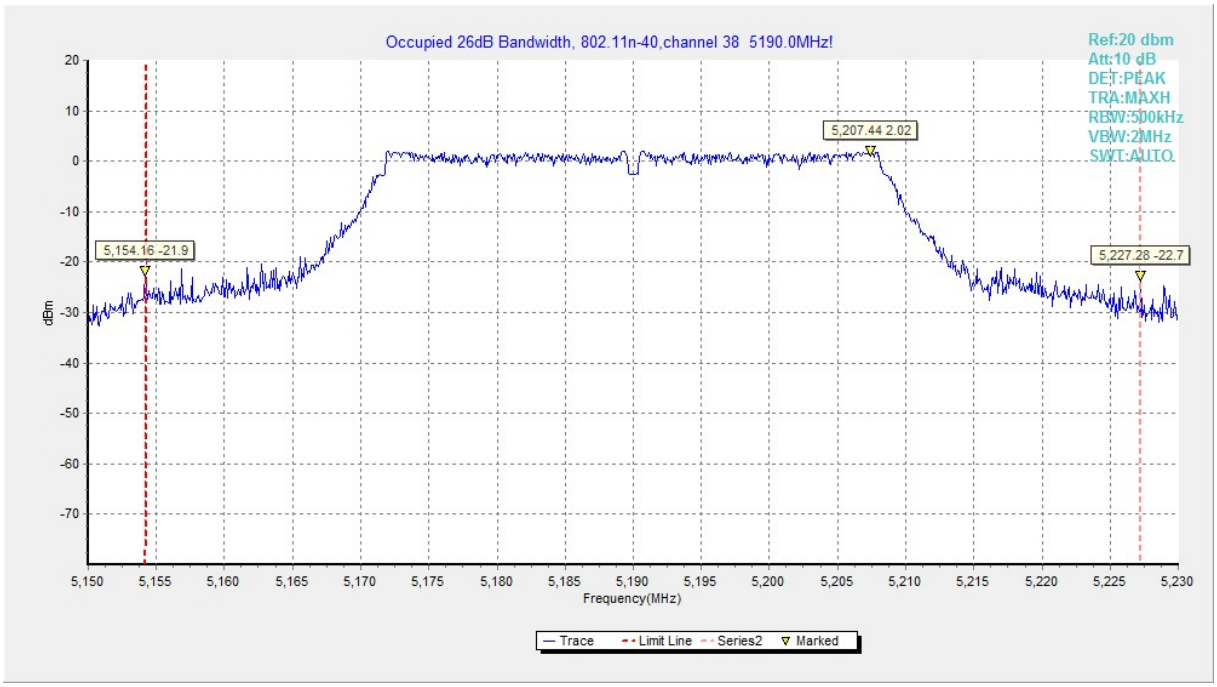

Fig.21 Occupied 26dB Bandwidth (802.11n-HT40, 5190MHz)

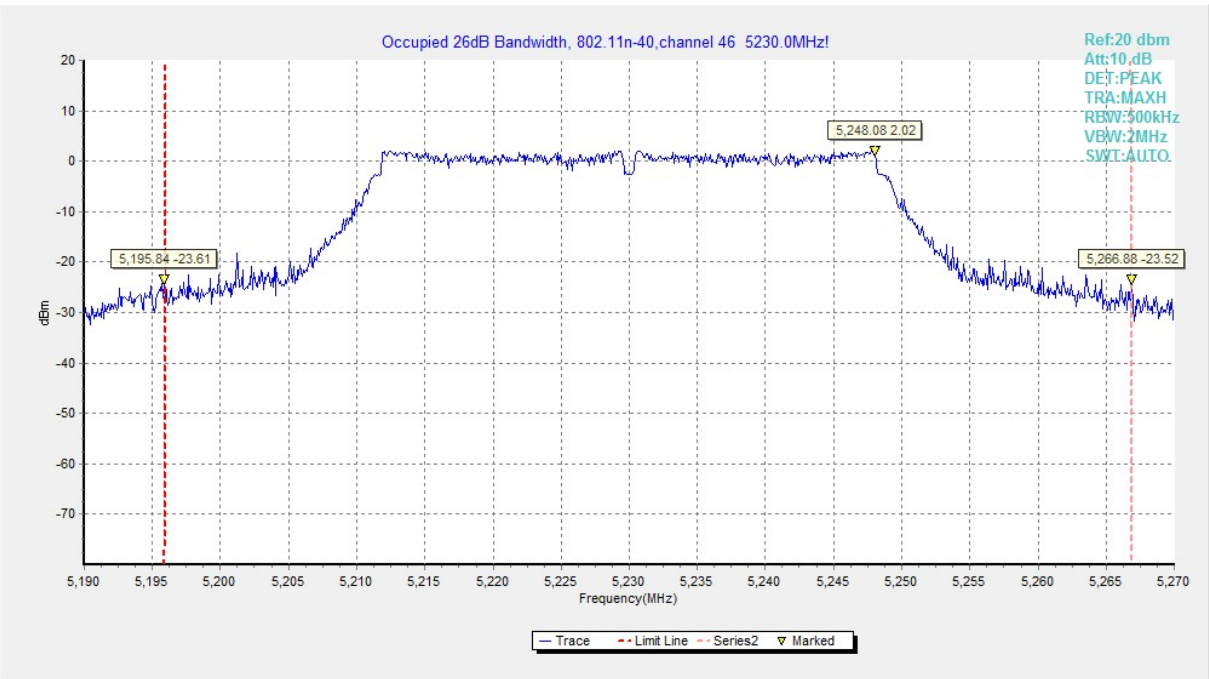

Fig.22 Occupied 26dB Bandwidth (802.11n-HT40, 5230MHz)

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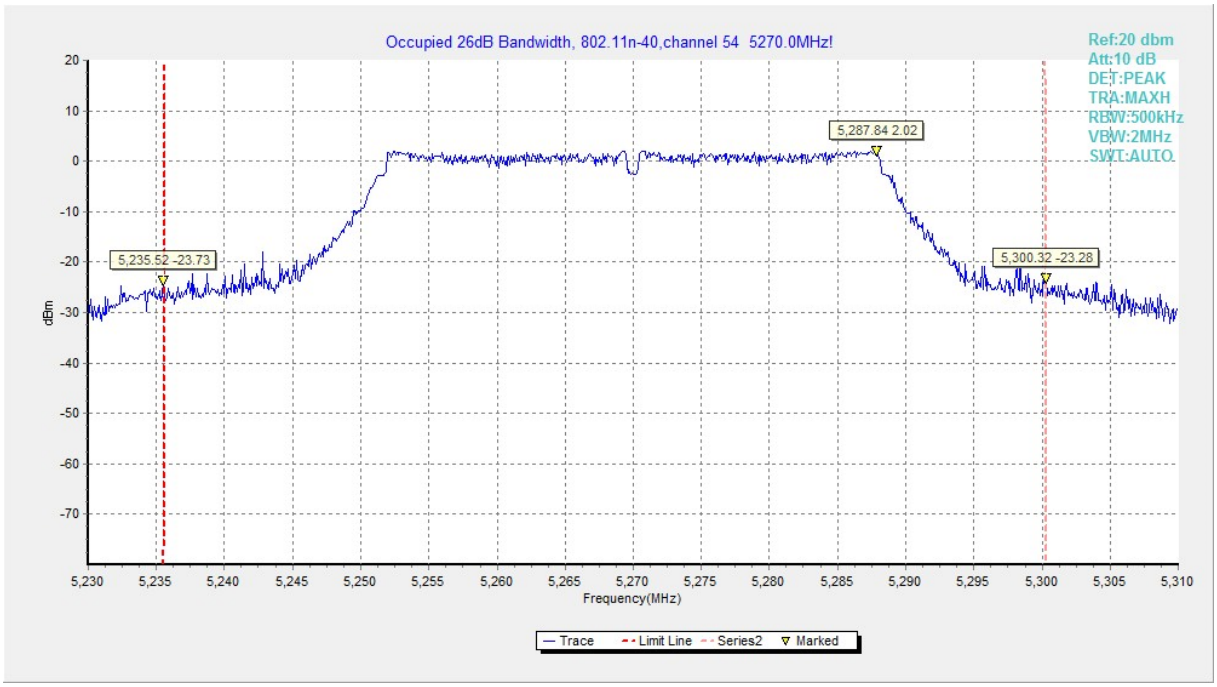

Fig.23 Occupied 26dB Bandwidth (802.11n-HT40, 5270MHz)

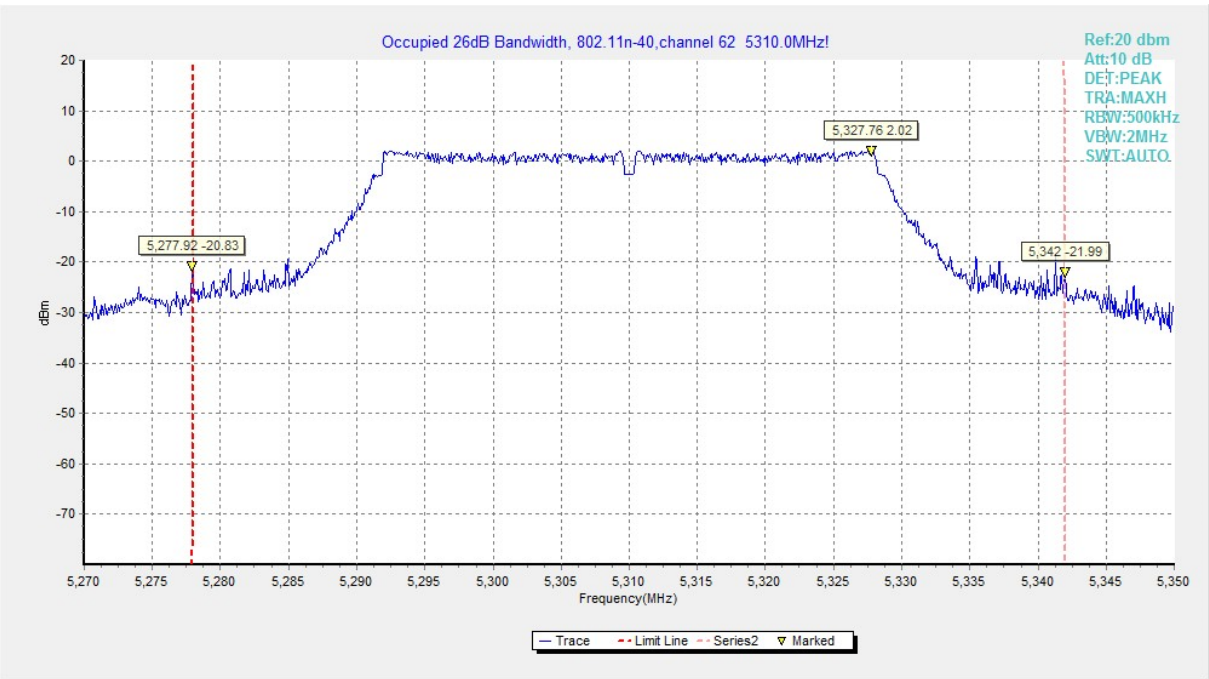

Fig.24 Occupied 26dB Bandwidth (802.11n-HT40, 5310MHz)

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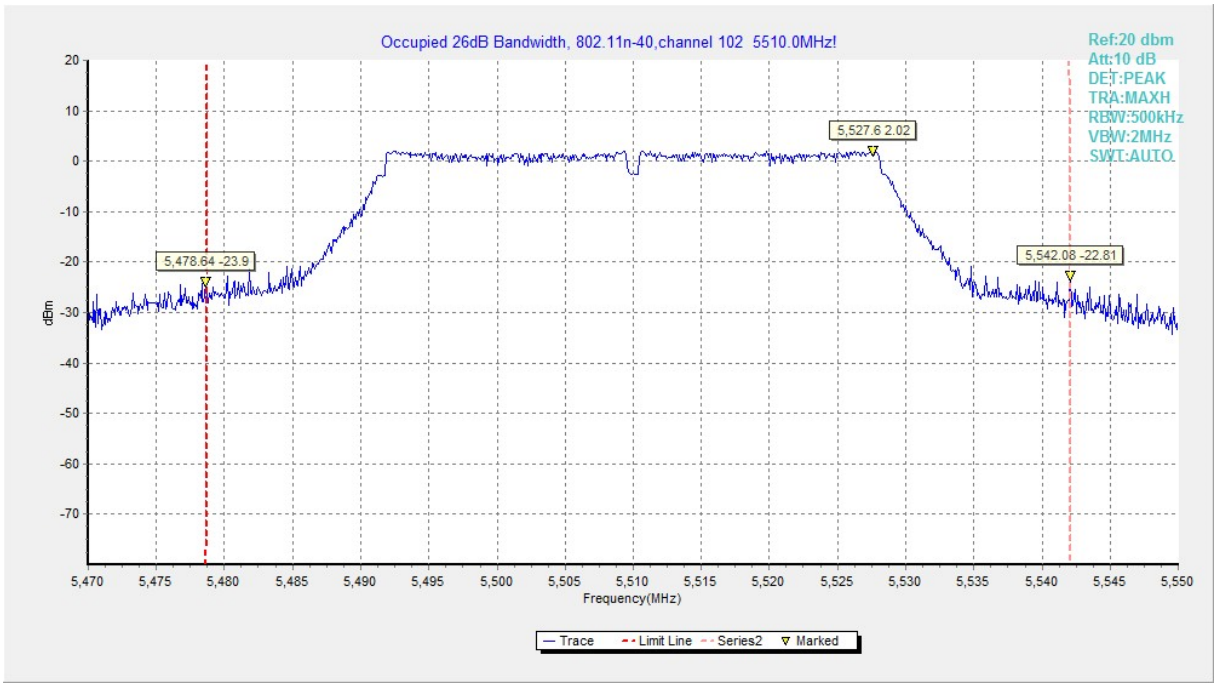

Fig.25 Occupied 26dB Bandwidth (802. 11n-HT40, 5510MHz)

