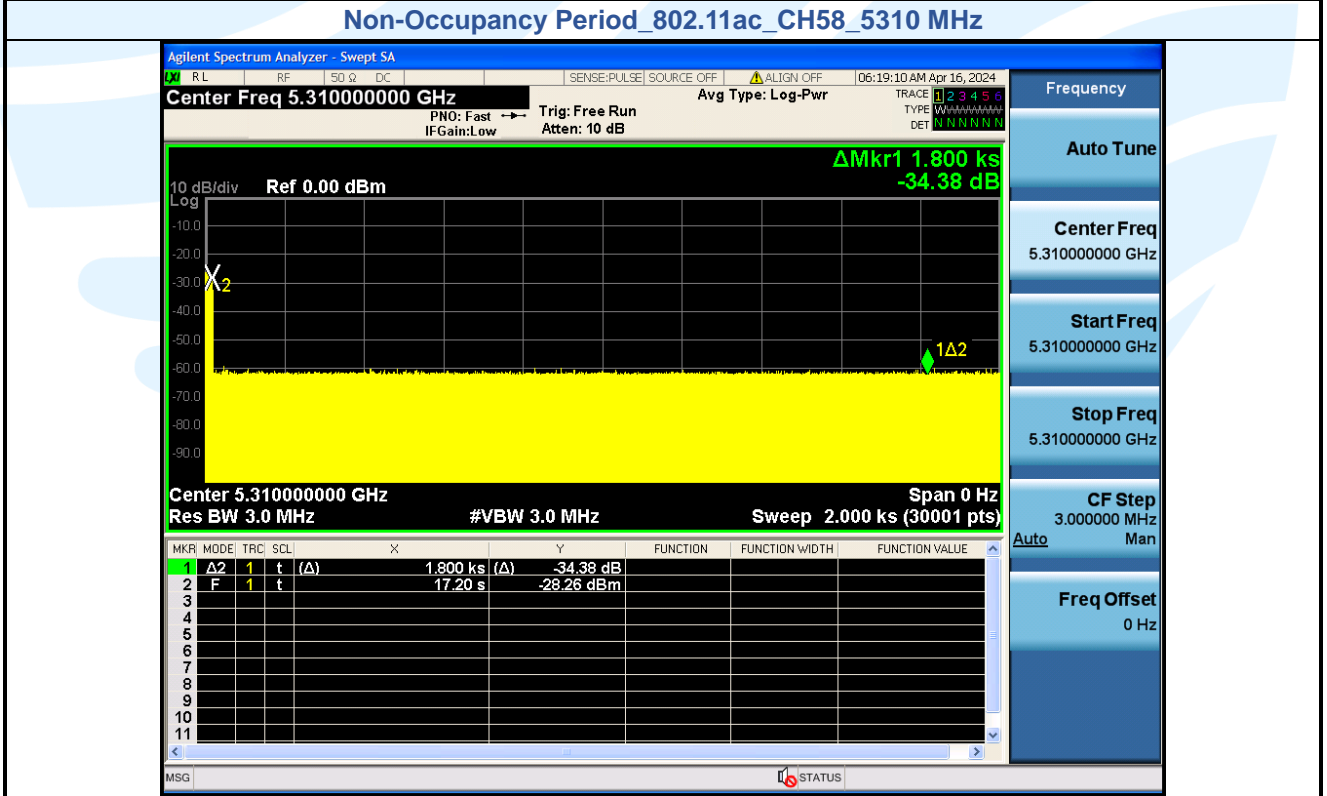
Non-Occupancy Period_802.11a_CH100_5500 MHz



