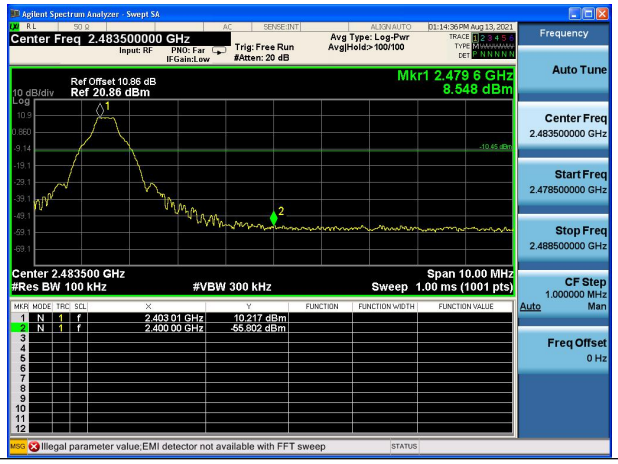
7 Band Edge measurement

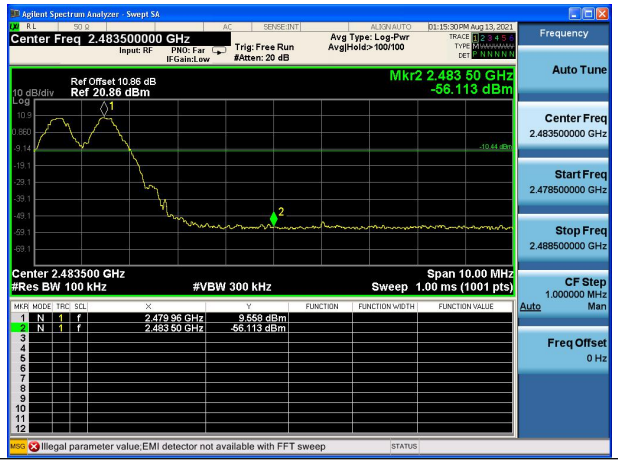
Modulation type:GFSK

CH0(Hopping off)

CH0(Hopping on)



CH78(Hopping off)



CH78(Hopping on)

Modulation type: π/4DQPSK

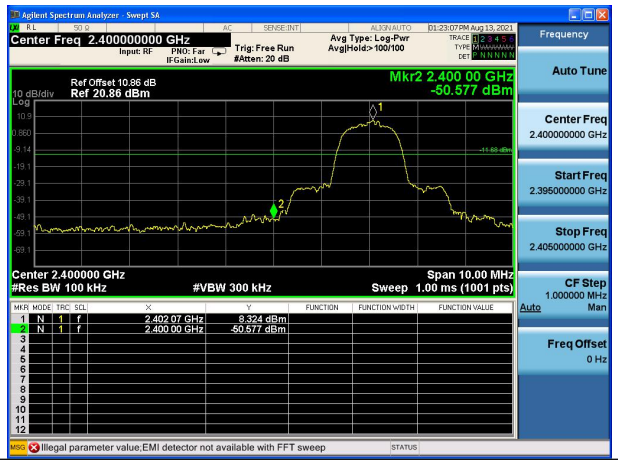
CH0(Hopping off)

CH0(Hopping on)

CH78(Hopping off)

CH78(Hopping on)

Modulation type: 8DPSK



CH0(Hopping off)

CH0(Hopping on)

CH78(Hopping off)

CH78(Hopping on)

APPENDIX B – TEST DATA OF RADIATED EMISSION

Radiated Emission Band Edge

The worst case attitude: The mobile lay down.
The measurement results are obtained as described below:
Measure Level = Reading Level + cable loss + antenna factor

Sample calculation: (70.54 dBuV/m) = (36.54 dBμV) + (8.90 dB) + (25.10 dB), the corresponding frequency is 2402MHz.

No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	cable loss (dB)	antenna factor (dB)
1	2402	70.54	36.54	N/A	N/A	8.90	25.10

Carrier frequency (MHz): 2402
Channel No.:0
Test Mode: GFSK
Polarity: Vertical
Detector: Peak

No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	cable loss (dB)	antenna factor (dB)
1	2402	96.03	62.03	N/A	N/A	8.90	25.10
2	2390	24.28	-9.72	-49.72	74.00	8.90	25.10

Carrier frequency (MHz): 2402
Channel No.:0
Test Mode: GFSK
Polarity: Horizontal
Detector: Peak

No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	cable loss (dB)	antenna factor (dB)
1	2402	93.05	59.05	N/A	N/A	8.90	25.10
2	2390	24.42	-9.58	-49.58	74.00	8.90	25.10

Carrier frequency (MHz): 2402
Channel No.:0
Test Mode: GFSK
Polarity: Vertical
Detector: Average

No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	cable loss (dB)	antenna factor (dB)
1	2402	92.85	58.85	N/A	N/A	8.90	25.10
2	2390	14.96	-19.04	-39.04	54.00	8.90	25.10

Carrier frequency (MHz): 2402
Channel No.:0
Test Mode: GFSK
Polarity: Horizontal
Detector: Average

No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	cable loss (dB)	antenna factor (dB)
1	2402	90.48	56.48	N/A	N/A	8.90	25.10
2	2390	14.71	-19.29	-39.29	54.00	8.90	25.10

Carrier frequency (MHz): 2480
Channel No.:78
Test Mode: GFSK
Polarity: Vertical
Detector: Peak

No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	cable loss (dB)	antenna factor (dB)
1	2480	95.34	61.34	N/A	N/A	8.90	25.10
2	2483.5	25.90	-8.10	-48.10	74.00	8.90	25.10

Carrier frequency (MHz): 2480
Channel No.:78
Test Mode: GFSK
Polarity: Horizontal
Detector: Peak

No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	cable loss (dB)	antenna factor (dB)
1	2480	92.34	58.34	N/A	N/A	8.90	25.10
2	2483.5	25.48	-8.52	-48.52	74.00	8.90	25.10

Carrier frequency (MHz): 2480
Channel No.:78
Test Mode: GFSK
Polarity: Vertical
Detector: Average

No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	cable loss (dB)	antenna factor (dB)
1	2480	93.77	59.77	N/A	N/A	8.90	25.10
2	2483.5	15.73	-18.27	-38.27	54.00	8.90	25.10

Carrier frequency (MHz): 2480
Channel No.:78
Test Mode: GFSK
Polarity: Horizontal
Detector: Average

No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	cable loss (dB)	antenna factor (dB)
1	2480	90.89	56.89	N/A	N/A	8.90	25.10
2	2483.5	15.40	-18.60	-38.60	54.00	8.90	25.10

Carrier frequency (MHz): 2402
Channel No.:0
Test Mode: π/4DQPSK
Polarity: Vertical
Detector: Peak

No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	cable loss (dB)	antenna factor (dB)
1	2402	96.20	62.20	N/A	N/A	8.90	25.10
2	2390	25.32	-8.68	-48.68	74.00	8.90	25.10

Carrier frequency (MHz): 2402
Channel No.:0
Test Mode: π/4DQPSK
Polarity: Horizontal
Detector: Peak

No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	cable loss (dB)	antenna factor (dB)
1	2402	94.10	60.10	N/A	N/A	8.90	25.10
2	2390	24.47	-9.53	-49.53	74.00	8.90	25.10

Carrier frequency (MHz): 2402
Channel No.:0
Test Mode: π/4DQPSK
Polarity: Vertical
Detector: Average

No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	cable loss (dB)	antenna factor (dB)
1	2402	92.99	58.99	N/A	N/A	8.90	25.10
2	2390	14.52	-19.48	-39.48	54.00	8.90	25.10

Carrier frequency (MHz): 2402
Channel No.:0
Test Mode: π/4DQPSK
Polarity: Horizontal
Detector: Average

No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	cable loss (dB)	antenna factor (dB)
1	2402	90.20	56.20	N/A	N/A	8.90	25.10
2	2390	13.85	-20.15	-40.15	54.00	8.90	25.10

Carrier frequency (MHz): 2480
Channel No.:78
Test Mode: π/4DQPSK
Polarity: Vertical
Detector: Peak

No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	cable loss (dB)	antenna factor (dB)
1	2480	95.74	61.74	N/A	N/A	8.90	25.10
2	2483.5	24.80	-9.20	-49.20	74.00	8.90	25.10

Carrier frequency (MHz): 2480
Channel No.:78
Test Mode: π/4DQPSK
Polarity: Horizontal
Detector: Peak

No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	cable loss (dB)	antenna factor (dB)
1	2480	93.13	59.13	N/A	N/A	8.90	25.10
2	2483.5	24.35	-9.65	-49.65	74.00	8.90	25.10

Carrier frequency (MHz): 2480
Channel No.:78
Test Mode: π/4DQPSK
Polarity: Vertical
Detector: Average

No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	cable loss (dB)	antenna factor (dB)
1	2480	93.52	59.52	N/A	N/A	8.90	25.10
2	2483.5	15.62	-18.38	-38.38	54.00	8.90	25.10

Carrier frequency (MHz): 2480
Channel No.:78
Test Mode: π/4DQPSK
Polarity: Horizontal
Detector: Average

No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	cable loss (dB)	antenna factor (dB)
1	2480	91.21	57.21	N/A	N/A	8.90	25.10
2	2483.5	15.60	-18.40	-38.40	54.00	8.90	25.10

Carrier frequency (MHz): 2402
Channel No.:0
Test Mode: 8DPSK
Polarity: Vertical
Detector: Peak

No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	cable loss (dB)	antenna factor (dB)
1	2402	95.99	61.99	N/A	N/A	8.90	25.10
2	2390	25.26	-8.74	-48.74	74.00	8.90	25.10

Carrier frequency (MHz): 2402
Channel No.:0
Test Mode: 8DPSK
Polarity: Horizontal
Detector: Peak

No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	cable loss (dB)	antenna factor (dB)
1	2402	93.74	59.74	N/A	N/A	8.90	25.10
2	2390	25.44	-8.56	-48.56	74.00	8.90	25.10

Carrier frequency (MHz): 2402
Channel No.:0
Test Mode: 8DPSK
Polarity: Vertical
Detector: Average

No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	cable loss (dB)	antenna factor (dB)
1	2402	93.98	59.98	N/A	N/A	8.90	25.10
2	2390	15.49	-18.51	-38.51	54.00	8.90	25.10

Carrier frequency (MHz): 2402
Channel No.:0
Test Mode: 8DPSK
Polarity: Horizontal
Detector: Average

No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	cable loss (dB)	antenna factor (dB)
1	2402	91.87	57.87	N/A	N/A	8.90	25.10
2	2390	15.03	-18.97	-38.97	54.00	8.90	25.10

Carrier frequency (MHz): 2480
Channel No.:78
Test Mode: 8DPSK
Polarity: Vertical
Detector: Peak

No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	cable loss (dB)	antenna factor (dB)
1	2480	96.10	62.10	N/A	N/A	8.90	25.10
2	2483.5	24.01	-9.99	-49.99	74.00	8.90	25.10

Carrier frequency (MHz): 2480
Channel No.:78
Test Mode: 8DPSK
Polarity: Horizontal
Detector: Peak

No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	cable loss (dB)	antenna factor (dB)
1	2480	94.08	60.08	N/A	N/A	8.90	25.10
2	2483.5	23.91	-10.09	-50.09	74.00	8.90	25.10

Carrier frequency (MHz): 2480
Channel No.:78
Test Mode: 8DPSK
Polarity: Vertical
Detector: Average

No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	cable loss (dB)	antenna factor (dB)
1	2480	94.12	60.12	N/A	N/A	8.90	25.10
2	2483.5	15.64	-18.36	-38.36	54.00	8.90	25.10

Carrier frequency (MHz): 2480
Channel No.:78
Test Mode: 8DPSK
Polarity: Horizontal
Detector: Average

No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	cable loss (dB)	antenna factor (dB)
1	2480	91.96	57.96	N/A	N/A	8.90	25.10
2	2483.5	16.49	-17.51	-37.51	54.00	8.90	25.10

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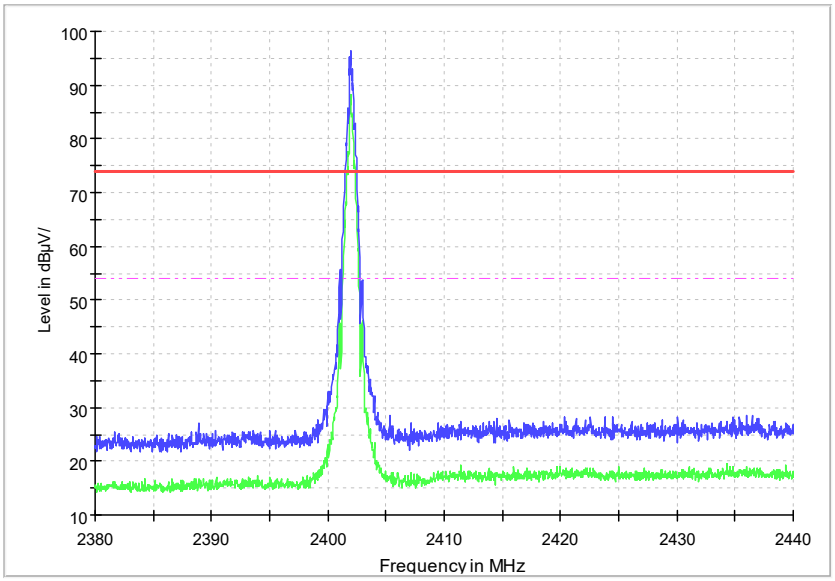


Sample Calculations

Determining Spurious Emissions Levels

A "reference path loss" is established and the A_{Rpl} is the attenuation of "reference path loss", and including the gain of receive antenna, the gain of the preamplifier, the cable loss.
The measurement results are obtained as described below:
Result= $P_{mea} + A_{Rpl}$
Sample calculation: (23.97 dBμV/m) = (44.97 dBμV) + (-21 dB/m), the corresponding frequency is 30.97MHz.

