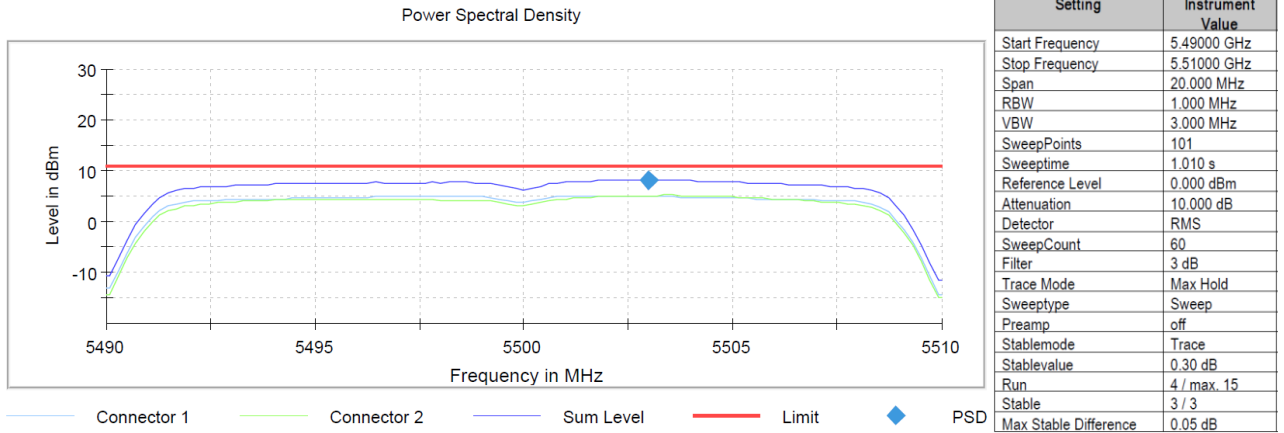
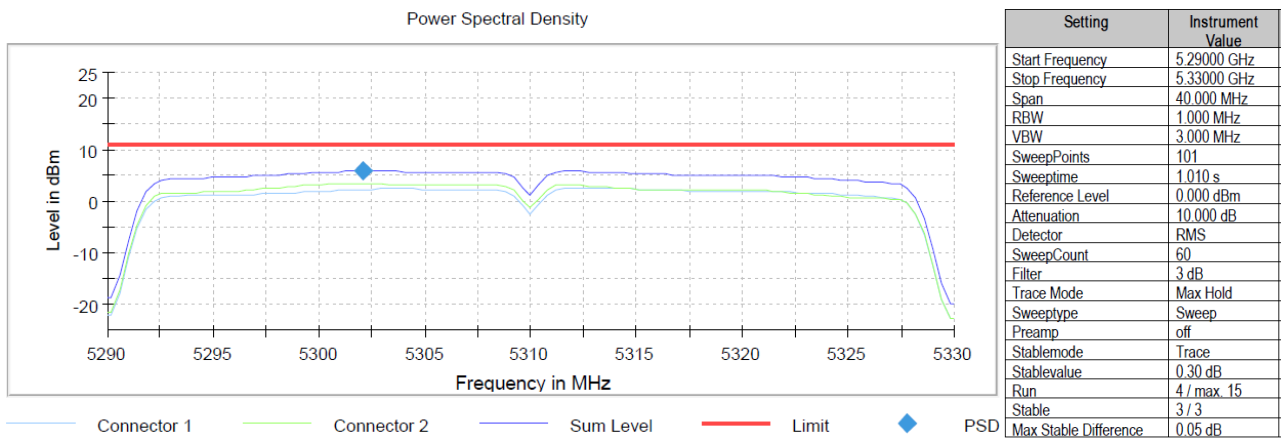


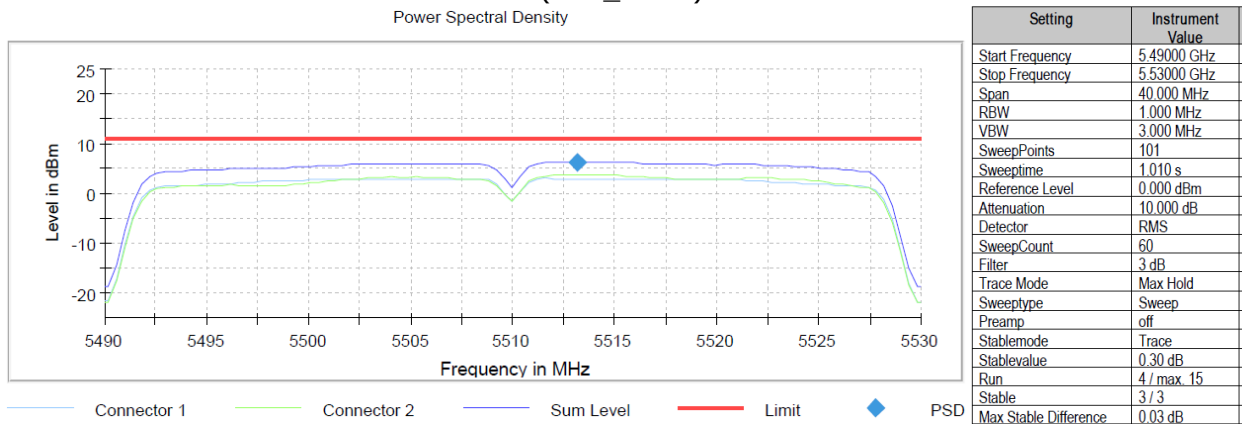
Radio Technology = WLAN n 20 MHz MIMO, Operating Frequency = low, Subband = U-NII-2C (S01_AH03)



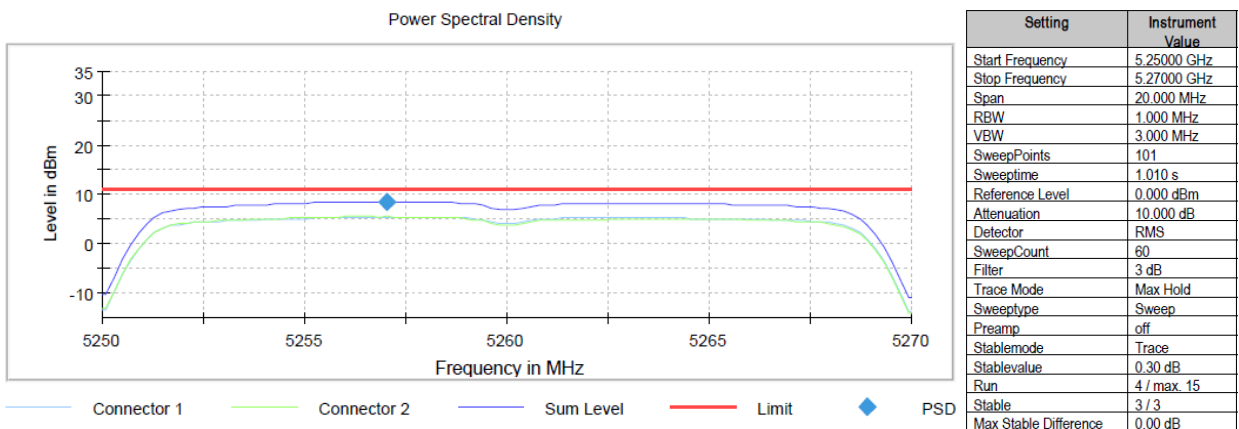
Radio Technology = WLAN n 40 MHz MIMO, Operating Frequency = high, Subband = U-NII-2A (S01_AH03)



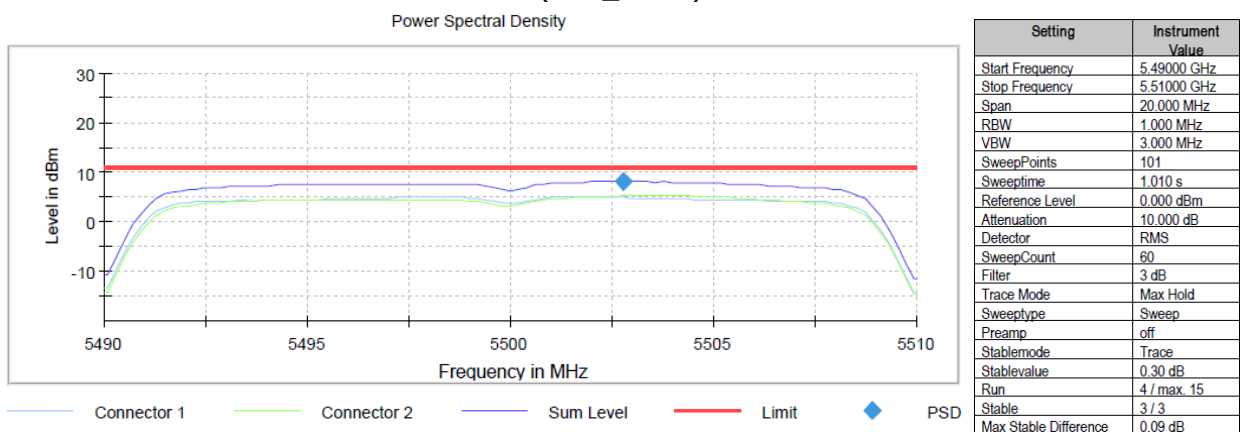
Radio Technology = WLAN n 40 MHz MIMO, Operating Frequency = low, Subband = U-NII-2C (S01_AH03)



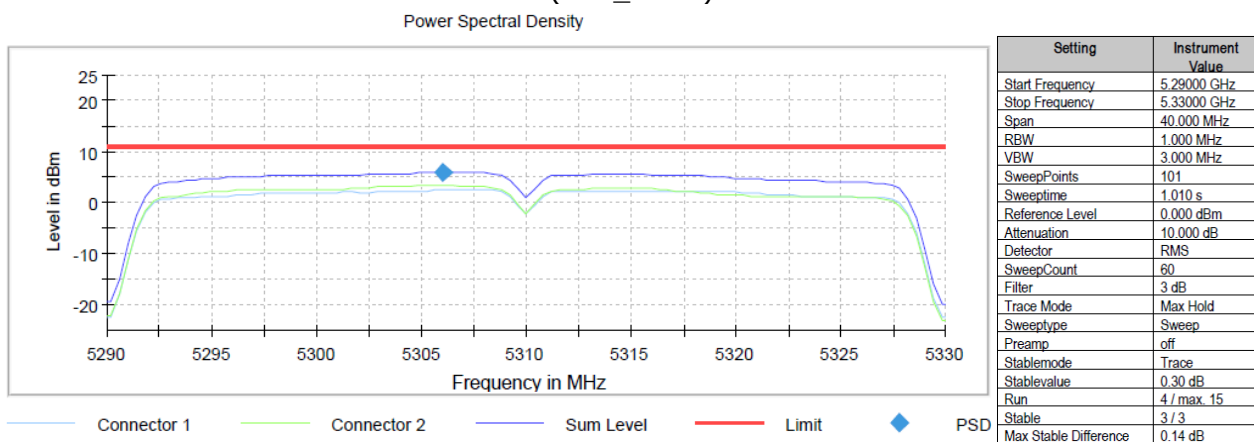
Radio Technology = WLAN ac 20 MHz MIMO, Operating Frequency = low, Subband = U-NII-2A (S01_AH03)



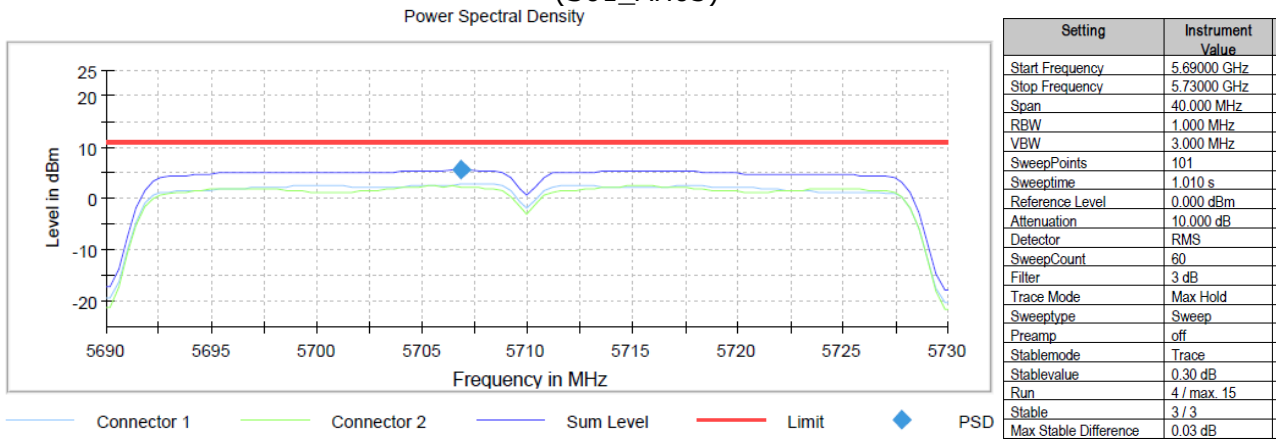
Radio Technology = WLAN ac 20 MHz MIMO, Operating Frequency = low, Subband = U-NII-2C (S01_AH03)



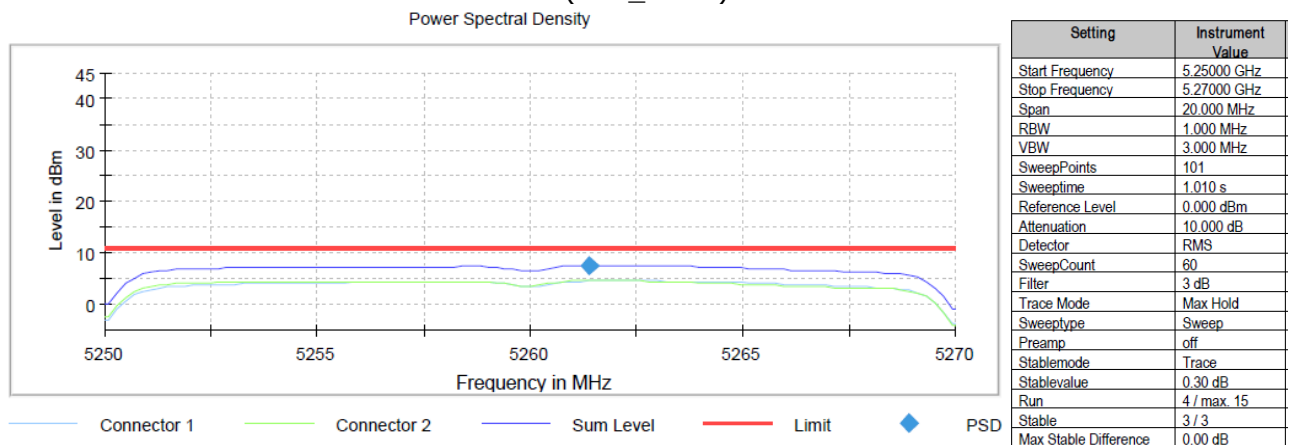
Radio Technology = WLAN ac 40 MHz MIMO, Operating Frequency = high, Subband = U-NII-2A (S01_AH03)



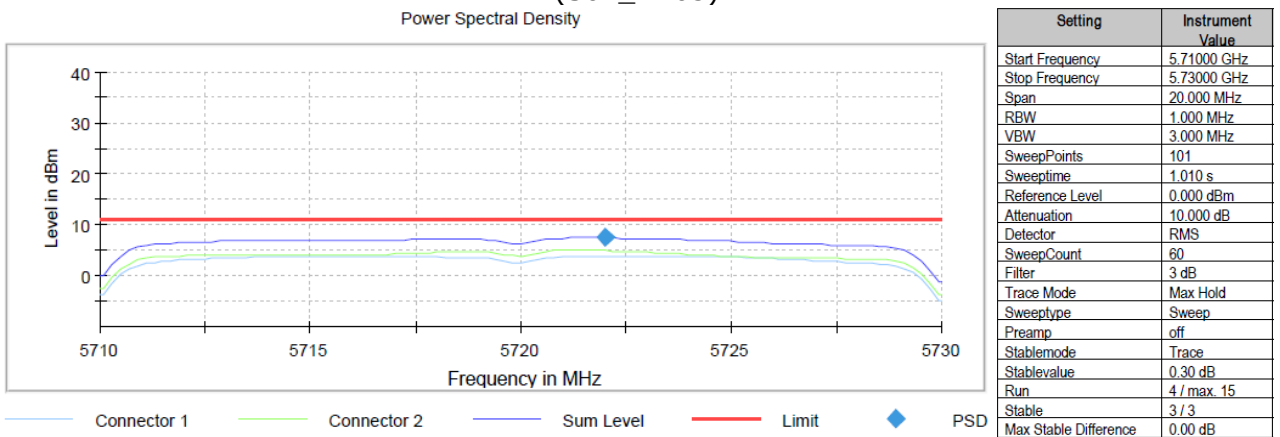
Radio Technology = WLAN ac 40 MHz MIMO, Operating Frequency = high,
Subband = U-NII-2C
(S01_AH03)



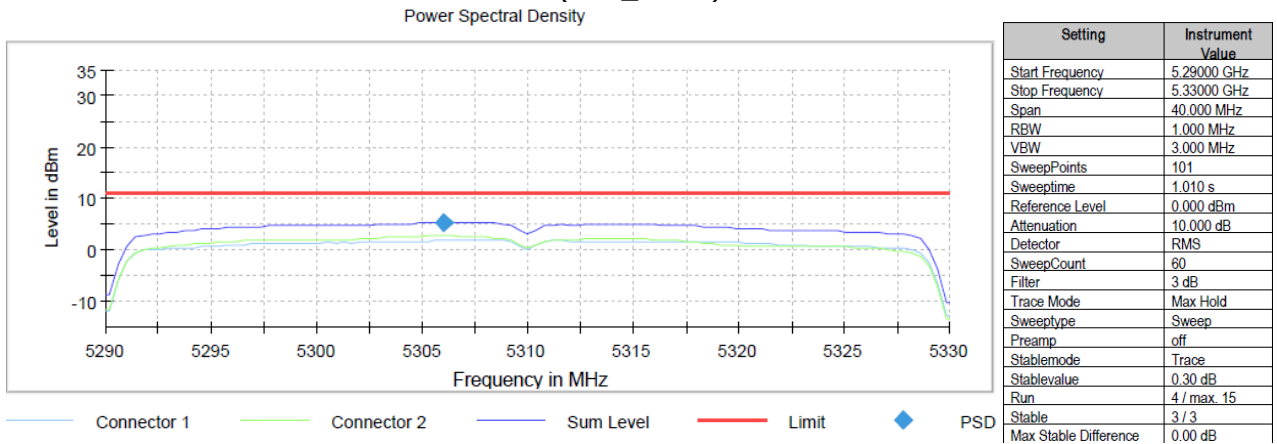
Radio Technology = WLAN ax 20 MHz MIMO, Operating Frequency = low, Subband = U-NII-2A
(S01_AH03)



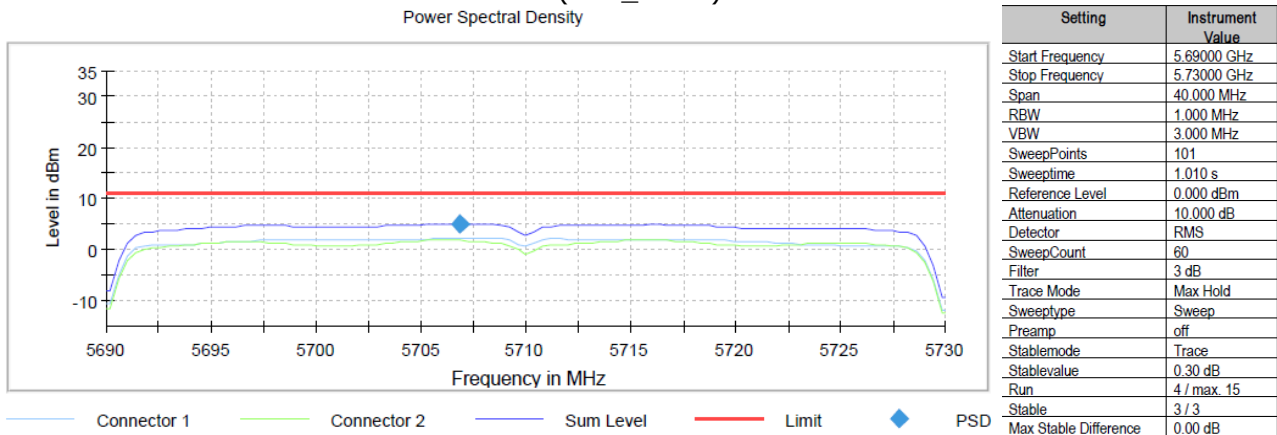
Radio Technology = WLAN ax 20 MHz MIMO, Operating Frequency = high,
Subband = U-NII-2C
(S01_AH03)



Radio Technology = WLAN ax 40 MHz MIMO, Operating Frequency = high,
Subband = U-NII-2A
(S01_AH03)