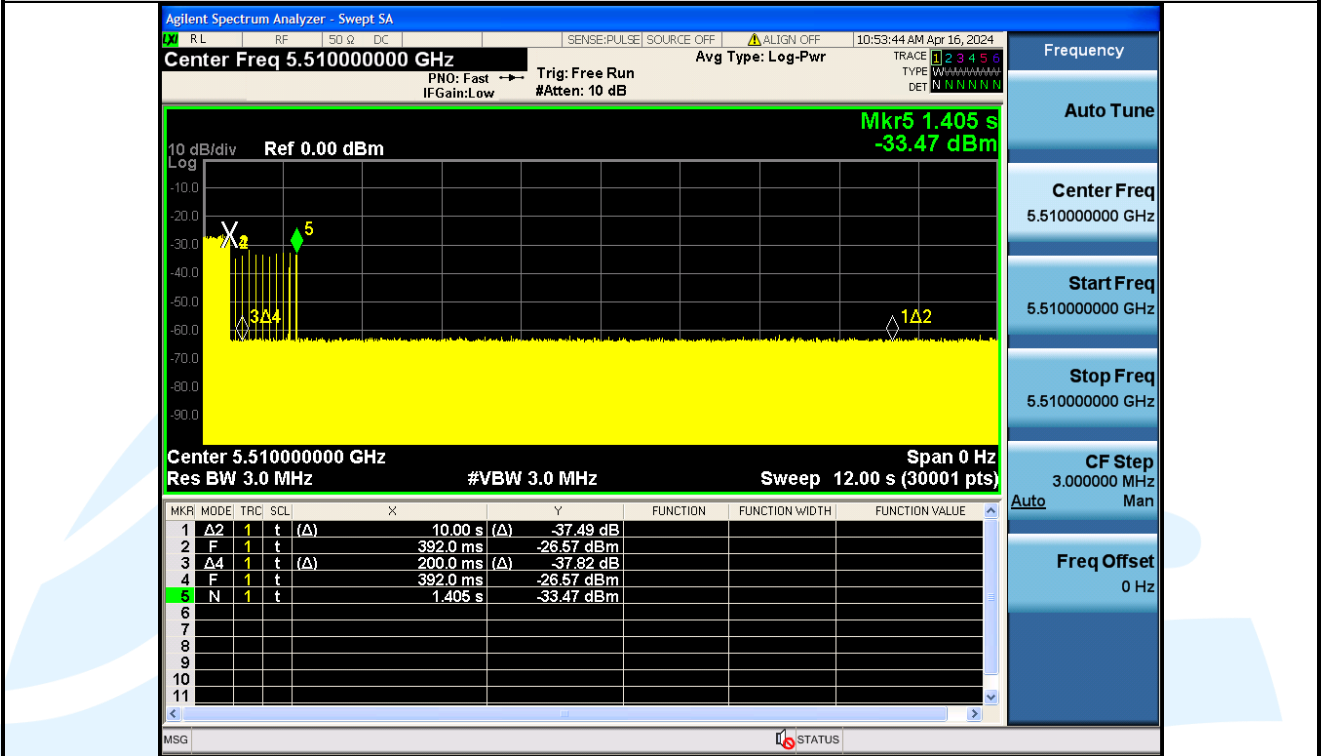


Note:

- 7) Mark1 Time: 540.0 ms, Mark2 Time: 10540 ms, On-time Points: 21
- 8) Dwell = S/B = 12000 ms/30001 = 0.4 ms, C = N x Dwell = 21 x 0.4 = 8.4 ms
- 9) CMT = 1.563 s - 0.540 s = 1.0230 s



