π/4DQPSK

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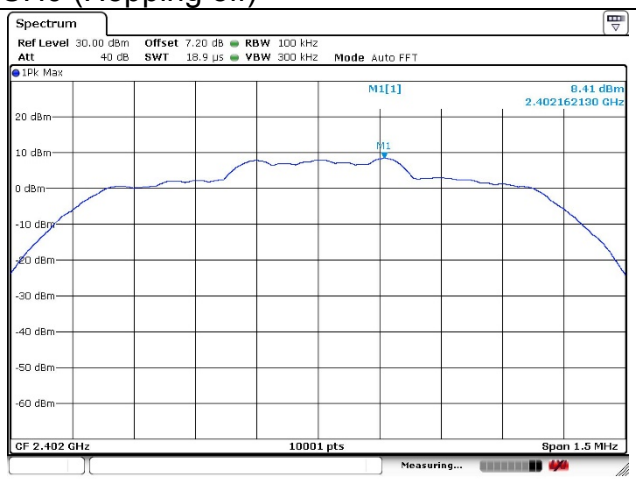

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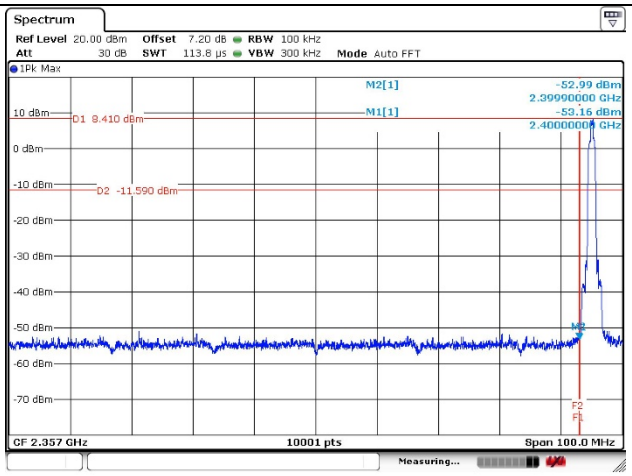

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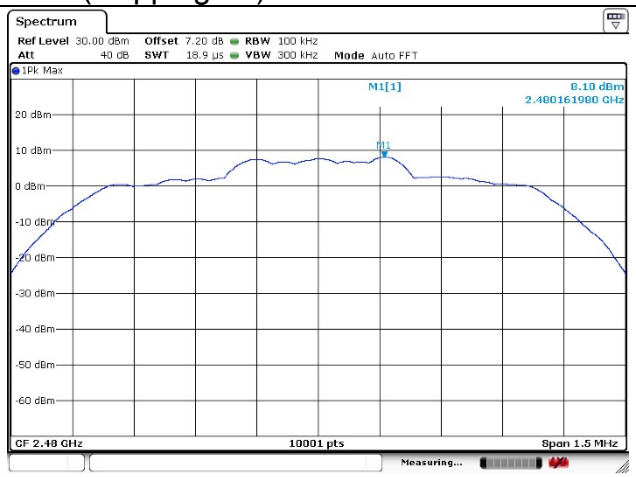

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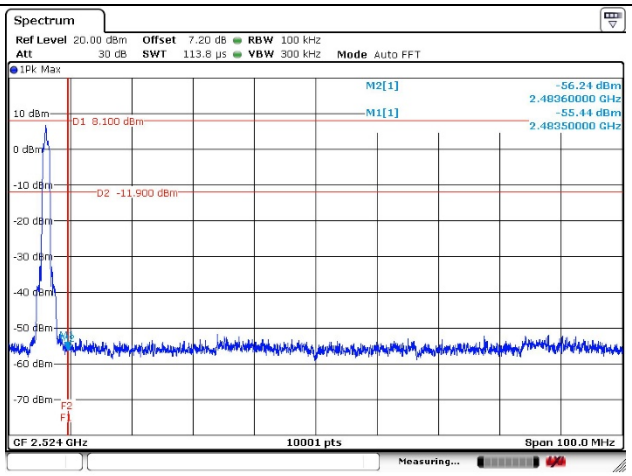

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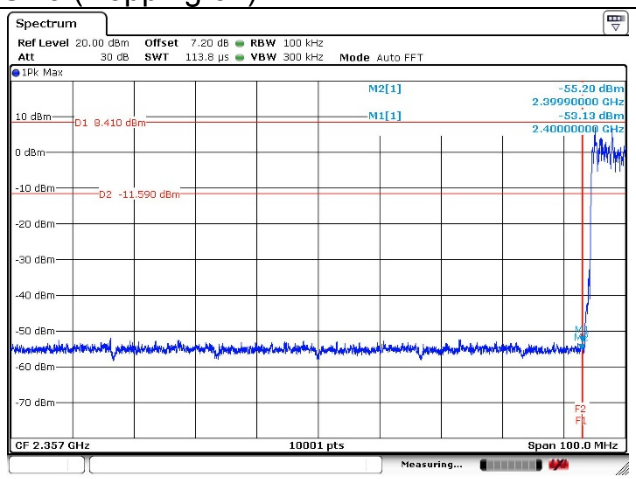

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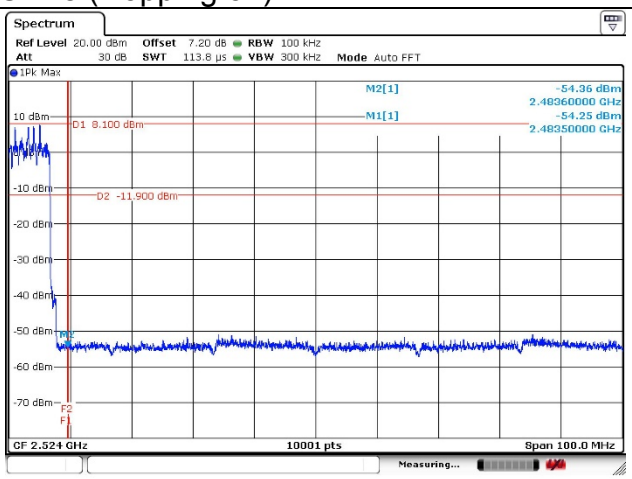
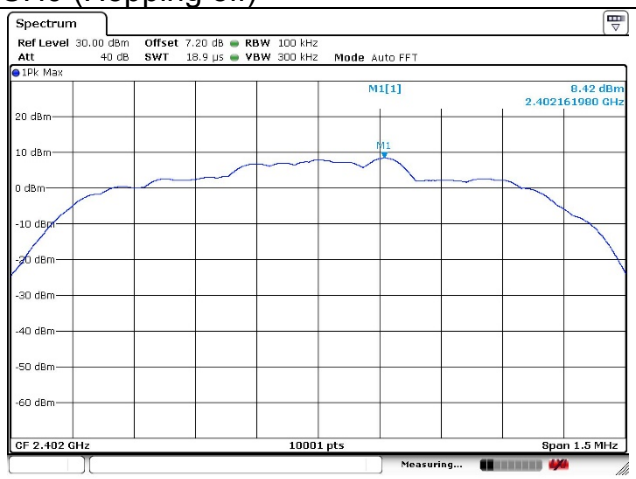
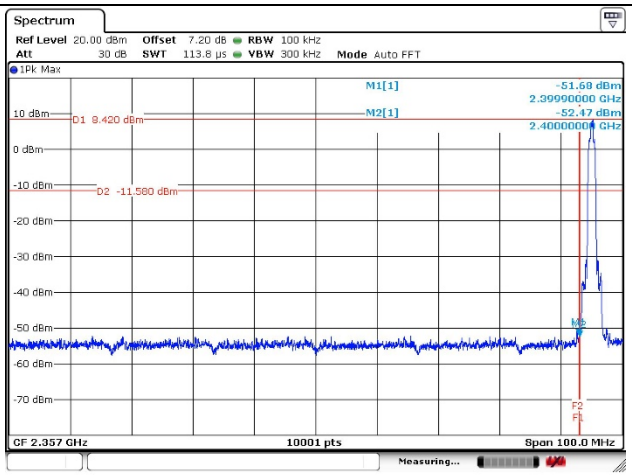


Date: 19.AUG.2020 19:13:05

8DPSK

CH0 (Hopping off)





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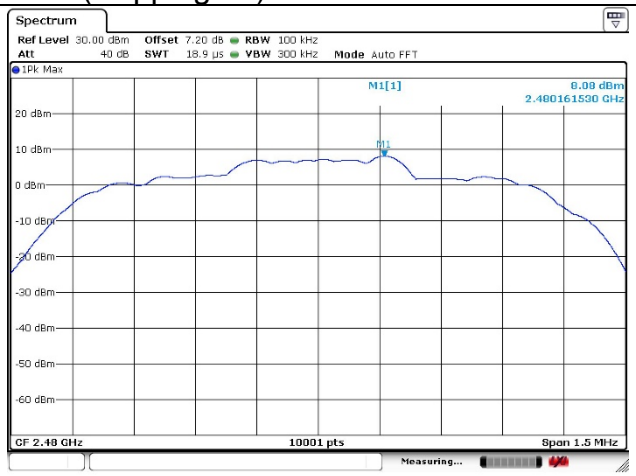

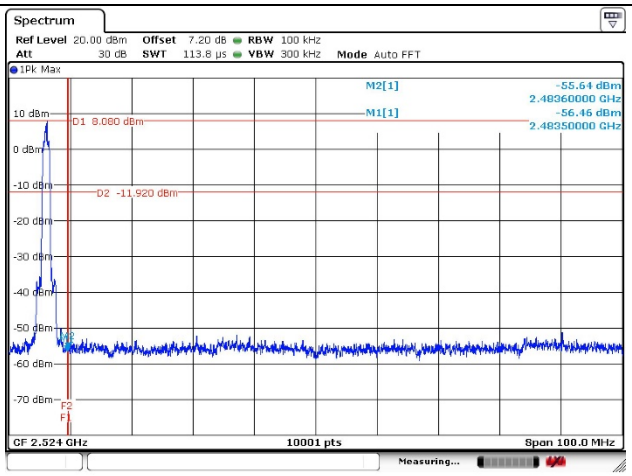

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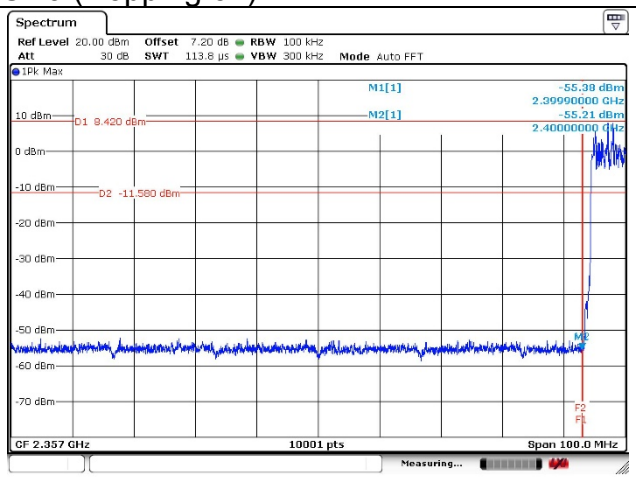