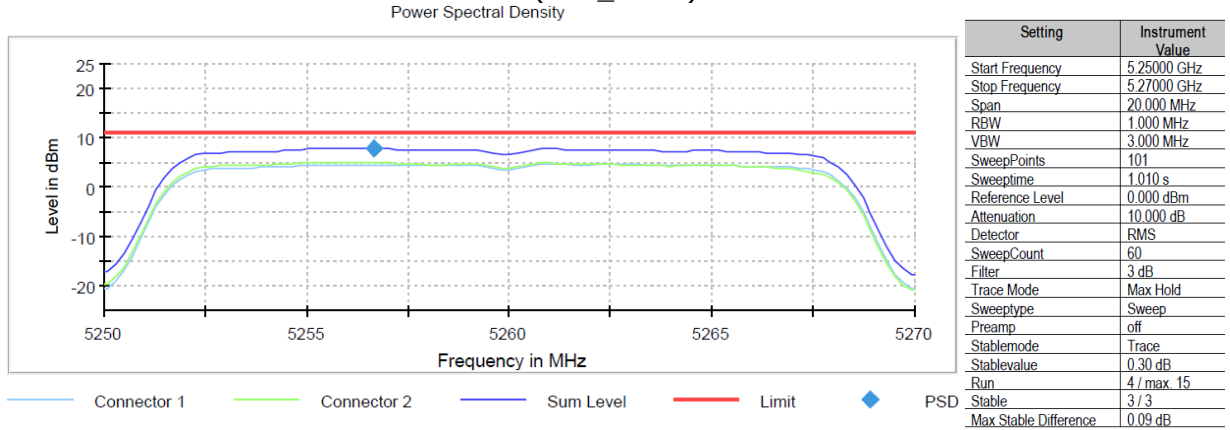


Radio Technology = WLAN ax 40 MHz MIMO, Operating Frequency = high,
Subband = U-NII-2C
(S01_AH03)

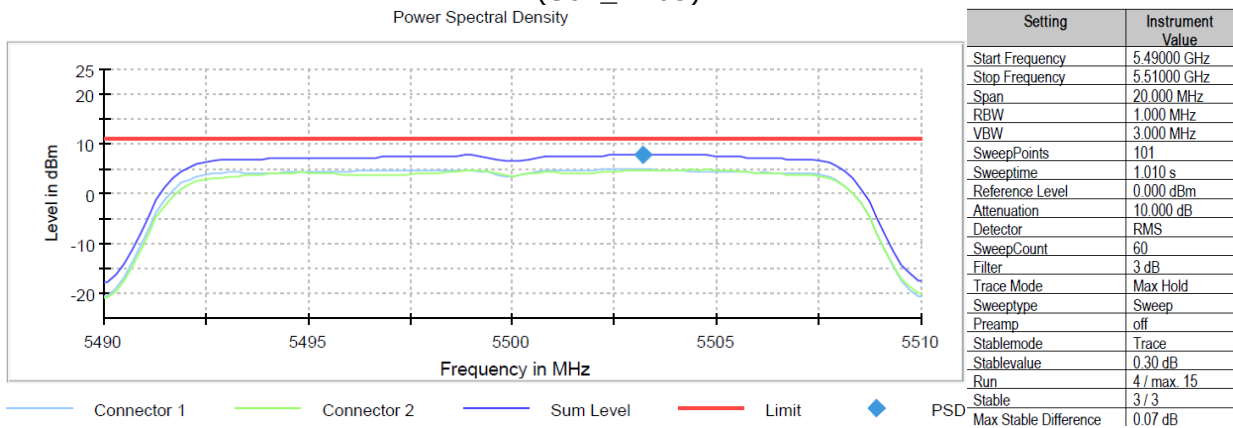


**Conducted power settings for antenna gain > 8.0 dBi and ≤ 9.0 dBi
(see chapter 4.6)**

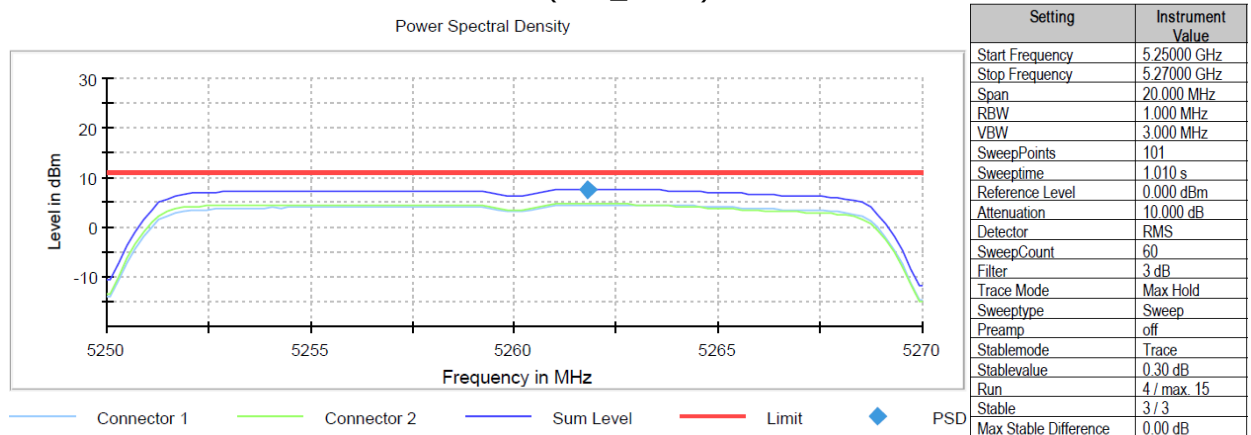
Radio Technology = WLAN a DIVERSITY, Operating Frequency = low, Subband = U-NII-2a
(S01_AH03)



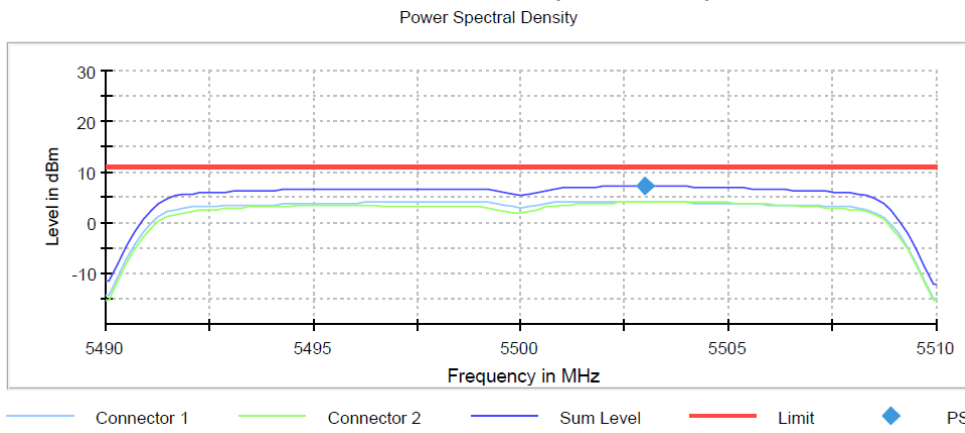
Radio Technology = WLAN a DIVERSITY, Operating Frequency = low, Subband = U-NII-2c
(S01_AH03)



Radio Technology = WLAN n 20 MHz MIMO, Operating Frequency = low, Subband = U-NII-2A
(S01_AH03)

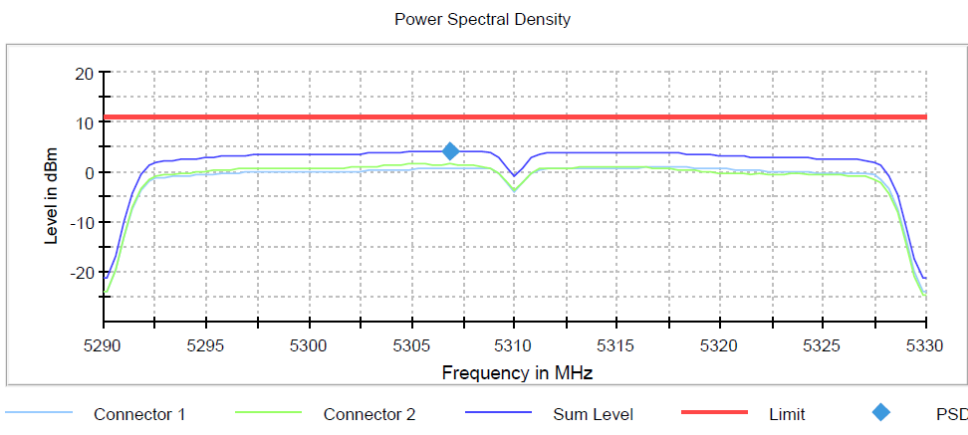


Radio Technology = WLAN n 20 MHz MIMO, Operating Frequency = low, Subband = U-NII-2C (S01_AH03)



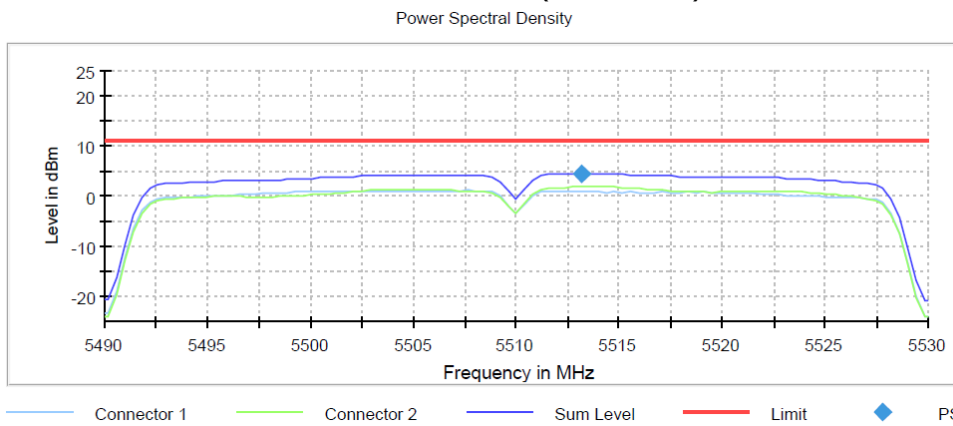
Setting	Instrument Value
Start Frequency	5.49000 GHz
Stop Frequency	5.51000 GHz
Span	20.000 MHz
RBW	1.000 MHz
VBW	3.000 MHz
SweepPoints	101
Sweeptime	1.010 s
Reference Level	0.000 dBm
Attenuation	10.000 dB
Detector	RMS
SweepCount	60
Filter	3 dB
Trace Mode	Max Hold
Sweeptype	Sweep
Preamp	off
Stablemode	Trace
Stablevalue	0.30 dB
Run	4 / max. 15
Stable	3 / 3
Max Stable Difference	0.02 dB

Radio Technology = WLAN n 40 MHz MIMO, Operating Frequency = high, Subband = U-NII-2A (S01_AH03)



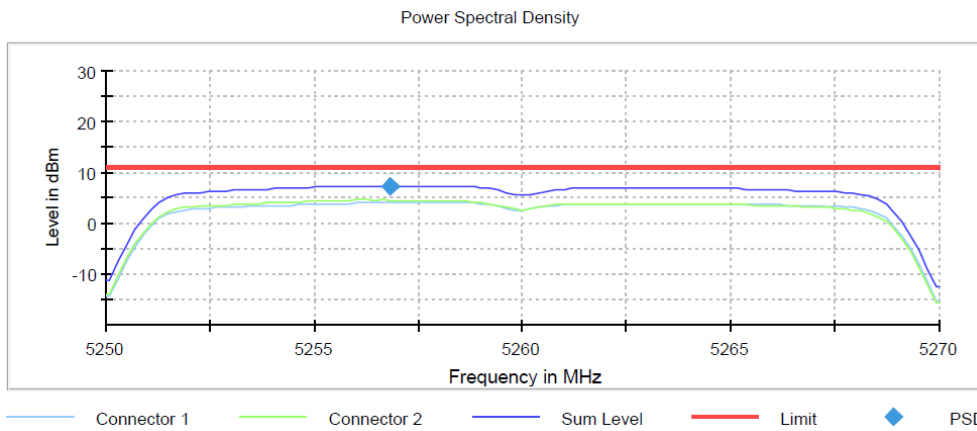
Setting	Instrument Value
Start Frequency	5.29000 GHz
Stop Frequency	5.33000 GHz
Span	40.000 MHz
RBW	1.000 MHz
VBW	3.000 MHz
SweepPoints	101
Sweeptime	1.010 s
Reference Level	0.000 dBm
Attenuation	10.000 dB
Detector	RMS
SweepCount	60
Filter	3 dB
Trace Mode	Max Hold
Sweeptype	Sweep
Preamp	off
Stablemode	Trace
Stablevalue	0.30 dB
Run	4 / max. 15
Stable	3 / 3
Max Stable Difference	0.09 dB

Radio Technology = WLAN n 40 MHz MIMO, Operating Frequency = low, Subband = U-NII-2C (S01_AH03)



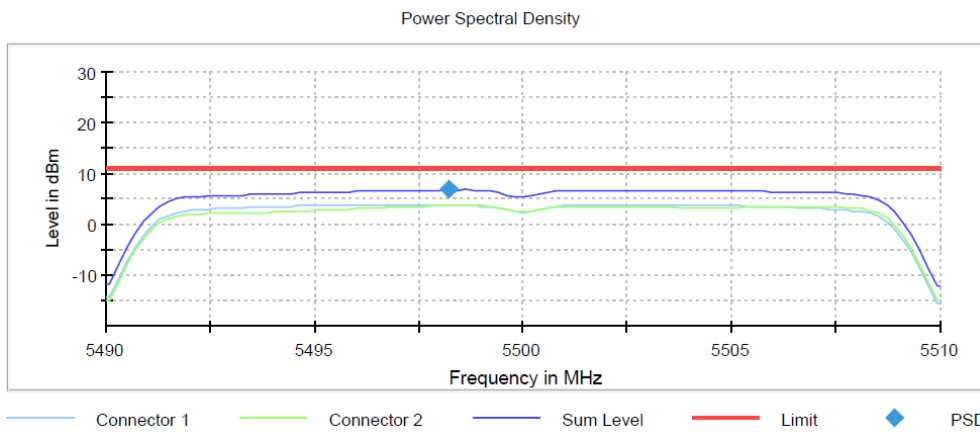
Setting	Instrument Value
Start Frequency	5.49000 GHz
Stop Frequency	5.53000 GHz
Span	40.000 MHz
RBW	1.000 MHz
VBW	3.000 MHz
SweepPoints	101
Sweeptime	1.010 s
Reference Level	0.000 dBm
Attenuation	10.000 dB
Detector	RMS
SweepCount	60
Filter	3 dB
Trace Mode	Max Hold
Sweeptype	Sweep
Preamp	off
Stablemode	Trace
Stablevalue	0.30 dB
Run	4 / max. 15
Stable	3 / 3
Max Stable Difference	0.08 dB

Radio Technology = WLAN ac 20 MHz MIMO, Operating Frequency = low, Subband = U-NII-2A (S01_AH03)



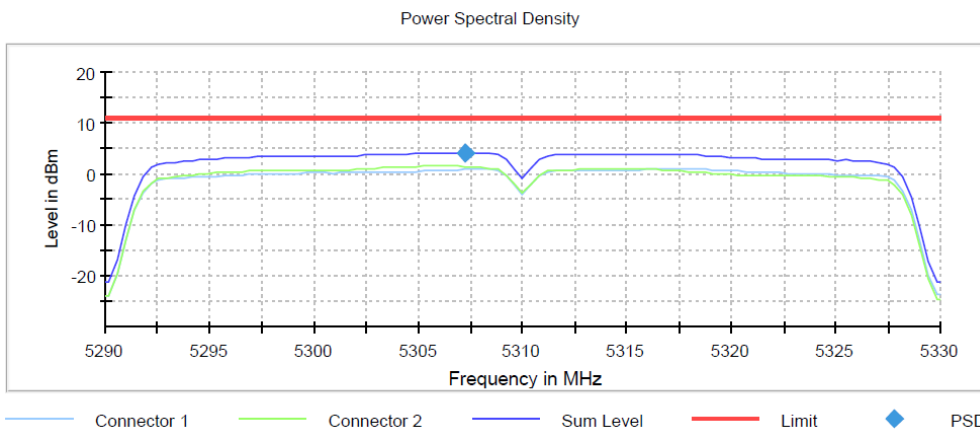
Setting	Instrument Value
Start Frequency	5.25000 GHz
Stop Frequency	5.27000 GHz
Span	20.000 MHz
RBW	1.000 MHz
VBW	3.000 MHz
SweepPoints	101
SweepTime	1.010 s
Reference Level	0.000 dBm
Attenuation	10.000 dB
Detector	RMS
SweepCount	60
Filter	3 dB
Trace Mode	Max Hold
SweepType	Sweep
Preamp	off
Stablemode	Trace
Stablevalue	0.30 dB
Run	4 / max. 15
Stable	3 / 3
Max Stable Difference	0.07 dB

Radio Technology = WLAN ac 20 MHz MIMO, Operating Frequency = low, Subband = U-NII-2C (S01_AH03)



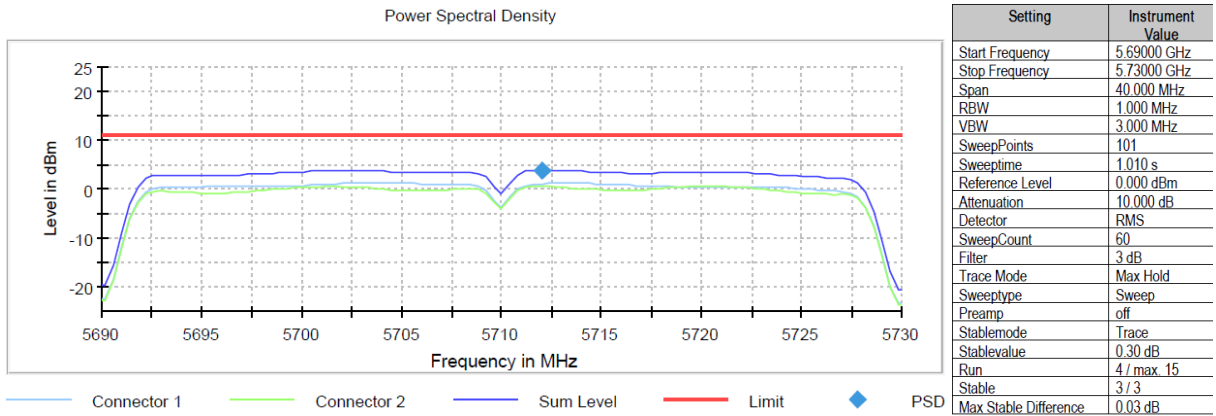
Setting	Instrument Value
Start Frequency	5.49000 GHz
Stop Frequency	5.51000 GHz
Span	20.000 MHz
RBW	1.000 MHz
VBW	3.000 MHz
SweepPoints	101
SweepTime	1.010 s
Reference Level	0.000 dBm
Attenuation	10.000 dB
Detector	RMS
SweepCount	60
Filter	3 dB
Trace Mode	Max Hold
SweepType	Sweep
Preamp	off
Stablemode	Trace
Stablevalue	0.30 dB
Run	4 / max. 15
Stable	3 / 3
Max Stable Difference	0.05 dB

Radio Technology = WLAN ac 40 MHz MIMO, Operating Frequency = high, Subband = U-NII-2A (S01_AH03)

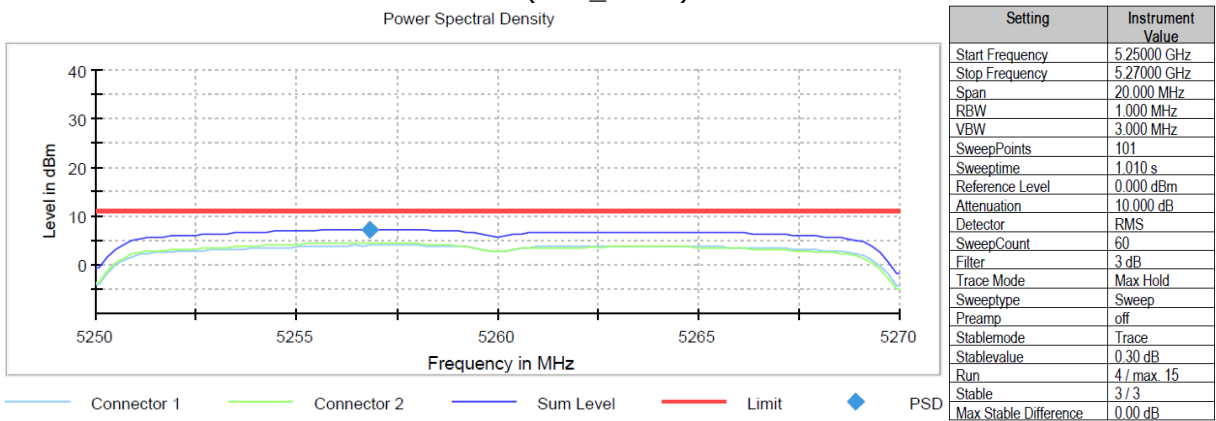


Setting	Instrument Value
Start Frequency	5.29000 GHz
Stop Frequency	5.33000 GHz
Span	40.000 MHz
RBW	1.000 MHz
VBW	3.000 MHz
SweepPoints	101
SweepTime	1.010 s
Reference Level	0.000 dBm
Attenuation	10.000 dB
Detector	RMS
SweepCount	60
Filter	3 dB
Trace Mode	Max Hold
SweepType	Sweep
Preamp	off
Stablemode	Trace
Stablevalue	0.30 dB
Run	4 / max. 15
Stable	3 / 3
Max Stable Difference	0.01 dB