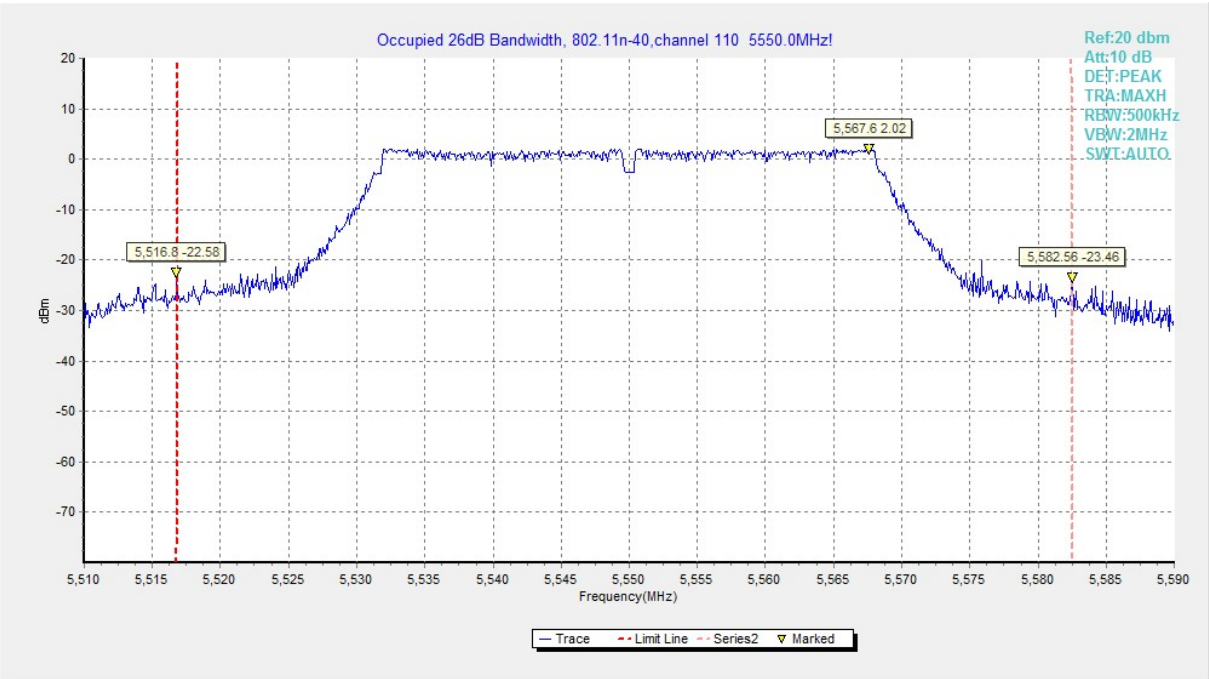

Fig.26 Occupied 26dB Bandwidth (802. 11n-HT40, 5590MHz)

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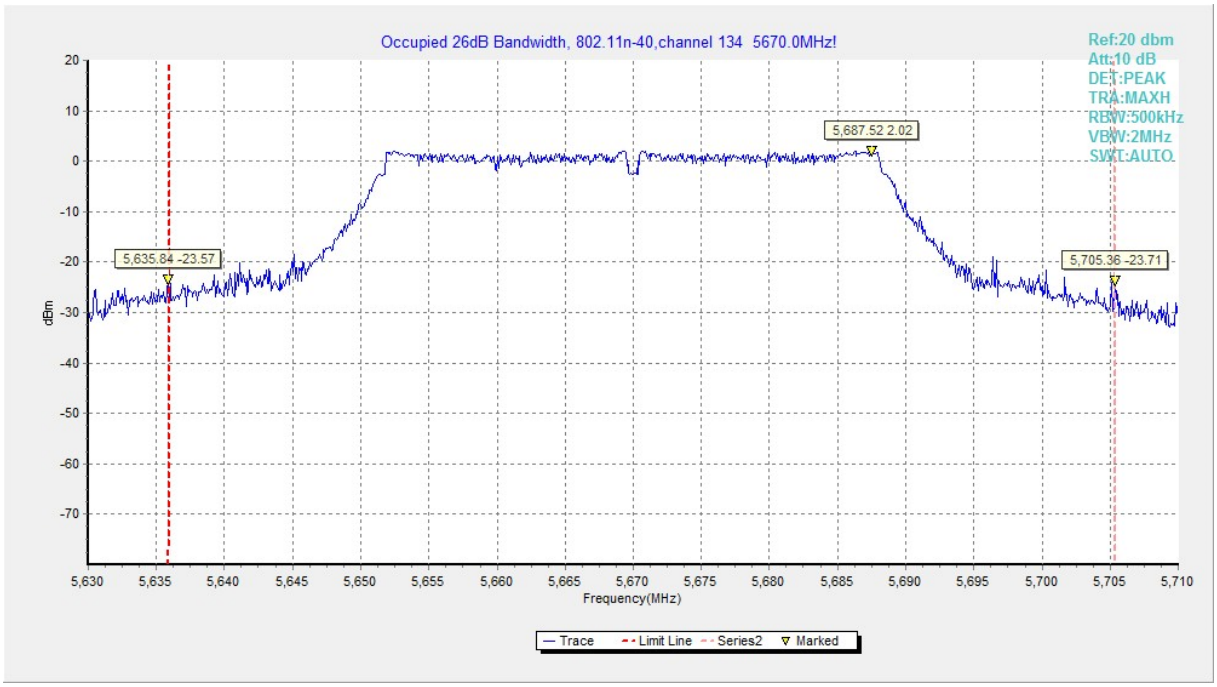

Fig.27 Occupied 26dB Bandwidth (802. 11n-HT40, 5670MHz)

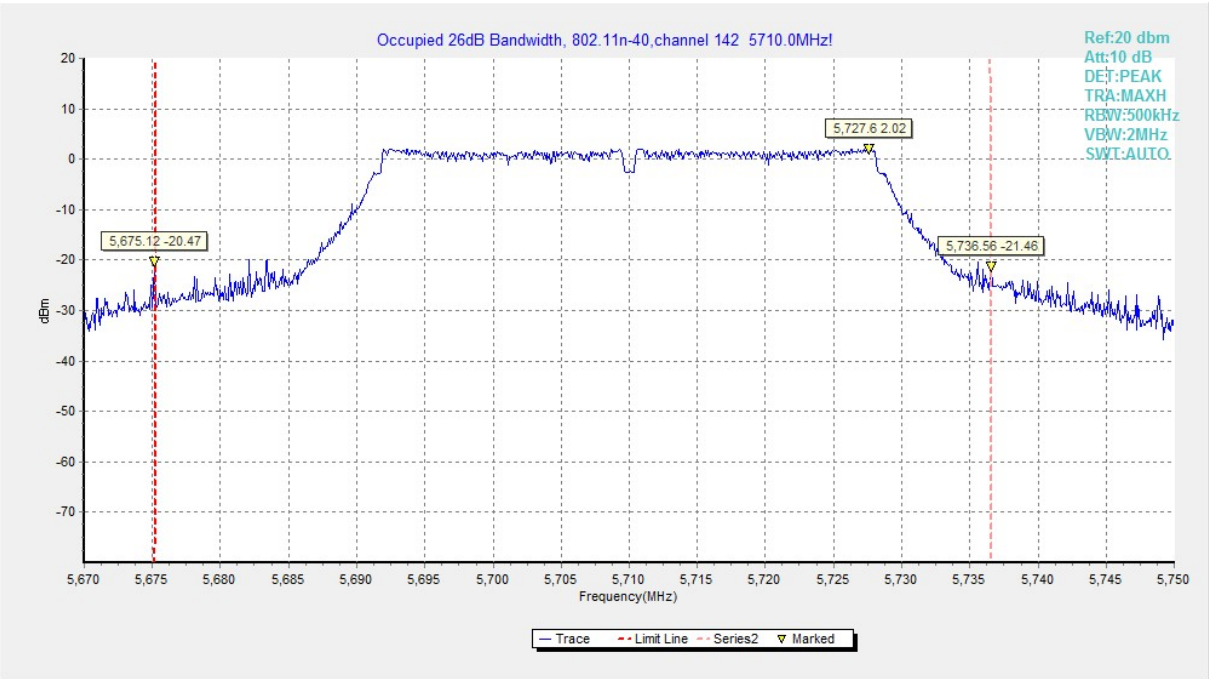

Fig.28 Occupied 26dB Bandwidth (802. 11n-HT40, 5710MHz)

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A.5. Band Edges Compliance

A5.1 Band Edges - Radiated

Measurement Limit:

Standard	Limit (dBm/MHz)
FCC 47 CFR Part 15.407	< -27

The measurement is made according to KDB 789033

In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

Measurement Uncertainty:

Measurement Uncertainty	5.40dB

Measurement Result:

Mode	Channel	Test Results	Conclusion
802.11a	5180 MHz	Fig.29	P
	5320 MHz	Fig.30	P
	5500 MHz	Fig.31	P
	5700 MHz	Fig.32	P
	5720 MHz	Fig.33	P
	5720 MHz	Fig.34	P
802.11n HT20	5180 MHz	Fig.35	P
	5320 MHz	Fig.36	P
	5500 MHz	Fig.37	P
	5700 MHz	Fig.38	P
	5720 MHz	Fig.39	P
	5720 MHz	Fig.40	P
802.11n HT40	5190 MHz	Fig.41	P
	5310 MHz	Fig.42	P
	5510 MHz	Fig.43	P
	5670 MHz	Fig.44	P
	5710 MHz	Fig.45	P
	5710 MHz	Fig.46	P

Conclusion: PASS

Test graphs as below:

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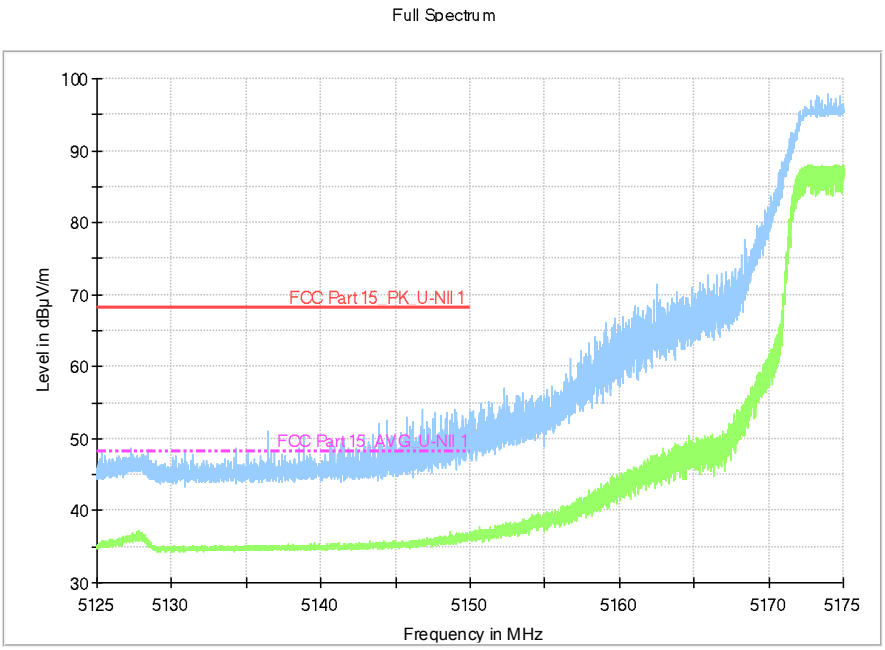

Fig.29 Band Edges (802.11a, 5180MHz)

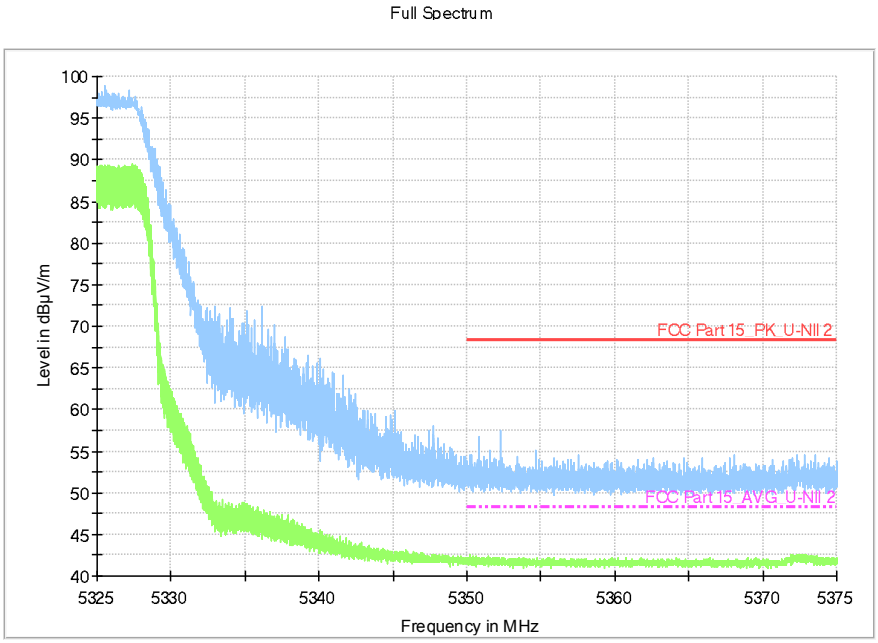

Fig.30 Band Edges (802.11a, 5320MHz)

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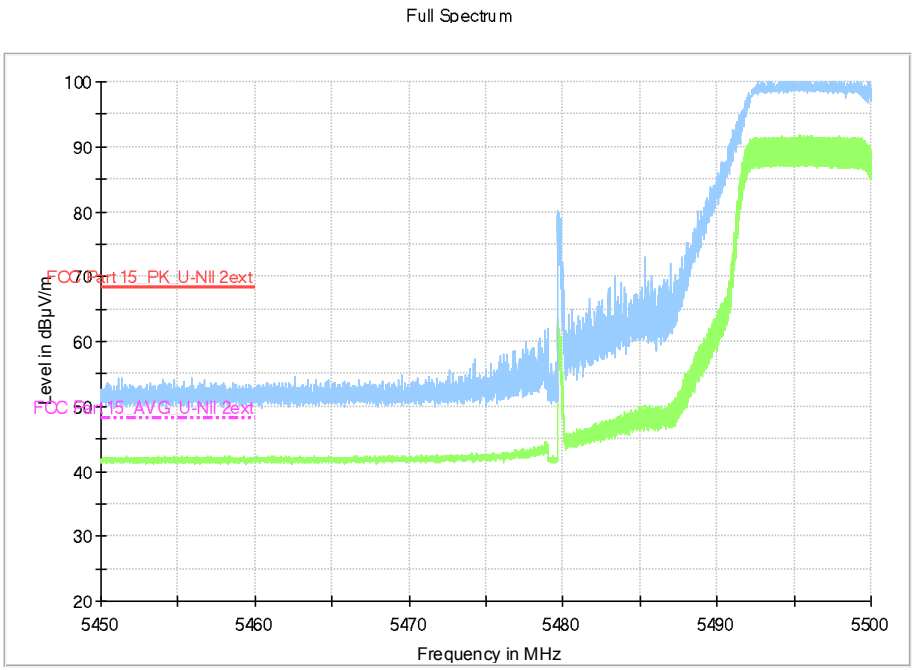

