

TEST CASES DETAILS

FCC 15.247 (d) 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 ($\mu\text{V}/\text{m}$)	Field strength ($\text{dB}\mu\text{V}/\text{m}$)	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 specified when measuring with peak detector function.

Results

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 ($\text{dB}\mu\text{V}/\text{m}$)	Pol	Detector
[0.03, 1]	599.996	31.76	V	QP
	874.991	31.84	H	QP

Frequency range 1 GHz – 26 GHz:

Modulation: BT (GFSK 1-DH5)

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

Freq Rng (GHz)	Freq (MHz)	Unwanted Freq (MHz)	Unwanted Lvl (dB μ V/m)	Pol	Detector
[3, 17]	2402.0000	4770.440	45.69	V	Peak
		4954.820	43.25	V	Peak
	2441.0000	4718.780	45.84	V	Peak
		4826.160	41.21	V	Peak
		4905.960	43.17	H	Peak
		5029.720	44.03	V	Peak
	2480.0000	4723.680	43.37	V	Peak
		4953.980	44.01	V	Peak
		5015.440	41.95	V	Peak

Modulation: BT (Pi/4 DQPSK 2-DH5)

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

Freq Rng (GHz)	Freq (MHz)	Unwanted Freq (MHz)	Unwanted Lvl (dB μ V/m)	Pol	Detector
[3, 17]	2402.0000	3960.120	38.92	V	Peak
		4737.820	44.47	H	Peak
		4823.920	41.24	V	Peak
		4909.740	44.25	V	Peak
		5074.100	42.51	V	Peak
	2441.0000	4765.680	42.86	V	Peak
		4901.340	43.41	V	Peak
		5005.360	43.32	H	Peak
	2480.0000	3943.740	39.44	H	Peak
		4743.000	44.78	V	Peak
		4890.420	41.93	H	Peak
		4954.260	43.16	V	Peak
		5049.880	42.39	V	Peak

Modulation: BT (8DPSK 3-DH5)

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

Freq Rng (GHz)	Freq (MHz)	Unwanted Freq (MHz)	Unwanted Lvl (dBµV/m)	Pol	Detector
[3, 17]	2402.0000	3959.700	39.95	V	Peak
		4718.780	41.38	H	Peak
		4890.420	42.00	V	Peak
		5141.440	44.63	V	Peak
	2441.0000	4738.240	42.65	H	Peak
		4891.540	41.69	V	Peak
		4992.760	42.83	V	Peak
		5103.080	44.12	V	Peak
	2480.0000	3959.700	38.73	H	Peak
		4709.820	40.29	H	Peak
		4897.000	42.27	V	Peak
		5093.740	44.05	H	Peak
		5126.740	43.50	V	Peak
		5358.440	48.12	V	Peak

Verdict

Pass

Attachments

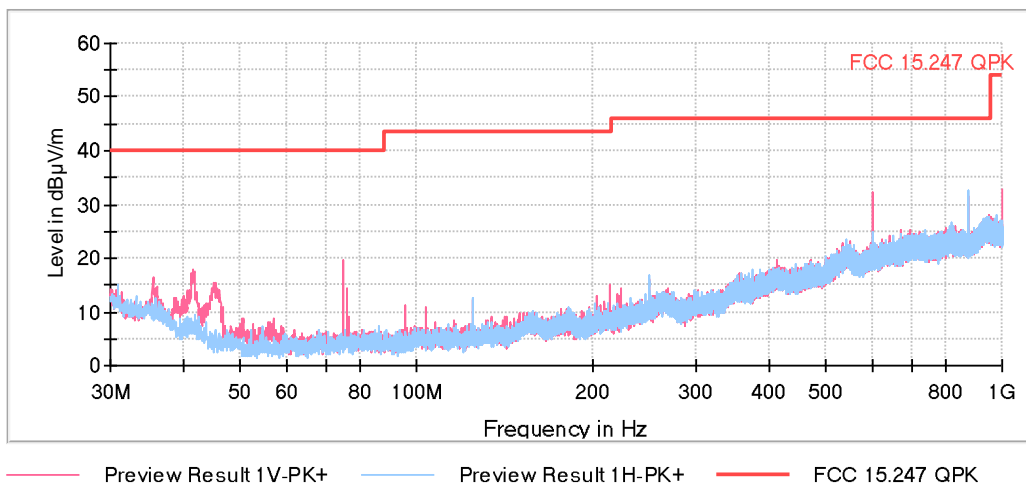
The setting for each range of frequency is indicated in the tables below:

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
Receiver: [ESW 44] 30 MHz - 1 GHz	30,312 kHz	PK+	100 kHz	1 s	0 dB
Receiver: [ESW 44] 1 GHz - 3 GHz	30,769 kHz	PK+ ; AVG	1 MHz	1 s	0 dB
Receiver: [ESW 44] 3 GHz - 17 GHz	140 kHz	PK+ ; AVG	1 MHz	1 s	30 dB
Receiver: [ESW 44] 17 GHz - 26 GHz	300 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

Modulations: BT (GFSK 1-DH5), BT (Pi/4 DQPSK 2-DH5), BT (8DPSK 3-DH5)

**Equipment Type: Frequency Hopping Spread Spectrum systems (DSS), Frequency Range (GHz) = [0.03, 1],
 Number of Transmission Chains = 1**

Plots:

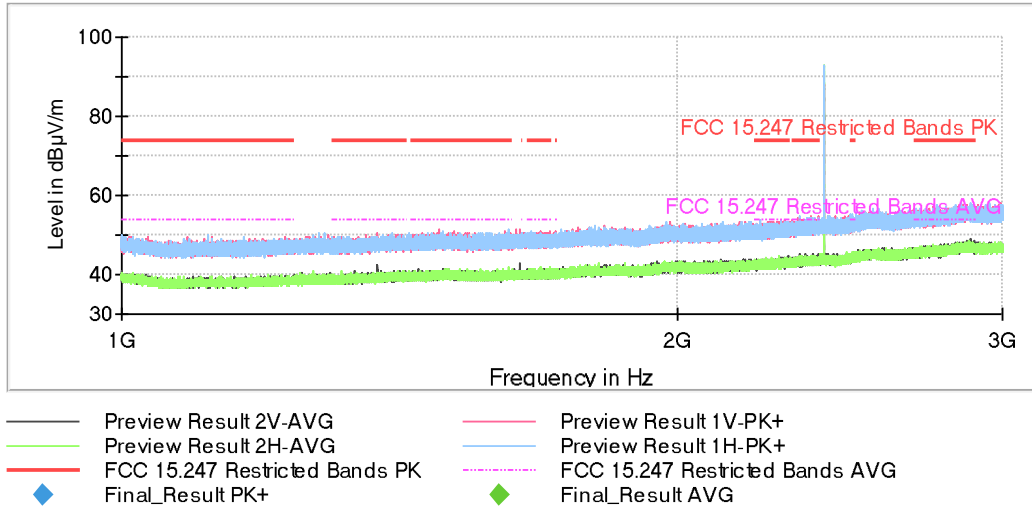


This plot is valid for Low, Middle and High Channels and all modulations

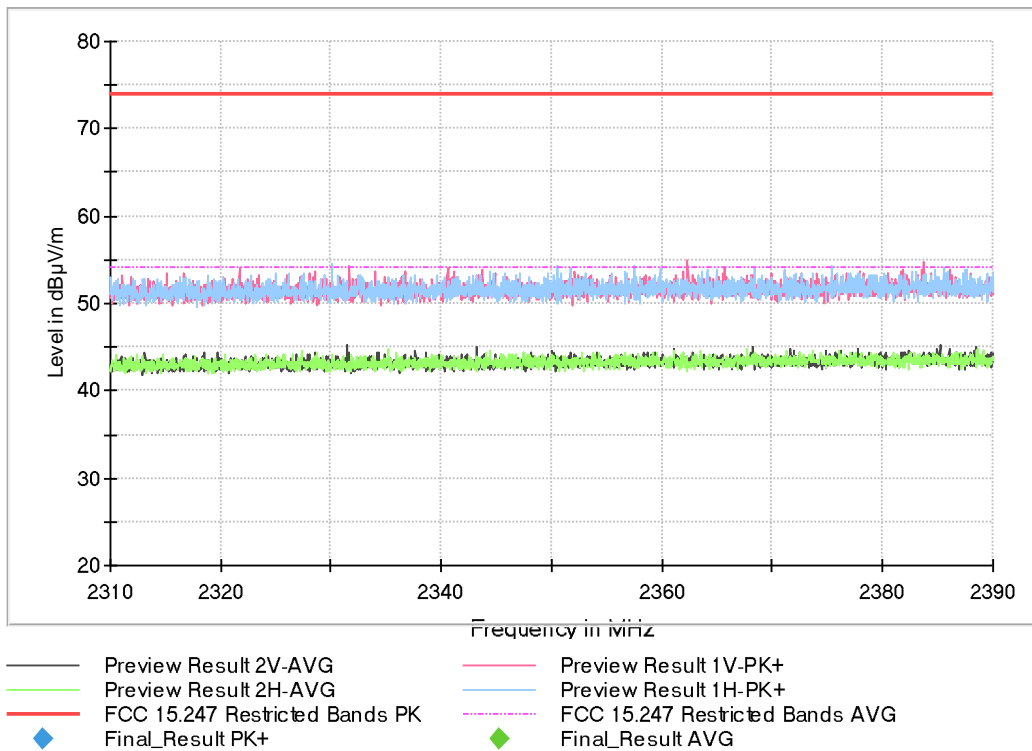
Modulation: BT (GFSK 1-DH5)

**Frequency (MHz) = 2402.00000, Equipment Type: Frequency Hopping Spread Spectrum systems (DSS),
 Modulation: BT (GFSK 1-DH5), Frequency Range (GHz) = [1, 3], Number of Transmission Chains = 1**

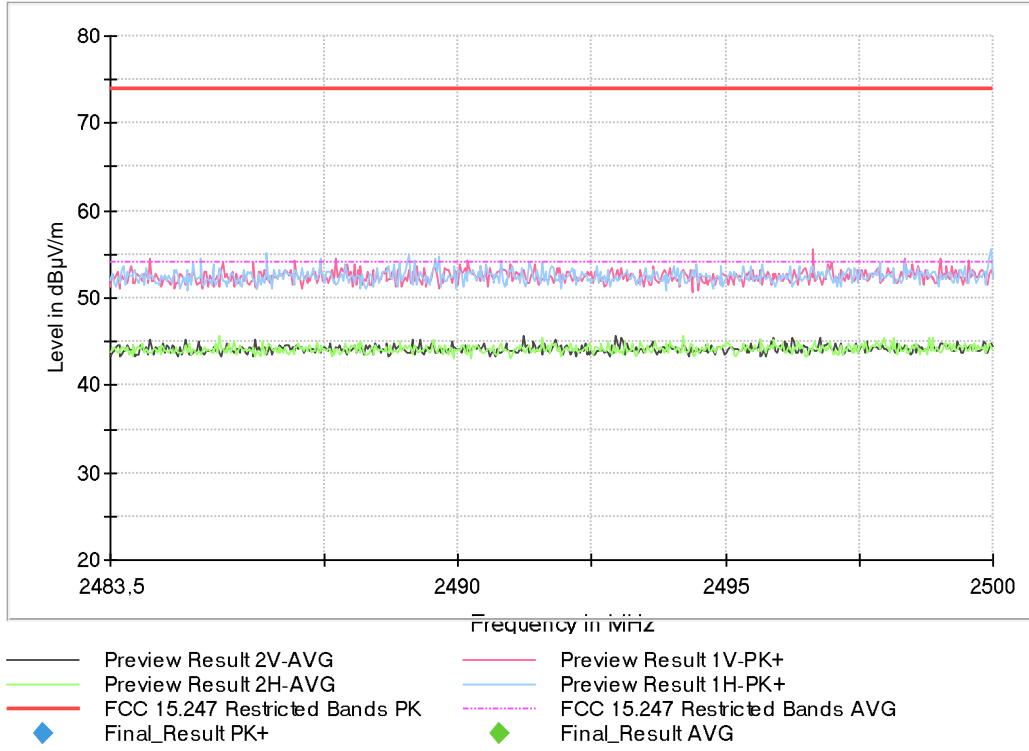
Plots:



Full Spectrum

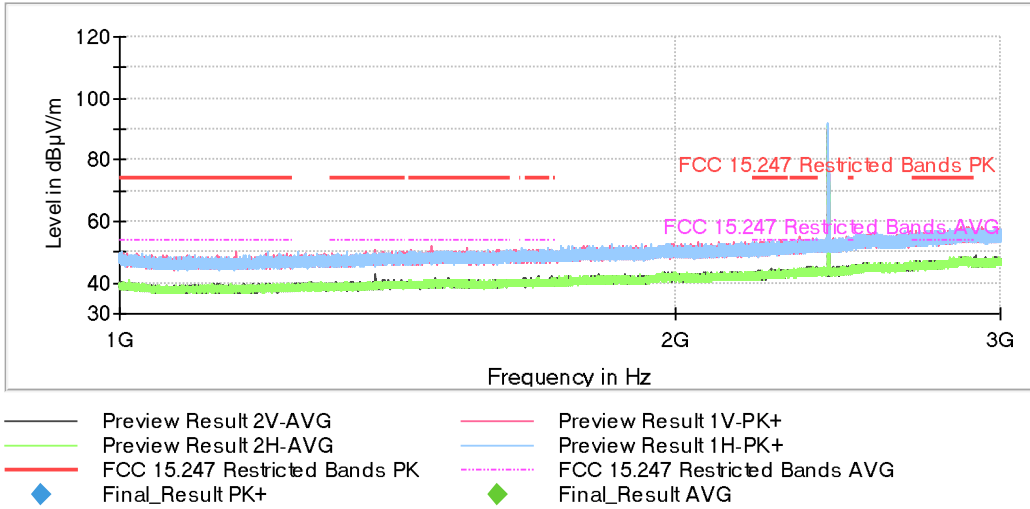


Full Spectrum

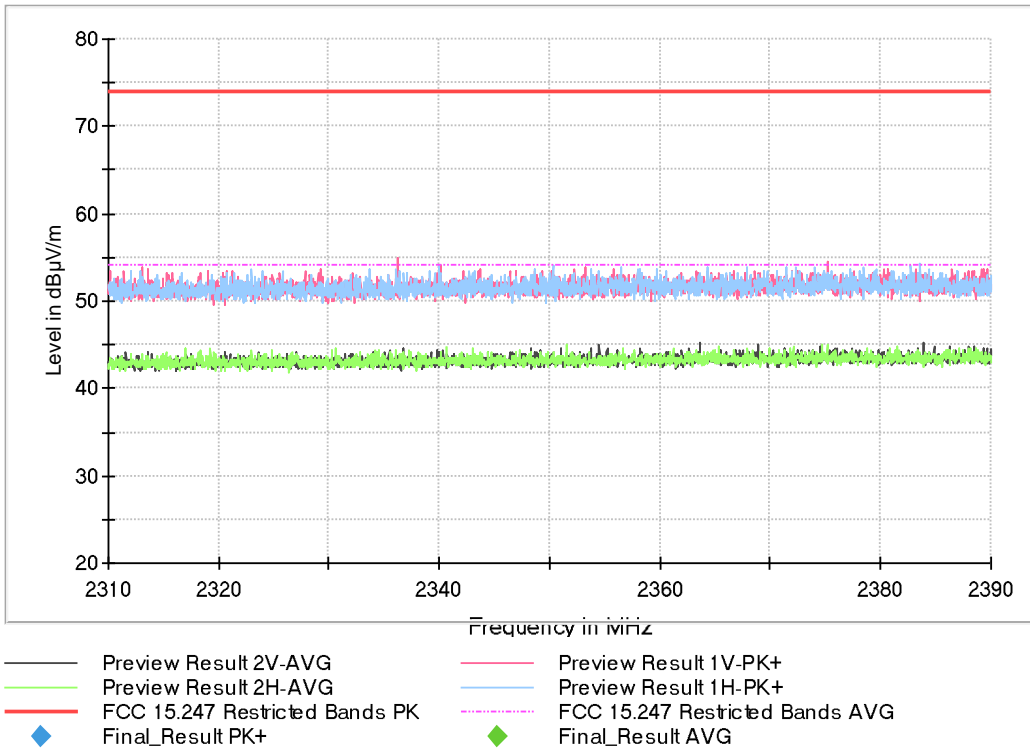


Frequency (MHz) = 2441.00000, Equipment Type: Frequency Hopping Spread Spectrum systems (DSS), Modulation: BT (GFSK 1-DH5), Frequency Range (GHz) = [1, 3], Number of Transmission Chains = 1

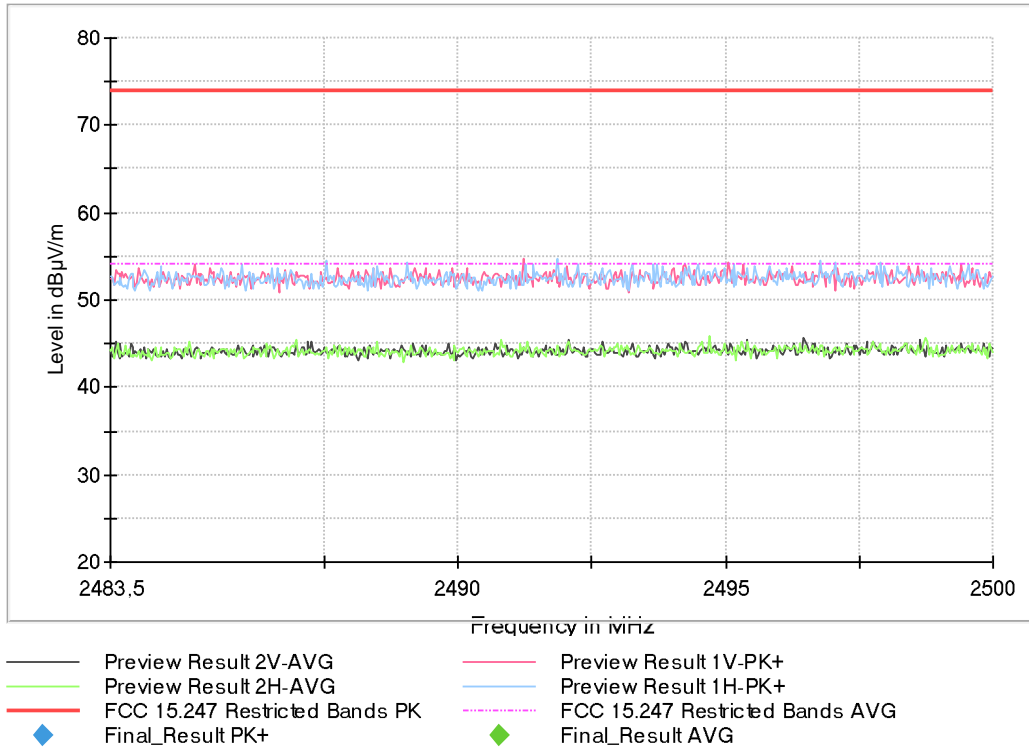
Plots:



Full Spectrum

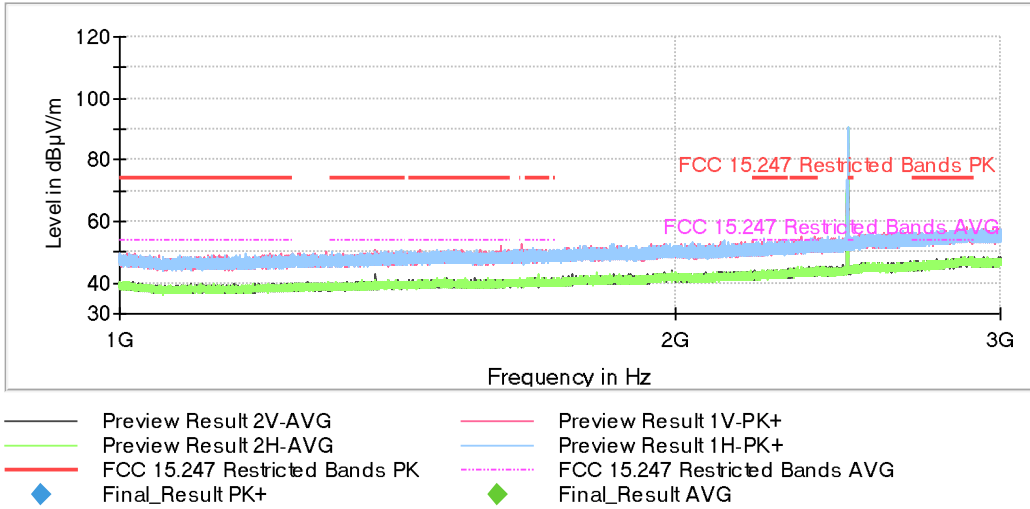


Full Spectrum

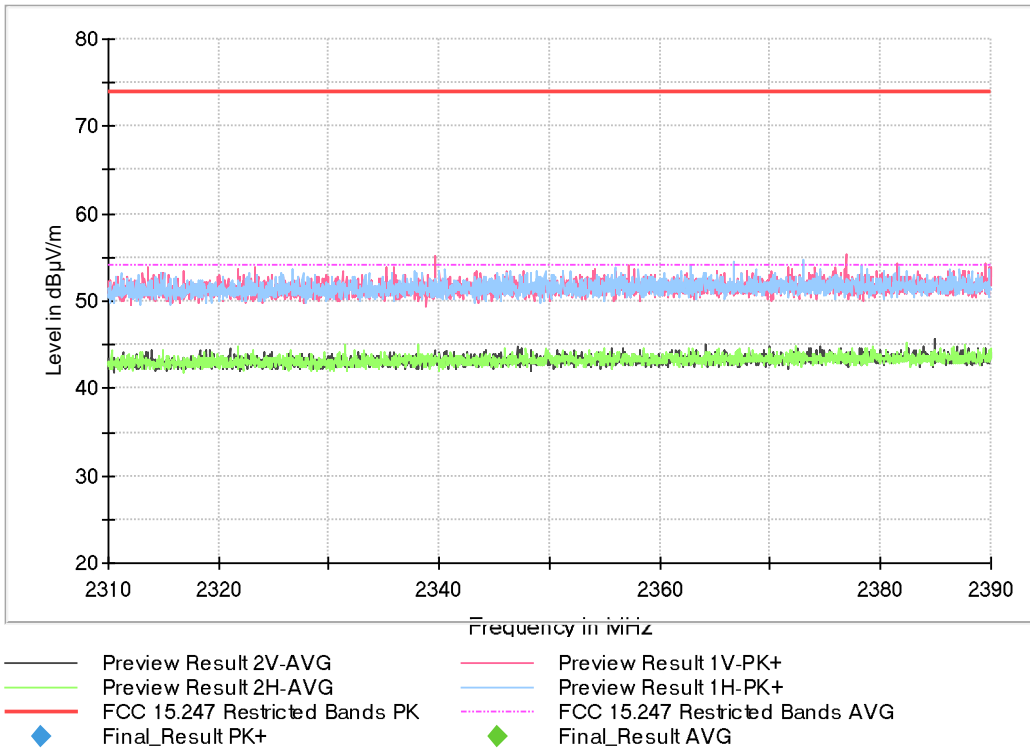


Frequency (MHz) = 2480.00000, Equipment Type: Frequency Hopping Spread Spectrum systems (DSS), Modulation: BT (GFSK 1-DH5), Frequency Range (GHz) = [1, 3], Number of Transmission Chains = 1

Plots:



Full Spectrum

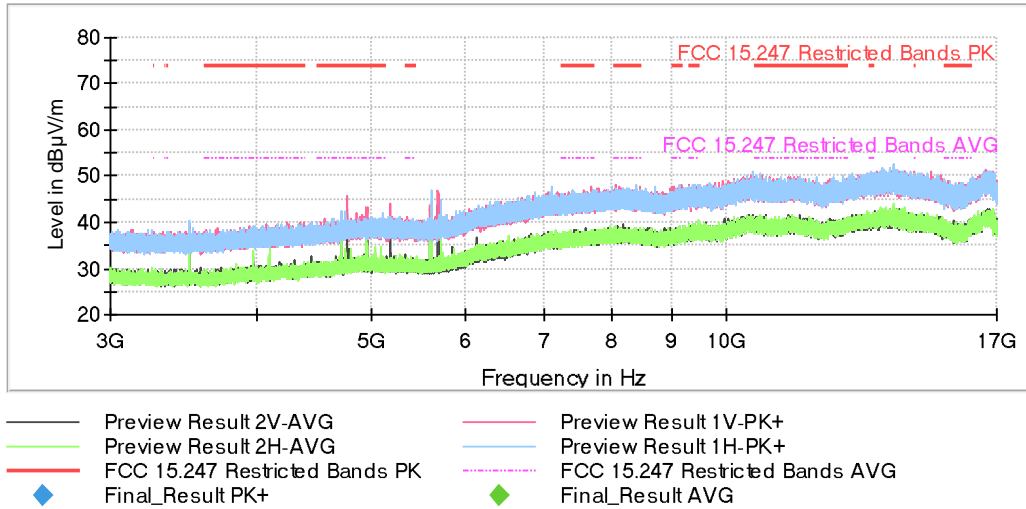


Full Spectrum



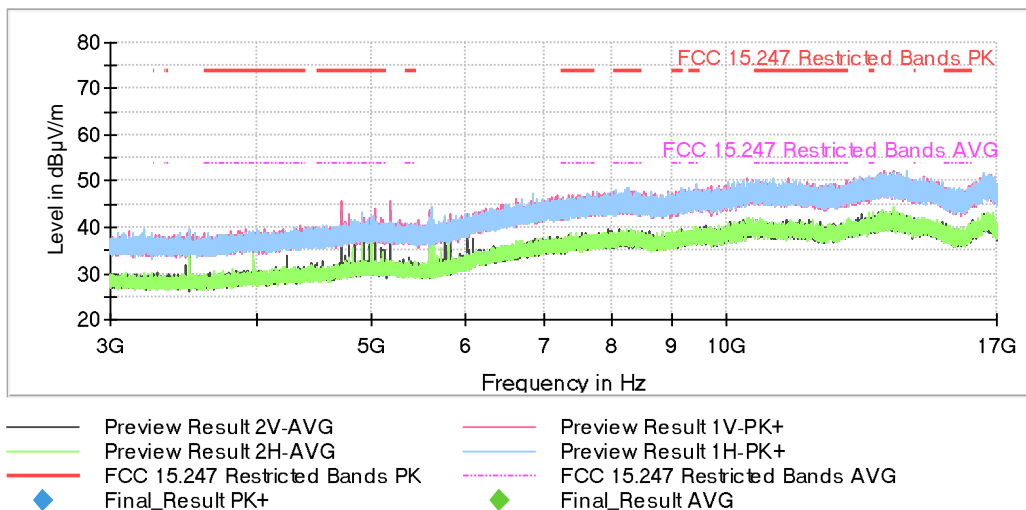
Frequency (MHz) = 2402.00000, Equipment Type: Frequency Hopping Spread Spectrum systems (DSS), Modulation: BT (GFSK 1-DH5), Frequency Range (GHz) = [3, 17], Number of Transmission Chains = 1

Plots:



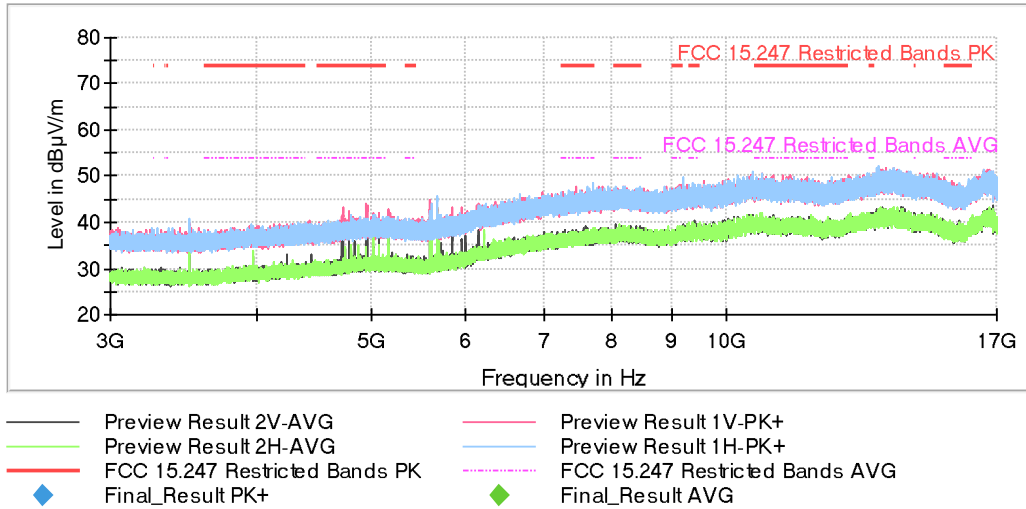
Frequency (MHz) = 2441.00000, Equipment Type: Frequency Hopping Spread Spectrum systems (DSS), Modulation: BT (GFSK 1-DH5), Frequency Range (GHz) = [3, 17], Number of Transmission Chains = 1

