

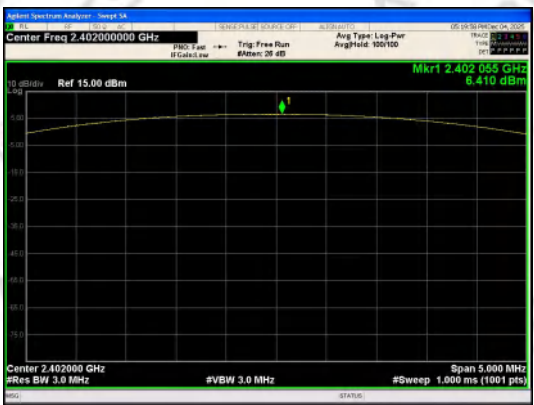
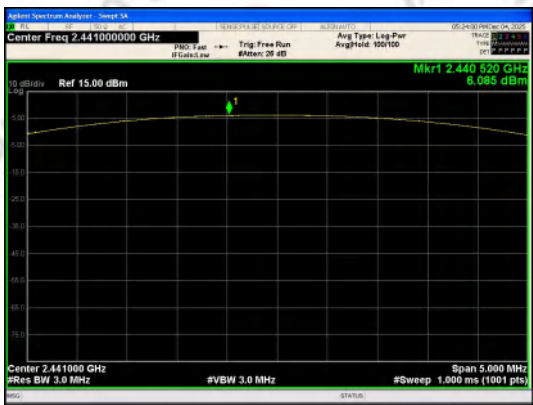
Appendix A of data

A1.Maximum Peak Conducted Output Power

Test Result

Modulation	Packet Type	Channel	Peak Output Power (dBm)	Peak Output Power (mW)	Limit (dBm)	Result
GFSK	DH5	0	6.41	4.38	≤21	PASS
		39	6.08	4.06		PASS
		78	3.95	2.48		PASS
$\pi/4$ DQPSK	2-DH5	0	5.78	3.78		PASS
		39	6.79	4.78		PASS
		78	4.44	2.78		PASS
8DPSK	3-DH5	0	6.01	3.99		PASS
		39	7.05	5.07		PASS
		78	4.71	2.96		PASS

Test Graphs

	
Peak Output Power GFSK_Channel 0	Peak Output Power GFSK_Channel 39
	
Peak Output Power GFSK_Channel 78	Peak Output Power $\pi/4$DQPSK_Channel 0



Peak Output Power
 $\pi/4$ DQPSK_Channel 39



Peak Output Power
 $\pi/4$ DQPSK_Channel 78



Peak Output Power
8DPSK_Channel 0



Peak Output Power
8DPSK_Channel 39



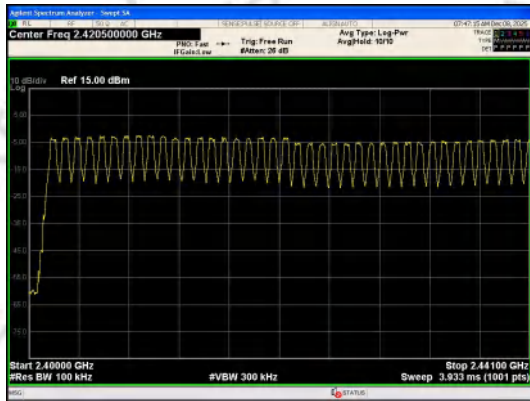
Peak Output Power
8DPSK_Channel 78

A2.Number of Hopping Frequencies

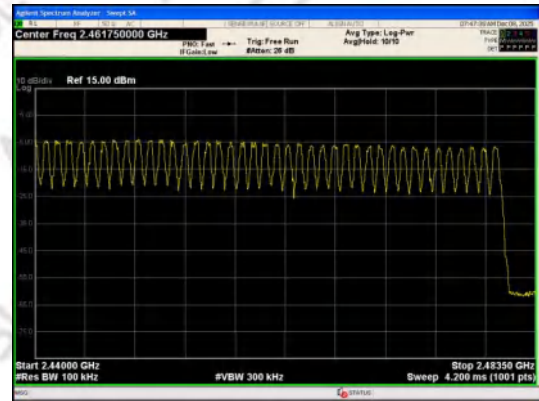
Test Result

Modulation	Packet	Number of Hopping Channel	Limit	Result
GFSK	DH5	79	15	PASS
$\pi/4$ DQPSK	2-DH5	79	15	PASS
8DPSK	3-DH5	79	15	PASS

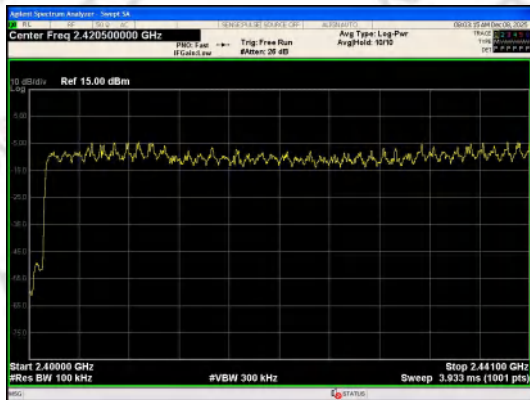
Test Graphs



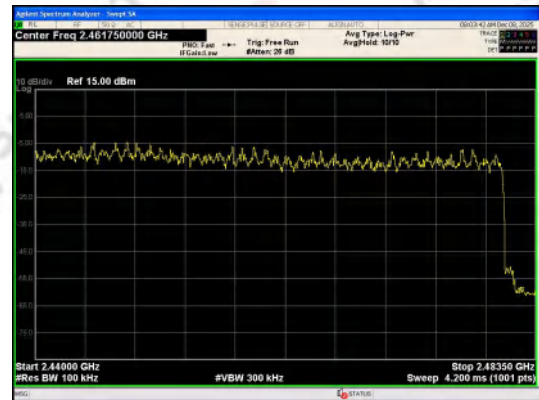
Low End Spectrum Channel Hopping Plot
GFSK



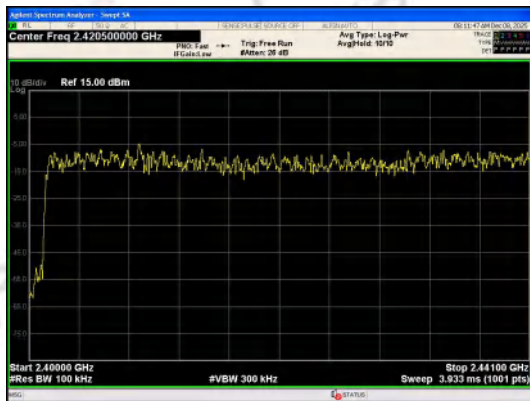
High End Spectrum Channel Hopping Plot
GFSK



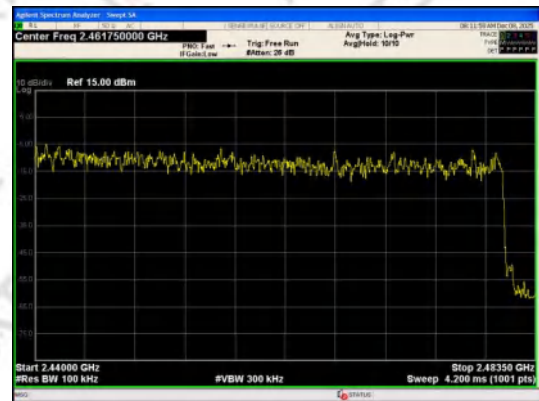
Low End Spectrum Channel Hopping Plot
 $\pi/4$ DQPSK



High End Spectrum Channel Hopping Plot
 $\pi/4$ DQPSK



Low End Spectrum Channel Hopping Plot
8DPSK



High End Spectrum Channel Hopping Plot
8DPSK

A3.Duty Cycle and Dwell Time

Duty Cycle Test Result

Modulation	Packets	Channel	On Time (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle (linear)	Duty Cycle Factor (dB)
GFSK	DH5	0	2.900	3.748	77.37	0.7737	1.1143
		39	2.900	3.748	77.37	0.7737	1.1143
		78	2.900	3.748	77.37	0.7737	1.1143
$\pi/4$ DQPSK	2-DH5	0	2.888	3.748	77.05	0.7705	1.1323
		39	2.890	3.748	77.11	0.7711	1.1289
		78	2.890	3.748	77.11	0.7711	1.1289
8DPSK	3-DH5	0	2.890	3.748	77.11	0.7711	1.1289
		39	2.888	3.748	77.05	0.7705	1.1323
		78	2.888	3.748	77.05	0.7705	1.1323

Test Graphs



GFSK(DH5)_Channel 0

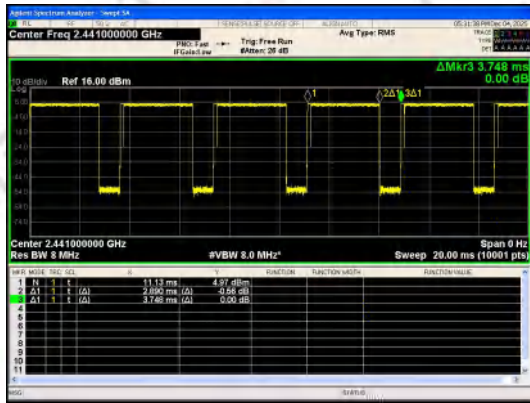


GFSK(DH5)_Channel 39



GFSK(DH5)_Channel 78


 $\pi/4$ DQPSK(2-DH5)_Channel 0


 $\pi/4$ DQPSK(2-DH5)_Channel 39

 $\pi/4$ DQPSK(2-DH5)_Channel 78


8DPSK(3-DH5)_Channel 0



8DPSK(3-DH5)_Channel 39



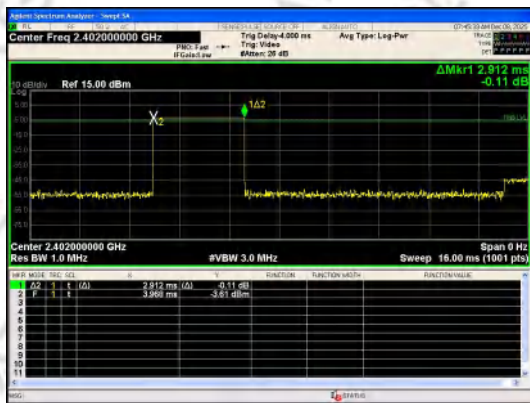
8DPSK(3-DH5)_Channel 78

Dwell Time Test Result

Modulation	Packet	Channel	Pulse Width (ms)	Number of Pulses in 31.6 seconds	Dwell Time (ms)	Limit (ms)	Result
GFSK	DH5	Hopping	2.912	107	311.58	< 400	PASS
$\pi/4$ DQPSK	2-DH5		2.896	104	301.18		PASS
8DPSK	3-DH5		2.896	96	278.02		PASS

Note: Dwell time=Pulse time(ms)*Number of Pulses in 31.6 seconds

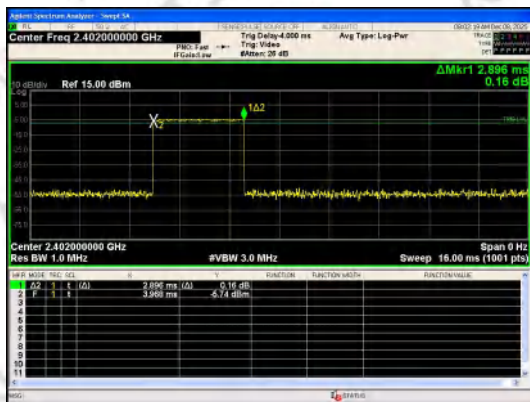
Test Graphs

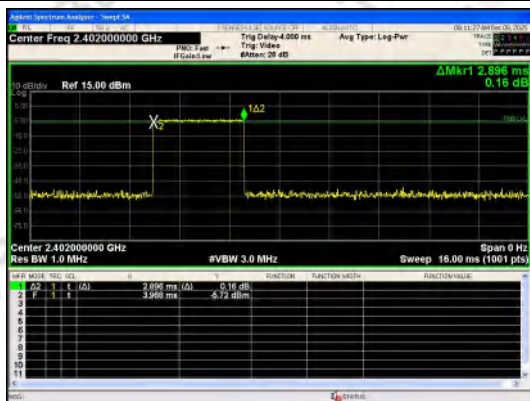


Pulse Width GFSK_DH5



Number of Pulses in 31.6 seconds GFSK_DH5


Pulse Width $\pi/4$ DQPSK_2-DH5

Number of Pulses in 31.6 seconds $\pi/4$ DQPSK_2-DH5


Pulse Width 8DPSK_3-DH5



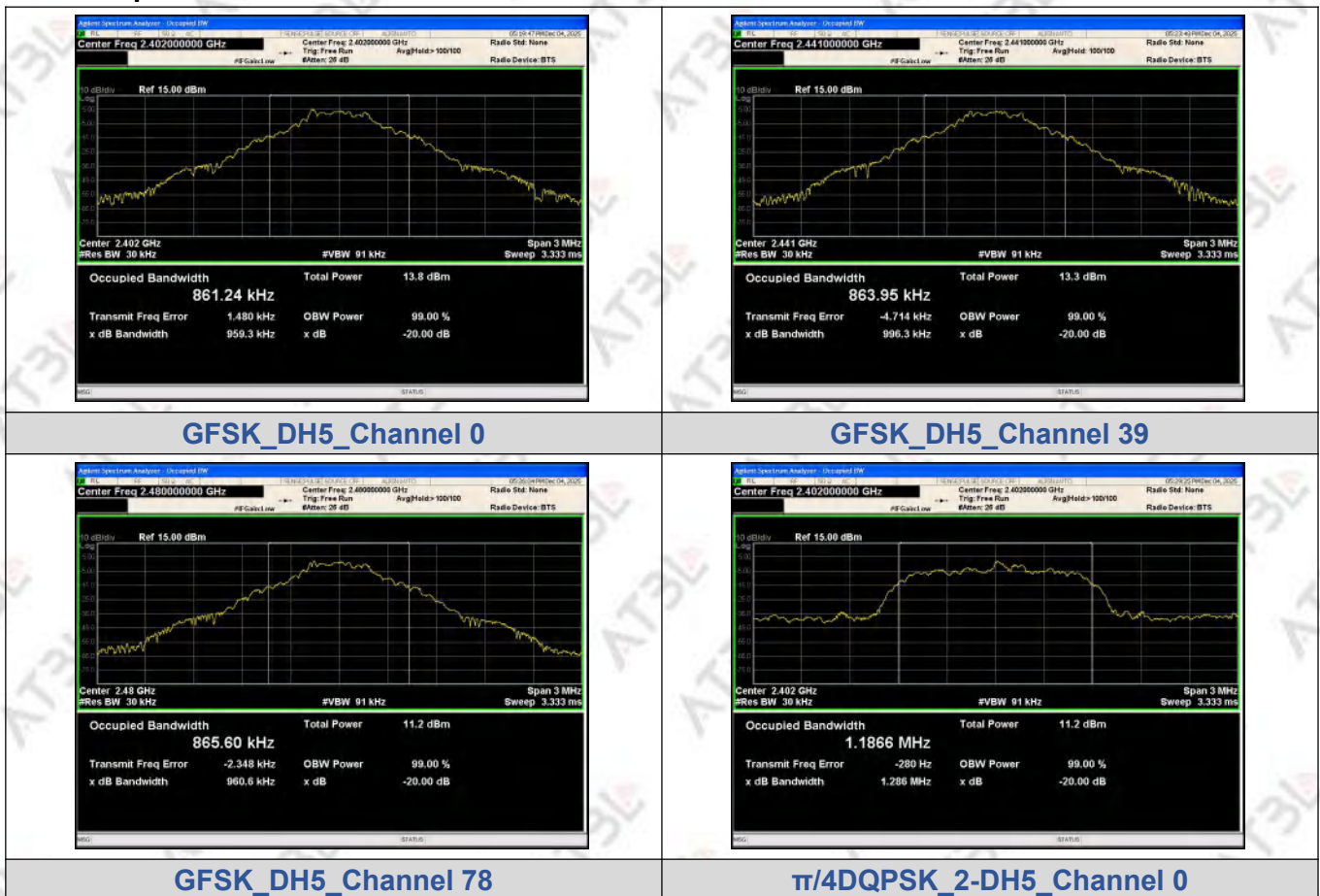
Number of Pulses in 31.6 seconds 8DPSK_3-DH5