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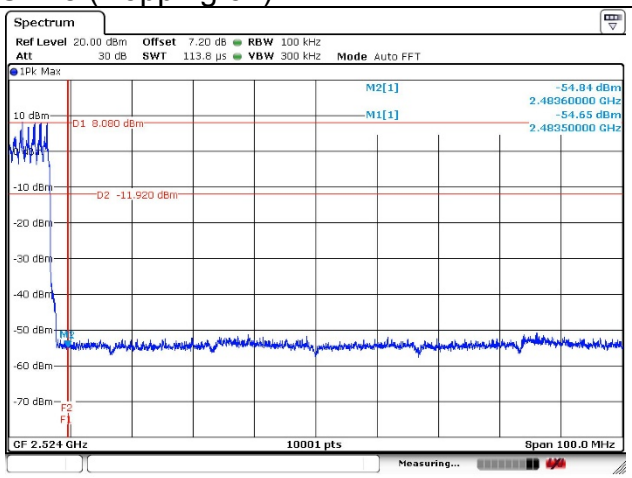


APPENDIX B – TEST DATA OF RADIATED EMISSION

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: (108.38 dBuV/m) = (74.38 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	108.38	74.38	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	109.45	75.45	N/A	N/A	8.90	25.10
2	2390	57.61	23.61	-16.39	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	99.99	65.99	N/A	N/A	8.90	25.10
2	2390	55.66	21.66	-18.34	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	94.46	60.46	N/A	N/A	8.90	25.10
2	2390	38.76	4.76	-15.24	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	87.50	53.50	N/A	N/A	8.90	25.10
2	2390	40.01	6.01	-13.99	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	109.01	75.01	N/A	N/A	8.90	25.10
2	2483.5	57.03	23.03	-16.97	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	98.10	64.10	N/A	N/A	8.90	25.10
2	2483.5	54.94	20.94	-19.06	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	96.35	62.35	N/A	N/A	8.90	25.10
2	2483.5	40.73	6.73	-13.27	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	85.15	51.15	N/A	N/A	8.90	25.10
2	2483.5	41.01	7.01	-12.99	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	109.30	75.30	N/A	N/A	8.90	25.10
2	2390	54.89	20.89	-19.11	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	94.57	60.57	N/A	N/A	8.90	25.10
2	2390	54.82	20.82	-19.18	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	94.85	60.85	N/A	N/A	8.90	25.10
2	2390	41.00	7.00	-13.00	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	87.44	53.44	N/A	N/A	8.90	25.10
2	2390	40.71	6.71	-13.29	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	108.59	74.59	N/A	N/A	8.90	25.10
2	2483.5	56.63	22.63	-17.37	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	97.21	63.21	N/A	N/A	8.90	25.10
2	2483.5	57.03	23.03	-16.97	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	93.76	59.76	N/A	N/A	8.90	25.10
2	2483.5	37.41	3.41	-16.59	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	86.79	52.79	N/A	N/A	8.90	25.10
2	2483.5	41.93	7.93	-12.07	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	107.07	73.07	N/A	N/A	8.90	25.10
2	2390	54.54	20.54	-19.46	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	97.23	63.23	N/A	N/A	8.90	25.10
2	2390	55.38	21.38	-18.62	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	93.07	59.07	N/A	N/A	8.90	25.10
2	2390	37.48	3.48	-16.52	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	85.94	51.94	N/A	N/A	8.90	25.10
2	2390	40.44	6.44	-13.56	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	108.55	74.55	N/A	N/A	8.90	25.10
2	2483.5	56.96	22.96	-17.04	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	99.92	65.92	N/A	N/A	8.90	25.10
2	2483.5	55.50	21.50	-18.50	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	96.38	62.38	N/A	N/A	8.90	25.10
2	2483.5	40.75	6.75	-13.25	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	86.20	52.20	N/A	N/A	8.90	25.10
2	2483.5	40.88	6.88	-13.12	54.00	8.90	25.10

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: (16.46 dBμV/m) = (35.16 dBμV) + (-18.7 dB/m), the corresponding frequency is 41.058000MHz.
The worst case attitude: The mobile lay down.

For GFSK
Channel No.:0

Frequency (MHz)	Result (dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)
52.0365	20.69	-17.4	38.09	Vertical	40
81.9805	29.18	-23.3	52.48	Vertical	40
172.3735	20.21	-20.5	40.71	Vertical	43.5
173.774	20.27	-20.4	40.67	Vertical	43.5
543.9635	15.01	-8.1	23.11	Vertical	46
947.3805	20.98	-0.9	21.88	Vertical	46

For π/4DQPSK
Channel No.:0

Frequency (MHz)	Result (dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)
51.7055	20.84	-17.3	38.14	Vertical	40
80.705	28.44	-23.7	52.14	Vertical	40
173.055	20.32	-20.5	40.82	Vertical	43.5
173.163	20.14	-20.5	40.64	Vertical	43.5
518.871	14.56	-8.8	23.36	Vertical	46
922.454	20.72	-1.2	21.92	Vertical	46

For 8DPSK
Channel No.:0

Frequency (MHz)	Result (dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)
52.6125	21.27	-17.5	38.77	Vertical	40
82.9105	29.15	-23	52.15	Vertical	40
172.2195	20.4	-20.5	40.9	Vertical	43.5
173.745	20.02	-20.4	40.42	Vertical	43.5
545.4005	15	-8.1	23.1	Vertical	46
951.822	20.97	-0.8	21.77	Vertical	46

For GFSK
Channel No.:39

Frequency (MHz)	Result (dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)
51.605	20.87	-17.3	38.17	Vertical	40
83.125	29.84	-22.9	52.74	Vertical	40
171.6775	20.08	-20.5	40.58	Vertical	43.5
174.892	19.53	-20.4	39.93	Vertical	43.5
547.007	14.97	-8	22.97	Vertical	46
955.394	20.93	-0.8	21.73	Vertical	46

For π/4DQPSK
Channel No.:39

Frequency (MHz)	Result (dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)
51.4945	20.88	-17.3	38.18	Vertical	40
82.468	29.79	-23.1	52.89	Vertical	40
171.954	20.9	-20.5	41.4	Vertical	43.5
175.725	19.99	-20.4	40.39	Vertical	43.5
554.385	15.13	-7.8	22.93	Vertical	46
932.999	20.96	-1	21.96	Vertical	46

For 8DPSK
Channel No.:39

Frequency (MHz)	Result (dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)
51.5965	20.45	-17.3	37.75	Vertical	40
82.702	30.57	-23	53.57	Vertical	40
170.687	20.07	-20.6	40.67	Vertical	43.5
173.329	21.08	-20.5	41.58	Vertical	43.5
544.788	15.01	-8.1	23.11	Vertical	46
952.918	20.94	-0.8	21.74	Vertical	46

For GFSK
Channel No.:78

Frequency (MHz)	Result (dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)
50.8155	19.89	-17.2	37.09	Vertical	40
82.68	30.7	-23	53.7	Vertical	40
172.524	21.1	-20.5	41.6	Vertical	43.5
173.306	20.99	-20.5	41.49	Vertical	43.5
555.663	15.09	-7.8	22.89	Vertical	46
947.024	20.99	-0.9	21.89	Vertical	46

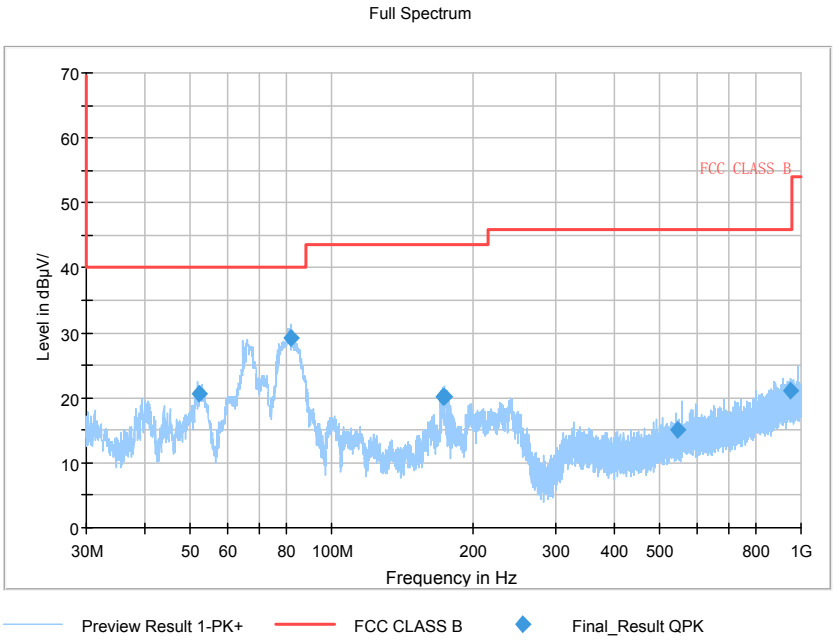
For π/4DQPSK
Channel No.:78

Frequency (MHz)	Result (dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)
50.1585	19.27	-17.1	36.37	Vertical	40
82.1635	30.75	-23.2	53.95	Vertical	40
172.827	21.19	-20.5	41.69	Vertical	43.5
173.785	20.87	-20.4	41.27	Vertical	43.5
533.461	14.89	-8.4	23.29	Vertical	46
955.4885	20.97	-0.8	21.77	Vertical	46