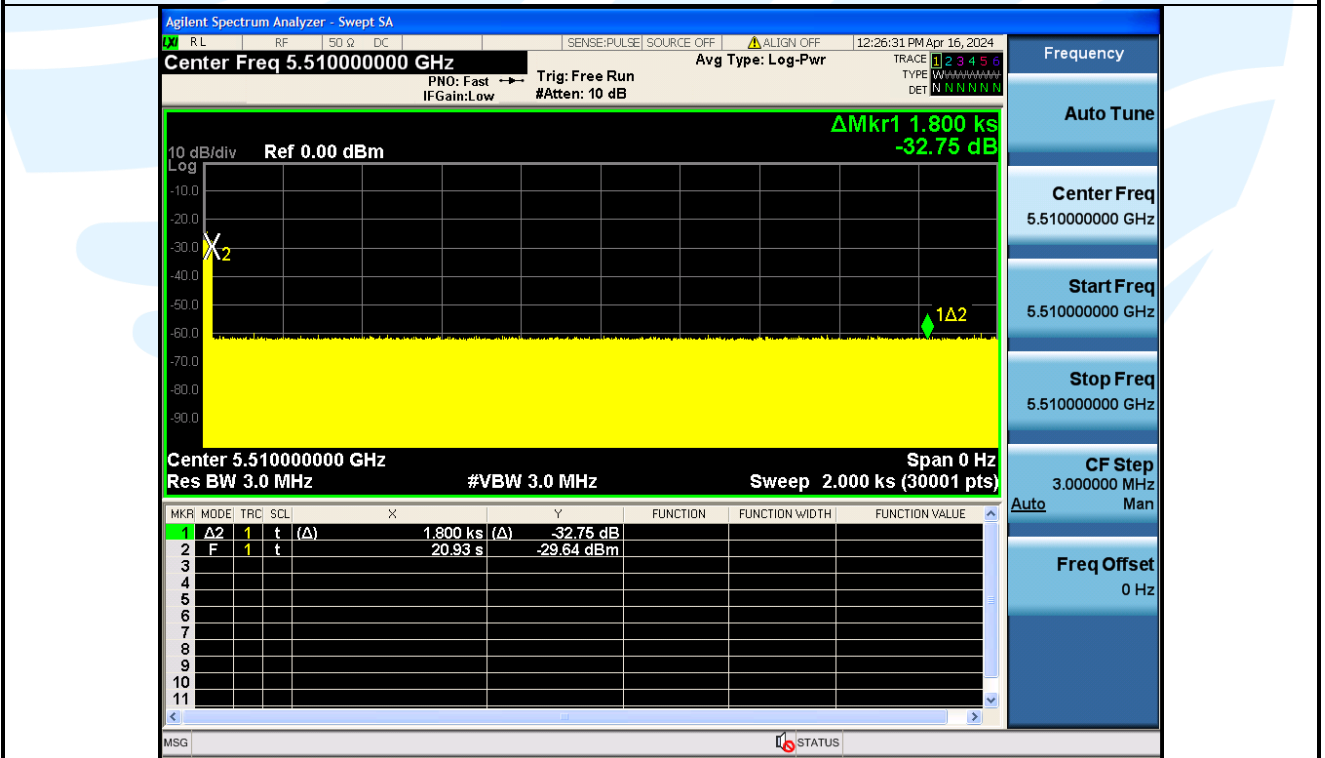
Channel Move Time & Channel Closing Transmission Time
802.11ac_5510 MHz



Note:

- 10) Mark1 Time: 392 ms, Mark2 Time: 10392 ms, Ontime Points: 24
- 11) Dwell = S/B = 12000 ms/30001 = 0.4 ms, C = N x Dwell = 24 x 0.4 = 9.6 ms
- 12) CMT = 1.405 s – 0.392 s = 1.0130 s

Non-Occupancy Period_802.11ac_CH106_5510 MHz



5.9 AC POWER LINE CONDUCTED EMISSION

Test Requirement: FCC 47 CFR Part 15 Subpart E Section 15.407 (b)(6)
 FCC 47 CFR Part 15 Subpart C Section 15.207
 RSS-Gen Issue 5, Section 8.8

Test Method: ANSI C63.10-2013, Section 6.2.

Limits:

Frequency range (MHz)	Limits (dB(μV))	
	Quasi-peak	Average
0,15 to 0,50	66 to 56	56 to 46
0,50 to 5	56	46
5 to 30	60	50

Remark:

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

Test Setup: Refer to section 4.5.2 for details.

Test Procedures:

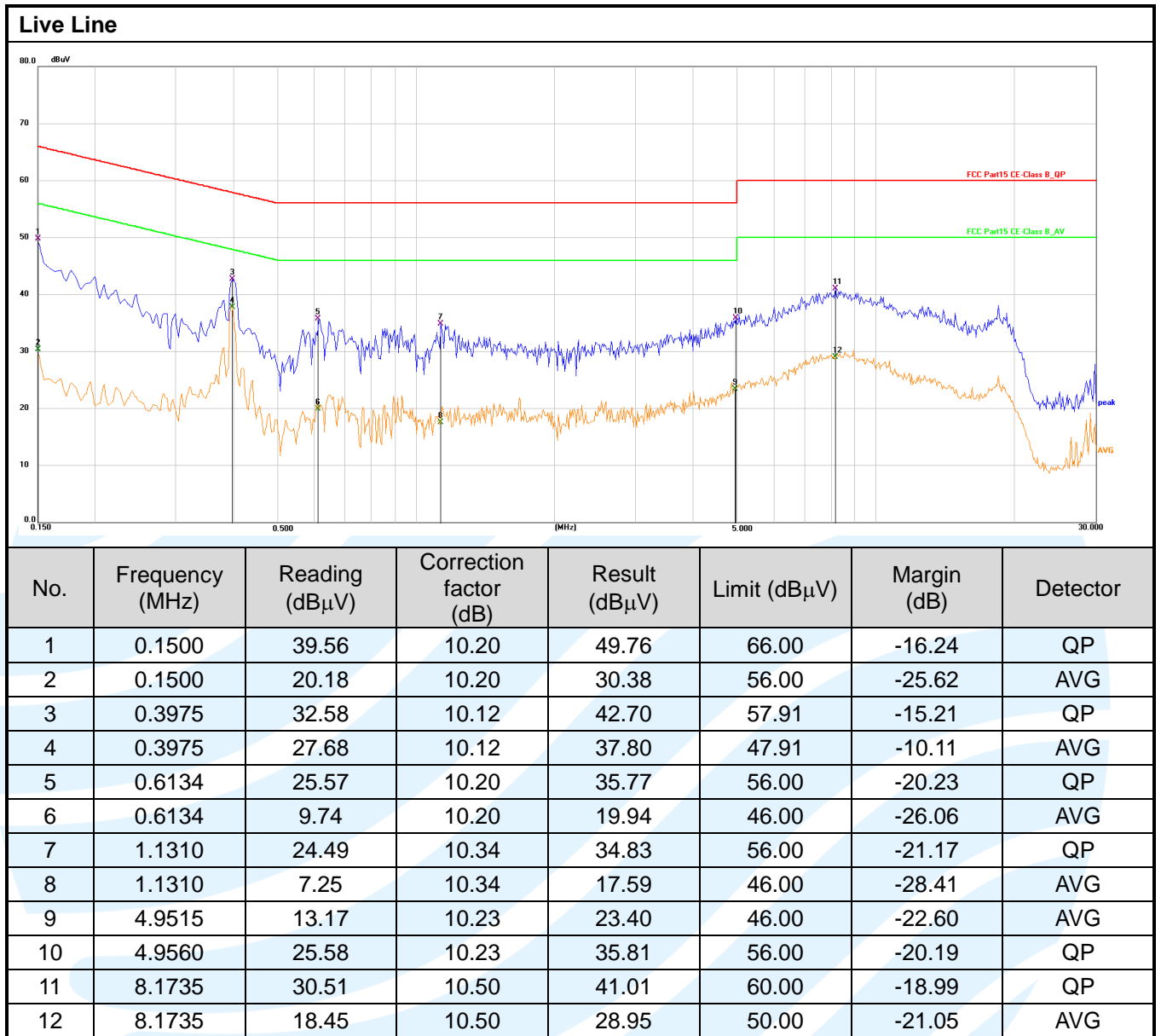
Test frequency range :150KHz-30MHz

- 1) The mains terminal disturbance voltage test was conducted in a shielded room.
- 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
- 3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,
- 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.
- 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

Equipment Used: Refer to section 3 for details.

