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: (98.00 dBuV/m) = (64.00 dBμV) + (8.90 dB) + (25.10 dB), the corresponding frequency is 2402MHz.

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	98.00	64.00	N/A	N/A	8.90	25.10
2	2390	44.17	10.17	-29.83	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	92.39	58.39	N/A	N/A	8.90	25.10
2	2390	42.24	8.24	-31.76	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	85.71	51.71	N/A	N/A	8.90	25.10
2	2390	33.52	-0.48	-20.48	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	80.36	46.36	N/A	N/A	8.90	25.10
2	2390	33.59	-0.41	-20.41	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	98.44	64.44	N/A	N/A	8.90	25.10
2	2483.5	48.33	14.33	-25.67	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	94.27	60.27	N/A	N/A	8.90	25.10
2	2483.5	42.88	8.88	-31.12	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	86.02	52.02	N/A	N/A	8.90	25.10
2	2483.5	34.45	0.45	-19.55	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	83.09	49.09	N/A	N/A	8.90	25.10
2	2483.5	33.76	-0.24	-20.24	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	98.09	64.09	N/A	N/A	8.90	25.10
2	2390	46.90	12.90	-27.10	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	92.63	58.63	N/A	N/A	8.90	25.10
2	2390	42.91	8.91	-31.09	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	83.89	49.89	N/A	N/A	8.90	25.10
2	2390	33.11	-0.89	-20.89	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	82.05	48.05	N/A	N/A	8.90	25.10
2	2390	32.16	-1.84	-21.84	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	97.74	63.74	N/A	N/A	8.90	25.10
2	2483.5	46.50	12.50	-27.50	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	91.95	57.95	N/A	N/A	8.90	25.10
2	2483.5	42.23	8.23	-31.77	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	84.16	50.16	N/A	N/A	8.90	25.10
2	2483.5	33.24	-0.76	-20.76	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	80.62	46.62	N/A	N/A	8.90	25.10
2	2483.5	32.13	-1.87	-21.87	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	97.04	63.04	N/A	N/A	8.90	25.10
2	2390	46.30	12.30	-27.70	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	93.19	59.19	N/A	N/A	8.90	25.10
2	2390	39.89	5.89	-34.11	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	86.38	52.38	N/A	N/A	8.90	25.10
2	2390	34.38	0.38	-19.62	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	83.88	49.88	N/A	N/A	8.90	25.10
2	2390	33.26	-0.74	-20.74	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	96.63	62.63	N/A	N/A	8.90	25.10
2	2483.5	45.58	11.58	-28.42	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	93.34	59.34	N/A	N/A	8.90	25.10
2	2483.5	39.77	5.77	-34.23	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	85.96	51.96	N/A	N/A	8.90	25.10
2	2483.5	33.98	-0.02	-20.02	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	82.69	48.69	N/A	N/A	8.90	25.10
2	2483.5	31.77	-2.23	-22.23	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: (21.67 dBμV/m) = (35.17 dBμV) + (-13.5 dB/m), the corresponding frequency is 30.308750MHz.
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)
30.308750	21.67	-13.5	35.17	Vertical	40.00
34.119583	18.42	-15.3	33.72	Vertical	40.00
35.088333	18.78	-15.8	34.58	Vertical	40.00
35.239583	18.78	-15.8	34.58	Vertical	40.00
37.459583	17.70	-16.8	34.5	Vertical	40.00
48.730000	27.20	-23.4	50.6	Vertical	40.00

For π/4DQPSK
Channel No.:0

Frequency (MHz)	Result (dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)
30.340000	21.42	-13.6	35.02	Vertical	40.00
30.400000	21.39	-13.6	34.99	Vertical	40.00
36.185417	16.42	-16.3	32.72	Vertical	40.00
48.727083	27.10	-23.4	50.5	Horizontal	40.00
66.272917	18.94	-25.3	44.24	Vertical	40.00
364.003750	25.42	-16.2	41.62	Vertical	46.00

For 8DPSK
Channel No.:0

Frequency (MHz)	Result (dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)
30.480000	21.96	-13.6	35.56	Vertical	40.00
34.201667	18.78	-15.4	34.18	Vertical	40.00
35.274583	18.64	-15.9	34.54	Vertical	40.00
48.753333	27.02	-23.4	50.42	Vertical	40.00
66.051250	19.06	-25.3	44.36	Vertical	40.00
363.983333	25.83	-16.2	42.03	Vertical	46.00

For GFSK
Channel No.:39

Frequency (MHz)	Result (dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)
30.407500	21.48	-13.6	35.08	Vertical	40.00
31.438750	16.84	-14.1	30.94	Vertical	40.00
35.098750	17.72	-15.8	33.52	Vertical	40.00
35.107500	17.97	-15.8	33.77	Vertical	40.00
37.498750	16.08	-16.9	32.98	Vertical	40.00
48.808750	26.81	-23.4	50.21	Vertical	40.00

For π/4DQPSK
Channel No.:39

Frequency (MHz)	Result (dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)
30.470000	21.24	-13.6	34.84	Vertical	40.00
34.970000	17.28	-15.7	32.98	Vertical	40.00
35.335833	17.73	-15.9	33.63	Vertical	40.00
36.589583	17.00	-16.5	33.5	Vertical	40.00
48.753333	27.26	-23.4	50.66	Vertical	40.00
65.896250	19.25	-25.3	44.55	Vertical	40.00

For 8DPSK
Channel No.:39

Frequency (MHz)	Result (dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)
30.510833	21.54	-13.6	35.14	Vertical	40.00
33.090833	16.00	-14.9	30.9	Vertical	40.00
34.570417	18.03	-15.5	33.53	Vertical	40.00
35.215000	18.05	-15.8	33.85	Vertical	40.00
48.854167	27.08	-23.4	50.48	Vertical	40.00
364.003333	26.10	-16.2	42.3	Vertical	46.00

For GFSK
Channel No.:78

Frequency (MHz)	Result (dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)
31.998750	16.81	-14.3	31.11	Horizontal	40.00
34.673750	17.87	-15.6	33.47	Vertical	40.00
35.378750	18.03	-15.9	33.93	Vertical	40.00
48.772917	27.33	-23.4	50.73	Vertical	40.00
65.889583	19.23	-25.4	44.63	Vertical	40.00
363.982500	25.59	-16.2	41.79	Vertical	46.00

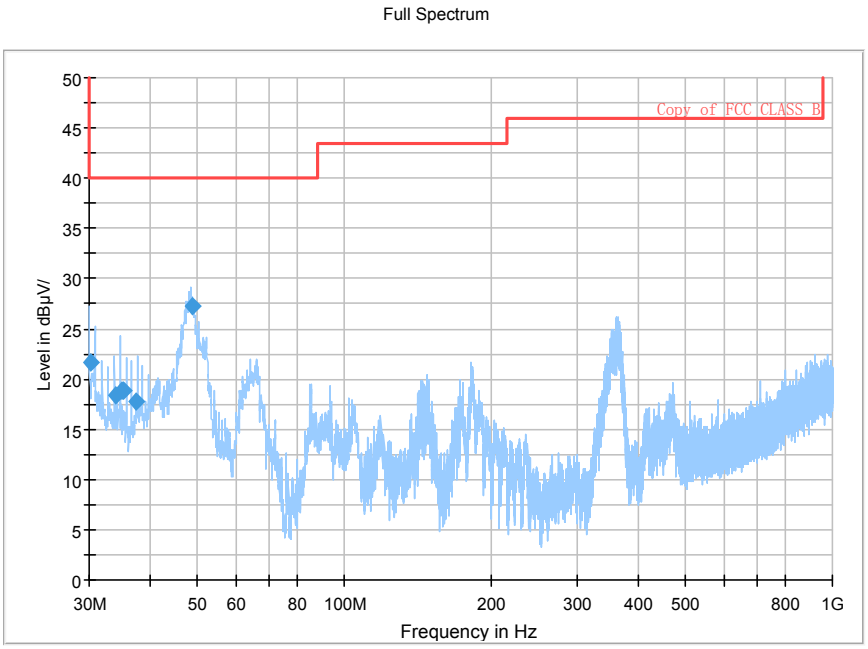
For π/4DQPSK
Channel No.:78

Frequency (MHz)	Result (dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)
30.895417	19.59	-13.8	33.39	Vertical	40.00
35.316667	17.46	-15.9	33.36	Vertical	40.00
37.556667	15.67	-16.9	32.57	Vertical	40.00
48.714583	27.05	-23.4	50.45	Vertical	40.00
65.864167	19.63	-25.4	45.03	Vertical	40.00
363.983750	25.94	-16.2	42.14	Vertical	46.00