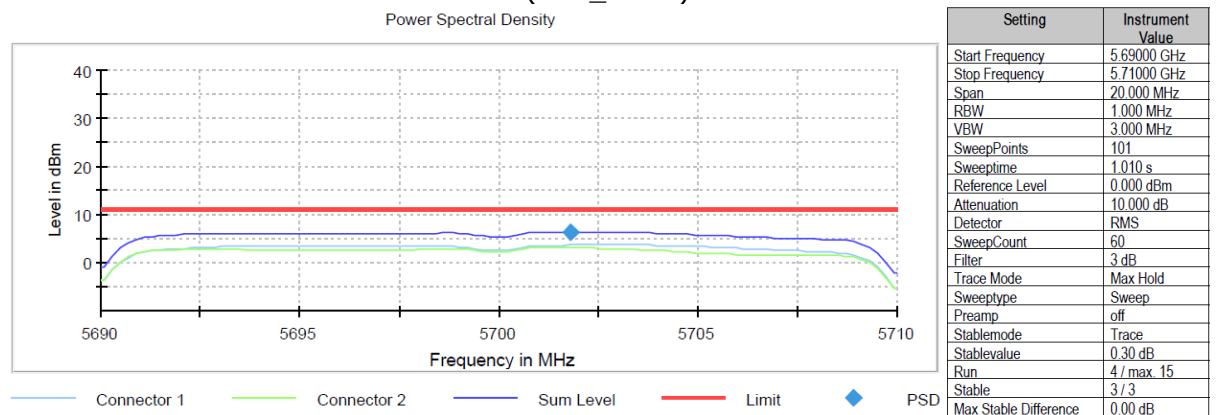
Radio Technology = WLAN ac 40 MHz MIMO, Operating Frequency = high,
Subband = U-NII-2C
(S01_AH03)



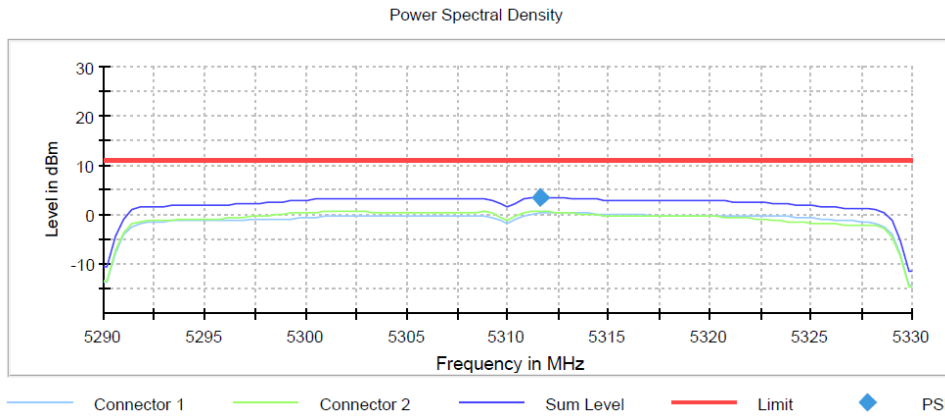
Radio Technology = WLAN ax 20 MHz MIMO, Operating Frequency = low, Subband = U-NII-2A
(S01_AH03)



Radio Technology = WLAN ax 20 MHz MIMO, Operating Frequency = high,
Subband = U-NII-2C
(S01_AH03)

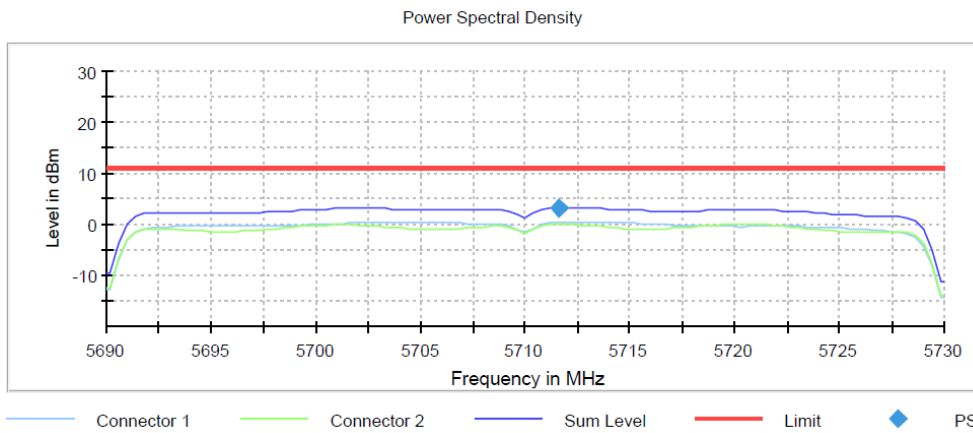


Radio Technology = WLAN ax 40 MHz MIMO, Operating Frequency = high,
 Subband = U-NII-2A
 (S01_AH03)



Setting	Instrument Value
Start Frequency	5.29000 GHz
Stop Frequency	5.33000 GHz
Span	40.000 MHz
RBW	1.000 MHz
VBW	3.000 MHz
SweepPoints	101
SweepTime	1.010 s
Reference Level	0.000 dBm
Attenuation	10.000 dB
Detector	RMS
SweepCount	60
Filter	3 dB
Trace Mode	Max Hold
SweepType	Sweep
Preamp	off
Stablemode	Trace
Stablevalue	0.30 dB
Run	4 / max. 15
Stable	3 / 3
Max Stable Difference	0.00 dB

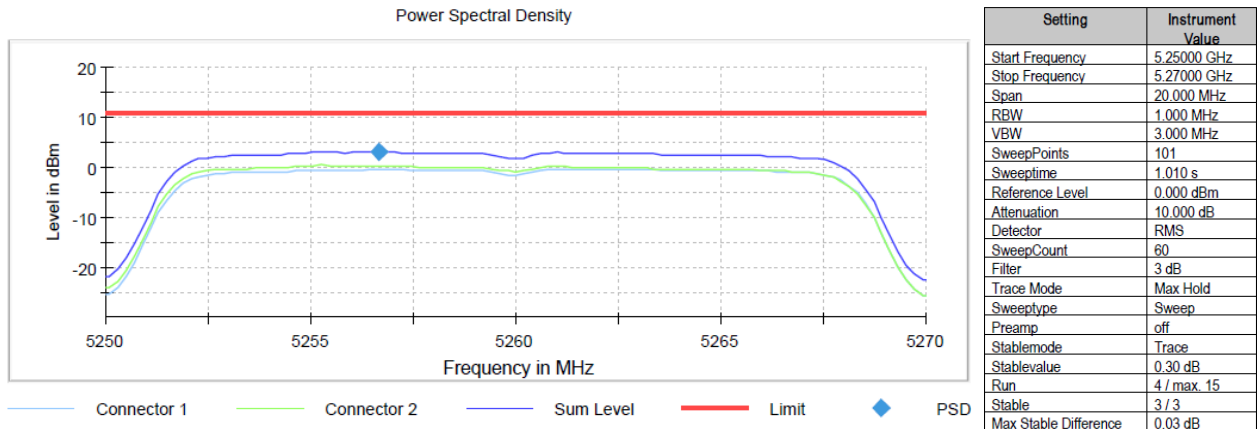
Radio Technology = WLAN ax 40 MHz MIMO, Operating Frequency = high,
 Subband = U-NII-2C
 (S01_AH03)



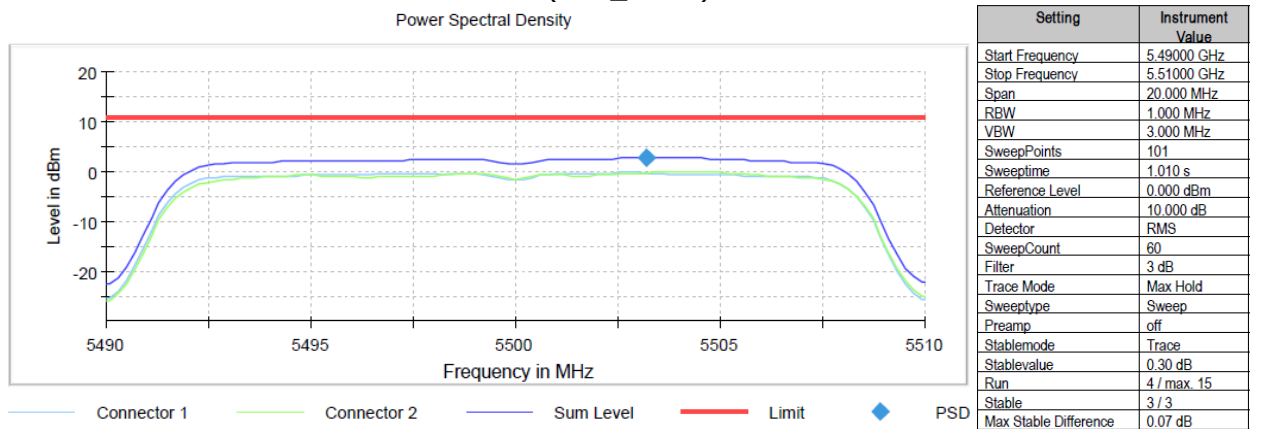
Setting	Instrument Value
Start Frequency	5.69000 GHz
Stop Frequency	5.73000 GHz
Span	40.000 MHz
RBW	1.000 MHz
VBW	3.000 MHz
SweepPoints	101
SweepTime	1.010 s
Reference Level	0.000 dBm
Attenuation	10.000 dB
Detector	RMS
SweepCount	60
Filter	3 dB
Trace Mode	Max Hold
SweepType	Sweep
Preamp	off
Stablemode	Trace
Stablevalue	0.30 dB
Run	4 / max. 15
Stable	3 / 3
Max Stable Difference	0.00 dB

Conducted power settings for antenna gain > 9.0 dBi and ≤ 14.2 dBi (see chapter 4.6)

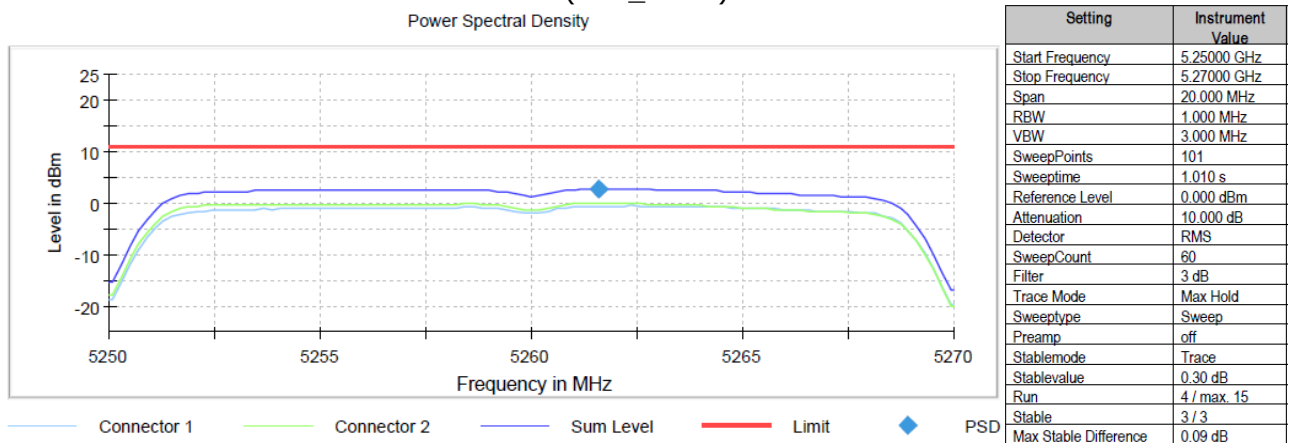
Radio Technology = WLAN a DIVERSITY, Operating Frequency = low, Subband = U-NII-2a (S01_AH03)



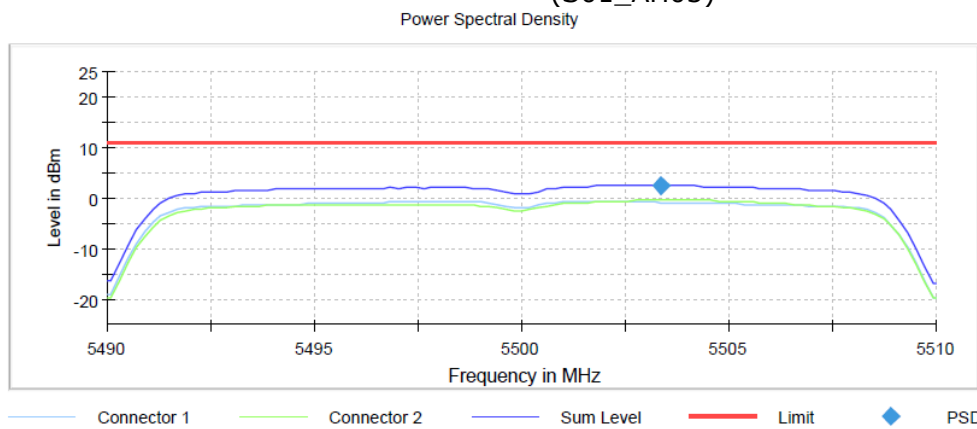
Radio Technology = WLAN a DIVERSITY, Operating Frequency = low, Subband = U-NII-2c (S01_AH03)



Radio Technology = WLAN n 20 MHz MIMO, Operating Frequency = low, Subband = U-NII-2A (S01_AH03)

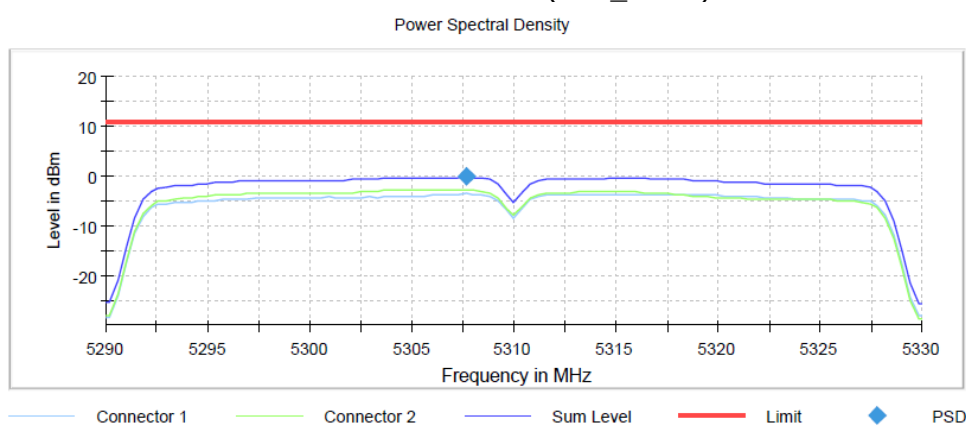


Radio Technology = WLAN n 20 MHz MIMO, Operating Frequency = low, Subband = U-NII-2C (S01_AH03)



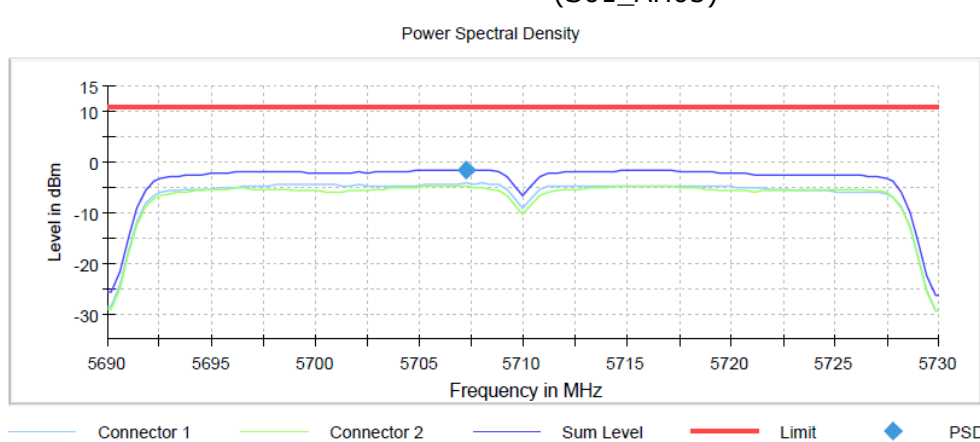
Setting	Instrument Value
Start Frequency	5.49000 GHz
Stop Frequency	5.51000 GHz
Span	20.000 MHz
RBW	1.000 MHz
VBW	3.000 MHz
SweepPoints	101
Sweeptime	1.010 s
Reference Level	0.000 dBm
Attenuation	10.000 dB
Detector	RMS
SweepCount	60
Filter	3 dB
Trace Mode	Max Hold
Sweeptype	Sweep
Preamplifier	off
Stablemode	Trace
Stablevalue	0.30 dB
Run	4 / max. 15
Stable	3 / 3
Max Stable Difference	0.03 dB

Radio Technology = WLAN n 40 MHz MIMO, Operating Frequency = high, Subband = U-NII-2A (S01_AH03)



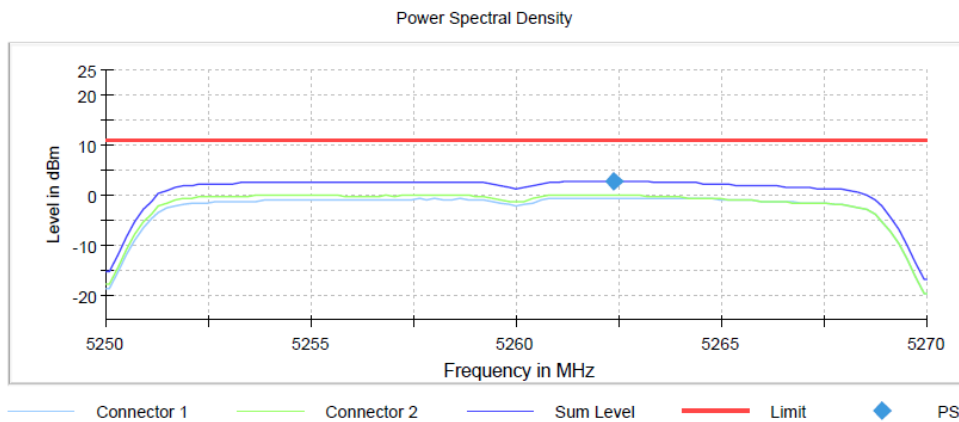
Setting	Instrument Value
Start Frequency	5.29000 GHz
Stop Frequency	5.33000 GHz
Span	40.000 MHz
RBW	1.000 MHz
VBW	3.000 MHz
SweepPoints	101
Sweeptime	1.010 s
Reference Level	0.000 dBm
Attenuation	10.000 dB
Detector	RMS
SweepCount	60
Filter	3 dB
Trace Mode	Max Hold
Sweeptype	Sweep
Preamplifier	off
Stablemode	Trace
Stablevalue	0.30 dB
Run	4 / max. 15
Stable	3 / 3
Max Stable Difference	0.12 dB

Radio Technology = WLAN n 40 MHz MIMO, Operating Frequency = high, Subband = U-NII-2C (S01_AH03)



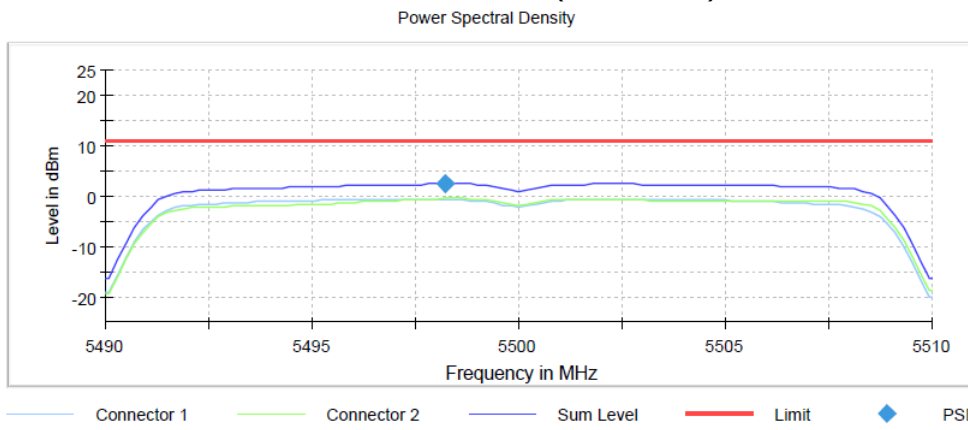
Setting	Instrument Value
Start Frequency	5.69000 GHz
Stop Frequency	5.73000 GHz
Span	40.000 MHz
RBW	1.000 MHz
VBW	3.000 MHz
SweepPoints	101
Sweeptime	1.010 s
Reference Level	0.000 dBm
Attenuation	10.000 dB
Detector	RMS
SweepCount	60
Filter	3 dB
Trace Mode	Max Hold
Sweeptype	Sweep
Preamplifier	off
Stablemode	Trace
Stablevalue	0.30 dB
Run	4 / max. 15
Stable	3 / 3
Max Stable Difference	0.08 dB

Radio Technology = WLAN ac 20 MHz MIMO, Operating Frequency = low, Subband = U-NII-2A (S01_AH03)



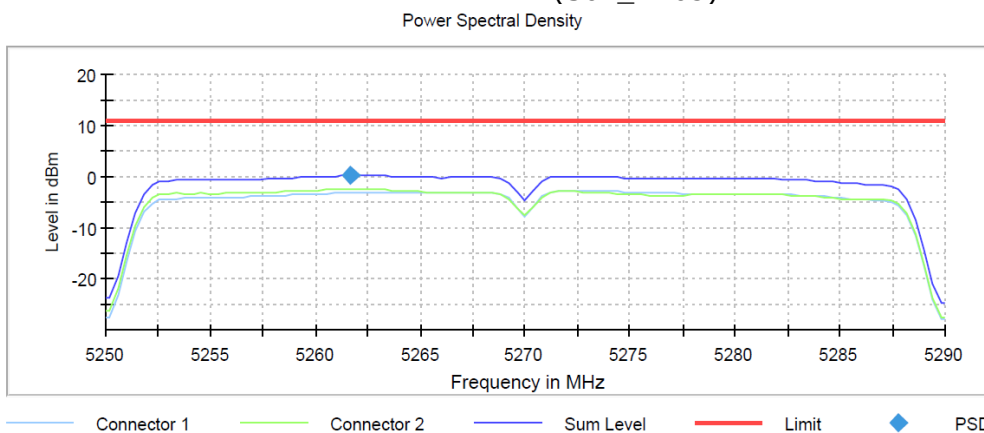
Setting	Instrument Value
Start Frequency	5.25000 GHz
Stop Frequency	5.27000 GHz
Span	20.000 MHz
RBW	1.000 MHz
VBW	3.000 MHz
SweepPoints	101
SweepTime	1.010 s
Reference Level	0.000 dBm
Attenuation	10.000 dB
Detector	RMS
SweepCount	60
Filter	3 dB
Trace Mode	Max Hold
SweepType	Sweep
Preamp	off
Stablemode	Trace
Stablevalue	0.30 dB
Run	4 / max. 15
Stable	3 / 3
Max Stable Difference	0.09 dB

