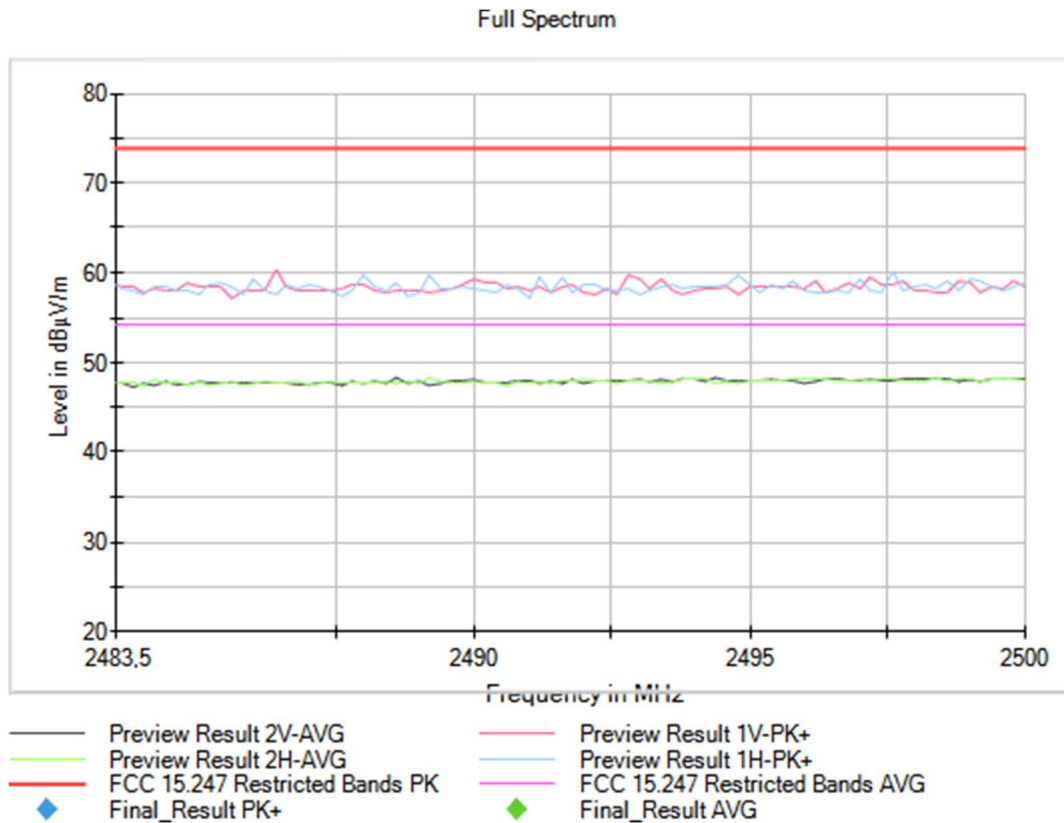
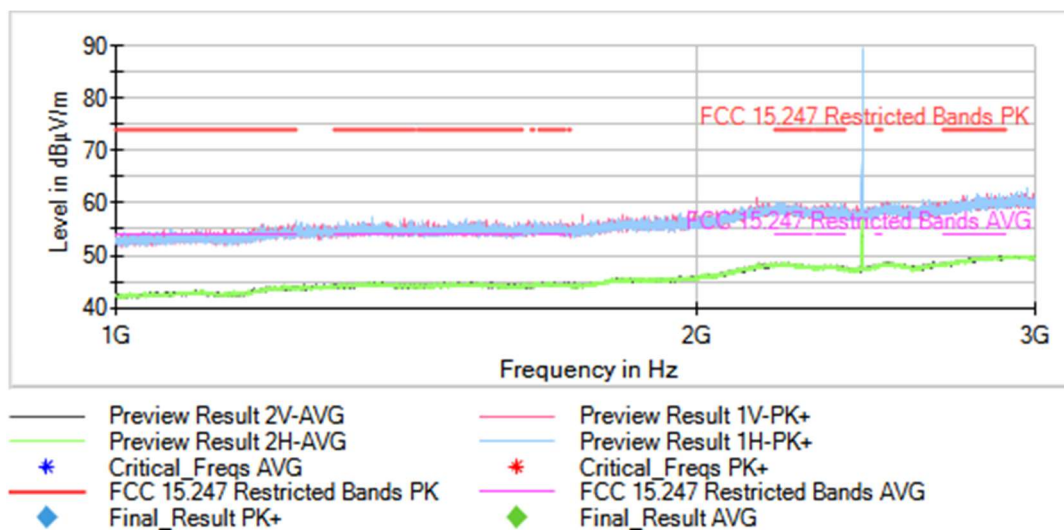




Frequency MHz = 2441.00000, Equipment Type = Frequency Hopping Spread Spectrum systems (DSS),
 Modulation = BT (8DPSK 3-DH5), Frequency Range GHz = [1, 3]

Images:



Full Spectrum

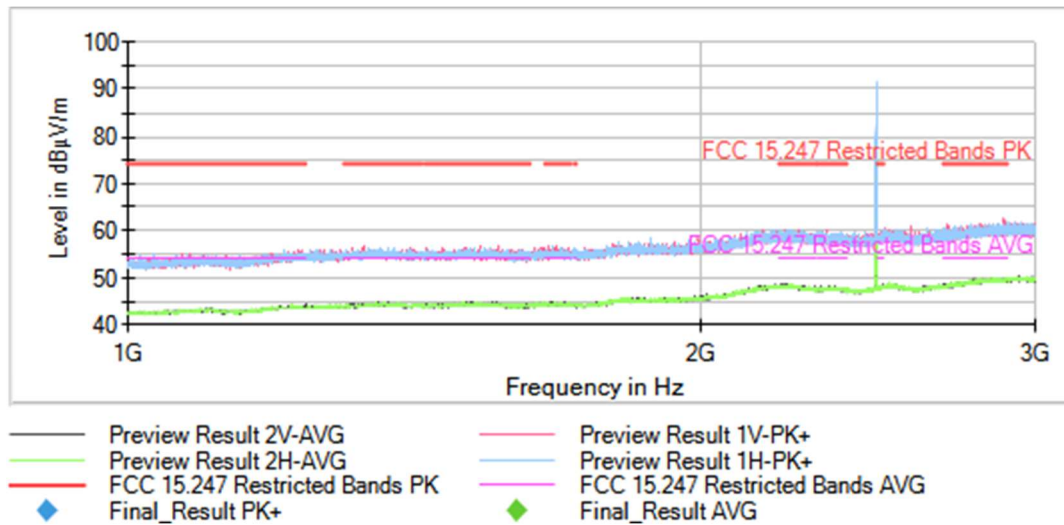


Full Spectrum

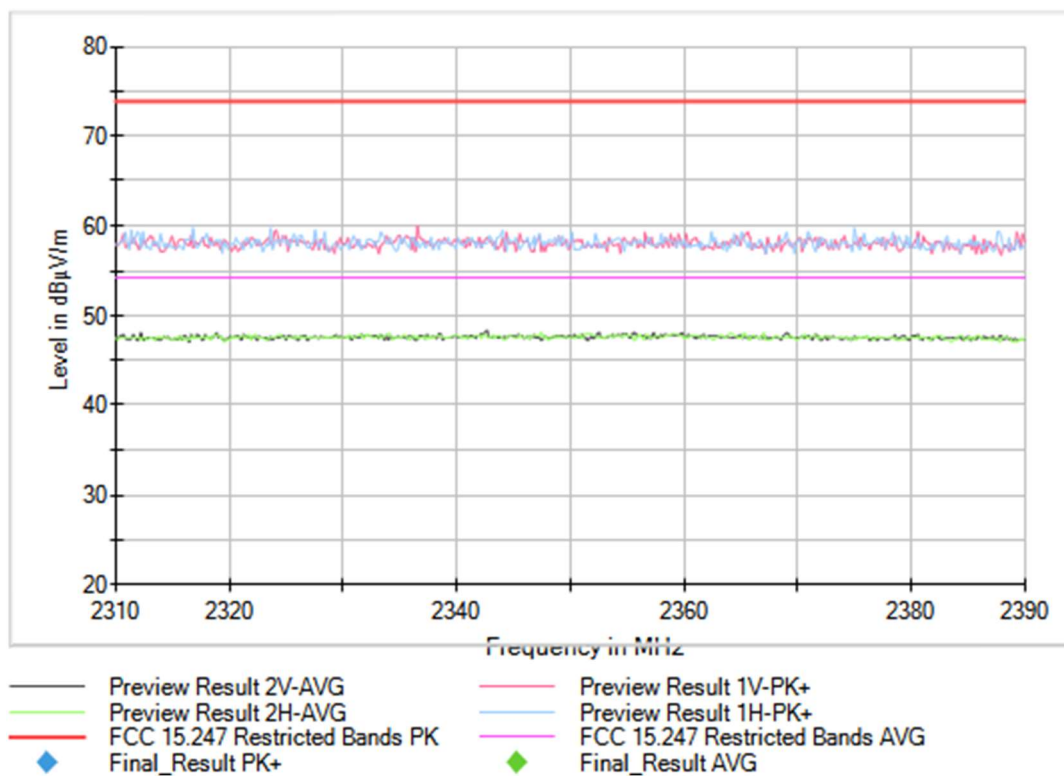


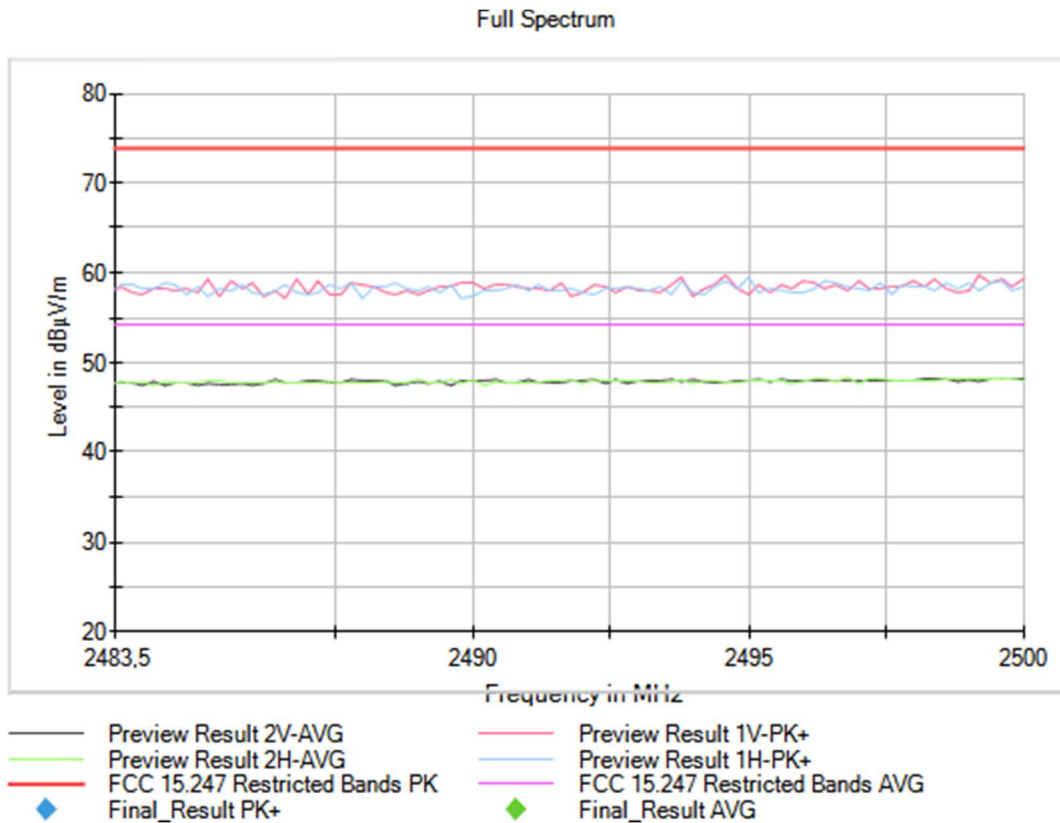
Frequency MHz = 2480.00000, Equipment Type = Frequency Hopping Spread Spectrum systems (DSS),
 Modulation = BT (8DPSK 3-DH5), Frequency Range GHz = [1, 3]

Images:



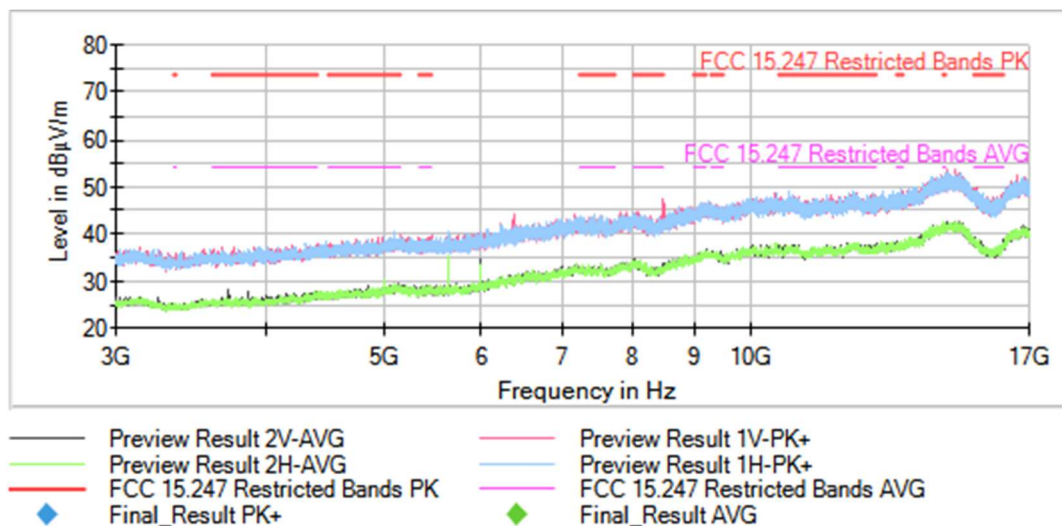
Full Spectrum





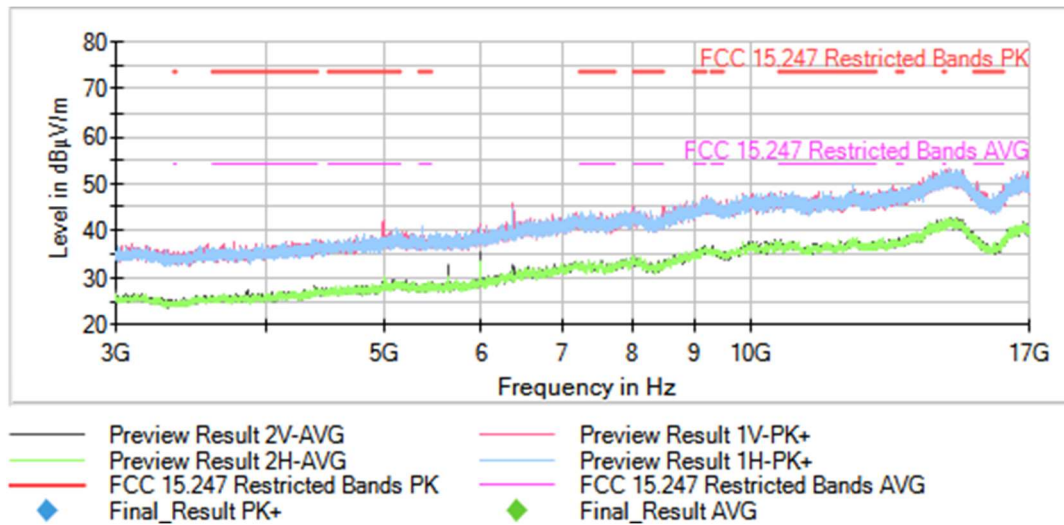
Frequency MHz = 2402.00000, Equipment Type = Frequency Hopping Spread Spectrum systems (DSS),
Modulation = BT (8DPSK 3-DH5), Frequency Range GHz = [3, 17]

Images:



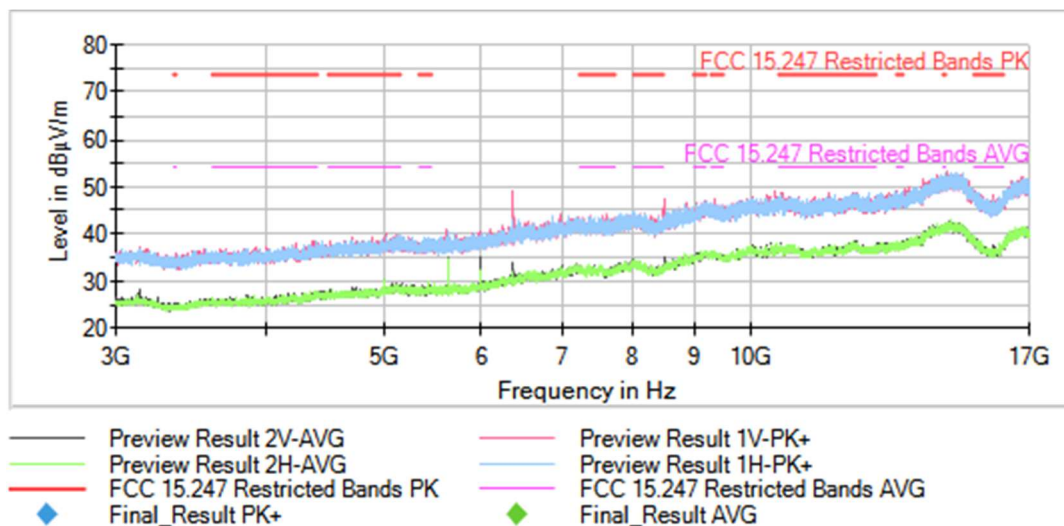
Frequency MHz = 2441.00000, Equipment Type = Frequency Hopping Spread Spectrum systems (DSS),
 Modulation = BT (8DPSK 3-DH5), Frequency Range GHz = [3, 17]

Images:



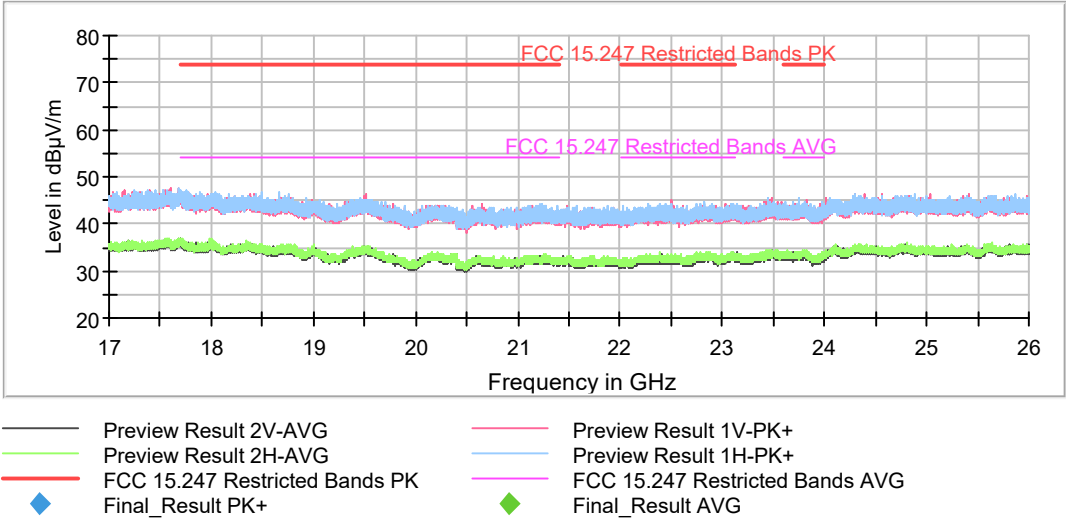
Frequency MHz = 2480.00000, Equipment Type = Frequency Hopping Spread Spectrum systems (DSS),
 Modulation = BT (8DPSK 3-DH5), Frequency Range GHz = [3, 17]

Images:



Equipment Type = Frequency Hopping Spread Spectrum systems (DSS), Frequency Range GHz = [17, 26]

The spurious signals detected do not depend neither on the operating channel,



This plot is valid for Low, Middle and High Channels and all modulations

Appendix B: Test results. WLAN 2.4GHz

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TEST CONDITIONS	39
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TEST CONDITIONS

(*): Data provided by the client.

POWER SUPPLY (*):

Vnominal:	12 Vdc
Type of Power Supply:	DC voltage from external power supply (car battery).

ANTENNA (*):

Type of Antenna:	External.
Maximum Declared Antenna Gain:	+2.4 dBi SISO

TEST FREQUENCIES (*):

Low Channel:	2412 MHz
Middle Channel:	2442 MHz
High Channel:	2462 MHz

RADIATED MEASUREMENTS:

All radiated tests were performed in a semi-anechoic chamber. The measurement antenna (Bilog antenna for the range between 30 MHz to 1000 MHz and 1 GHz-17 GHz Double ridge horn antenna) is situated at a distance of 3 m and at a distance of 1.5 m for the frequency range 17 GHz-26 GHz (17 GHz-40 GHz horn antenna).

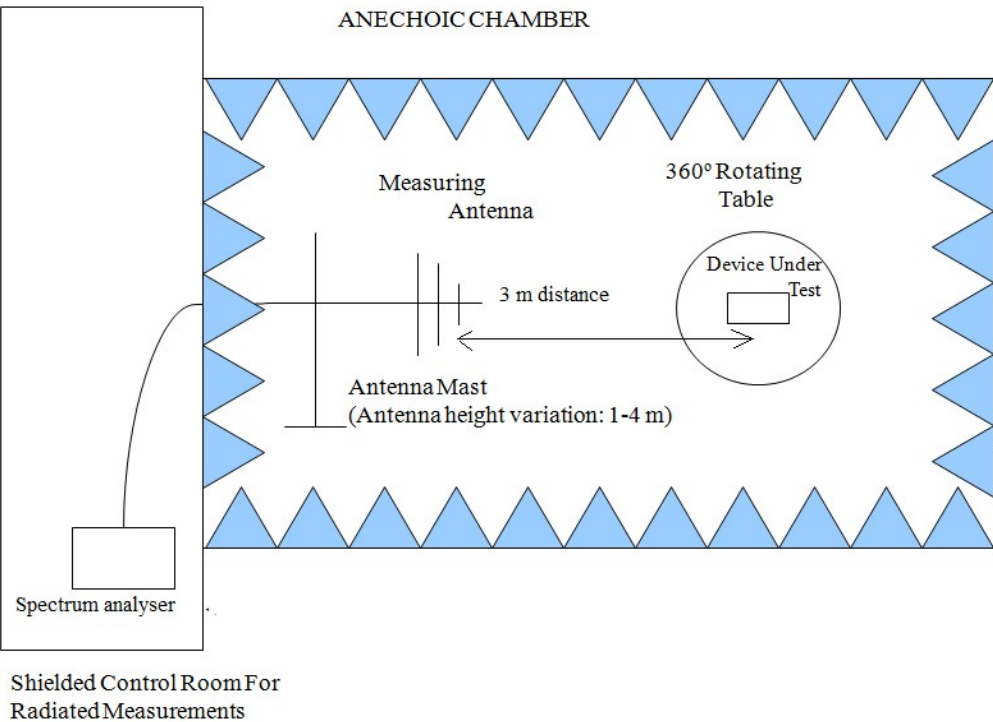
For radiated emissions in the range 17 GHz-26 GHz that is performed at a distance closer than the specified distance, an inverse proportionality factor of 20 dB per decade is used to normalize the measured data for determining compliance.

The equipment under test was set up on a non-conductive platform above the ground plane and the situation and orientation was varied to find the maximum radiated emission. It was also rotated 360° and the antenna height (Bilog antenna and Double ridge horn antenna) was varied from 1 to 4 meters to find the maximum radiated emission.

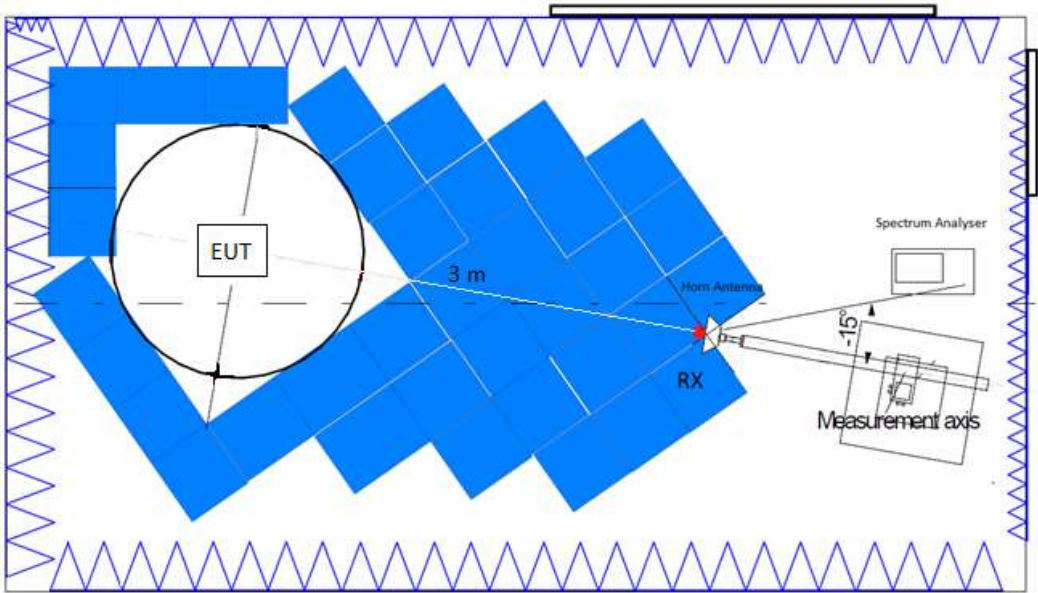
Measurements were made in both horizontal and vertical planes of polarization.

A resolution bandwidth/video bandwidth of 100 kHz / 300 kHz was used for frequencies below 1 GHz and 1 MHz / 3 MHz for frequencies above 1 GHz.