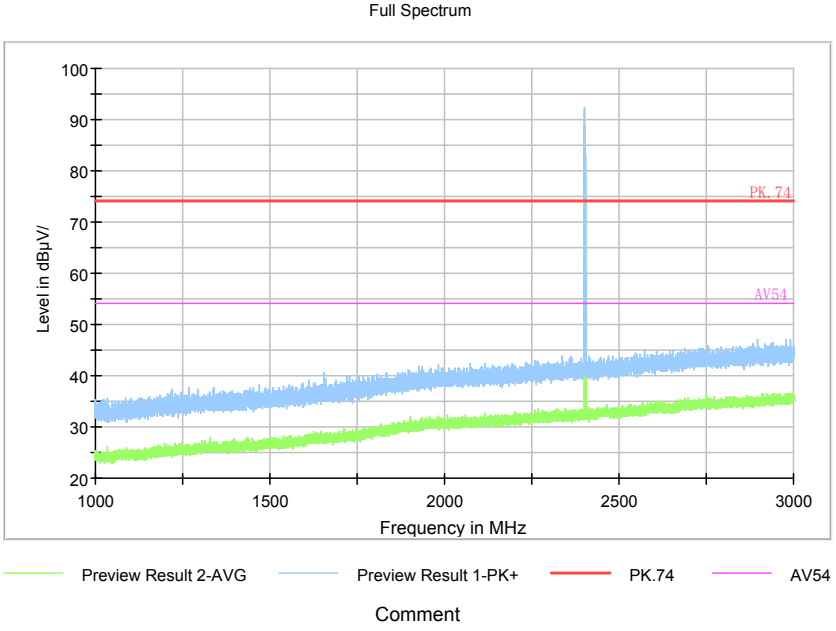
For 8DPSK
Channel No.:78

Frequency (MHz)	Result (dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)
31.016250	18.78	-13.9	32.68	Vertical	40.00
32.971250	15.97	-14.8	30.77	Vertical	40.00
34.451250	18.47	-15.5	33.97	Vertical	40.00
34.855833	17.36	-15.7	33.06	Vertical	40.00
36.771250	16.94	-16.5	33.44	Vertical	40.00
48.772917	27.23	-23.4	50.63	Vertical	40.00

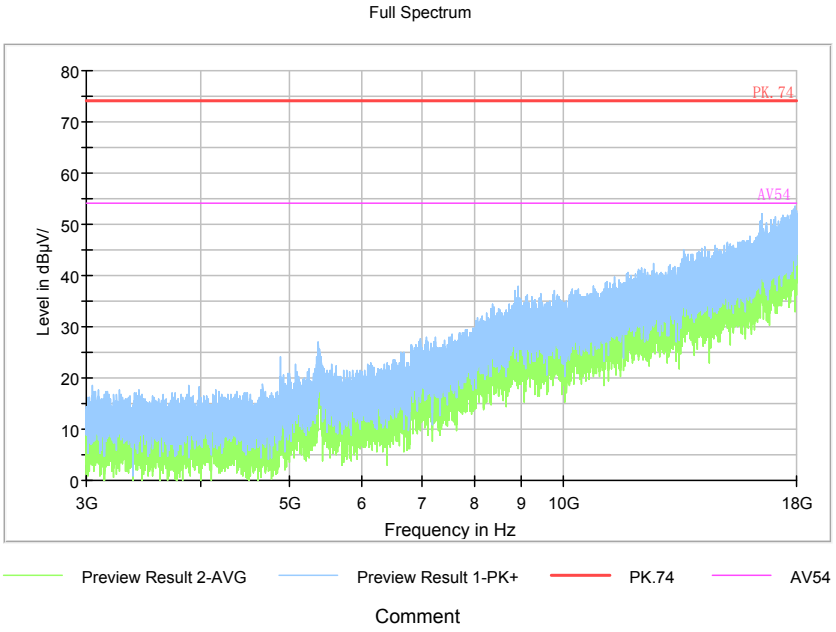
Carrier frequency (MHz): 2402
Channel No.:0