Fig.31 Band Edges (802.11a, 5500MHz)

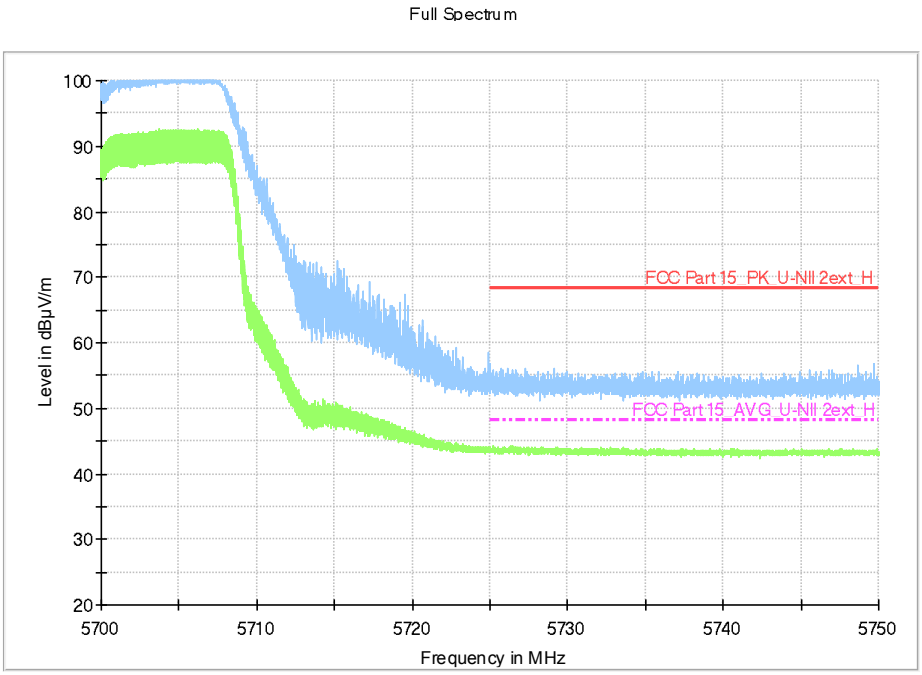

Fig.32 Band Edges (802.11a, 5700MHz)

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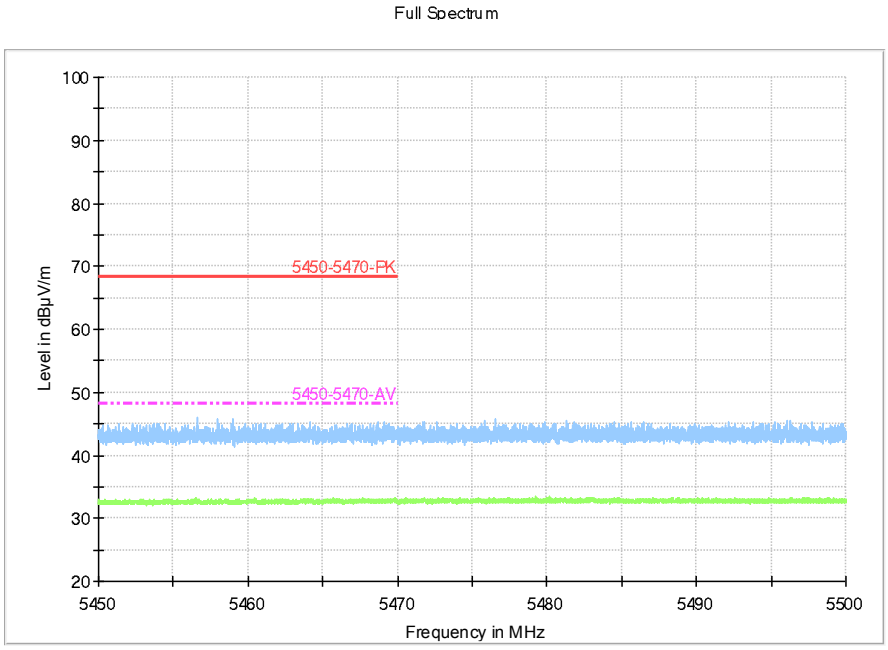

Fig.33 Band Edges (802.11a, 5720MHz)

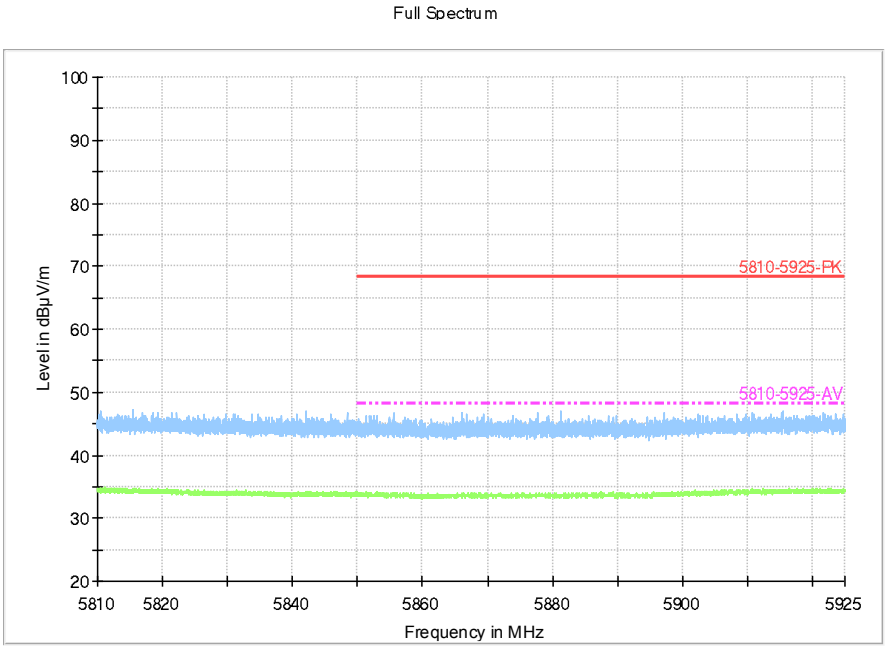

Fig.34 Band Edges (802.11a, 5720MHz)

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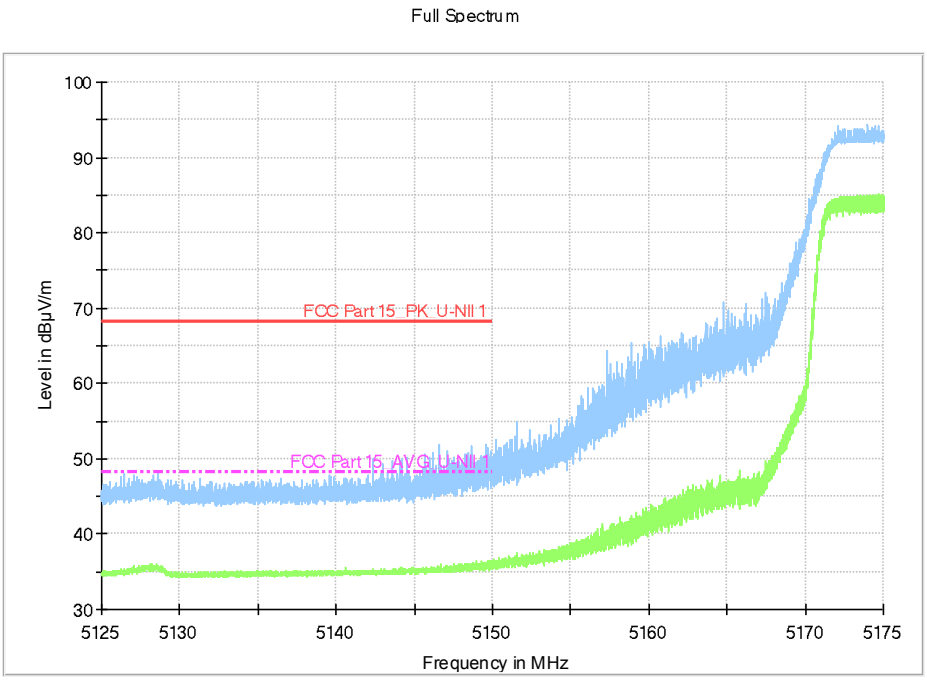

Fig.35 Band Edges (802.11n-HT20, 5180MHz)

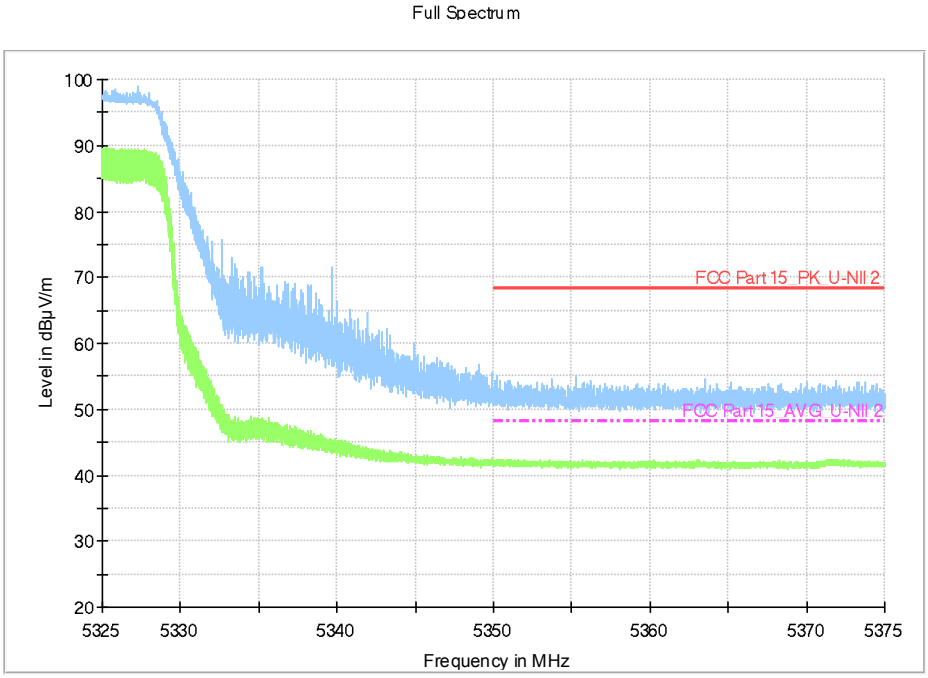

Fig.36 Band Edges (802.11n-HT20, 5320MHz)

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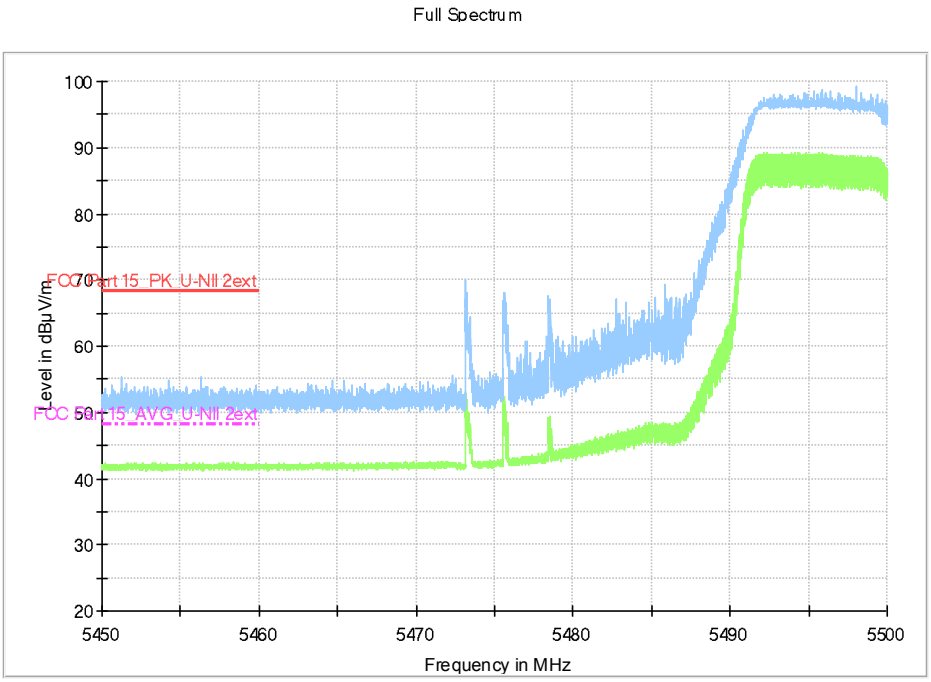

Fig.37 Band Edges (802.11n-HT20, 5500MHz)