Test Result: Pass

The measurement data as follows:
Quasi Peak and Average:
Mode: WIFI Link



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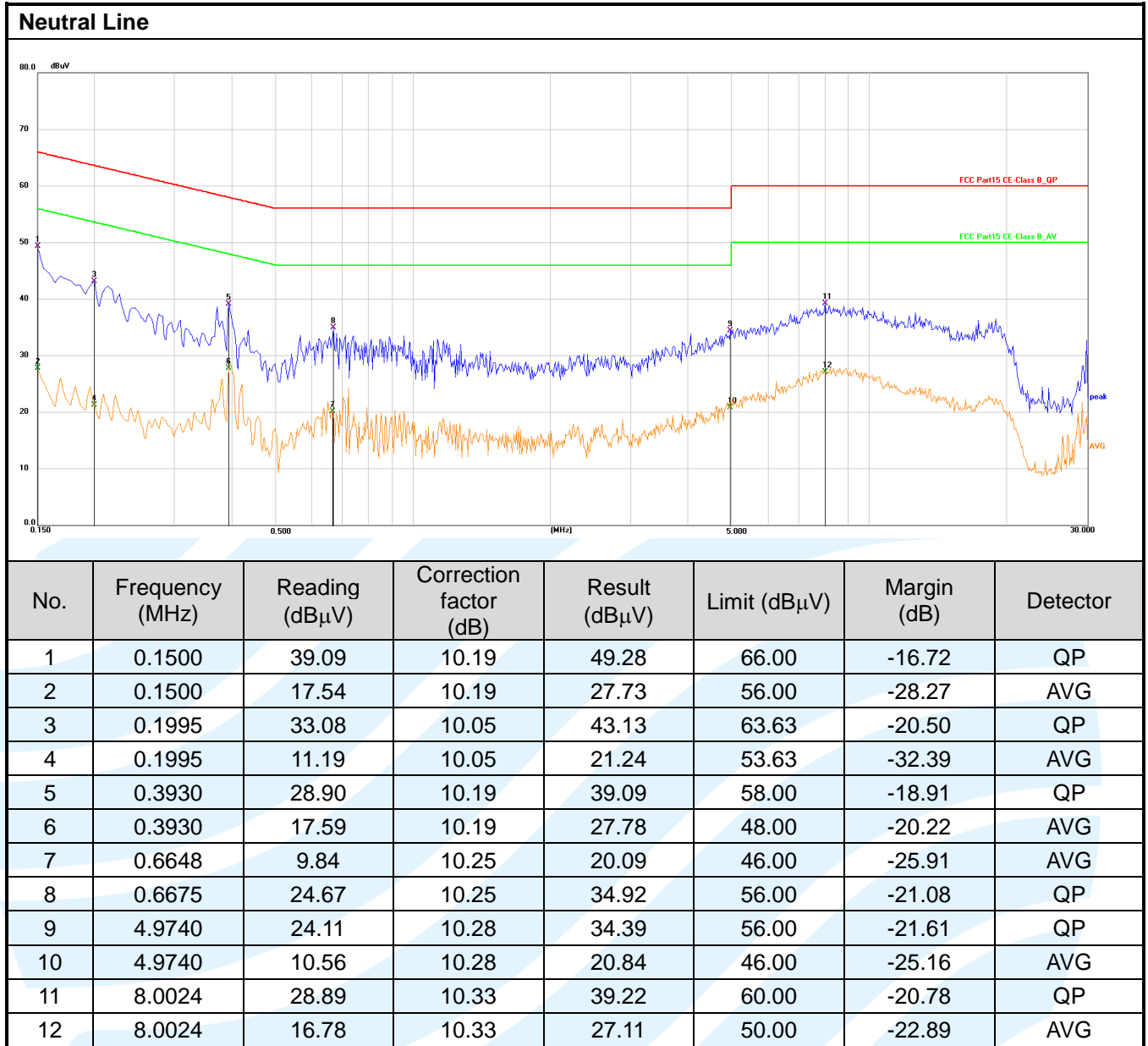
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Remark:

1. Correct Factor = LISN Factor + Cable Loss + Pulse Limiter Factor, the value was added to Original Receiver Reading by the software automatically.
2. Result = Reading + Correct Factor.
3. Margin = Result - Limit
4. An initial pre-scan was performed on the Phase and neutral lines with peak detector. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