For GFSK
Channel No.:0

Frequency (MHz)	Result (dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)
30.97	23.97	-21	44.97	Vertical	40
87.521	16.26	-22.1	38.36	Vertical	40
161.5805	24.83	-22	46.83	Vertical	43.5
176.858	19.27	-21.2	40.47	Vertical	43.5
514.7575	12.68	-10.5	23.18	Vertical	46
928.4625	18.99	-2.9	21.89	Vertical	46

For π/4DQPSK
Channel No.:0

Frequency (MHz)	Result (dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)
30.097	24.73	-21.2	45.93	Vertical	40
86.939	15.11	-22.3	37.41	Vertical	40
162.1625	25.25	-22	47.25	Vertical	43.5
178.5555	19.09	-21.1	40.19	Vertical	43.5
541.6265	13.11	-9.9	23.01	Vertical	46
942.188	19.19	-2.8	21.99	Vertical	46

For 8DPSK
Channel No.:0

Frequency (MHz)	Result (dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)
31.4065	25.06	-20.9	45.96	Vertical	40
87.715	16.4	-22	38.4	Vertical	40
165.121	22.84	-21.9	44.74	Vertical	43.5
177.3915	19.5	-21.2	40.7	Vertical	43.5
534.2545	13.1	-10	23.1	Vertical	46
952.2275	19.03	-2.7	21.73	Vertical	46

For GFSK
Channel No.:39

Frequency (MHz)	Result (dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)
30.2425	25.37	-21.2	46.57	Vertical	40
92.3225	18.42	-20.8	39.22	Vertical	43.5
163.2295	25.19	-21.9	47.09	Vertical	43.5
177.7795	19.41	-21.2	40.61	Vertical	43.5
508.792	12.45	-10.6	23.05	Vertical	46
927.735	19.07	-2.9	21.97	Vertical	46

For π/4DQPSK
Channel No.:39

Frequency (MHz)	Result (dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)
30.4365	25.29	-21.1	46.39	Vertical	40
93.2925	17.52	-20.6	38.12	Vertical	43.5
162.7445	25.14	-21.9	47.04	Vertical	43.5
178.701	19.08	-21.1	40.18	Vertical	43.5
528.386	12.98	-10.2	23.18	Vertical	46
934.525	19.14	-2.8	21.94	Vertical	46

For 8DPSK
Channel No.:39

Frequency (MHz)	Result (dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)
30.388	25.48	-21.1	46.58	Vertical	40
92.565	18.55	-20.7	39.25	Vertical	43.5
159.1555	21.11	-22.1	43.21	Vertical	43.5
177.44	19.52	-21.2	40.72	Vertical	43.5
519.656	12.9	-10.4	23.3	Vertical	46
957.7565	19.24	-2.6	21.84	Vertical	46

For GFSK
Channel No.:78

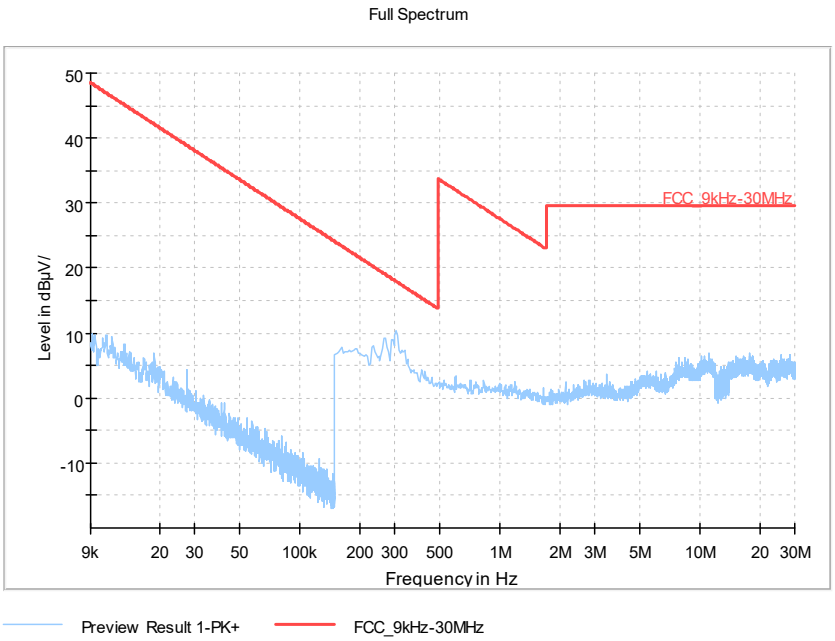
Frequency (MHz)	Result (dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)
30.3395	24.55	-21.2	45.75	Vertical	40
87.9575	16.66	-21.9	38.56	Vertical	40
162.114	24.97	-22	46.97	Vertical	43.5
175.112	17.77	-21.3	39.07	Vertical	43.5
553.412	13.09	-9.6	22.69	Vertical	46
935.9315	19.18	-2.8	21.98	Vertical	46

For π/4DQPSK
Channel No.:78

Frequency (MHz)	Result (dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)
31.843	23.25	-20.8	44.05	Vertical	40
87.2785	15.95	-22.1	38.05	Vertical	40
163.1325	25.09	-21.9	46.99	Vertical	43.5
175.888	18.71	-21.3	40.01	Vertical	43.5
548.7075	13.15	-9.7	22.85	Vertical	46
897.083	18.18	-3.3	21.48	Vertical	46

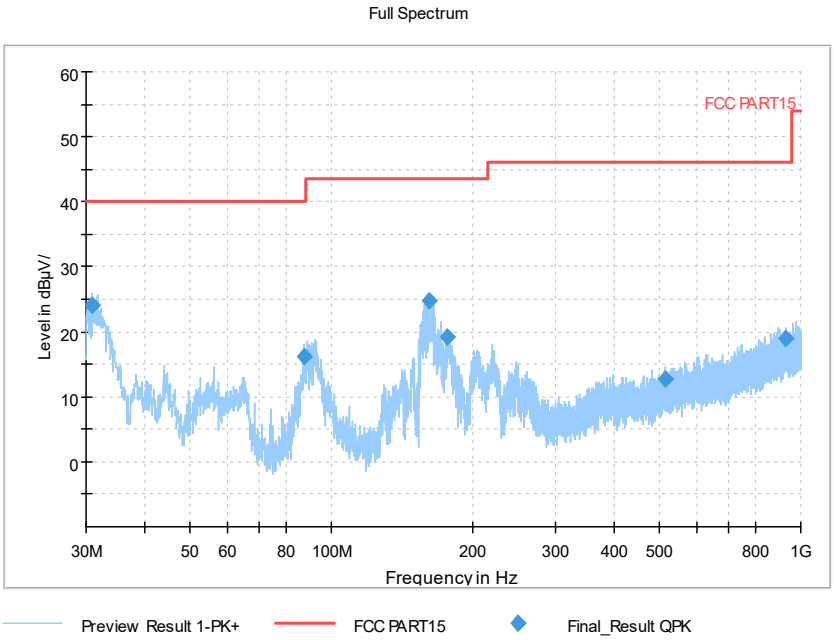
For 8DPSK
Channel No.:78

Frequency (MHz)	Result (dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)
30.194	25.06	-21.2	46.26	Vertical	40
87.327	15.94	-22.1	38.04	Vertical	40
162.1625	25.04	-22	47.04	Vertical	43.5
177.828	19.43	-21.2	40.63	Vertical	43.5
554.2365	13.16	-9.6	22.76	Vertical	46
914.058	18.73	-3.1	21.83	Vertical	46

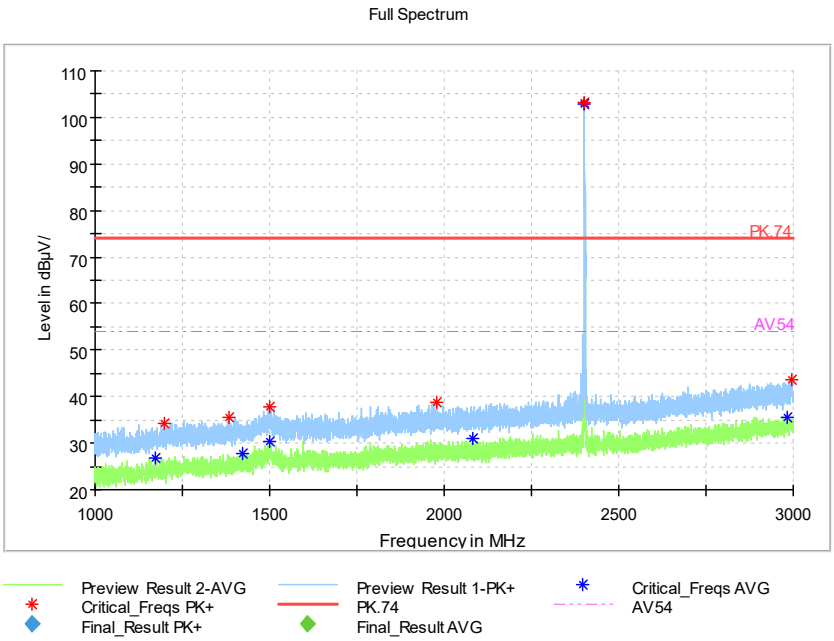


Frequency Range: 9kHz-30MHz

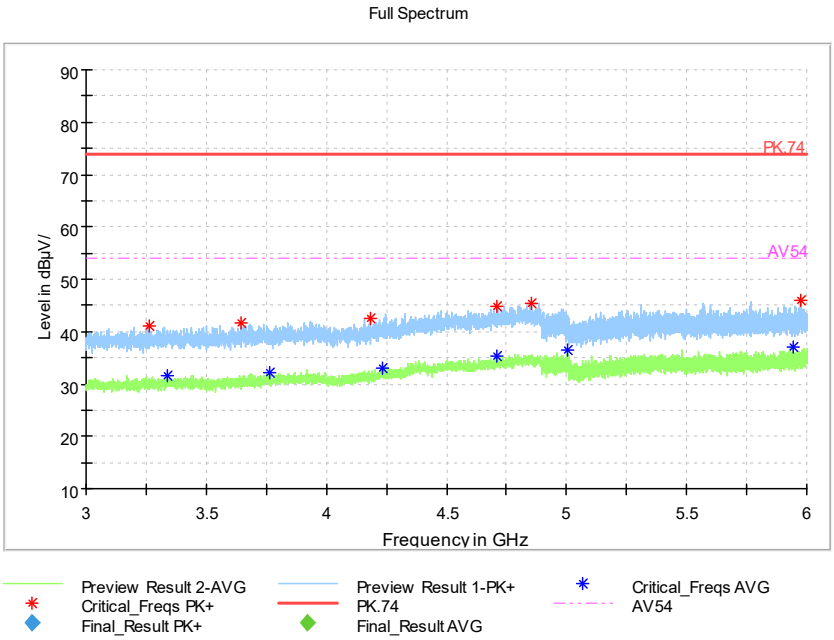
Carrier frequency (MHz): 2402
Channel No.:0



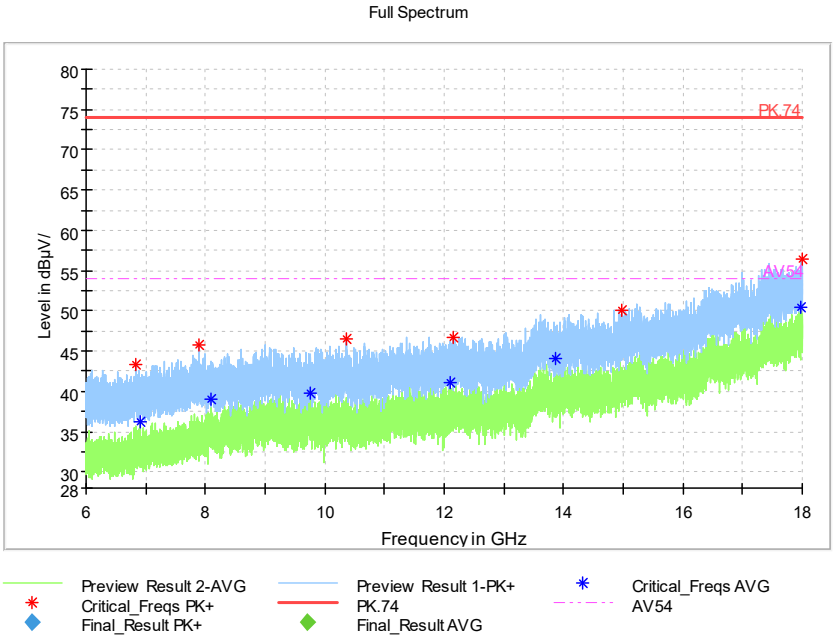
Frequency Range: 30MHz-1000MHz
Detector: QP mode
Modulation type: GFSK