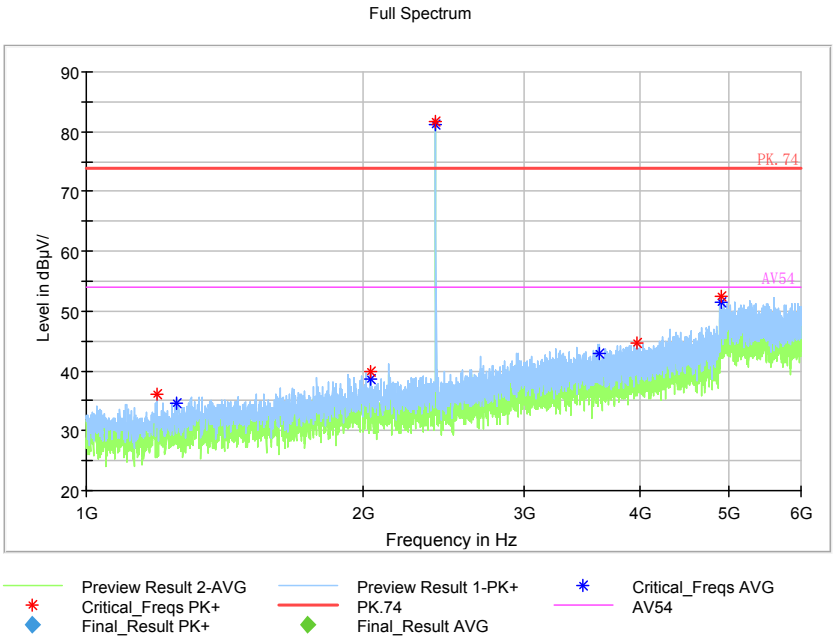
For 8DPSK
Channel No.:78

Frequency (MHz)	Result (dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)
52.1735	20.85	-17.4	38.25	Vertical	40
81.5015	29.01	-23.4	52.41	Vertical	40
170.1255	19.12	-20.6	39.72	Vertical	43.5
176.1615	18.69	-20.3	38.99	Vertical	43.5
552.896	15.1	-7.9	23	Vertical	46
914.0235	20.52	-1.3	21.82	Vertical	46

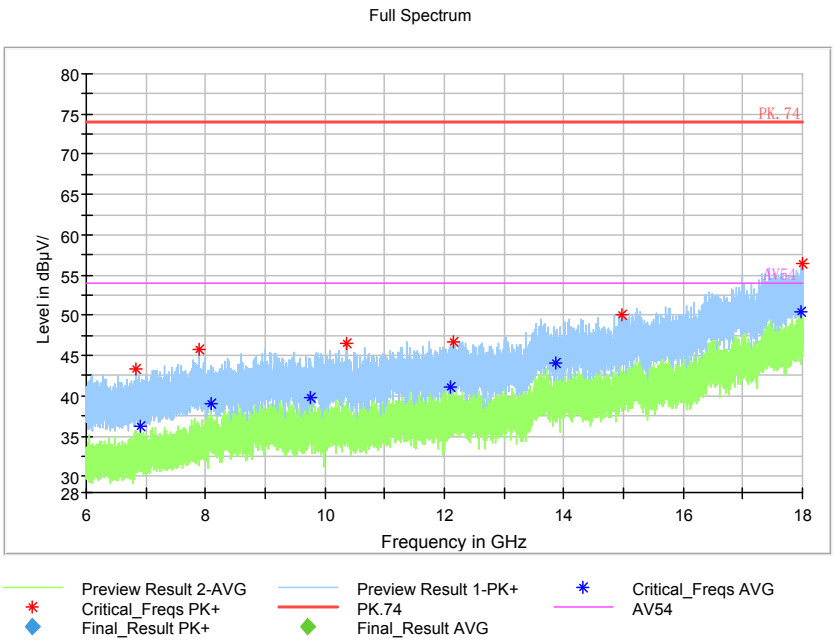
Carrier frequency (MHz): 2402
Channel No.:0



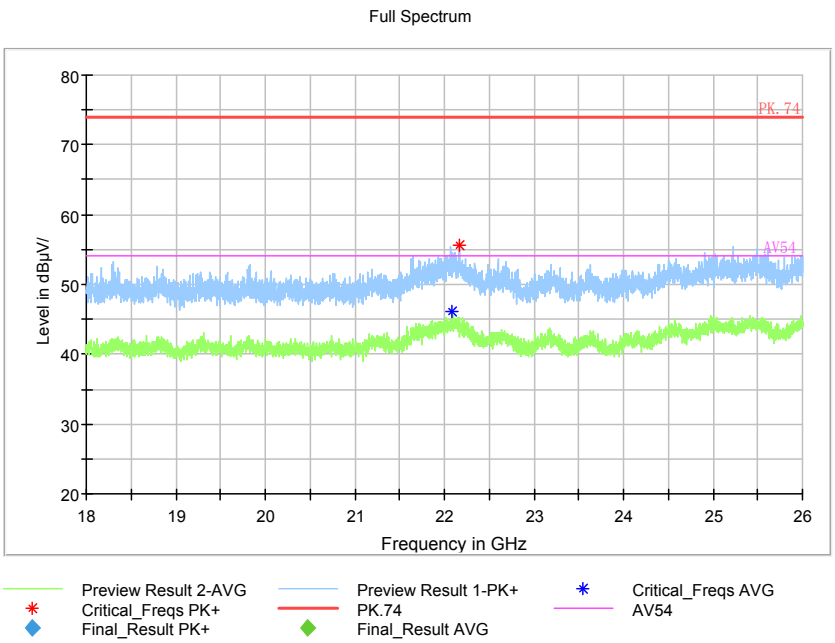
Frequency Range: 30MHz-1000MHz
Detector: QP mode
Modulation type: GFSK



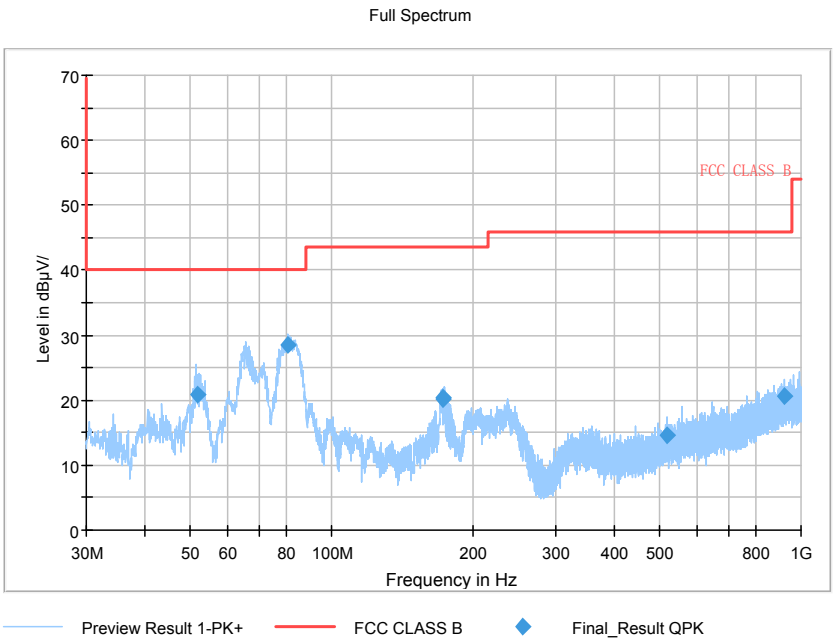
Frequency Range: 1GHz-6GHz
Detector: Av mode and PK mode
Modulation type: GFSK



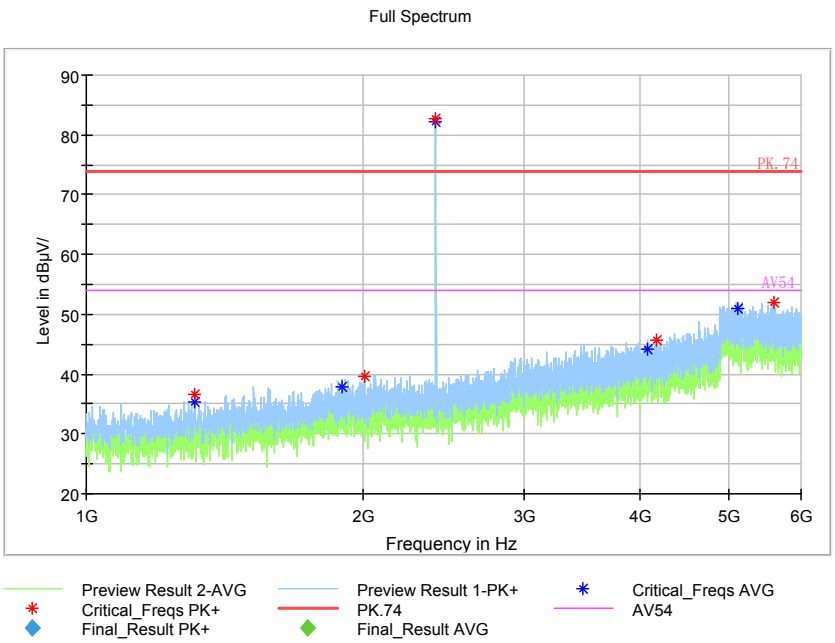
Frequency Range: 6GHz- 18GHz
Detector: Av mode and PK mode
Modulation type: GFSK



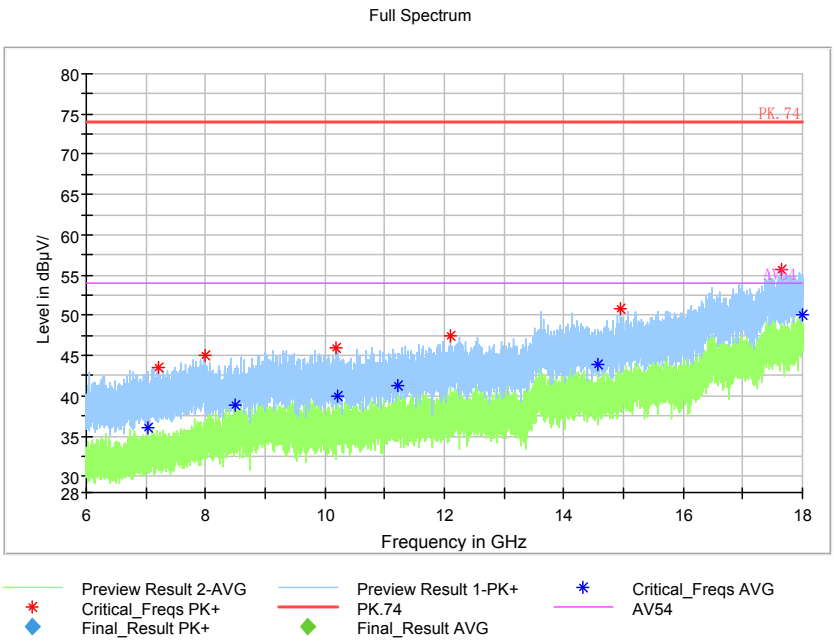
Frequency Range: 18GHz-26GHz
Detector: Av mode and PK mode
Modulation type: GFSK