APPENDIX A RF TEST DATA

A.1 99% BANDWIDTH

For U-NII-1, U-NII-2A, U-NII-2C band

Mode	Channel	RU & Index	Ant.	99% BW (MHz)
IEEE 802.11a	36			17.046
	44			17.078
	48			17.156
	52			17.118
	60			17.021
	64			17.052
	100			17.075
	116			17.084
	140			17.087
	144			13.609
IEEE 802.11n_20	36			18.137
	44			18.105
	48			18.101
	52			18.143
	60			18.126
	64			18.079
	100			18.096
	116			18.160
	140			18.097
	144			14.061
IEEE 802.11n_40	38	N/A		36.498
	46			36.511
	54			36.508
	62			36.499
	102			36.444
	110			36.447
	134			36.425
	142			33.044
IEEE 802.11ac_20	36		0	18.094
	44			18.106
	48			18.086
	52			18.131
	60			18.099
	64			18.134
	100			18.127
	116			18.125
	140			18.123
	144			14.068
IEEE 802.11ac_40	38			36.507
	46			36.495
	54			36.427
	62			36.483
	102			36.452
	110			36.493
	134			36.461
	142			33.030
IEEE 802.11ax_20	36	SU		19.152
	44			19.183
	48			19.196
	52			19.175
	60			19.192
	64			19.128
	100			19.149
	116			19.172
	140			19.137
	144			14.552
IEEE 802.11ax_40	38			37.909
	46			37.811

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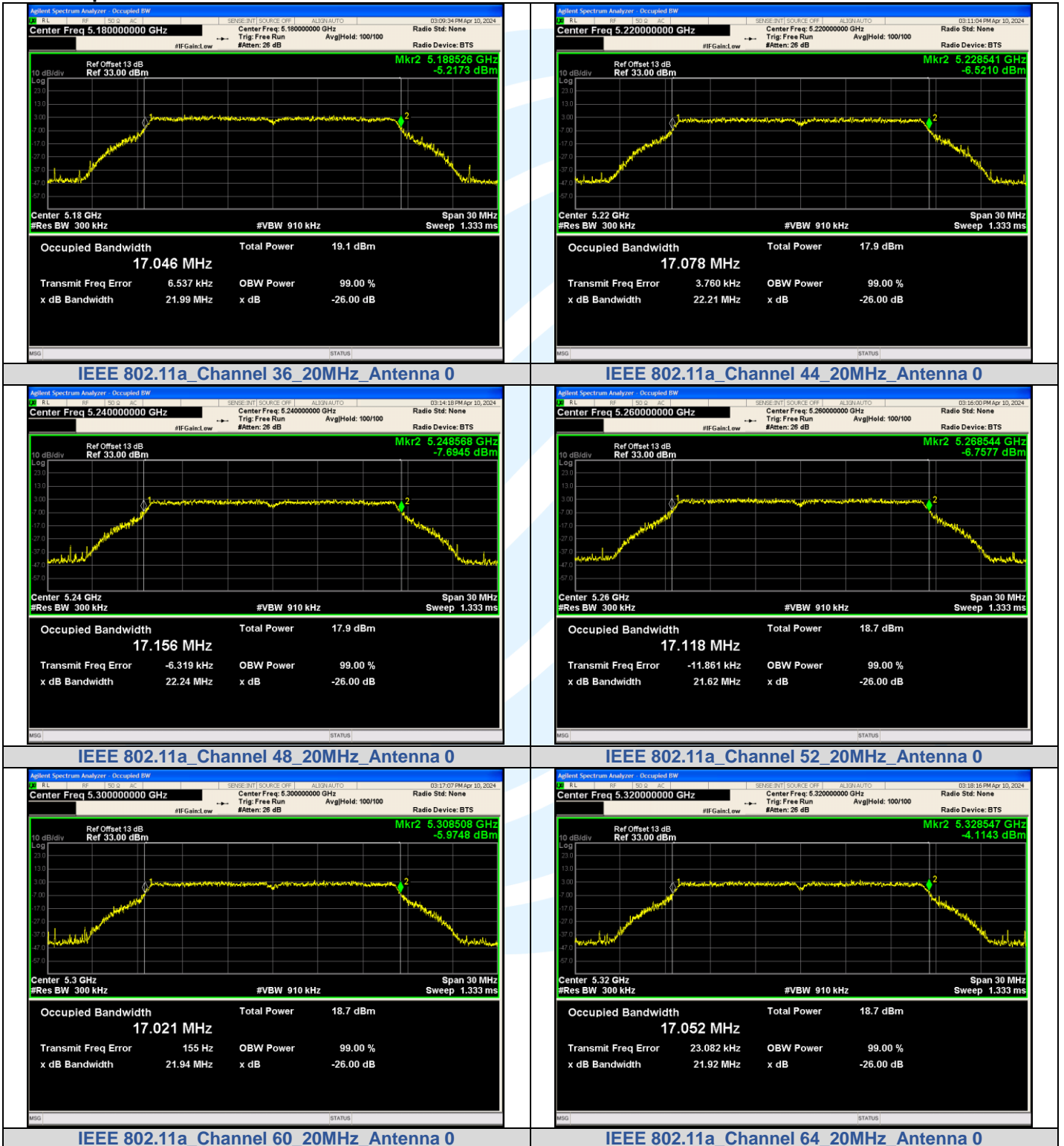
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Mode	Channel	RU & Index	Ant.	99% BW (MHz)
	54			37.879
	62			37.819
	102			37.868
	110			37.878
	134			37.874
	142			33.825