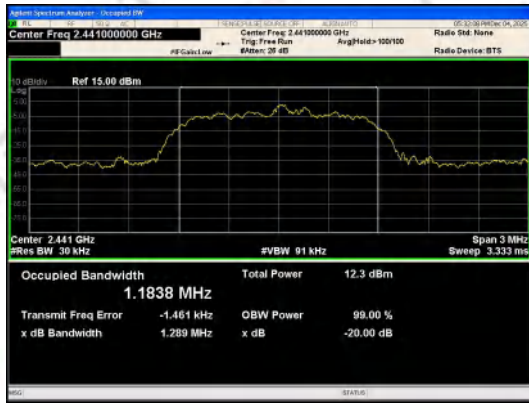
A4.20dB Bandwidth

Test Result

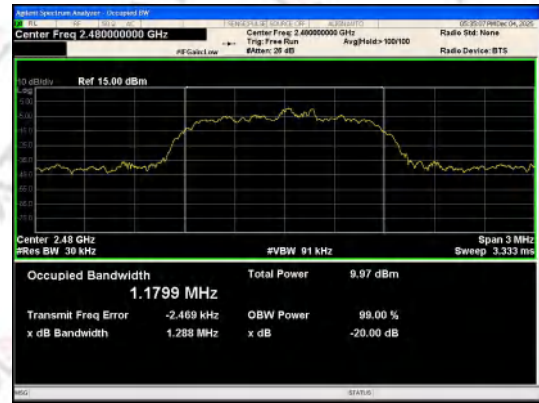
Modulation	Channel	Center Frequency (MHz)	20 dB Bandwidth (MHz)
GFSK	0	2402 MHz	0.9593
	39	2441 MHz	0.9963
	78	2480 MHz	0.9606
$\pi/4$ DQPSK	0	2402 MHz	1.286
	39	2441 MHz	1.289
	78	2480 MHz	1.288
8DPSK	0	2402 MHz	1.299
	39	2441 MHz	1.302
	78	2480 MHz	1.298

Test Graphs

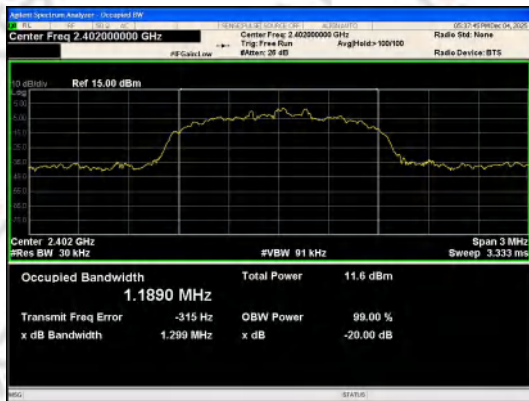




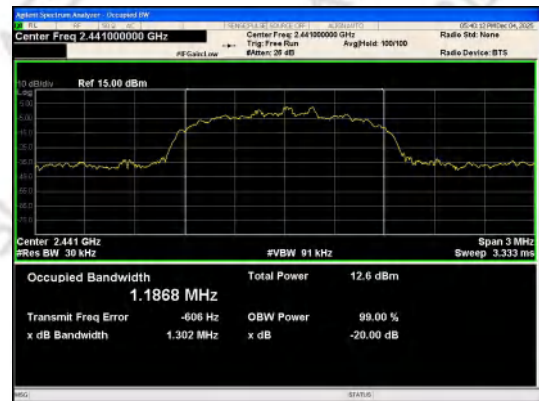
$\pi/4$ DQPSK_2-DH5_Channel 39



$\pi/4$ DQPSK_2-DH5_Channel 78



8DPSK_3-DH5_Channel 0



8DPSK_3-DH5_Channel 39



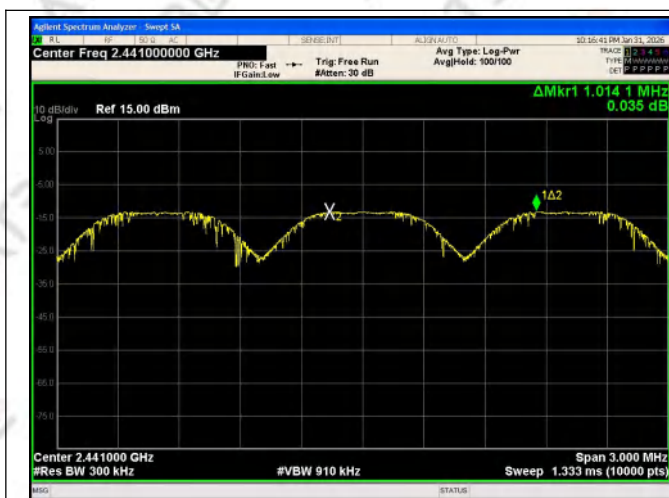
8DPSK_3-DH5_Channel 78

A5.Carrier Frequencies Separation

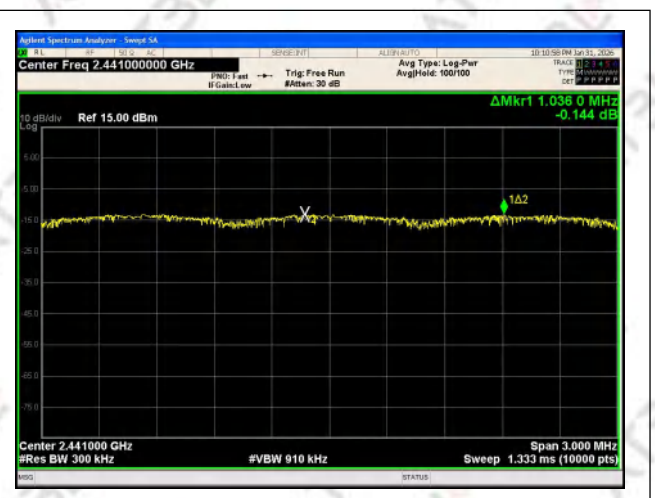
Test Result

Modulation	Packet	Left Center frequency (MHz)	Right Center frequency (MHz)	Hopping Frequency Separation (MHz)	Minimum Limit (MHz)	Result
GFSK	DH5	2440.8375	2441.8516	1.0141	0.664	PASS
$\pi/4$ DQPSK	2-DH5	2440.8714	2441.9074	1.0360	0.859	PASS
8DPSK	3-DH5	2439.8495	2441.1658	1.3162	0.868	PASS

Test Graphs



GFSK


 $\pi/4$ DQPSK


8DPSK

A6.Conducted Band Edge and Conducted Spurious Emission

Test Result

Non-Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	0	2398.19	-57.499	-13.75	-43.749	PASS
			2400.00	-58.283	-13.75	-44.533	PASS
			23740.9	-46.400	-13.75	-32.650	PASS
		39	24739.1	-46.388	-14.1	-32.288	PASS
		78	2483.50	-59.635	-16.25	-43.385	PASS
			24096.1	-46.427	-16.25	-30.177	PASS
π/4DQPSK	2-DH5	0	2400.00	-49.325	-16.07	-33.255	PASS
			23720.3	-46.241	-16.07	-30.171	PASS
		39	24135.4	-46.399	-15.11	-31.289	PASS
		78	2483.50	-58.837	-17.55	-41.287	PASS
			23754.6	-46.697	-17.55	-29.147	PASS
8DPSK	3-DH5	0	2400.00	-48.113	-15.97	-32.143	PASS
			24207.2	-45.749	-15.97	-29.779	PASS
		39	23686.6	-46.288	-15.01	-31.278	PASS
		78	2483.50	-59.098	-17.36	-41.738	PASS
			24031.2	-45.334	-17.36	-27.974	PASS
Note: input compensation coefficient (dB)= Cable Loss (dB)							

Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	Hopping	2395.57	-58.508	-23.12	-35.388	PASS
			2400.00	-60.770	-23.12	-37.650	PASS
			2483.50	-60.340	-26.37	-33.970	PASS
π/4DQPSK	2-DH5		2398.15	-58.638	-25.29	-33.348	PASS
			2400.00	-60.464	-25.29	-35.174	PASS
			2483.50	-59.935	-27.26	-32.675	PASS
8DPSK	3-DH5		2396.65	-58.474	-25.16	-33.314	PASS
			2400.00	-59.626	-25.16	-34.466	PASS
			2483.50	-59.305	-27.06	-32.245	PASS
Note: input compensation coefficient (dB)= Cable Loss (dB)							

Test Graphs

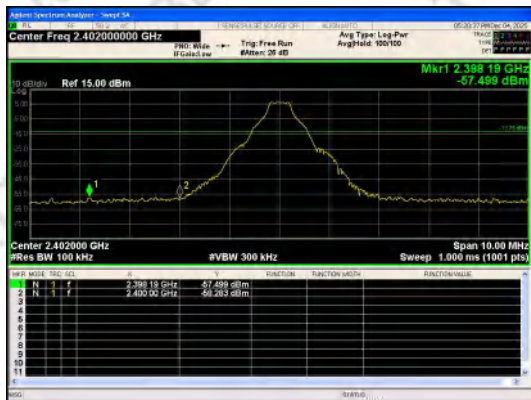
Non-Hopping



In-Band Reference Level
GFSK_DH5_Channel 0



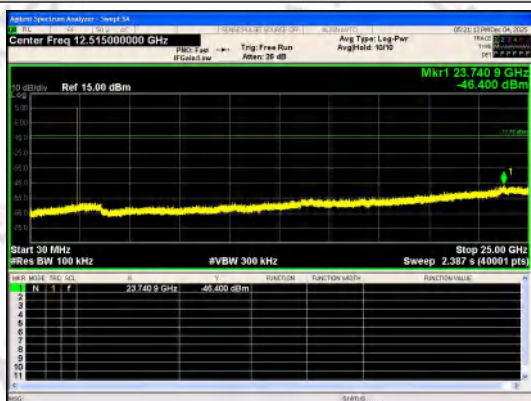
In-Band Reference Level
 $\pi/4$ DQPSK_2-DH5_Channel 0



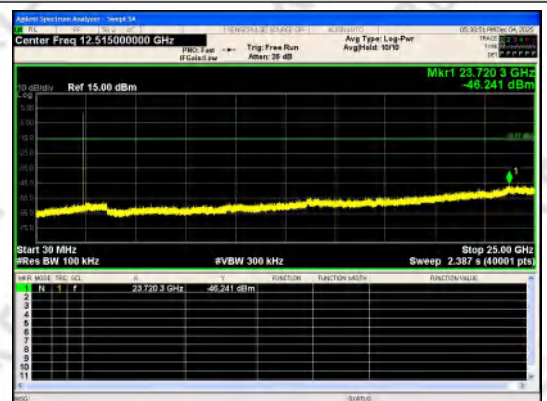
Out Of Band Emission
GFSK_DH5_Channel 0



Out Of Band Emission
 $\pi/4$ DQPSK_2-DH5_Channel 0



30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 0



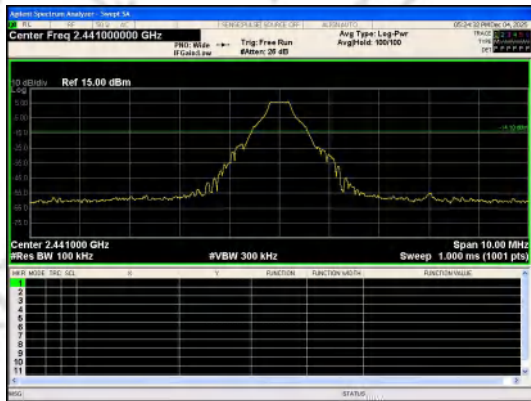
30.0 MHz - 25000.0 MHz
 $\pi/4$ DQPSK_2-DH5_Channel 0



In-Band Reference Level
GFSK_DH5_Channel 39



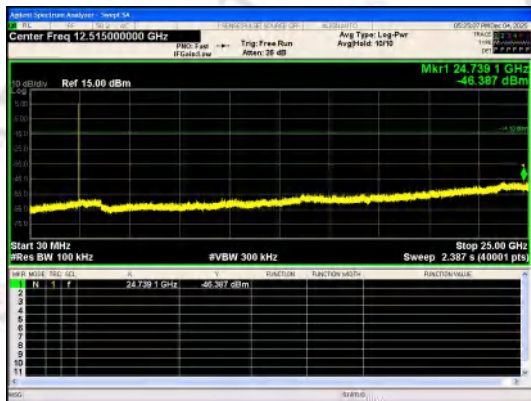
In-Band Reference Level
 $\pi/4$ DQPSK_2-DH5_Channel 39



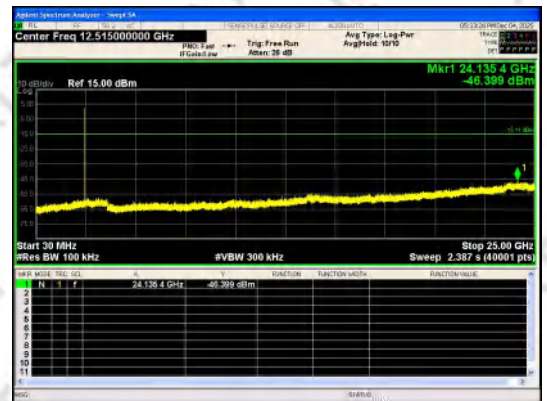
Out Of Band Emission
GFSK_DH5_Channel 39