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

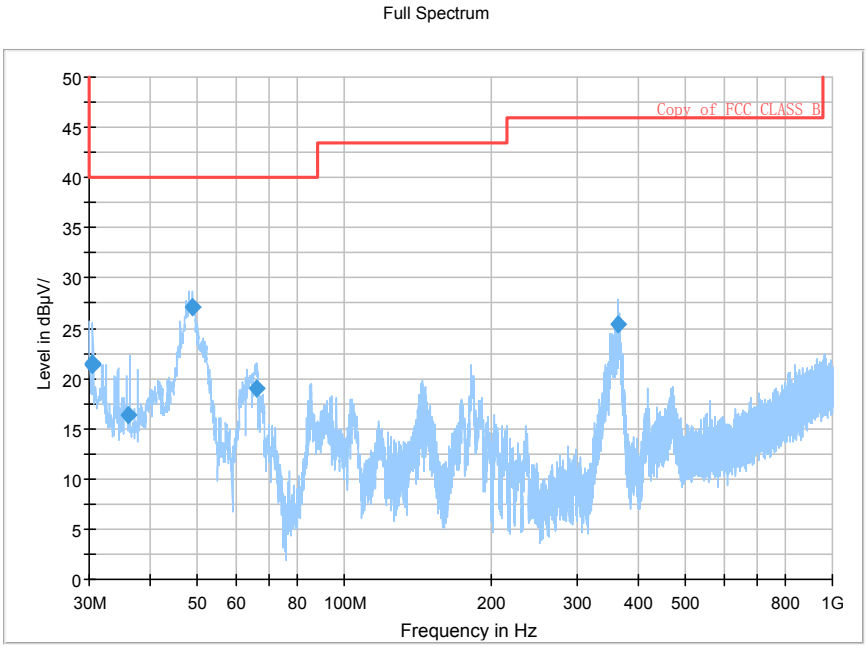


Frequency Range: 1GHz-3GHz
Detector: Av mode and PK mode
Modulation type: GFSK

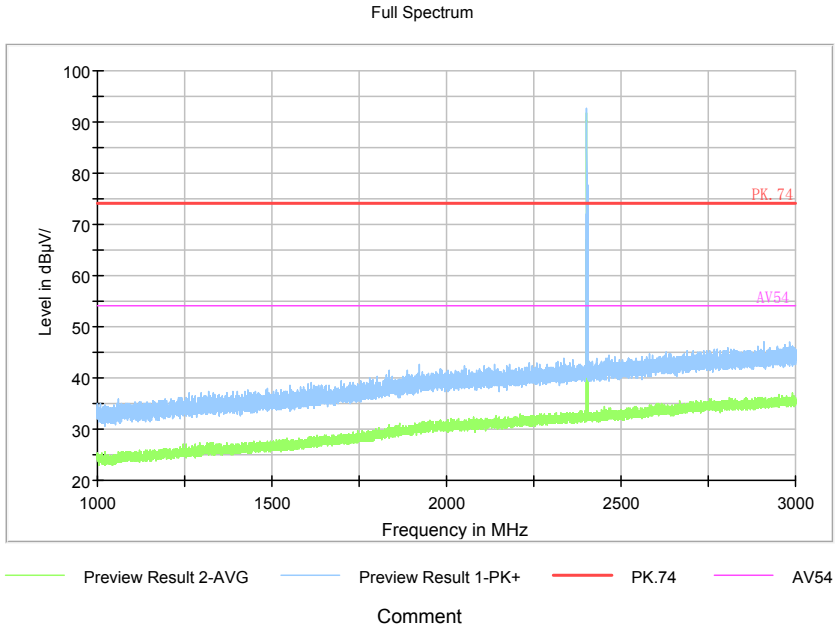


Frequency Range: 3GHz- 18GHz
Detector: Av mode and PK mode
Modulation type: GFSK

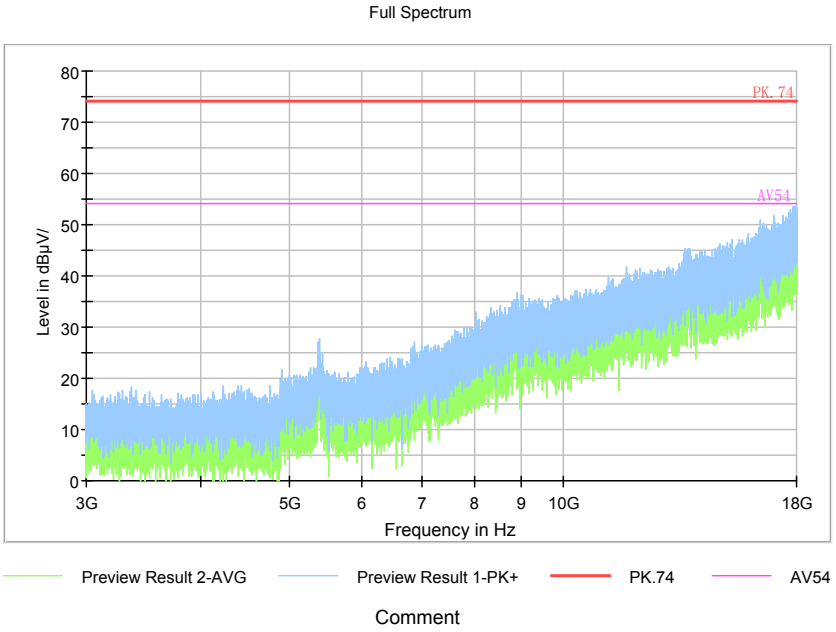
Frequency Range: 18GHz-25GHz
Detector: Av mode and PK mode
Modulation type: GFSK



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

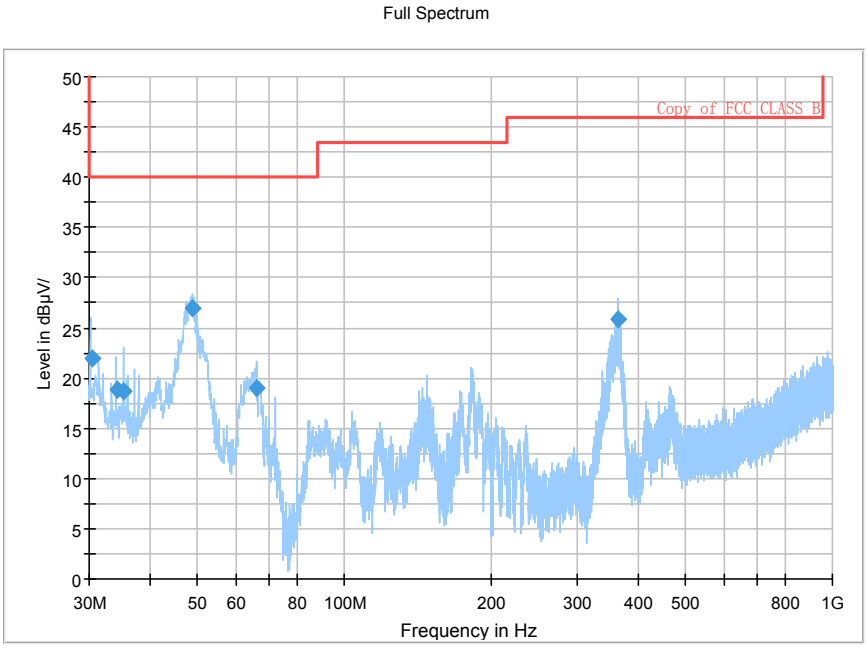


Frequency Range: 1GHz-3GHz
Detector: Av mode and PK mode
Modulation type: π/4DQPSK

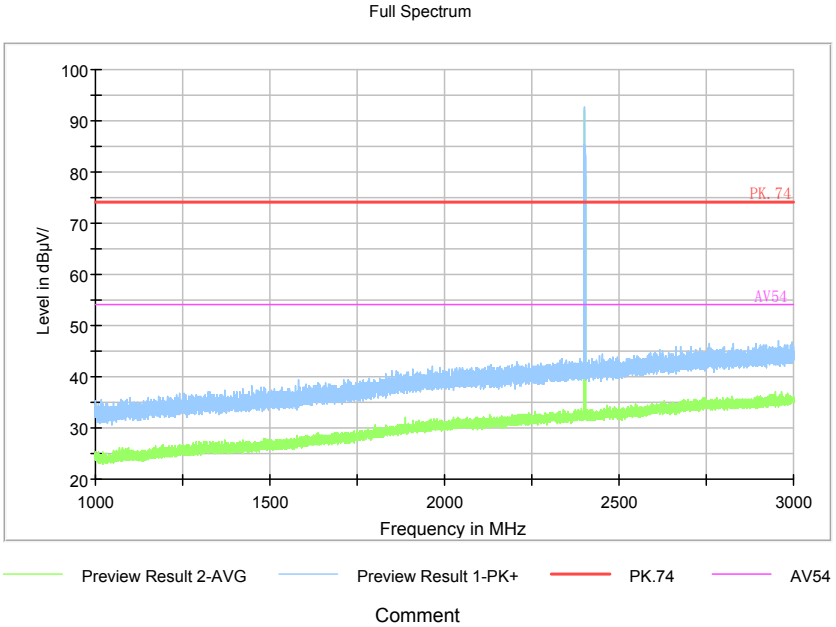


Frequency Range: 3GHz-18GHz
Detector: Av mode and PK mode
Modulation type: π/4DQPSK

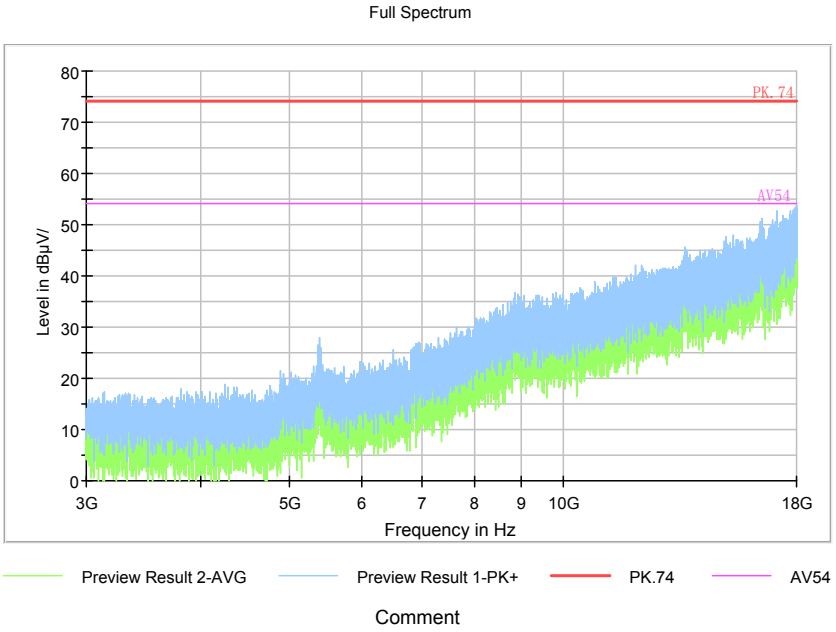
Frequency Range: 18GHz-25GHz
Detector: Av mode and PK mode
Modulation type: π/4DQPSK