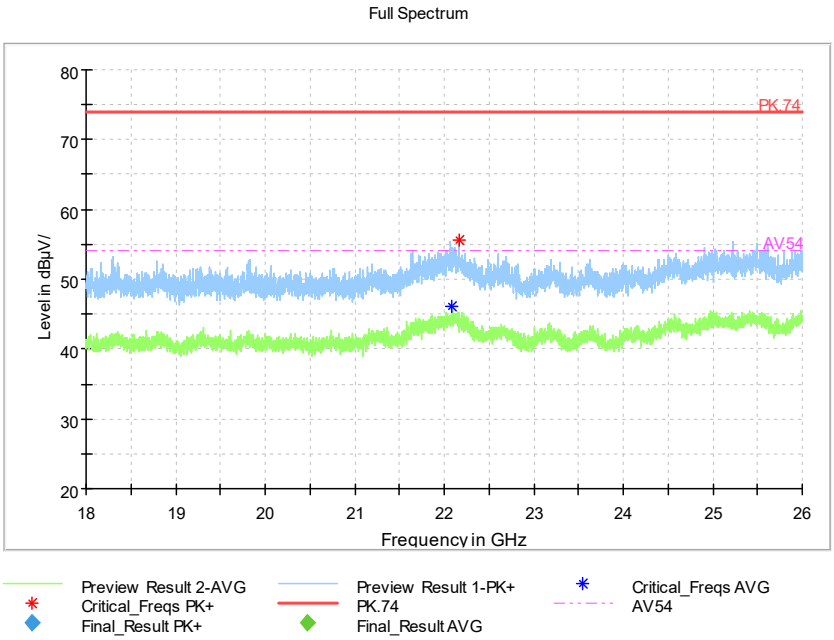
Frequency Range: 1GHz-3GHz
Detector: Av mode and PK mode
Modulation type: GFSK



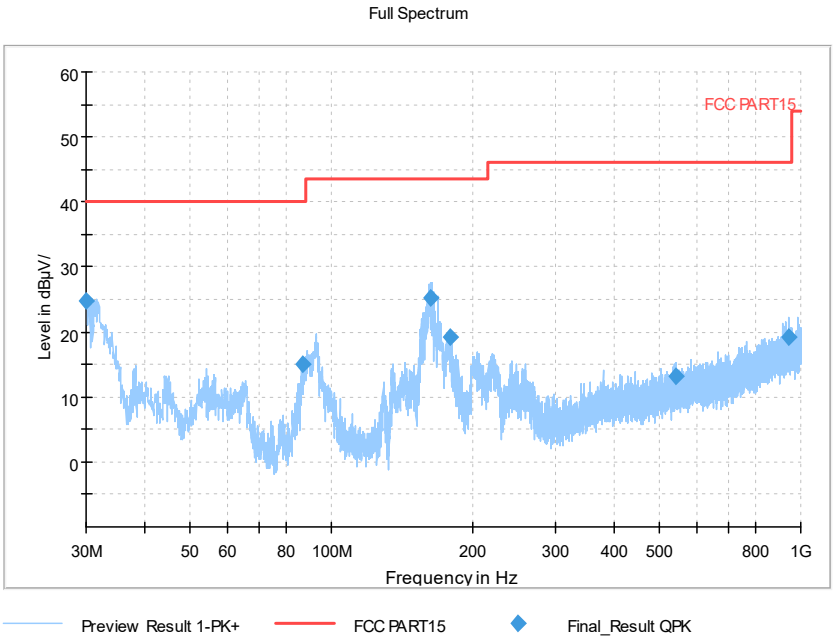
Frequency Range: 3GHz-6GHz
Detector: Av mode and PK mode
Modulation type: GFSK



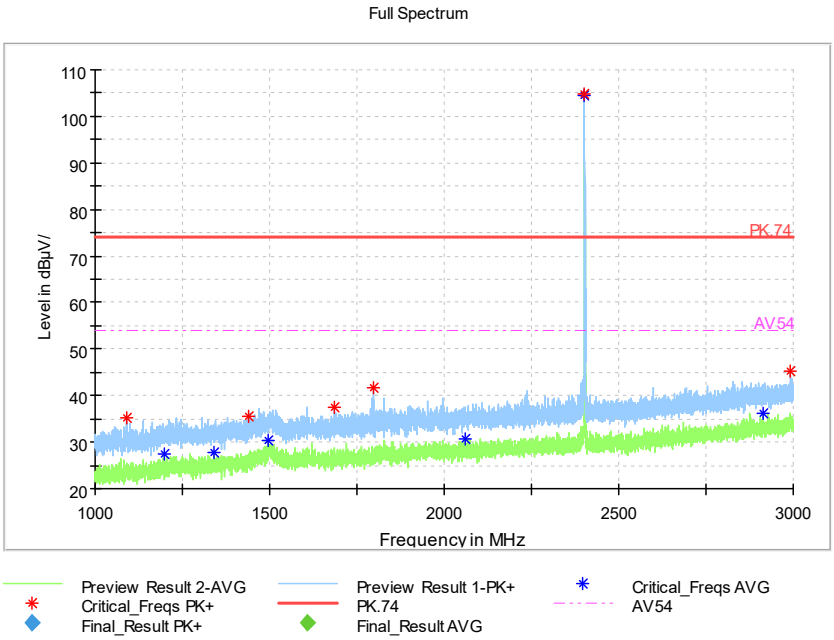
Frequency Range: 6GHz- 18GHz
Detector: Av mode and PK mode
Modulation type: GFSK



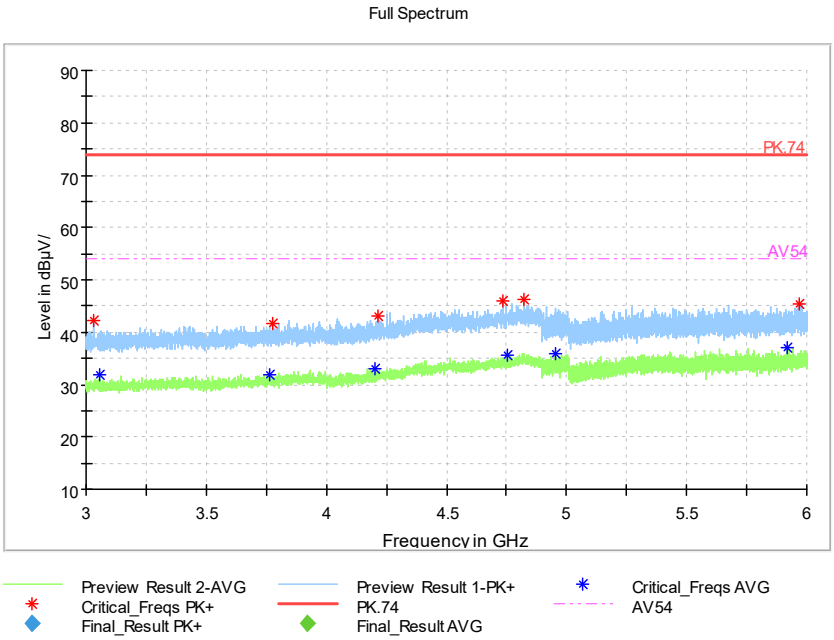
Frequency Range: 18GHz-26GHz
Detector: Av mode and PK mode
Modulation type: GFSK



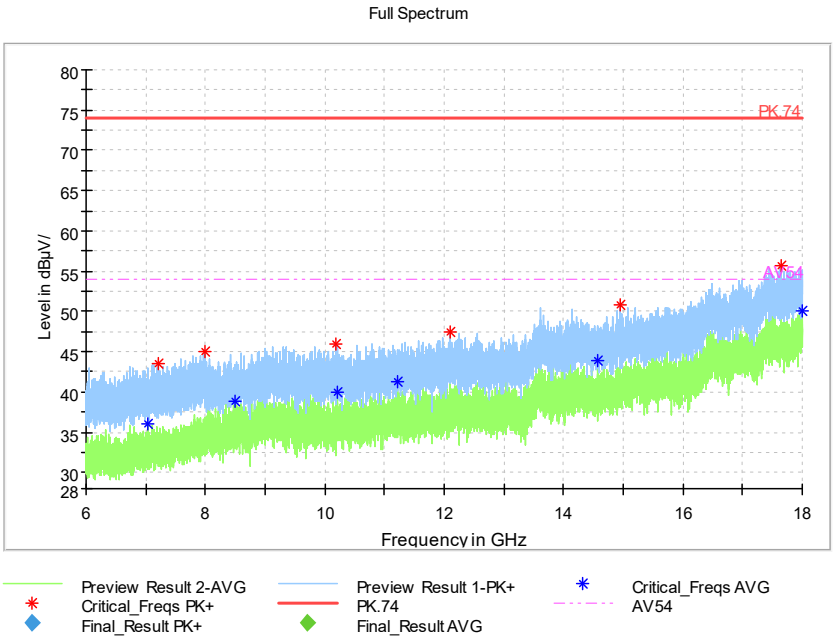
Frequency Range: 30MHz-1000 MHz
Detector: QP mode
Modulation type: π/4DQPSK



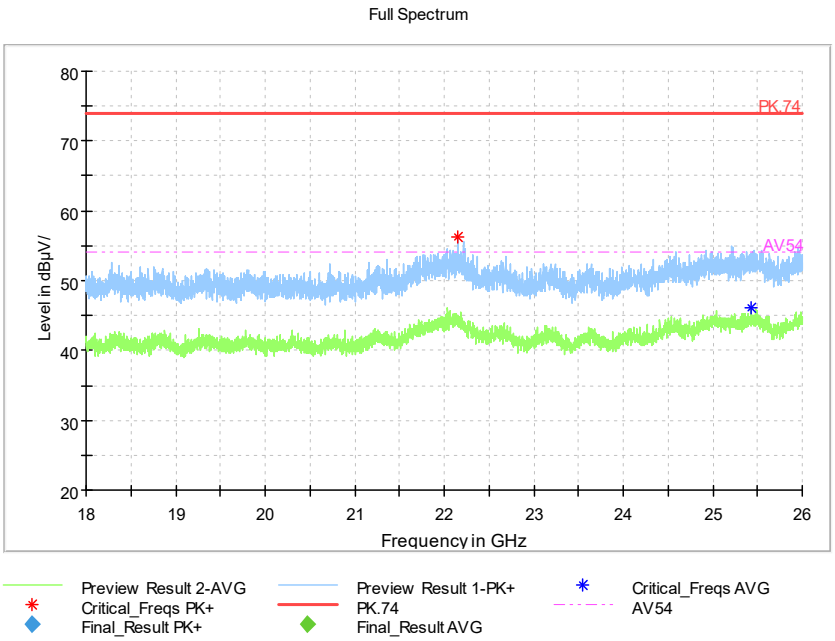
Frequency Range: 1GHz-3GHz
Detector: Av mode and PK mode
Modulation type: π/4DQPSK



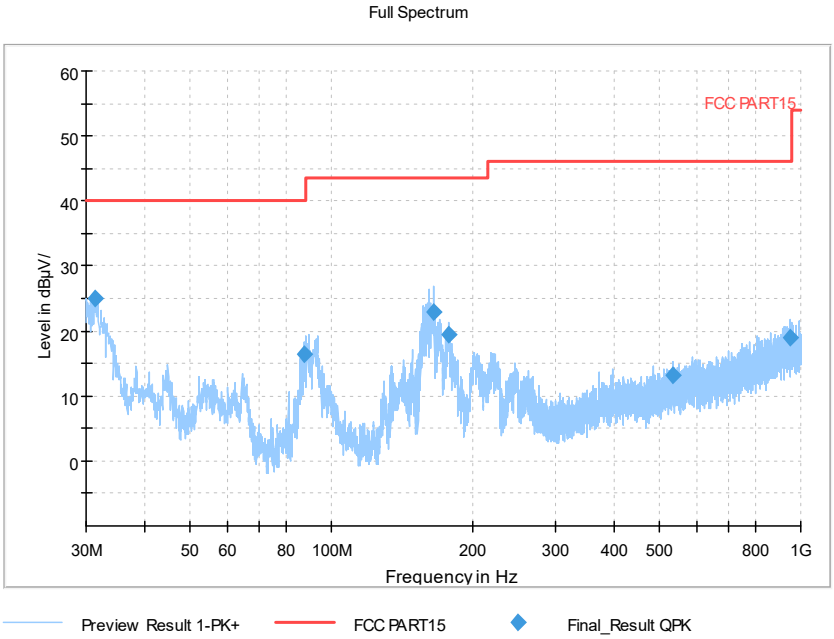
Frequency Range: 3GHz-6GHz
Detector: Av mode and PK mode
Modulation type: π/4DQPSK