Plots:



**Frequency (MHz) = 2480.00000, Equipment Type: Frequency Hopping Spread Spectrum systems (DSS),
 Modulation: BT (GFSK 1-DH5), Frequency Range (GHz) = [3, 17], Number of Transmission Chains = 1**

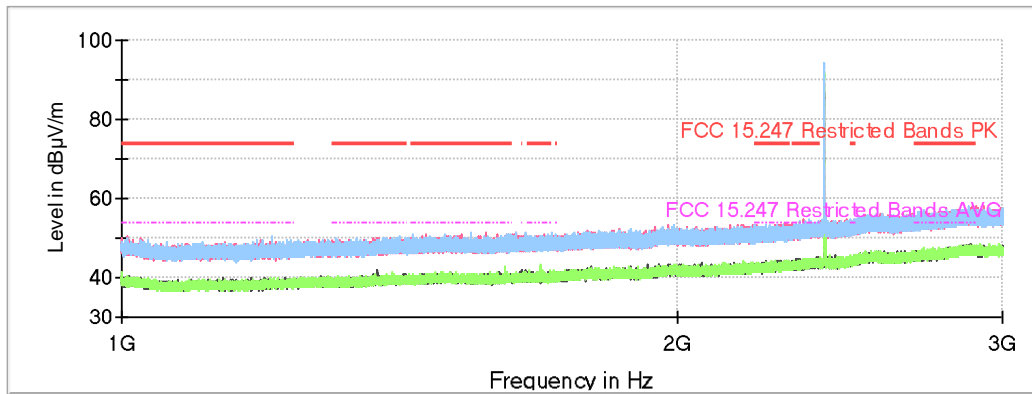
Plots:



Modulation: BT (Pi/4 DQPSK 2-DH5)

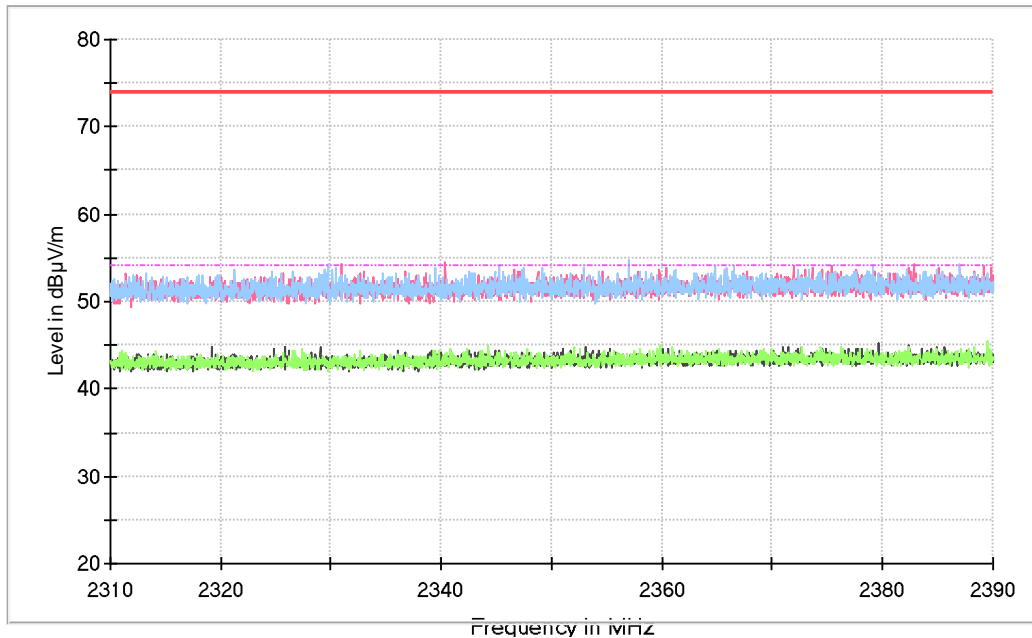
Frequency (MHz) = 2402.00000, Equipment Type: Frequency Hopping Spread Spectrum systems (DSS), Modulation: BT (Pi/4 DQPSK 2-DH5), Frequency Range (GHz) = [1, 3], Number of Transmission Chains = 1

Plots:



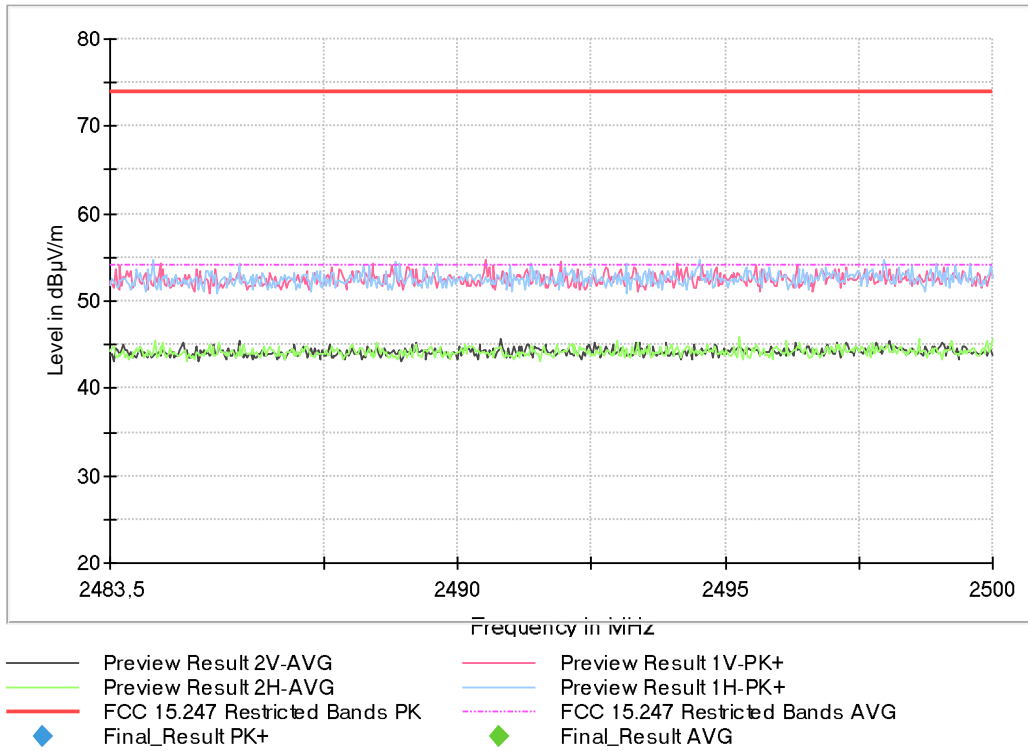
- Preview Result 2V-AVG
- Preview Result 2H-AVG
- FCC 15.247 Restricted Bands PK
- ◆ Final_Result PK+
- Preview Result 1V-PK+
- Preview Result 1H-PK+
- FCC 15.247 Restricted Bands AVG
- ◆ Final_Result AVG