Out Of Band Emission
 $\pi/4$ DQPSK_2-DH5_Channel 39



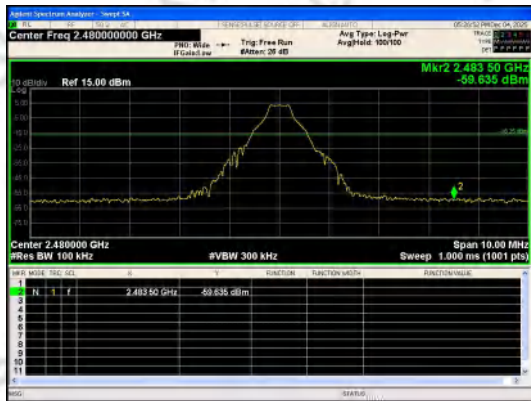
30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 39



30.0 MHz - 25000.0 MHz
 $\pi/4$ DQPSK_2-DH5_Channel 39



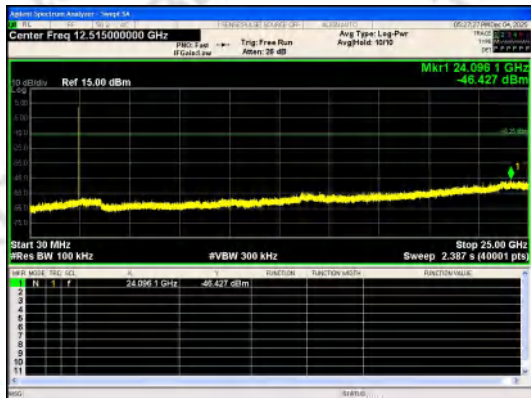
In-Band Reference Level GFSK_DH5_Channel 78



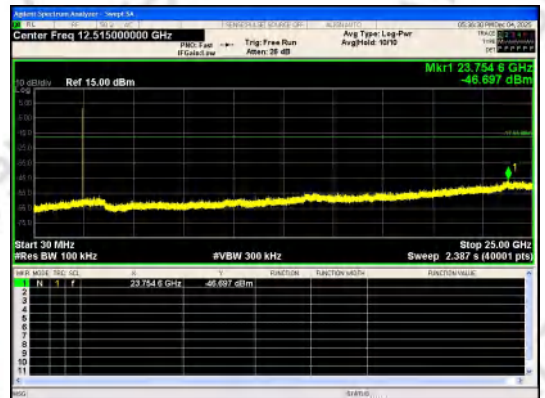
In-Band Reference Level $\pi/4$ DQPSK_2-DH5_Channel 78



Out Of Band Emission GFSK_DH5_Channel 78



Out Of Band Emission $\pi/4$ DQPSK_2-DH5_Channel 78



30.0 MHz - 25000.0 MHz GFSK_DH5_Channel 78

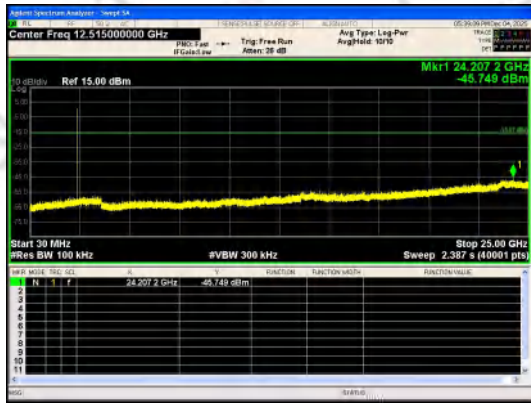


30.0 MHz - 25000.0 MHz $\pi/4$ DQPSK_2-DH5_Channel 78



In-Band Reference Level 8DPSK_3-DH5_Channel 0

Out Of Band Emission 8DPSK_3-DH5_Channel 0



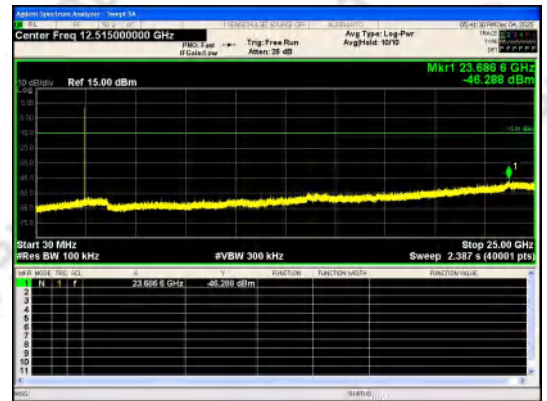
30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 0



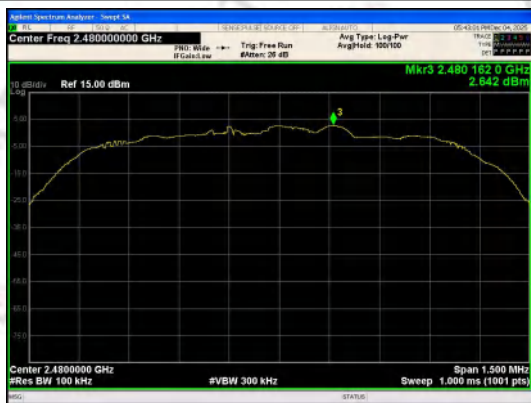
In-Band Reference Level
8DPSK_3-DH5_Channel 39



Out Of Band Emission
8DPSK_3-DH5_Channel 39



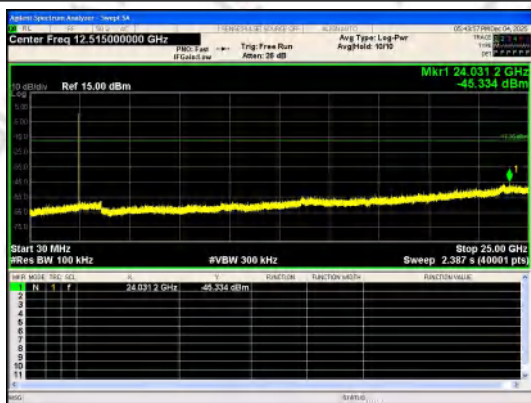
30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 39



In-Band Reference Level
8DPSK_3-DH5_Channel 78



Out Of Band Emission
8DPSK_3-DH5_Channel 78



30.0 MHz - 25000.0 MHz
8DPSK_3-DH5_Channel 78

Hopping



Out Of Band Emission(Left)
GFSK_DH5_Channel Hopping



Out Of Band Emission(Right)
GFSK_DH5_Channel Hopping



Out Of Band Emission(Left)
8DPSK_3-DH5_Channel Hopping

Out Of Band Emission(Right)
8DPSK_3-DH5_Channel Hopping

A7.Radiated Spurious Emission and Restricted Band

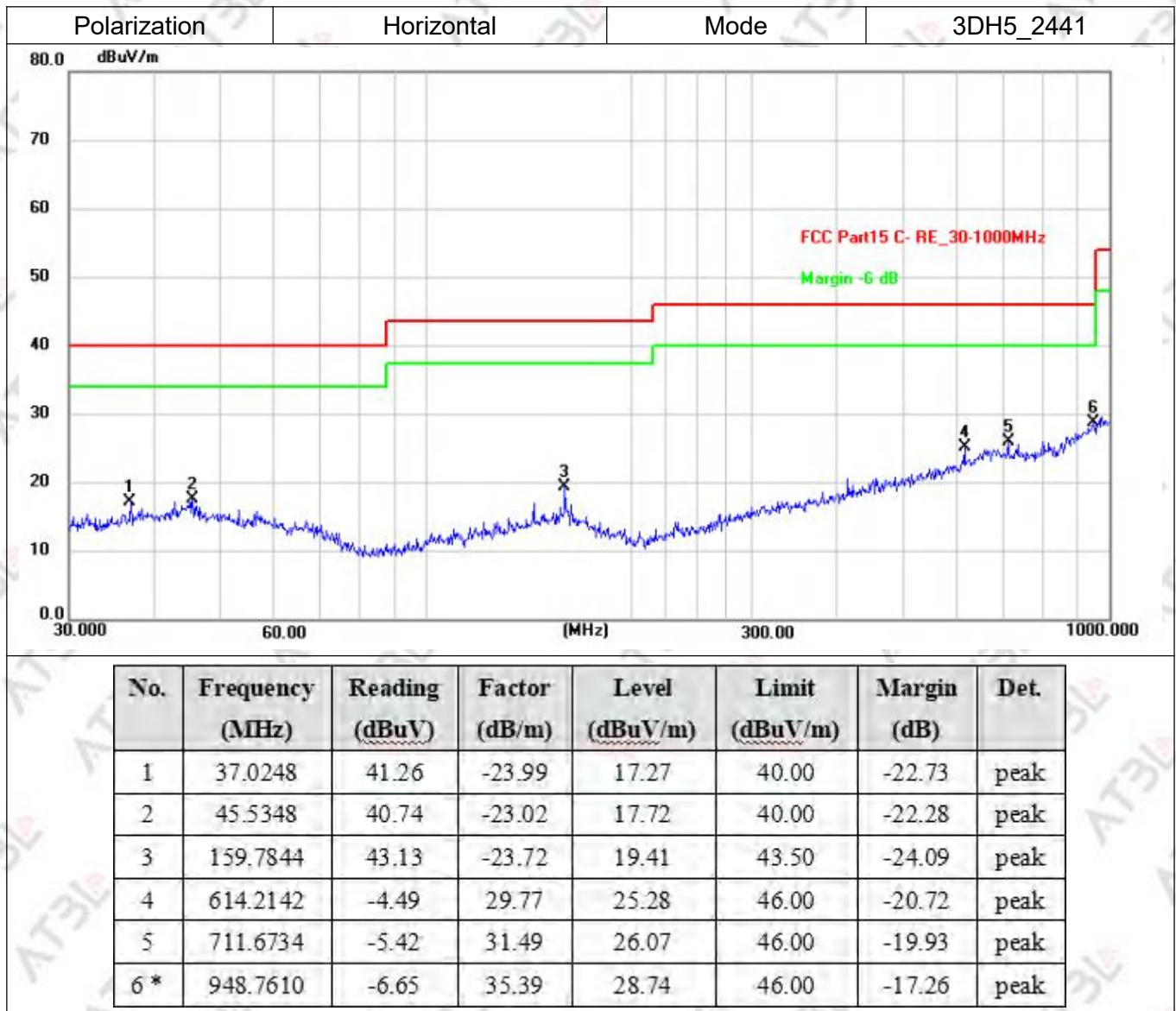
For 9 kHz ~ 30 MHz

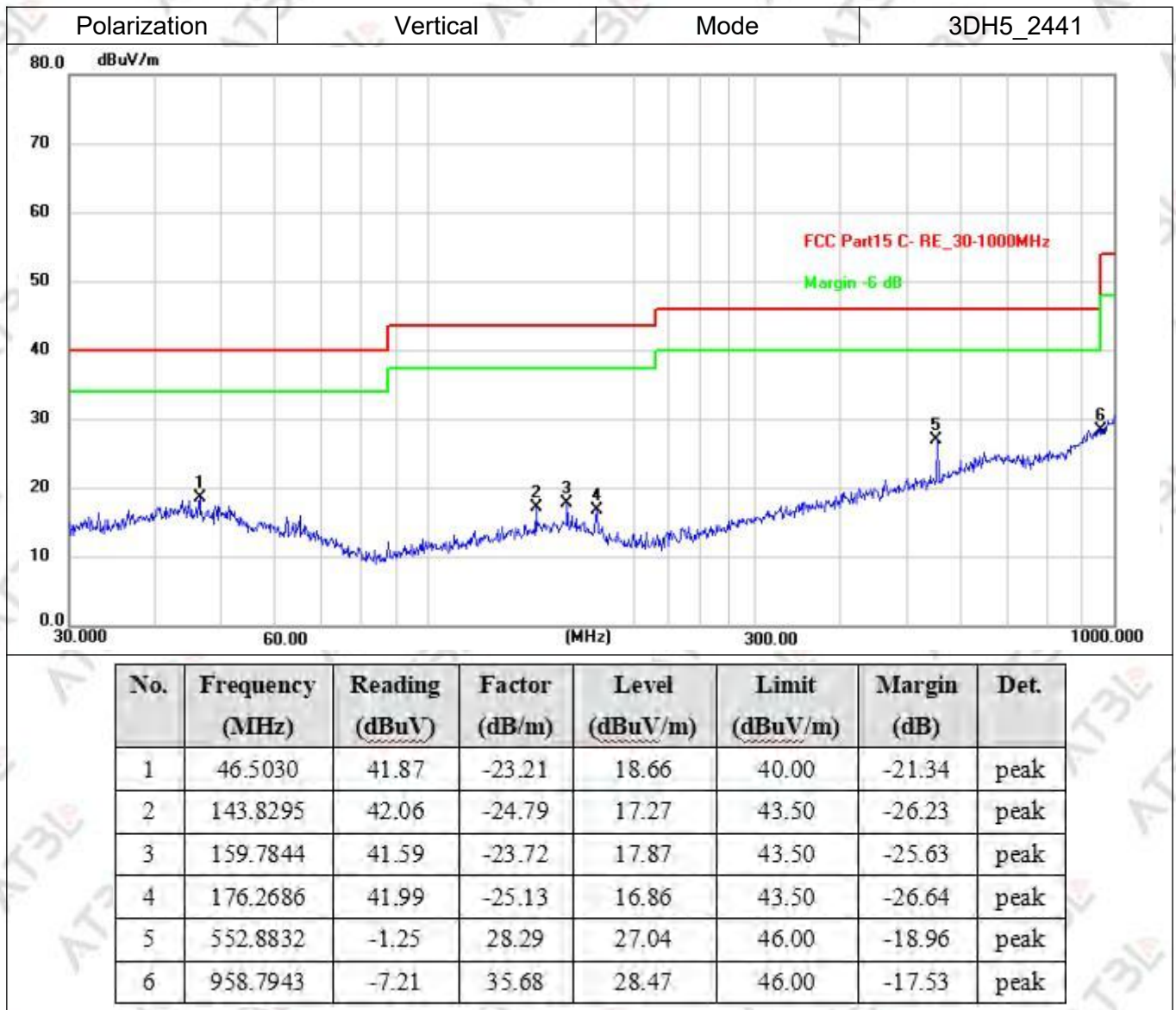
The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

For 30 MHz ~ 1 GHz:

Note:

- 1.All modes have been tested, only worst mode(3DH5_2441MHz) was recorded in the test report.
- 2.Emission Level (dBuV/m) = Reading Value (dBuV) + Correction Factor (dB/m).
3. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)-Amplifier Gain.
4. The emission levels of other frequencies were less than 20dB margin against the limit.
5. Margin value = Emission level-Limit value.