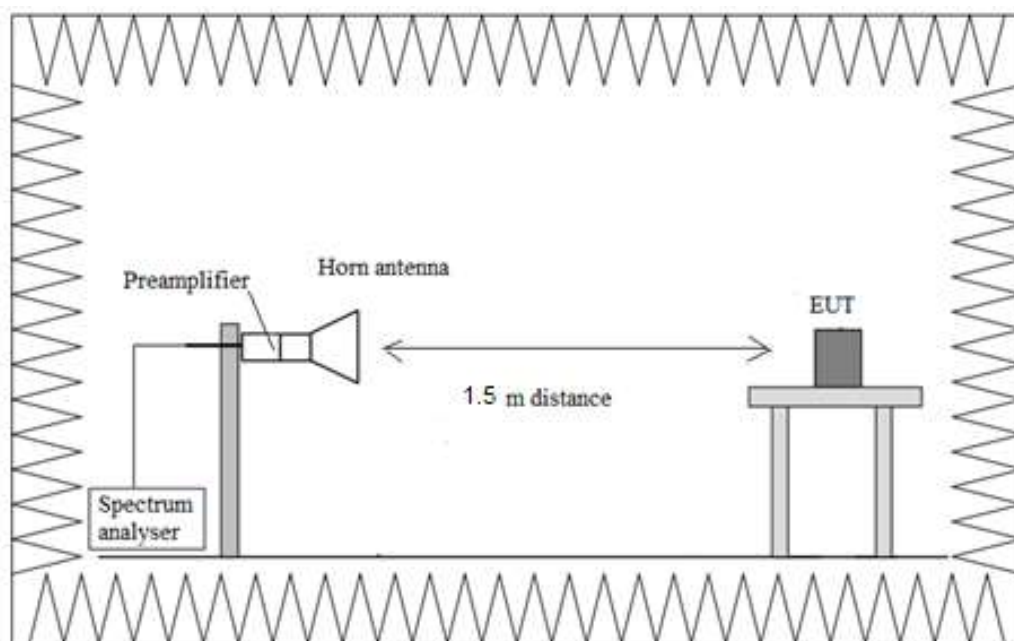
Radiated measurements setup from 30 MHz to 1 GHz:



Radiated measurements setup from 1 GHz to 17 GHz:



Radiated measurements setup $f > 17$ GHz:



TEST CASES DETAILS

FCC 47 CFR Part 15.247 / RSS-247

RSS-247 5.5 / FCC 15.247 (d) [RSE] Emission limitations radiated (Transmitter)

Limits

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)/RSS-Gen):

Frequency Range (MHz)	Field strength (µV/m)	Field strength (dBµV/m)	Measurement distance (m)
0.009-0.490	2400/F(kHz)	-	300
0.490-1.705	24000/F(kHz)	-	30
1.705 - 30.0	30	-	30
30 - 88	100	40	3
88 - 216	150	43.5	3
216 - 960	200	46	3
Above 960	500	54	3

The emission limits shown in the above table are based on measurements employing CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

For average radiated emission measurements above 1000 MHz, there is also a limit corresponding to 20 dB above the indicated values in the table is specified when measuring with peak detector function.

RSS-247: Attenuation below the general field strength limits specified in RSS-Gen is not required.

Frequency range 30 MHz - 1 GHz:

The spurious frequencies detected do not depend on either the modulation or the operating channel.

Spurious frequencies detected at less than 20 dB below the limit:

Freq Rng (GHz)	Unwanted Freq (MHz)	Unwanted Lvl (dBµV/m)	Pol	Detector
[0.03, 1]	299.980	29.62	H	QP
[0.03, 1]	499.980	27.68		QP

Frequency range 1 GHz - 26 GHz:

The results in the next tables show the maximum measured levels in the 1 – 26 GHz range including the restricted bands 2.31 – 2.39 GHz and 2.4835 – 2.5 GHz.

Spurious frequencies with peak levels above the average limit (54 dBµV/m at 3 m) are measured with average detector for compliance checking with the average limit.

Modulation: 802.11b (DSSS 1 Mbit/s)

Spurious frequencies detected at less than 20 dB below the limit:

Freq (MHz)	Freq Rng (GHz)	Unwanted Freq (MHz)	Unwanted Lvl (dBµV/m)	Pol	Detector
2402.00000	[3, 17]	6391.0625	49.37	V	Peak
2442.00000	[3, 17]	6377.9375	50.38	V	Peak
2480.00000	[3, 17]	6381.4375	47.70	V	Peak
2480.00000	[3, 17]	8518.6250	47.87	V	Peak

Modulation: 802.11g (OFDM 6 Mbit/s)

Spurious frequencies detected at less than 20 dB below the limit:

Freq (MHz)	Freq Rng (GHz)	Unwanted Freq (MHz)	Unwanted Lvl (dBµV/m)	Pol	Detector
2442.00000	[3, 17]	6381.0000	49.49	V	Peak

Modulation: 802.11n HT20 (OFDM MCS0 6.5 Mbit/s)

Spurious frequencies detected at less than 20 dB below the limit:

Freq (MHz)	Freq Rng (GHz)	Unwanted Freq (MHz)	Unwanted Lvl (dBµV/m)	Pol	Detector
2442.00000	[3, 17]	6377.9375	46.62	V	Peak
2442.00000	[3, 17]	8493.2500	47.96	V	Peak
2480.00000	[3, 17]	4987.5625	41.91	V	Peak

Verdict

Pass

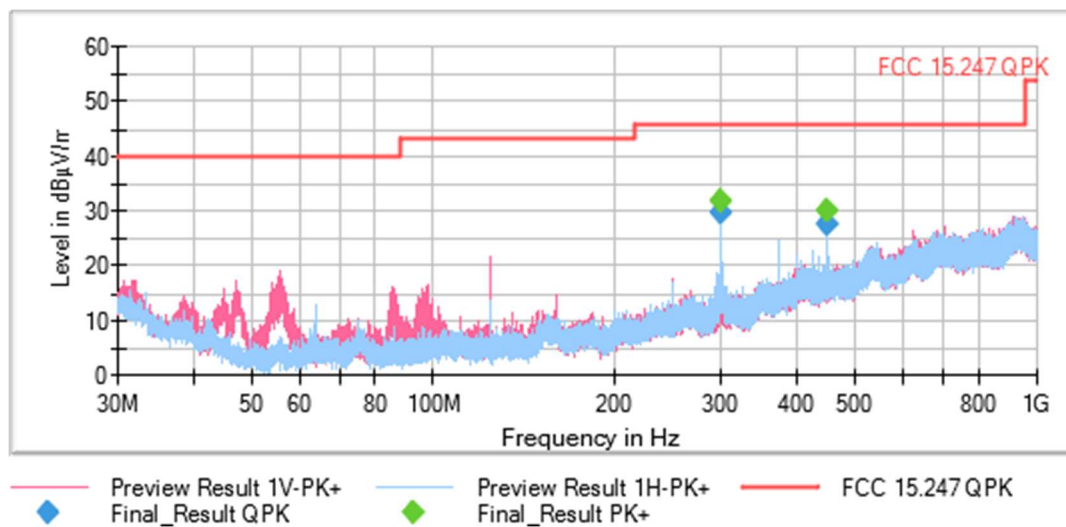
Attachments

The measurement settings for each range of frequency is as follows:

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
Receiver: [ESR 7] 30 MHz - 1 GHz	9,7 kHz	PK+	100 kHz	1 s	0 dB
Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
Receiver: [FSV 40] 1 GHz - 3 GHz	200 kHz	PK+ ; AVG	1 MHz	1 s	0 dB
Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
Receiver: [FSV 40] 3 GHz - 17 GHz	437,5 kHz	PK+ ; AVG	1 MHz	1 s	0 dB
Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
Receiver: [FSV 40] 17 GHz - 26 GHz	281,25 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

Equipment Type = Digital Transmission System (DTS), Frequency Range GHz = [0.03, 1]

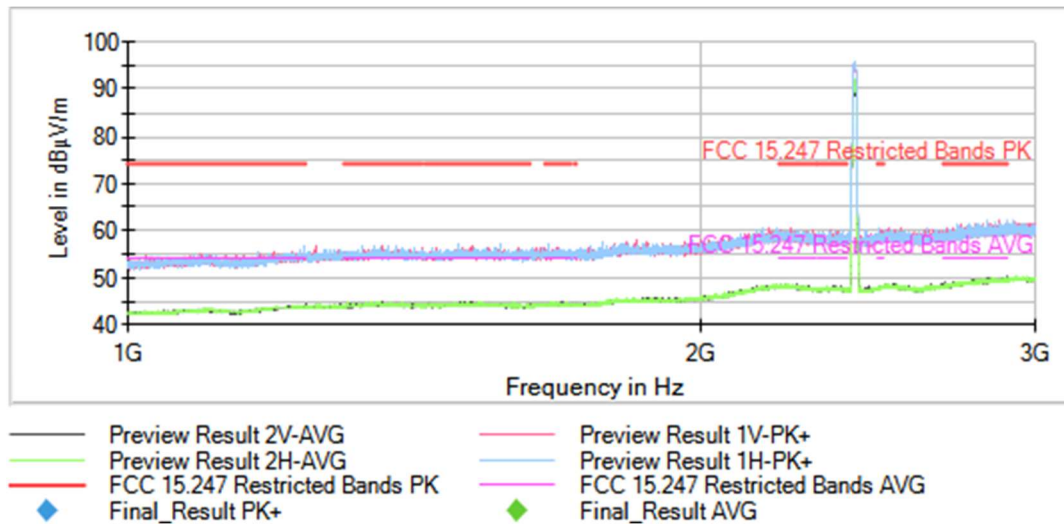
Images:



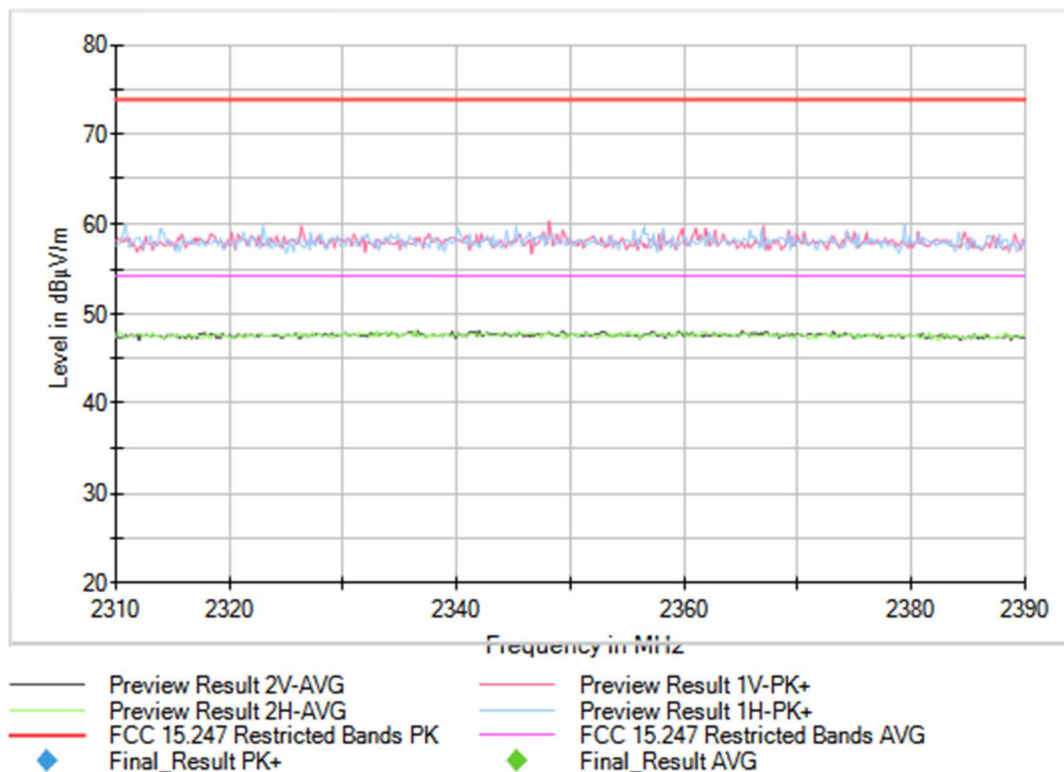
This plot is valid for Low, Middle and High Channels and all modulations

Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Modulation = 802.11b (DSSS 1 Mbit/s), Frequency Range GHz = [1, 3]

Images:



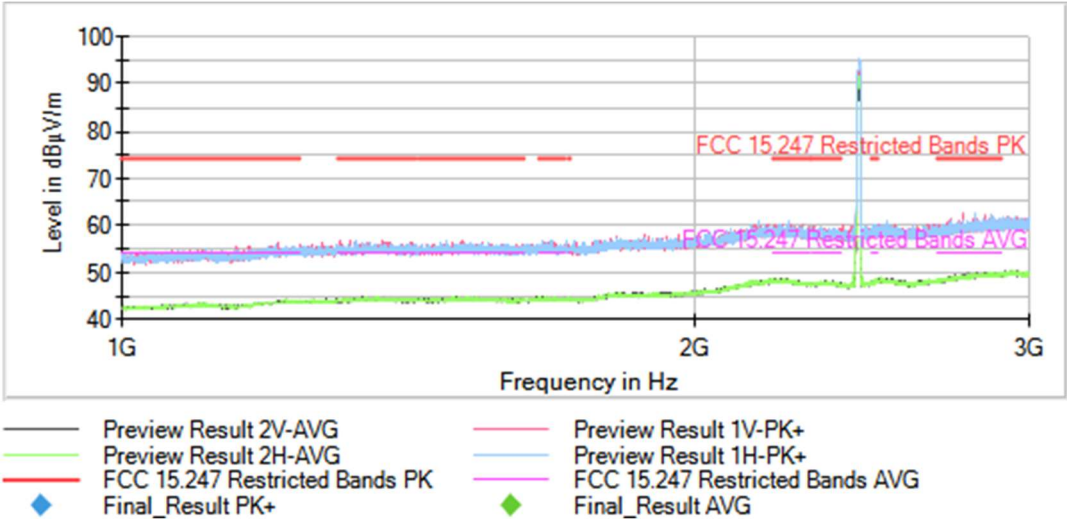
Full Spectrum



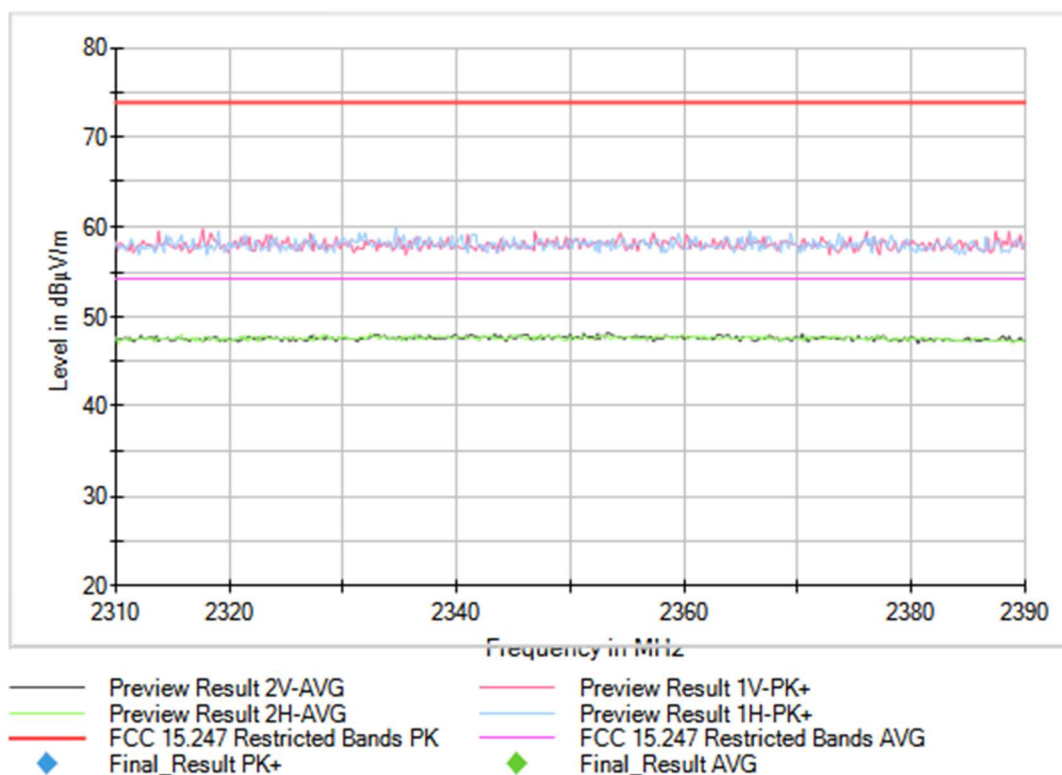


Frequency MHz = 2442.00000, Equipment Type = Digital Transmission System (DTS), Modulation = 802.11b (DSSS 1 Mbit/s), Frequency Range GHz = [1, 3]

Images:



Full Spectrum

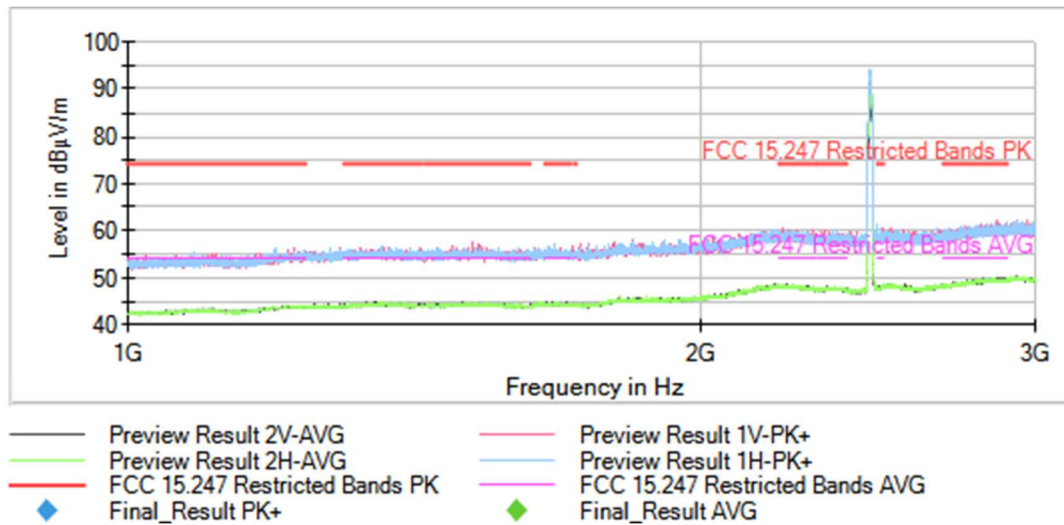


Full Spectrum



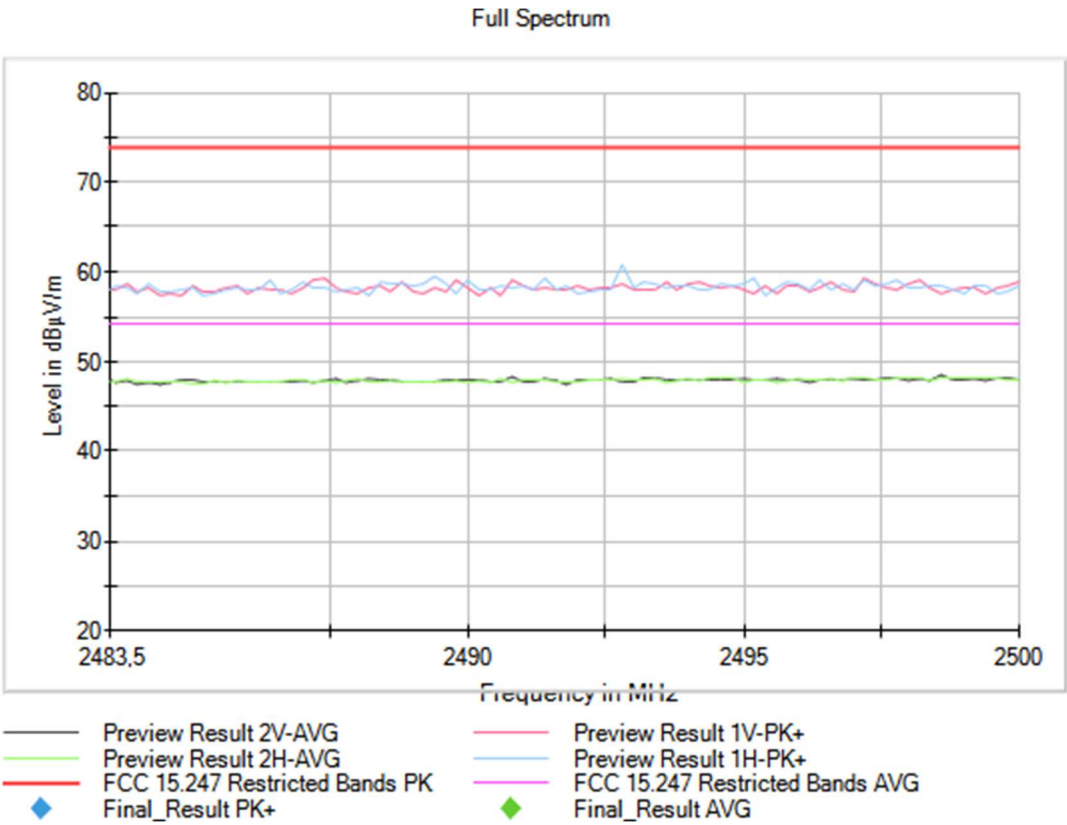
Frequency MHz = 2462.00000, Equipment Type = Digital Transmission System (DTS), Modulation = 802.11b (DSSS 1 Mbit/s), Frequency Range GHz = [1, 3]

Images:



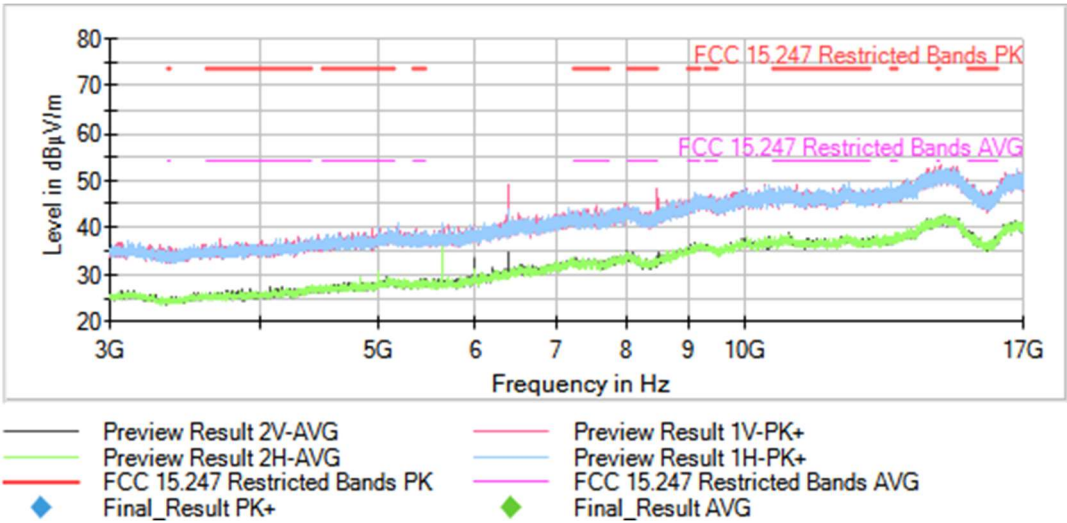
Full Spectrum





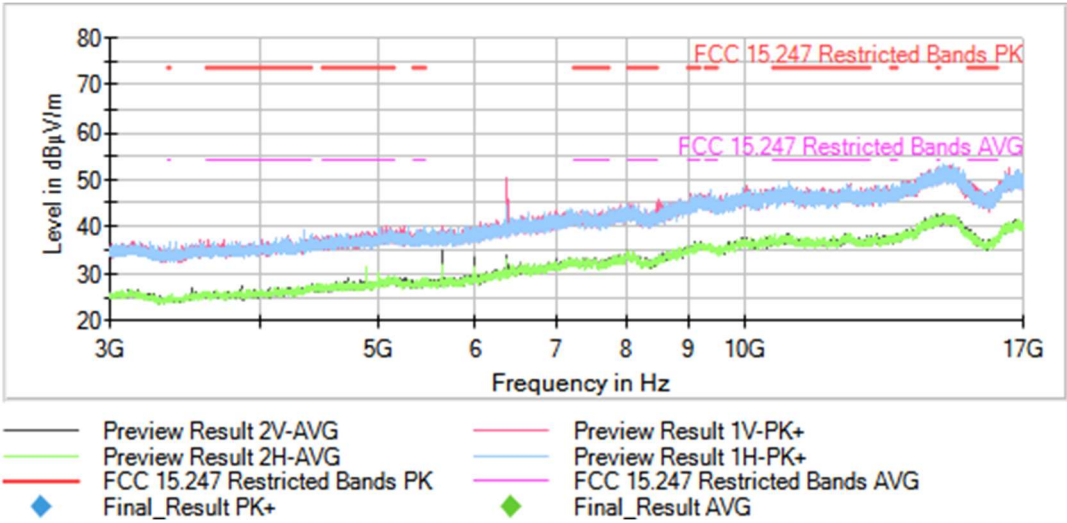
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Images:



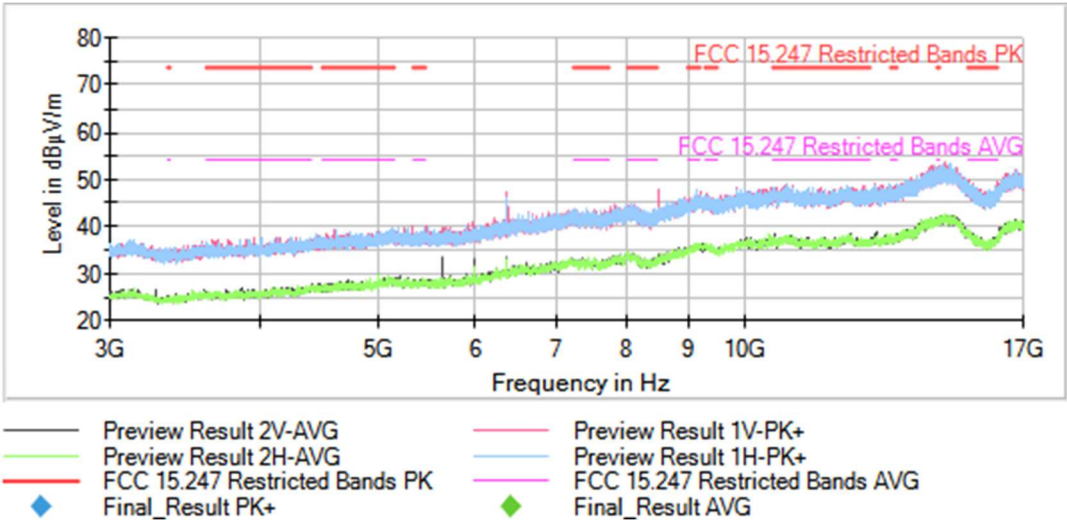
Frequency MHz = 2442.00000, Equipment Type = Digital Transmission System (DTS), Modulation = 802.11b (DSSS 1 Mbit/s), Frequency Range GHz = [3, 17]

Images:



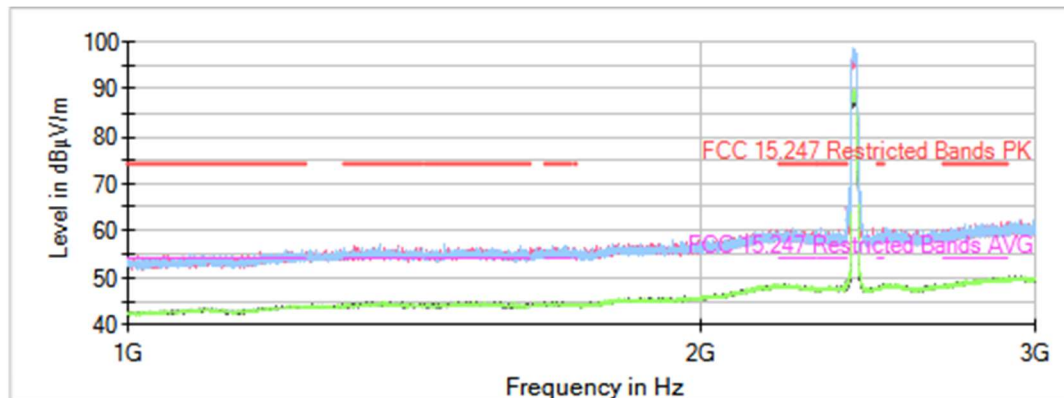
Frequency MHz = 2462.00000, Equipment Type = Digital Transmission System (DTS), Modulation = 802.11b (DSSS 1 Mbit/s), Frequency Range GHz = [3, 17]

Images:



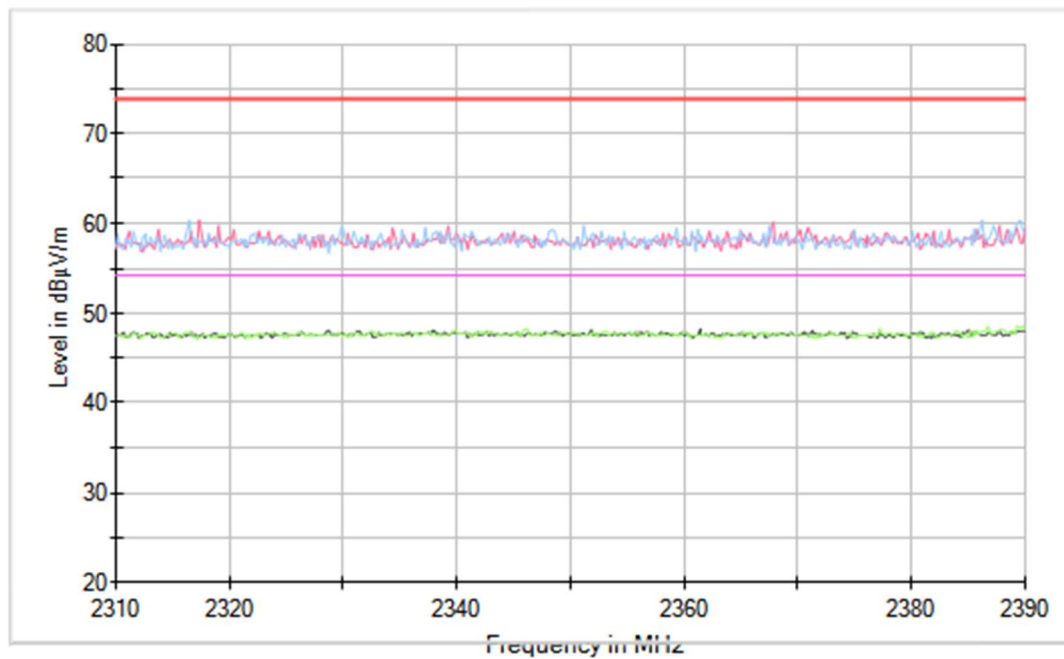
Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Modulation = 802.11g (OFDM 6 Mbit/s), Frequency Range GHz = [1, 3]

Images:

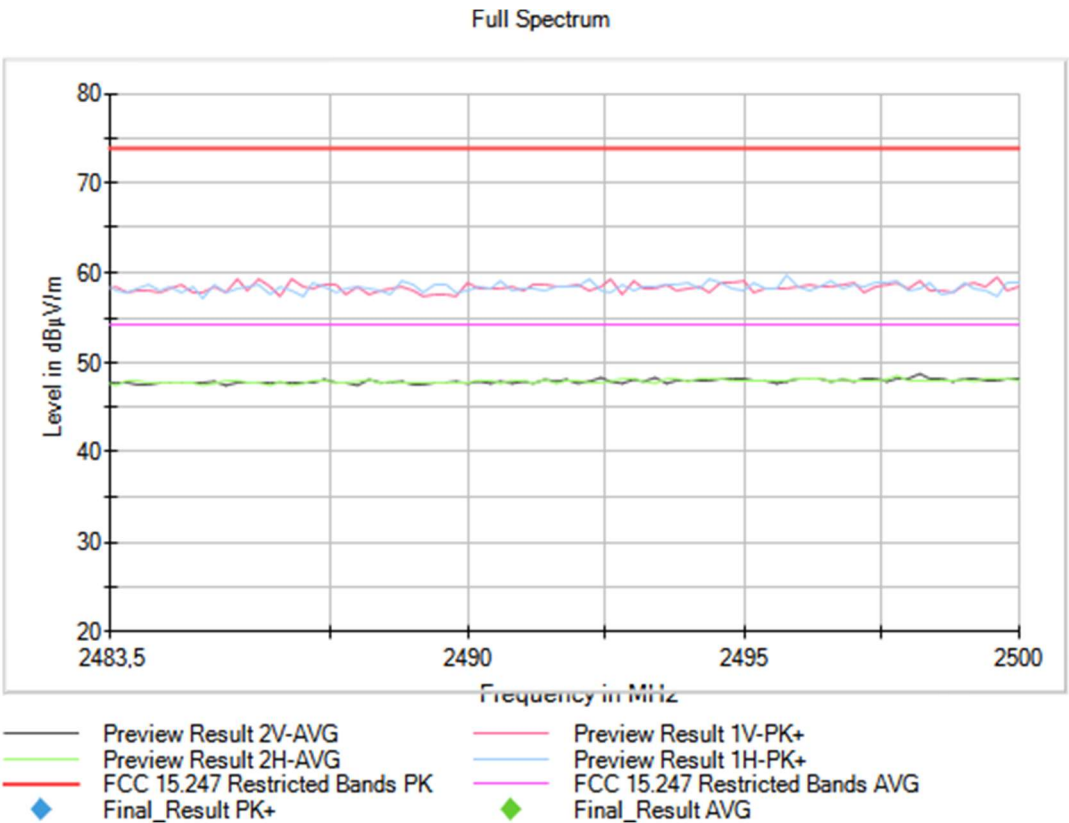


— Preview Result 2V-AVG
 — Preview Result 2H-AVG
 — FCC 15.247 Restricted Bands PK
 ◆ Final_Result PK+
 — Preview Result 1V-PK+
 — Preview Result 1H-PK+
 — FCC 15.247 Restricted Bands AVG
 ◆ Final_Result AVG

Full Spectrum

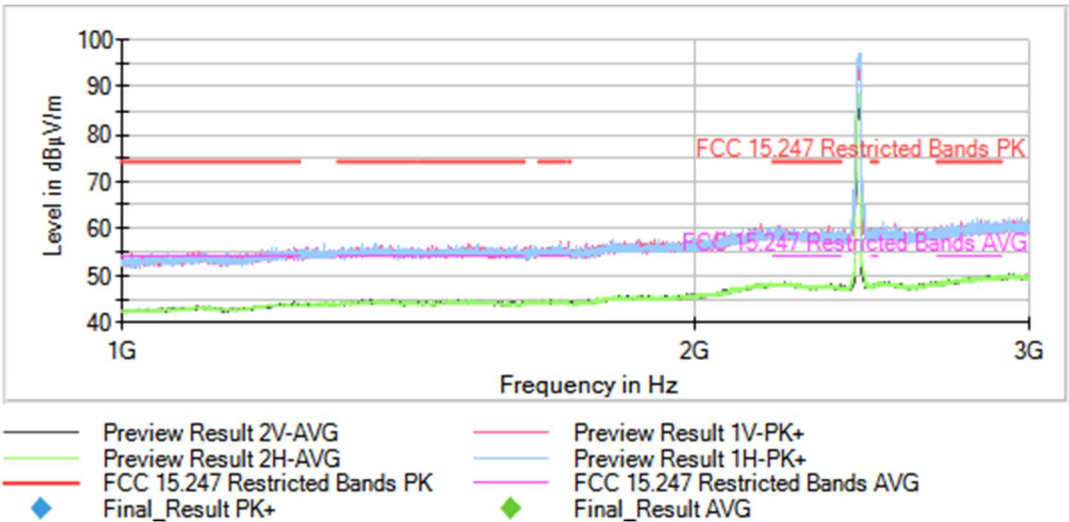


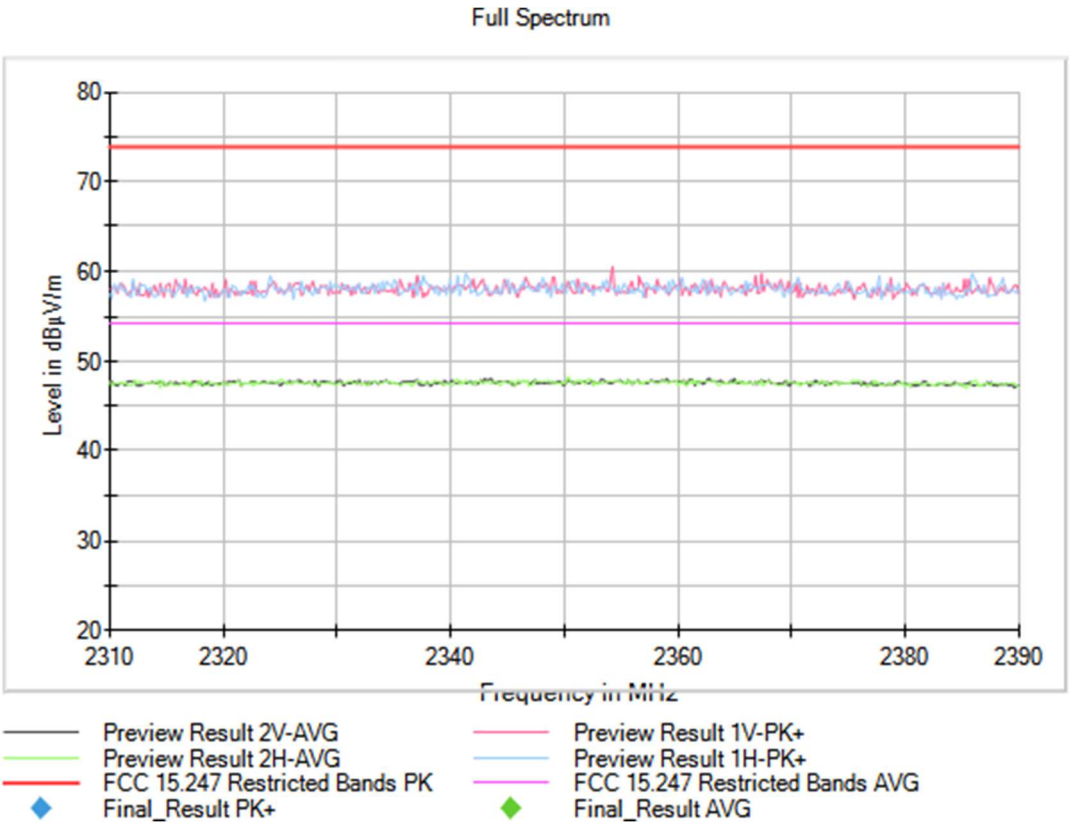
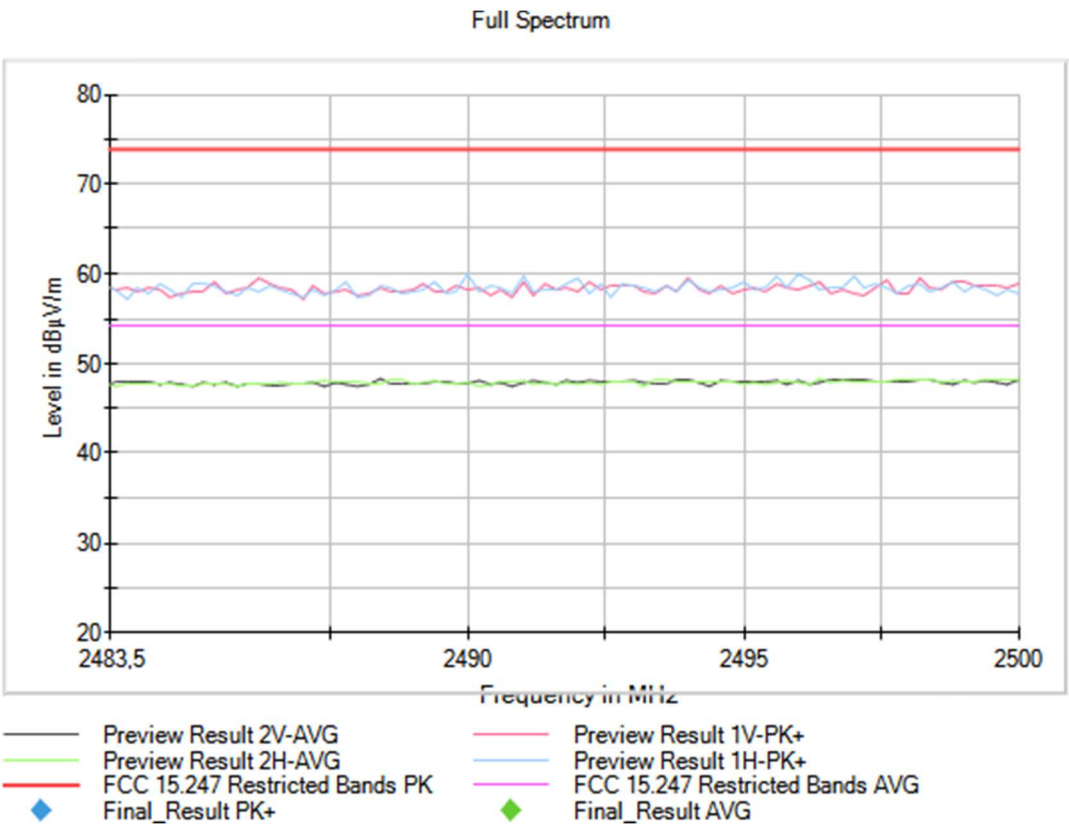
— Preview Result 2V-AVG
 — Preview Result 2H-AVG
 — FCC 15.247 Restricted Bands PK
 ◆ Final_Result PK+
 — Preview Result 1V-PK+
 — Preview Result 1H-PK+
 — FCC 15.247 Restricted Bands AVG
 ◆ Final_Result AVG