Radio Technology = WLAN ac 20 MHz MIMO, Operating Frequency = low, Subband = U-NII-2C (S01_AH03)



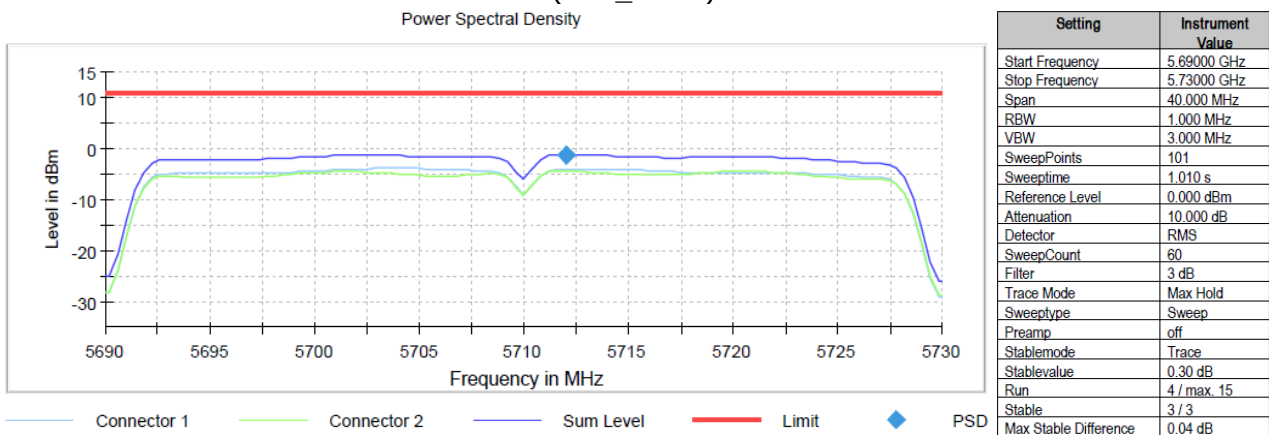
Setting	Instrument Value
Start Frequency	5.49000 GHz
Stop Frequency	5.51000 GHz
Span	20.000 MHz
RBW	1.000 MHz
VBW	3.000 MHz
SweepPoints	101
SweepTime	1.010 s
Reference Level	0.000 dBm
Attenuation	10.000 dB
Detector	RMS
SweepCount	60
Filter	3 dB
Trace Mode	Max Hold
SweepType	Sweep
Preamp	off
Stablemode	Trace
Stablevalue	0.30 dB
Run	4 / max. 15
Stable	3 / 3
Max Stable Difference	0.04 dB

Radio Technology = WLAN ac 40 MHz MIMO, Operating Frequency = low, Subband = U-NII-2A (S01_AH03)

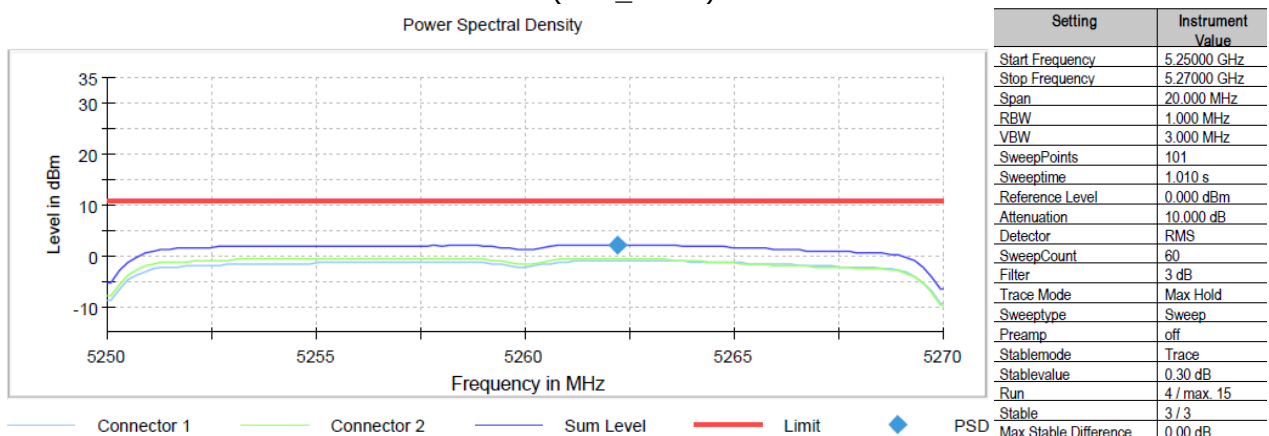


Setting	Instrument Value
Start Frequency	5.25000 GHz
Stop Frequency	5.29000 GHz
Span	40.000 MHz
RBW	1.000 MHz
VBW	3.000 MHz
SweepPoints	101
SweepTime	1.010 s
Reference Level	0.000 dBm
Attenuation	10.000 dB
Detector	RMS
SweepCount	60
Filter	3 dB
Trace Mode	Max Hold
SweepType	Sweep
Preamp	off
Stablemode	Trace
Stablevalue	0.30 dB
Run	4 / max. 15
Stable	3 / 3
Max Stable Difference	0.00 dB

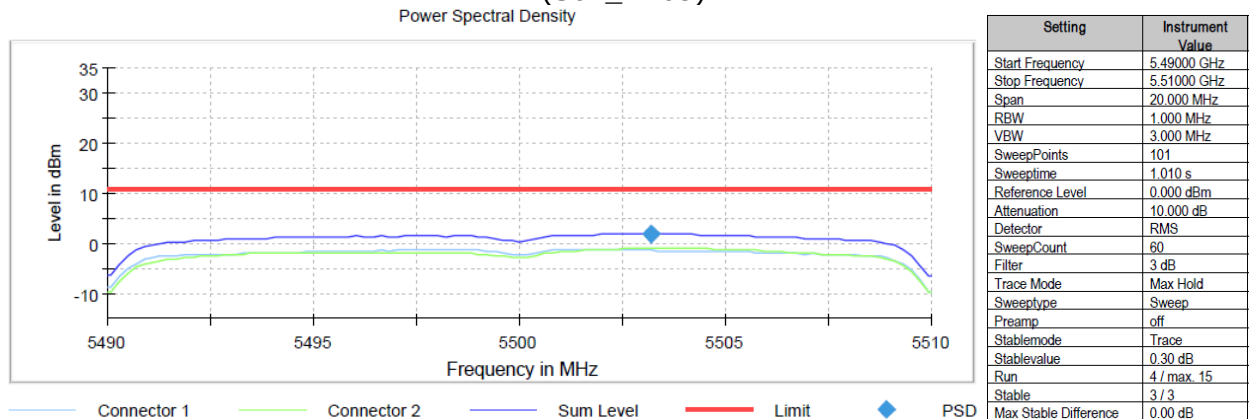
Radio Technology = WLAN ac 40 MHz MIMO, Operating Frequency = high,
Subband = U-NII-2C
(S01_AH03)



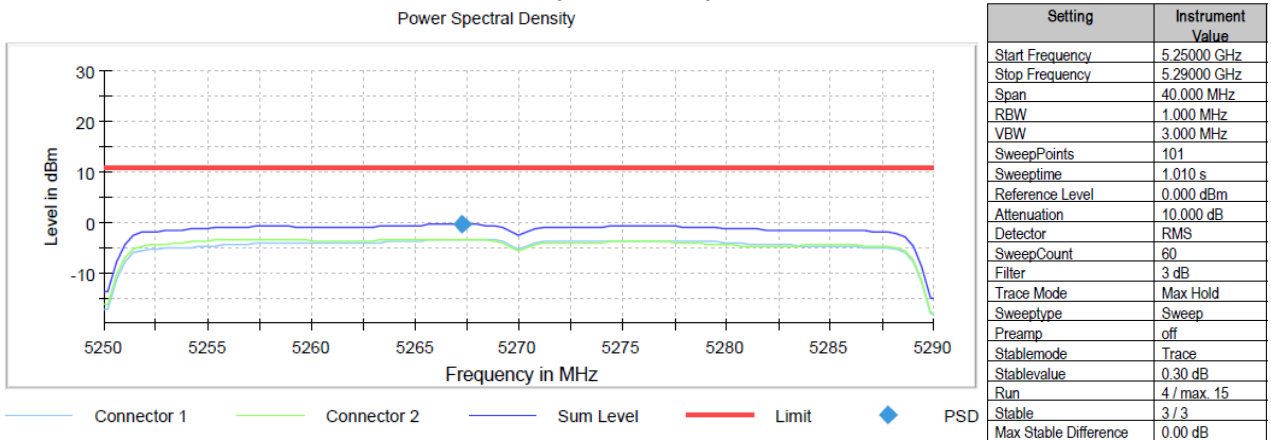
Radio Technology = WLAN ax 20 MHz MIMO, Operating Frequency = low, Subband = U-NII-2A
(S01_AH03)



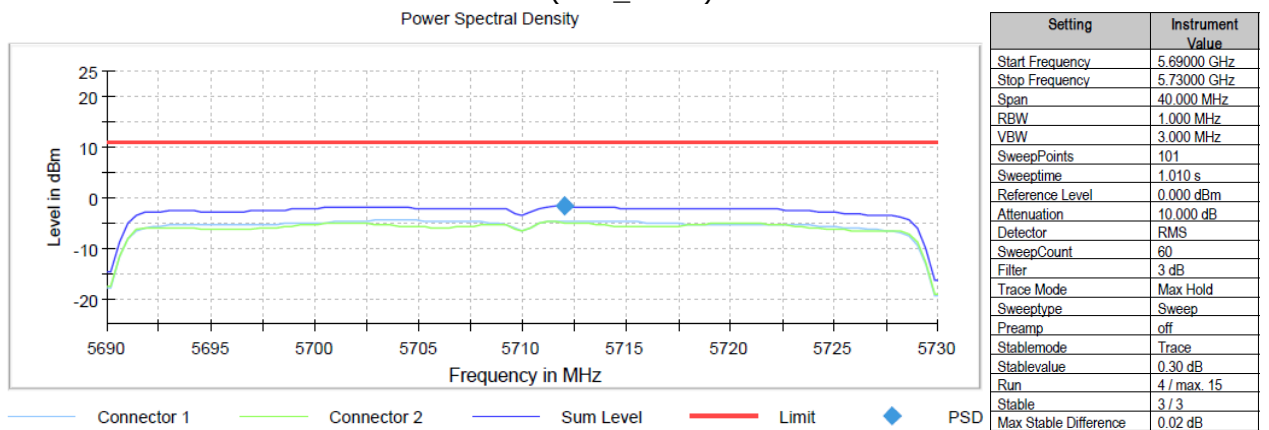
Radio Technology = WLAN ax 20 MHz MIMO, Operating Frequency = low,
Subband = U-NII-2C
(S01_AH03)



Radio Technology = WLAN ax 40 MHz MIMO, Operating Frequency = low,
 Subband = U-NII-2A
 (S01_AH03)



Radio Technology = WLAN ax 40 MHz MIMO, Operating Frequency = high,
 Subband = U-NII-2C
 (S01_AH03)



5.5.5 TEST EQUIPMENT USED

- R&S TS8997

5.6 UNDESIRABLE EMISSIONS; GENERAL FIELD STRENGTH LIMITS

Standard **FCC Part 15 Subpart E**

The test was performed according to:

ANSI C63.10, chapter 6.4, 6.5, 6.6.5

5.6.1 TEST DESCRIPTION

The test set-up was made in accordance with the general provisions of ANSI C63.10 in a typical installation configuration. The measurements were performed according to the following sub-chapters of ANSI C63.10:

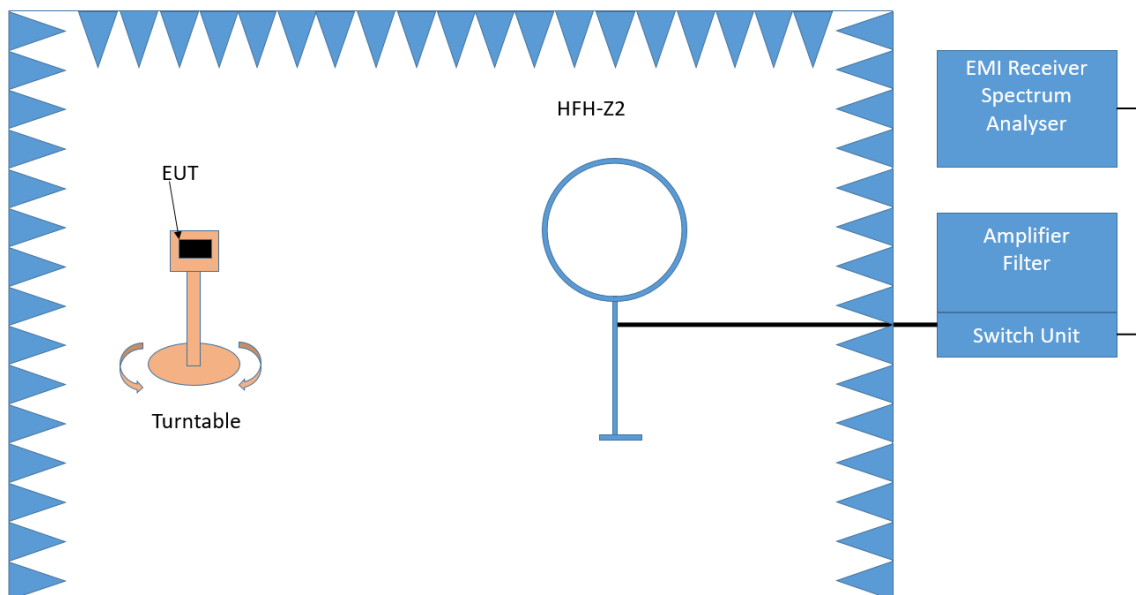
- < 30 MHz: Chapter 6.4
- 30 MHz – 1 GHz: Chapter 6.5
- > 1 GHz: Chapter 6.6 (procedure according 6.6.5 used)

The measurement procedure is implemented into the EMI test software EMC32 from R&S. Exploratory tests are performed at 3 orthogonal axes to determine the worst-case orientation of a body-worn or handheld EUT. The final test on all kind of EUTs is also performed at 3 axes. A pre-check is performed while the EUT is powered.

Below 1 GHz:

The Equipment Under Test (EUT) was set up on a non-conductive table in the semi-anechoic chamber. The influence of the EUT support table that is used between 30–1000 MHz was evaluated.

1. Measurement up to 30 MHz



Test Setup; Spurious Emission Radiated (SAC), 9 kHz – 30 MHz

The Loop antenna HFH2-Z2 is used.

Step 1: pre measurement

- Anechoic chamber
- Antenna distance: 3 m
- Detector: Peak-Maxhold
- Frequency range: 0.009 - 0.15 MHz and 0.15 – 30 MHz
- Frequency steps: 0.05 kHz and 2.25 kHz
- IF-Bandwidth: 0.2 kHz and 9 kHz
- Measuring time / Frequency step: 100 ms (FFT-based)

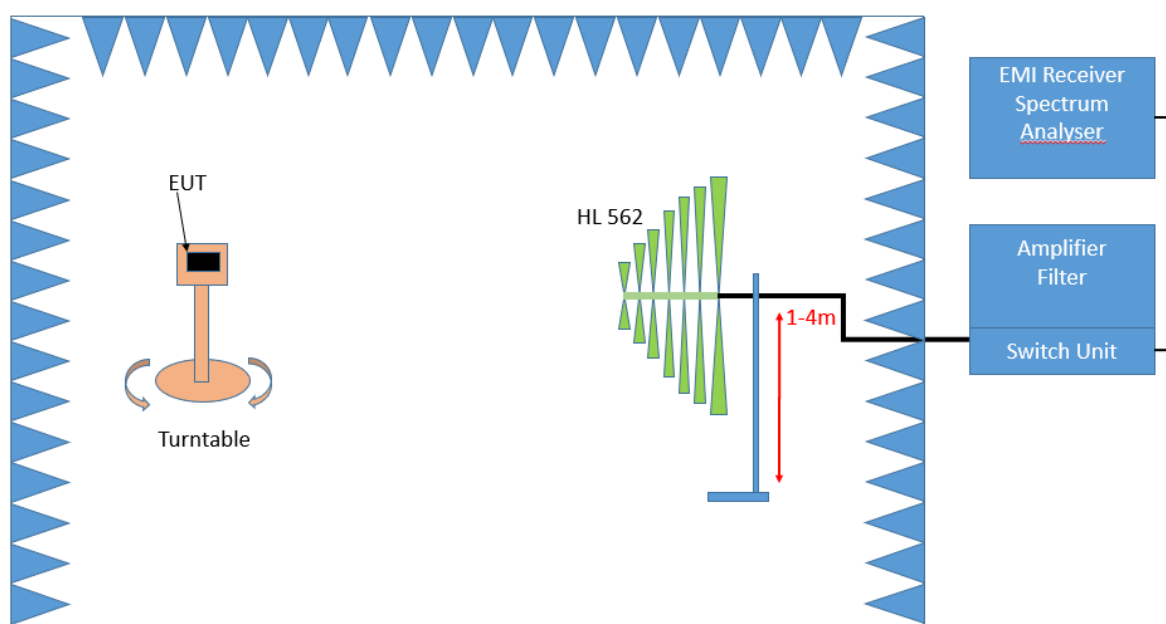
Intention of this step is, to determine the radiated EMI-profile of the EUT. Afterwards the relevant emissions for the final measurement are identified.

Step 2: final measurement

For the relevant emissions determined in step 1, an additional measurement with the following settings will be performed. Intention of this step is to find the maximum emission level.

- Open area test side
- Antenna distance: according to the Standard
- Detector: Quasi-Peak
- Frequency range: 0.009 – 30 MHz
- Frequency steps: measurement at frequencies detected in step 1
- IF-Bandwidth: 0.2 - 10 kHz
- Measuring time / Frequency step: 1 s

2. Measurement above 30 MHz and up to 1 GHz



Test Setup; Spurious Emission Radiated (SAC), 30 MHz- 1GHz

Step 1: Preliminary scan

This is a preliminary test to identify the highest amplitudes relative to the limit.

Settings for step 1:

- Antenna distance: 3 m
- Detector: Peak-Maxhold / Quasipeak (FFT-based)
- Frequency range: 30 – 1000 MHz
- Frequency steps: 30 kHz
- IF-Bandwidth: 120 kHz
- Measuring time / Frequency step: 100 ms
- Turntable angle range: –180° to 90°

- Turntable step size: 90°
- Height variation range: 1 – 4 m
- Height variation step size: 1.5 m
- Polarisation: Horizontal + Vertical

Intention of this step is, to determine the radiated EMI-profile of the EUT. Afterwards the relevant emissions for the final measurement are identified.

Step 2: Adjustment measurement

In this step the accuracy of the turntable azimuth and antenna height will be improved. This is necessary to find out the maximum value of every frequency.

For each frequency, which was determined the turntable azimuth and antenna height will be adjusted. The turntable azimuth will slowly vary by 360°. During this action, the value of emission is continuously measured. The turntable azimuth at the highest emission will be recorded and adjusted. In this position, the antenna height will also slowly vary by 1 – 4 meter. During this action, the value of emission is also continuously measured. The antenna height of the highest emission will also be recorded and adjusted.

- Detector: Peak – Maxhold
- Measured frequencies: in step 1 determined frequencies
- IF – Bandwidth: 120 kHz
- Measuring time: 100 ms
- Turntable angle range: 360 °
- Height variation range: 1 – 4 m
- Antenna Polarisation: max. value determined in step 1

Step 3: Final measurement with QP detector

With the settings determined in step 2, the final measurement will be performed:

EMI receiver settings for step 3:

- Detector: Quasi-Peak (< 1 GHz)
- Measured frequencies: in step 1 determined frequencies
- IF – Bandwidth: 120 kHz
- Measuring time: 1 s

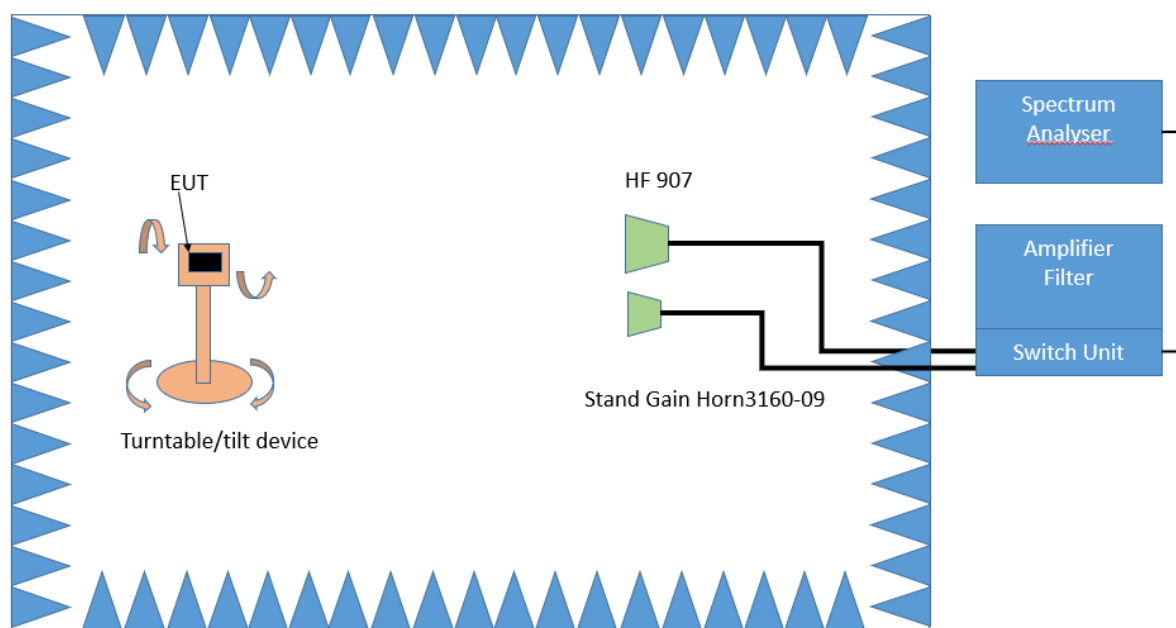
After the measurement a plot will be generated which contains a diagram with the results of the preliminary scan and a chart with the frequencies and values of the results of the final measurement.