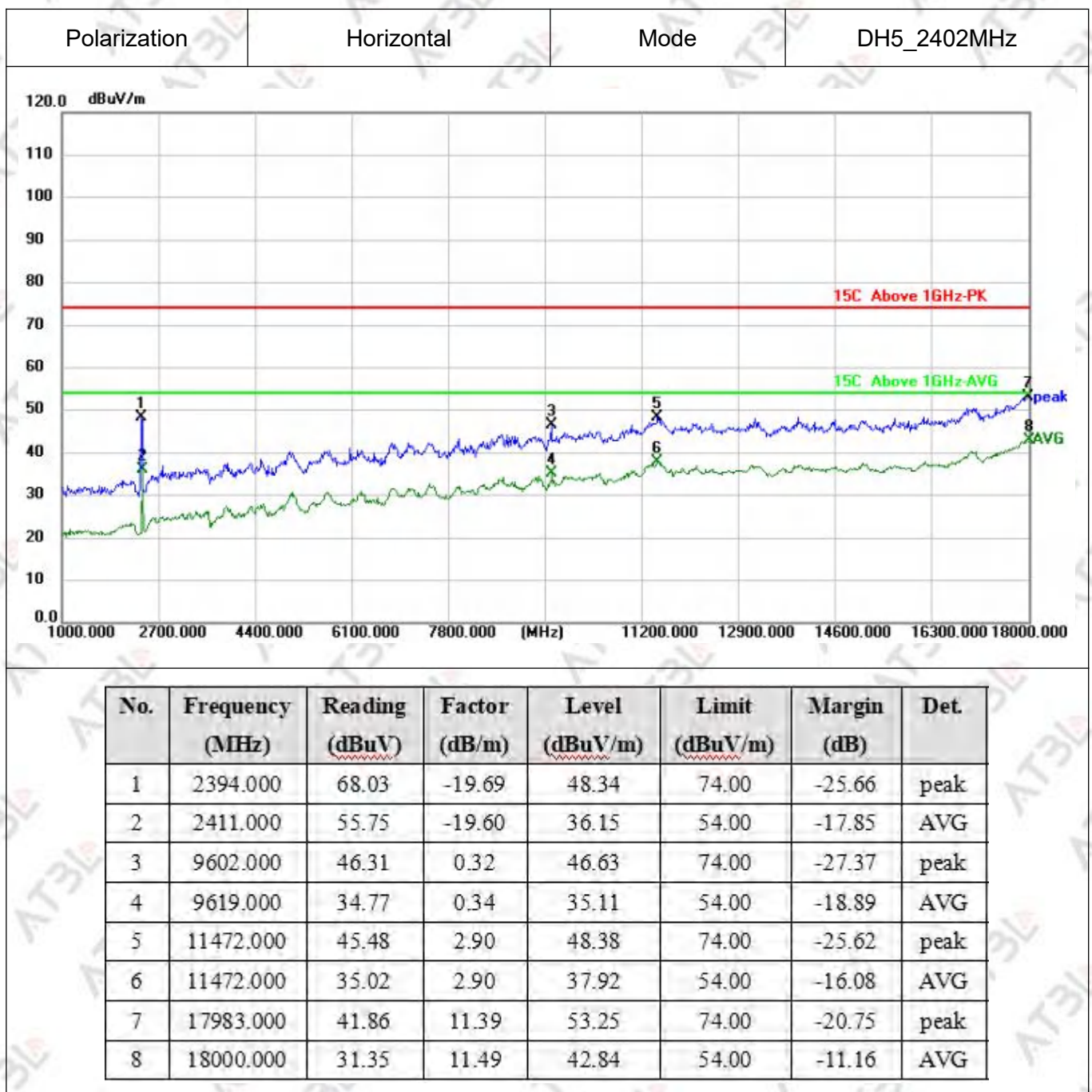


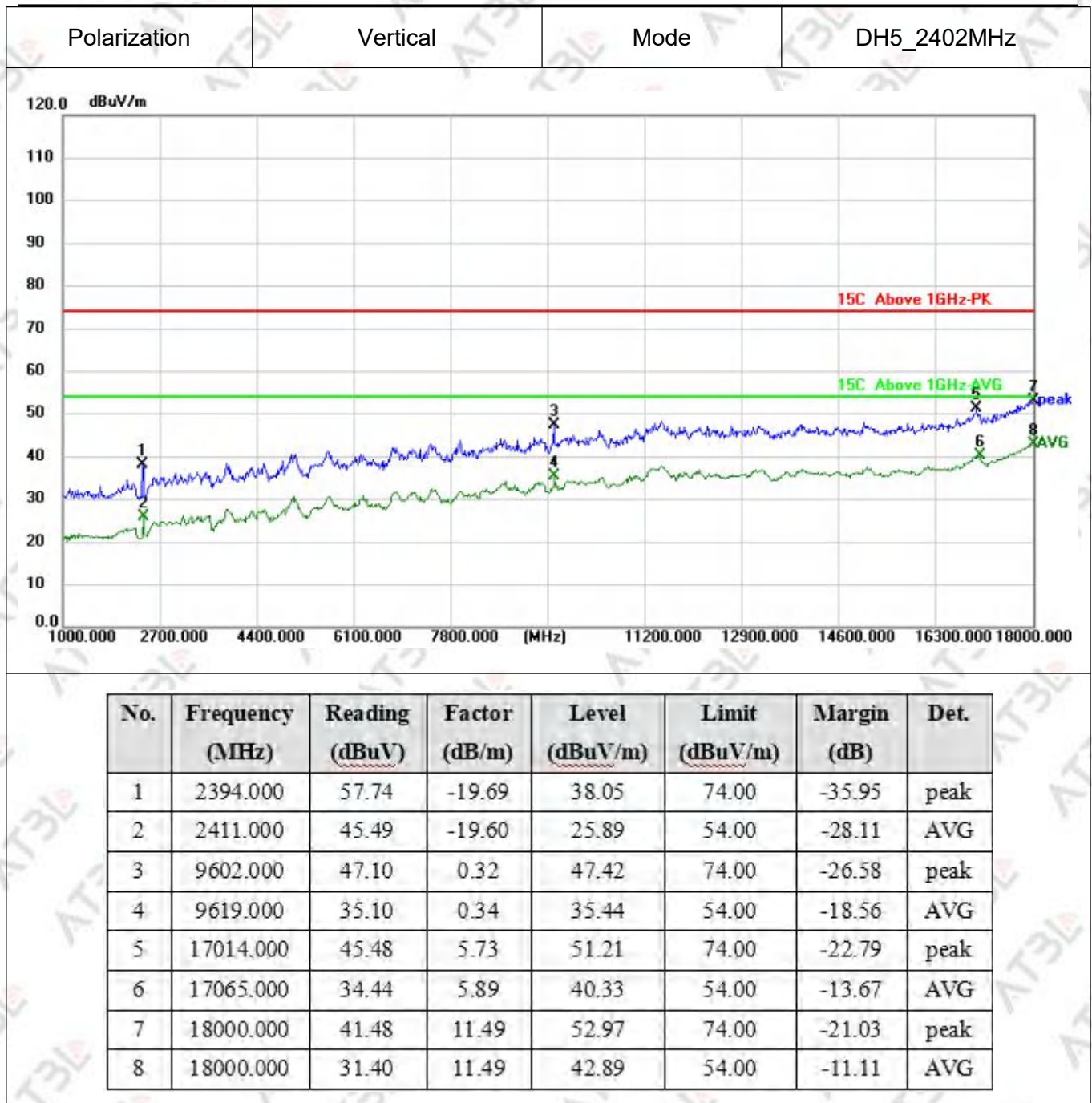


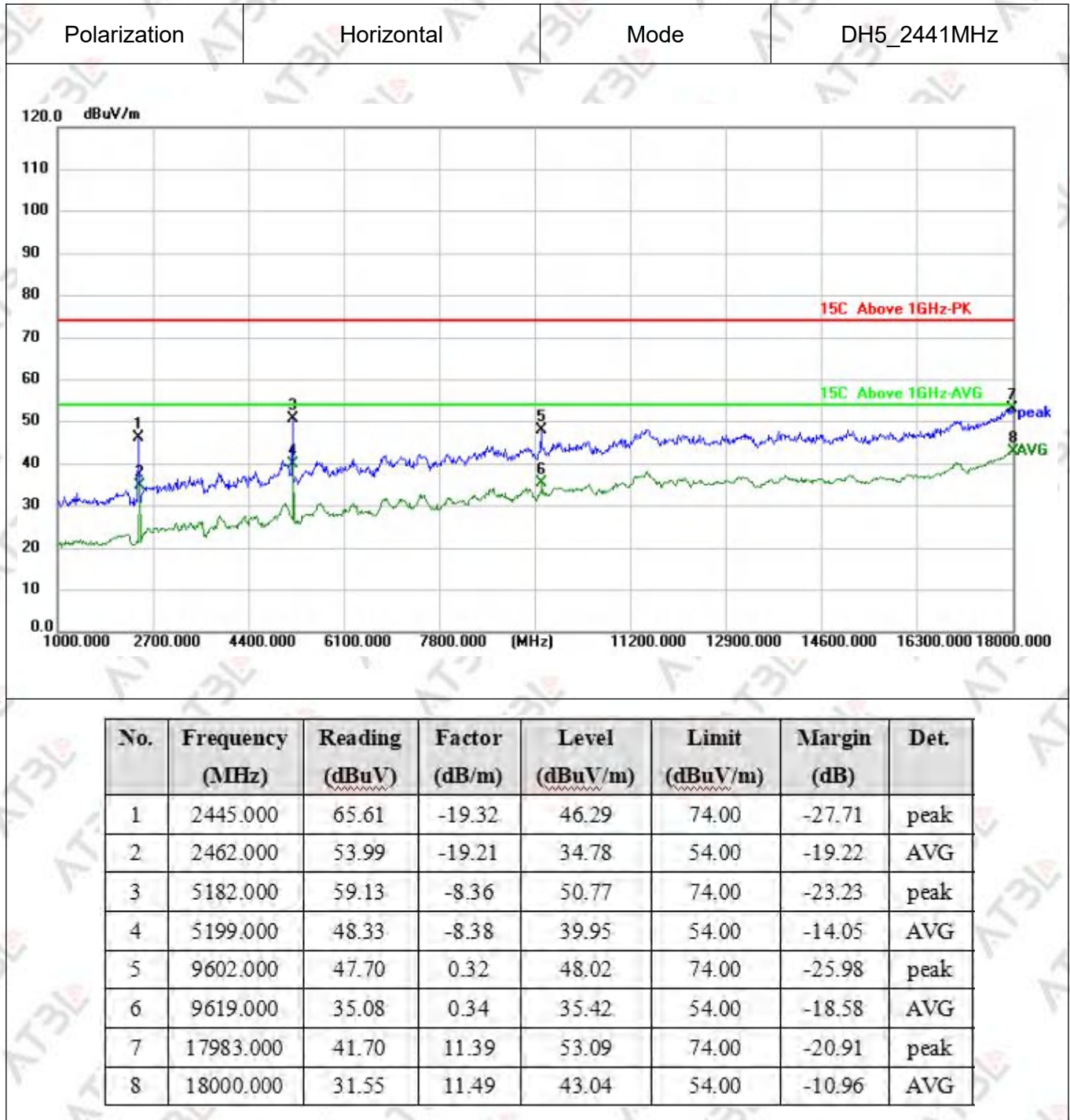
For 1 GHz ~ 18GHz:

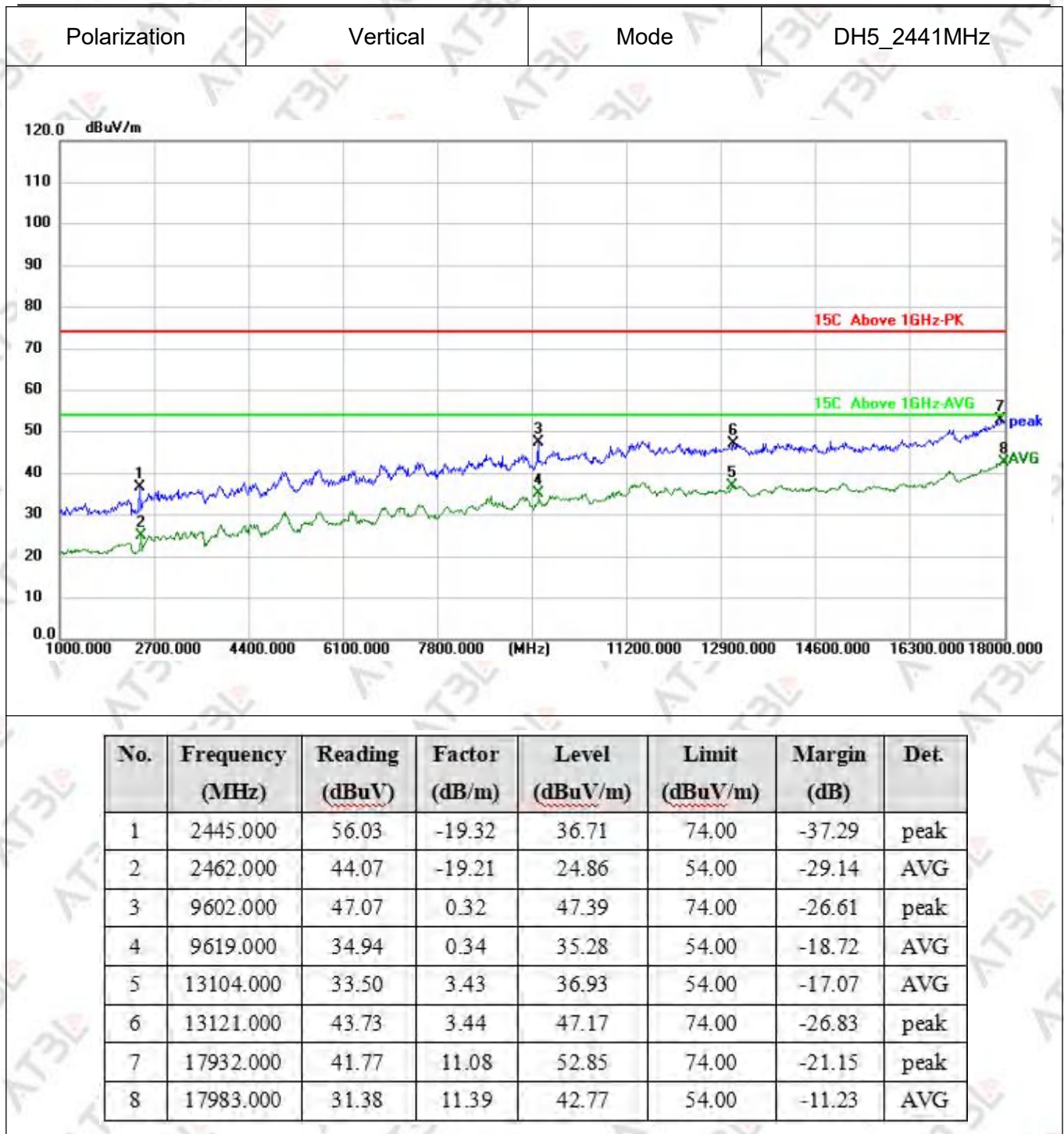
Note:

1. In frequency ranges 18 ~25GHz no any other harmonic emissions detected which are tested to compliance with the limit. No recording in the test report. No any other emissions level which are attenuated less than 20dB below the limit. No recording in the test report.
2. We used the filter to test and the main frequency was filtered out.
3. Emission Level (dBuV/m) = Reading Value (dBuV) + Correction Factor (dB/m).
4. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)-Amplifier Gain.
5. The emission levels of other frequencies were less than 20dB margin against the limit.
6. Margin value = Emission level-Limit value.
7. All modes have been tested, only worst mode (DH5 and 3DH5) was recorded in the test report.