Frequency MHz = 2442.00000, Equipment Type = Digital Transmission System (DTS), Modulation = 802.11g (OFDM 6 Mbit/s), Frequency Range GHz = [1, 3]

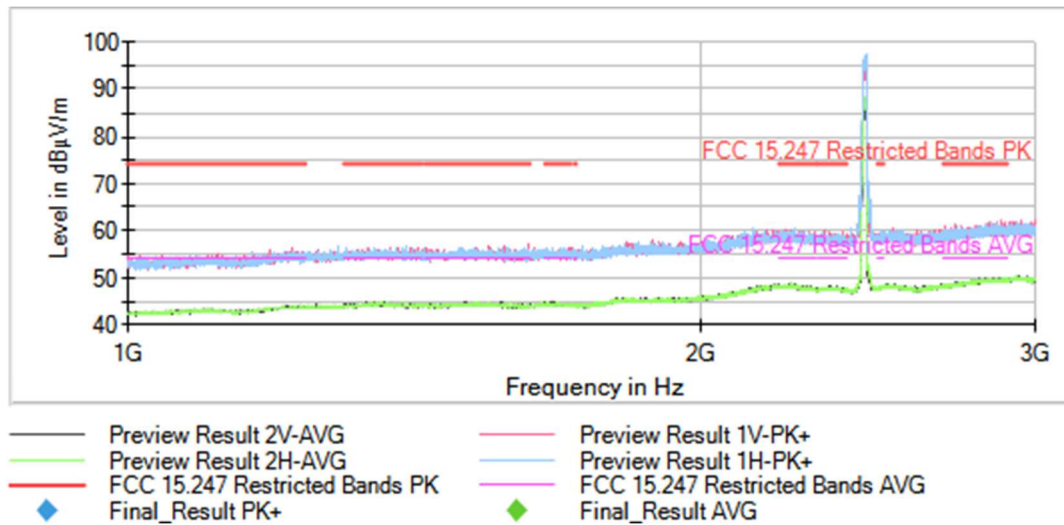
Images:



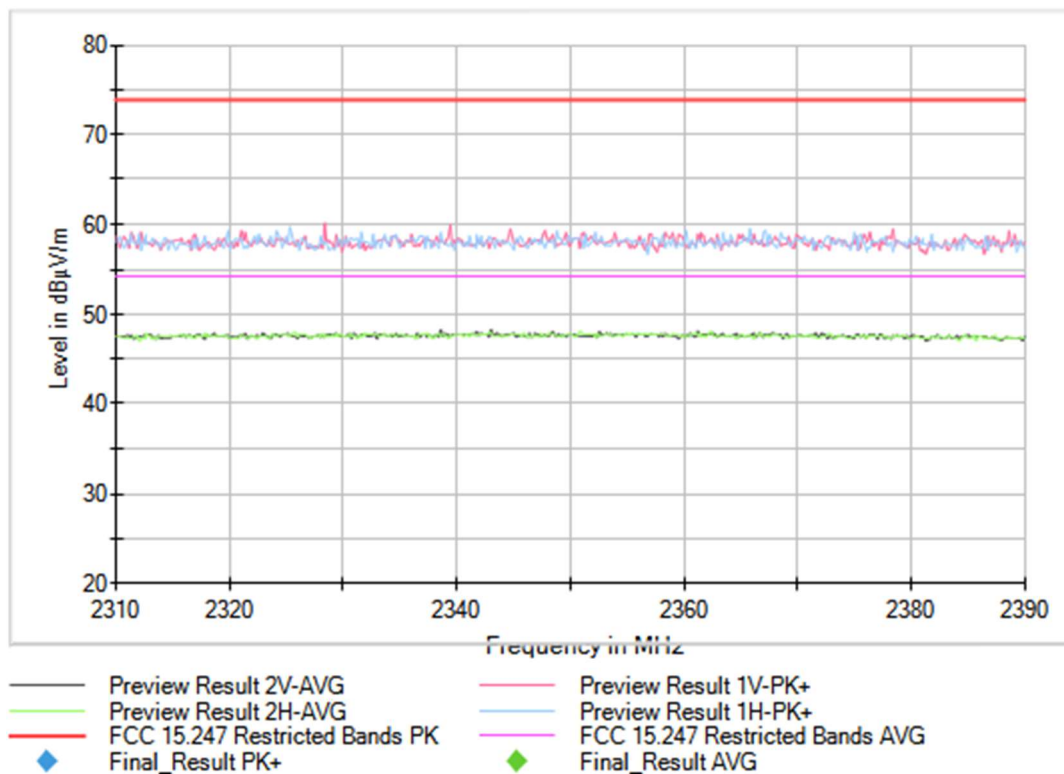


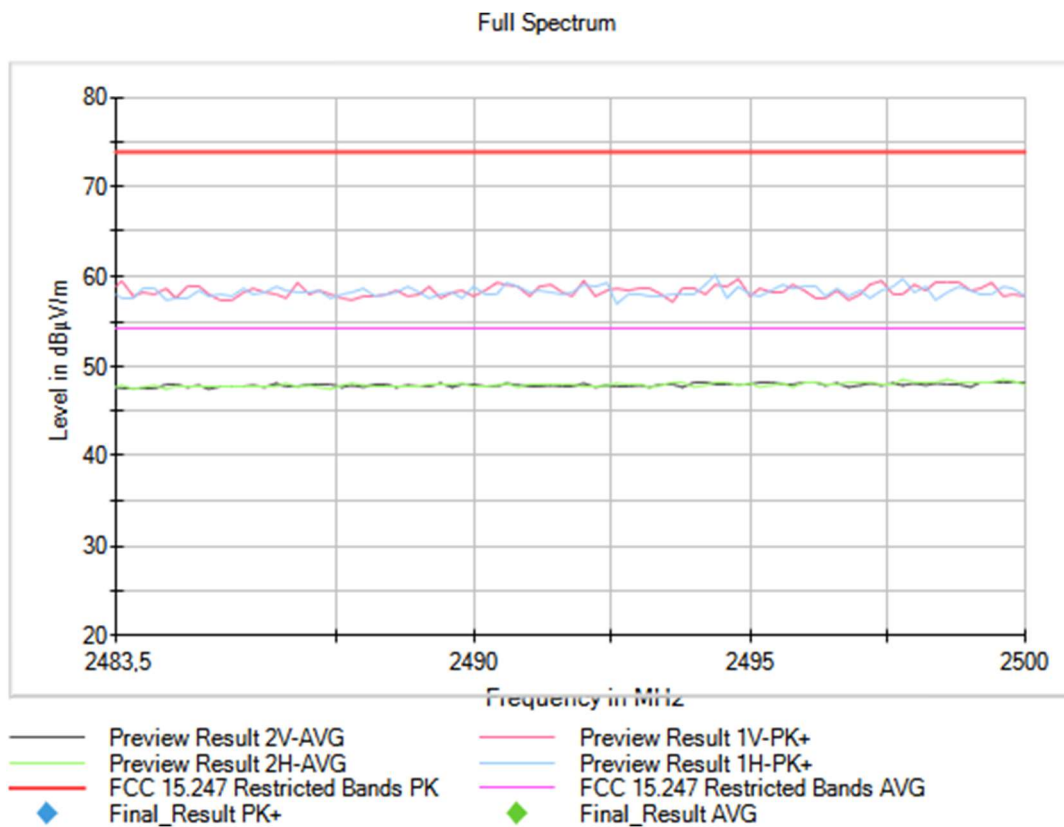
Frequency MHz = 2462.00000, Equipment Type = Digital Transmission System (DTS), Modulation = 802.11g (OFDM 6 Mbit/s), Frequency Range GHz = [1, 3]

Images:



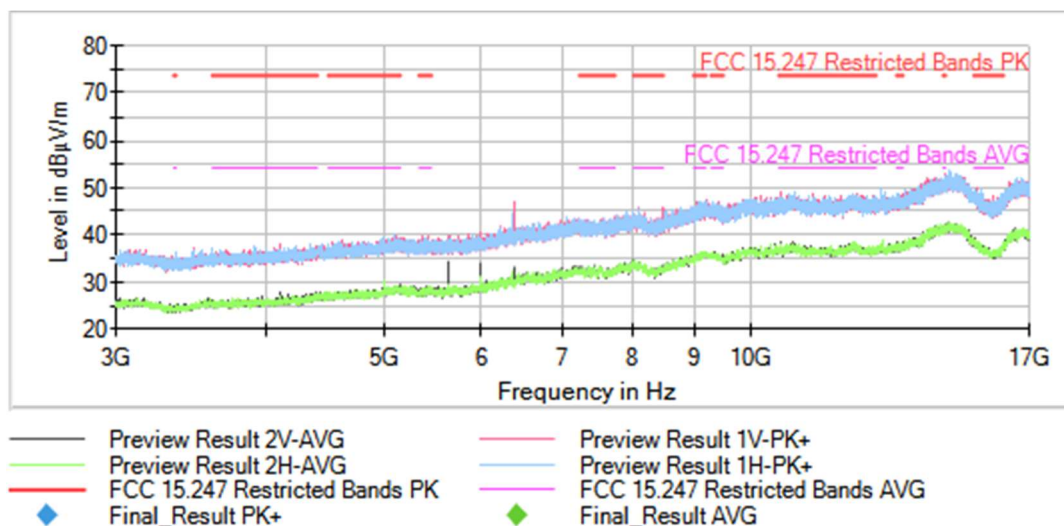
Full Spectrum





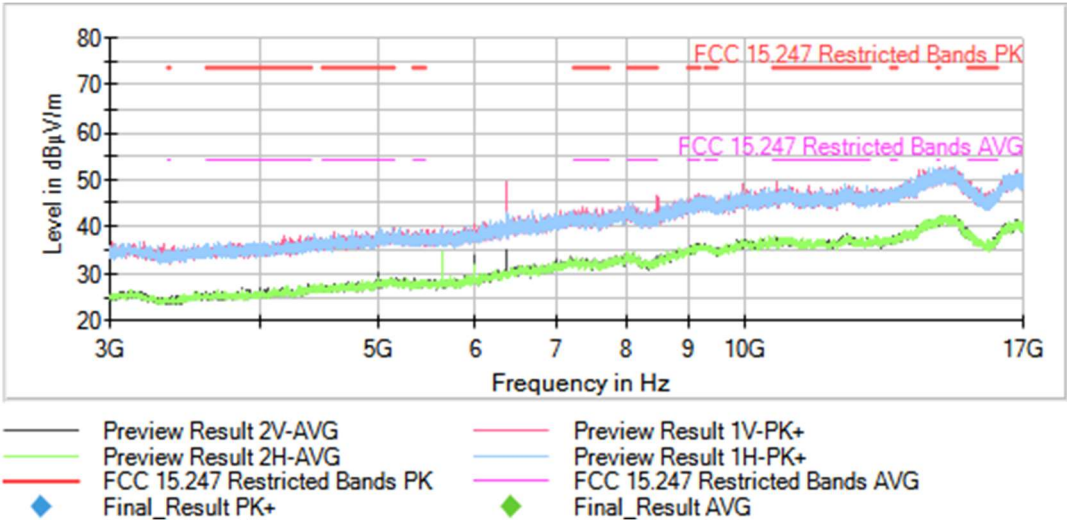
Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Modulation = 802.11g (OFDM 6 Mbit/s), Frequency Range GHz = [3, 17]

Images:



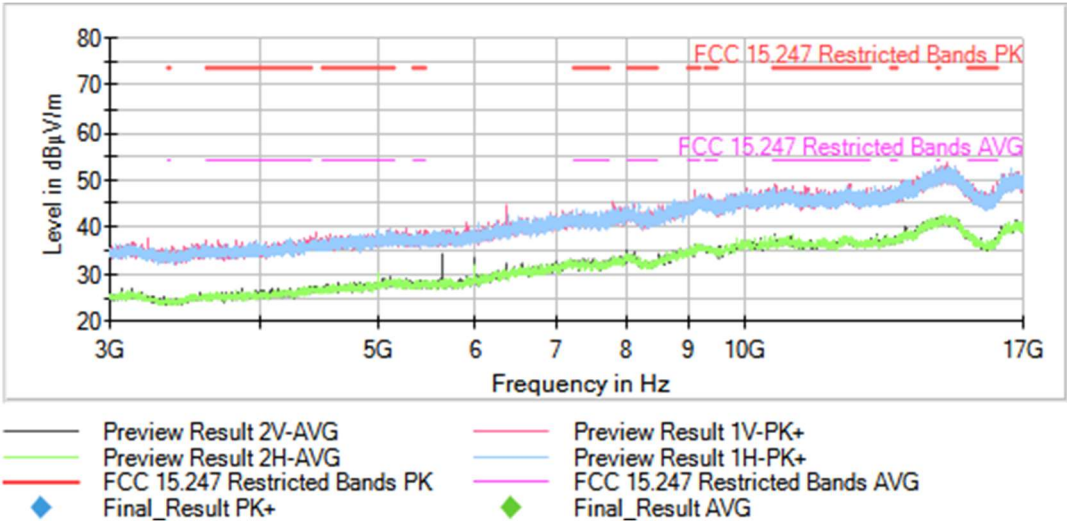
Frequency MHz = 2442.00000, Equipment Type = Digital Transmission System (DTS), Modulation = 802.11g (OFDM 6 Mbit/s), Frequency Range GHz = [3, 17]