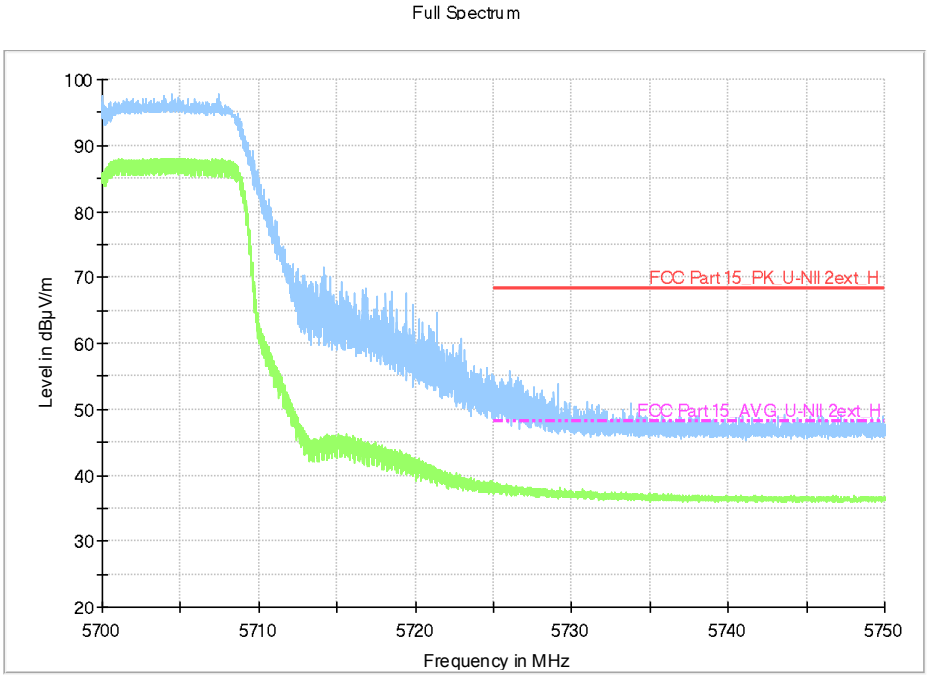

Fig.38 Band Edges (802.11n-HT20, 5700MHz)

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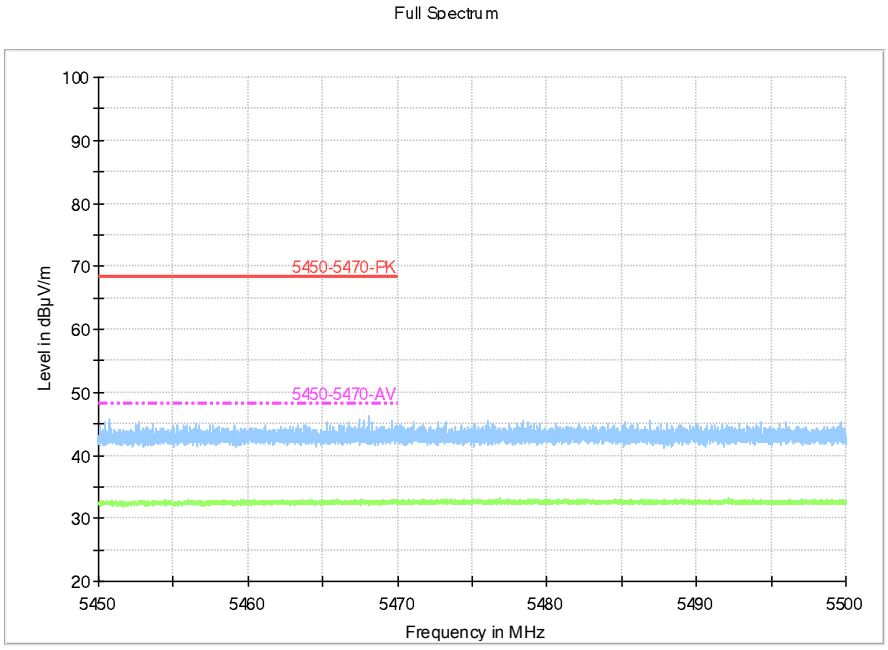

Fig.39 Band Edges (802.11n, 5720MHz)

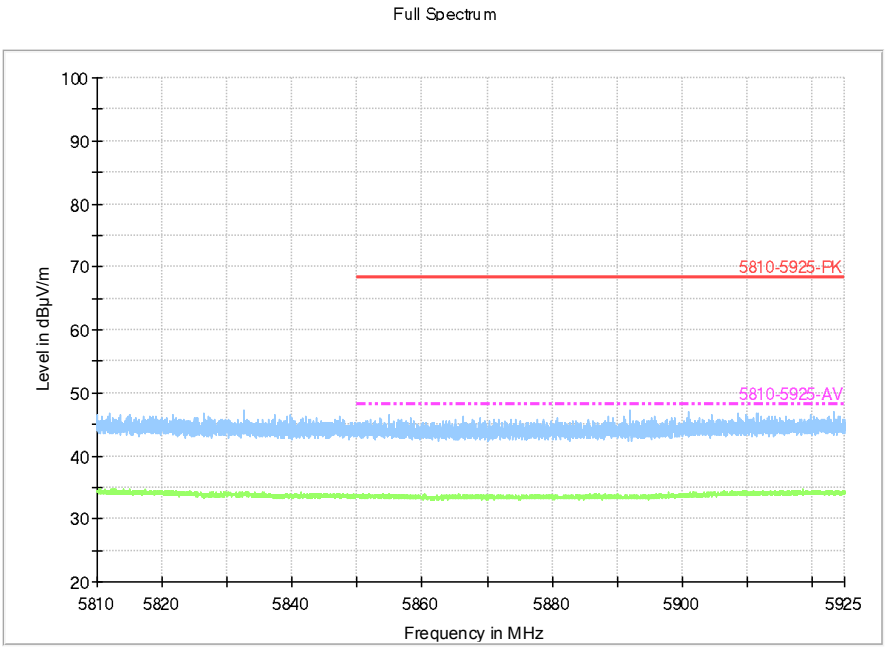

Fig.40 Band Edges (802.11n, 5720MHz)

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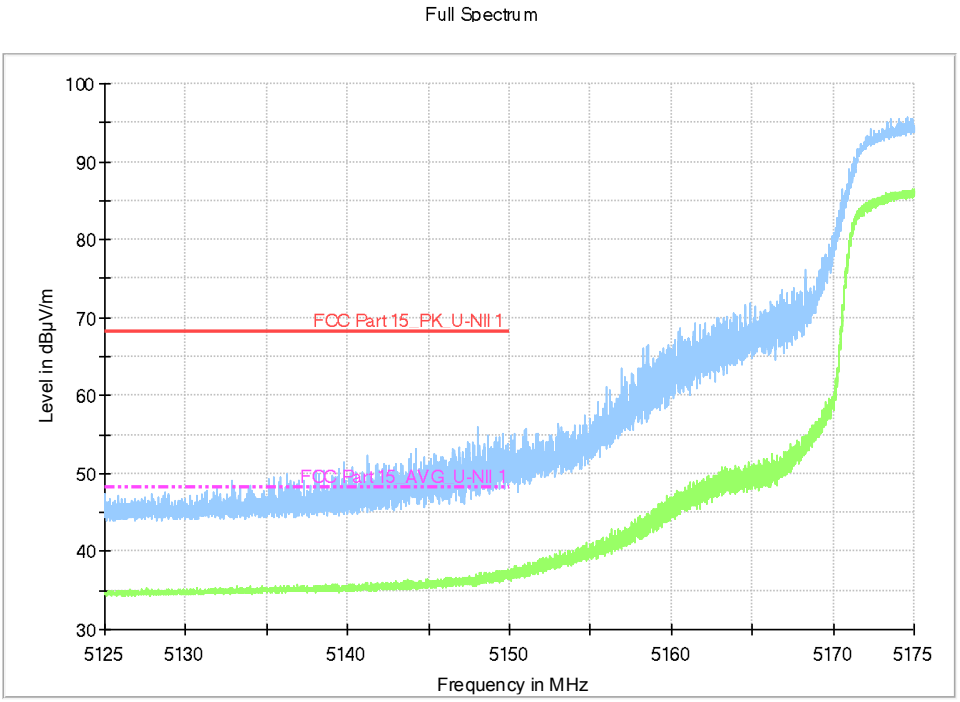

Fig.41 Band Edges (802.11n-HT40, 5190MHz)

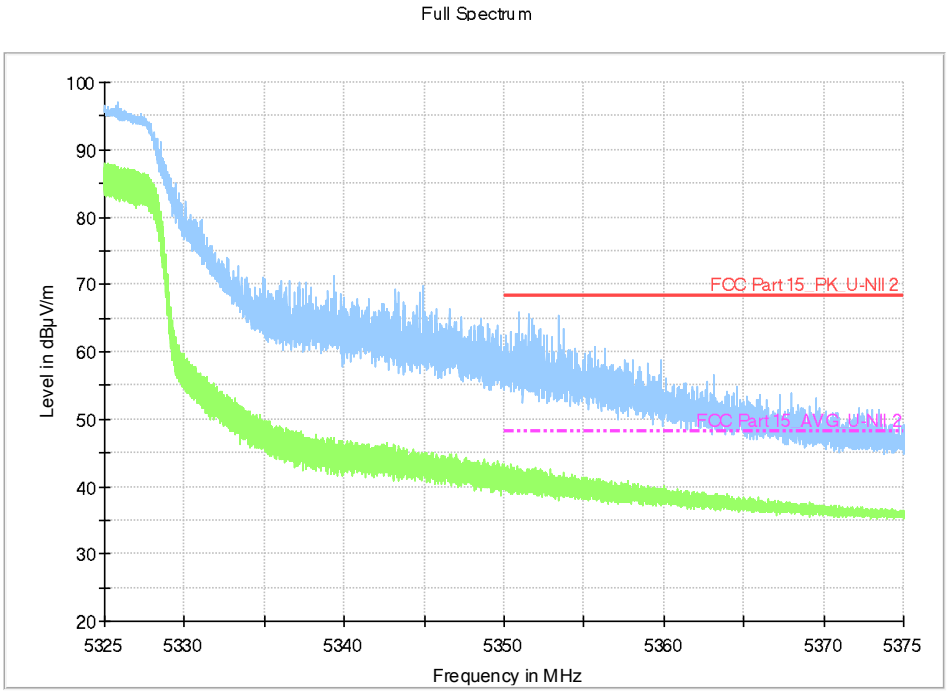

Fig.42 Band Edges (802.11n-HT40, 5310MHz)

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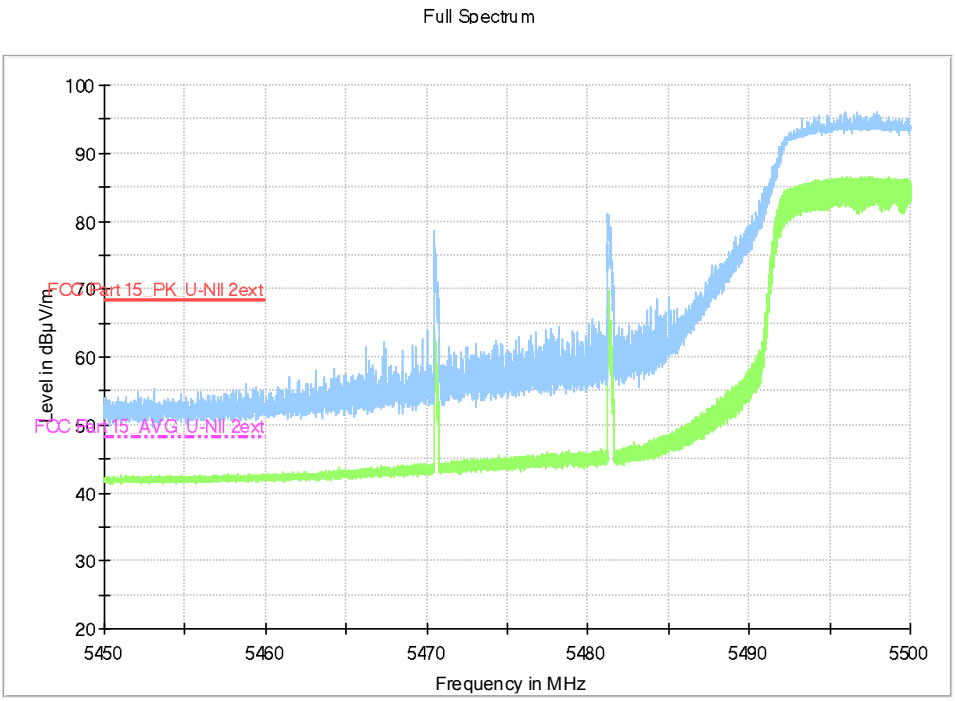

Fig.43 Band Edges (802.11n-HT40, 5510MHz)

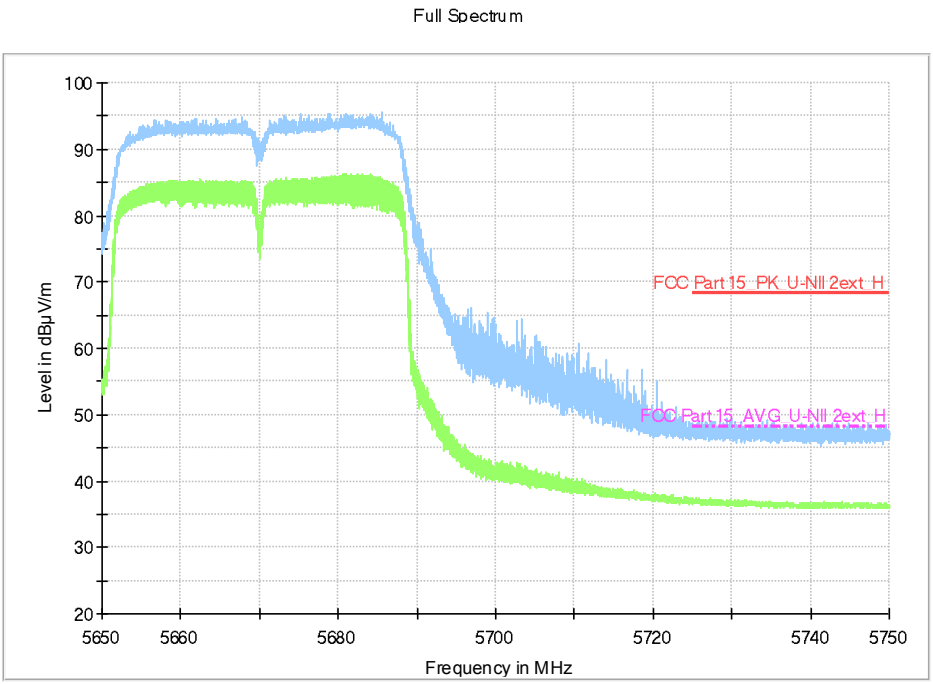

Fig.44 Band Edges (802.11n-HT40, 5670MHz)