Above 1 GHz:

The Equipment Under Test (EUT) was set up on a non-conductive support (tilt device) at 1.5 m height in the fully-anechoic chamber.

All steps were performed with one height (1.5 m) of the receiving antenna only.

3. Measurement 1 GHz up to 26.5 GHz



Test Setup; Spurious Emission Radiated (FAC), 1 GHz-26.5 GHz

Step 1:

The Equipment Under Test (EUT) was set up on a non-conductive support (tilt device) at 1.5 m height in the fully-anechoic chamber.

All steps were performed with one height (1.5 m) of the receiving antenna only.

The EUT is turned during the preliminary measurement across the elevation axis, with a step size of 90 °.

The turn table step size (azimuth angle) for the preliminary measurement is 45 °.

Step 2:

Due to the fact, that in this frequency range the test is performed in a fully anechoic room, the height scan of the receiving antenna instep 2 is omitted. Instead of this, a maximum search with a step size $\pm 45^\circ$ for the elevation axis is performed.

The turn table azimuth will slowly vary by $\pm 22.5^\circ$.

The elevation angle will slowly vary by $\pm 45^\circ$

EMI receiver settings (for all steps):

- Detector: Peak, Average
- IF Bandwidth = 1 MHz

Step 3:

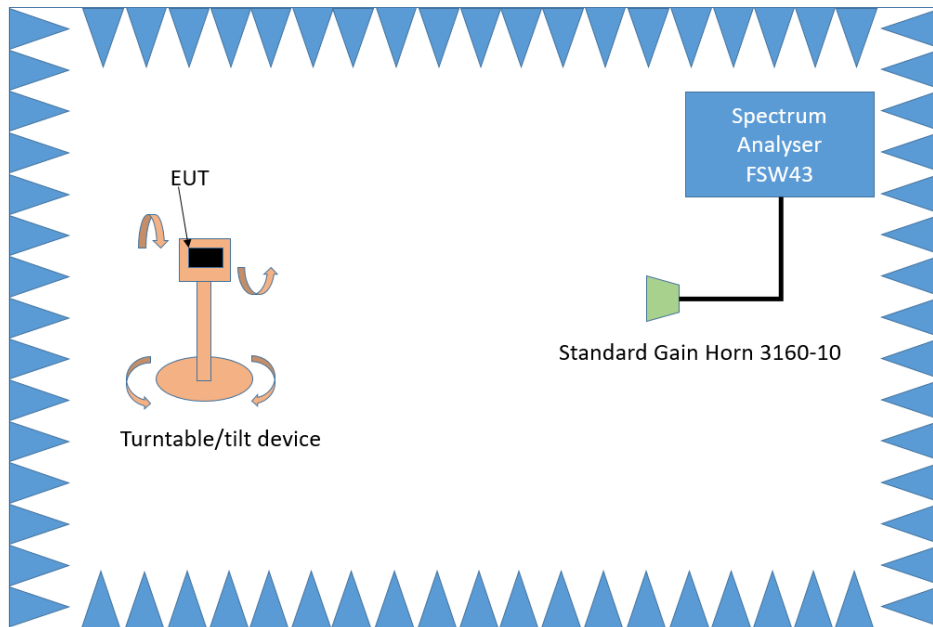
Spectrum analyser settings for step 3:

- Detector: Peak / Average
- Measured frequencies: in step 1 determined frequencies
- IF – Bandwidth: 1 MHz
- Measuring time: 1 s

4. Measurement above 26.5 GHz up to 40 GHz

The following modifications, compared to the frequency range 1 GHz – 26.5 GHz, apply to the measurement procedure for the frequency range above 26.5 GHz:

- Measurement distance: 1m



Test Setup; Spurious Emission Radiated (FAC), 26.5 – 40 GHz

5.6.2 TEST REQUIREMENTS / LIMITS

A) FCC

FCC Part 15 Subpart E, §15.407 (b)(1)

For transmitters operating in the 5150–5250 MHz band:

Limit: –27 dBm/MHz EIRP outside of the band 5150–5350 MHz.

FCC Part 15 Subpart E, §15.407 (b)(2)

For transmitters operating in the 5250–5350 MHz band:

Limit: –27 dBm/MHz EIRP outside of the band 5150–5350 MHz.

FCC Part 15 Subpart E, §15.407 (b)(3)

For transmitters operating in the 5470–5725 MHz band:

Limit: –27 dBm/MHz EIRP outside of the band 5470–5725 MHz.

FCC Part 15 Subpart E, §15.407 (b)(4)

For transmitters operating in the 5725–5850 MHz band:

Limit: –27 dBm/MHz at 75 MHz or more above or below the band edge
 increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge
 increasing linearly to 15.6 dBm/MHz at 5 MHz above or below the band edge
 increasing linearly to 27 dBm/MHz at the band edge.

FCC Part 15 Subpart E, §15.407 (b) (5)

For transmitters operating within the 5.925–7.125 GHz band:

Limit: –27 dBm/MHz EIRP outside of the band 5.925–7.125 GHz.

FCC Part 15 Subpart E, §15.407 (b) (6)

For transmitters operating within the 5.925-7.125 GHz bands:

Power spectral density must be suppressed by 20 dB at 1 MHz outside of channel edge, by 28 dB at one channel bandwidth from the channel center, and by 40 dB at one- and one-half times the channel bandwidth away from channel center. At frequencies between one megahertz outside an unlicensed device's channel edge and one channel bandwidth from the center of the channel, the limits must be linearly interpolated between 20 dB and 28 dB suppression, and at frequencies between one and one- and one-half times an unlicensed device's channel bandwidth, the limits must be linearly interpolated between 28 dB and 40 dB suppression. Emissions removed from the channel center by more than one- and one-half times the channel bandwidth must be suppressed by at least 40 dB.

B) IC

Different frequency bands and limits apply, as compared to the FCC requirements.

RSS-247, 6.2.1.2, Emissions outside the band 5150-5250 MHz, indoor operation only:

Limit: -27 dBm/MHz EIRP outside of the band 5150-5250 MHz.

RSS-247, 6.2.2.2, Emissions outside the band 5250-5350 MHz:

Limit: -27 dBm/MHz EIRP outside of the band 5250-5350 MHz.

RSS-247, 6.2.3.2, Emissions outside the bands 5470-5600 MHz and 5650-5725 MHz:

Limit: -27 dBm/MHz EIRP outside of the band 5470-5725 MHz.

However, devices with bandwidth overlapping the band edge of 5725 MHz can meet the emission limit of -27 dBm/MHz e.i.r.p.at 5850 MHz instead of 5725 MHz.

Note: No operation is permitted for the frequency range 5600-5650 MHz.

RSS-247, 6.2.4.2, Emissions outside the band 5725-5850 MHz:

- a. 27 dBm/MHz at frequencies from the band edges decreasing linearly to 15.6 Bm/MHz at 5 MHz above or below the band edges;
- b. 15.6 dBm/MHz at 5 MHz above or below the band edges decreasing linearly to 10 dBm/MHz at 25 MHz above or below the band edges;
- c. 10 dBm/MHz at 25 MHz above or below the band edges decreasing linearly to -27 dBm/MHz at 75 MHz above or below the band edges; and
- d. -27 dBm/MHz at frequencies more than 75 MHz above or below the band edges.

C) FCC & IC

FCC Part 15 Subpart E, §15.405

The provisions of §§ 15.203 and 15.205 are included.

§15.407 (b)(6)

Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in § 15.209.

§15.407 (b)(7)

The provisions of §15.205 apply to intentional radiators operating under this section

FCC Part 15, Subpart C, §15.209, Radiated Emission Limits

Frequency in MHz	Limit (µV/m)	Measurement distance (m)	Limits (dBµV/m)
0.009 - 0.49	2400/F(kHz)@300m	3	(48.5 - 13.8)@300m
0.49 - 1.705	24000/F(kHz)@30m	3	(33.8 - 23.0)@30m
1.705 - 30	30@30m	3	29.5@30m

The measured values are corrected with an inverse linear distance extrapolation factor (40 dB/decade) according FCC 15.31 (2).

Frequency in MHz	Limit ($\mu\text{V}/\text{m}$)	Measurement distance (m)	Limits ($\text{dB}\mu\text{V}/\text{m}$)
30 – 88	100@3m	3	40.0@3m
88 – 216	150@3m	3	43.5@3m
216 – 960	200@3m	3	46.0@3m
960 - 26000	500@3m	3	54.0@3m
26000 - 40000	500@3m	1	54.0@3m

The measured values above 26 GHz are corrected with an inverse linear distance extrapolation factor (20 dB/decade).

§15.35(b) ..., there is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit....

Used conversion factor:

- Limit ($\text{dB}\mu\text{V}/\text{m}$) = $20 \log (\text{Limit } (\mu\text{V}/\text{m})/1\mu\text{V}/\text{m})$
- Limit ($\text{dB}\mu\text{V}/\text{m}$) = $\text{EIRP [dBm]} - 20 \log (d [\text{m}]) + 104.8$

Limit types (in result tables):

RB – Emissions falls into a “Restricted Band” according FCC §§15.205 and 15.209 *)

UE – “Undesirable Emission Limit” according FCC §15.407

BE-RB – Band Edge Limit basing on “Restricted Band Limits”

BE-UE – Band Edge Limit basing on “Undesirable Emission Limit”

*) Below 1 GHz the limits of §15.209 are applied for all frequencies.

5.6.3 TEST PROTOCOL

Ambient temperature: 22 – 26 °C
 Air Pressure: 991 – 1023 hPa
 Humidity: 37 – 57 %

Conducted power settings for antenna gain ≤ 8.0 dBi (see chapter 4.6)

WLAN a-Mode, DIVERSITY 20 MHz; 6 Mbit/s
 Applied duty cycle correction (AV): 0.8 dB

Ch. No.	Ch. Center Freq. [MHz]	Spurious Freq. [MHz]	Spurious Level [dBμV/m]	Detector	RBW [kHz]	Limit [dBμV/m]	Margin [dB]	Limit Type
-	-	-	-	-	-	-	-	UE

WLAN n-Mode; 20 MHz; MCS 8; MIMO
 Applied duty cycle correction (AV): 0.5 dB

Ch. No.	Ch. Center Freq. [MHz]	Spurious Freq. [MHz]	Spurious Level [dBμV/m]	Detector	RBW [kHz]	Limit [dBμV/m]	Margin [dB]	Limit Type
56	5280	5375.9	44.2	AV	1000	54.0	9.8	RB
56	5280	5375.9	56.3	PEAK	1000	74.0	17.7	RB
56	5280	15820.7	40.7	AV	1000	54.0	13.3	RB
56	5280	15820.7	53.4	PEAK	1000	74.0	20.6	RB
64	5320	5351.4	42.8	AV	1000	54.0	11.2	RB
64	5320	5351.4	56.5	PEAK	1000	74.0	17.5	UE
56	5280	5375.9	44.2	AV	1000	54.0	9.8	RB

WLAN n-Mode; 40 MHz; MCS 8; MIMO
 Applied duty cycle correction (AV): 1.7 dB

Ch. No.	Ch. Center Freq. [MHz]	Spurious Freq. [MHz]	Spurious Level [dBμV/m]	Detector	RBW [kHz]	Limit [dBμV/m]	Margin [dB]	Limit Type
54	5270	15822.6	41.7	AV	1000	54.0	12.3	RB
54	5270	15822.6	52.7	PEAK	1000	74.0	21.3	RB
62	5310	714.9	35.9	QP	120	46.0	10.2	RB
62	5310	5350.9	49.5	AV	1000	54.0	4.5	RB
62	5310	5350.9	62.2	PEAK	1000	74.0	11.8	RB
62	5310	15842.2	42.3	AV	1000	54.0	11.7	RB
62	5310	15842.2	53.4	PEAK	1000	74.0	20.6	RB
102	5510	5458.7	47.7	AV	1000	54.0	6.3	RB
102	5510	5458.7	60.4	PEAK	1000	74.0	13.6	RB
102	5510	11025.8	35.0	AV	1000	54.0	19.0	RB
102	5510	11025.8	45.9	PEAK	1000	74.0	28.1	RB
110	5550	16700.1	45.3	AV	1000	68.2	22.9	UE
110	5550	16700.1	56.6	PEAK	1000	68.2	11.6	UE
110	5550	715.5	36.2	QP	100	46.0	9.8	UE
134	5670	5417.0	44.7	AV	1000	54.0	9.3	UE
134	5670	5417.0	55.9	PEAK	1000	74.0	18.1	UE
134	5670	5727.8	59.5	PEAK	1000	68.2	8.7	UE
134	5670	16706.2	56.5	PEAK	1000	68.2	11.7	UE

WLAN ac-Mode; 20 MHz; MCS 0; MIMO
 Applied duty cycle correction (AV): 0.7 dB

Ch. No.	Ch. Center Freq. [MHz]	Spurious Freq. [MHz]	Spurious Level [dBμV/m]	Detector	RBW [kHz]	Limit [dBμV/m]	Margin [dB]	Limit Type
-	-	-	-	-	-	-	-	UE

WLAN ac-Mode; 40 MHz; MCS 0; MIMO
Applied duty cycle correction (AV): 0.5 dB

Ch. No.	Ch. Center Freq. [MHz]	Spurious Freq. [MHz]	Spurious Level [dB μ V/m]	Detector	RBW [kHz]	Limit [dB μ V/m]	Margin [dB]	Limit Type
-	-	-	-	-	-	-	-	-

WLAN ax-Mode; 20 MHz; MCS 0; MIMO
Applied duty cycle correction (AV): 0.5 dB

Ch. No.	Ch. Center Freq. [MHz]	Spurious Freq. [MHz]	Spurious Level [dB μ V/m]	Detector	RBW [kHz]	Limit [dB μ V/m]	Margin [dB]	Limit Type
64	5320	5350.1	46.2	PEAK	1000	54.0	7.8	RB
64	5320	5350.1	60.2	AV	1000	74.0	13.8	RB

WLAN ax-Mode; 40 MHz; MCS 0; MIMO
Applied duty cycle correction (AV): 0.5 dB

Ch. No.	Ch. Center Freq. [MHz]	Spurious Freq. [MHz]	Spurious Level [dB μ V/m]	Detector	RBW [kHz]	Limit [dB μ V/m]	Margin [dB]	Limit Type
-	-	-	-	-	-	-	-	-

Conducted power settings for antenna gain > 8.0 dBi and \leq 9.0 dBi (see chapter 4.6)

WLAN a-Mode; 20 MHz; 6 Mbit/s
Applied duty cycle correction (AV): 0.1 dB

Ch. No.	Ch. Center Freq. [MHz]	Spurious Freq. [MHz]	Spurious Level [dB μ V/m]	Detector	RBW [kHz]	Limit [dB μ V/m]	Margin [dB]	Limit Type
64	5320	5351.9	63.5	PEAK	1000	74.0	-	RB
64	5320	5351.9	45.0	AV	1000	54.0	-	RB
100	5500	5452.2	55.1	PEAK	1000	74.0	-	UE
100	5500	5452.2	42.3	AV	1000	54.0	-	UE

Conducted power settings for antenna gain > 9.0 dBi and \leq 14.2 dBi (see chapter 4.6)

WLAN a-Mode; 20 MHz; 6 Mbit/s; DIVERSITY
Applied duty cycle correction (AV): 0.8 dB

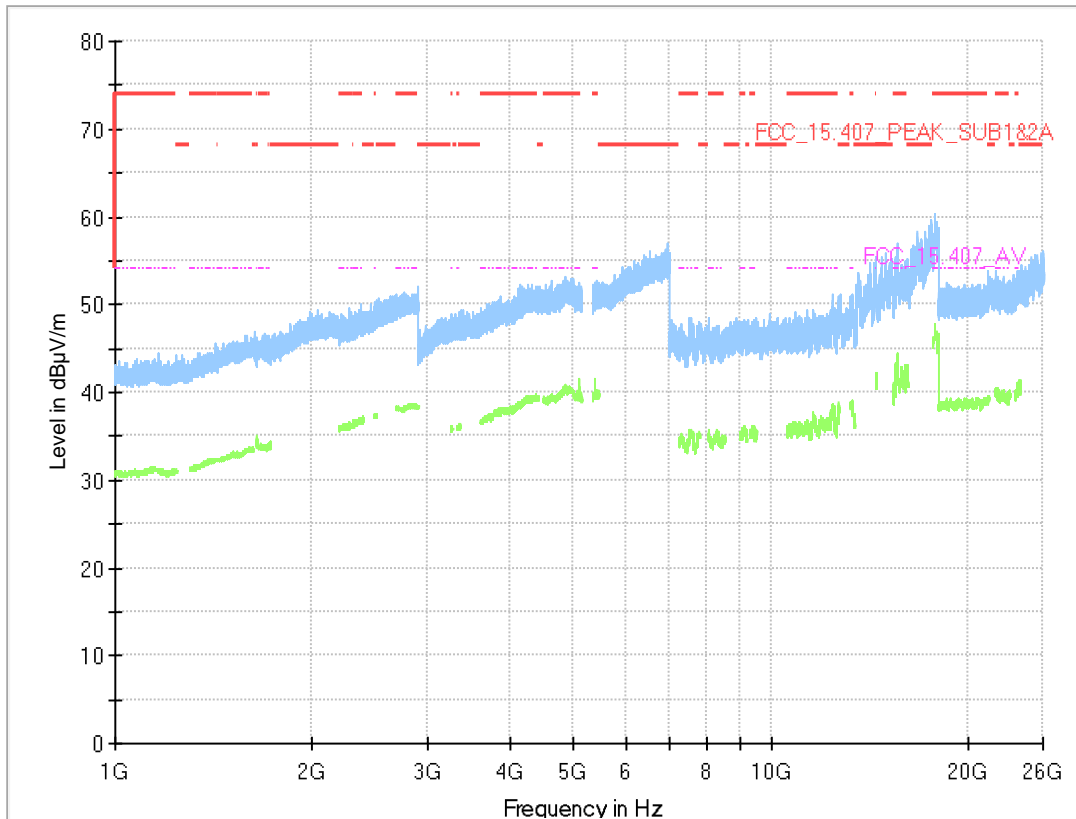
Ch. No.	Ch. Center Freq. [MHz]	Spurious Freq. [MHz]	Spurious Level [dB μ V/m]	Detector	RBW [kHz]	Limit [dB μ V/m]	Margin [dB]	Limit Type
64	5320	5352.0	44.1	AV	1000	54.0	9.9	RB
64	5320	5352.0	56.3	PEAK	1000	68.2	11.9	UE
100	5500	5459.2	55.6	PEAK	1000	74.0	18.4	RB
100	5500	5459.2	43.4	AV	1000	54.0	10.6	RB
100	5500	5469.6	55.9	PEAK	1000	68.2	12.3	UE
140	5700	5726.5	58.2	PEAK	1000	78.0	19.8	BE

Remark: Please see next sub-clause for the measurement plot.