Test Graphs



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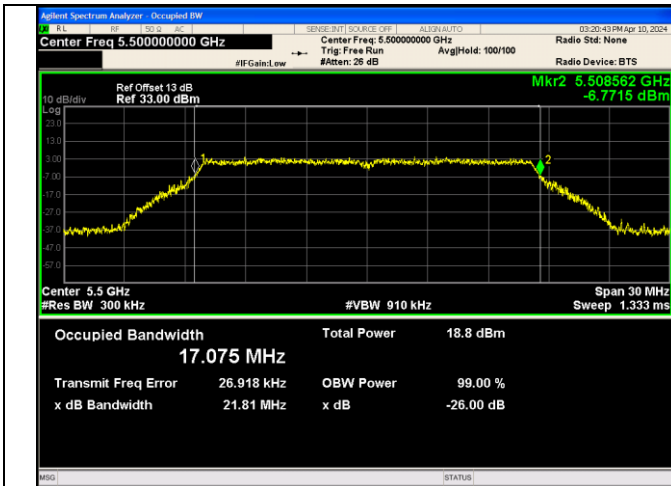
Tel: +86-755-28230888

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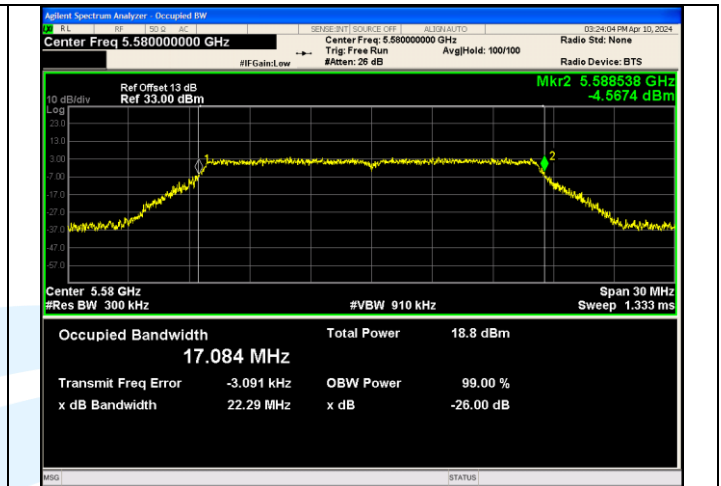
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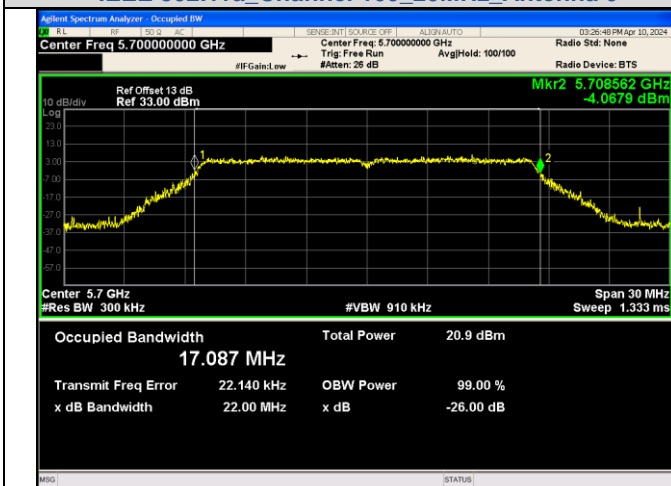
UTTR-RF-RSS247-V1.1