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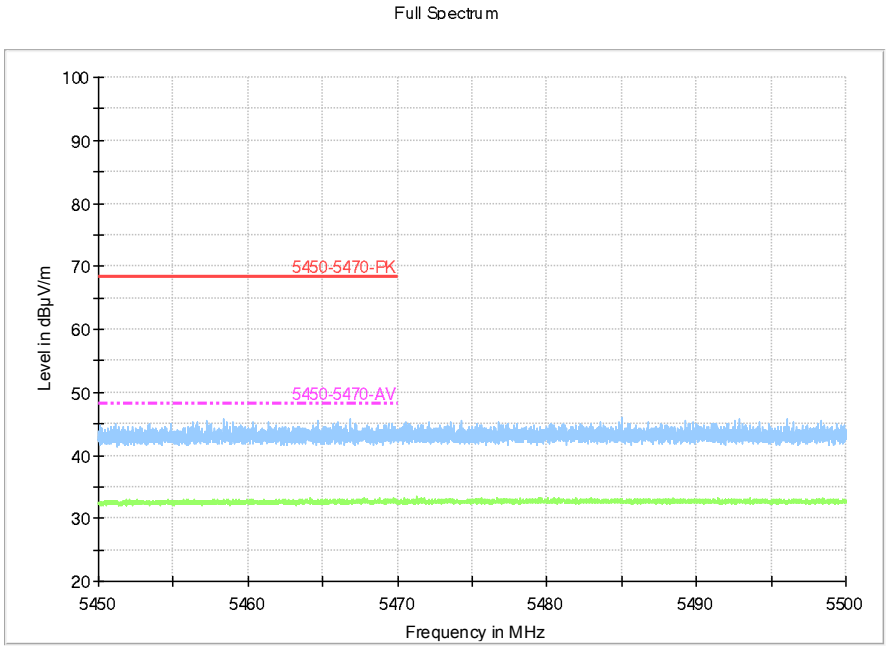

Fig.45 Band Edges (802.11n-HT40, 5710MHz)

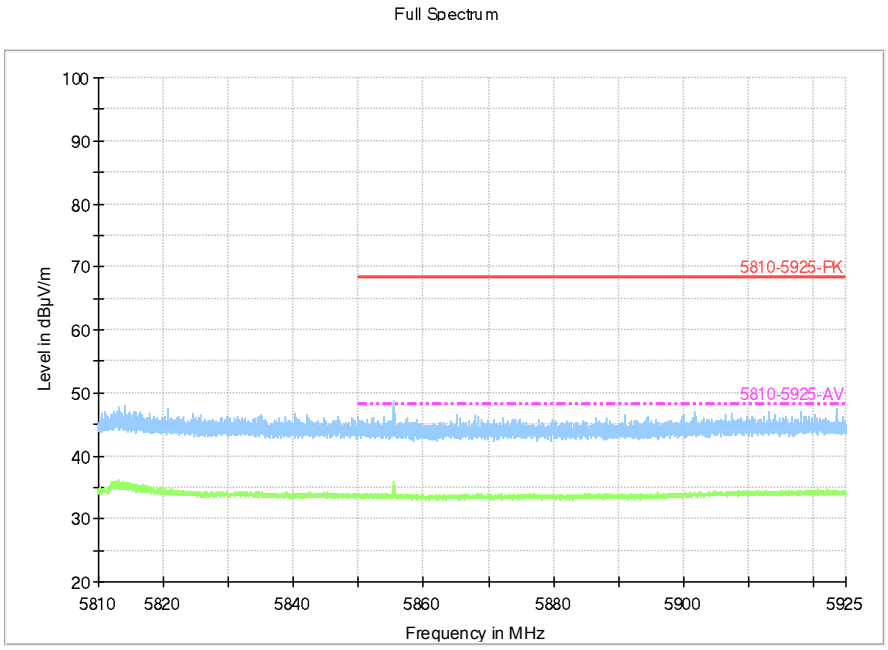

Fig.46 Band Edges (802.11n-HT40, 5710MHz)

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A.6. Transmitter Spurious Emission

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.407	-27dBm/MHz

The measurement is made according to KDB 789033

In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

Limit in restricted band:

Frequency of emission (MHz)	Field strength(dBμV/m)	Measurement distance(m)
30-88	40.0	3
88-216	43.5	3
216-960	46.0	3
Above 960	54.0	3

Note: for frequency range below 960MHz, the limit in 15.209 is defined in 10m test distance. The limit used above is calculated from 10m to 3m.

Measurement uncertainty:

Expanded measurement uncertainty for this test item is U =3.9dB, k=2.

Measurement Results:

Conclusion: PASS

Note:

A "reference path loss" is established and the A_{Rpl} is the attenuation of “reference path loss”, and including the cable loss(the gain of the preamplifier), the gain of receive antenna.

P_{Mea} is the field strength recorded from the instrument.

The measurement results are obtained as described below:

Result=P_{Mea}+A_{Rpl}= P_{Mea}+Cable Loss+Antenna Factor

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Average

802.11a

Channel 36

Frequency (MHz)	Measurement Result (dBµV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBµV)	Antenna Pol. (H/V)
17964.8	36.2	-25.5	43.4	18.3	V
17974.7	36.2	-25.5	43.4	18.3	V
17983.5	36.2	-25.5	43.4	18.3	H
17992.3	36.2	-25.5	43.4	18.3	H
17951.6	36.1	-25.5	43.4	18.2	H
5127.7	37.1	-17.0	33.4	20.7	V

Channel 40

Frequency (MHz)	Measurement Result (dBµV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBµV)	Antenna Pol. (H/V)
17971.4	36.3	-25.5	43.4	18.4	H
17976.9	36.3	-25.5	43.4	18.4	H
17987.9	36.3	-25.5	43.4	18.4	H
17909.8	36.2	-25.5	43.4	18.3	H
17962.6	36.2	-25.5	43.4	18.3	H
17965.9	36.2	-25.5	43.4	18.3	H

Channel 48

Frequency (MHz)	Measurement Result (dBµV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBµV)	Antenna Pol. (H/V)
17995.6	36.4	-25.5	43.4	18.5	V
17981.3	36.3	-25.5	43.4	18.4	H
17991.2	36.3	-25.5	43.4	18.4	H
17993.4	36.3	-25.5	43.4	18.4	V
17996.7	36.3	-25.5	43.4	18.4	H
17969.2	36.2	-25.5	43.4	18.3	H

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Channel 52

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17994.5	36.6	-25.5	43.4	18.7	V
17985.7	36.3	-25.5	43.4	18.4	V
17991.2	36.3	-25.5	43.4	18.4	V
17975.8	36.2	-25.5	43.4	18.3	V
17986.8	36.2	-25.5	43.4	18.3	V
17898.8	36.1	-25.5	43.4	18.2	V

Channel 56

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17986.8	36.5	-25.5	43.4	18.6	V
17958.2	36.3	-25.5	43.4	18.4	V
17990.1	36.3	-25.5	43.4	18.4	V
17901.0	36.2	-25.5	43.4	18.3	V
17996.7	36.2	-25.5	43.4	18.3	V
17942.8	36.1	-25.5	43.4	18.2	H

Channel 64

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17971.4	36.3	-25.5	43.4	18.4	H
17975.8	36.3	-25.5	43.4	18.4	V
17995.6	36.3	-25.5	43.4	18.4	V
17885.6	36.2	-25.5	43.4	18.3	V
17965.9	36.2	-25.5	43.4	18.3	V
5350.2	42.6	-16.9	33.4	26.1	V

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Channel 100

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17974.7	36.3	-25.5	43.4	18.4	V
17943.9	36.2	-25.5	43.4	18.3	V
17973.6	36.2	-25.5	43.4	18.3	V
17995.6	36.2	-25.5	43.4	18.3	V
17956.0	36.1	-25.5	43.4	18.2	H
5457.2	42.4	-16.8	33.4	25.8	V

Channel 120

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17970.3	36.2	-25.5	43.4	18.3	V
17991.2	36.2	-25.5	43.4	18.3	H
17995.6	36.2	-25.5	43.4	18.3	V
17947.2	36.1	-25.5	43.4	18.2	H
17961.5	36.1	-25.5	43.4	18.2	V
17978.0	36.1	-25.5	43.4	18.2	V

Channel 140

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17975.8	36.5	-25.5	43.4	18.6	V
17982.4	36.4	-25.5	43.4	18.5	H
17989.0	36.4	-25.5	43.4	18.5	V
17951.6	36.3	-25.5	43.4	18.4	V
17984.6	36.3	-25.5	43.4	18.4	H
5725.2	44.3	-16.3	34.2	26.4	V

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802.11n-HT20

Channel 36

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17982.4	36.6	-25.5	43.4	18.7	H
17972.5	36.5	-25.5	43.4	18.6	H
17923.0	36.2	-25.5	43.4	18.3	H
17963.7	36.2	-25.5	43.4	18.3	H
17971.4	36.2	-25.5	43.4	18.3	V
5149.8	36.5	-17.0	33.4	20.1	V

Channel 40

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17982.4	36.5	-25.5	43.4	18.6	H
17947.2	36.4	-25.5	43.4	18.5	H
17973.6	36.4	-25.5	43.4	18.5	V
17978.0	36.4	-25.5	43.4	18.5	H
17980.2	36.4	-25.5	43.4	18.5	H
17993.4	36.4	-25.5	43.4	18.5	H

Channel 48

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17973.6	36.5	-25.5	43.4	18.6	H
17995.6	36.5	-25.5	43.4	18.6	H
17993.4	36.4	-25.5	43.4	18.5	H
17968.1	36.3	-25.5	43.4	18.4	H
17971.4	36.3	-25.5	43.4	18.4	H
17986.8	36.3	-25.5	43.4	18.4	H

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Channel 52

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17945.0	36.4	-25.5	43.4	18.5	V
17972.5	36.3	-25.5	43.4	18.4	V
17989.0	36.3	-25.5	43.4	18.4	V
17956.0	36.1	-25.5	43.4	18.2	V
17963.7	36.1	-25.5	43.4	18.2	H
17967.0	36.1	-25.5	43.4	18.2	V

Channel 56

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17994.5	36.3	-25.5	43.4	18.4	V
17963.7	36.2	-25.5	43.4	18.3	V
17986.8	36.2	-25.5	43.4	18.3	H
17993.4	36.2	-25.5	43.4	18.3	V
17972.5	36.1	-25.5	43.4	18.2	V
17989.0	36.1	-25.5	43.4	18.2	V

Channel 64

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17970.3	36.4	-25.5	43.4	18.5	V
17978.0	36.3	-25.5	43.4	18.4	V
17959.3	36.2	-25.5	43.4	18.3	H
17975.8	36.2	-25.5	43.4	18.3	V
17952.7	36.1	-25.5	43.4	18.2	V
5350.4	42.4	-16.9	33.4	25.9	V

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Channel 100

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17978.0	36.3	-25.5	43.4	18.4	H
17986.8	36.2	-25.5	43.4	18.3	H
17996.7	36.2	-25.5	43.4	18.3	H
17974.7	36.1	-25.5	43.4	18.2	V
17985.7	36.1	-25.5	43.4	18.2	H
5458.4	42.5	-16.8	33.4	25.9	V

Channel 120

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17969.2	36.3	-25.5	43.4	18.4	V
17978.0	36.3	-25.5	43.4	18.4	V
17982.4	36.3	-25.5	43.4	18.4	V
17984.6	36.2	-25.5	43.4	18.3	V
17992.3	36.2	-25.5	43.4	18.3	V
17974.7	36.1	-25.5	43.4	18.2	H

Channel 140

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17978.0	36.4	-25.5	43.4	18.5	H
17993.4	36.3	-25.5	43.4	18.4	V
17950.5	36.2	-25.5	43.4	18.3	V
17963.7	36.2	-25.5	43.4	18.3	V
17958.2	36.1	-25.5	43.4	18.2	V
5725.0	38.9	-16.3	34.2	21.0	V

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Channel 38

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17997.8	36.3	-25.5	43.4	18.4	H
17971.4	36.2	-25.5	43.4	18.3	V
17991.2	36.2	-25.5	43.4	18.3	H
17992.3	36.2	-25.5	43.4	18.3	V
17883.4	36.1	-25.5	43.4	18.2	V
5149.9	37.8	-17.0	33.4	21.4	V

Channel 46

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17978.0	36.3	-25.5	43.4	18.4	V
17984.6	36.3	-25.5	43.4	18.4	V
17948.3	36.2	-25.5	43.4	18.3	V
17969.2	36.2	-25.5	43.4	18.3	V
17979.1	36.2	-25.5	43.4	18.3	V
17980.2	36.2	-25.5	43.4	18.3	V

Channel 54

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17923.0	36.2	-25.5	43.4	18.3	V
17935.1	36.2	-25.5	43.4	18.3	V
17974.7	36.2	-25.5	43.4	18.3	V
17997.8	36.2	-25.5	43.4	18.3	V
17964.8	36.1	-25.5	43.4	18.2	V
17979.1	36.1	-25.5	43.4	18.2	H

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Channel 62

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17976.9	36.3	-25.5	43.4	18.4	V
17983.5	36.2	-25.5	43.4	18.3	V
17997.8	36.2	-25.5	43.4	18.3	H
17956.0	36.1	-25.5	43.4	18.2	V
17960.4	36.1	-25.5	43.4	18.2	H
5350.0	43.4	-16.9	33.4	26.9	V

Channel 102

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
11341.7	40.0	-32.4	38.2	34.2	V
11347.2	39.2	-32.4	38.2	33.4	V
11336.2	39.1	-32.4	38.2	33.3	V
11330.7	38.7	-32.4	38.2	32.9	V
11343.9	38.3	-32.4	38.2	32.5	V
5458.2	42.8	-16.8	33.4	26.2	V

Channel 118

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
11338.4	39.9	-32.4	38.2	34.1	V
11346.1	38.9	-32.4	38.2	33.1	V
11332.9	38.8	-32.4	38.2	33.0	V
11340.6	38.7	-32.4	38.2	32.9	V
11335.1	38.5	-32.4	38.2	32.7	V
11343.9	38.4	-32.4	38.2	32.6	V