Full Spectrum



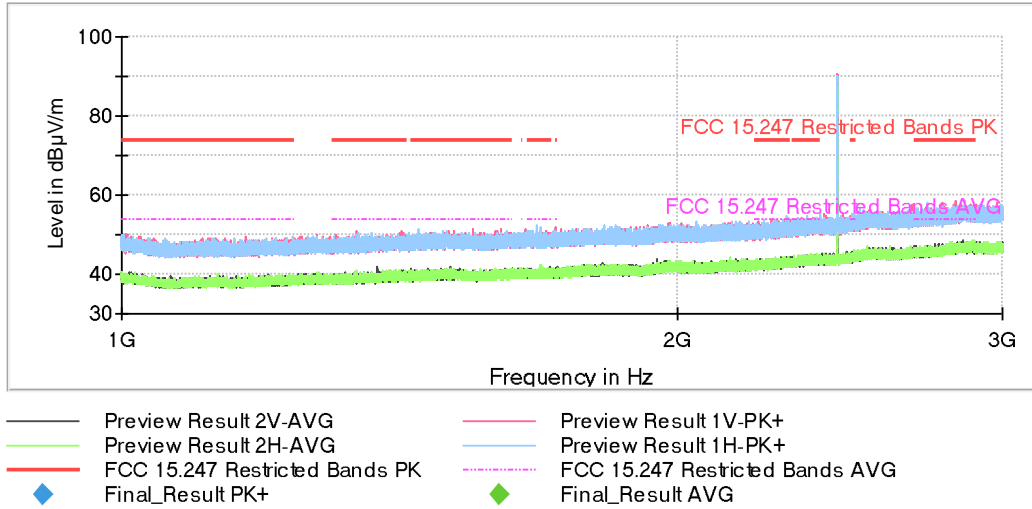
- Preview Result 2V-AVG
- Preview Result 2H-AVG
- FCC 15.247 Restricted Bands PK
- ◆ Final_Result PK+
- Preview Result 1V-PK+
- Preview Result 1H-PK+
- FCC 15.247 Restricted Bands AVG
- ◆ Final_Result AVG

Full Spectrum

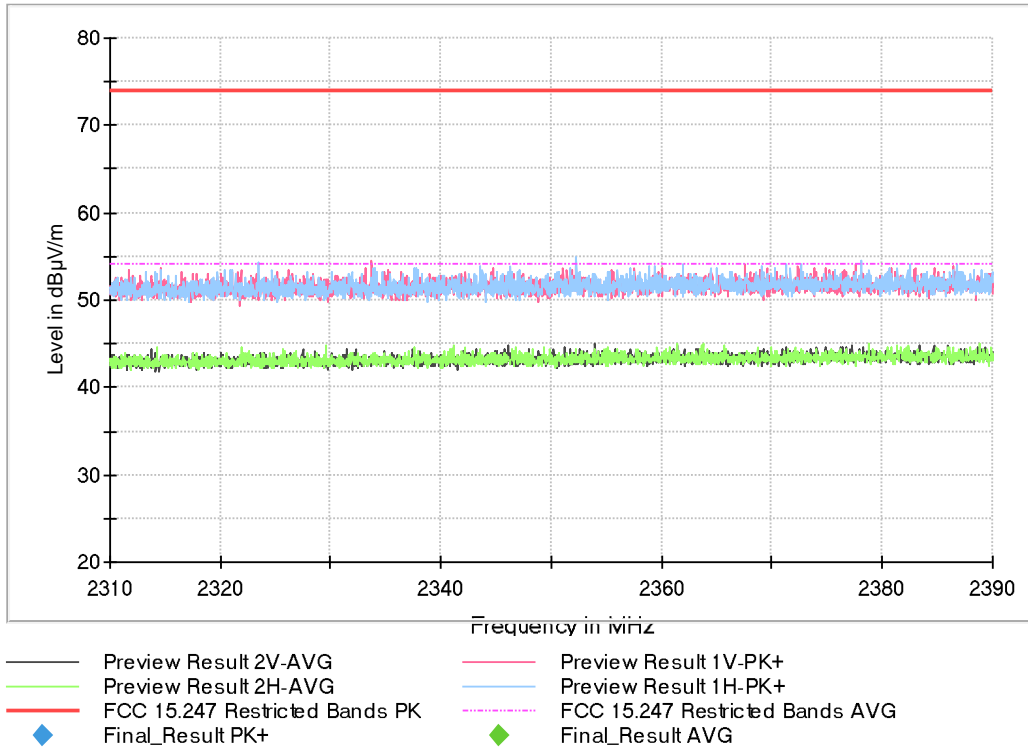


Frequency (MHz) = 2441.00000, Equipment Type: Frequency Hopping Spread Spectrum systems (DSS), Modulation: BT (Pi/4 DQPSK 2-DH5), Frequency Range (GHz) = [1, 3], Number of Transmission Chains = 1

Plots:



Full Spectrum

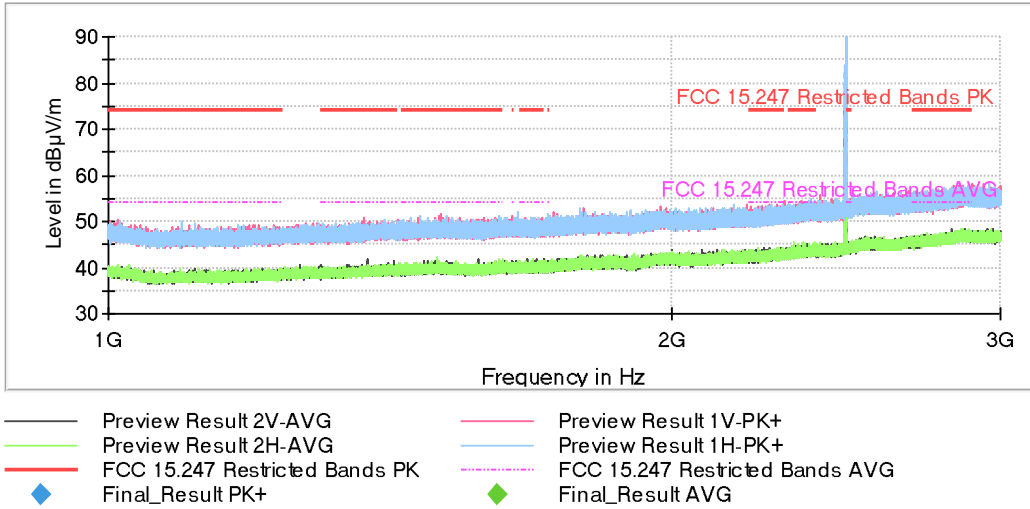


Full Spectrum

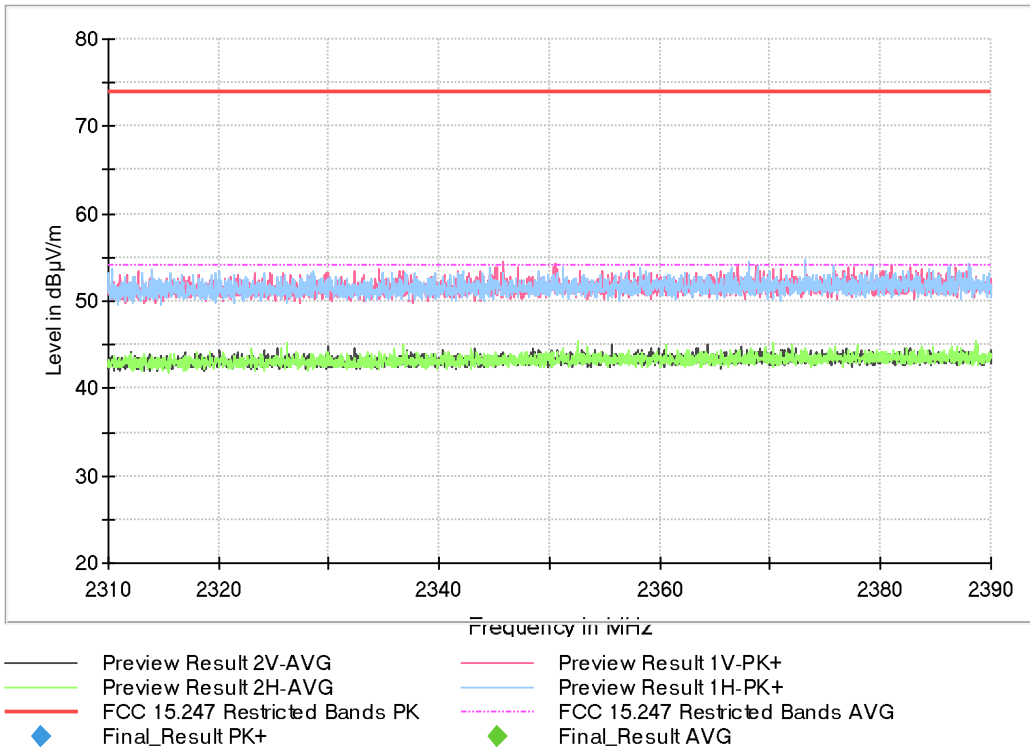


Frequency (MHz) = 2480.00000, Equipment Type: Frequency Hopping Spread Spectrum systems (DSS),
 Modulation: BT (Pi/4 DQPSK 2-DH5), Frequency Range (GHz) = [1, 3], Number of Transmission Chains = 1

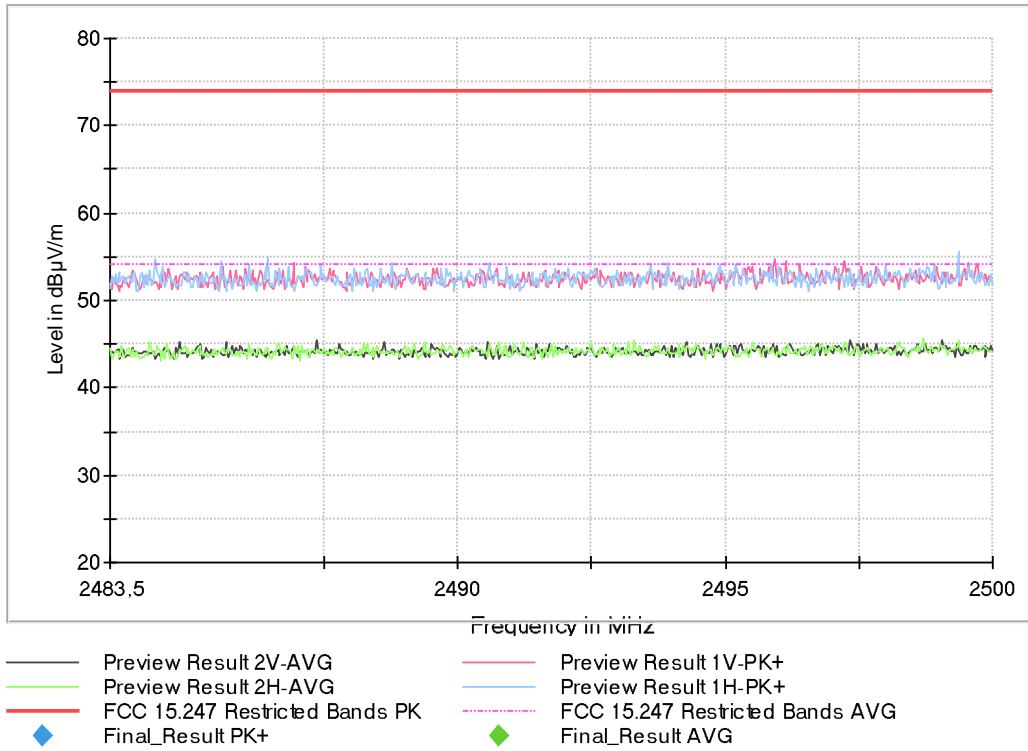
Plots:



Full Spectrum

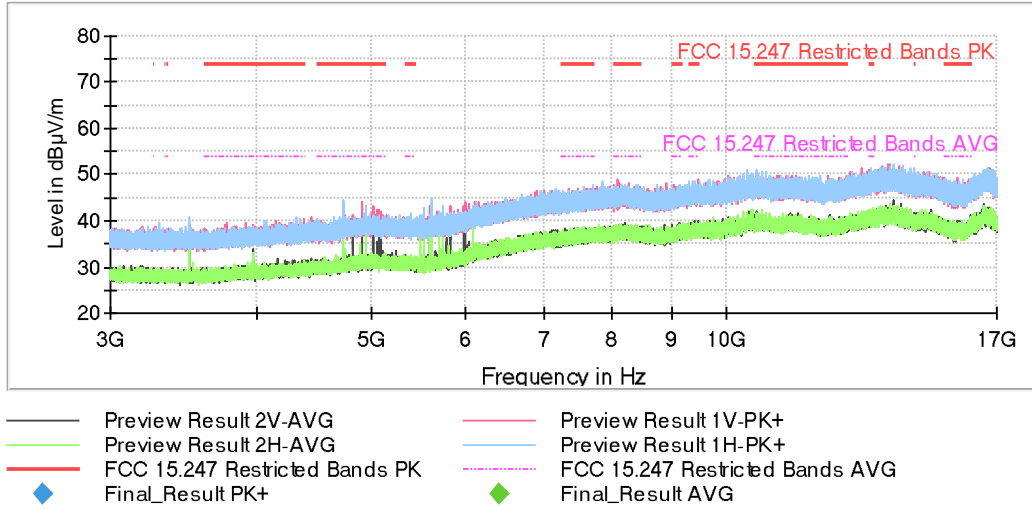


Full Spectrum



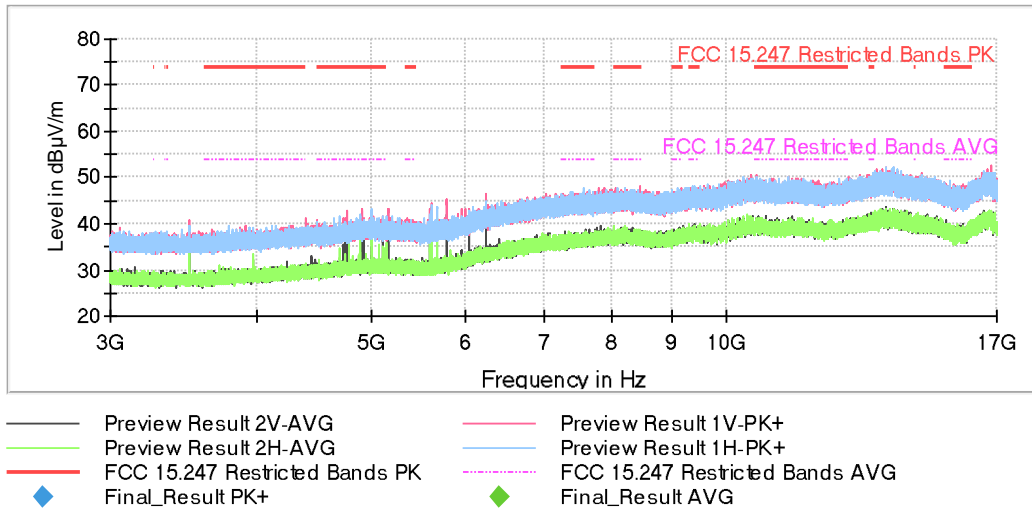
Frequency (MHz) = 2402.00000, Equipment Type: Frequency Hopping Spread Spectrum systems (DSS),
 Modulation: BT (Pi/4 DQPSK 2-DH5), Frequency Range (GHz) = [3, 17], Number of Transmission Chains = 1