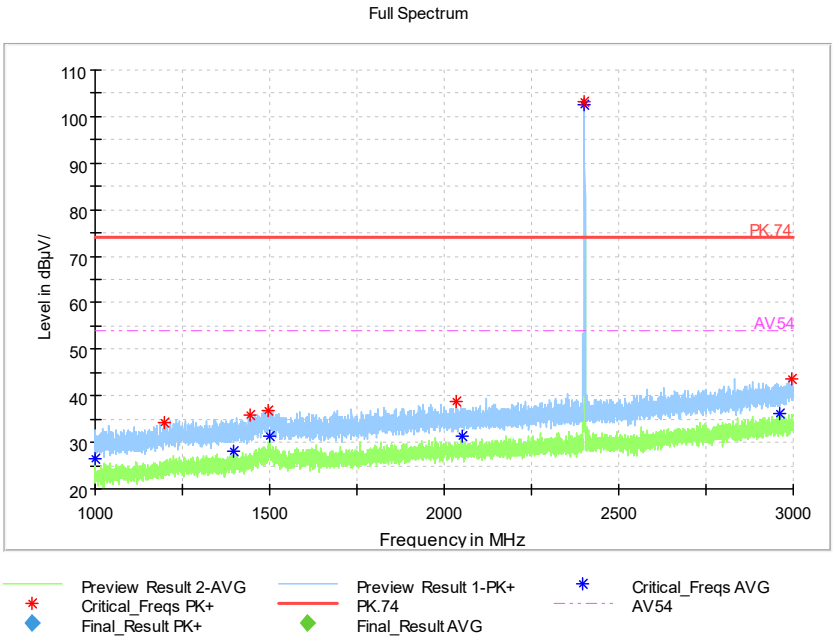
Frequency Range: 6GHz-18GHz
Detector: Av mode and PK mode
Modulation type: π/4DQPSK



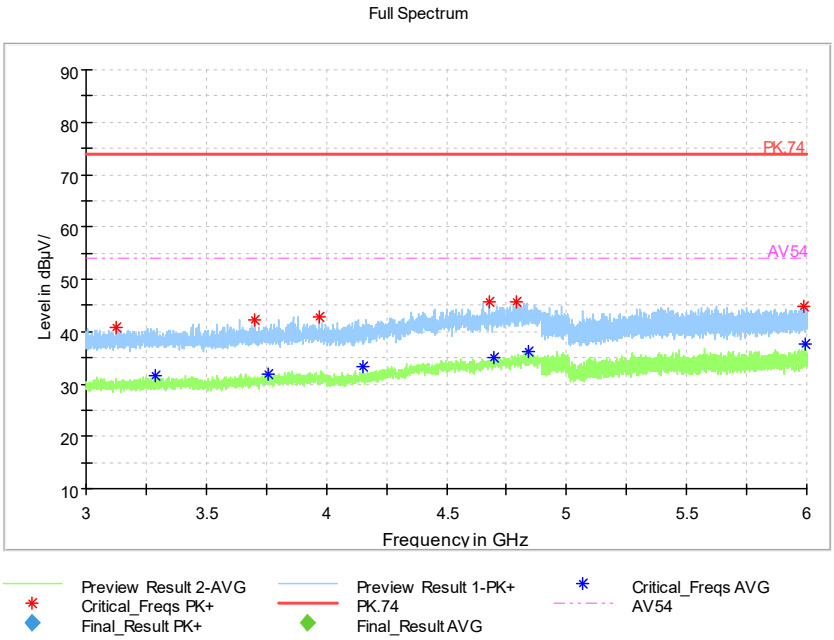
Frequency Range: 18GHz-26GHz
Detector: Av mode and PK mode
Modulation type: π/4DQPSK



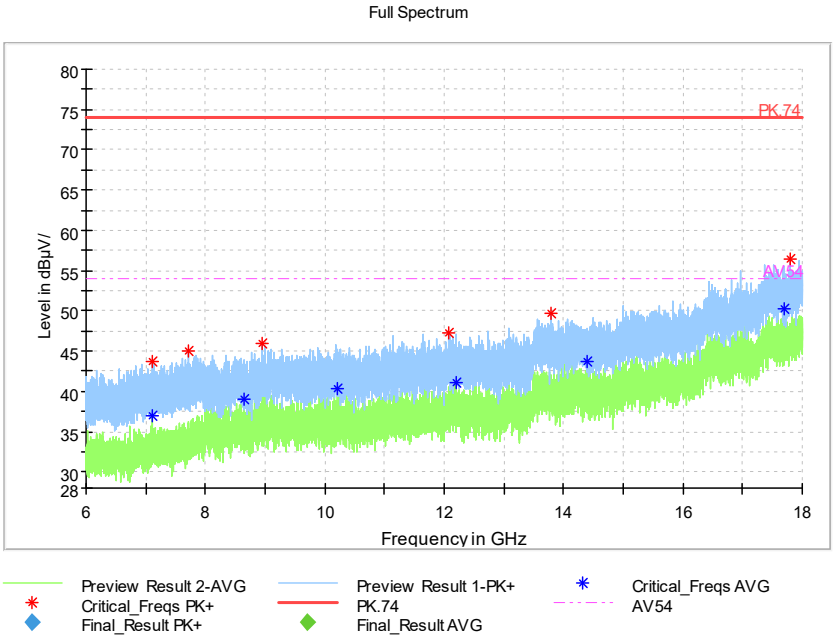
Frequency Range: 30MHz-1000 MHz
Detector: QP mode
Modulation type: 8DPSK



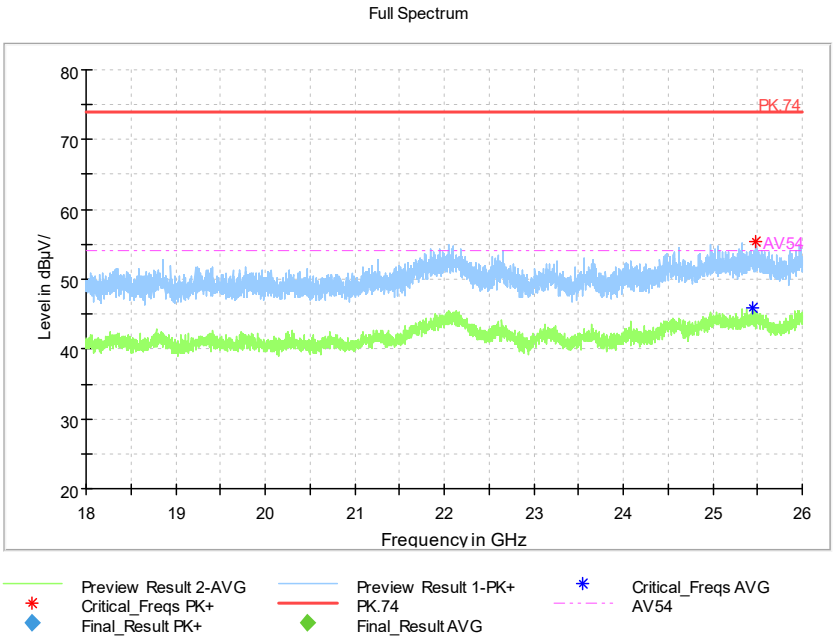
Frequency Range: 1GHz-3GHz
Detector: Av mode and PK mode
Modulation type: 8DPSK



Frequency Range: 3GHz-6GHz
Detector: Av mode and PK mode
Modulation type: 8DPSK

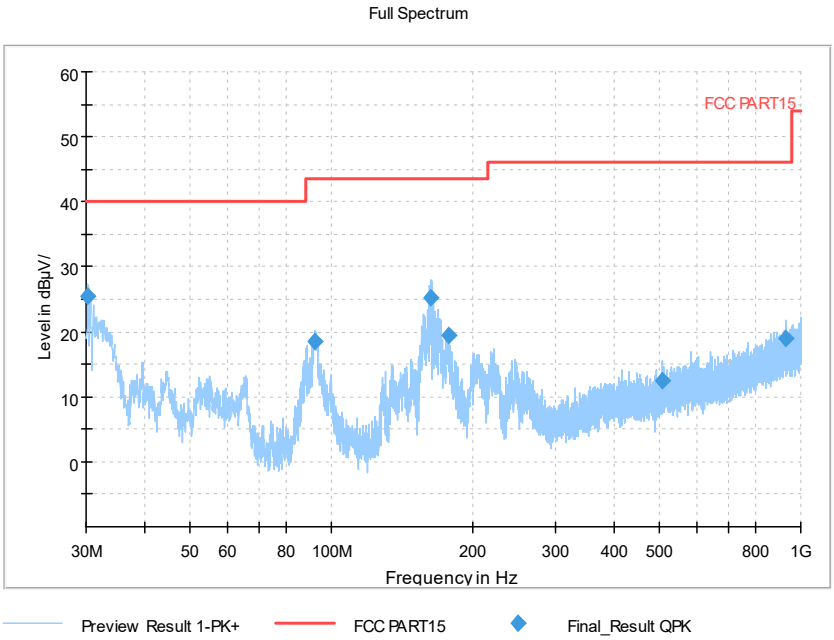


Frequency Range: 6GHz-18GHz
Detector: Av mode and PK mode
Modulation type: 8DPSK

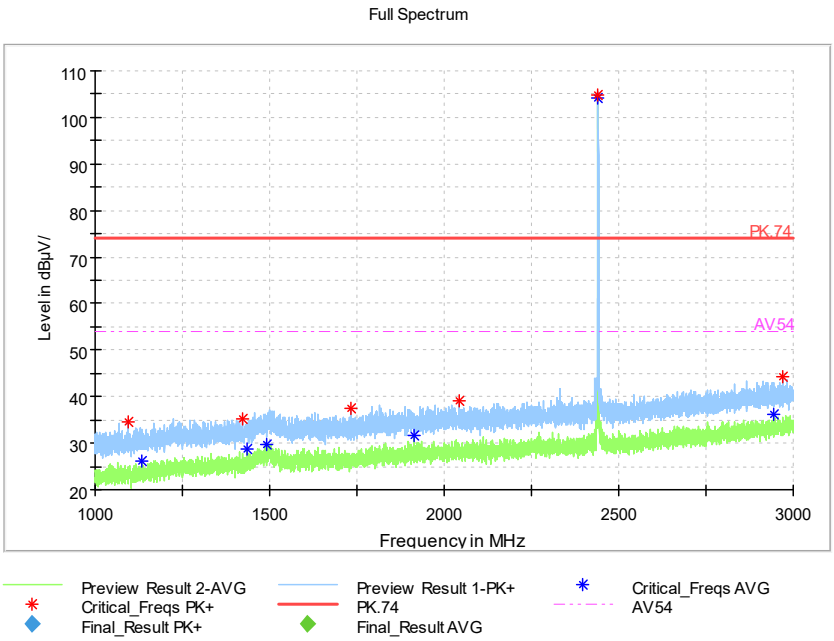


Frequency Range: 18GHz-26GHz
Detector: Av mode and PK mode
Modulation type: 8DPSK

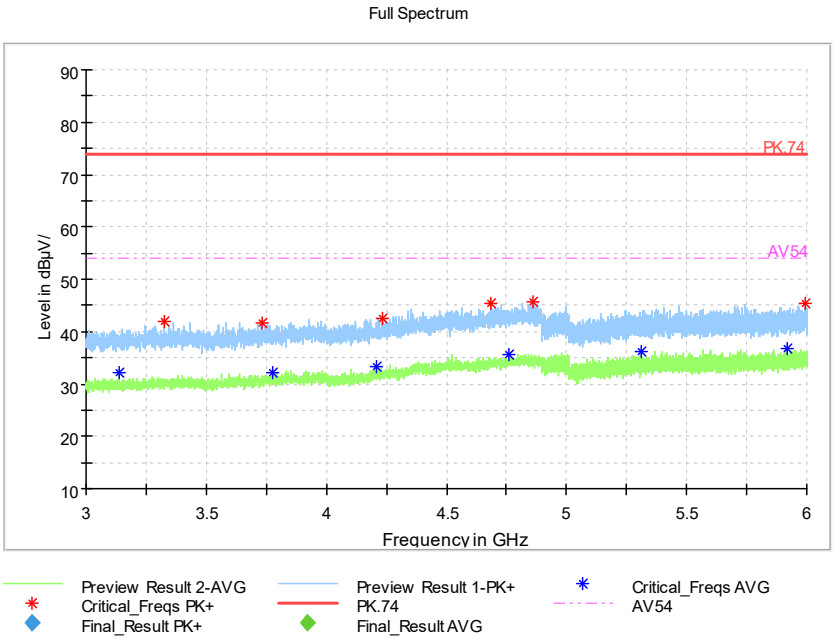
Carrier frequency (MHz): 2441
Channel No.:39