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



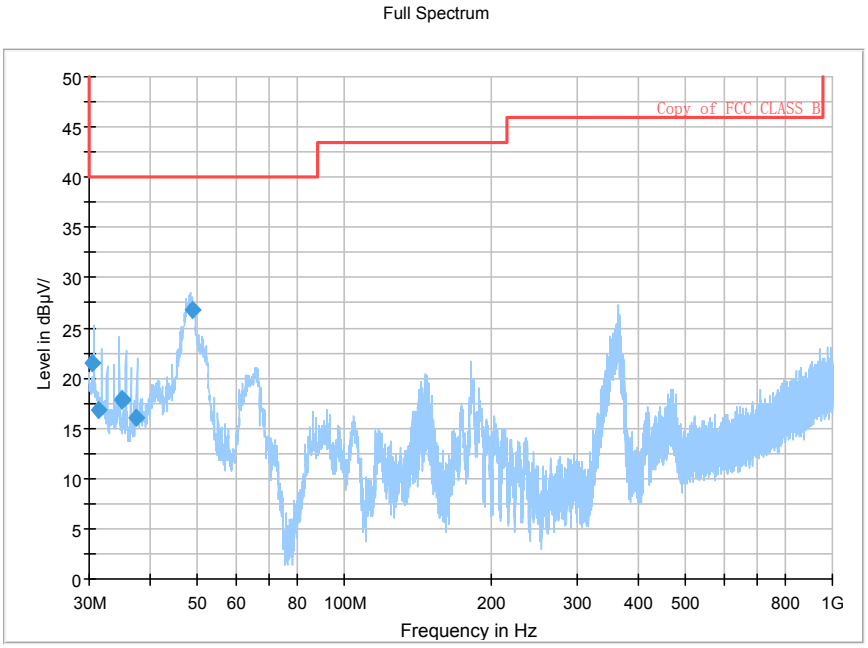
Frequency Range: 1GHz-3GHz
Detector: Av mode and PK mode
Modulation type: 8DPSK



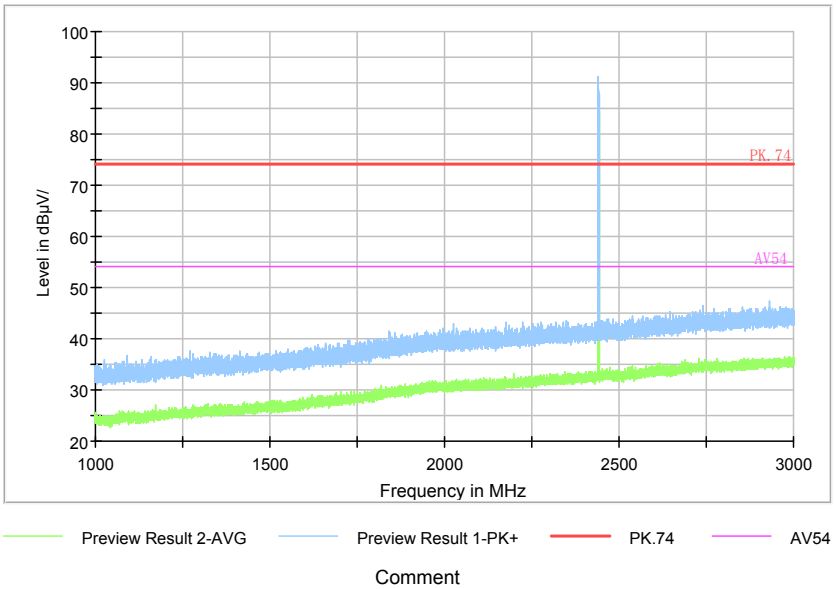
Frequency Range: 3GHz-18GHz
Detector: Av mode and PK mode
Modulation type: 8DPSK

Frequency Range: 18GHz-25GHz
Detector: Av mode and PK mode
Modulation type: 8DPSK

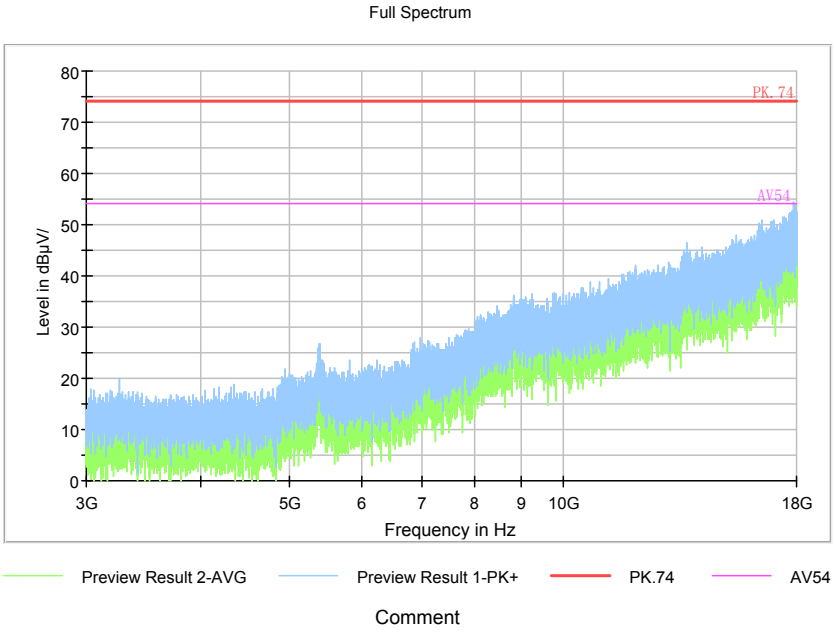
Carrier frequency (MHz): 2441
Channel No.:39