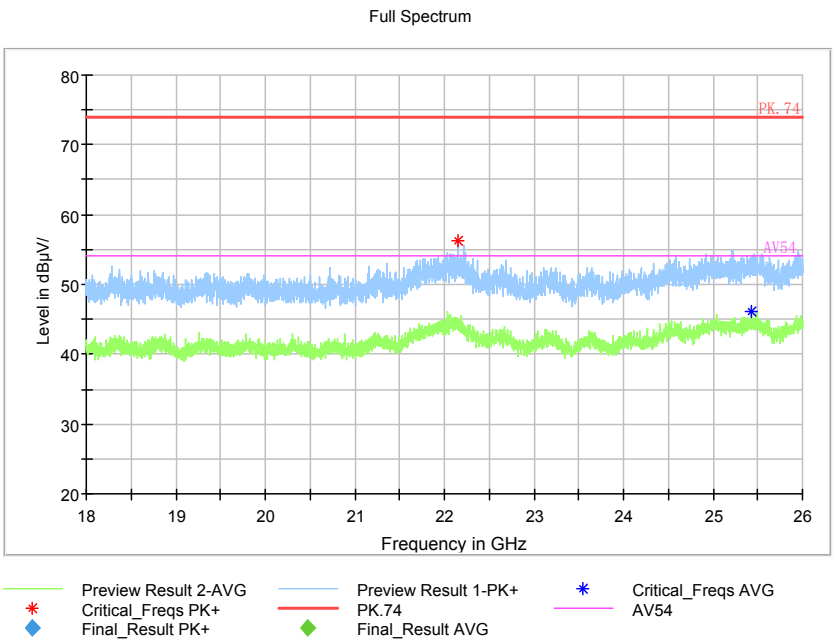
Frequency Range: 30MHz-1000 MHz
Detector: QP mode
Modulation type: π/4DQPSK



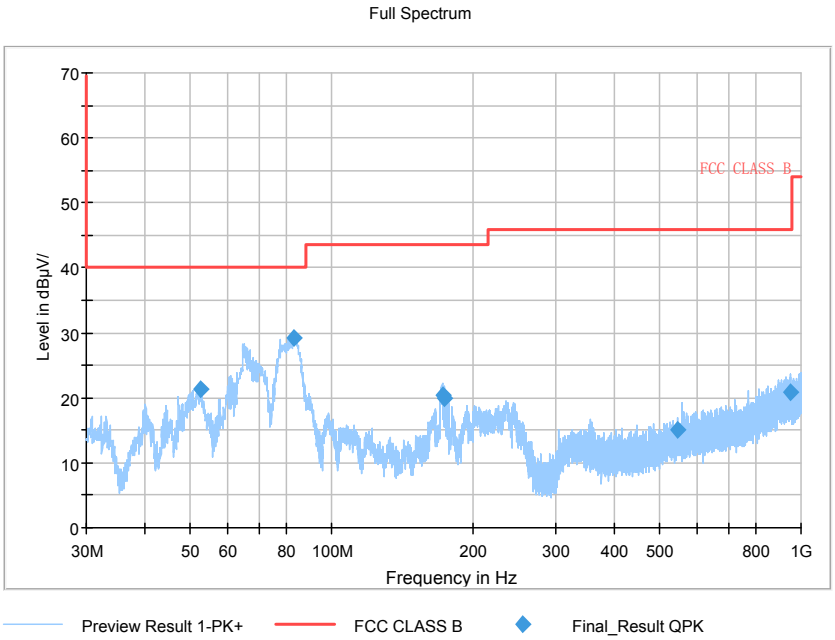
Frequency Range: 1GHz-6GHz
Detector: Av mode and PK mode
Modulation type: π/4DQPSK



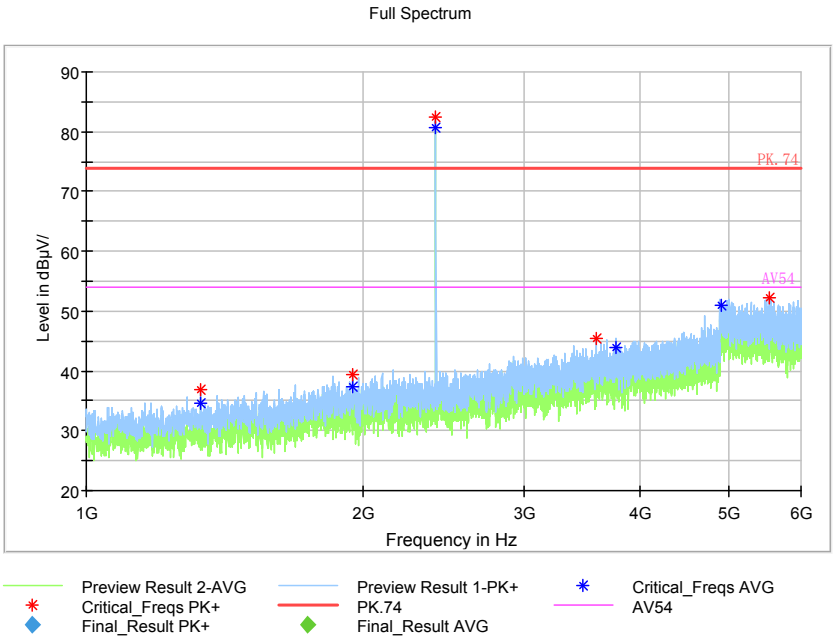
Frequency Range: 6GHz-18GHz
Detector: Av mode and PK mode
Modulation type: π/4DQPSK



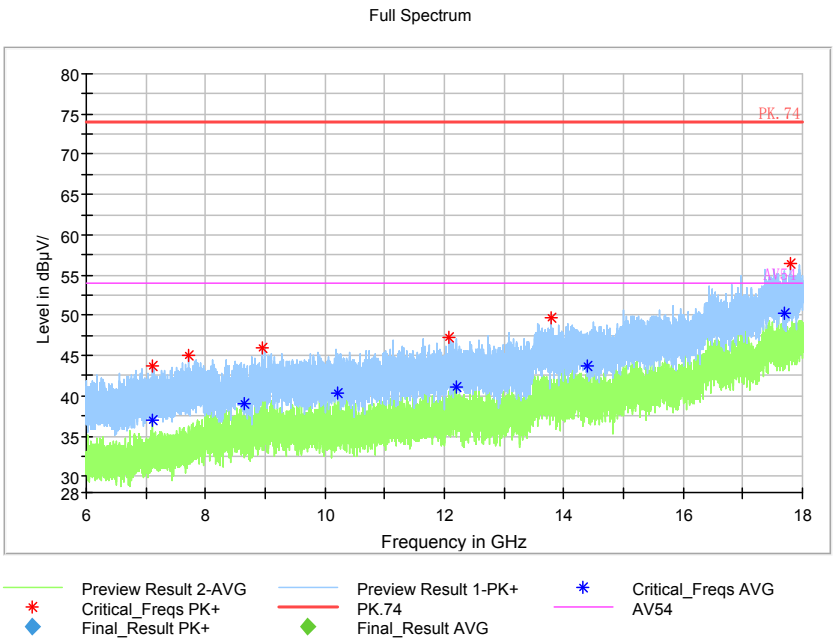
Frequency Range: 18GHz-26GHz
Detector: Av mode and PK mode
Modulation type: π/4DQPSK



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



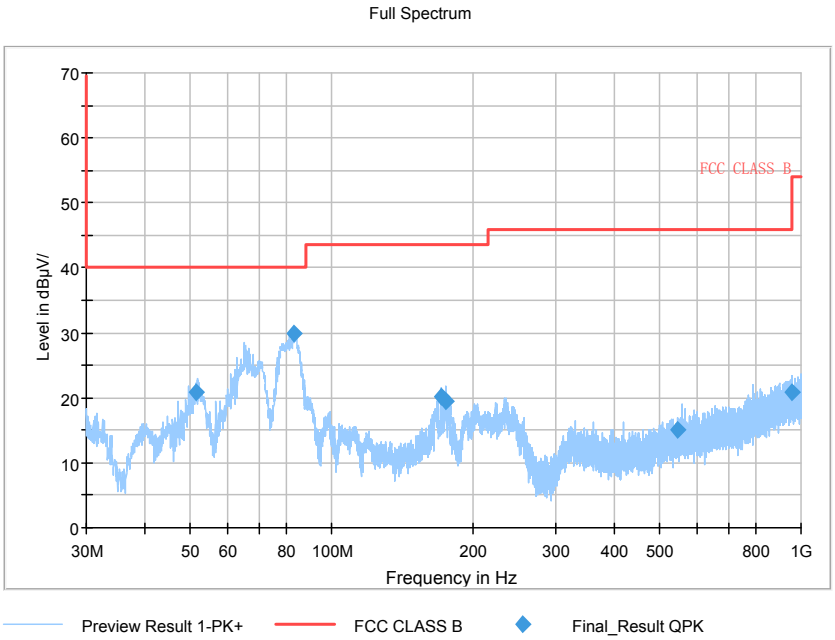
Frequency Range: 1GHz-6GHz
Detector: Av mode and PK mode
Modulation type: 8DPSK



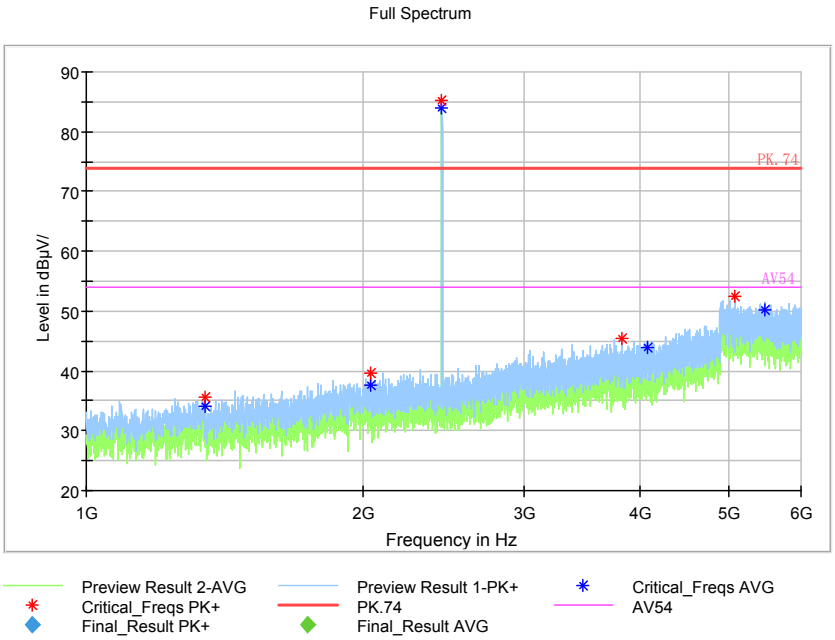
Frequency Range: 6GHz-18GHz
Detector: Av mode and PK mode
Modulation type: 8DPSK