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Channel 134

Frequency (MHz)	Measurement Result (dBµV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBµV)	Antenna Pol. (H/V)
11339.5	39.5	-32.4	38.2	33.7	V
11345.0	38.9	-32.4	38.2	33.1	V
11334.0	38.7	-32.4	38.2	32.9	V
11336.2	38.6	-32.4	38.2	32.8	V
11341.7	38.1	-32.4	38.2	32.3	V
5725.3	37.4	-16.3	34.2	19.5	V

Peak

802.11a

Channel 36

Frequency (MHz)	Measurement Result (dBµV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBµV)	Antenna Pol. (H/V)
17848.2	47.9	-25.5	43.4	30.0	V
17983.5	47.9	-25.5	43.4	30.0	H
17938.4	47.8	-25.5	43.4	29.9	H
17958.2	47.8	-25.5	43.4	29.9	V
17997.8	47.8	-25.5	43.4	29.9	V
5146.8	54.1	-17.0	33.4	37.7	V

Channel 40

Frequency (MHz)	Measurement Result (dBµV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBµV)	Antenna Pol. (H/V)
17939.5	48.1	-25.5	43.4	30.2	H
17919.7	48.0	-25.5	43.4	30.1	V
17631.5	47.9	-25.7	43.4	30.2	H
17836.1	47.7	-25.5	43.4	29.8	H
17899.9	47.7	-25.5	43.4	29.8	H
17986.8	47.7	-25.5	43.4	29.8	H

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Channel 48

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17945.0	47.9	-25.5	43.4	30.0	V
17940.6	47.8	-25.5	43.4	29.9	H
17565.5	47.7	-25.7	43.4	30.0	V
17425.8	47.6	-26.9	43.4	31.1	V
17428.0	47.6	-26.9	43.4	31.1	H
17495.1	47.6	-26.9	43.4	31.1	V

Channel 52

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17996.7	48.5	-25.5	43.4	30.6	H
17399.4	48.3	-26.9	43.4	31.8	V
17986.8	47.9	-25.5	43.4	30.0	V
17980.2	47.8	-25.5	43.4	29.9	V
17991.2	47.8	-25.5	43.4	29.9	V
17924.1	47.7	-25.5	43.4	29.8	V

Channel 56

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17385.1	48.2	-25.9	40.1	34.0	V
17897.7	47.9	-25.5	43.4	30.0	H
17943.9	47.8	-25.5	43.4	29.9	V
17969.2	47.8	-25.5	43.4	29.9	H
17995.6	47.8	-25.5	43.4	29.9	H
17655.7	47.7	-25.7	43.4	30.0	V

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Channel 64

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17888.9	48.1	-25.5	43.4	30.2	V
17929.6	48.0	-25.5	43.4	30.1	H
17402.7	47.8	-26.9	43.4	31.3	V
17898.8	47.7	-25.5	43.4	29.8	V
17994.5	47.7	-25.5	43.4	29.8	H
5352.3	57.5	-16.9	33.4	41.0	V

Channel 100

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17983.5	49.0	-25.5	43.4	31.1	H
17730.5	48.1	-25.7	43.4	30.4	V
17964.8	48.1	-25.5	43.4	30.2	V
17949.4	47.8	-25.5	43.4	29.9	V
17993.4	47.8	-25.5	43.4	29.9	V
5451.1	54.3	-16.8	33.4	37.7	V

Channel 120

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17315.8	48.5	-25.9	40.1	34.3	H
17989.0	48.4	-25.5	43.4	30.5	H
17964.8	48.1	-25.5	43.4	30.2	V
17990.1	48.1	-25.5	43.4	30.2	V
17979.1	48.0	-25.5	43.4	30.1	V
17946.1	47.7	-25.5	43.4	29.8	V

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Channel 140

Frequency (MHz)	Measurement Result (dBµV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBµV)	Antenna Pol. (H/V)
17492.9	48.5	-26.9	43.4	32.0	V
17996.7	48.3	-25.5	43.4	30.4	H
17510.5	47.9	-26.9	43.4	31.4	V
17752.5	47.8	-25.5	43.4	29.9	V
17843.8	47.5	-25.5	43.4	29.6	V
5725.0	56.9	-16.3	34.2	39.0	V

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Channel 36

Frequency (MHz)	Measurement Result (dBµV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBµV)	Antenna Pol. (H/V)
17971.4	48.7	-25.5	43.4	30.8	V
17659.0	48.1	-25.7	43.4	30.4	V
16962.7	48.0	-26.3	40.1	34.2	H
17962.6	47.9	-25.5	43.4	30.0	V
17886.7	47.6	-25.5	43.4	29.7	V
5146.6	51.9	-17.0	33.4	35.5	V

Channel 40

Frequency (MHz)	Measurement Result (dBµV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBµV)	Antenna Pol. (H/V)
17937.3	48.6	-25.5	43.4	30.7	H
17981.3	48.2	-25.5	43.4	30.3	H
17984.6	47.9	-25.5	43.4	30.0	H
17987.9	47.9	-25.5	43.4	30.0	V
17909.8	47.8	-25.5	43.4	29.9	V
17952.7	47.8	-25.5	43.4	29.9	V

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Channel 48

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17858.1	48.3	-25.5	43.4	30.4	H
17876.8	48.2	-25.5	43.4	30.3	H
17970.3	48.0	-25.5	43.4	30.1	V
17992.3	47.9	-25.5	43.4	30.0	V
17535.8	47.8	-26.9	43.4	31.3	V
17477.5	47.7	-26.9	43.4	31.2	H

Channel 52

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17890.0	48.8	-25.5	43.4	30.9	V
17945.0	48.6	-25.5	43.4	30.7	V
17989.0	48.5	-25.5	43.4	30.6	V
17972.5	48.1	-25.5	43.4	30.2	V
17990.1	48.1	-25.5	43.4	30.2	V
17393.9	47.8	-26.9	43.4	31.3	V

Channel 56

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17983.5	48.6	-25.5	43.4	30.7	H
17934.0	48.4	-25.5	43.4	30.5	V
17979.1	48.3	-25.5	43.4	30.4	H
17945.0	48.2	-25.5	43.4	30.3	V
17783.3	47.7	-25.5	43.4	29.8	V
17967.0	47.7	-25.5	43.4	29.8	V

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Channel 64

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17921.9	48.5	-25.5	43.4	30.6	V
17914.2	48.2	-25.5	43.4	30.3	V
17970.3	47.9	-25.5	43.4	30.0	V
17997.8	47.9	-25.5	43.4	30.0	H
17822.9	47.8	-25.5	43.4	29.9	V
5350.2	55.2	-16.9	33.4	38.7	V

Channel 100

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17863.6	48.4	-25.5	43.4	30.5	H
17964.8	48.4	-25.5	43.4	30.5	V
17987.9	48.2	-25.5	43.4	30.3	H
17906.5	48.1	-25.5	43.4	30.2	V
17980.2	48.0	-25.5	43.4	30.1	H
5451.2	55.4	-16.8	33.4	38.8	V

Channel 120

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17877.9	48.2	-25.5	43.4	30.3	V
17503.9	47.9	-26.9	43.4	31.4	H
17810.8	47.9	-25.5	43.4	30.0	V
17895.5	47.8	-25.5	43.4	29.9	H
17613.9	47.7	-25.7	43.4	30.0	H
17888.9	47.6	-25.5	43.4	29.7	H

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Channel 140

Frequency (MHz)	Measurement Result (dBµV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBµV)	Antenna Pol. (H/V)
17649.1	48.1	-25.7	43.4	30.4	V
17965.9	48.1	-25.5	43.4	30.2	V
17898.8	48.0	-25.5	43.4	30.1	H
17755.8	47.9	-25.5	43.4	30.0	V
17723.9	47.8	-25.7	43.4	30.1	V
5726.0	55.7	-16.3	34.2	37.8	V

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Channel 38

Frequency (MHz)	Measurement Result (dBµV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBµV)	Antenna Pol. (H/V)
17890.0	47.9	-25.5	43.4	30.0	V
17435.7	47.8	-26.9	43.4	31.3	H
17654.6	47.7	-25.7	43.4	30.0	V
17970.3	47.7	-25.5	43.4	29.8	H
17844.9	47.6	-25.5	43.4	29.7	H
5148.1	56.0	-17.0	33.4	39.6	V

Channel 46

Frequency (MHz)	Measurement Result (dBµV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBµV)	Antenna Pol. (H/V)
17935.1	48.5	-25.5	43.4	30.6	H
17993.4	48.4	-25.5	43.4	30.5	V
17886.7	48.3	-25.5	43.4	30.4	H
17489.6	48.1	-26.9	43.4	31.6	H
17912.0	48.0	-25.5	43.4	30.1	V
17905.4	47.8	-25.5	43.4	29.9	V

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Channel 54

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17950.5	49.4	-25.5	43.4	31.5	V
17650.2	48.4	-25.7	43.4	30.7	V
17982.4	48.2	-25.5	43.4	30.3	H
17872.4	47.8	-25.5	43.4	29.9	V
17875.7	47.8	-25.5	43.4	29.9	H
17991.2	47.8	-25.5	43.4	29.9	H

Channel 62

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17956.0	48.7	-25.5	43.4	30.8	V
17839.4	48.5	-25.5	43.4	30.6	V
17884.5	48.2	-25.5	43.4	30.3	H
17886.7	48.2	-25.5	43.4	30.3	V
17989.0	48.2	-25.5	43.4	30.3	V
5350.9	65.8	-16.9	33.4	49.3	V

Channel 102

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
11340.6	51.0	-32.4	38.2	45.2	V
11335.1	50.0	-32.4	38.2	44.2	V
11336.2	49.9	-32.4	38.2	44.1	V
11338.4	49.9	-32.4	38.2	44.1	V
11350.5	49.9	-32.4	38.2	44.1	V
5458.8	56.2	-16.8	33.4	39.6	V

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Channel 118

Frequency (MHz)	Measurement Result (dBµV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBµV)	Antenna Pol. (H/V)
11349.4	50.4	-32.4	38.2	44.6	V
11350.5	50.4	-32.4	38.2	44.6	V
11338.4	50.3	-32.4	38.2	44.5	V
11340.6	50.1	-32.4	38.2	44.3	V
11334.0	49.8	-32.4	38.2	44.0	V
11341.7	49.8	-32.4	38.2	44.0	V

Channel 134

Frequency (MHz)	Measurement Result (dBµV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBµV)	Antenna Pol. (H/V)
11345.0	51.2	-32.4	38.2	45.4	V
11339.5	51.1	-32.4	38.2	45.3	V
11340.6	51.1	-32.4	38.2	45.3	V
11338.4	50.9	-32.4	38.2	45.1	V
11342.8	50.4	-32.4	38.2	44.6	V
5726.1	50.2	-16.3	34.2	32.3	H

Sample calculation: 802.11n 40MHz CH134–Peak, 5726.1 MHz

Peak ERP(dBm) = P_{Mea}(32.3dBuV/m) + Cable Loss(-16.3) + Antenna Factor(34.2) = 50.2 dBuV/m

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A.7. AC Powerline Conducted Emission (150kHz- 30MHz)

Test Condition:

Voltage（V）	Frequency（Hz）
120	60

Measurement uncertainty:

Expanded measurement uncertainty for this test item is U =3.38dB, k=2.

Measurement Result and limit:

WLAN (Quasi-peak Limit)

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Result (dBμV)		Conclusion
		With charger		
		11a mode	Idle	
0.15 to 0.5	66 to 56	Fig.47	Fig.48	P
0.5 to 5	56			
5 to 30	60			
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.				

WLAN (Average Limit)

Frequency range (MHz)	Average Limit (dBμV)	Result (dBμV)		Conclusion
		With charger		
		11a mode	Idle	
0.15 to 0.5	56 to 46	Fig.47	Fig.48	P
0.5 to 5	46			
5 to 30	50			
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.				

Conclusion: PASS

Test graphs as below:

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Result for Traffic:

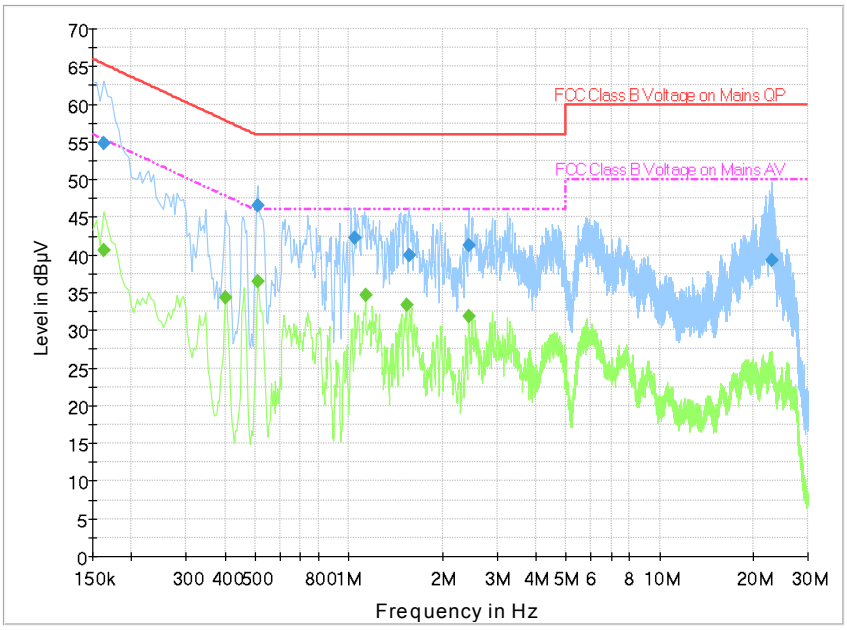

Fig.47 Conducted Emission(802.11a, Ch40, TX)

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.163500	54.8	2000.0	9.000	On	L1	27.7	10.4	65.3	
0.510000	46.6	2000.0	9.000	On	L1	19.8	9.4	56.0	
1.045500	42.2	2000.0	9.000	On	L1	19.7	13.8	56.0	
1.563000	40.0	2000.0	9.000	On	L1	19.6	16.0	56.0	
2.436000	41.2	2000.0	9.000	On	L1	19.6	14.8	56.0	
23.059500	39.3	2000.0	9.000	On	N	20.0	20.7	60.0	