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

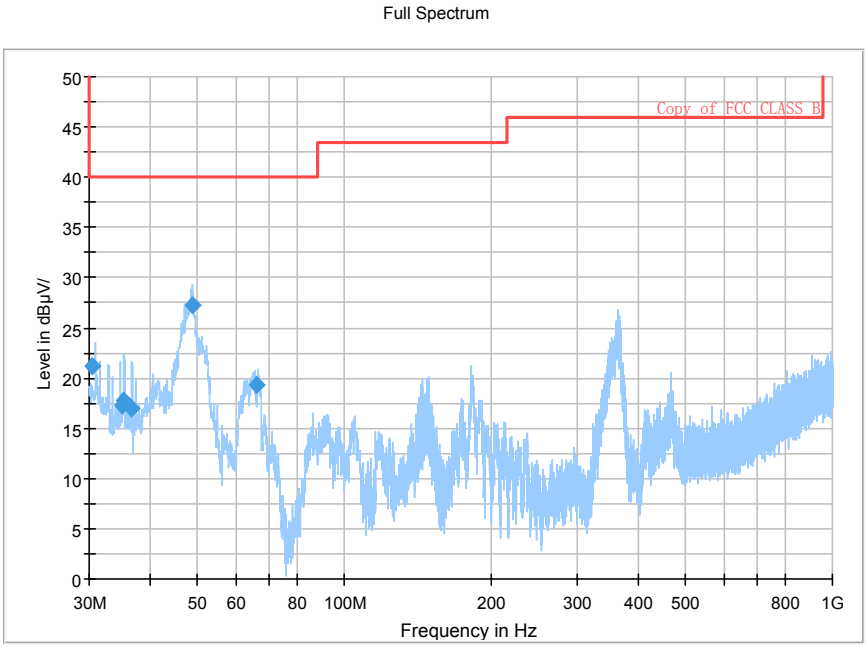


Frequency Range: 1GHz-3GHz
Detector: Av mode and PK mode
Modulation type: GFSK

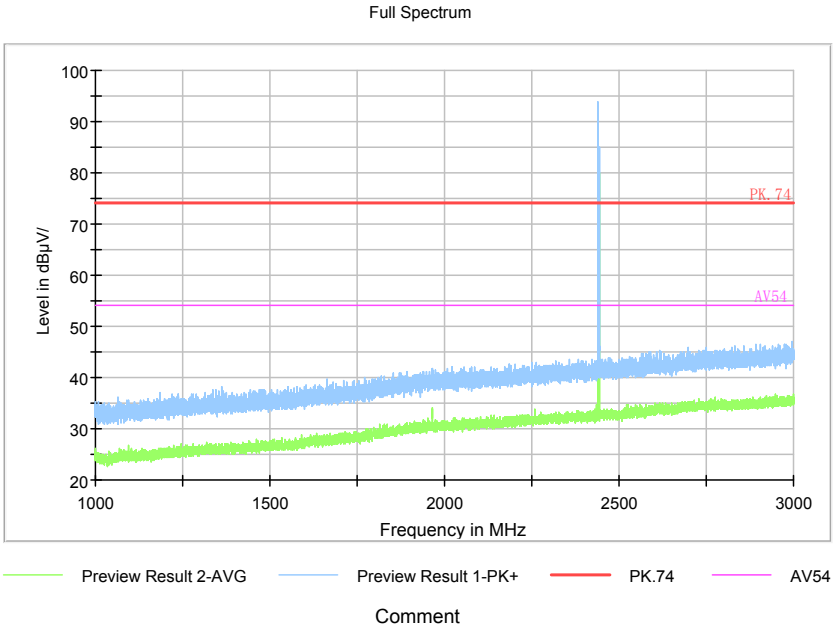


Frequency Range: 3GHz- 18GHz
Detector: Av mode and PK mode
Modulation type: GFSK

Frequency Range: 18GHz-25GHz
Detector: Av mode and PK mode
Modulation type: GFSK

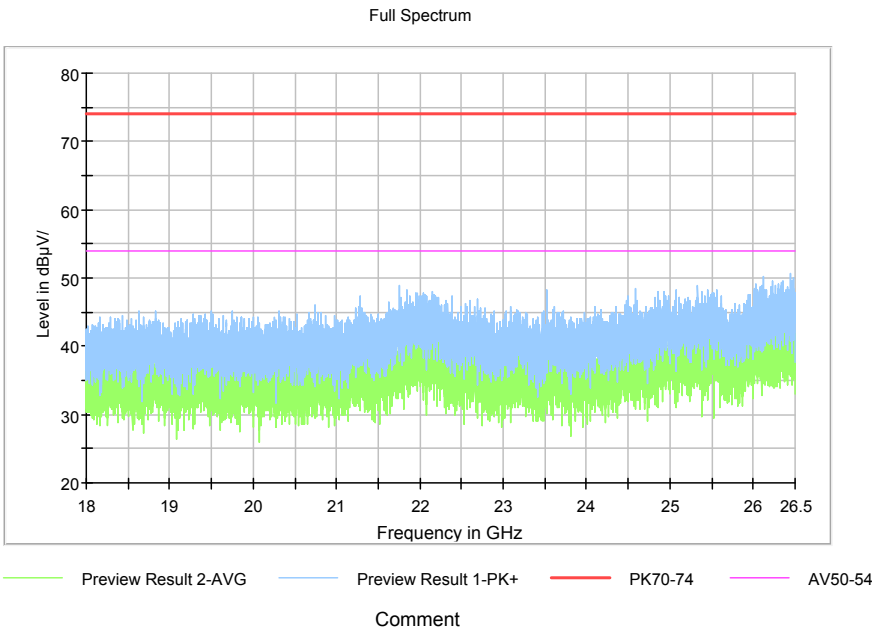


Frequency Range: 30MHz-1000 MHz
Detector: QP mode
Modulation type: π/4DQPSK

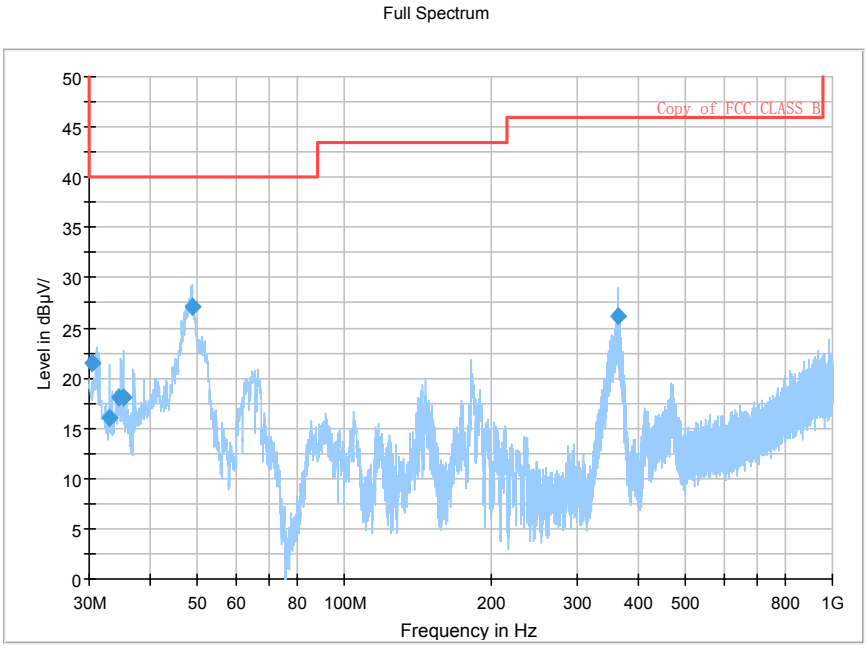


Frequency Range: 1GHz-3GHz
Detector: Av mode and PK mode
Modulation type: π/4DQPSK

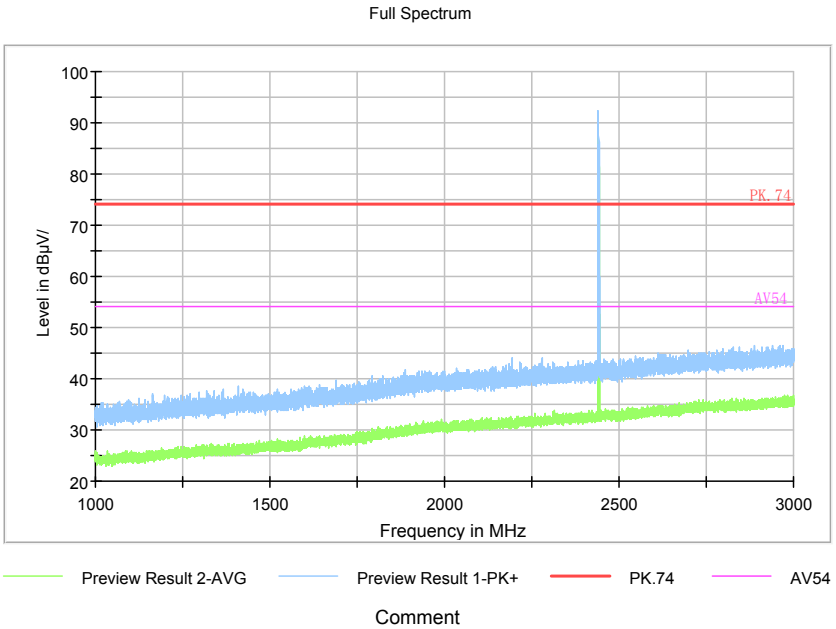
Frequency Range: 3GHz-18GHz
Detector: Av mode and PK mode
Modulation type: π/4DQPSK