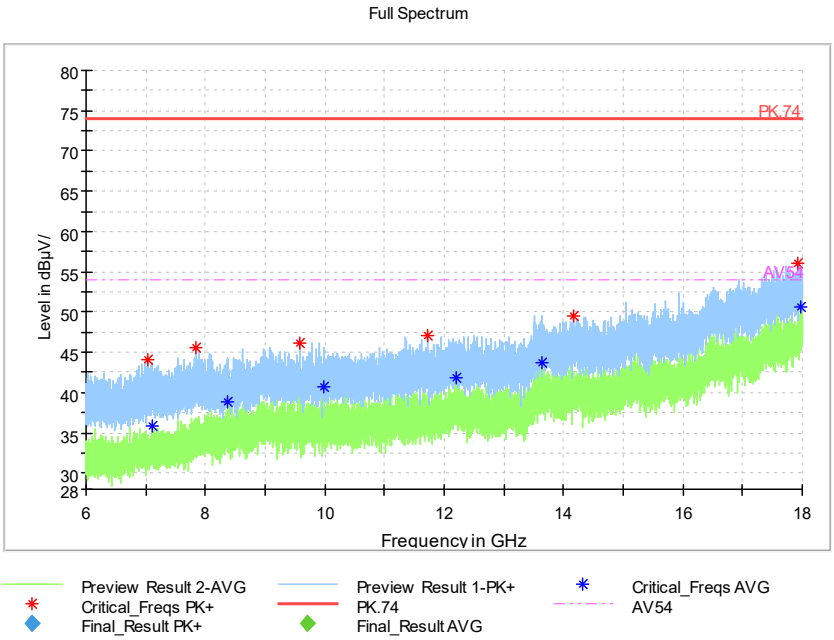
Frequency Range: 30MHz-1000MHz
Detector: QP mode
Modulation type: GFSK



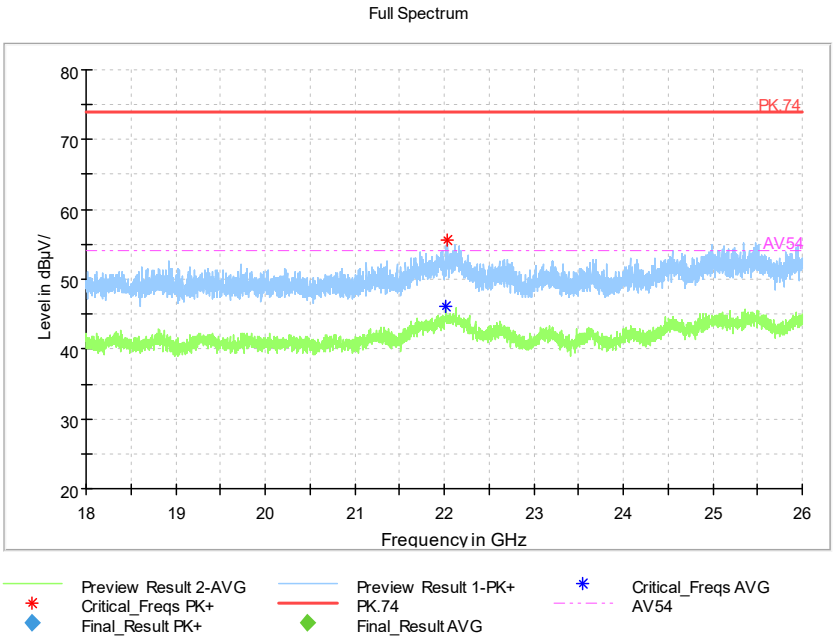
Frequency Range: 1GHz-3GHz
Detector: Av mode and PK mode
Modulation type: GFSK



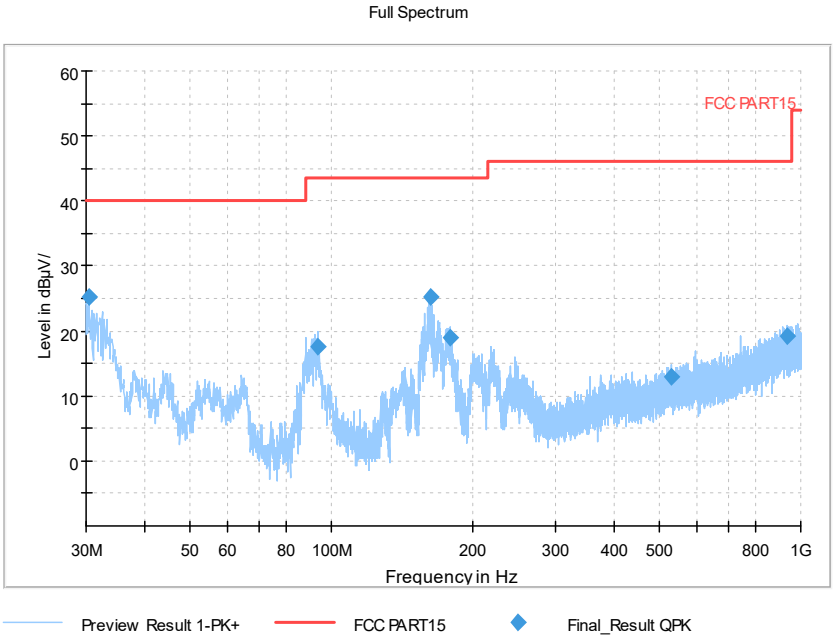
Frequency Range: 3GHz-6GHz
Detector: Av mode and PK mode
Modulation type: GFSK



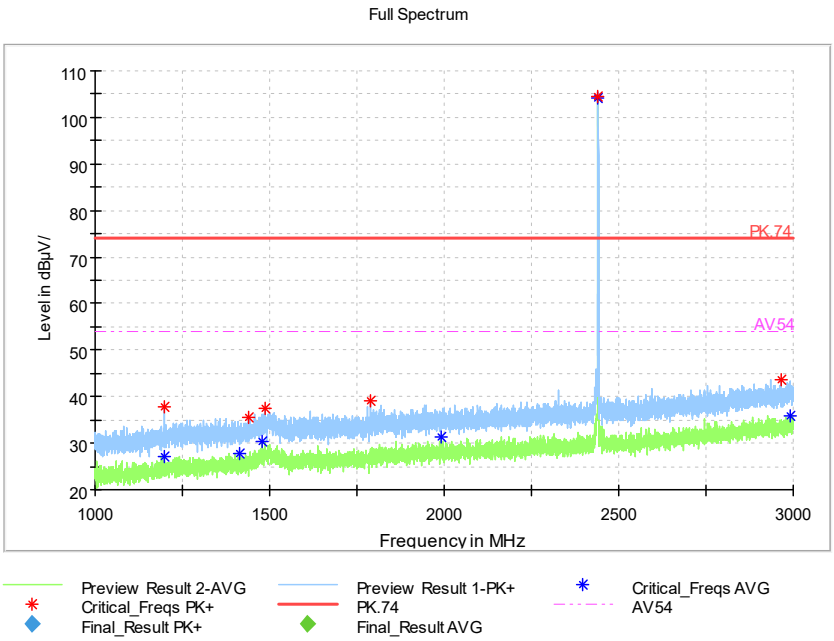
Frequency Range: 6GHz- 18GHz
Detector: Av mode and PK mode
Modulation type: GFSK



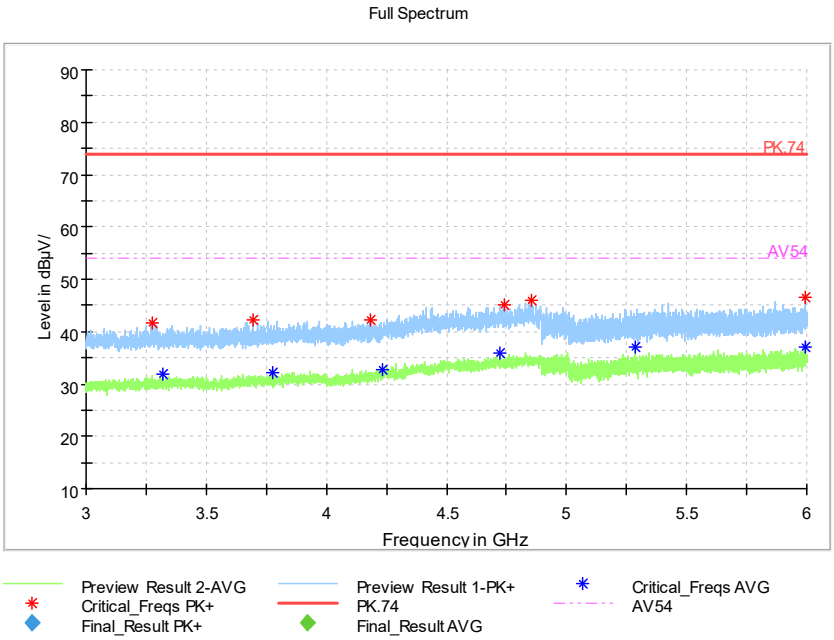
Frequency Range: 18GHz-26GHz
Detector: Av mode and PK mode
Modulation type: GFSK



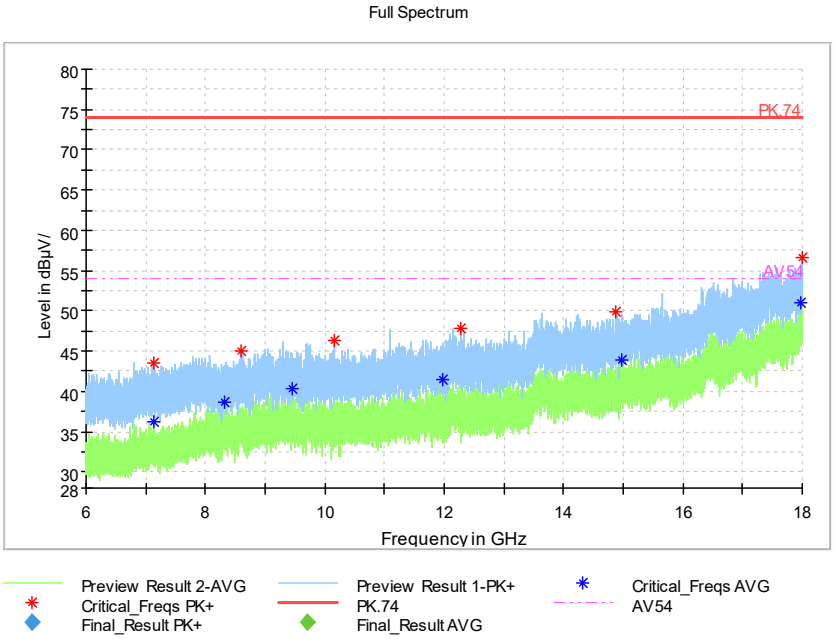
Frequency Range: 30MHz-1000 MHz
Detector: QP mode
Modulation type: π/4DQPSK



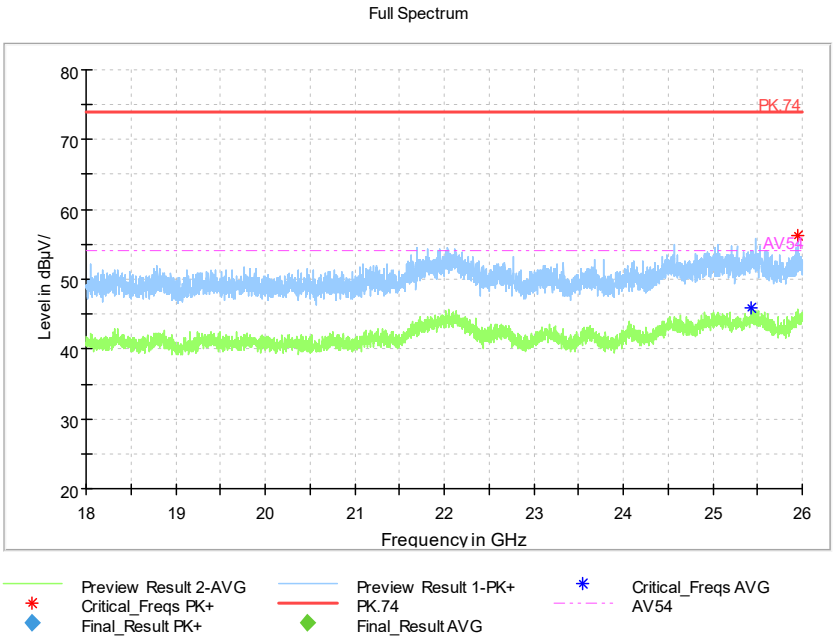
Frequency Range: 1GHz-3GHz
Detector: Av mode and PK mode
Modulation type: π/4DQPSK