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

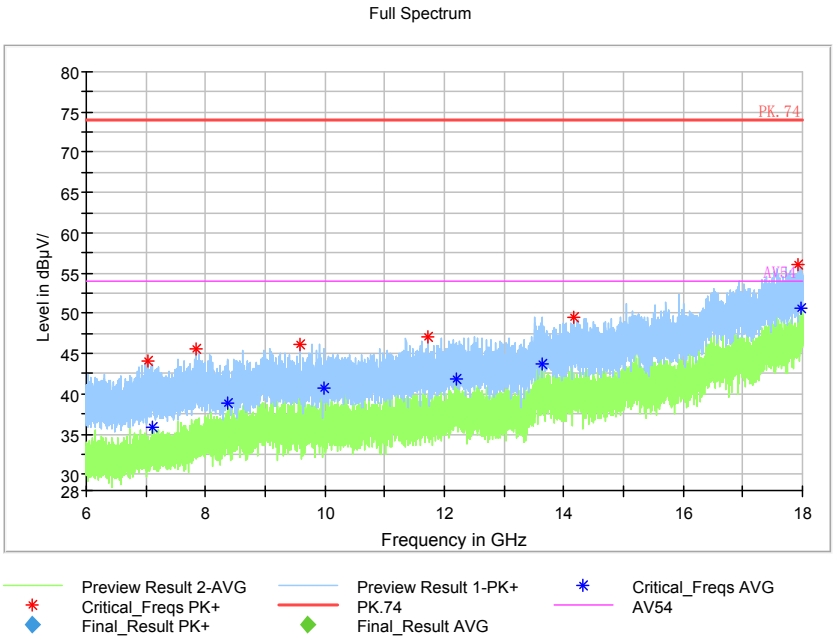
Carrier frequency (MHz): 2441
Channel No.:39



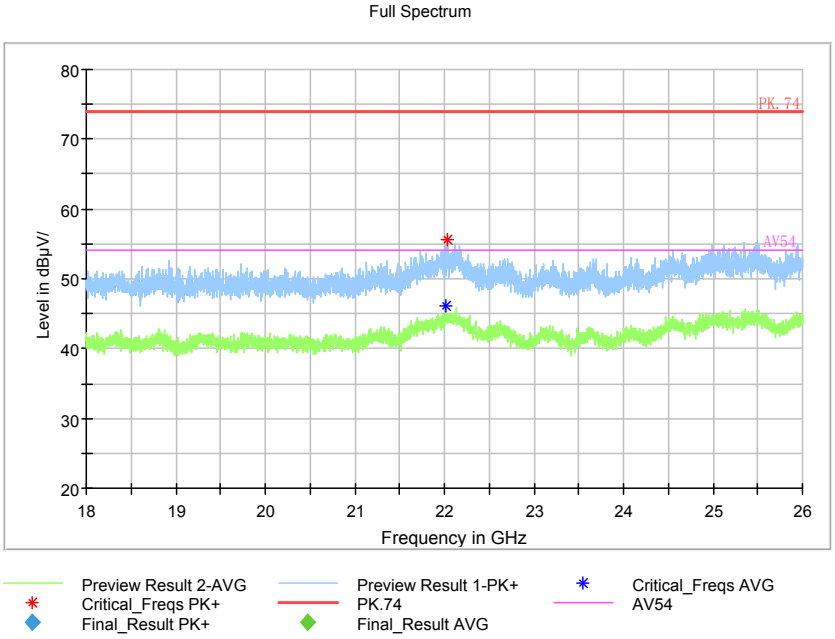
Frequency Range: 30MHz-1000MHz
Detector: QP mode
Modulation type: GFSK



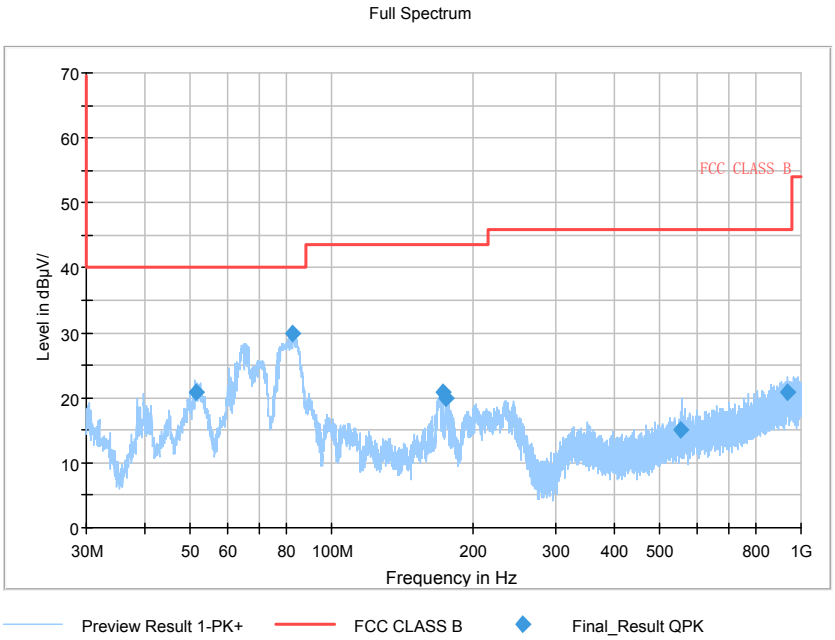
Frequency Range: 1GHz-6GHz
Detector: Av mode and PK mode
Modulation type: GFSK



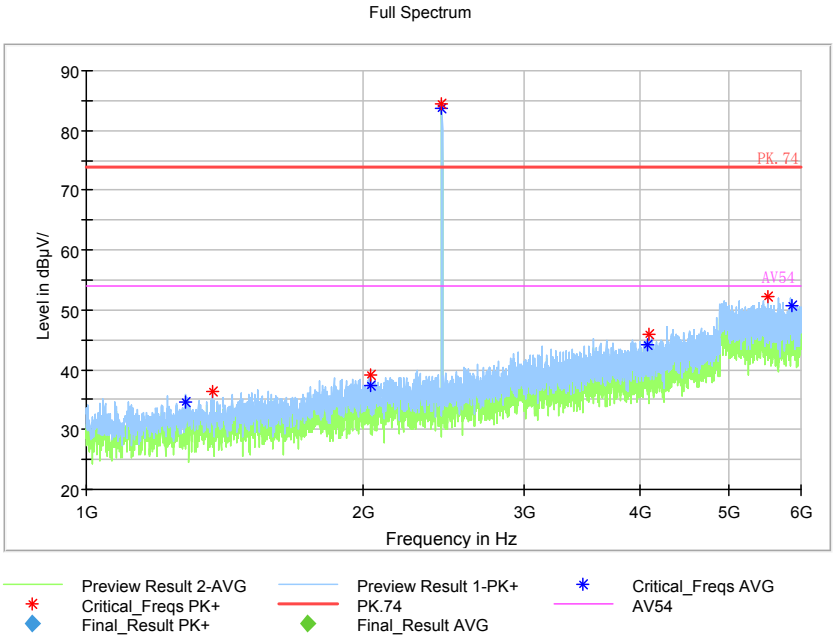
Frequency Range: 6GHz- 18GHz
Detector: Av mode and PK mode
Modulation type: GFSK



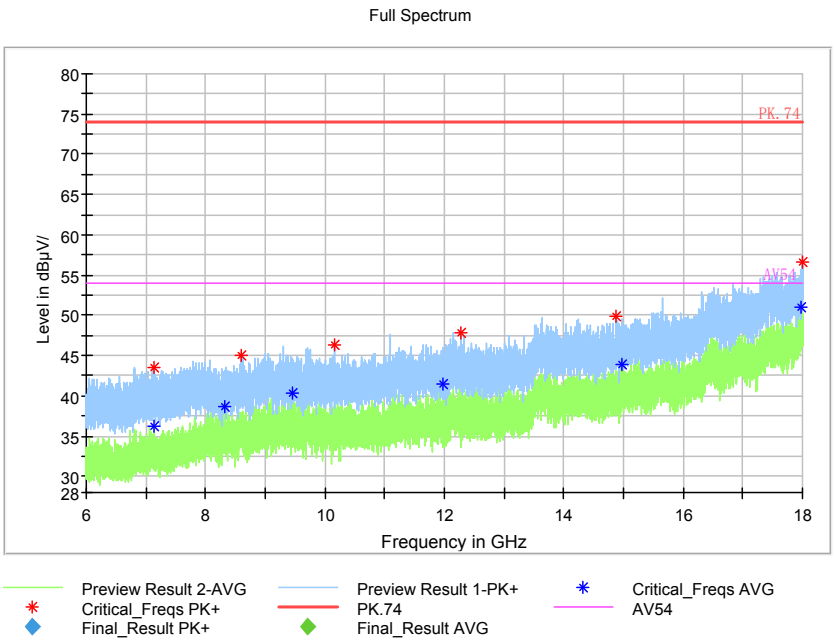
Frequency Range: 18GHz-26GHz
Detector: Av mode and PK mode
Modulation type: GFSK



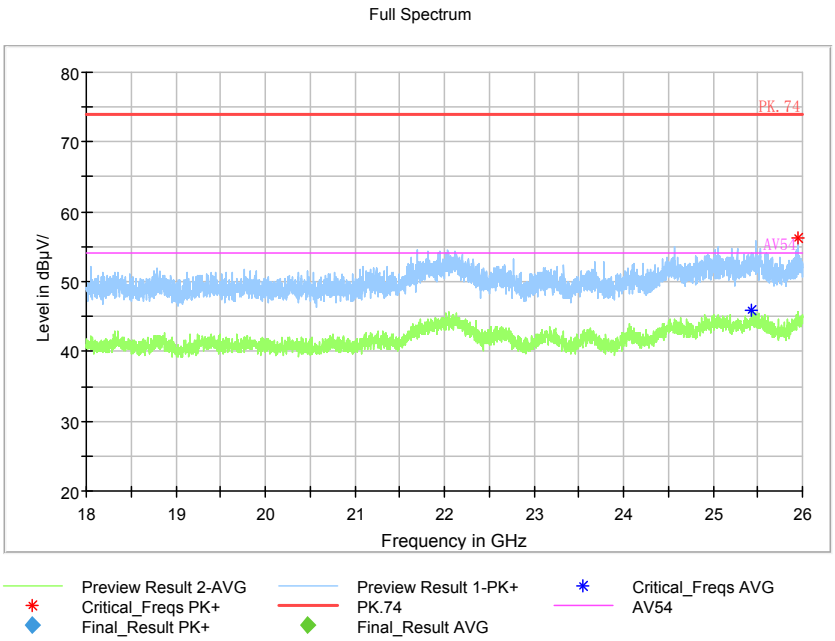
Frequency Range: 30MHz-1000 MHz
Detector: QP mode
Modulation type: π/4DQPSK