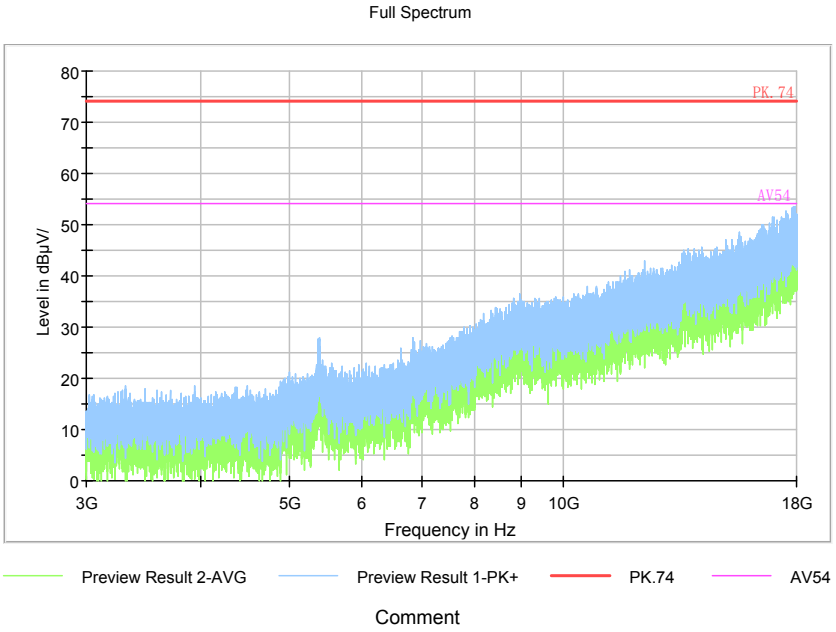
Frequency Range: 18GHz-25GHz
Detector: Av mode and PK mode
Modulation type: π/4DQPSK



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



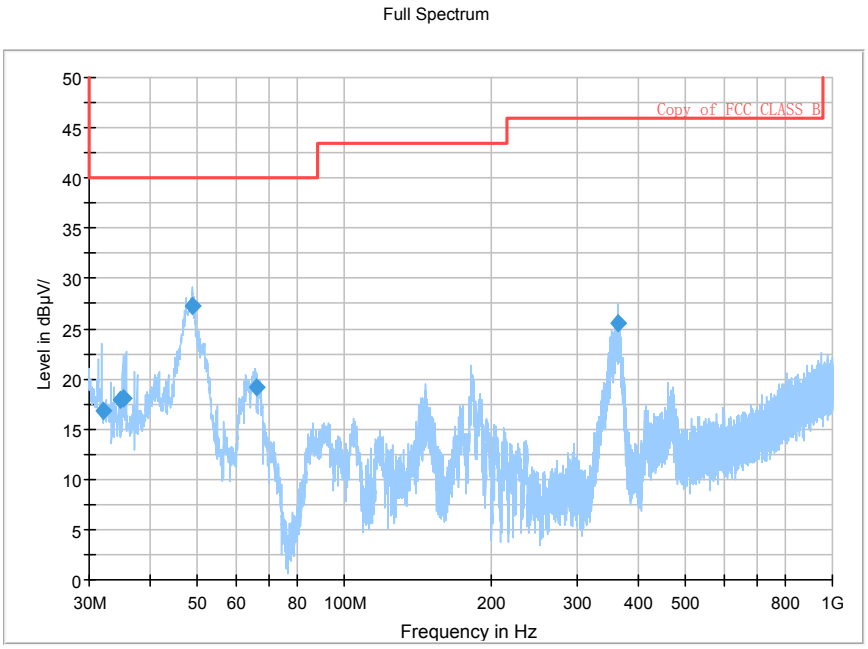
Frequency Range: 1GHz-3GHz
Detector: Av mode and PK mode
Modulation type: 8DPSK



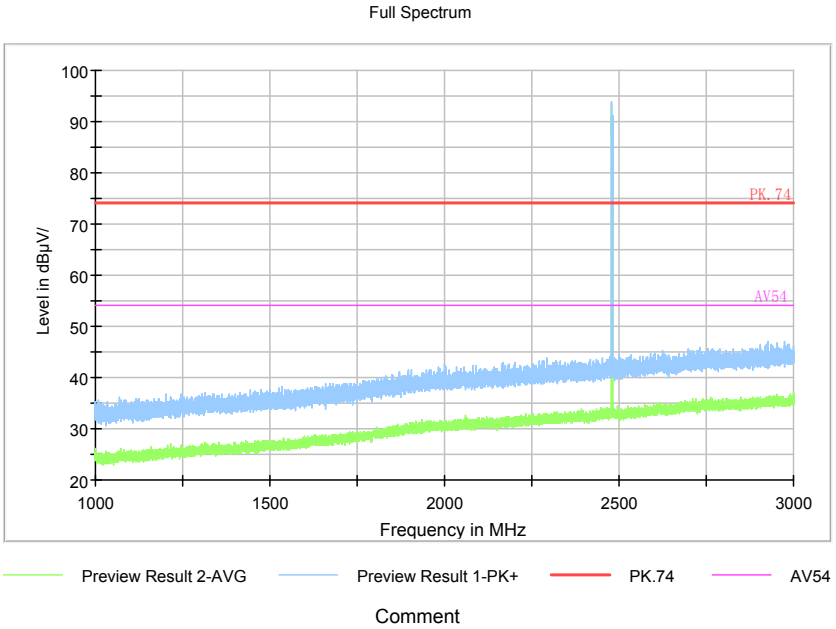
Frequency Range: 3GHz-18GHz
Detector: Av mode and PK mode
Modulation type: 8DPSK

Frequency Range: 18GHz-25GHz
Detector: Av mode and PK mode
Modulation type: 8DPSK

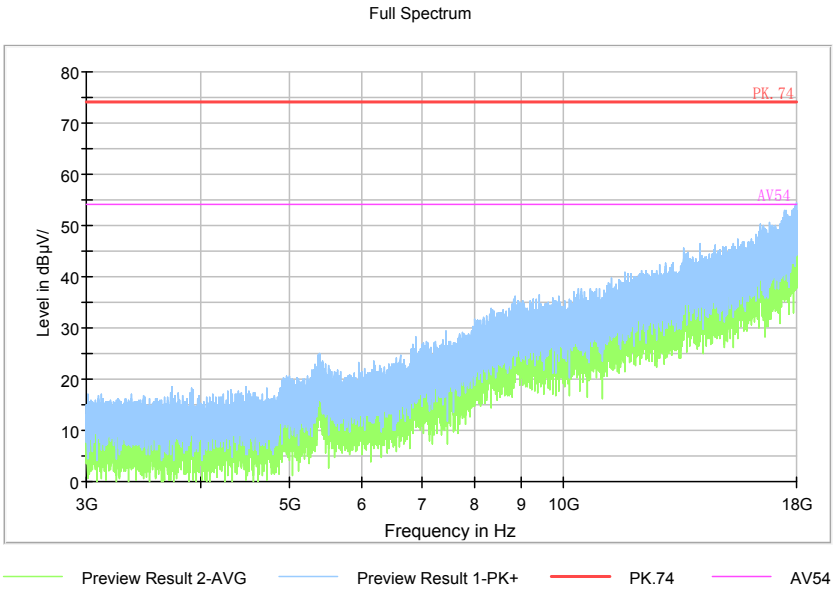
Carrier frequency (MHz): 2480
Channel No.:78