5.6.4 MEASUREMENT PLOT (EXAMPLE PLOT, SHOWING WORST CASE, IF APPLICABLE)

Conducted power settings for antenna gain ≤ 8.0 dBi (see chapter 4.6)

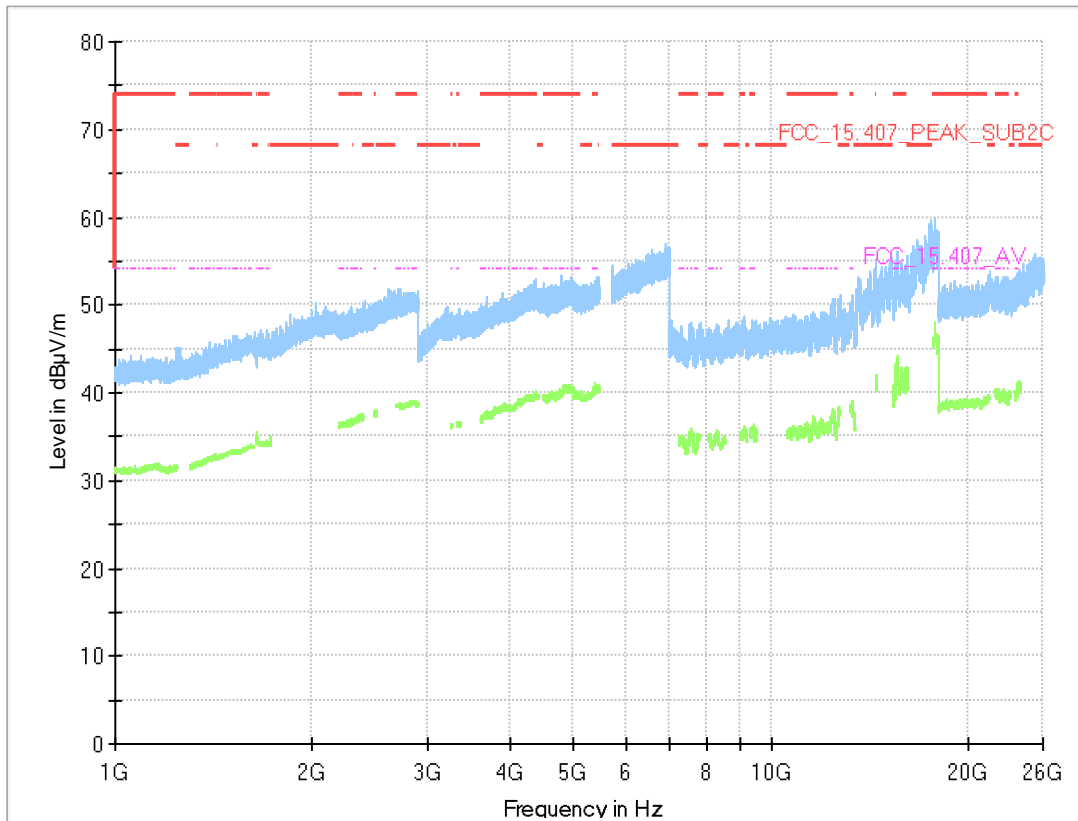
Radio Technology = WLAN a, Operating Frequency = mid, Measurement range = 1GHz - 26GHz, Subband = U-NII-2A (S04_AJ03)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
---	---	---	---	---	---	---	---	---	---	---	---

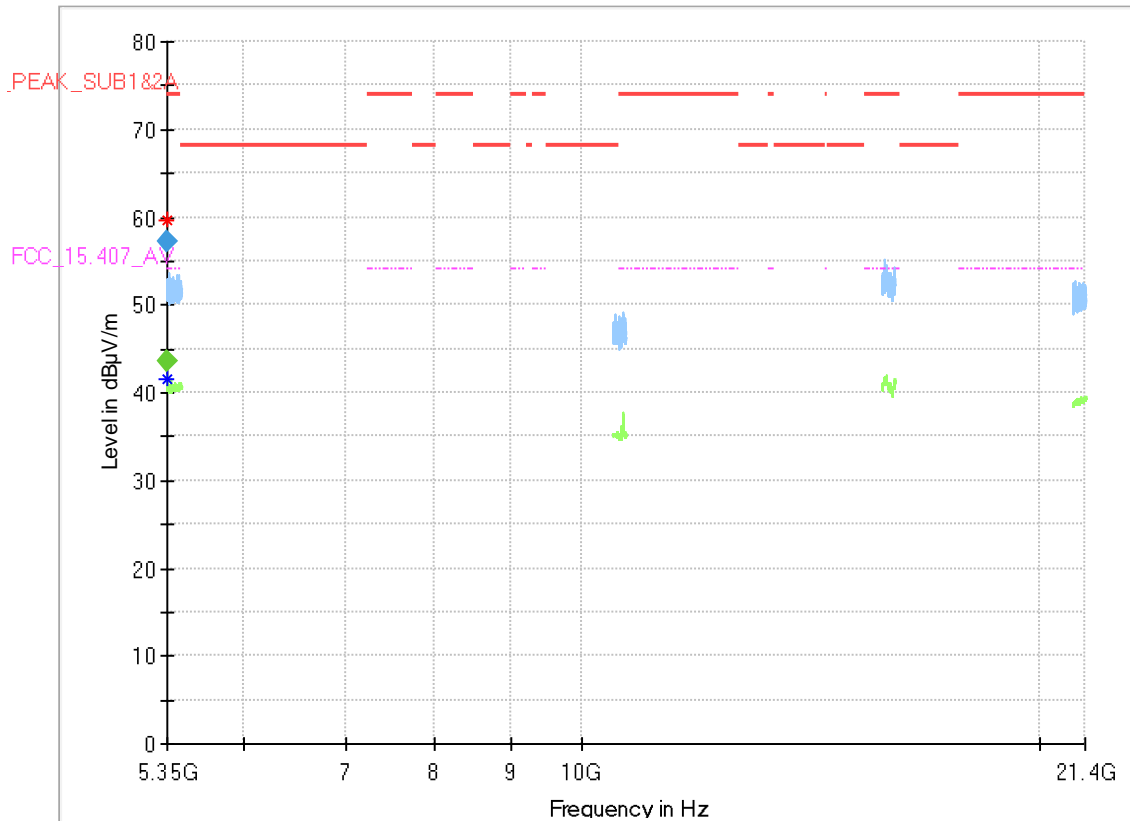
Radio Technology = WLAN a, Operating Frequency = high, Measurement range = 1GHz - 26GHz, Subband = U-NII-2C (S04_AJ03)



Final Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
---	---	---	---	---	---	---	---	---	---	---	---

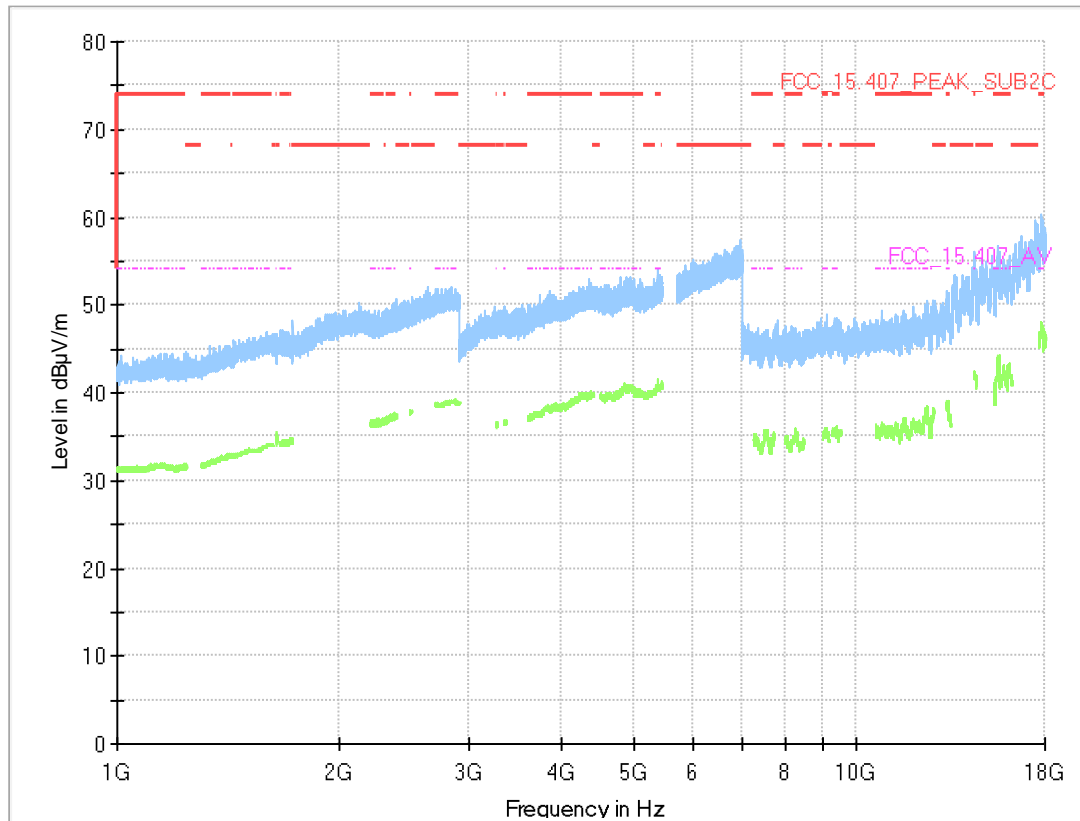
Radio Technology = WLAN ac 20 MHz MIMO, Operating Frequency = high, Measurement range = 1GHz - 26GHz, Subband = U-NII-2A (S04_AJ03)



Final Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
5350.000	---	43.6	54.00	10.43	1000.0	1000.000	150.0	H	-9.0	89.0	14.1
5350.000	57.2	---	74.00	16.85	1000.0	1000.000	150.0	H	-9.0	89.0	14.1

Radio Technology = WLAN ax 20 MHz MIMO, Operating Frequency = mid, Measurement range = 1GHz - 26GHz, Subband = U-NII-2C (S04_AJ03)



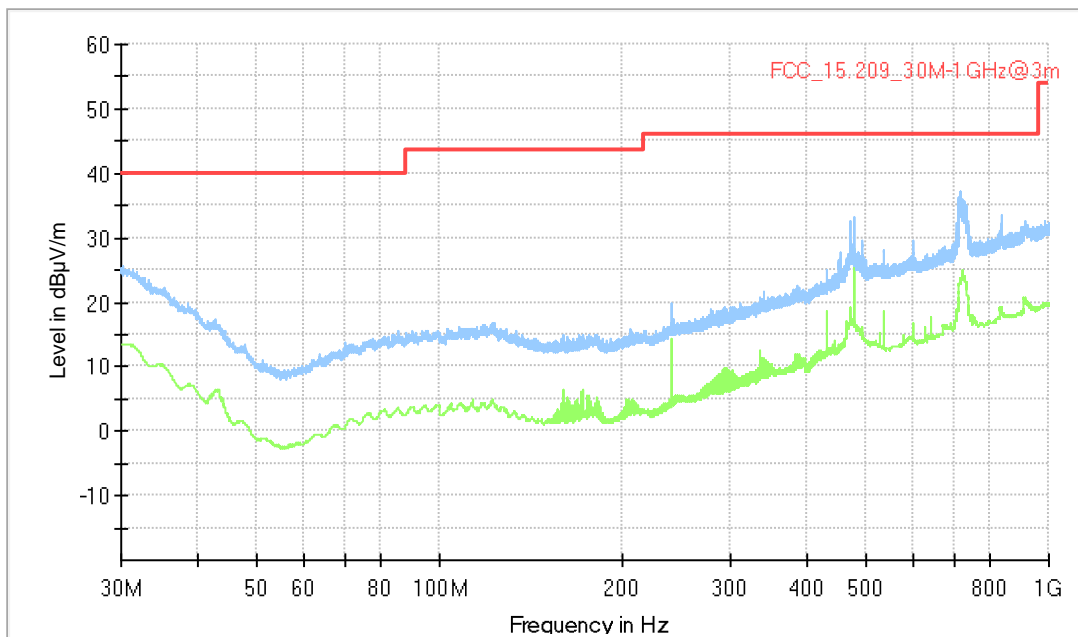
Final Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
---	---	---	---	---	---	---	---		---	---	---

Radio Technology = WLAN a, Operating Frequency = mid, Measurement range = 30MHz - 1GHz, Subband = U-NII-2A (S04_AJ03)

Common Information

Test Description: Radiated Emissions, Test Site: Semi Anechoic Chamber @ 3 m
 Test Standard: ANSI C63.10
 EUT / Setup Code: DE1039028aj03
 Operating Conditions: CH 56, 5280 MHz, a-mode, DIVERSITY, 18 dBm per chain
 Operator Name: HAE/GAL
 Comment:
 Legend: Trace (preview): blue = PK, green = QP; Star: red or blue = critical frequency; Rhombus: blue = final QP



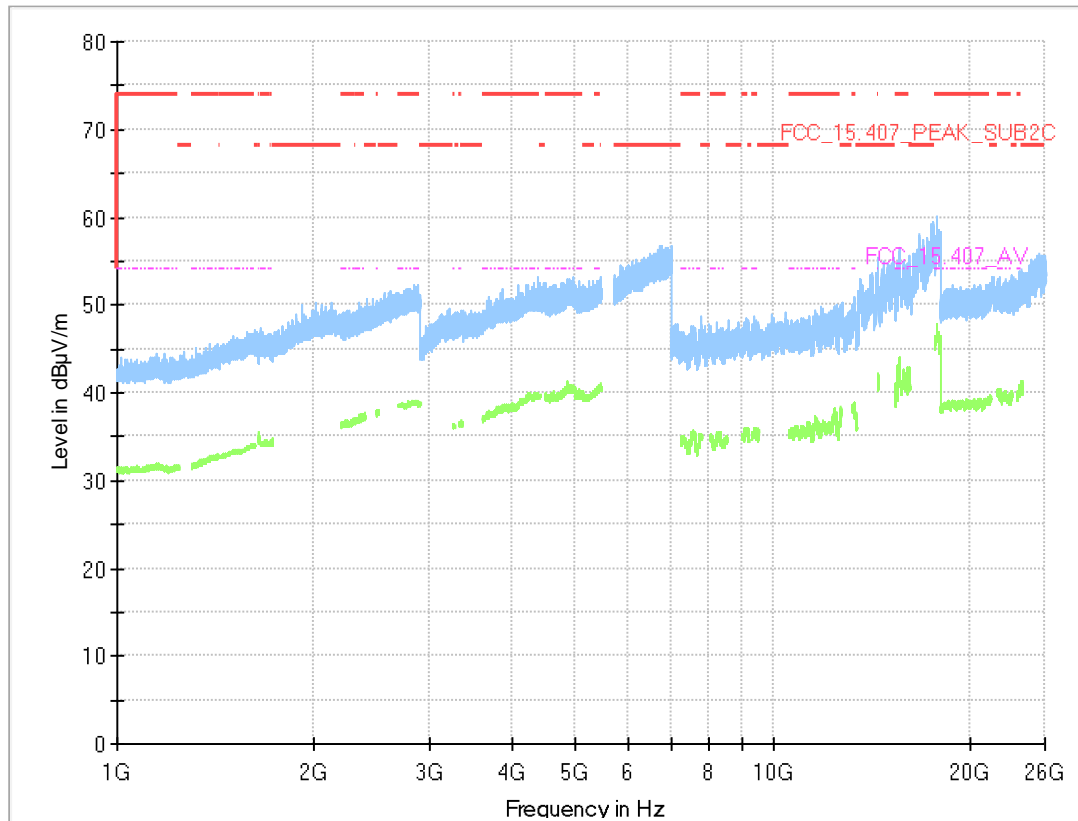
Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---	---	---		---	---

Radio Technology = WLAN n 40 MHz MIMO, Operating Frequency = mid, Measurement range = 26GHz - 40GHz, Subband = U-NII-2C (S04_AJ03)



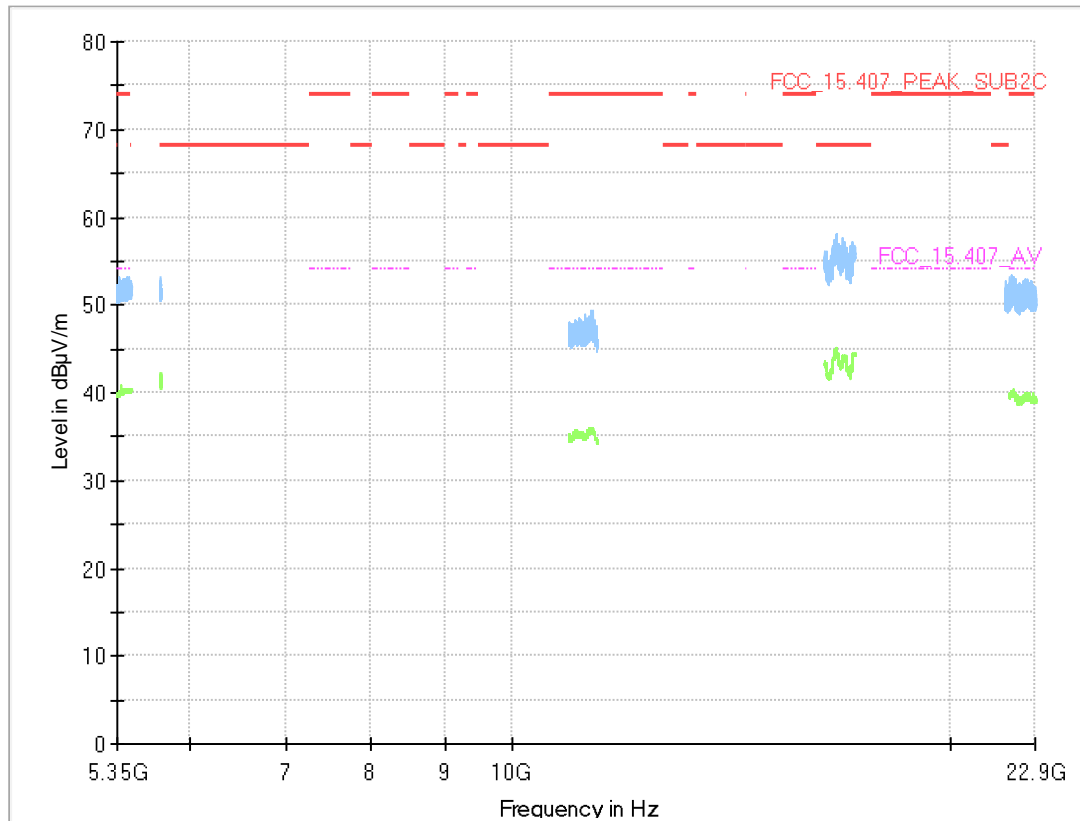
Radio Technology = WLAN a, Operating Frequency = mid, Measurement range = 1GHz - 26GHz, Subband = U-NII-2C (S04_AJ03)



Final Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
---	---	---	---	---	---	---	---	---	---	---	---

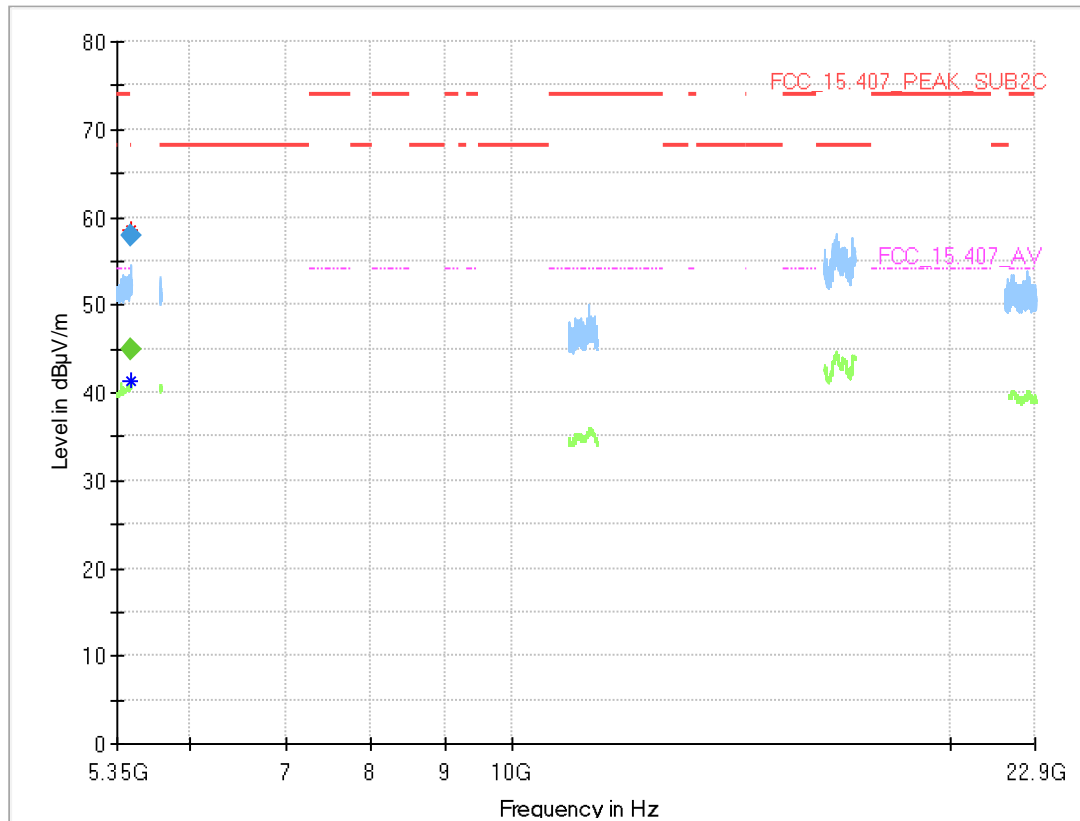
Radio Technology = WLAN n 20 MHz MIMO, Operating Frequency = high, Measurement range = 1GHz - 26GHz, Subband = U-NII-2C (S04_AJ03)



Final Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
---	---	---	---	---	---	---	---		---	---	---

Radio Technology = WLAN ac 20 MHz MIMO, Operating Frequency = low, Measurement range = 1GHz - 26GHz, Subband = U-NII-2C (S04_AJ03)