Images:



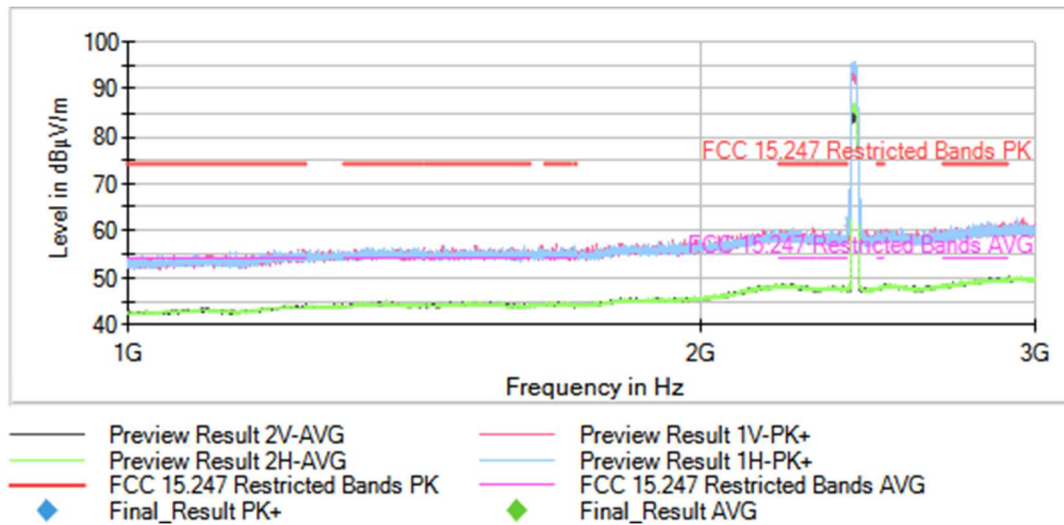
Frequency MHz = 2462.00000, Equipment Type = Digital Transmission System (DTS), Modulation = 802.11g (OFDM 6 Mbit/s), Frequency Range GHz = [3, 17]

Images:

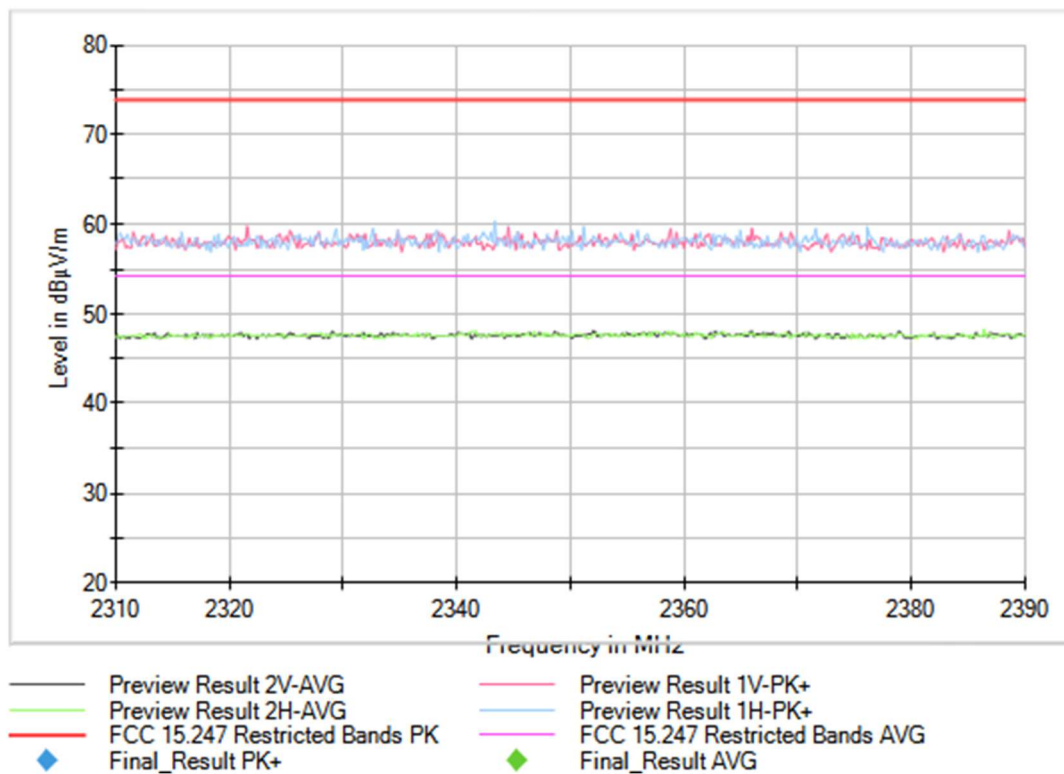


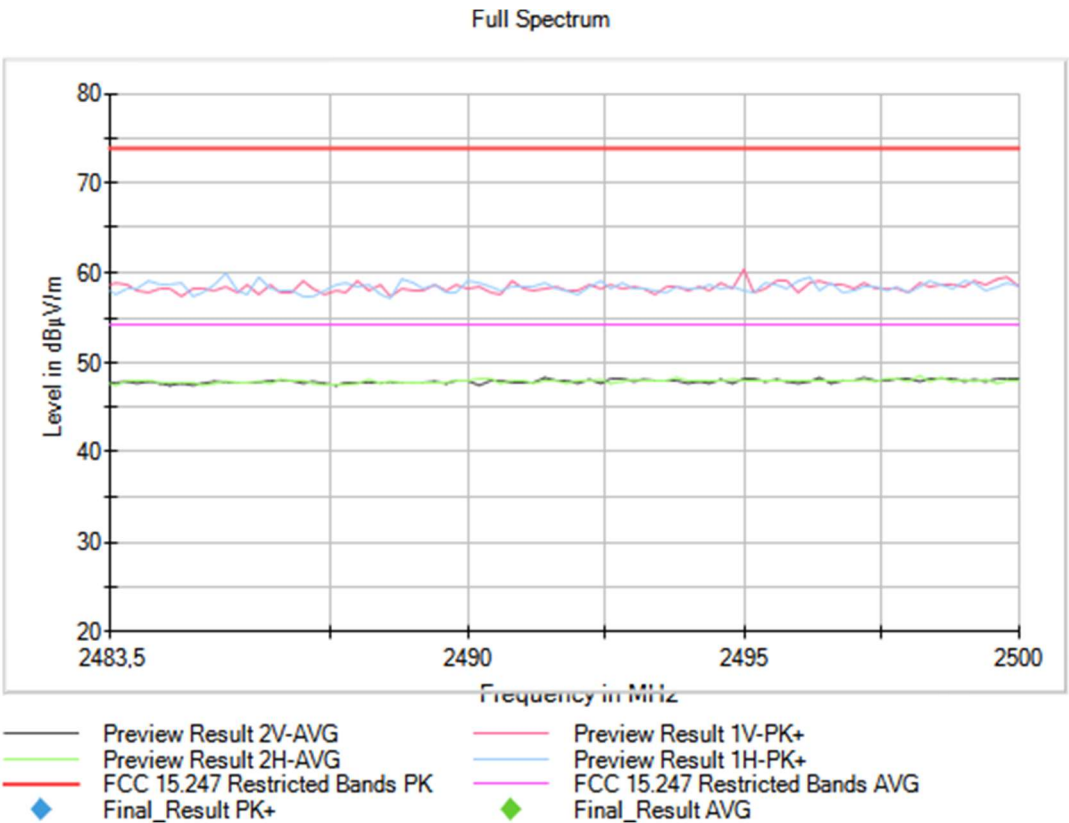
Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Modulation = 802.11n HT20 (OFDM MCS0), Frequency Range GHz = [1, 3]

Images:



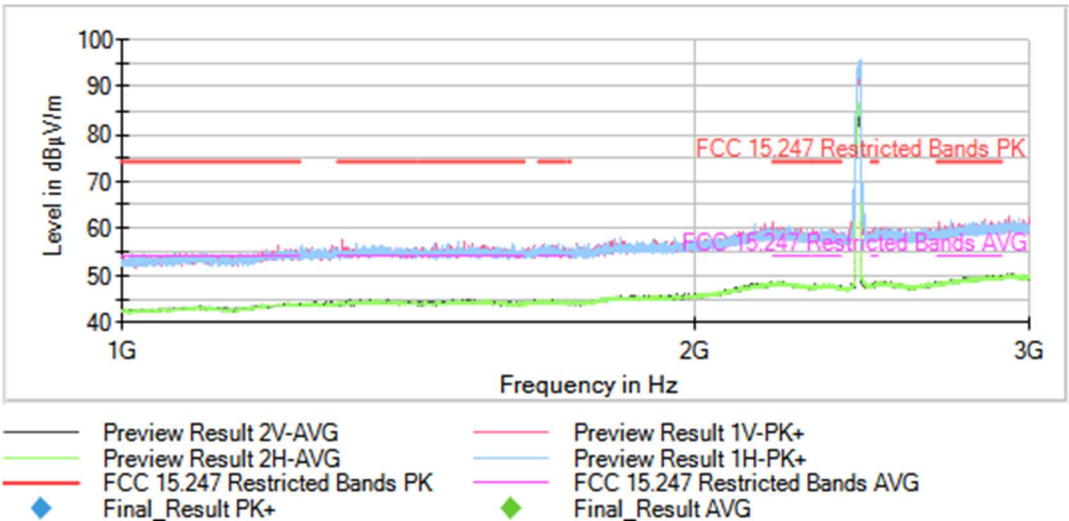
Full Spectrum

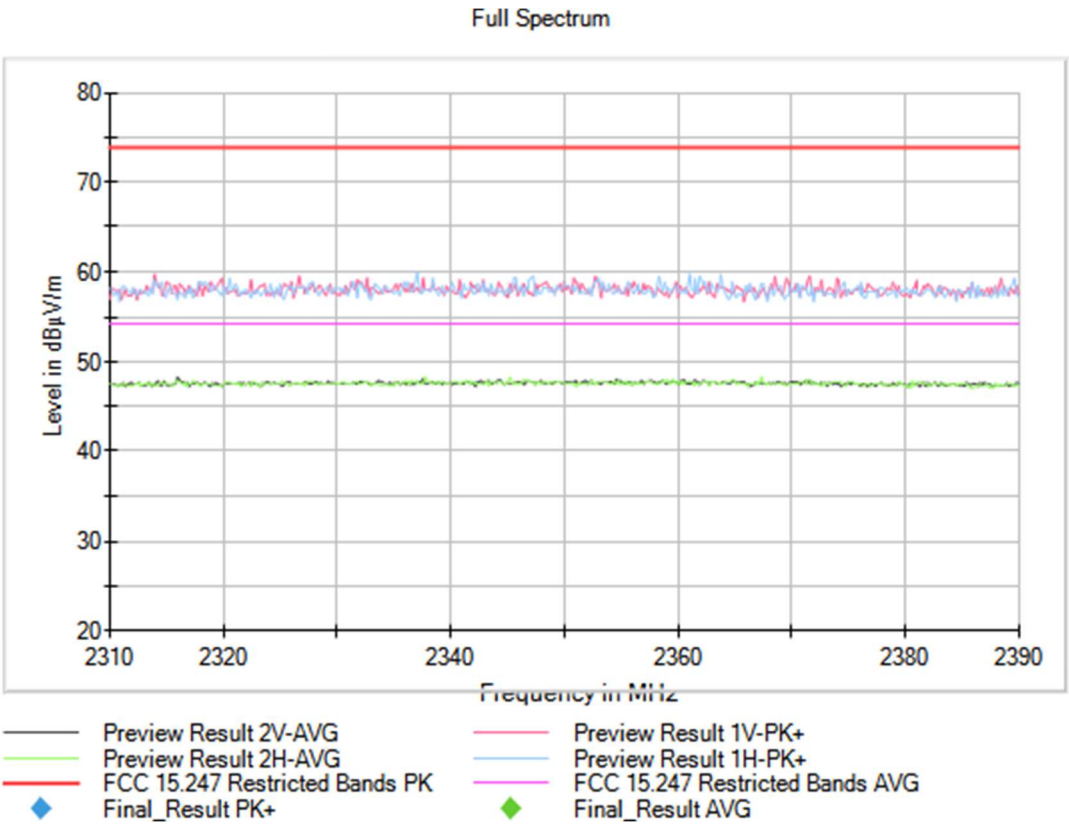




Frequency MHz = 2442.00000, Equipment Type = Digital Transmission System (DTS), Modulation = 802.11n HT20 (OFDM MCS0), Frequency Range GHz = [1, 3]

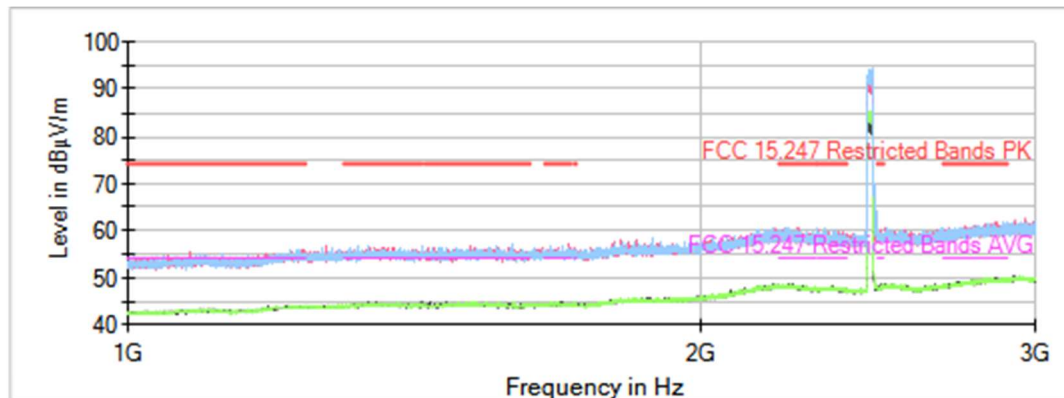
Images:



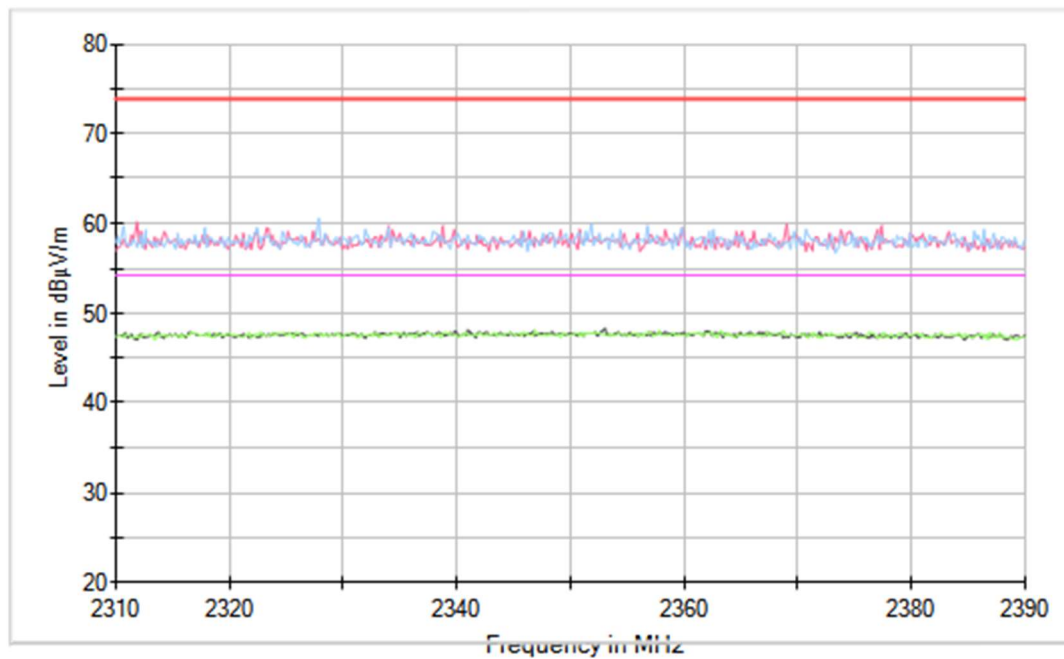


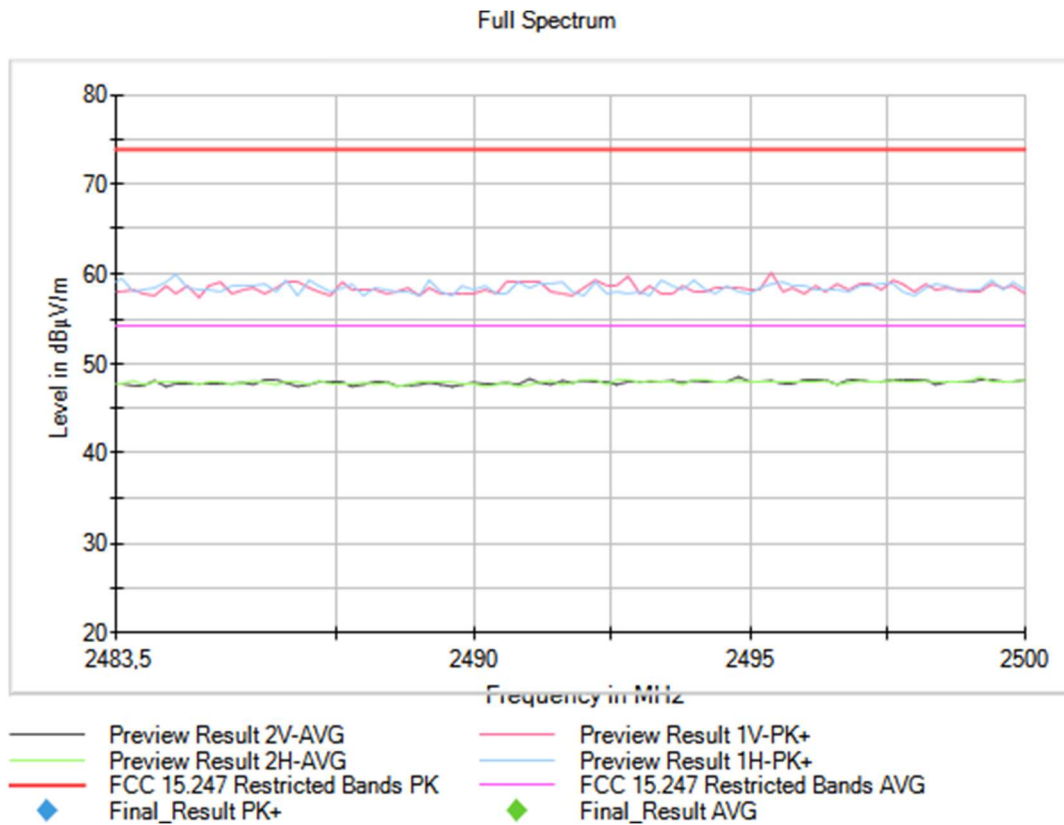
Frequency MHz = 2462.00000, Equipment Type = Digital Transmission System (DTS), Modulation = 802.11n HT20 (OFDM MCS0), Frequency Range GHz = [1, 3]

Images:



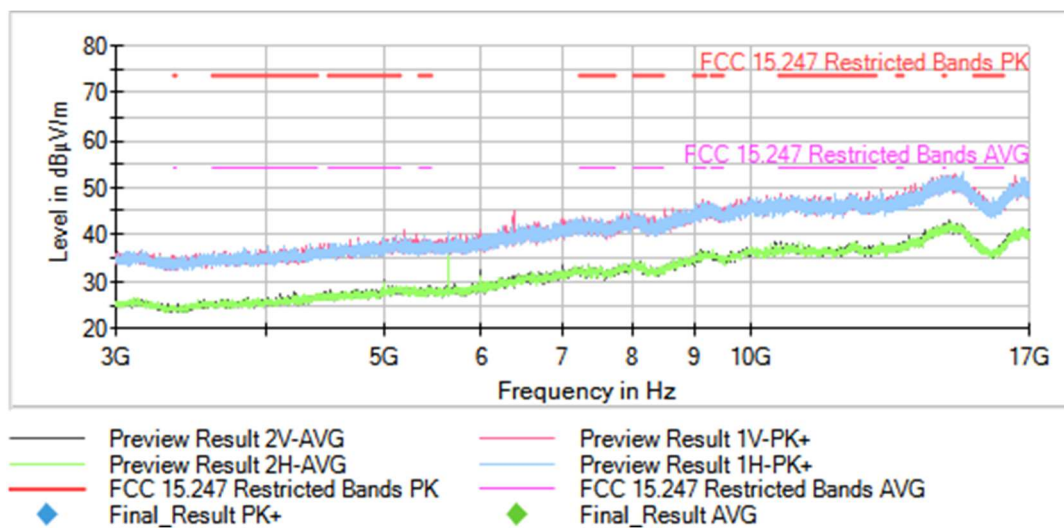
Full Spectrum





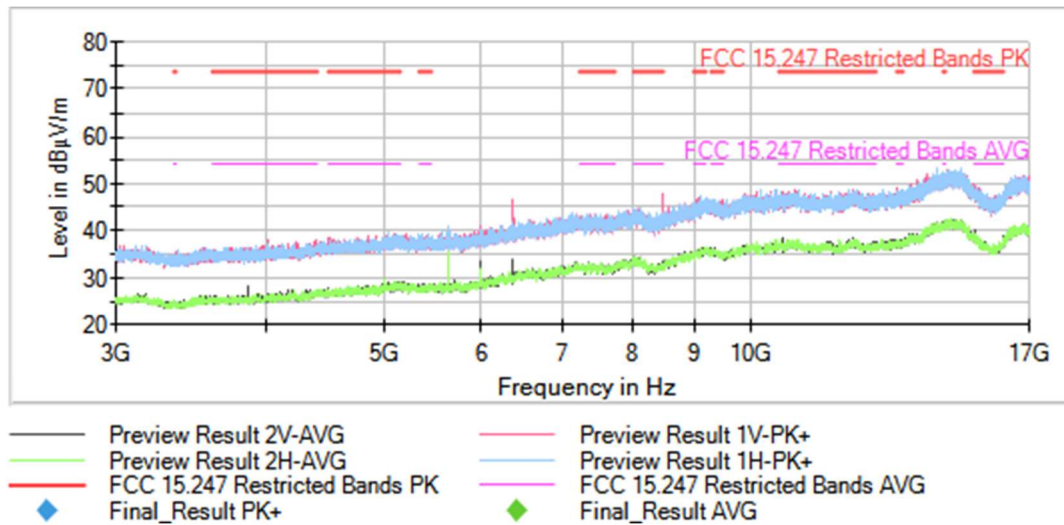
Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Modulation = 802.11n HT20 (OFDM MCS0), Frequency Range GHz = [3, 17]

Images:



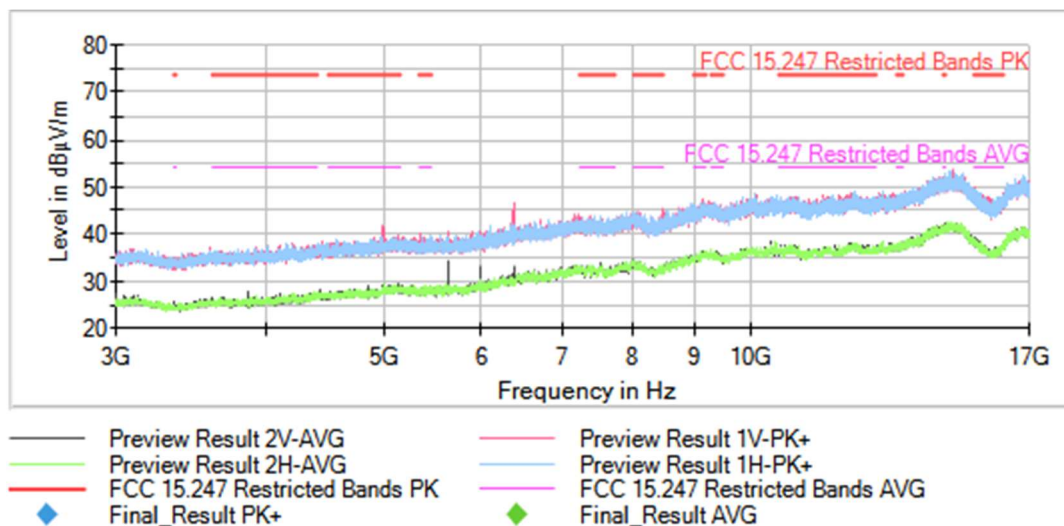
Frequency MHz = 2442.00000, Equipment Type = Digital Transmission System (DTS), Modulation = 802.11n HT20 (OFDM MCS0), Frequency Range GHz = [3, 17]

Images:



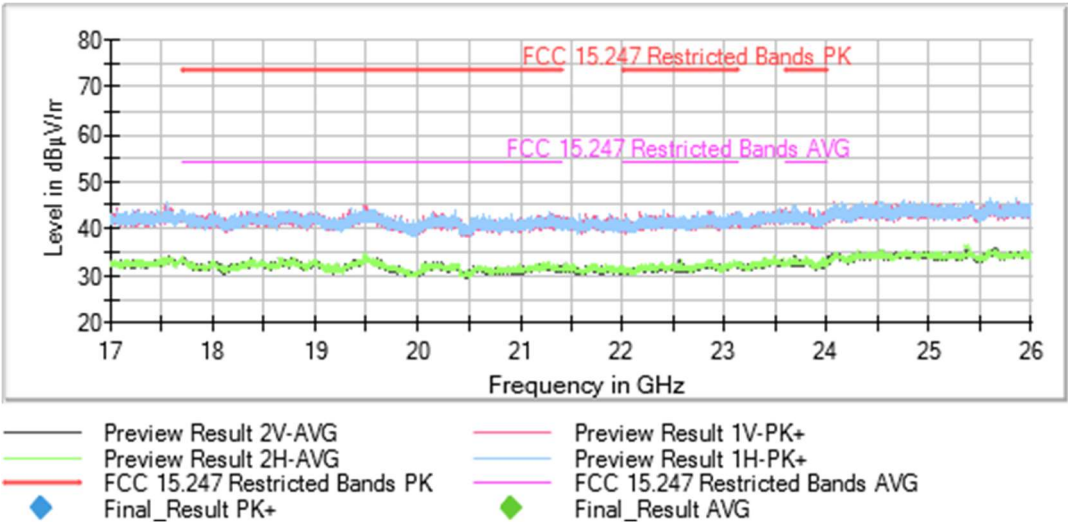
Frequency MHz = 2462.00000, Equipment Type = Digital Transmission System (DTS), Modulation = 802.11n HT20 (OFDM MCS0), Frequency Range GHz = [3, 17]

Images:



Equipment Type = Frequency Hopping Spread Spectrum systems (DSS), Frequency Range GHz = [17, 26]

Images:



This plot is valid for Low, Middle and High Channels and all modulations