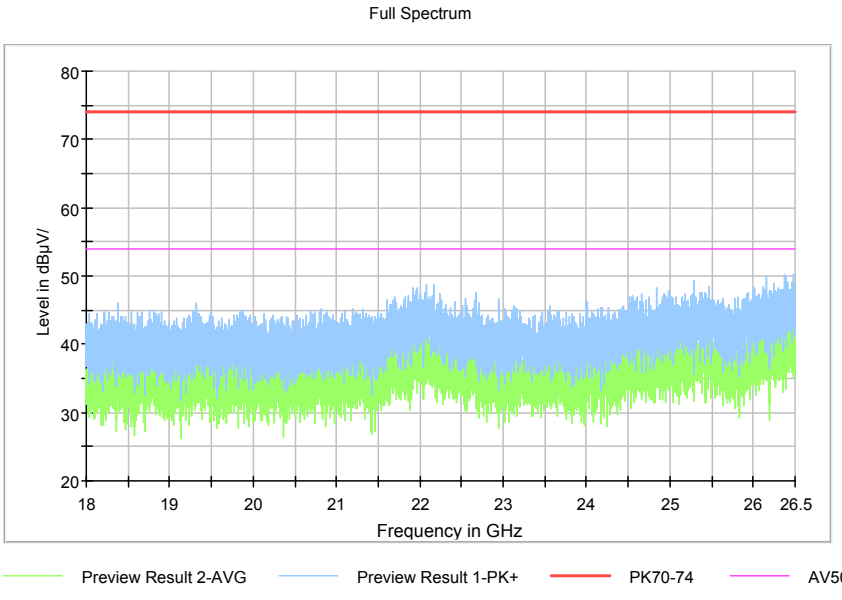
Frequency Range: 30MHz-1000MHz
Detector: QP mode
Modulation type: GFSK



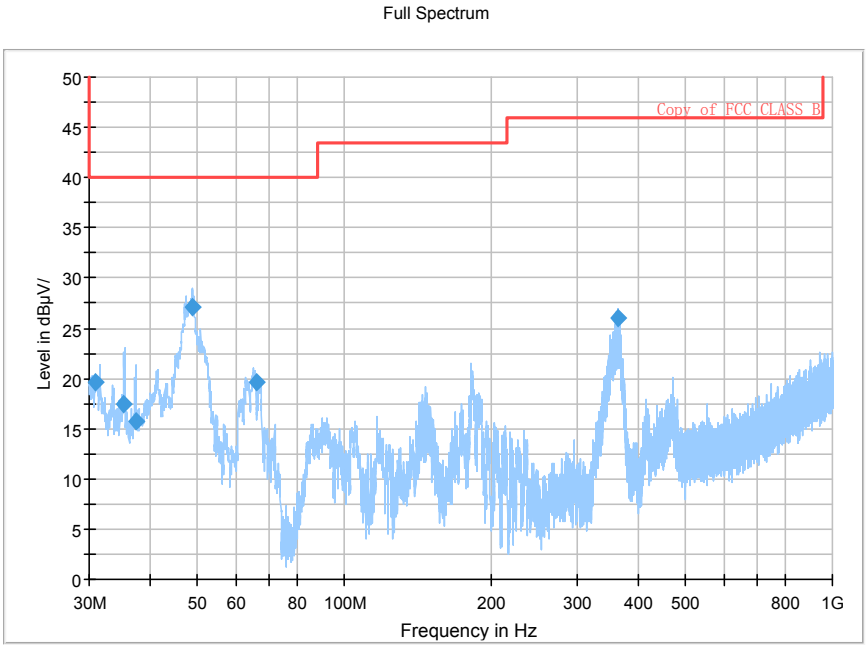
Frequency Range: 1GHz-3GHz
Detector: Av mode and PK mode
Modulation type: GFSK



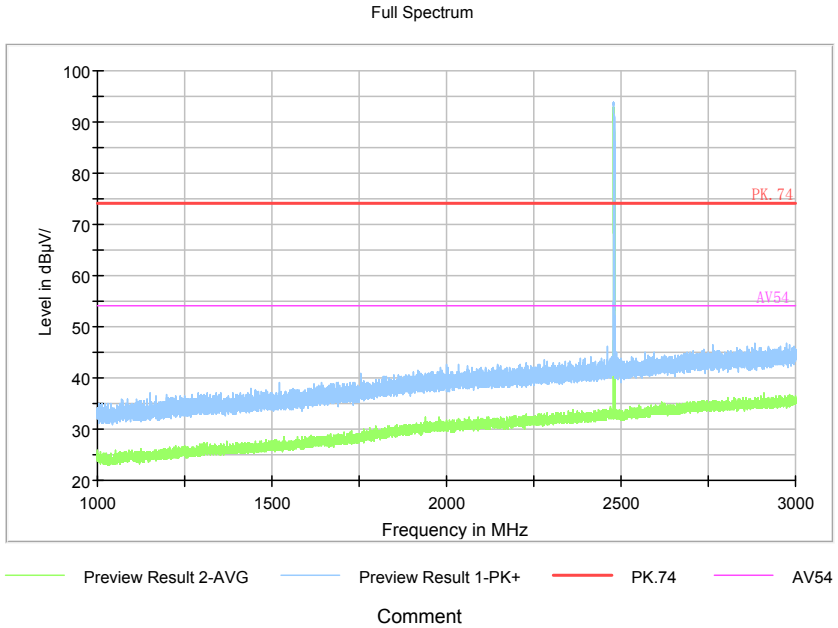
Frequency Range: 3GHz- 18GHz
Detector: Av mode and PK mode
Modulation type: GFSK



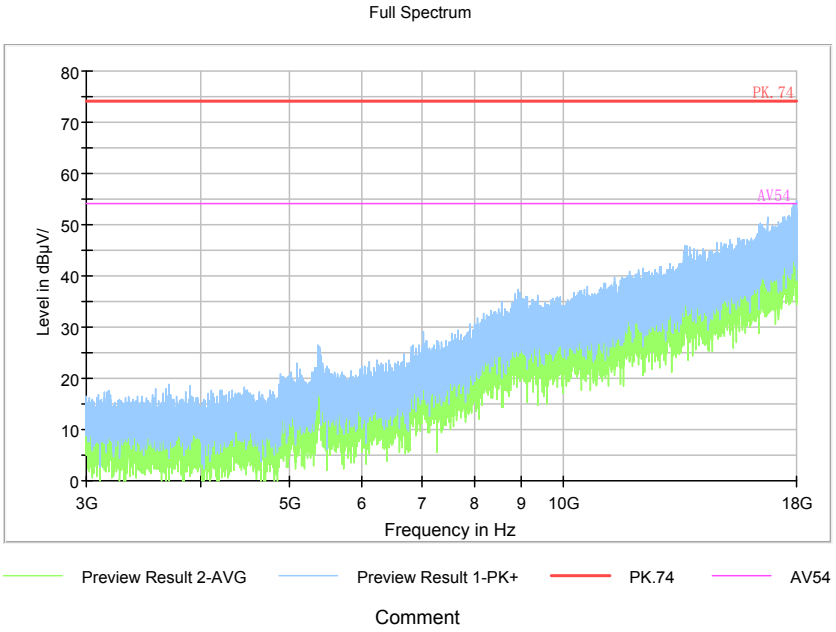
Frequency Range: 18GHz-25GHz
Detector: Av mode and PK mode
Modulation type: GFSK