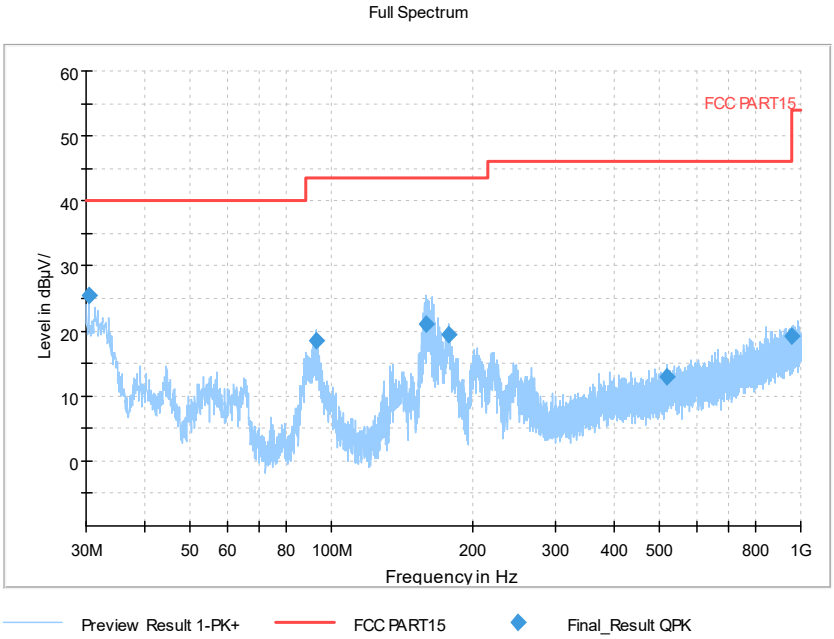
Frequency Range: 3GHz-6GHz
Detector: Av mode and PK mode
Modulation type: π/4DQPSK



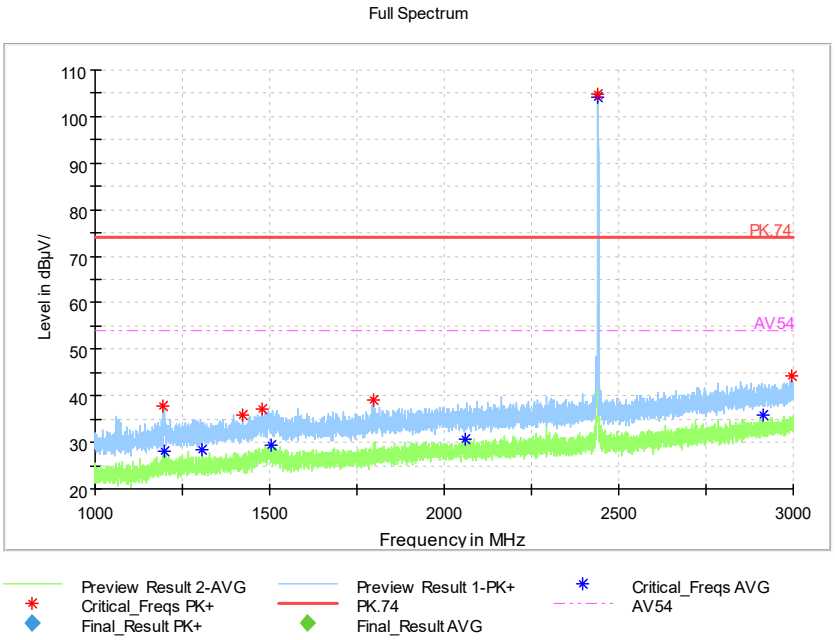
Frequency Range: 6GHz-18GHz
Detector: Av mode and PK mode
Modulation type: π/4DQPSK



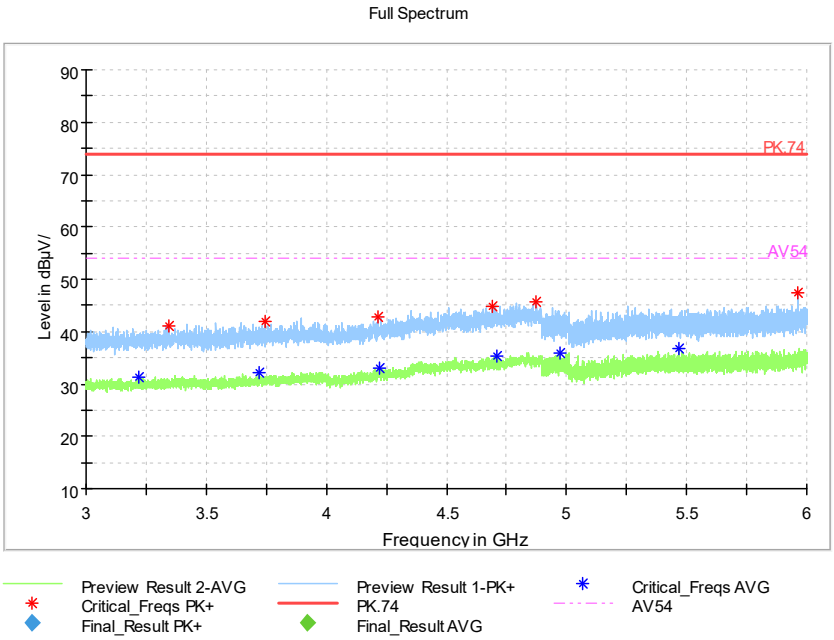
Frequency Range: 18GHz-26GHz
Detector: Av mode and PK mode
Modulation type: π/4DQPSK



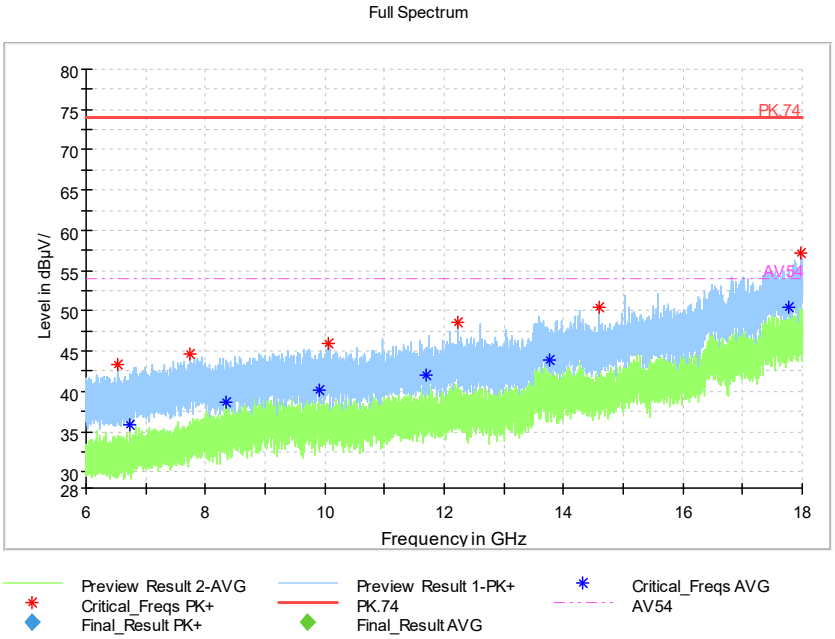
Frequency Range: 30MHz-1000 MHz
Detector: QP mode
Modulation type: 8DPSK



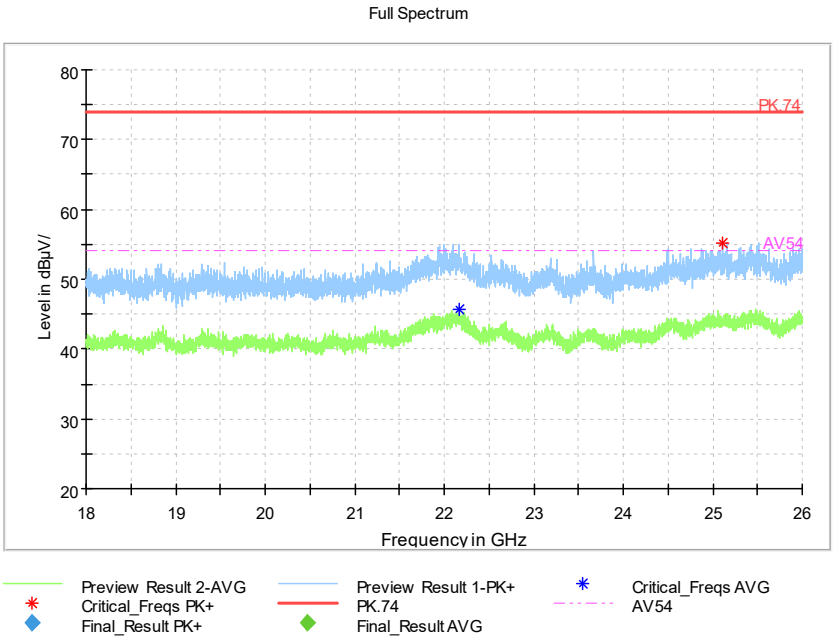
Frequency Range: 1GHz-3GHz
Detector: Av mode and PK mode
Modulation type: 8DPSK



Frequency Range: 3GHz-6GHz
Detector: Av mode and PK mode
Modulation type: 8DPSK

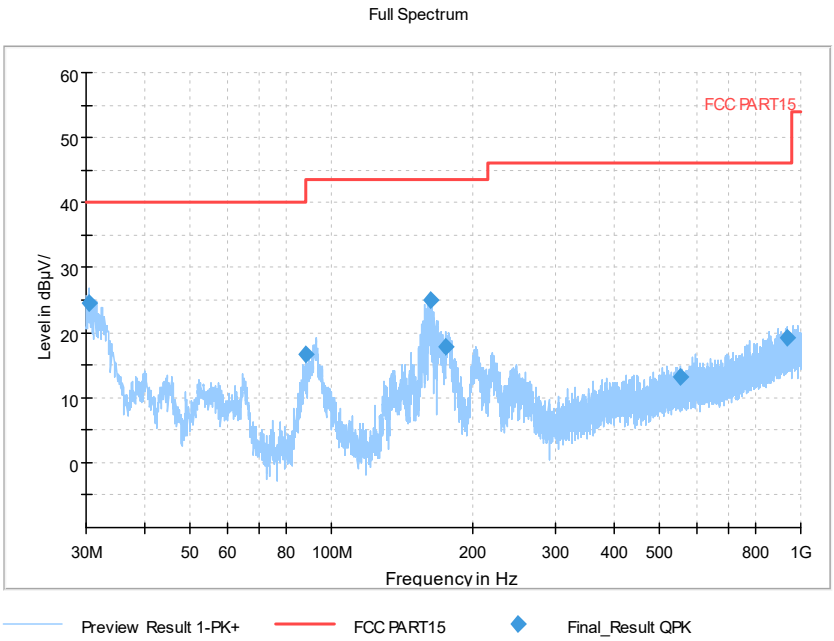


Frequency Range: 6GHz-18GHz
Detector: Av mode and PK mode
Modulation type: 8DPSK

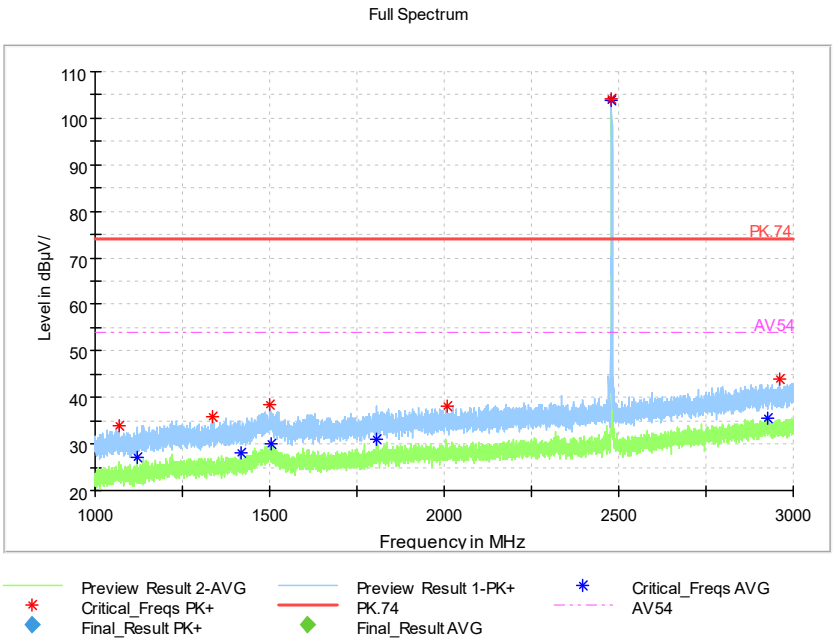


Frequency Range: 18GHz-26GHz
Detector: Av mode and PK mode
Modulation type: 8DPSK

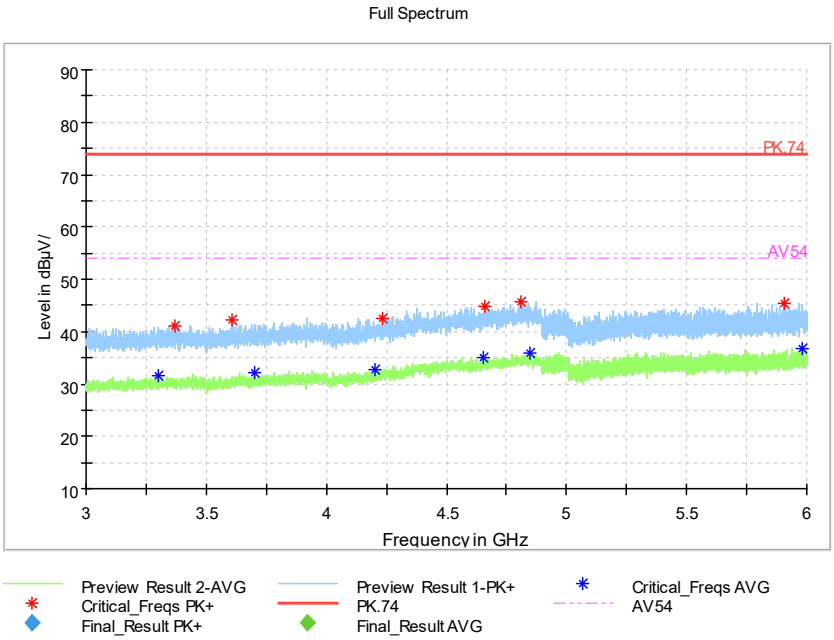
Carrier frequency (MHz): 2480
Channel No.:78