Plots:



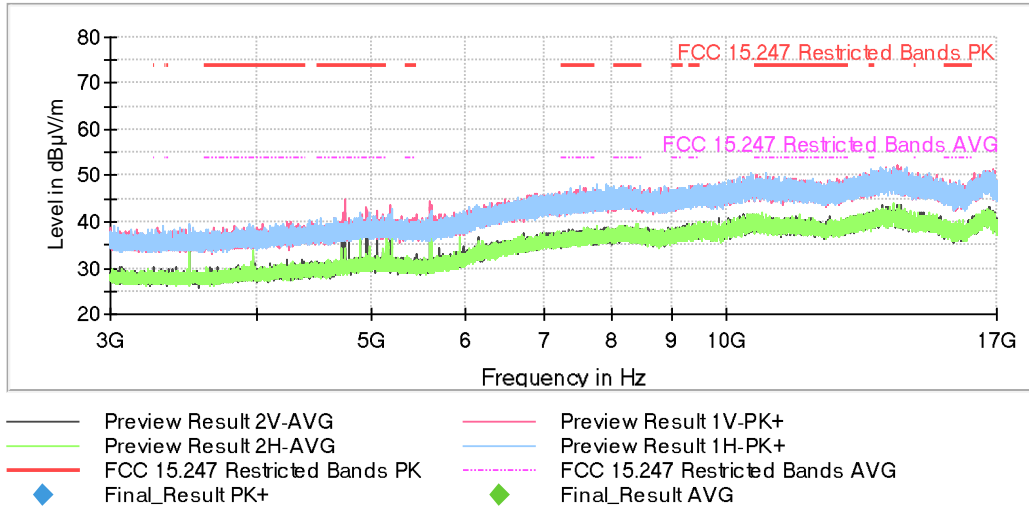
Frequency (MHz) = 2441.00000, Equipment Type: Frequency Hopping Spread Spectrum systems (DSS),
 Modulation: BT (Pi/4 DQPSK 2-DH5), Frequency Range (GHz) = [3, 17], Number of Transmission Chains = 1

Plots:



Frequency (MHz) = 2480.00000, Equipment Type: Frequency Hopping Spread Spectrum systems (DSS),
 Modulation: BT (Pi/4 DQPSK 2-DH5), Frequency Range (GHz) = [3, 17], Number of Transmission Chains = 1

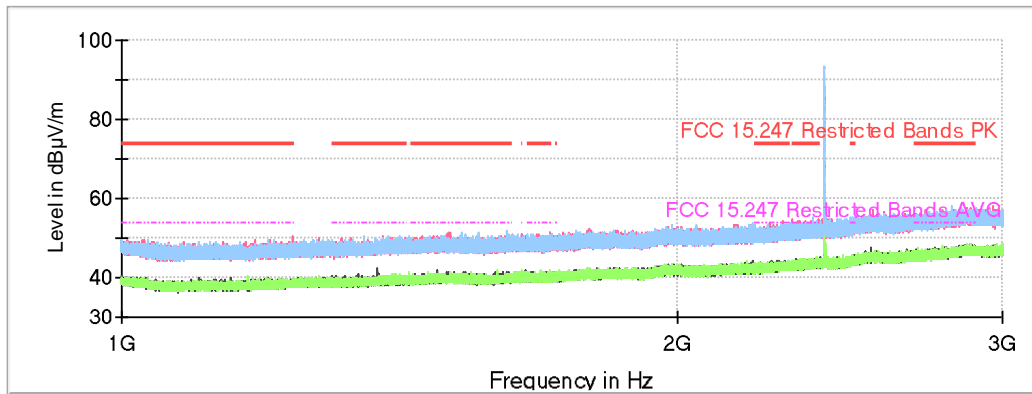
Plots:



Modulation: BT (8DPSK 3-DH5)

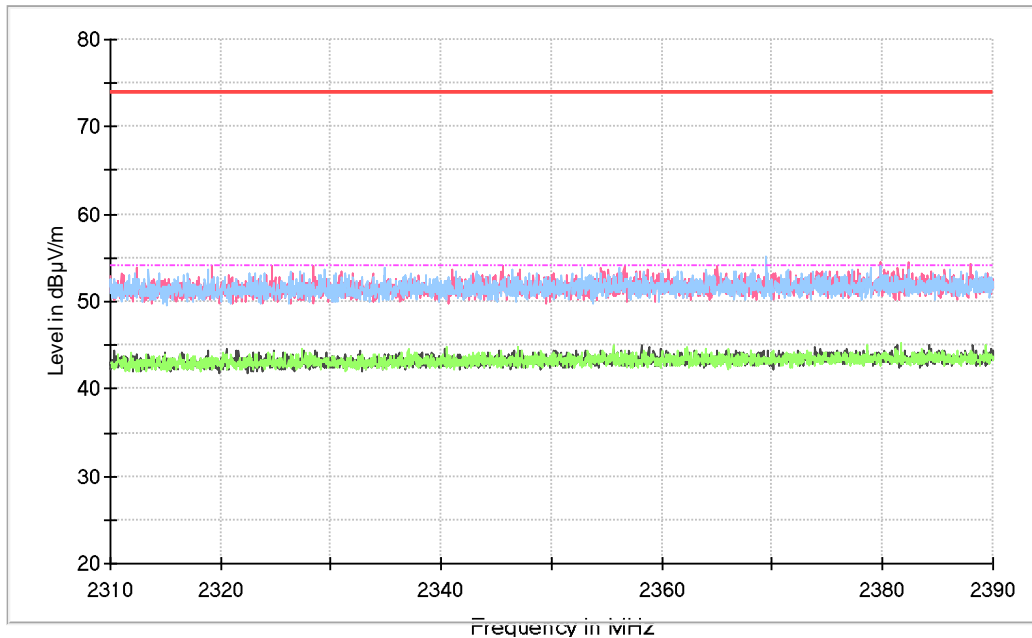
**Frequency (MHz) = 2402.00000, Equipment Type: Frequency Hopping Spread Spectrum systems (DSS),
 Modulation: BT (8DPSK 3-DH5), Frequency Range (GHz) = [1, 3], Number of Transmission Chains = 1**

Plots:



- 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+
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Full Spectrum



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- ◆ Final_Result PK+
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- Preview Result 1H-PK+
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Full Spectrum