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.163500	40.6	2000.0	9.000	On	L1	27.7	14.7	55.3	
0.402000	34.3	2000.0	9.000	On	L1	19.8	13.5	47.8	
0.510000	36.5	2000.0	9.000	On	L1	19.8	9.5	46.0	
1.131000	34.7	2000.0	9.000	On	L1	19.7	11.3	46.0	
1.531500	33.4	2000.0	9.000	On	L1	19.6	12.6	46.0	
2.436000	31.8	2000.0	9.000	On	L1	19.6	14.2	46.0	

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Result for Idle:

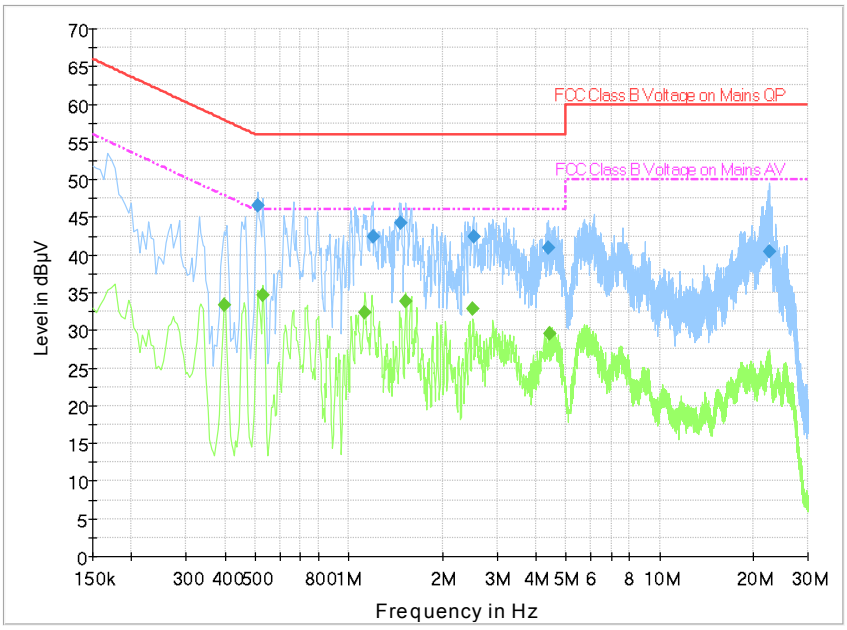

Fig.48 Conducted Emission(802.11a, IDLE)

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.510000	46.5	2000.0	9.000	On	L1	19.8	9.5	56.0	
1.194000	42.4	2000.0	9.000	On	L1	19.7	13.6	56.0	
1.473000	44.2	2000.0	9.000	On	L1	19.6	11.8	56.0	
2.517000	42.4	2000.0	9.000	On	L1	19.6	13.6	56.0	
4.375500	41.0	2000.0	9.000	On	L1	19.6	15.0	56.0	
22.569000	40.5	2000.0	9.000	On	N	20.0	19.5	60.0	

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.397500	33.4	2000.0	9.000	On	L1	19.8	14.6	47.9	
0.528000	34.6	2000.0	9.000	On	L1	19.8	11.4	46.0	
1.126500	32.4	2000.0	9.000	On	L1	19.7	13.6	46.0	
1.522500	33.8	2000.0	9.000	On	L1	19.6	12.2	46.0	
2.512500	32.9	2000.0	9.000	On	L1	19.6	13.1	46.0	
4.438500	29.6	2000.0	9.000	On	L1	19.6	16.4	46.0	

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A.8. 99% Occupied bandwidth

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

a) The instrument center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be between 1.5 times and 5.0 times the OBW.

b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW, and VBW shall be approximately three times the RBW, unless otherwise specified by the applicable requirement.

c) Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than [10 log (OBW/RBW)] below the reference level. Specific guidance is given in 4.1.5.2.

d) Step a) through step c) might require iteration to adjust within the specified range.

e) Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.

f) Use the 99% power bandwidth function of the instrument (if available) and report the measured bandwidth.

g) If the instrument does not have a 99% power bandwidth function, then the trace data points are recovered and directly summed in linear power terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% ofthe total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5% of the total is reached; that frequency is recorded as the upper frequency. The 99% power bandwidth is the difference between these two frequencies.

h) The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

Measurement Uncertainty:

Measurement Uncertainty	60.80Hz

Measurement Result:

Mode	Frequency	99% Occupied bandwidth (MHz)		conclusion
802.11a	5180 MHz	Fig.49	18.12	P
	5200 MHz	Fig.50	18.12	P
	5240 MHz	Fig.51	18.12	P
802.11n HT20	5180 MHz	Fig.52	18.48	P
	5200 MHz	Fig.53	18.56	P
	5240 MHz	Fig.54	18.52	P
802.11n HT40	5190 MHz	Fig.55	36.48	P
	5230 MHz	Fig.56	36.56	P

Conclusion: PASS

Test graphs as below:

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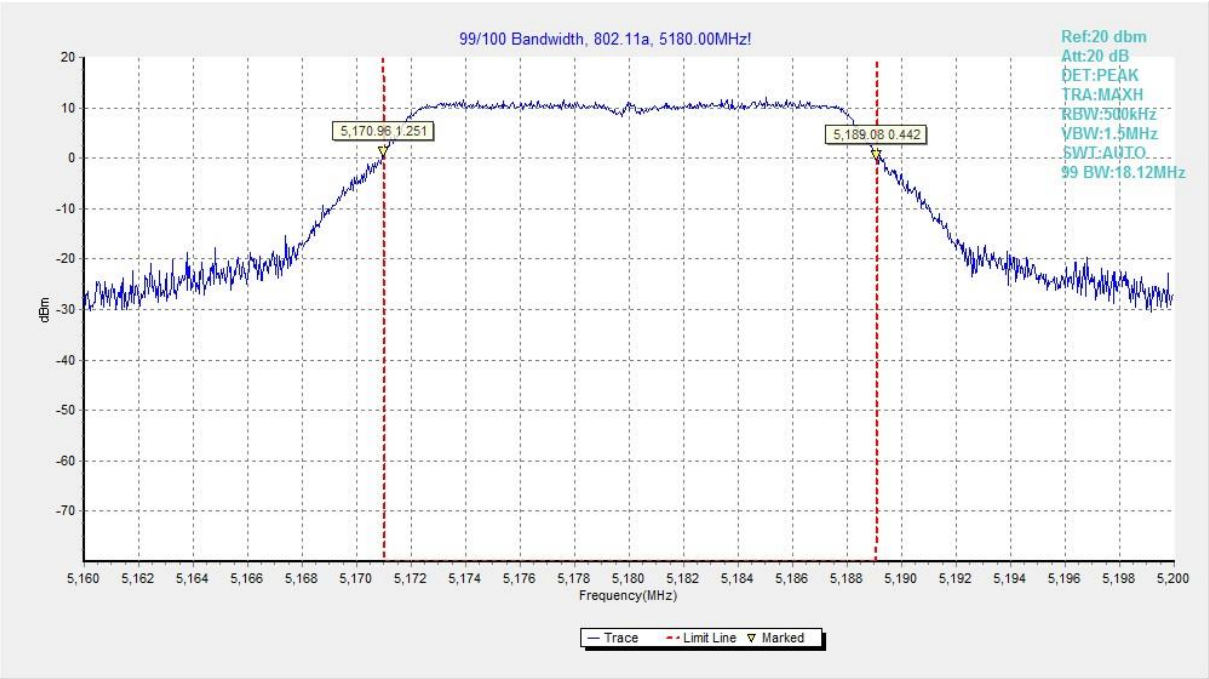

Fig.49 99% Occupied bandwidth (802.11a, 5180MHz)

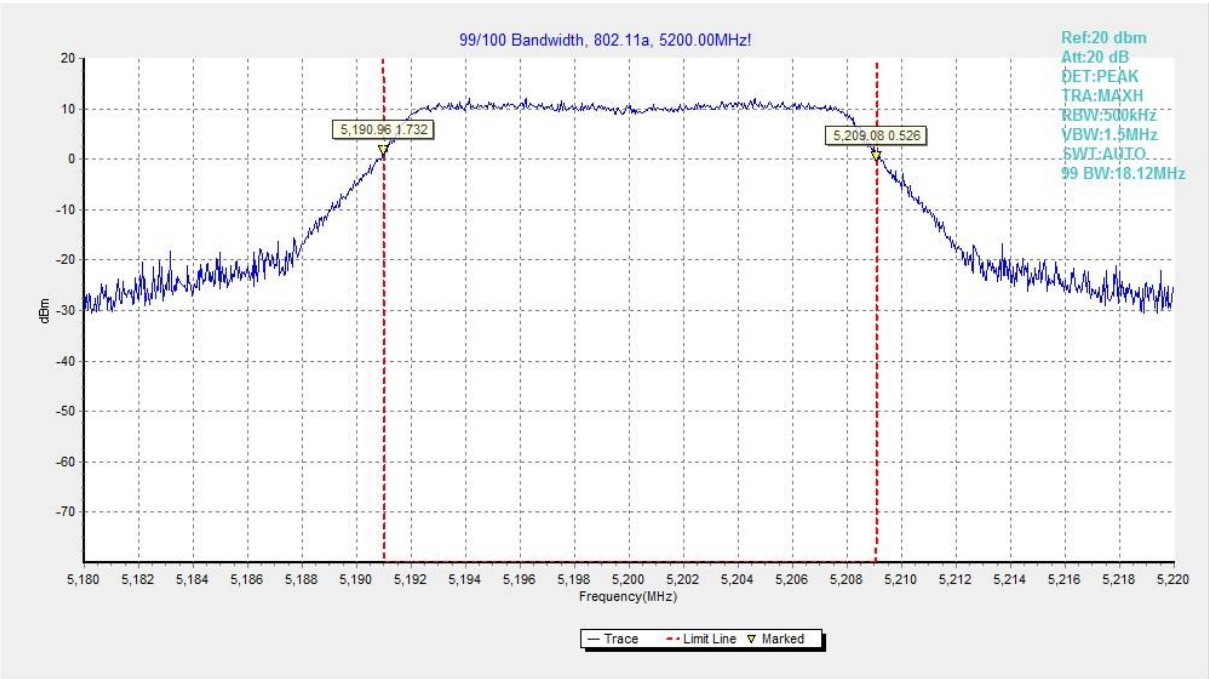

Fig.50 99% Occupied bandwidth (802.11a, 5200MHz)

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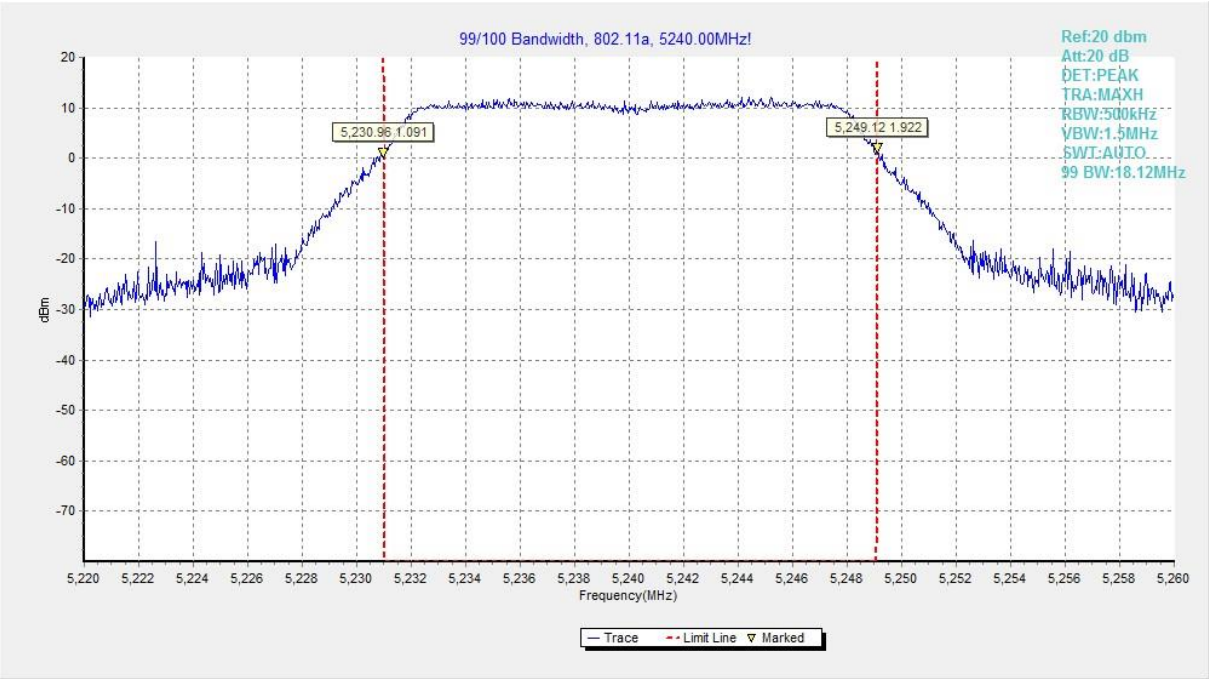

Fig.51 99% Occupied bandwidth (802.11a, 5240MHz)