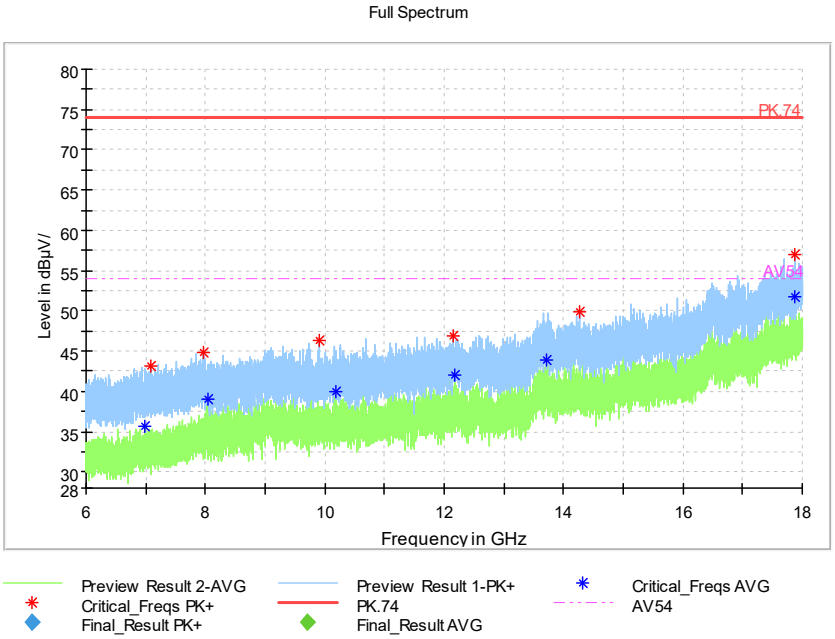
Frequency Range: 30MHz-1000MHz
Detector: QP mode
Modulation type: GFSK



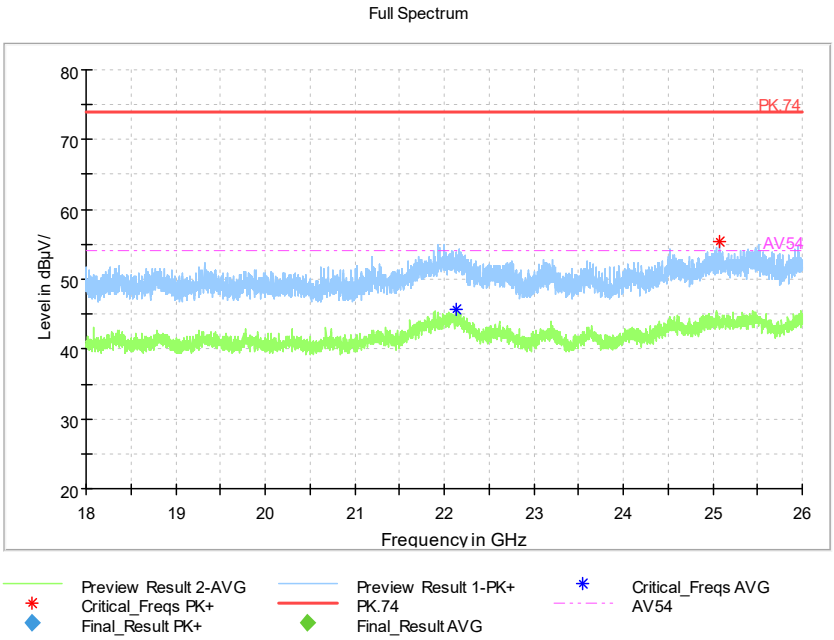
Frequency Range: 1GHz-3GHz
Detector: Av mode and PK mode
Modulation type: GFSK



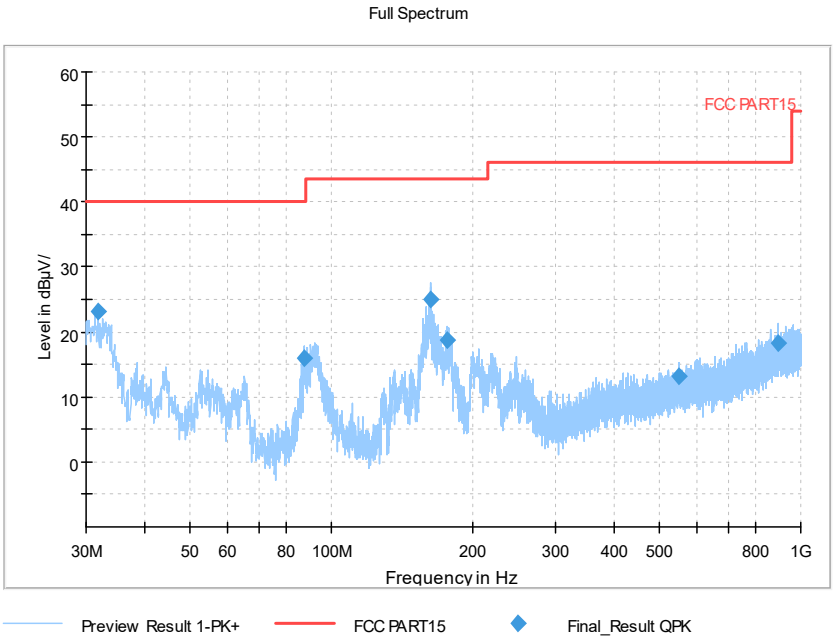
Frequency Range: 3GHz-6GHz
Detector: Av mode and PK mode
Modulation type: GFSK



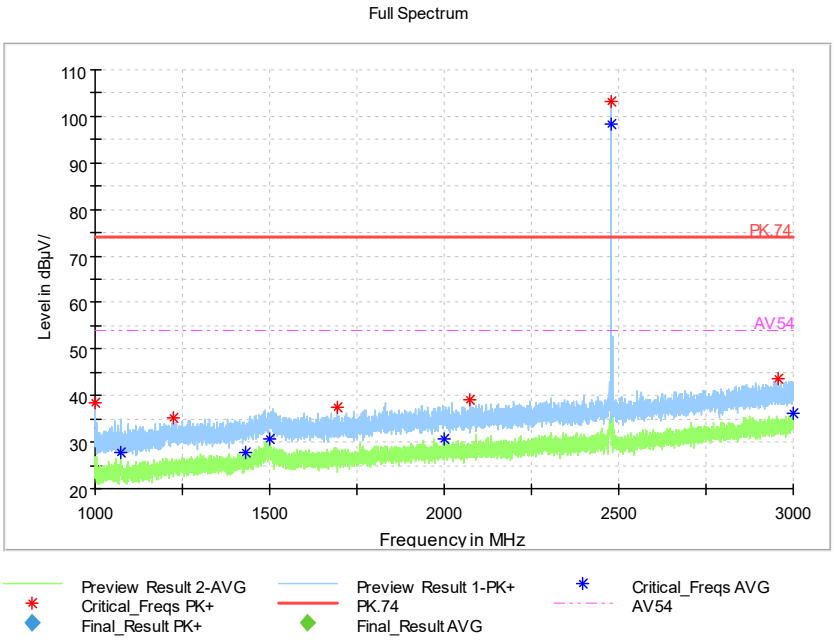
Frequency Range: 6GHz- 18GHz
Detector: Av mode and PK mode
Modulation type: GFSK



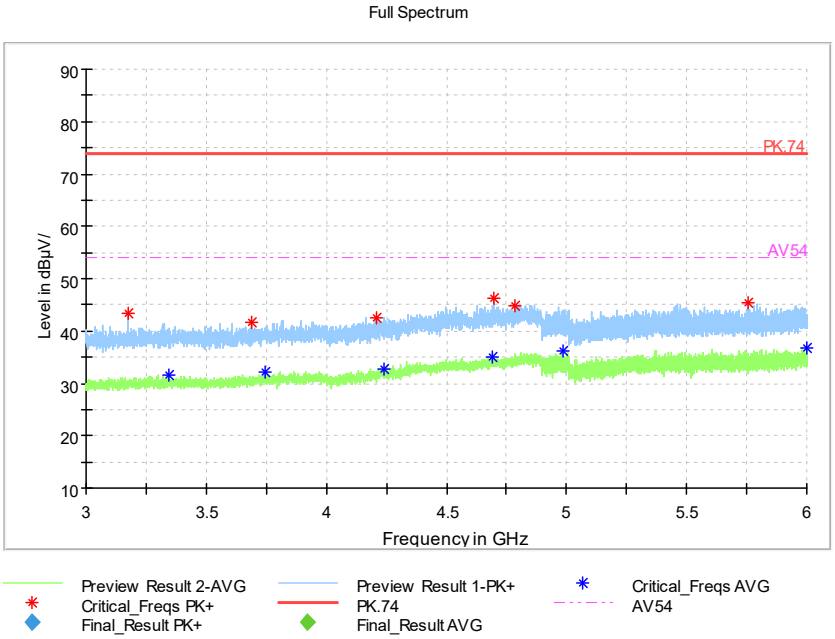
Frequency Range: 18GHz-26GHz
Detector: Av mode and PK mode
Modulation type: GFSK



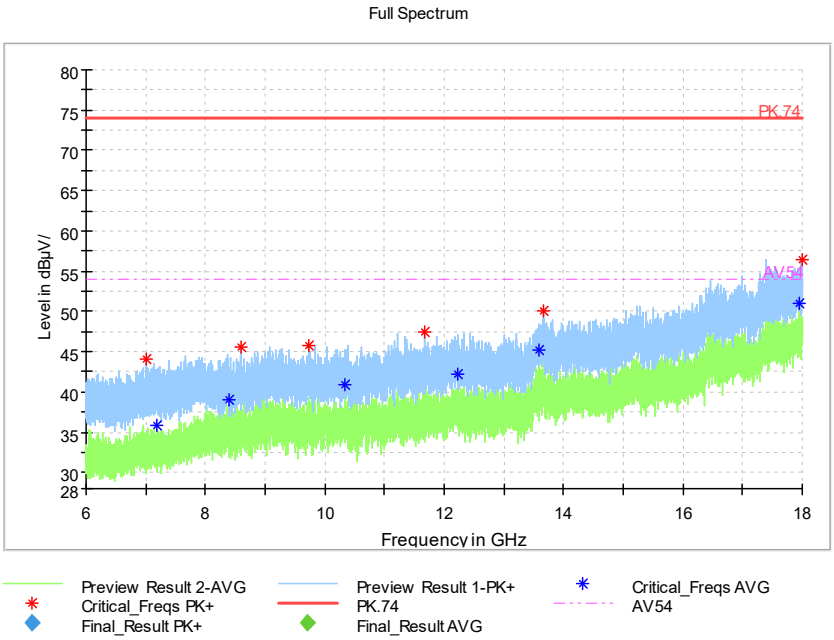
Frequency Range: 30MHz-1000 MHz
Detector: QP mode
Modulation type: π/4DQPSK



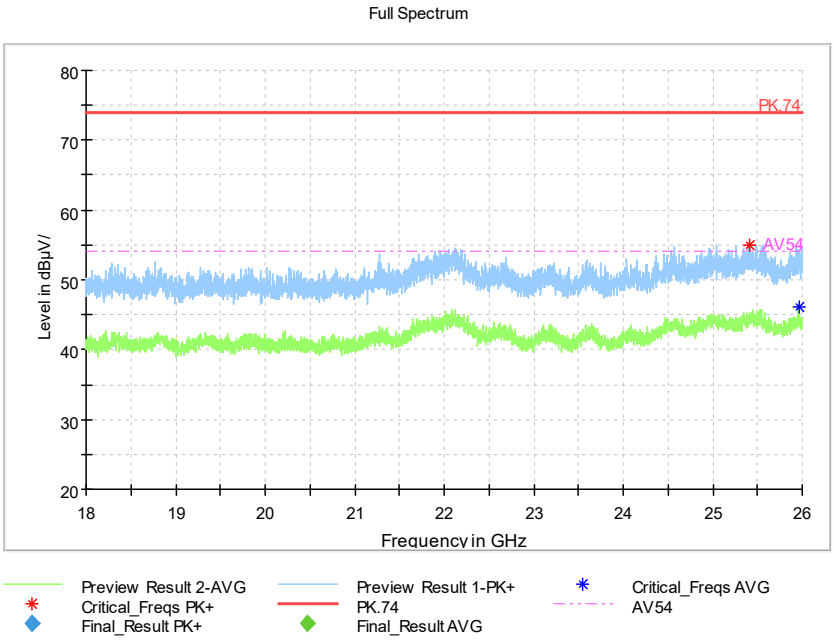
Frequency Range: 1GHz-3GHz
Detector: Av mode and PK mode
Modulation type: π/4DQPSK