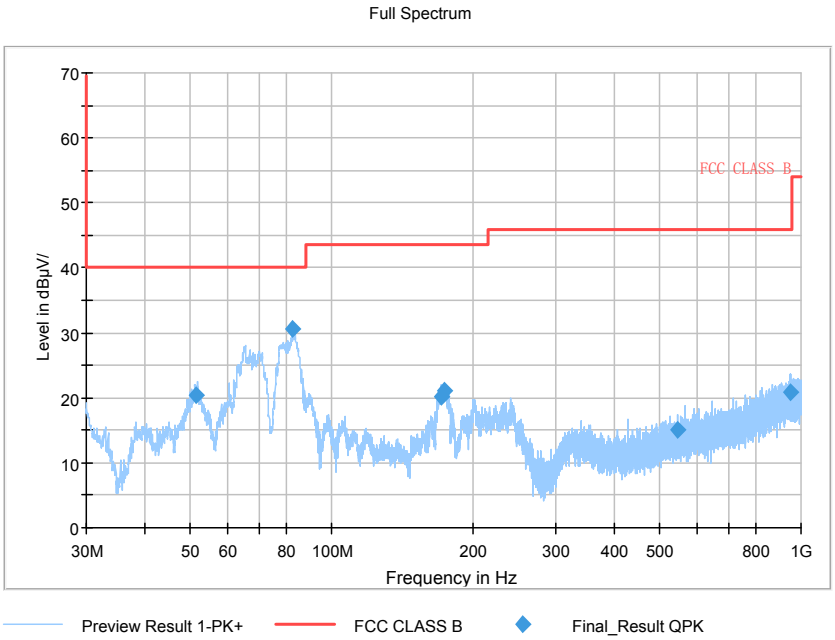
Frequency Range: 1GHz-6GHz
Detector: Av mode and PK mode
Modulation type: π/4DQPSK



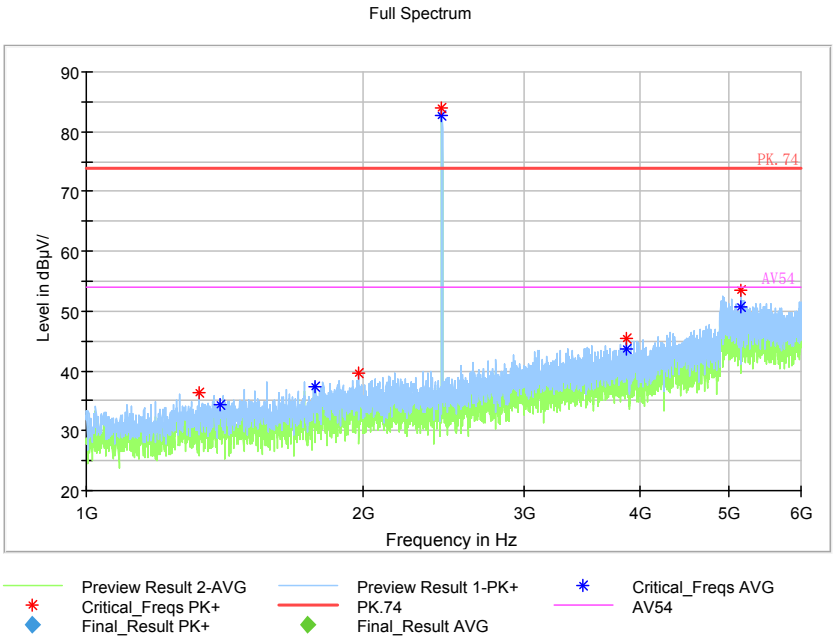
Frequency Range: 6GHz-18GHz
Detector: Av mode and PK mode
Modulation type: π/4DQPSK



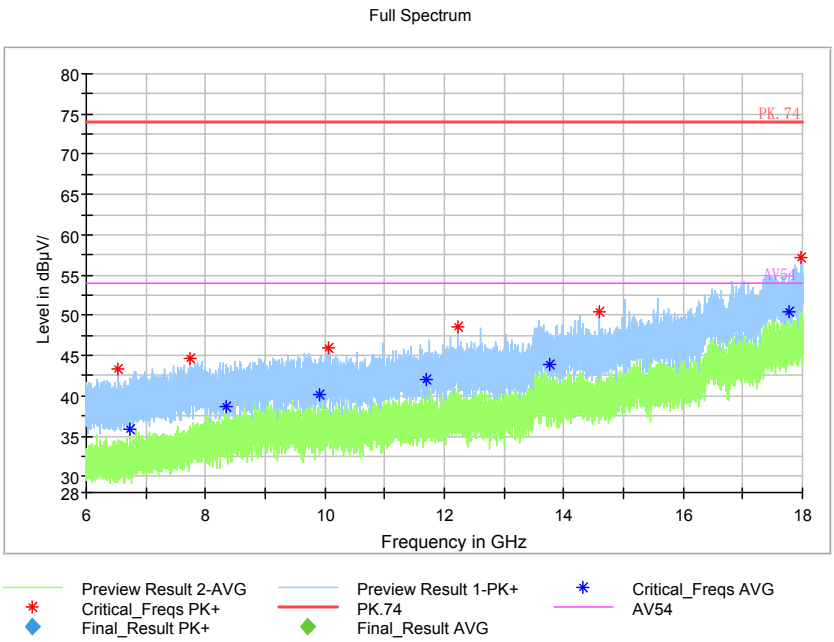
Frequency Range: 18GHz-26GHz
Detector: Av mode and PK mode
Modulation type: π/4DQPSK



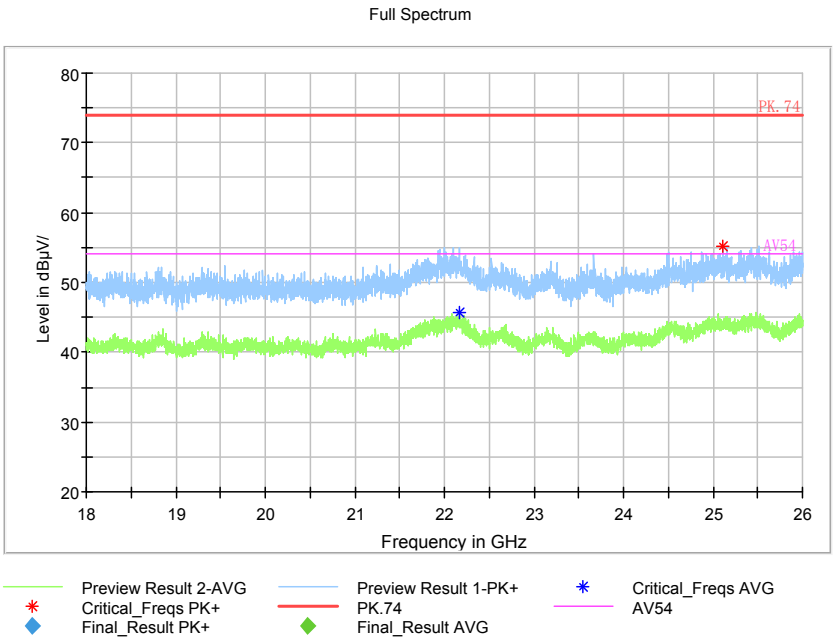
Frequency Range: 30MHz-1000 MHz
Detector: QP mode
Modulation type: 8DPSK



Frequency Range: 1GHz-6GHz
Detector: Av mode and PK mode
Modulation type: 8DPSK

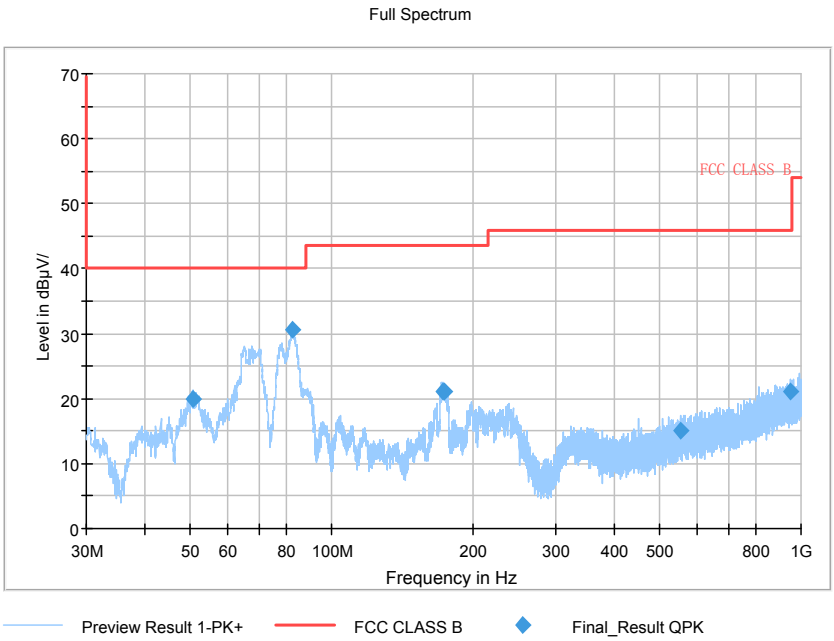


Frequency Range: 6GHz-18GHz
Detector: Av mode and PK mode
Modulation type: 8DPSK

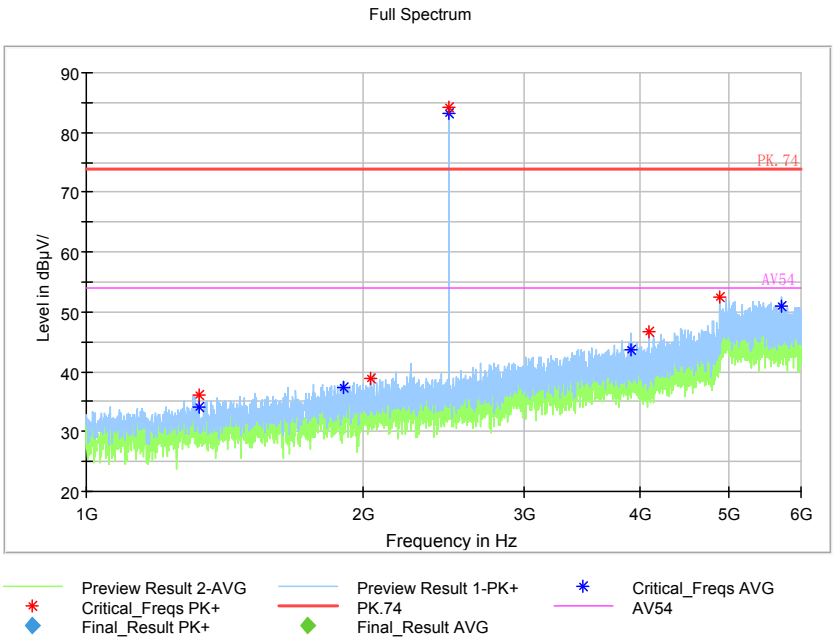


Frequency Range: 18GHz-26GHz
Detector: Av mode and PK mode
Modulation type: 8DPSK