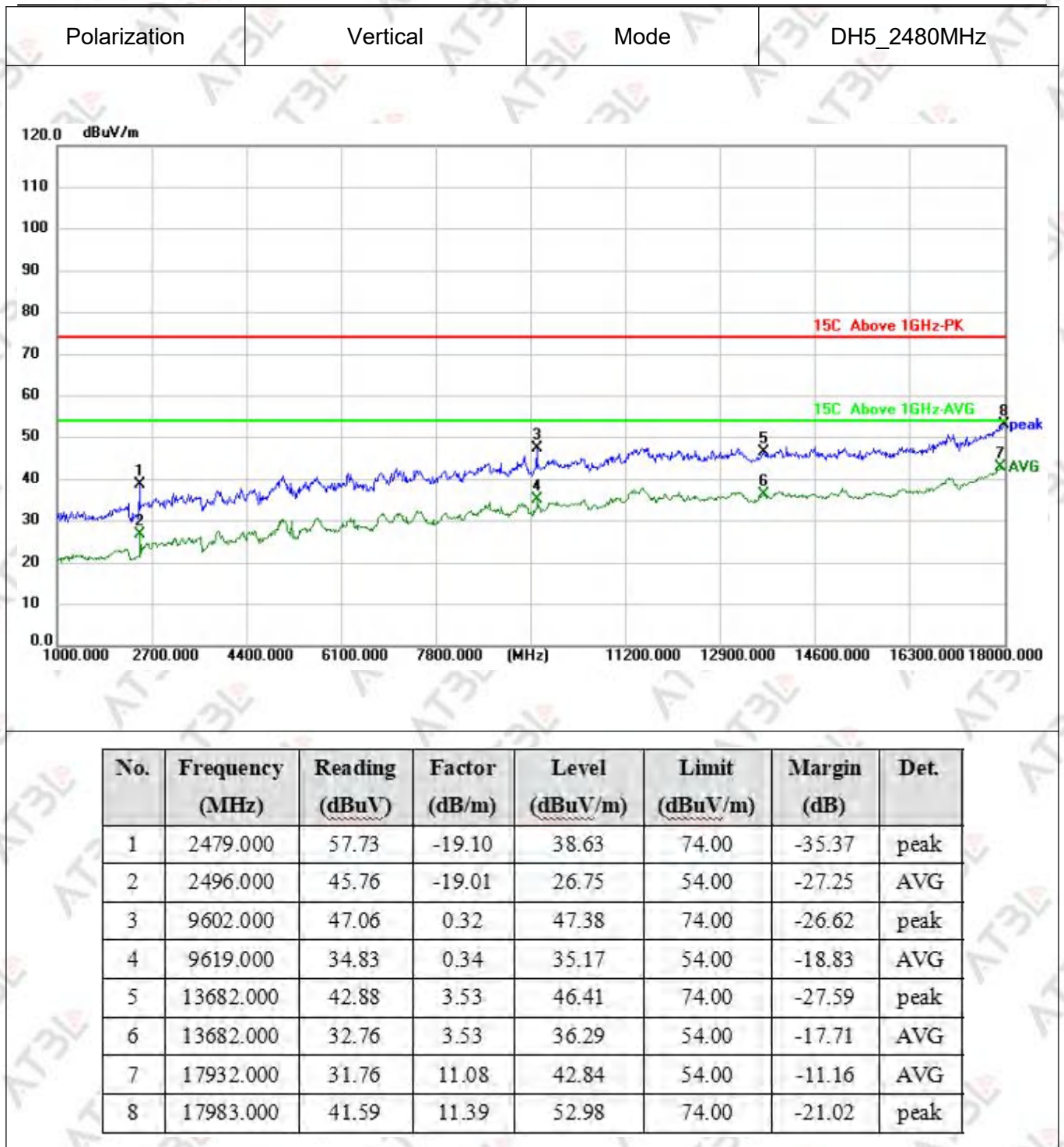




Polarization	Horizontal	Mode	DH5_2480MHz
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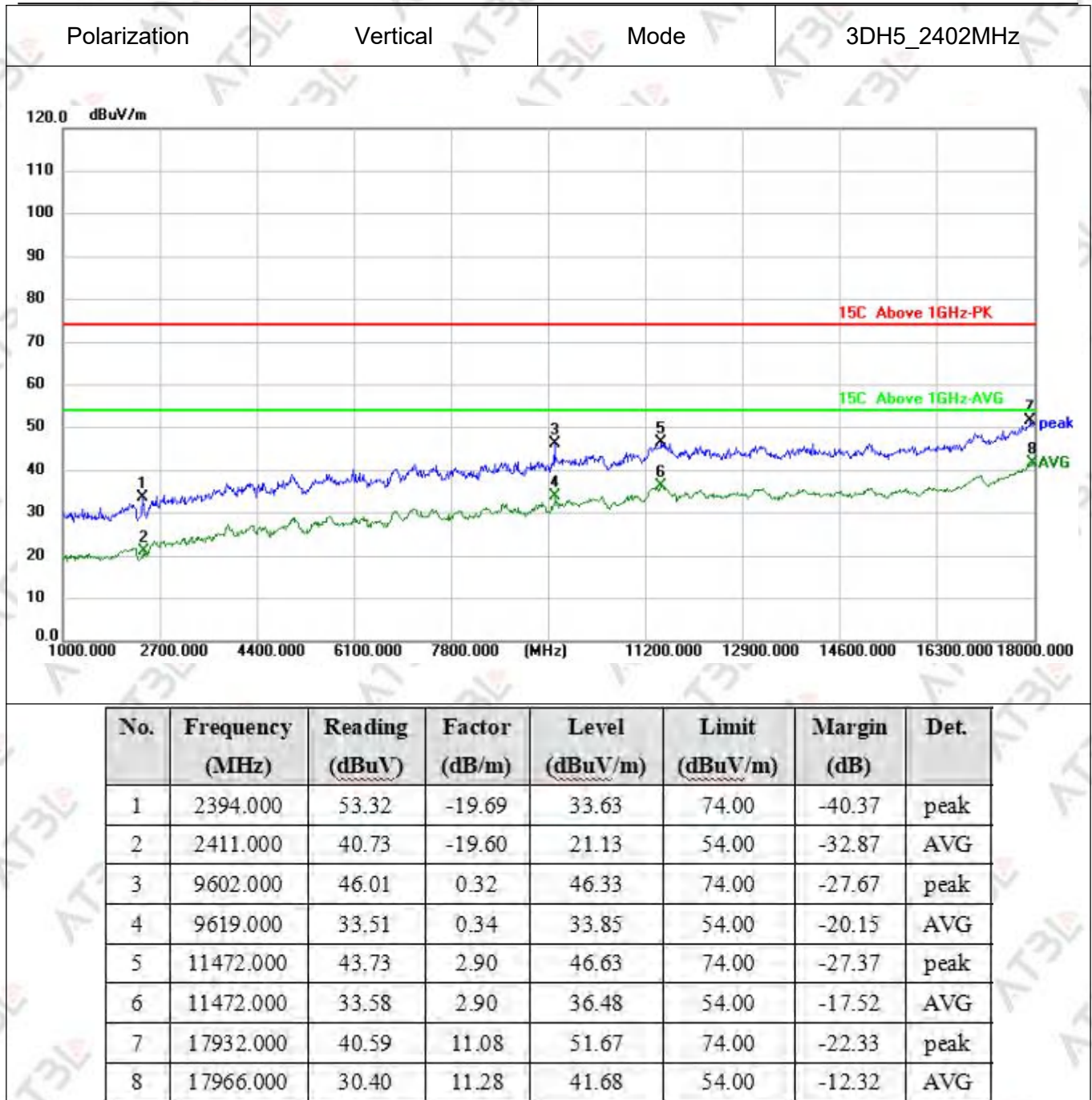
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	2479.000	66.77	-19.10	47.67	74.00	-26.33	peak
2	2496.000	54.55	-19.01	35.54	54.00	-18.46	AVG
3	9602.000	47.18	0.32	47.50	74.00	-26.50	peak
4	9619.000	35.06	0.34	35.40	54.00	-18.60	AVG
5	12152.000	45.31	3.25	48.56	74.00	-25.44	peak
6	12152.000	33.66	3.25	36.91	54.00	-17.09	AVG
7	17949.000	42.02	11.18	53.20	74.00	-20.80	peak
8	18000.000	31.53	11.49	43.02	54.00	-10.98	AVG



Polarization	Horizontal	Mode	3DH5_2402MHz
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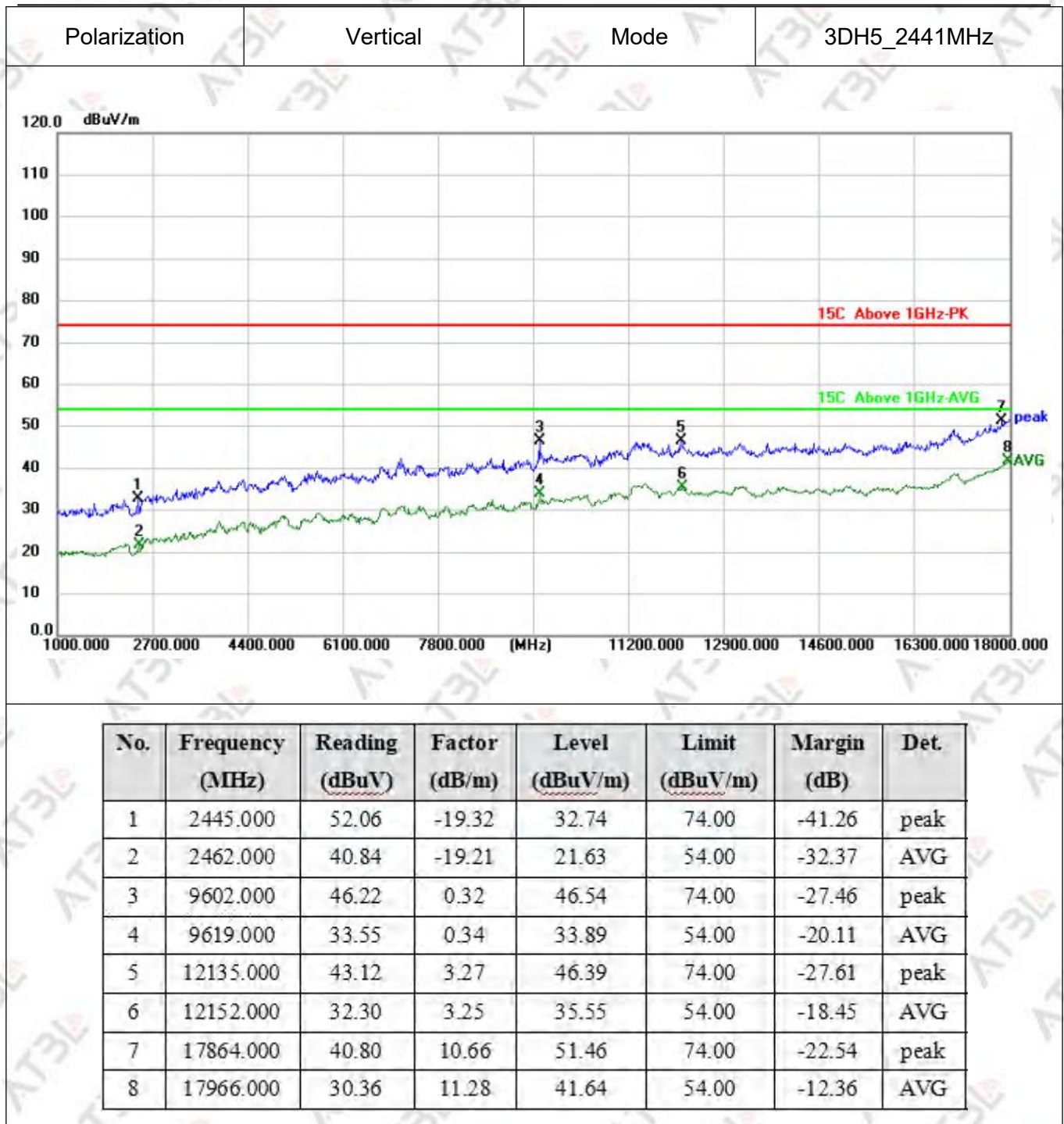
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	2394.000	62.44	-19.69	42.75	74.00	-31.25	peak
2	2411.000	48.92	-19.60	29.32	54.00	-24.68	AVG
3	9602.000	46.23	0.32	46.55	74.00	-27.45	peak
4	9619.000	33.50	0.34	33.84	54.00	-20.16	AVG
5	11387.000	43.31	2.87	46.18	74.00	-27.82	peak
6	11472.000	33.40	2.90	36.30	54.00	-17.70	AVG
7	17966.000	30.27	11.28	41.55	54.00	-12.45	AVG
8	17983.000	39.86	11.39	51.25	74.00	-22.75	peak