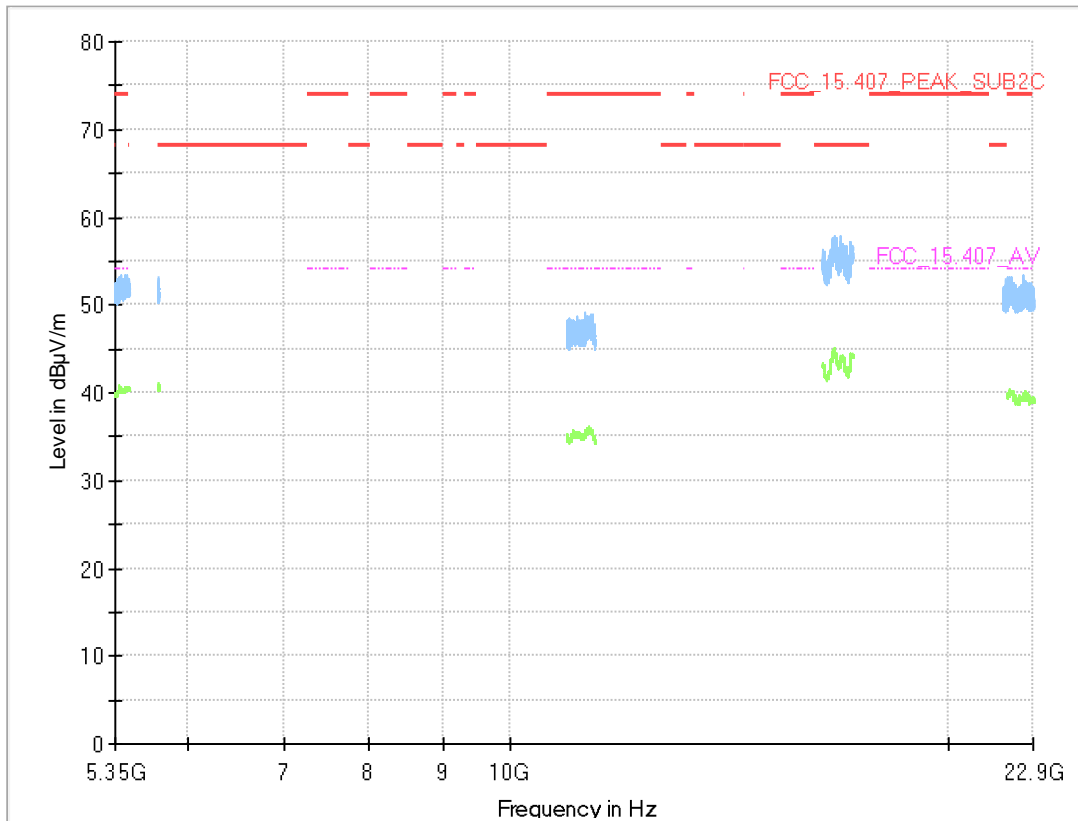


Final Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
5468.080	---	45.0	---	---	1000.0	1000.000	150.0	V	-182.0	-12.0	14.5
5468.080	57.9	---	68.20	10.26	1000.0	1000.000	150.0	V	-182.0	-12.0	14.5

Comment: These results can be found in the band edge result chapter

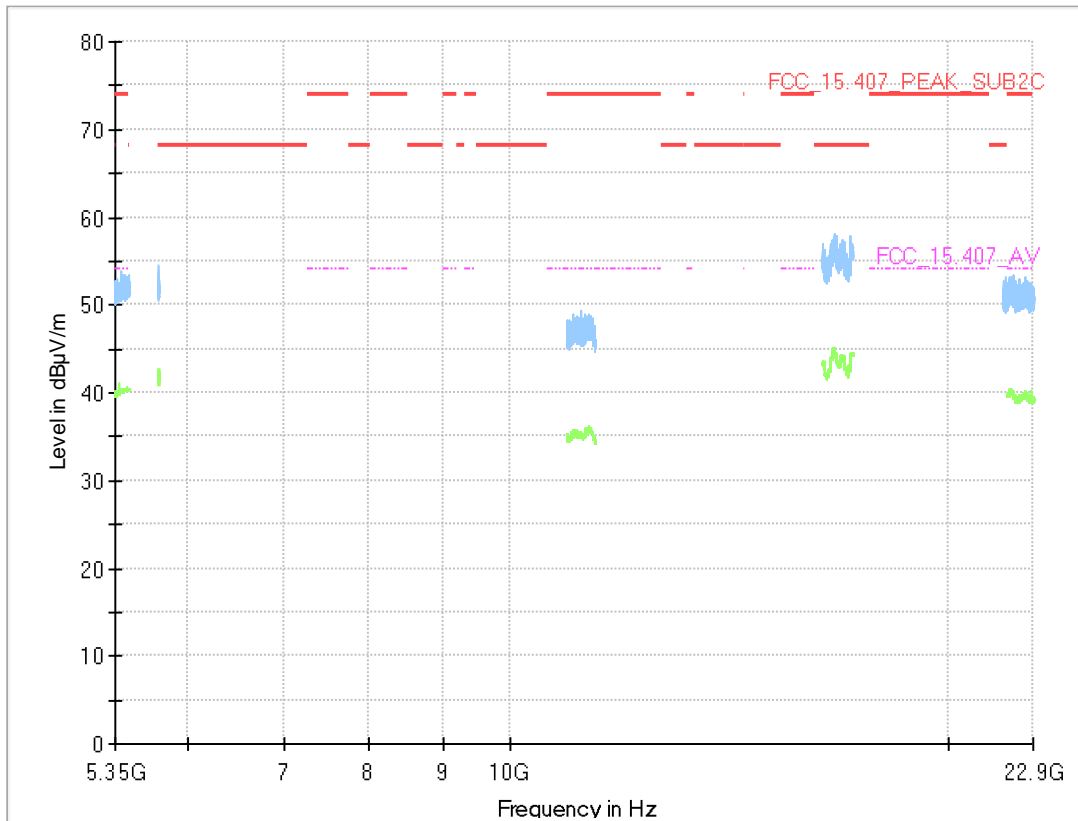
Radio Technology = WLAN ac 20 MHz MIMO, Operating Frequency = mid, Measurement range = 1GHz - 26GHz, Subband = U-NII-2C (S04_AJ03)



Final Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
---	---	---	---	---	---	---	---		---	---	---

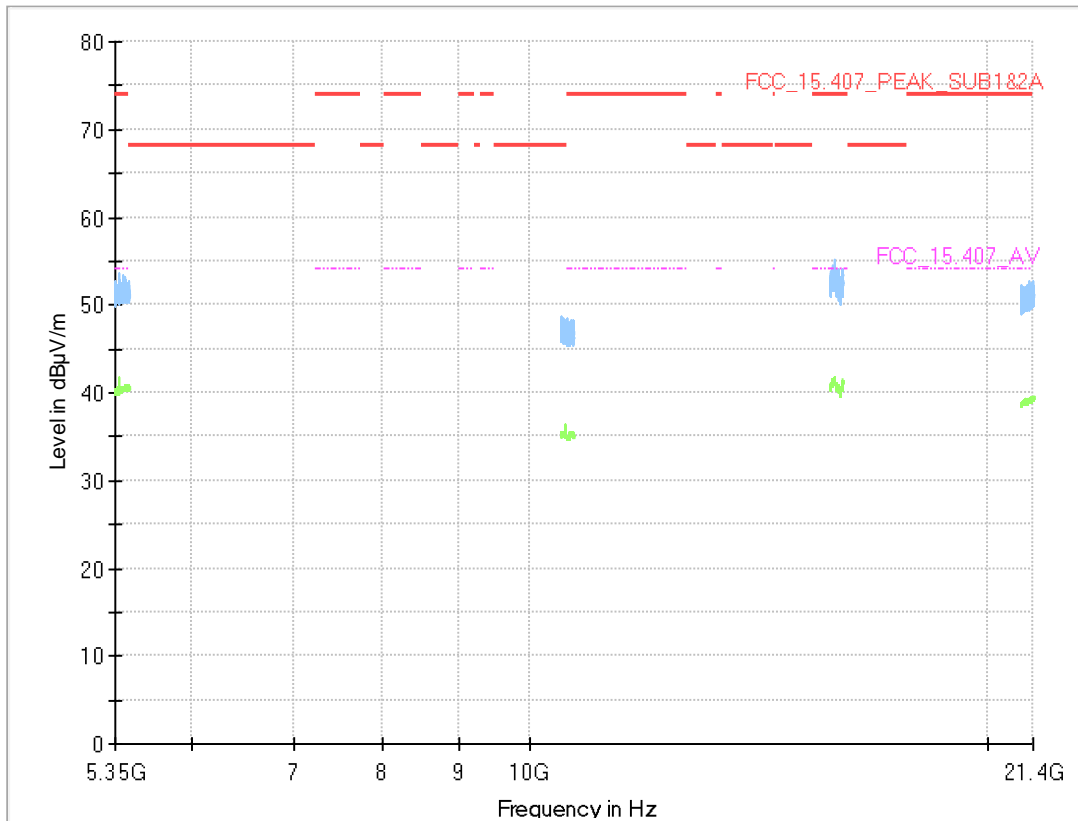
Radio Technology = WLAN ac 20 MHz MIMO, Operating Frequency = high, Measurement range = 1GHz - 26GHz, Subband = U-NII-2C (S04_AJ03)



Final Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
---	---	---	---	---	---	---	---		---	---	---

Radio Technology = WLAN ac 20 MHz MIMO, Operating Frequency = mid, Measurement range = 1GHz - 26GHz, Subband = U-NII-2A (S04_AJ03)



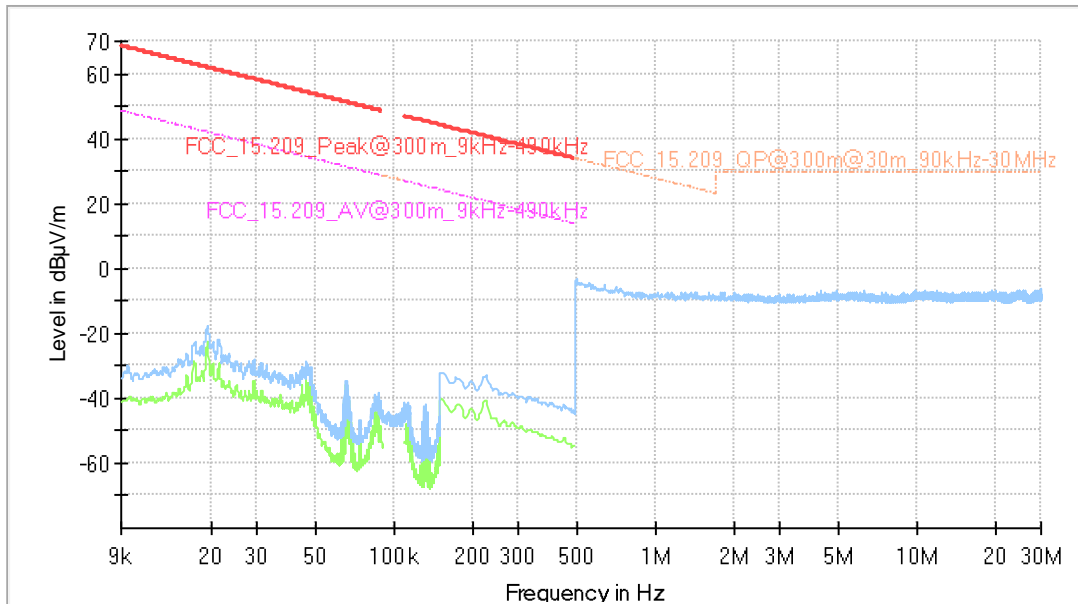
Final Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
---	---	---	---	---	---	---	---	---	---	---	---

Radio Technology = WLAN a, DIVERSITY, Operating Frequency = high, Measurement range = 9kHz - 30MHz, Subband = U-NII-2C (S04_AJ03)

Common Information

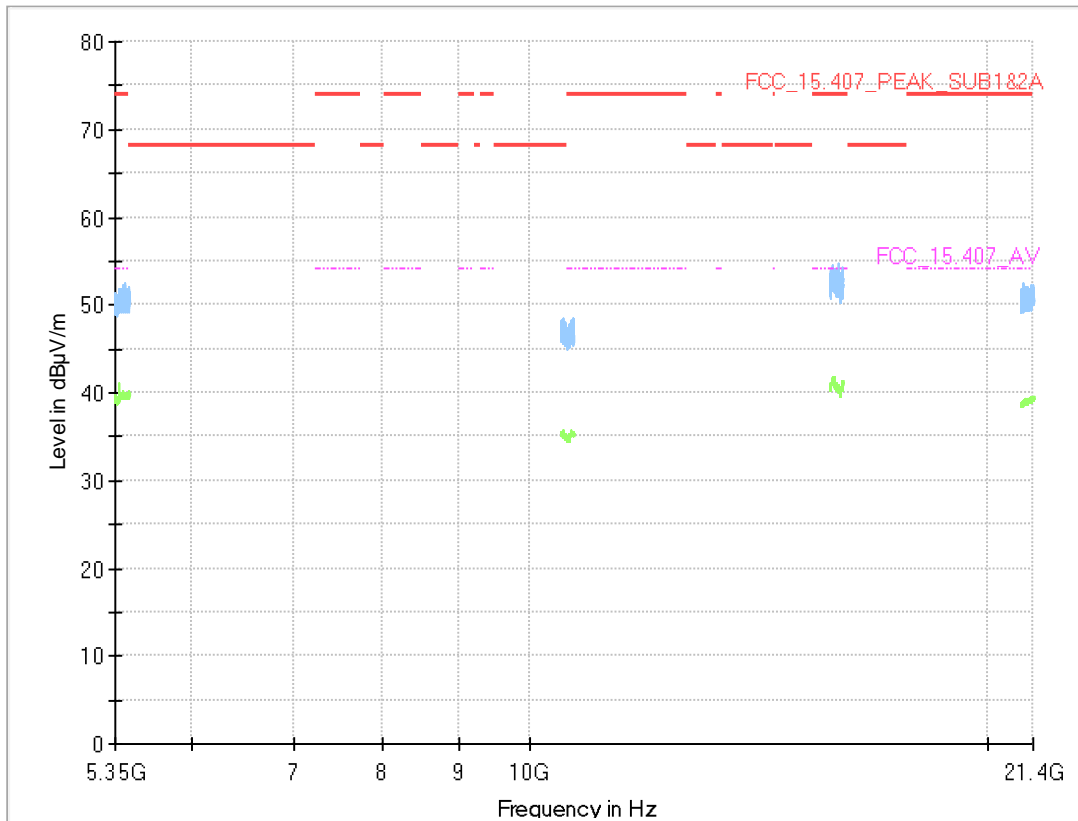
Test Description:	Radiated Emissions, Test Site: Semi Anechoic Chamber @ 3 m
Test Standard:	ANSI 63.10
EUT / Setup Code:	DE1039028aj03
Operating Conditions:	CH 140, 5700 MHz, WLAN a-Mode, DIVERSITY, 18 dBm per Chain
Operator Name:	
Comment:	
x-Orientation (indicate h=100)	loop plane vertical, vector in measurement axis directed to EUT
y-Orientation (indicate h=200)	loop plane vertical, vector perpendicular to measurement axis
z-Orientation (indicate h=300)	loop plane horizontal, normal vector directed to ground
Legend:	Trace: blue = Peak; green = AV, Star = critical frequency; Rhombus: blue = final QP



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Azimuth h (deg)	Corr. (dB/m)
---	---	---	---	---	---	---	---	---	---

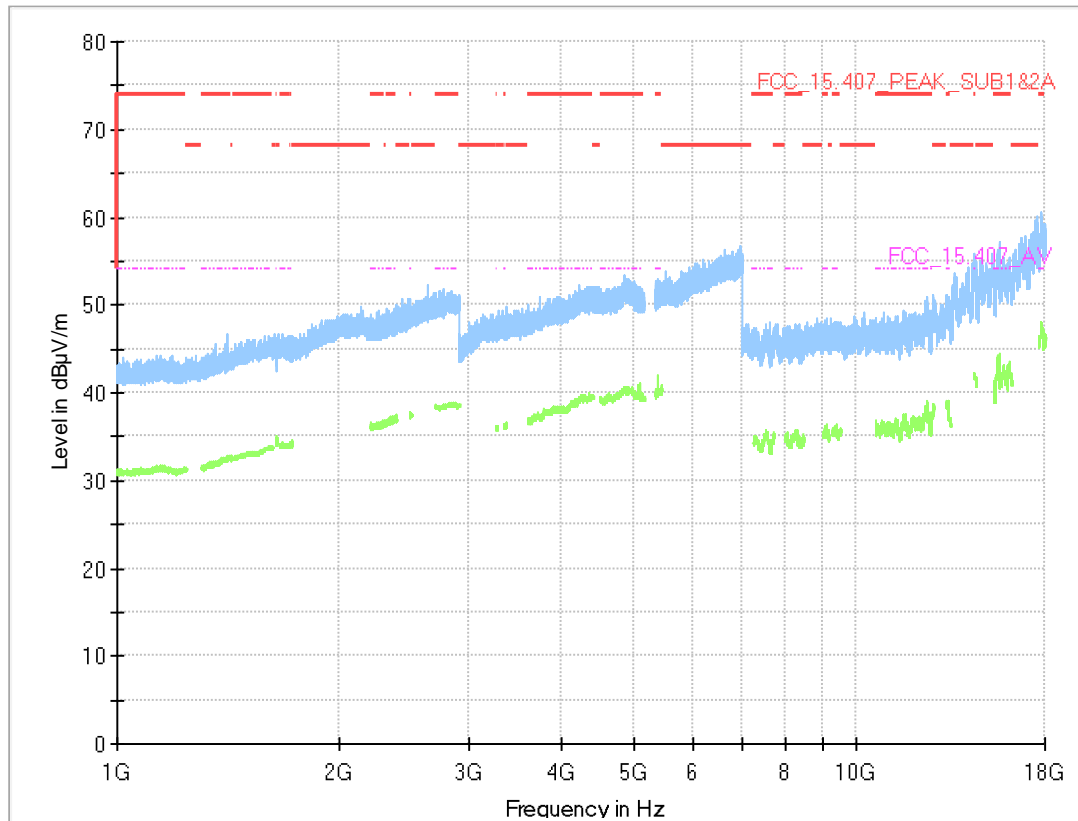
Radio Technology = WLAN n 20 MHz MIMO, Operating Frequency = low, Measurement range = 1GHz - 26GHz, Subband = U-NII-2A (S04_AJ03)



Final Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
---	---	---	---	---	---	---	---		---	---	---

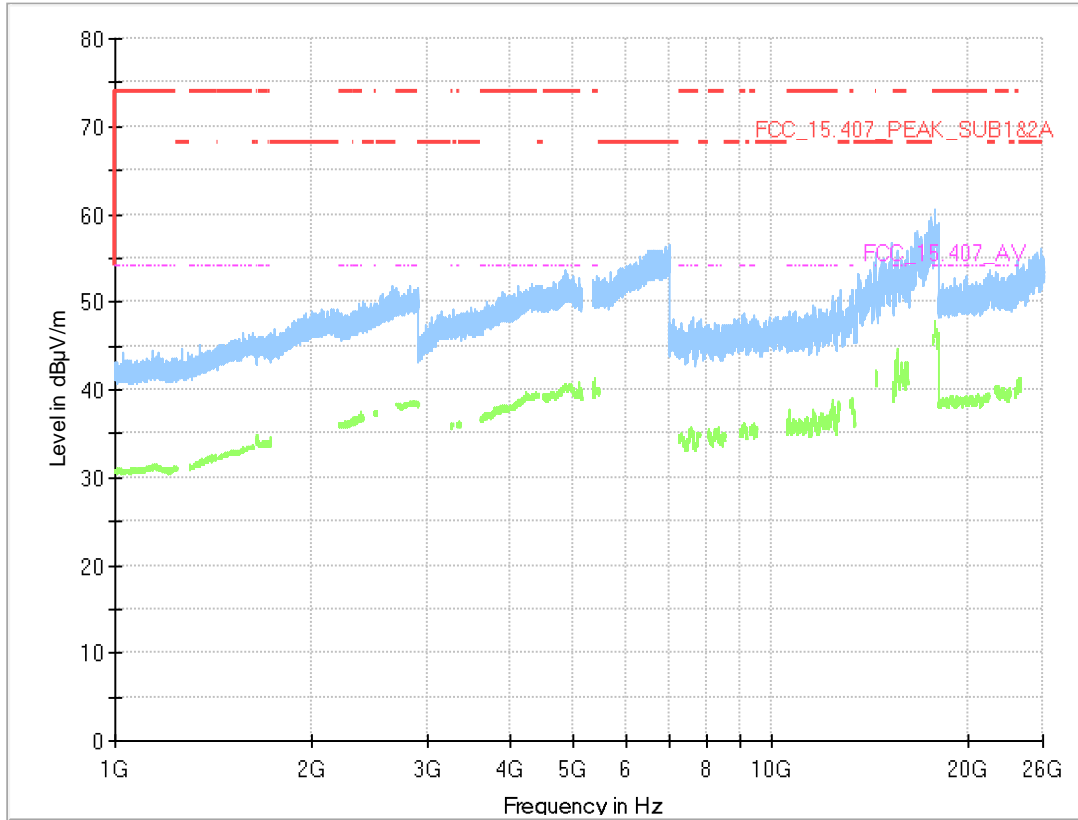
Radio Technology = WLAN ax 20 MHz MIMO, Operating Frequency = low, Measurement range = 1GHz - 26GHz, Subband = U-NII-2A (S04_AJ03)



Final Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
---	---	---	---	---	---	---	---		---	---	---

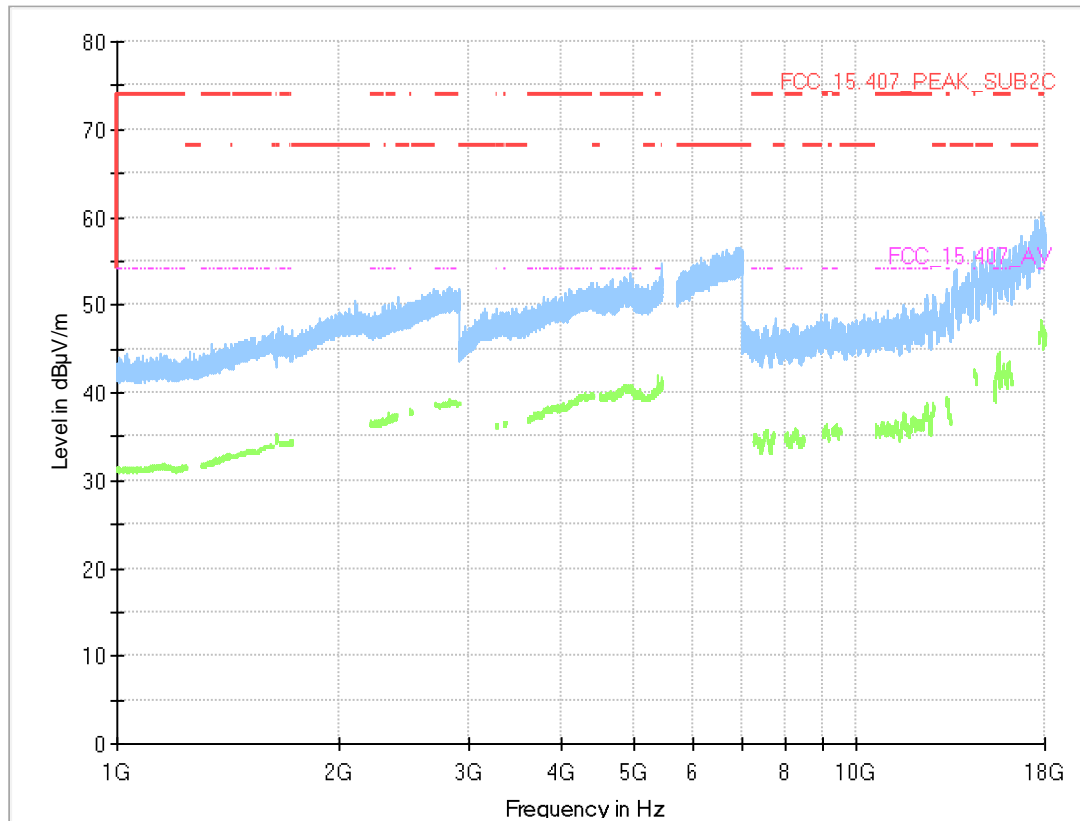
Radio Technology = WLAN a, Operating Frequency = high, Measurement range = 1GHz - 26GHz, Subband = U-NII-2A (S04_AJ03)