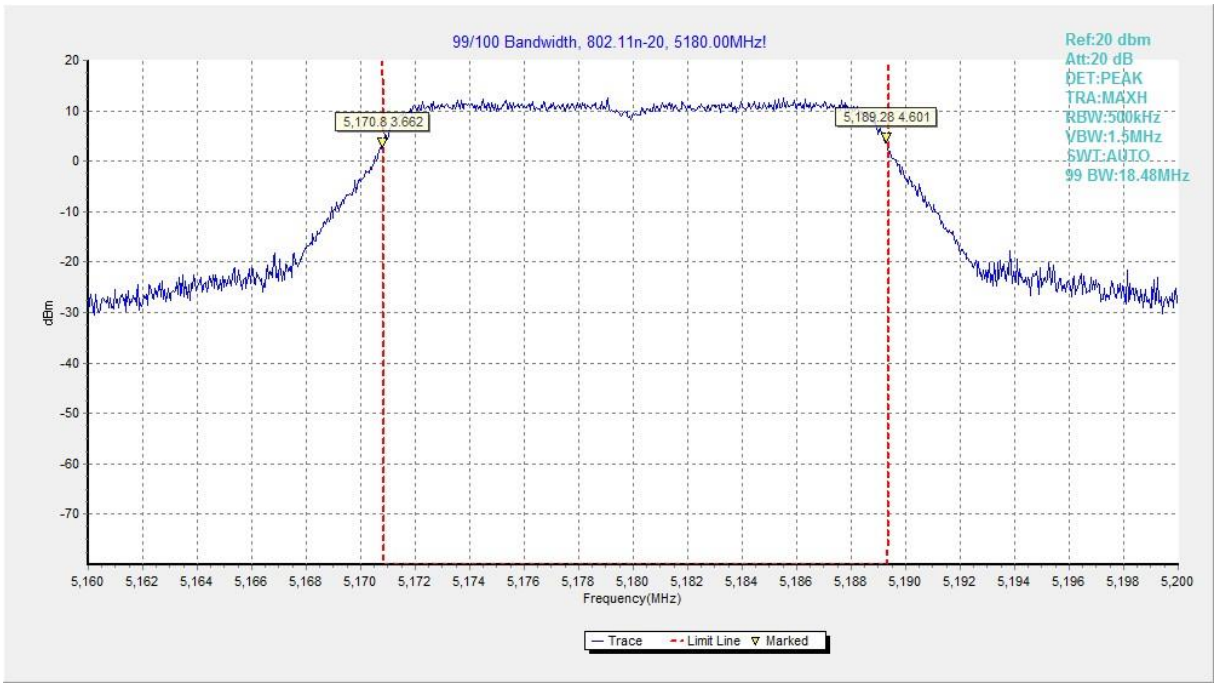

Fig.52 99% Occupied bandwidth (802.11n-HT20, 5180MHz)

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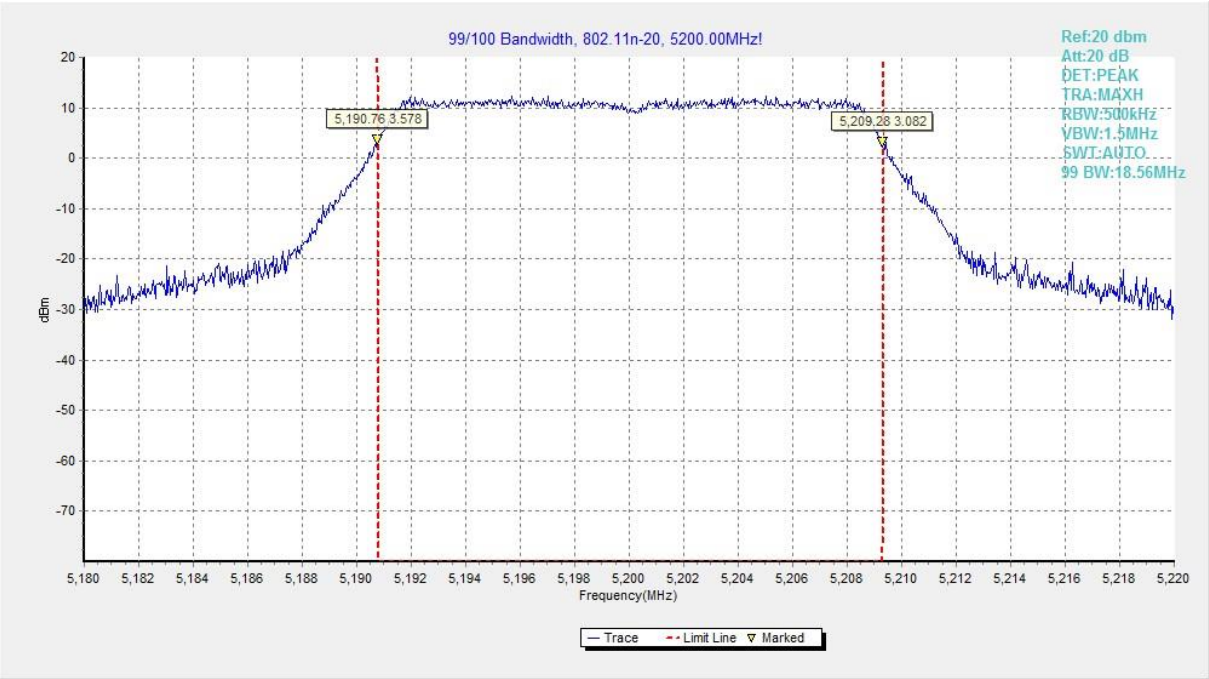

Fig.53 99% Occupied bandwidth (802.11n-HT20, 5200MHz)

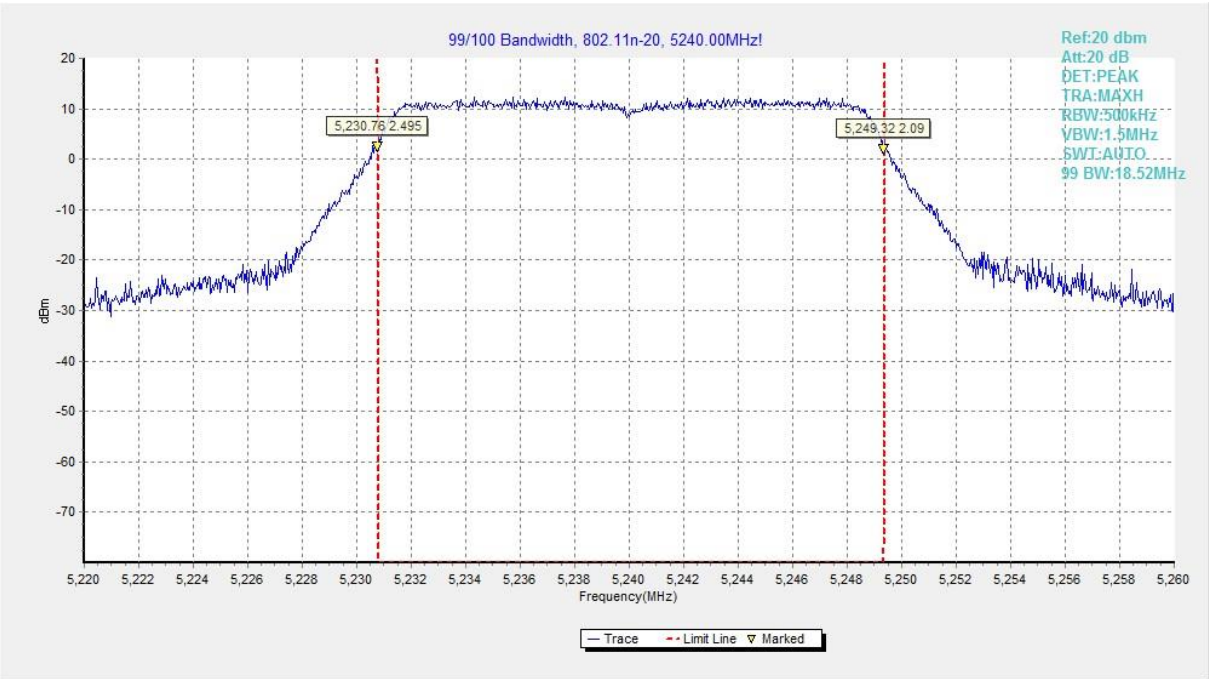

Fig.54 99% Occupied bandwidth (802.11n-HT20, 5240MHz)

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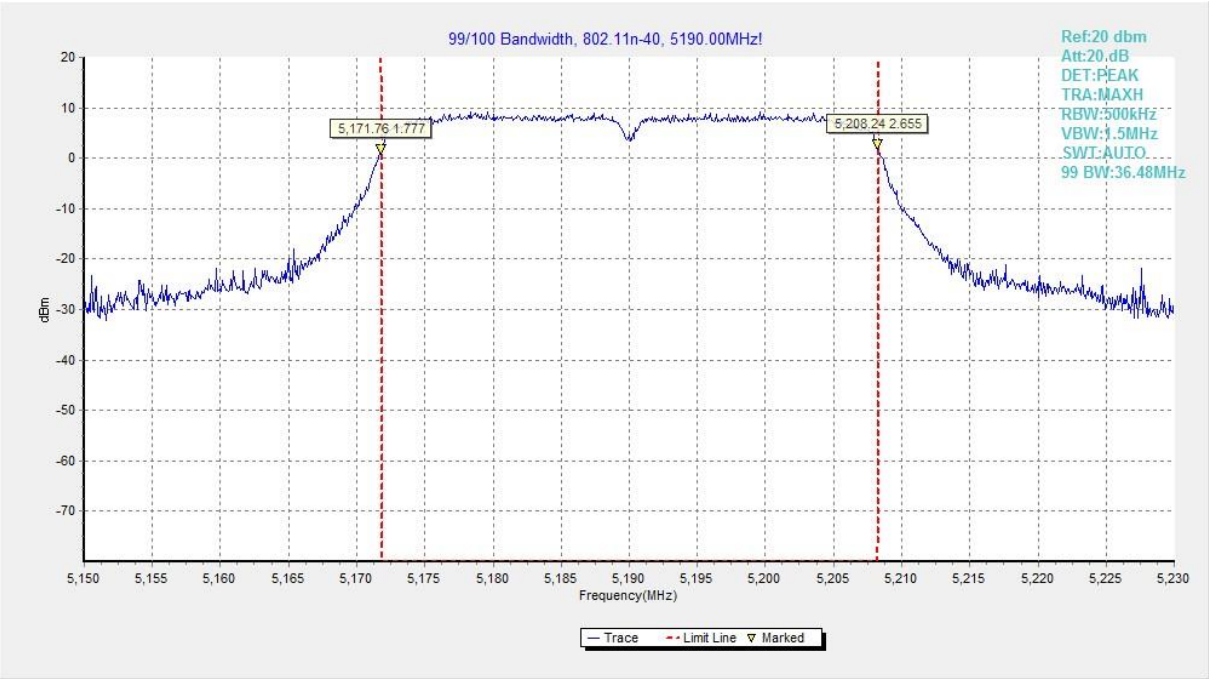

Fig.55 99% Occupied bandwidth (802.11n-HT40, 5190MHz)

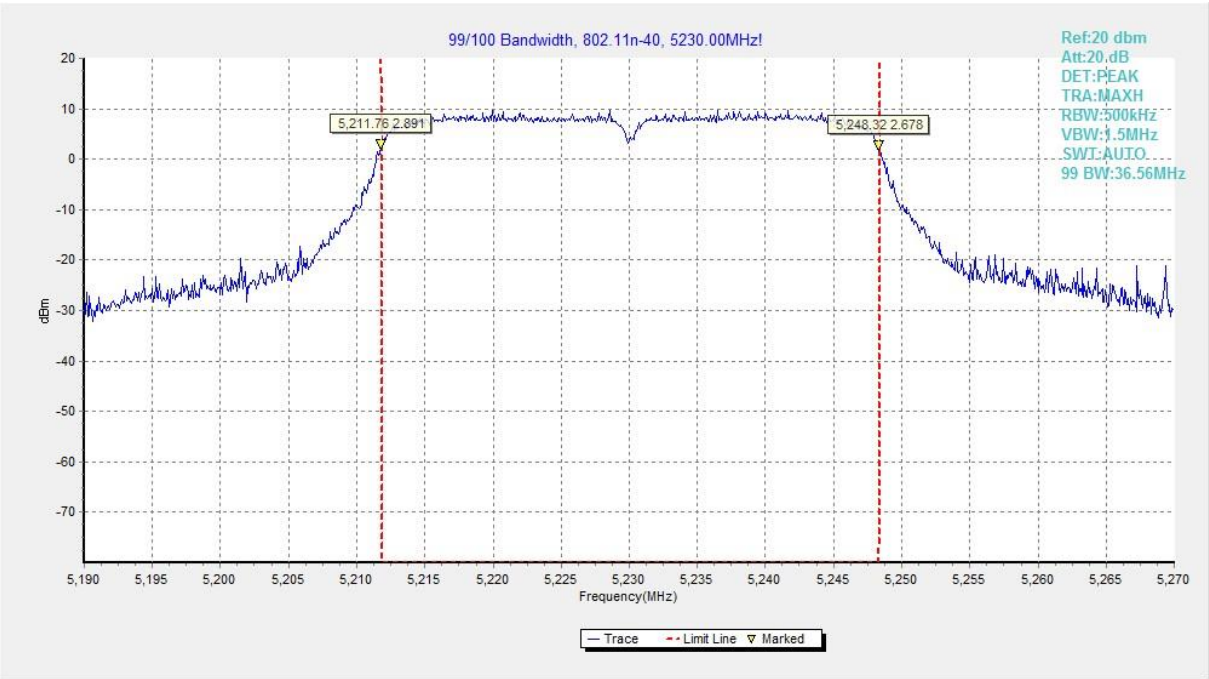

Fig.56 99% Occupied bandwidth (802.11n-HT40, 5230MHz)

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A.9. Frequency Stability

Manufacturers ensured the EUT meet the requirement of frequency stability, such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

Measurement Result:

Mode	Frequency	Test Condition		Result(MHz)
802.11n-HT40	5230MHz	Tnom	Vnom	0.04
		Tmax	Vnom	
		Tmin	Vnom	
		Vmax	Tnom	
		Vmin	Tnom	
802.11a	5280MHz	Tnom	Vnom	0.02
		Tmax	Vnom	
		Tmin	Vnom	
		Vmax	Tnom	
		Vmin	Tnom	
802.11a	5500MHz	Tnom	Vnom	0.03
		Tmax	Vnom	
		Tmin	Vnom	
		Vmax	Tnom	
		Vmin	Tnom	

A.10. Power control

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

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ANNEX B: Accreditation Certificate

United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 600118-0

Telecommunication Technology Labs, CAICT
Beijing
China

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Electromagnetic Compatibility & Telecommunications

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2019-09-26 through 2020-09-30
Effective Dates

DEPARTMENT OF COMMERCE · UNITED STATES OF AMERICA

For the National Voluntary Laboratory Accreditation Program

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

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