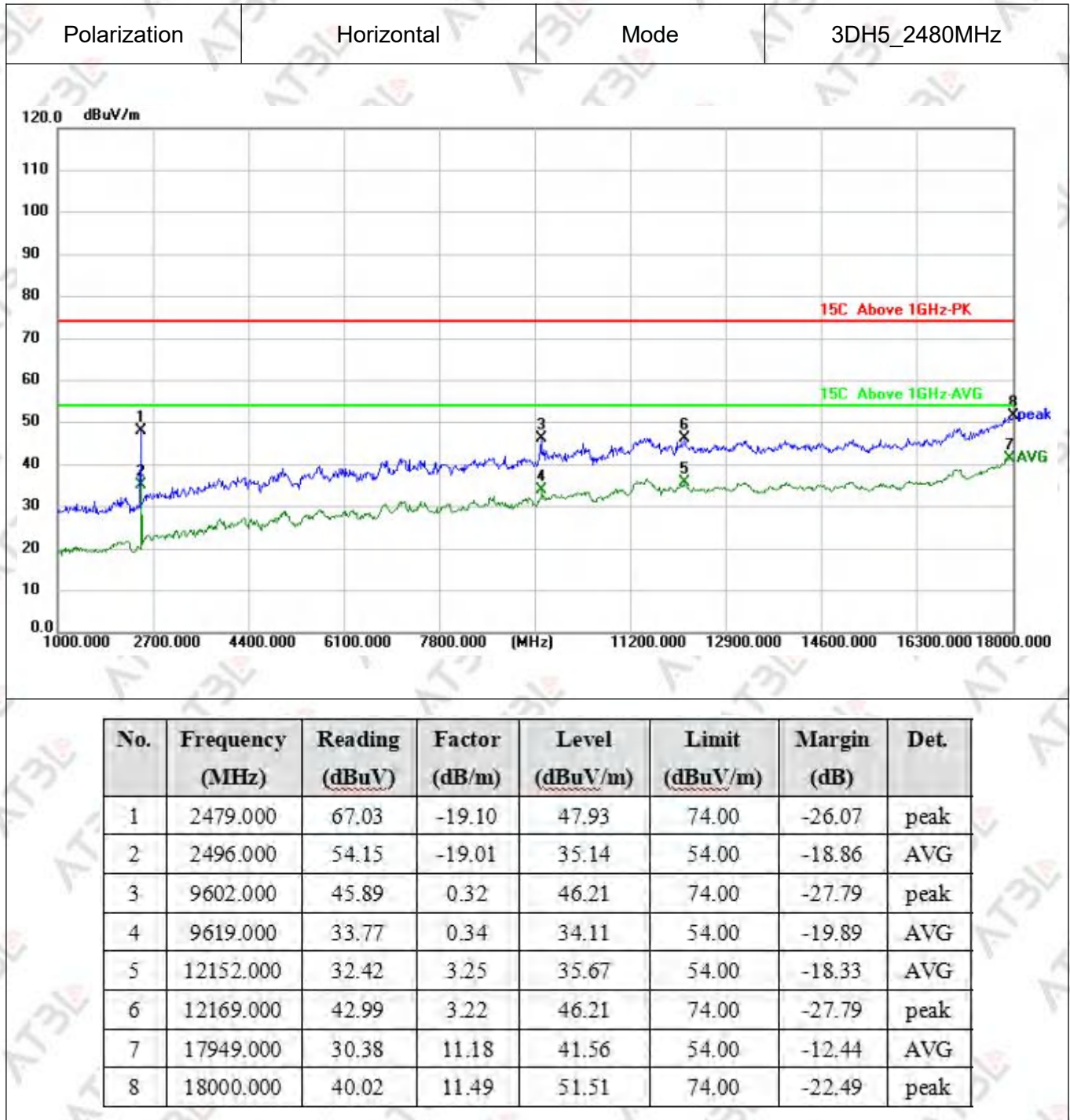


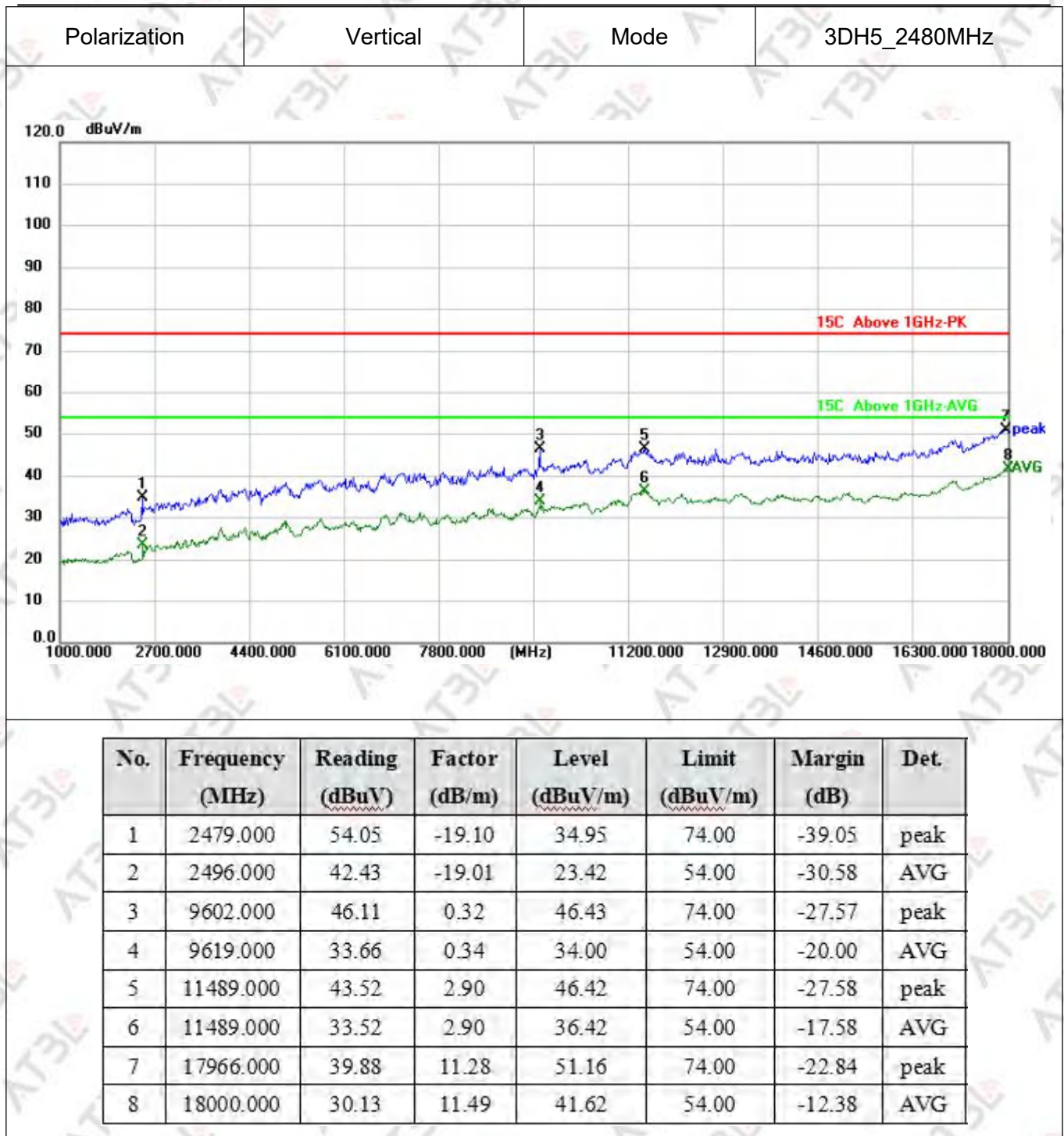
Polarization	Horizontal	Mode	3DH5_2441MHz
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No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	2445.000	63.62	-19.32	44.30	74.00	-29.70	peak
2	2462.000	50.43	-19.21	31.22	54.00	-22.78	AVG
3	9602.000	46.08	0.32	46.40	74.00	-27.60	peak
4	9619.000	33.60	0.34	33.94	54.00	-20.06	AVG
5	16997.000	33.30	5.68	38.98	54.00	-15.02	AVG
6	17082.000	43.15	5.94	49.09	74.00	-24.91	peak
7	17898.000	40.52	10.86	51.38	74.00	-22.62	peak
8	17983.000	30.30	11.39	41.69	54.00	-12.31	AVG





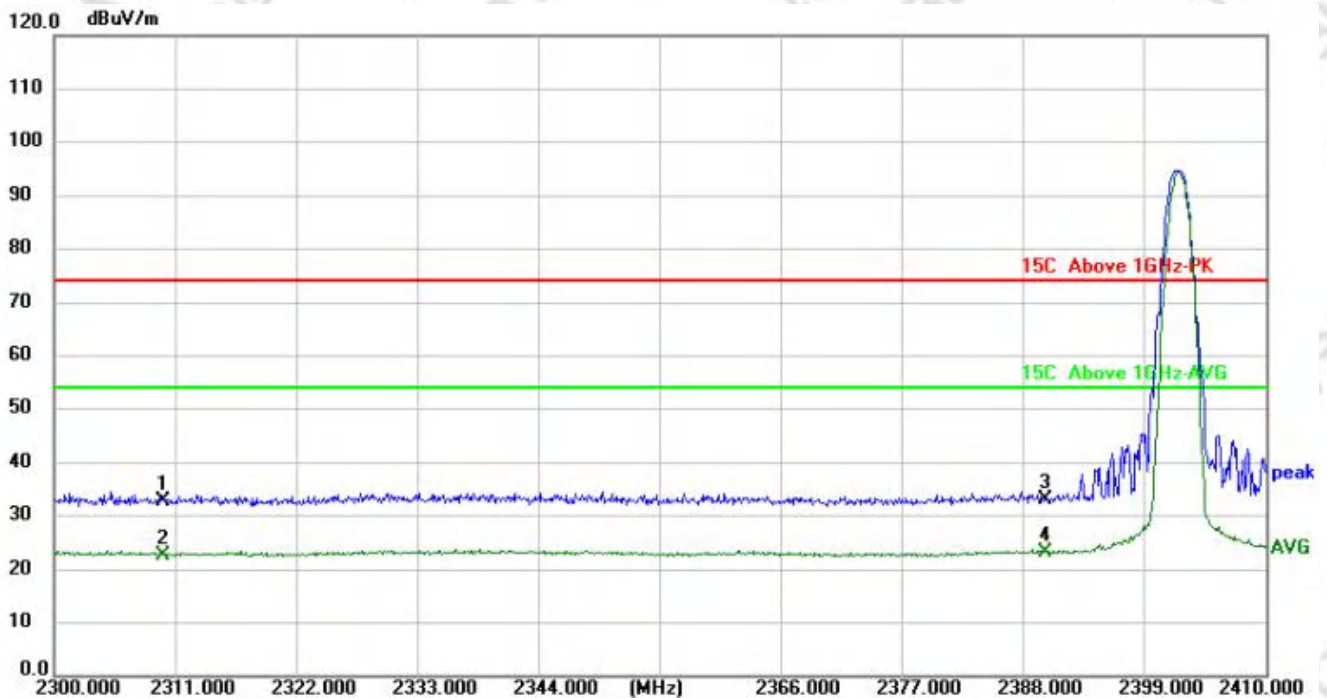


Test Result of Restricted Band

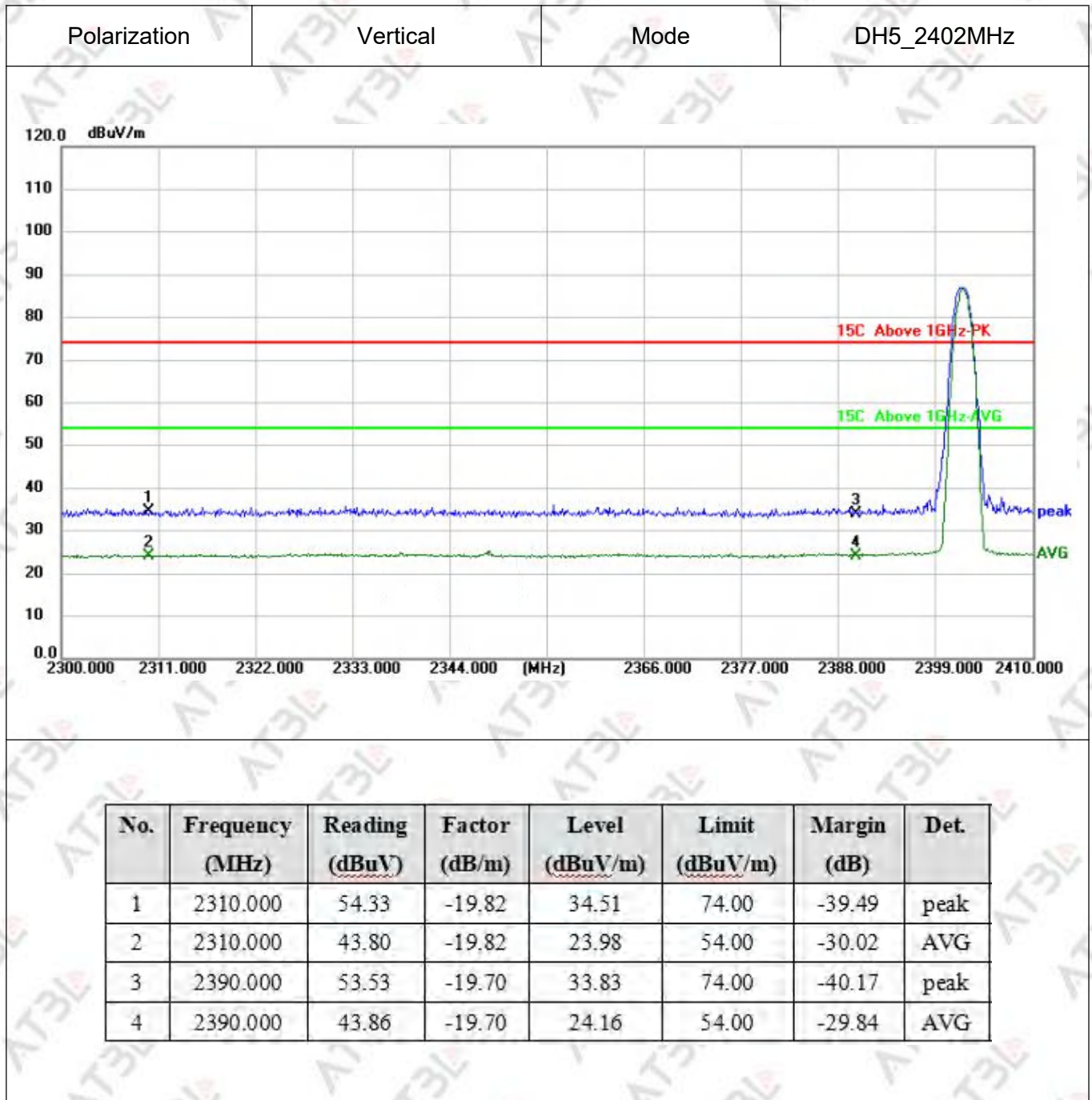
Note:

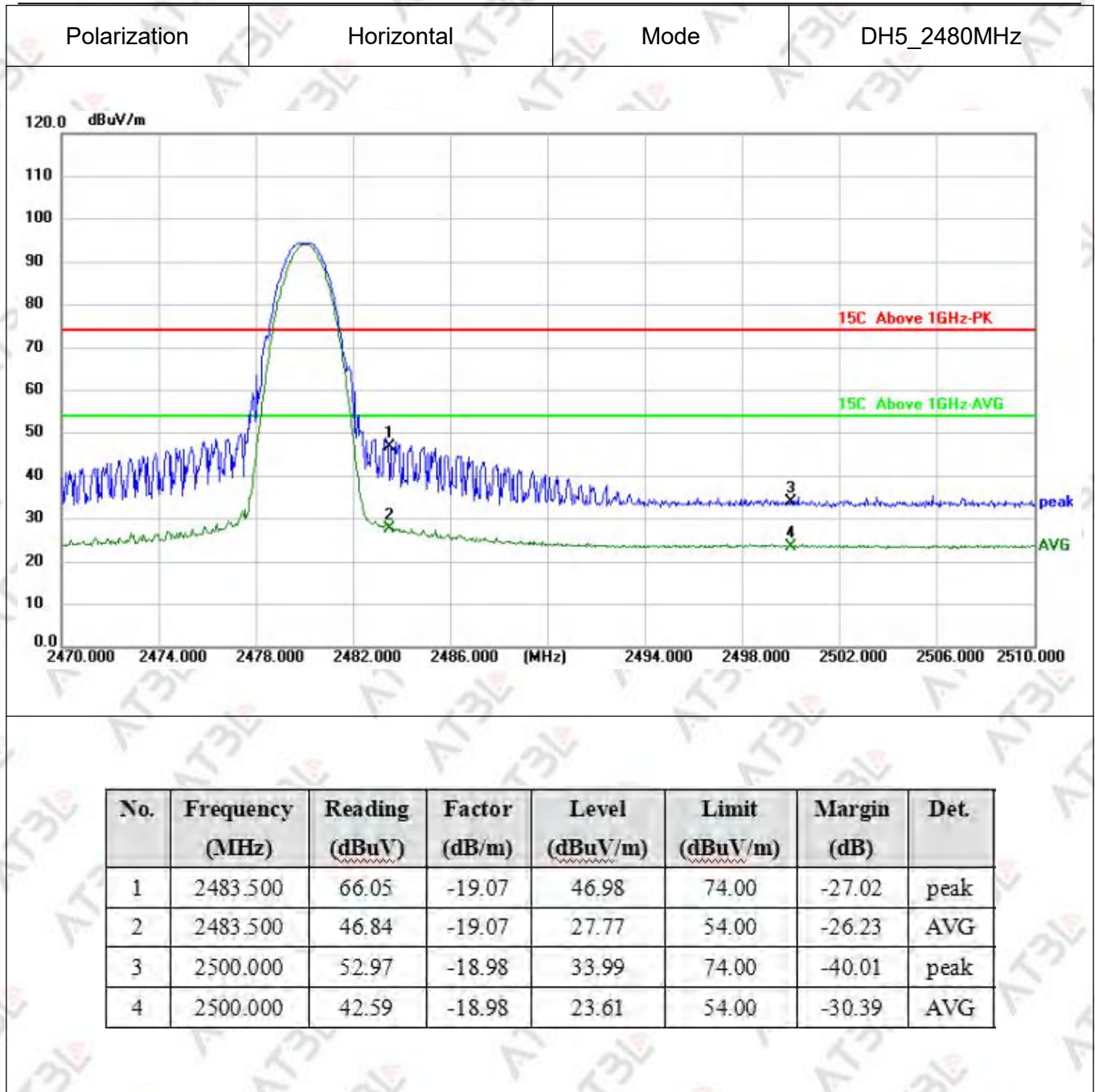
All modes have been tested, only worst case(DH5 and 3DH5)mode was recorded in the test report.

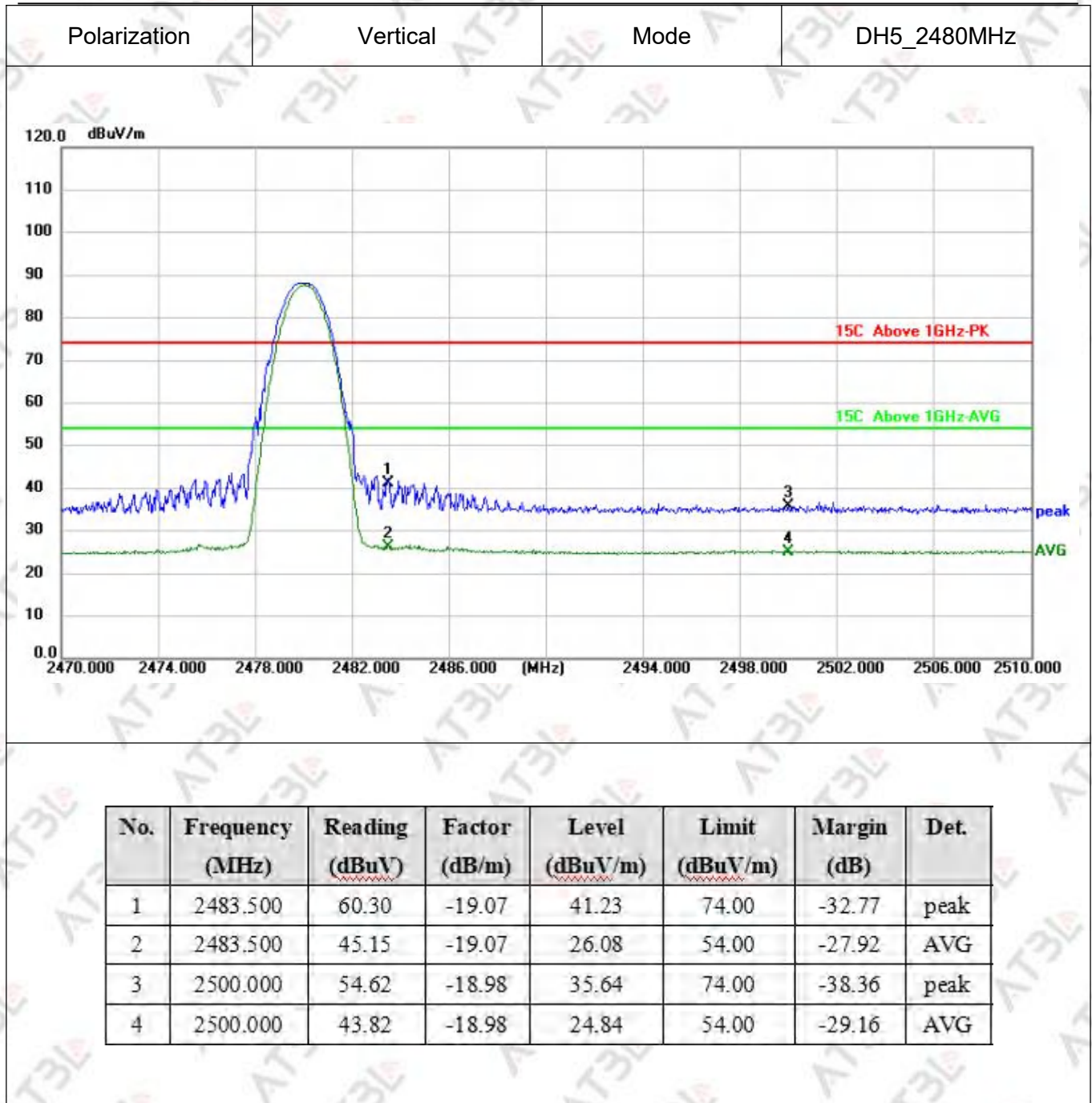
Polarization	Horizontal	Mode	DH5_2402MHz
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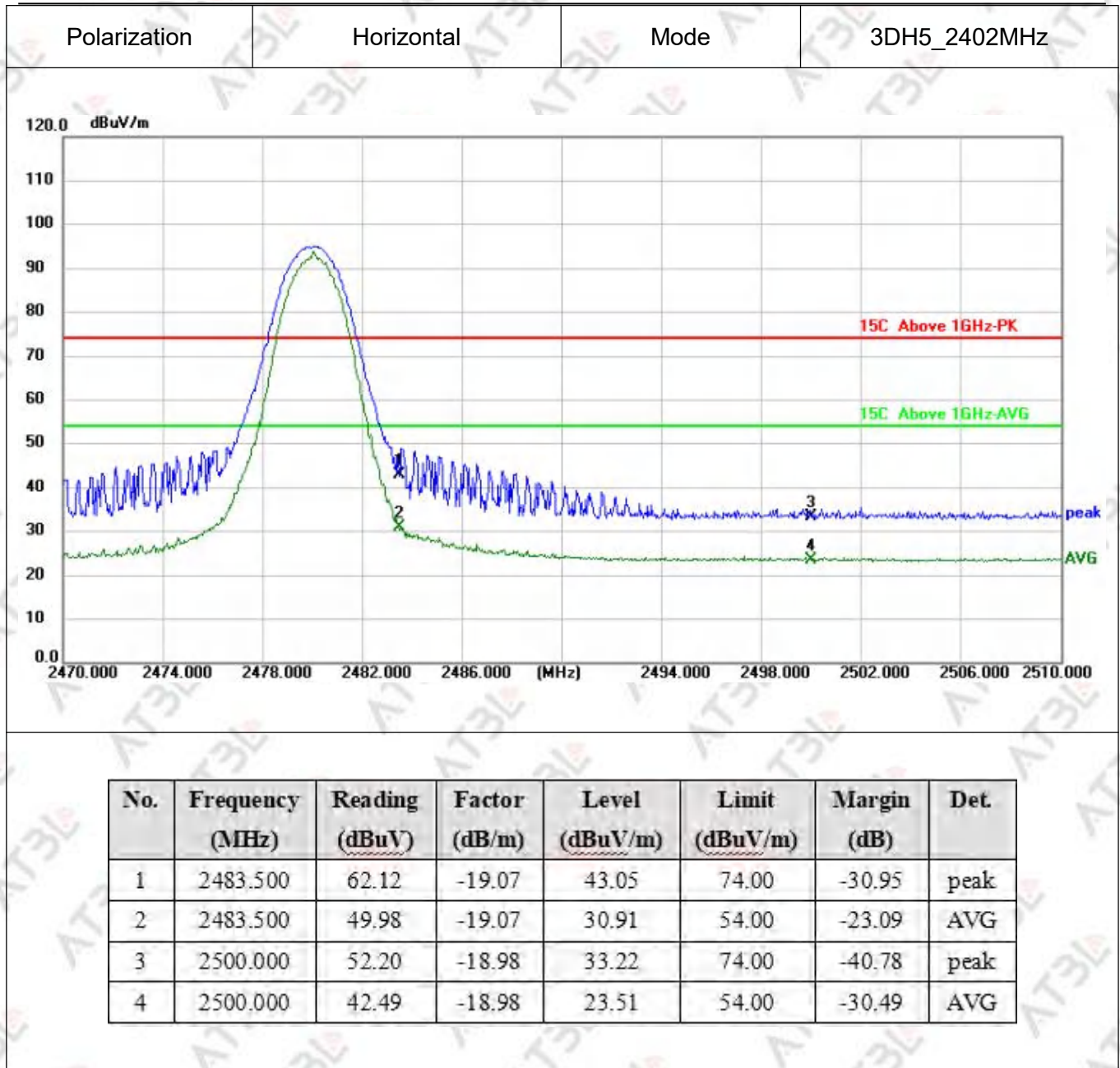


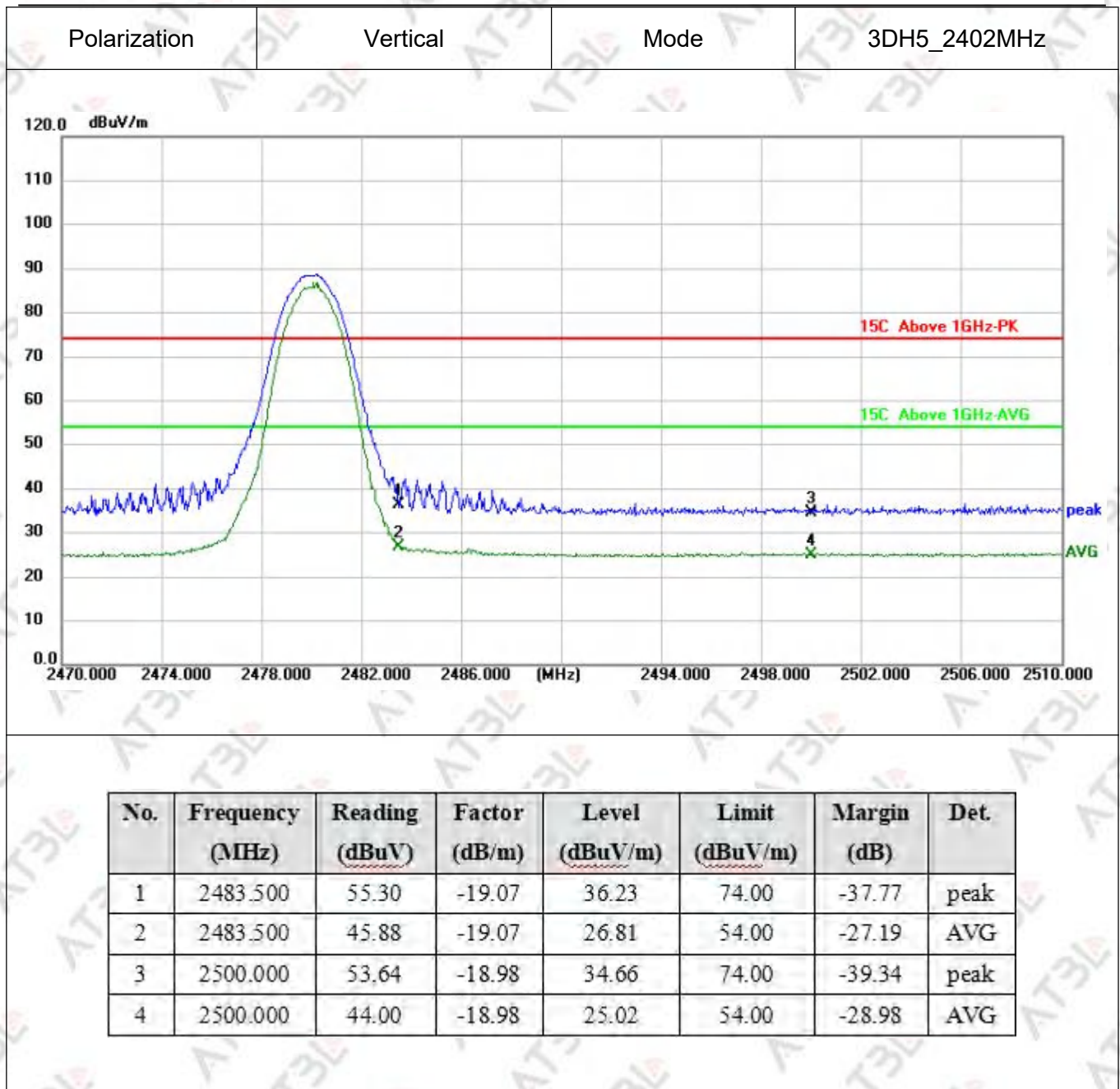
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	2310.000	52.55	-19.82	32.73	74.00	-41.27	peak
2	2310.000	42.55	-19.82	22.73	54.00	-31.27	AVG
3	2390.000	52.91	-19.70	33.21	74.00	-40.79	peak
4	2390.000	42.99	-19.70	23.29	54.00	-30.71	AVG