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

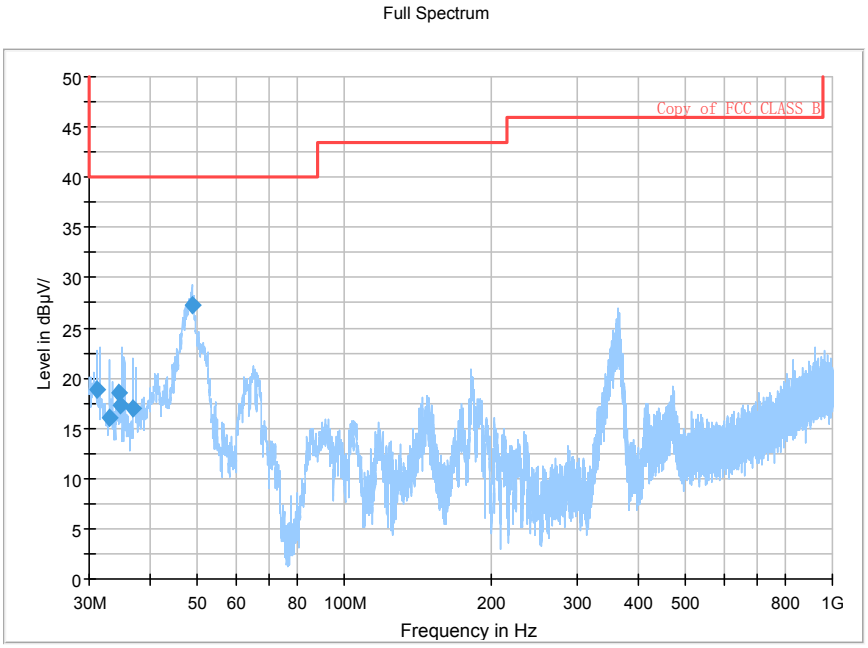


Frequency Range: 1GHz-3GHz
Detector: Av mode and PK mode
Modulation type: π/4DQPSK

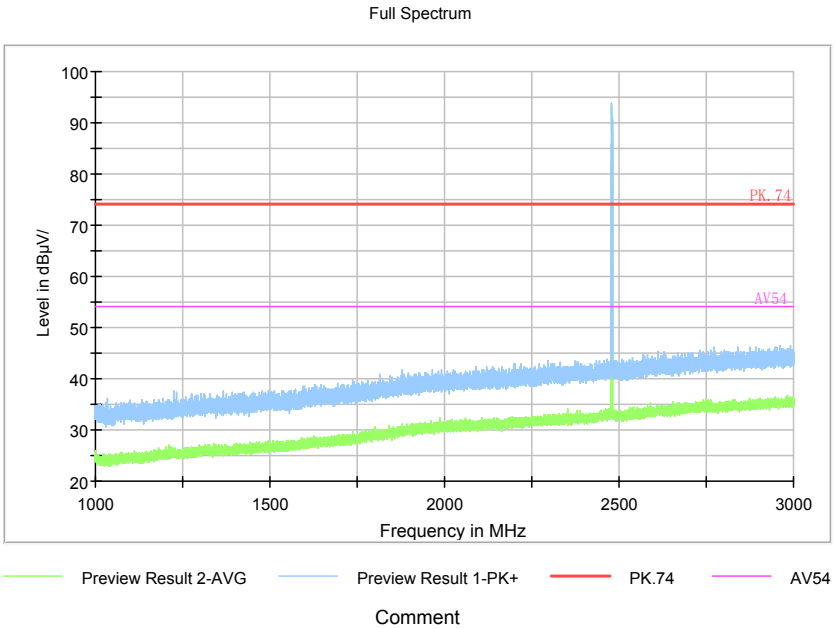


Frequency Range: 3GHz-18GHz
Detector: Av mode and PK mode
Modulation type: π/4DQPSK

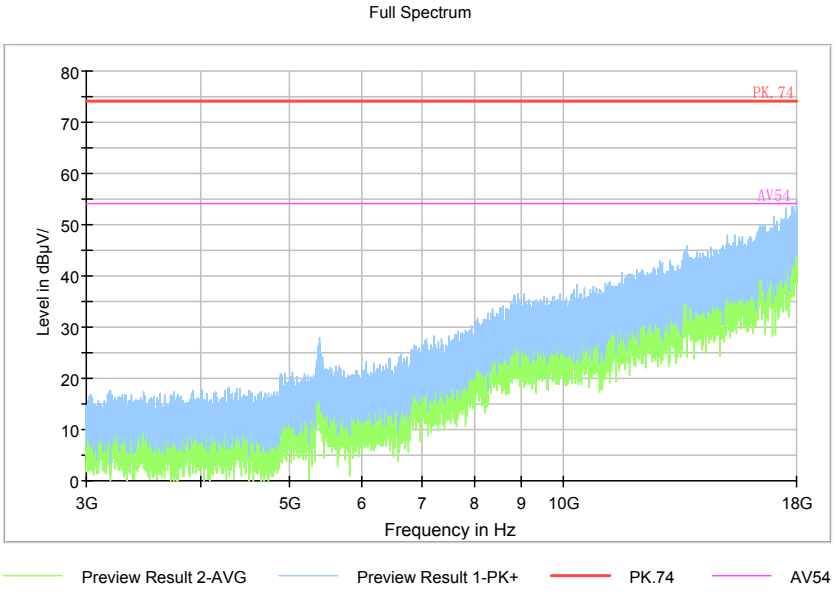
Frequency Range: 18GHz-25GHz
Detector: Av mode and PK mode
Modulation type: π/4DQPSK



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



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



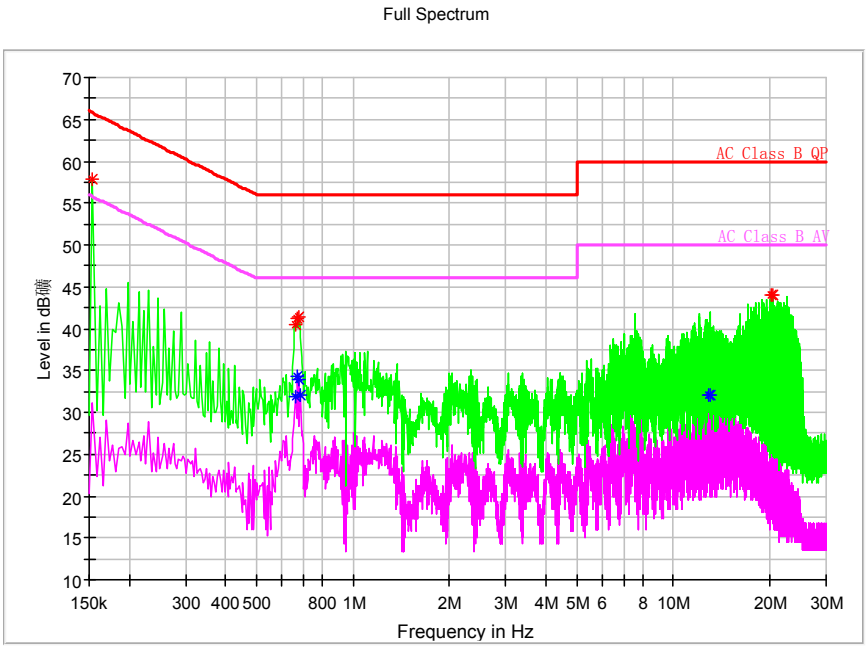
Frequency Range: 3GHz-18GHz
Detector: Av mode and PK mode
Modulation type: 8DPSK

Frequency Range: 18GHz-25GHz
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: (57.91 dBμV) = (28.01 dBμV) + (29.9 dB), the corresponding frequency is 0.154000MHz.



L+N Line

MEASUREMENT RESULT:

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)	Pmea Quasi Peak (dBµV)	Pmea Average (dBµV)
0.154000	57.91	---	65.78	7.88	L1	29.9	28.01	---
0.662000	40.50	---	56.00	15.50	L1	30.0	10.5	---
0.662000	---	31.89	46.00	14.11	N	30.0	---	1.89
0.670000	41.12	---	56.00	14.88	L1	30.0	11.12	---
0.670000	---	34.31	46.00	11.69	L1	30.0	---	4.31
0.678000	---	33.85	46.00	12.15	N	30.0	---	3.85
0.678000	41.39	---	56.00	14.61	L1	30.0	11.39	---
0.686000	---	32.11	46.00	13.89	L1	29.9	---	2.21
12.846000	---	32.11	50.00	17.89	L1	29.9	---	2.21
12.982000	---	32.00	50.00	18.00	L1	29.9	---	2.1
20.350000	43.93	---	60.00	16.07	N	30.0	13.93	---
20.442000	43.93	---	60.00	16.07	N	30.0	13.93	---

---End of Test Report---