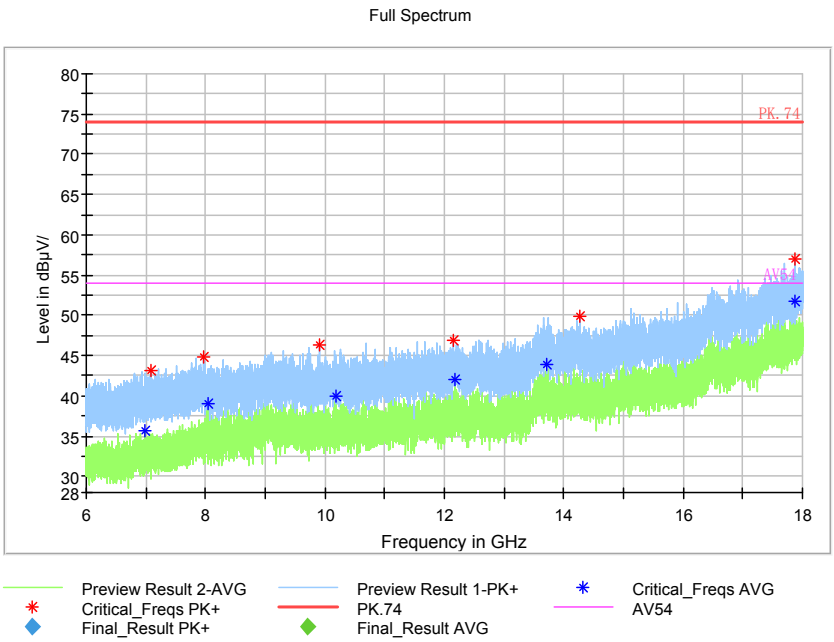
Carrier frequency (MHz): 2480
Channel No.:78



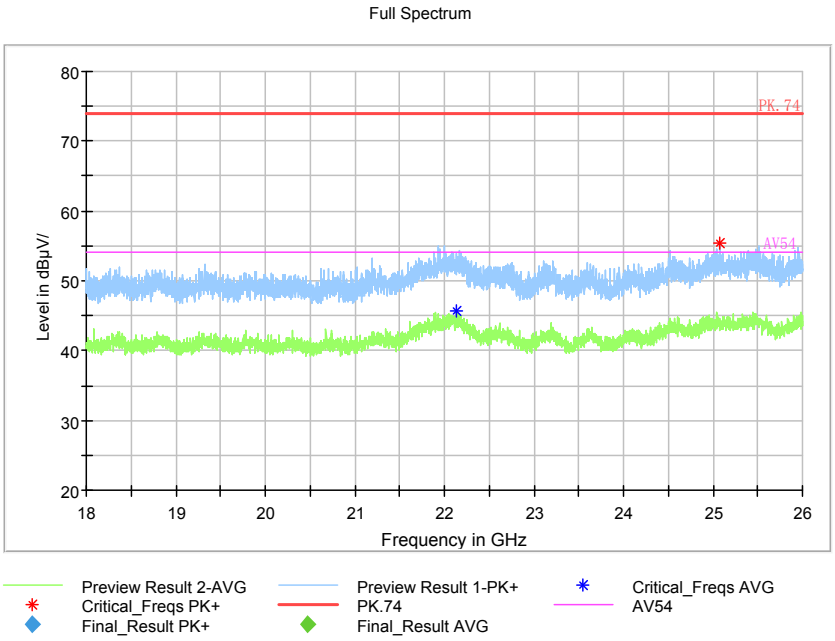
Frequency Range: 30MHz-1000MHz
Detector: QP mode
Modulation type: GFSK



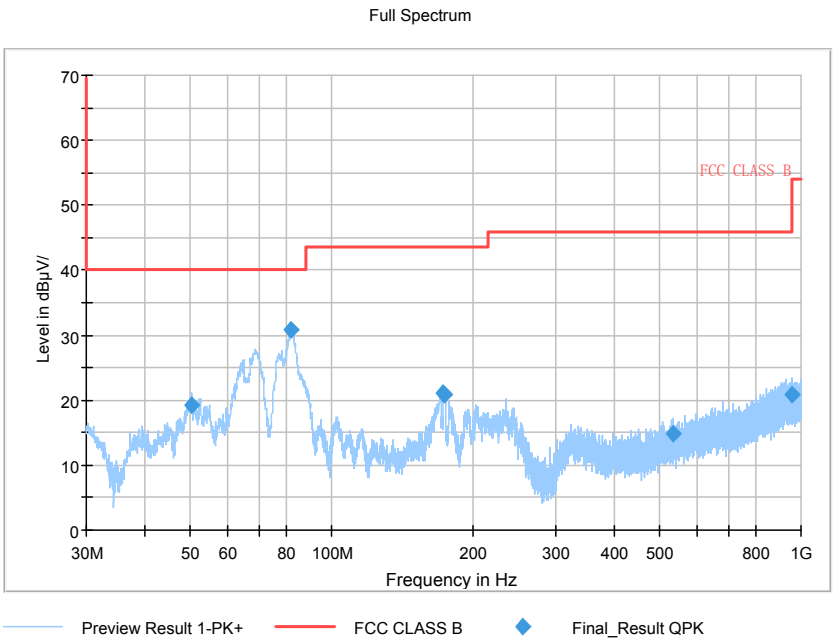
Frequency Range: 1GHz-6GHz
Detector: Av mode and PK mode
Modulation type: GFSK



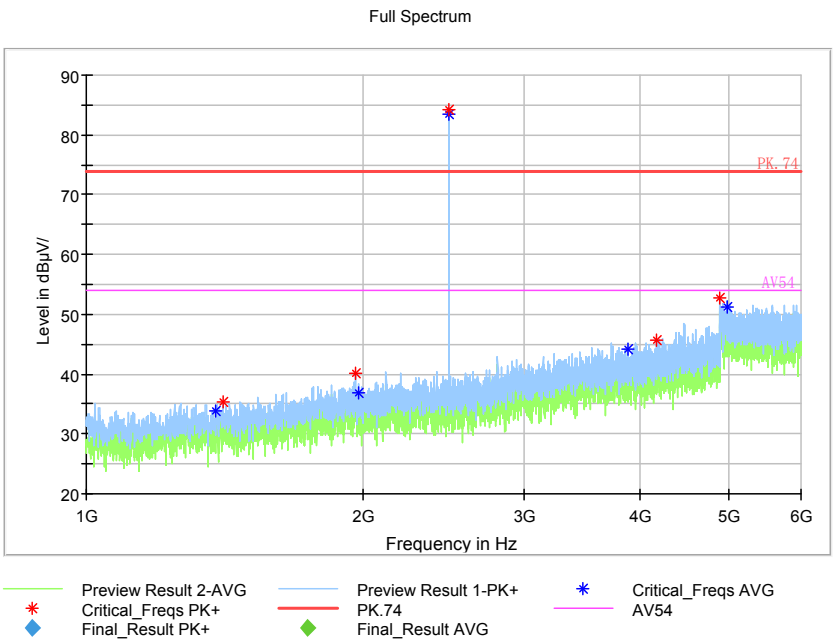
Frequency Range: 6GHz- 18GHz
Detector: Av mode and PK mode
Modulation type: GFSK



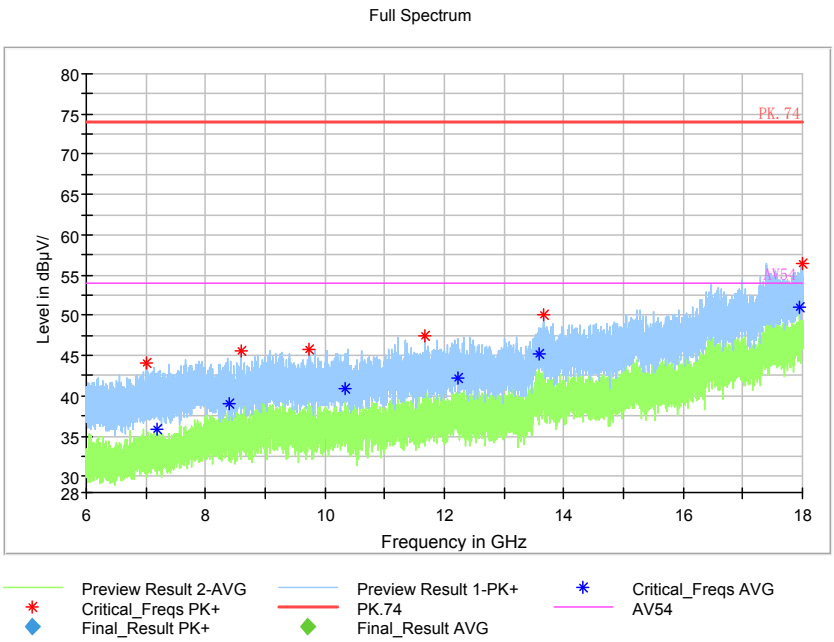
Frequency Range: 18GHz-26GHz
Detector: Av mode and PK mode
Modulation type: GFSK



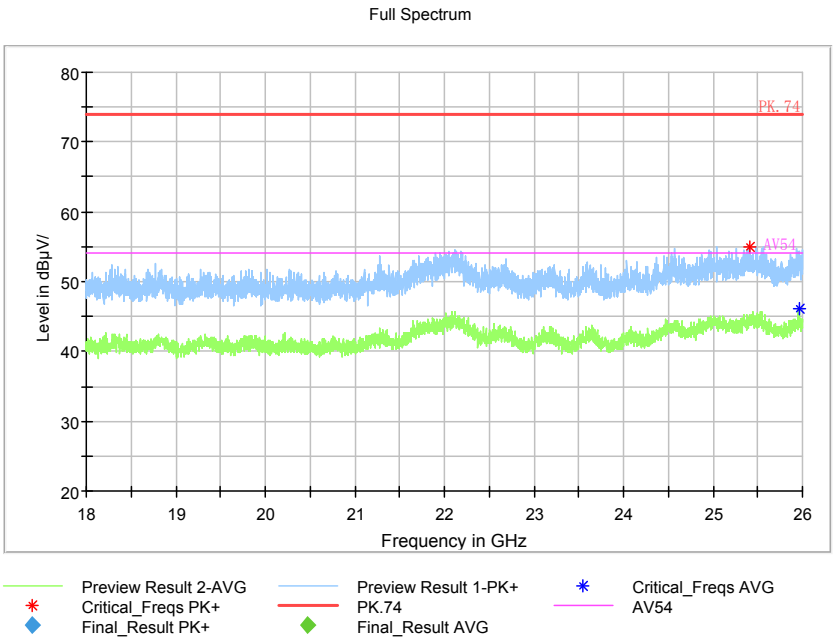
Frequency Range: 30MHz-1000 MHz
Detector: QP mode
Modulation type: π/4DQPSK