Final Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
---	---	---	---	---	---	---	---		---	---	---

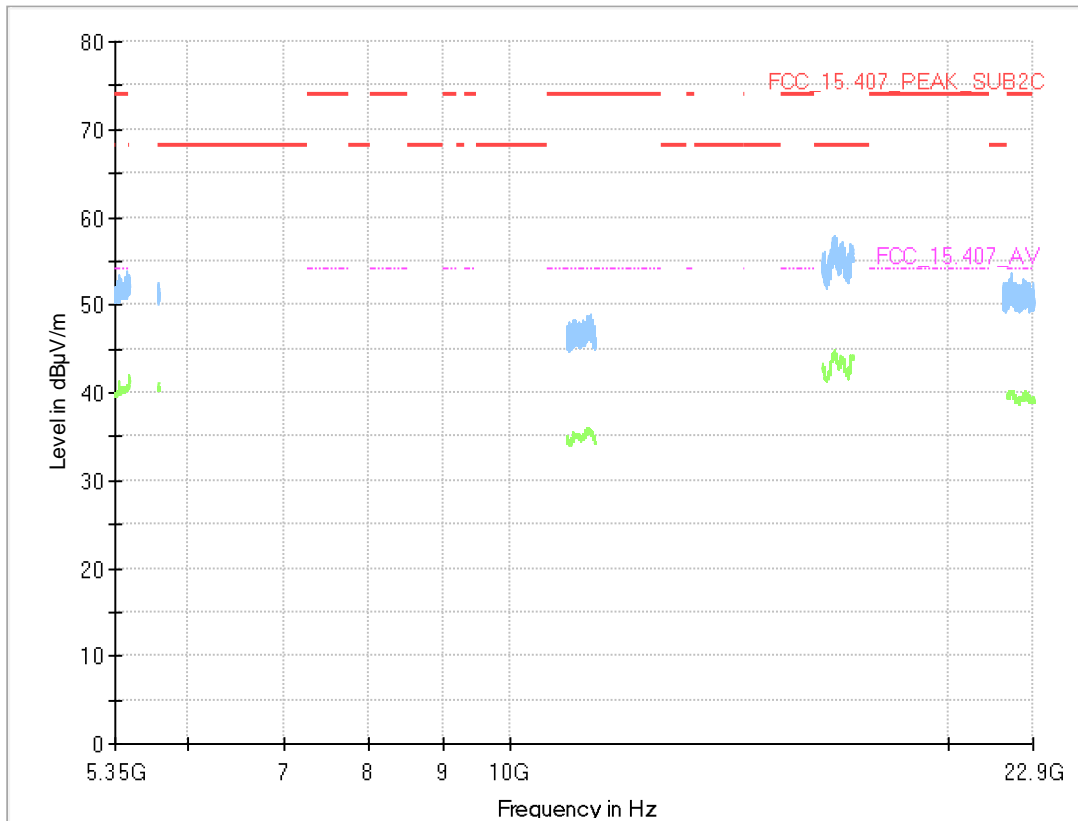
Radio Technology = WLAN ax 20 MHz MIMO, Operating Frequency = low, Measurement range = 1GHz - 26GHz, Subband = U-NII-2C (S04_AJ03)



Final Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
---	---	---	---	---	---	---	---	---	---	---	---

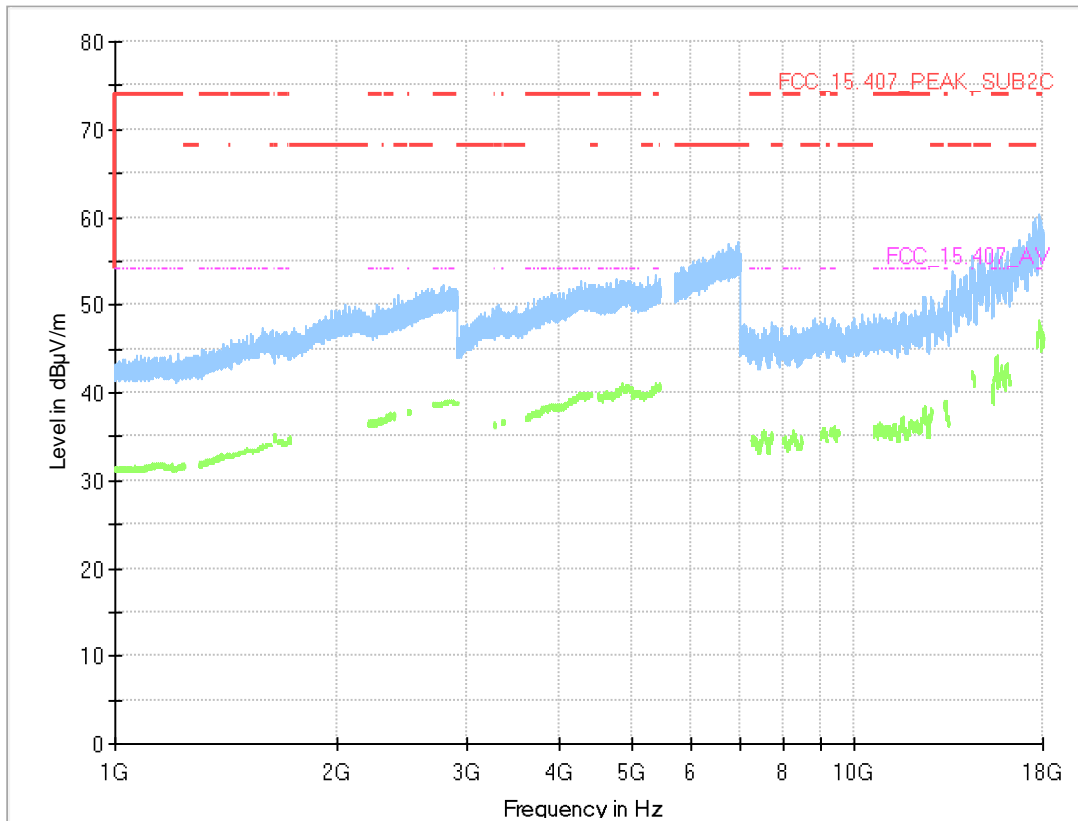
Radio Technology = WLAN n 20 MHz MIMO, Operating Frequency = low, Measurement range = 1GHz - 26GHz, Subband = U-NII-2C (S04_AJ03)



Final Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
---	---	---	---	---	---	---	---		---	---	---

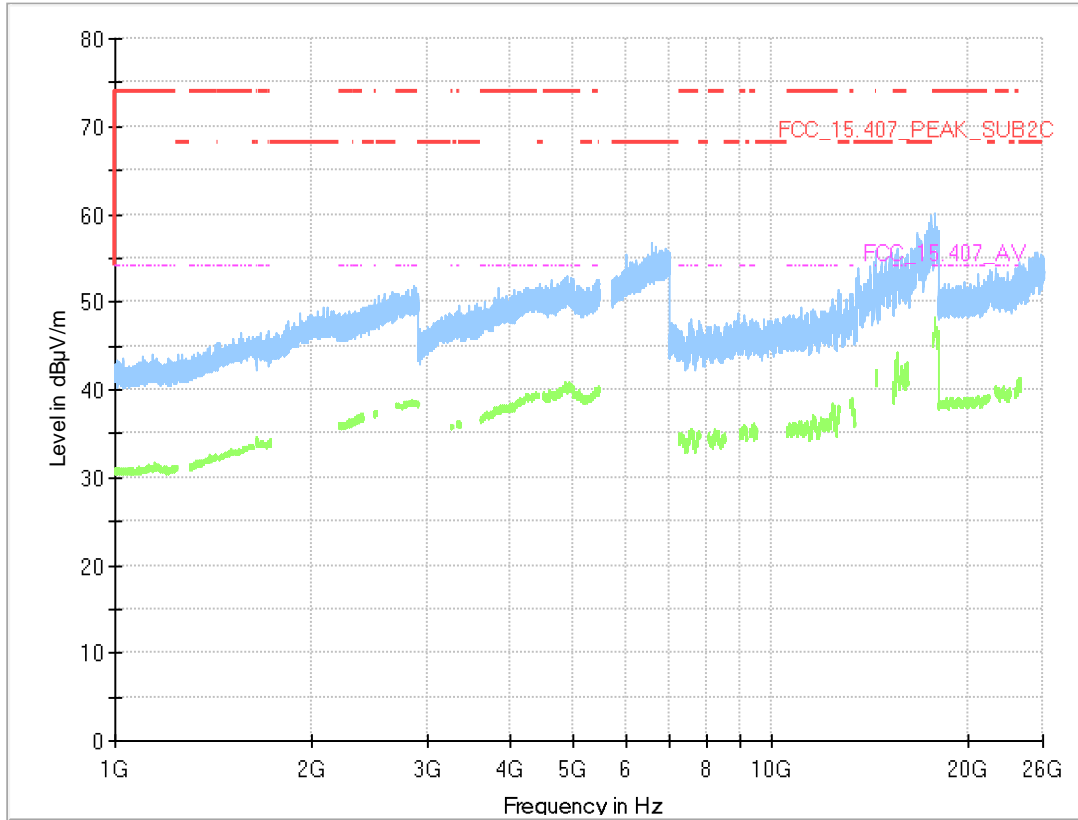
Radio Technology = WLAN ax 20 MHz MIMO, Operating Frequency = high, Measurement range = 1GHz - 26GHz, Subband = U-NII-2C (S04_AJ03)



Final Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
---	---	---	---	---	---	---	---	---	---	---	---

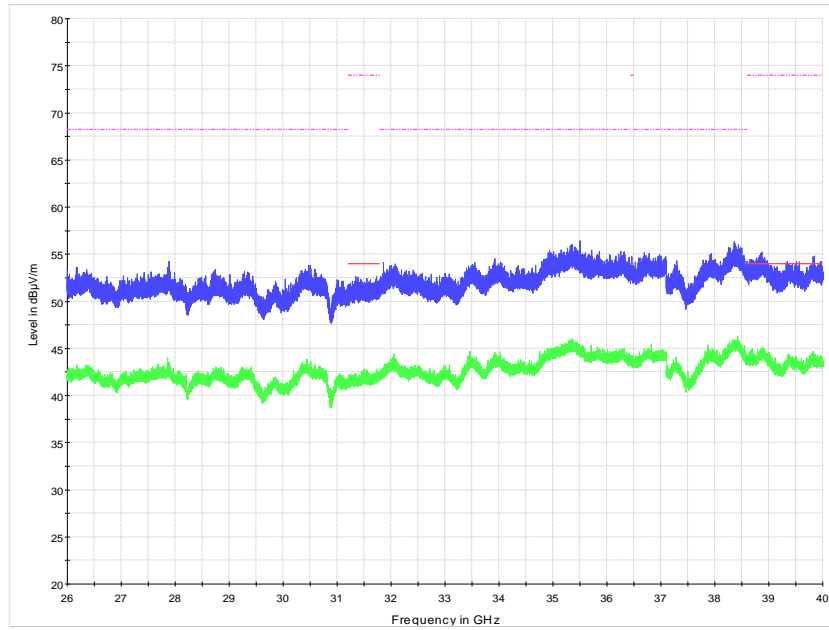
Radio Technology = WLAN a, Operating Frequency = low, Measurement range = 1GHz - 26GHz, Subband = U-NII-2C (S04_AJ03)



Final Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
---	---	---	---	---	---	---	---		---	---	---

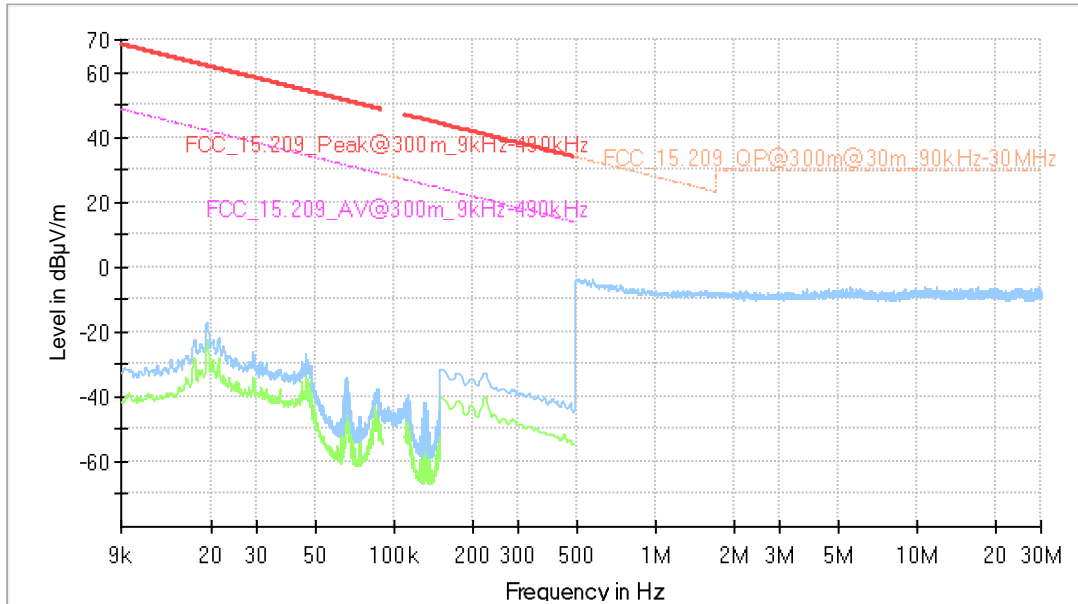
Radio Technology = WLAN n 40 MHz MIMO, Operating Frequency = high, Measurement range = 26GHz - 40GHz, Subband = U-NII-2A (S04_AJ03)



Radio Technology = WLAN n 40 MHz MIMO, Operating Frequency = high, Measurement range = 9kHz - 30MHz, Subband = U-NII-2C (S04_AJ03)

Common Information

Test Description: Radiated Emissions, Test Site: Semi Anechoic Chamber @ 3 m
 Test Standard: ANSI 63.10
 EUT / Setup Code: DE1039028aj03
 Operating Conditions: CH 134, 5670 MHz, n-mode, 40 MHz, MIMO, 18 dBm per chain
 Operator Name: HAE/GAL
 Comment:
 x-Orientation (indicate h=100) loop plane vertical, vector in measurement axis directed to EUT
 y-Orientation (indicate h=200) loop plane vertical, vector perpendicular to measurement axis
 z-Orientation (indicate h=300) loop plane horizontal, normal vector directed to ground
 Legend: Trace: blue = Peak; green = AV, Star = critical frequency; Rhombus: blue = final QP



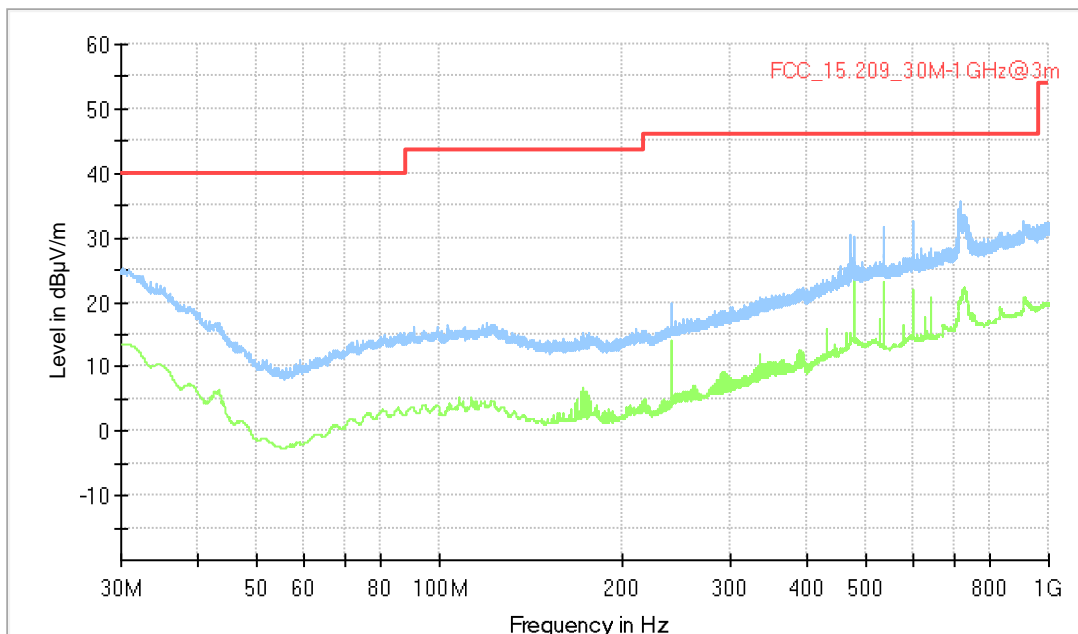
Final Result

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---	---	---	---	---	---

Radio Technology = WLAN a, DIVERSITY, Operating Frequency = mid, Measurement range = 30MHz - 1GHz, Subband = U-NII-2C (S04_AJ03)

Common Information

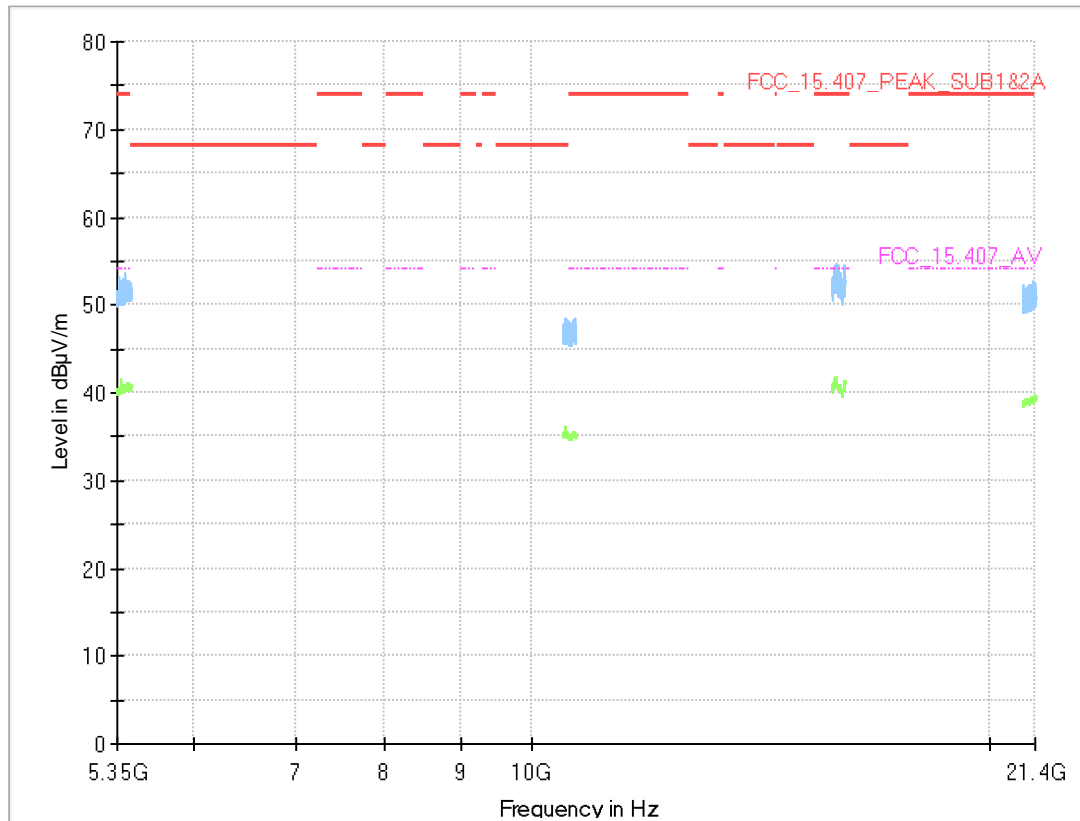
Test Description: Radiated Emissions, Test Site: Semi Anechoic Chamber @ 3 m
 Test Standard: ANSI C63.10
 EUT / Setup Code: DE1039028aj03
 Operating Conditions: CH 116, 5580 MHz, a-mode, DIVERSITY, 18 dBm per chain
 Operator Name: HAE/GAL
 Comment:
 Legend: Trace (preview): blue = PK, green = QP; Star: red or blue = critical frequency; Rhombus: blue = final QP



Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---	---	---		---	---

Radio Technology = WLAN ac 20 MHz MIMO, Operating Frequency = low, Measurement range = 1GHz - 26GHz, Subband = U-NII-2A (S04_AJ03)



Final Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
---	---	---	---	---	---	---	---		---	---	---