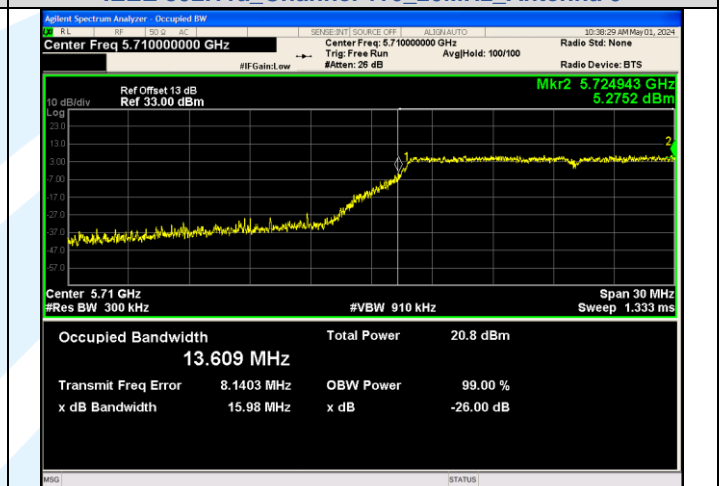
IEEE 802.11a_Channel 100_20MHz_Antenna 0



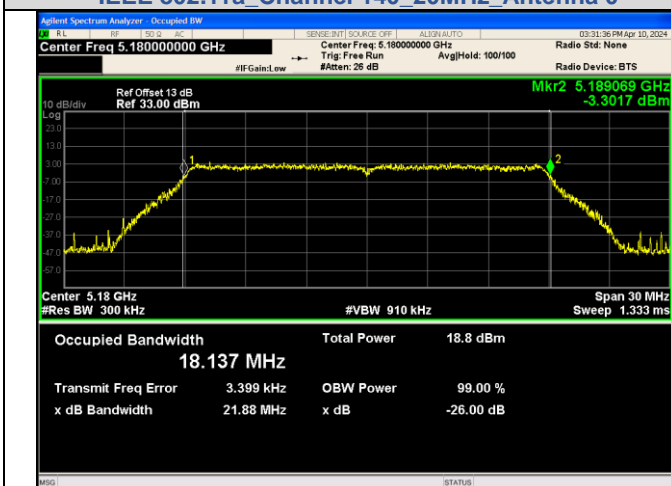
IEEE 802.11a_Channel 116_20MHz_Antenna 0



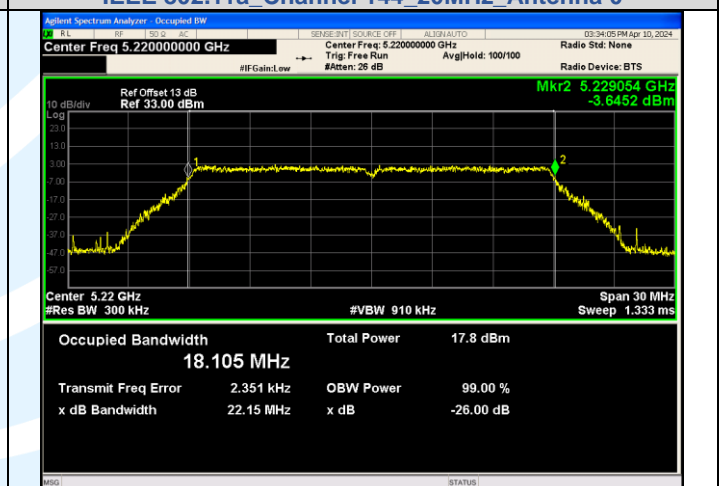
IEEE 802.11a_Channel 140_20MHz_Antenna 0



IEEE 802.11a_Channel 144_20MHz_Antenna 0



IEEE 802.11n_Channel 36_20MHz_Antenna 0



IEEE 802.11n_Channel 44_20MHz_Antenna 0