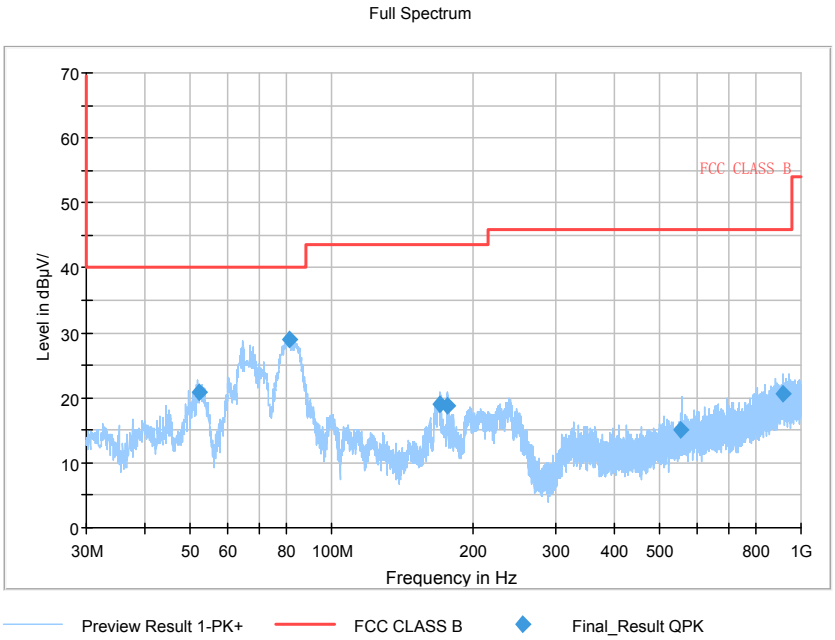
Frequency Range: 1GHz-6GHz
Detector: Av mode and PK mode
Modulation type: π/4DQPSK



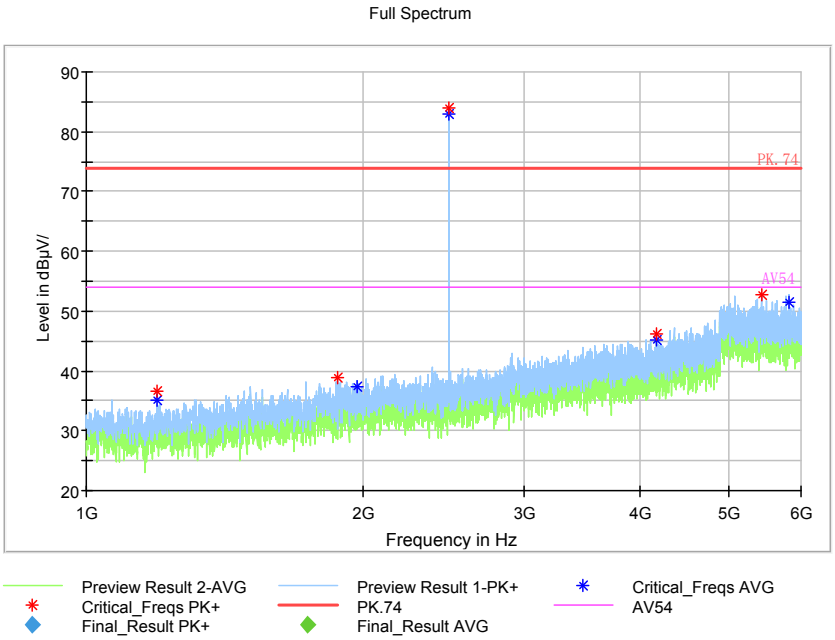
Frequency Range: 6GHz-18GHz
Detector: Av mode and PK mode
Modulation type: π/4DQPSK



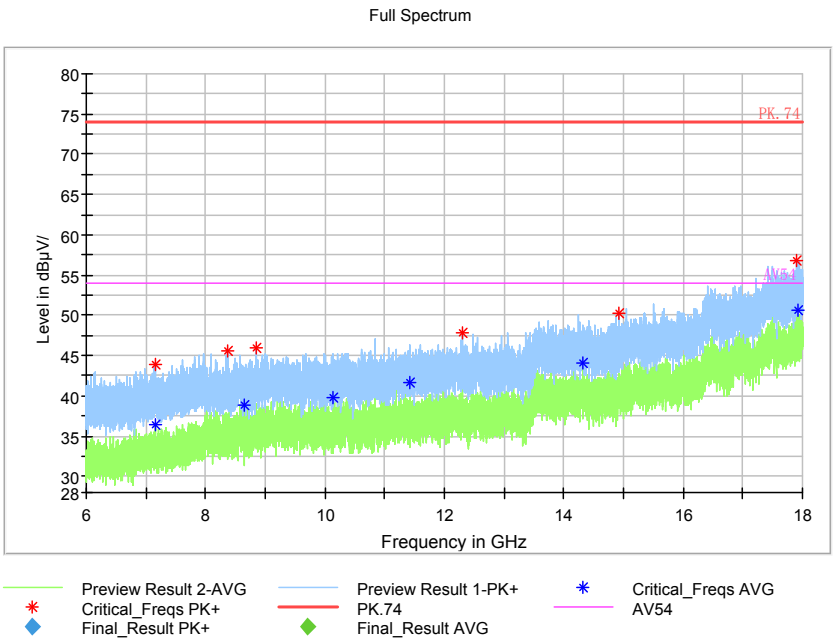
Frequency Range: 18GHz-26GHz
Detector: Av mode and PK mode
Modulation type: π/4DQPSK



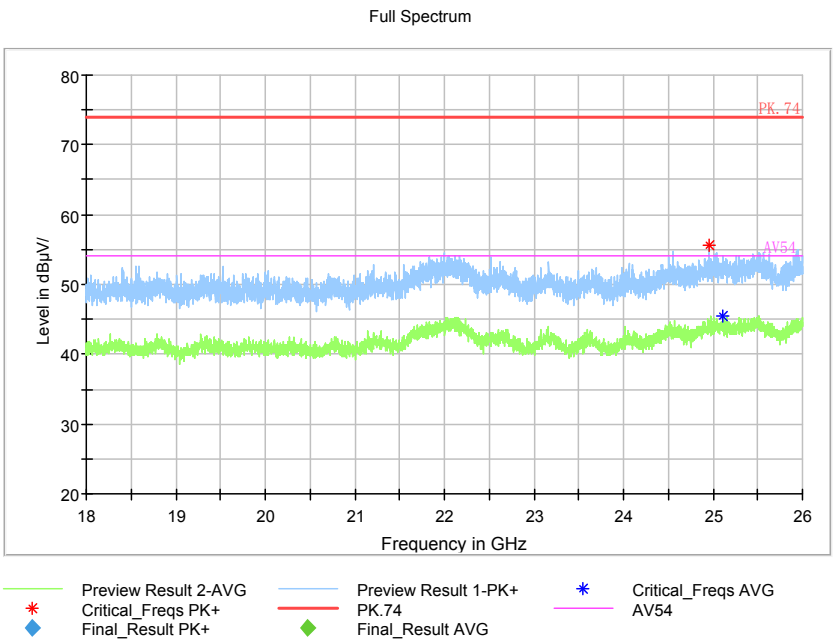
Frequency Range: 30MHz-1000 MHz
Detector: QP mode
Modulation type: 8DPSK



Frequency Range: 1GHz-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

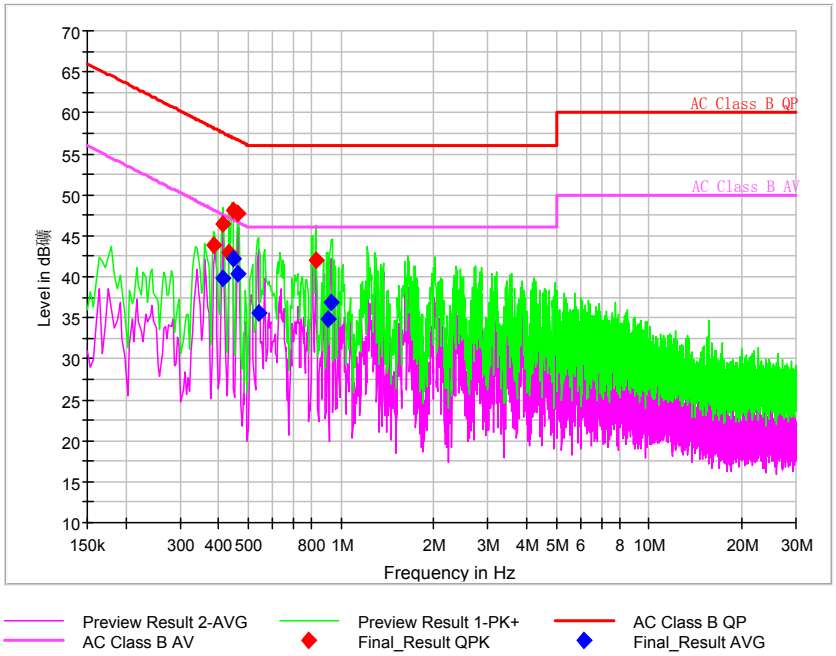
AC Power line Conducted Emission

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: (43.89 dBμV) = (14.29 dBμV) + (29.6 dB), the corresponding frequency is 0.385069MHz.



L+N Line

MEASUREMENT RESULT:

Frequency (MHz)	QuasiPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB)	Pmea QuasiPeak (dBμV)	Pmea Average (dBμV)
0.385069	43.89	---	58.17	14.28	L1	29.6	14.29	---
0.414919	---	39.83	47.55	7.72	L1	29.6	---	10.23
0.414919	46.45	---	57.55	11.10	L1	29.6	16.85	---
0.433575	42.91	---	57.18	14.28	L1	29.6	13.31	---
0.444769	---	42.25	46.97	4.73	N	29.6	---	12.65
0.444769	48.06	---	56.97	8.91	L1	29.6	18.46	---
0.463425	---	40.43	46.63	6.20	L1	29.6	---	10.83
0.463425	47.79	---	56.63	8.84	L1	29.6	18.19	---
0.538050	---	35.50	46.00	10.50	L1	29.6	---	5.9
0.825356	42.06	---	56.00	13.94	N	29.6	12.46	---
0.903712	---	34.76	46.00	11.24	L1	29.7	---	5.06
0.929831	---	36.79	46.00	9.21	L1	29.7	---	7.09

---End of Test Report---