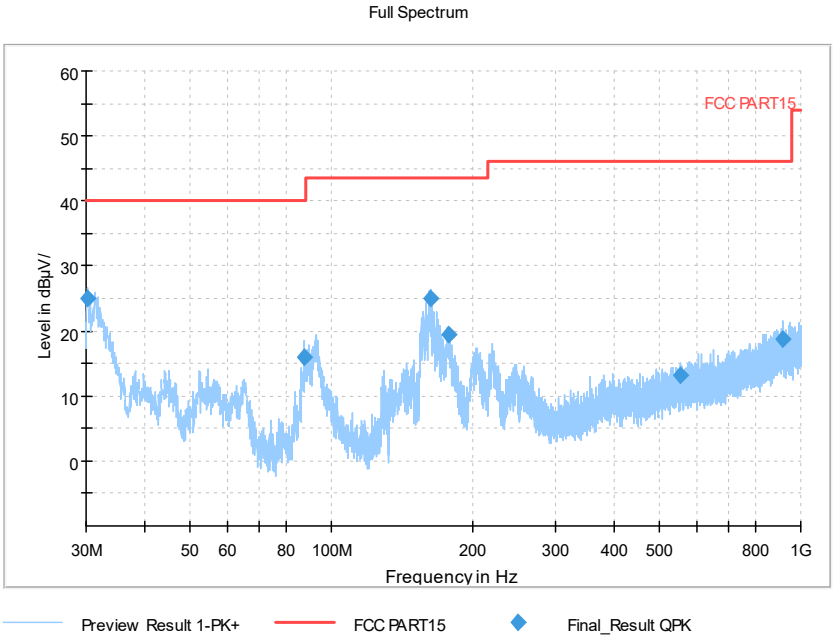
Frequency Range: 3GHz-6GHz
Detector: Av mode and PK mode
Modulation type: π/4DQPSK



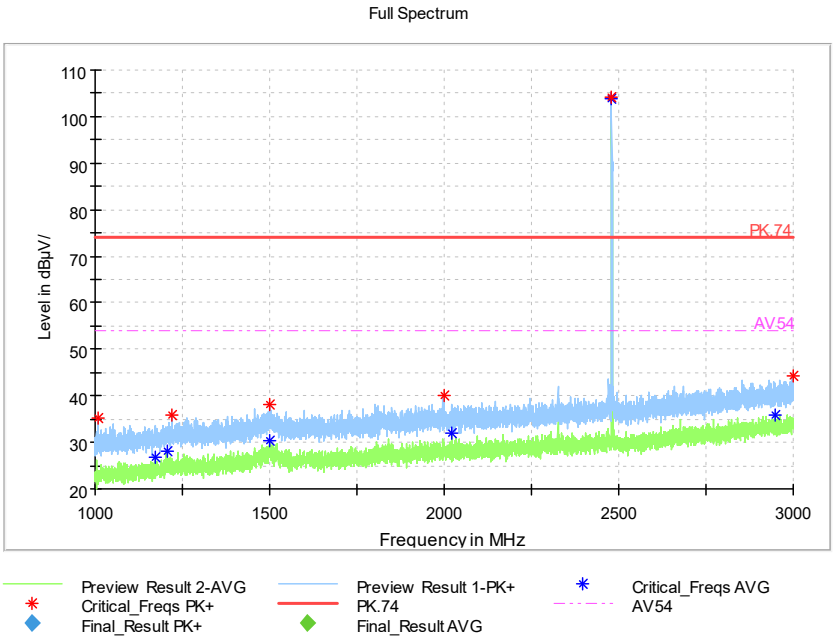
Frequency Range: 6GHz-18GHz
Detector: Av mode and PK mode
Modulation type: π/4DQPSK



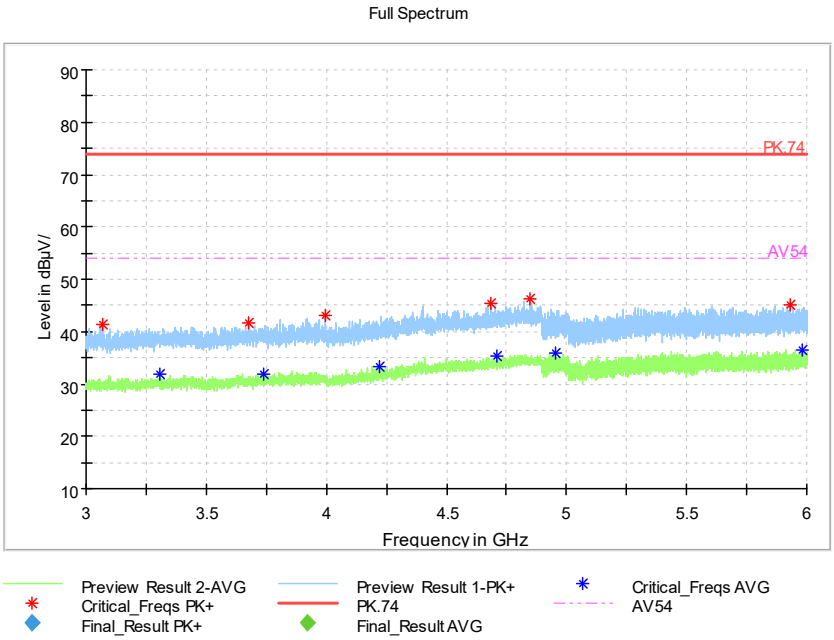
Frequency Range: 18GHz-26GHz
Detector: Av mode and PK mode
Modulation type: π/4DQPSK



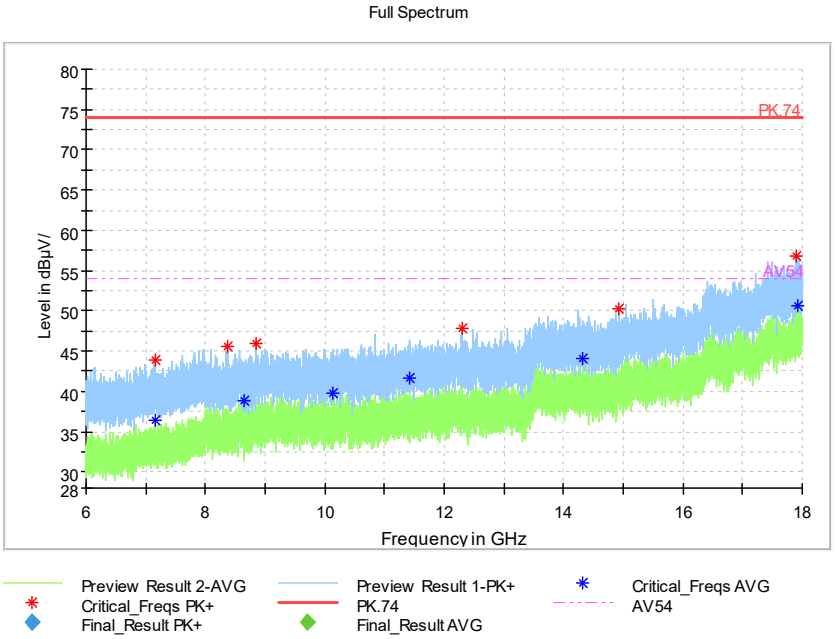
Frequency Range: 30MHz-1000 MHz
Detector: QP mode
Modulation type: 8DPSK



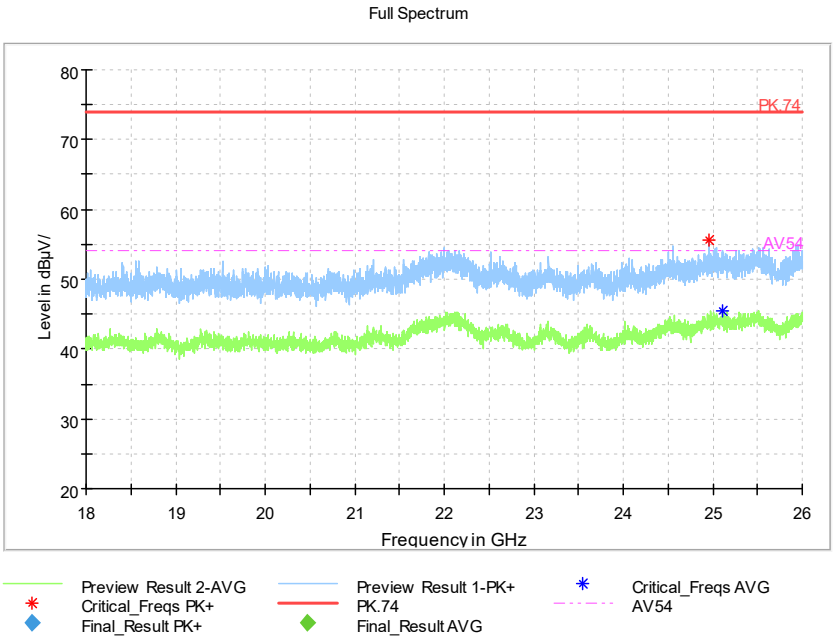
Frequency Range: 1GHz-3GHz
Detector: Av mode and PK mode
Modulation type: 8DPSK



Frequency Range: 3GHz-6GHz
Detector: Av mode and PK mode
Modulation type: 8DPSK



Frequency Range: 6GHz-18GHz
Detector: Av mode and PK mode
Modulation type: 8DPSK



Frequency Range: 18GHz-26GHz
Detector: Av mode and PK mode
Modulation type: 8DPSK

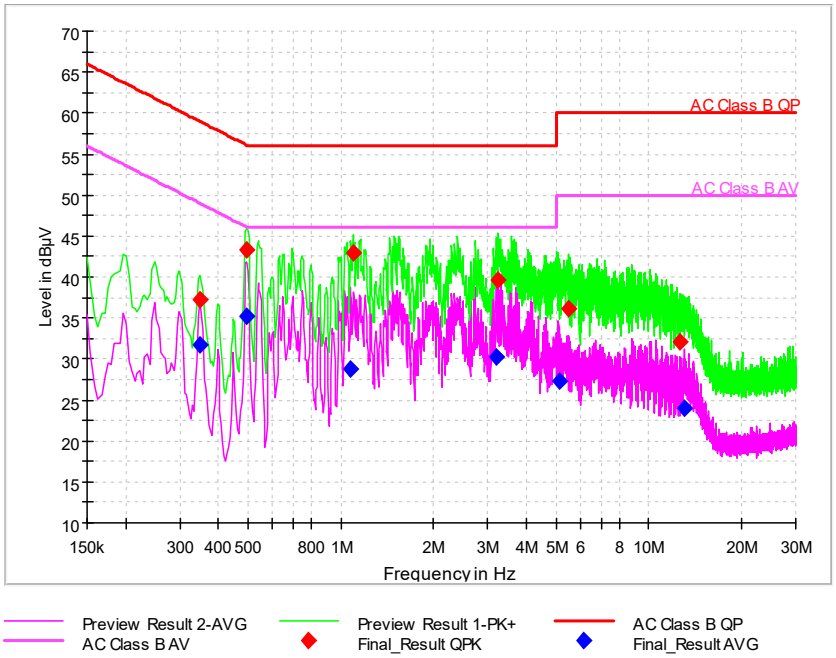
AC Power line Conducted Emission

A “reference path loss” Corr.(dB) is established and the L_{cable}+ATT+VDF is the attenuation of ” reference path loss”, and including the cable loss, the attenuation of the attenuator, the voltage division factor of AMN.

The measurement results are obtained as described below:

$P_{result}=P_{mea}$+ Corr.(dB)

Sample calculation: (31.69 dBμV) = (1.99 dBμV) + (29.7 dB), the corresponding frequency is 0.350421MHz.



L+N Line

MEASUREMENT RESULT:

Frequency (MHz)	QuasiPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB)	Pmea QuasiPeak (dBμV)	Pmea Average (dBμV)
0.350421	---	31.69	48.95	17.27	L1	29.7	---	1.99
0.350421	37.30	---	58.95	21.65	L1	29.7	7.6	---
0.495407	---	35.30	46.08	10.78	L1	29.7	---	5.6
0.495407	43.26	---	56.08	12.82	N	29.8	13.46	---
1.075350	---	28.83	46.00	17.17	N	29.8	---	-0.97
1.096671	42.95	---	56.00	13.05	N	29.8	13.15	---
3.190436	---	30.33	46.00	15.67	N	29.9	---	0.43
3.245871	39.57	---	56.00	16.43	N	29.9	9.67	---
5.152007	---	27.38	50.00	22.62	N	29.9	---	-2.52
5.493150	36.05	---	60.00	23.95	N	29.9	6.15	---
12.657150	32.08	---	60.00	27.92	L1	30.0	2.08	---
13.109164	---	24.04	50.00	25.96	N	30.1	---	-6.06

---End of Test Report---