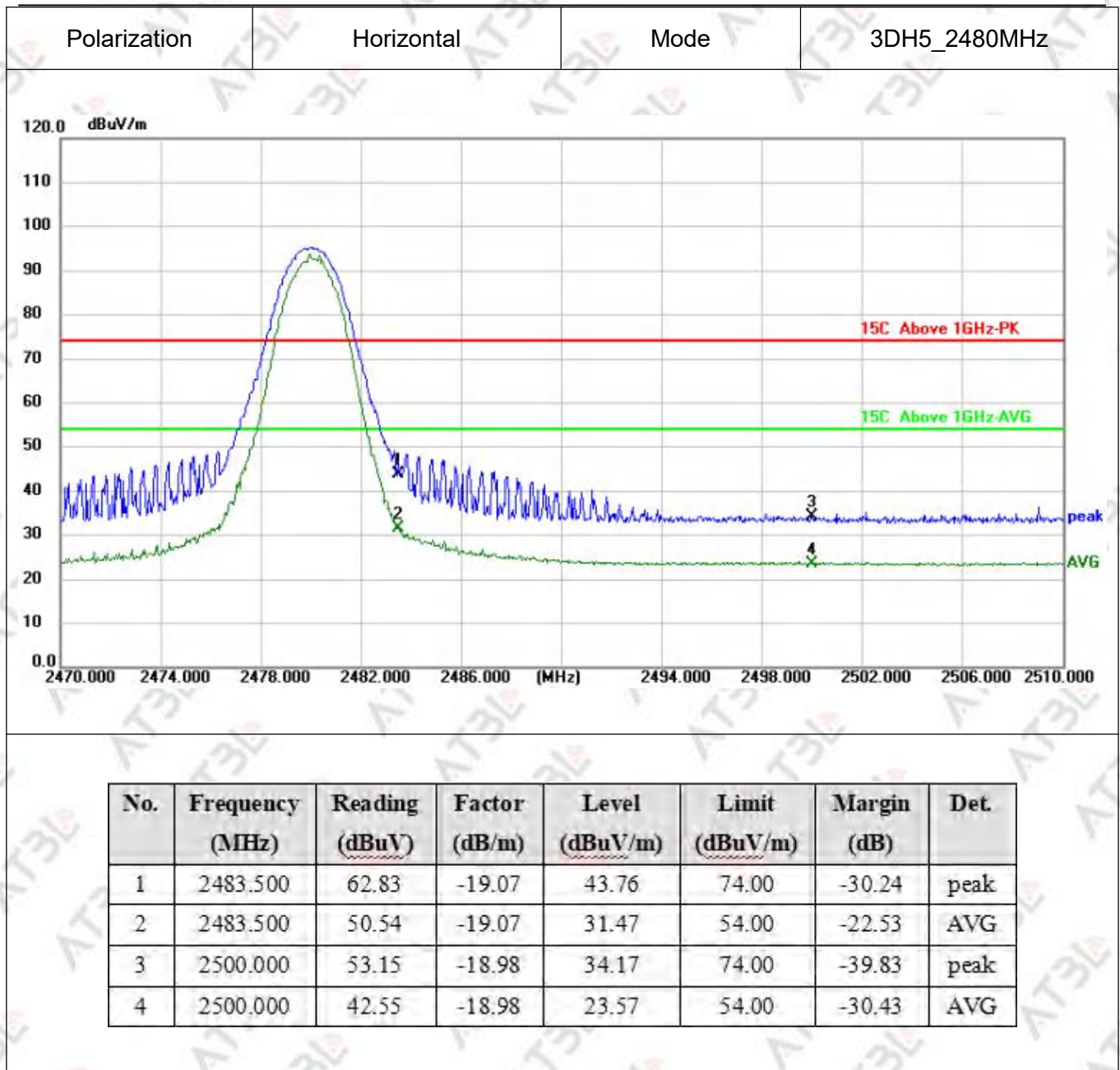


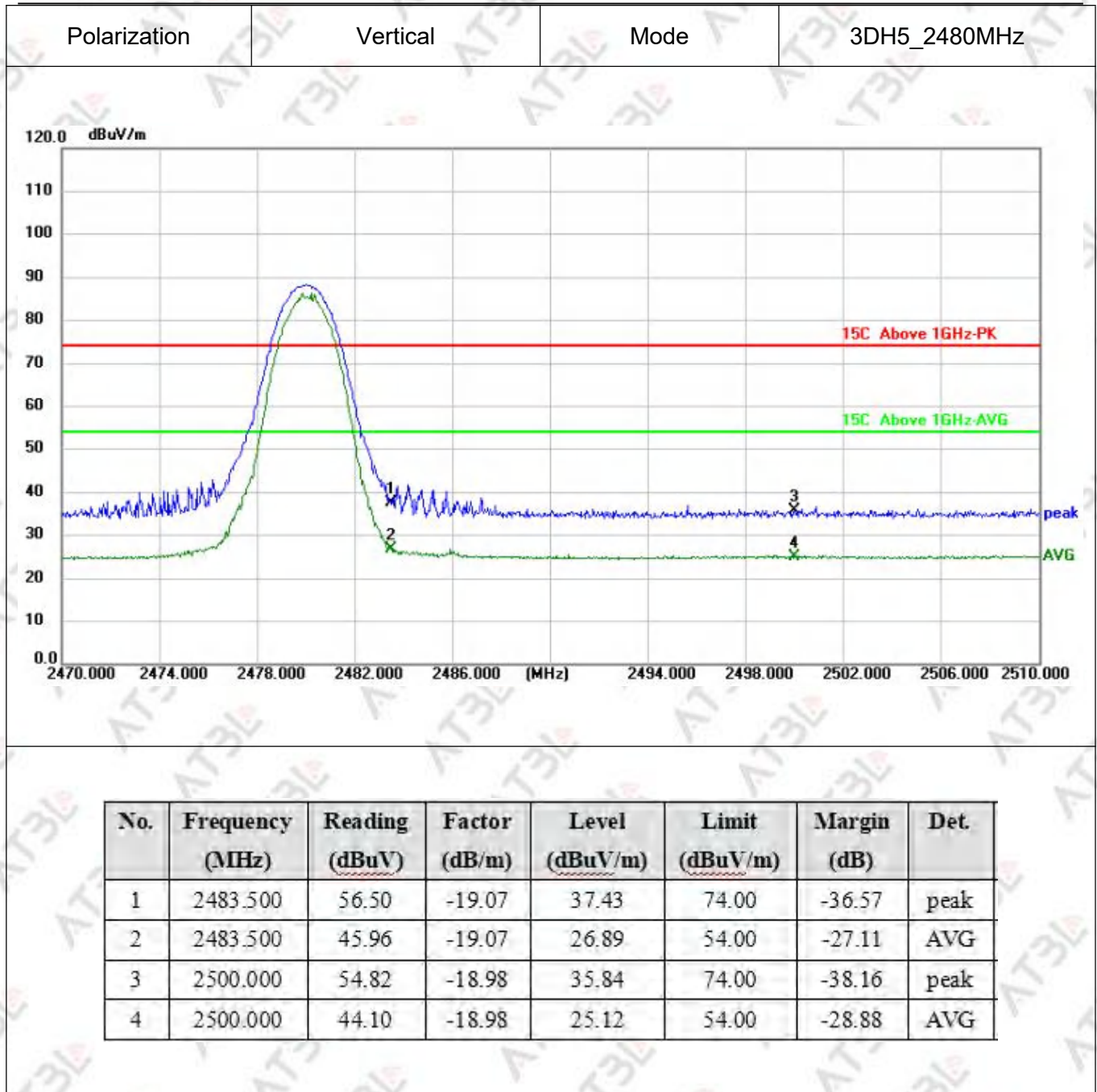








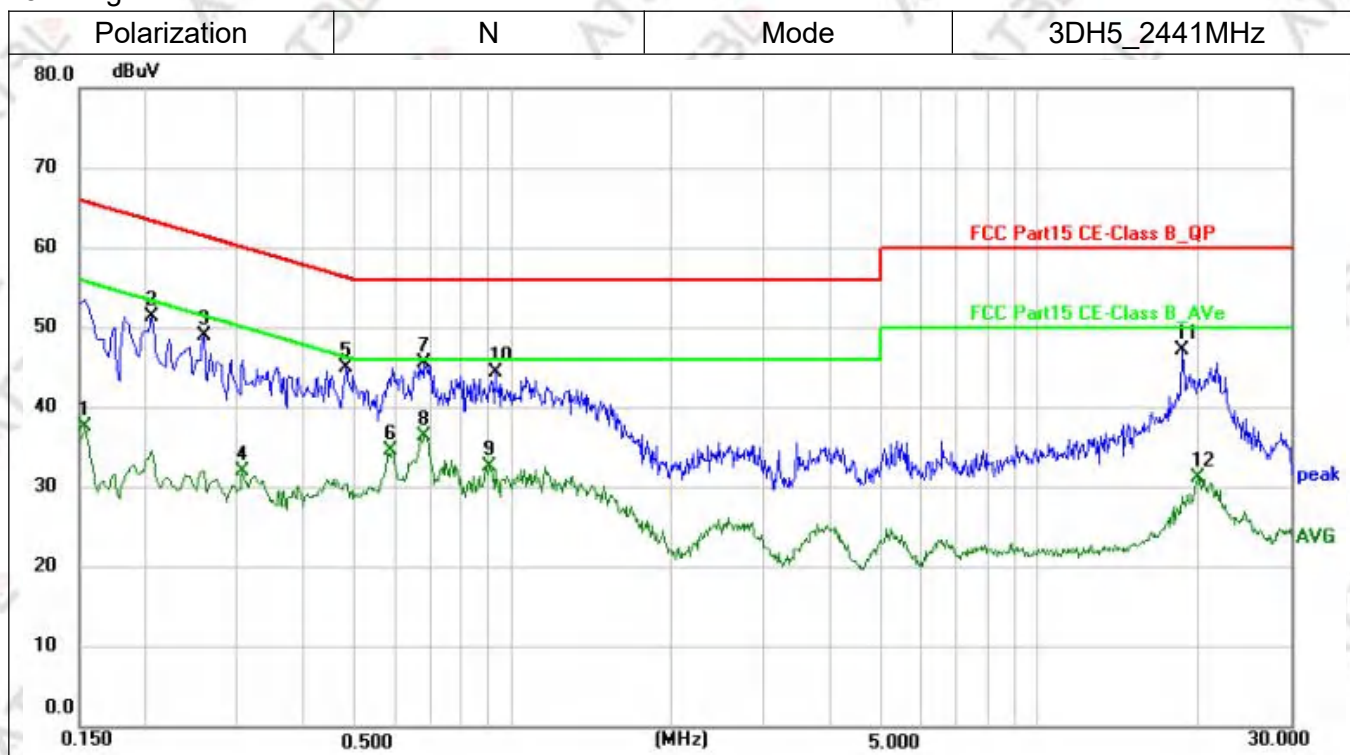




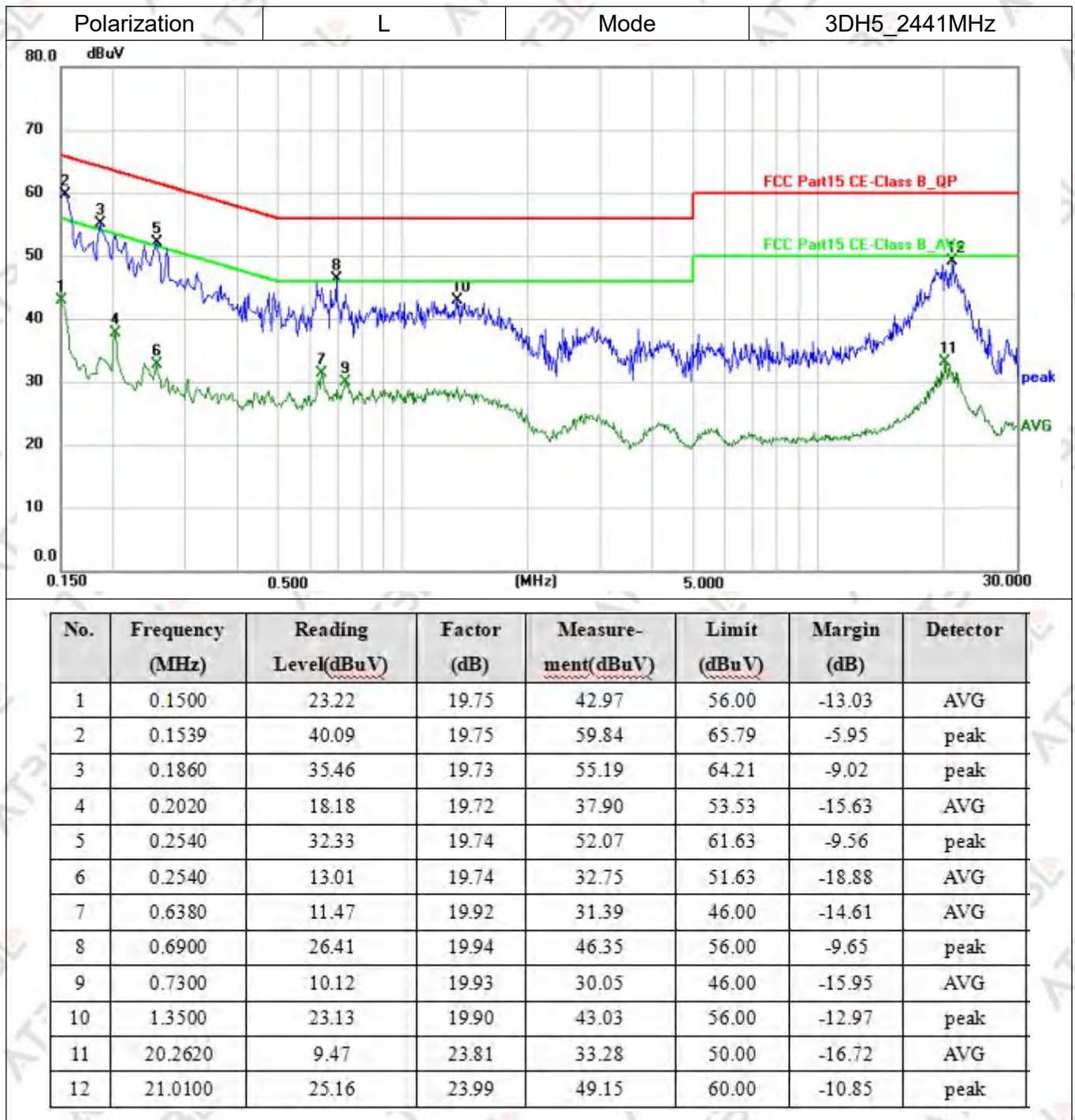
A8.AC Power-Line Conducted Emission

Note:

- 1.All modes have been tested, only worst case(3DH5_2441MHz)mode was recorded in the test report.
- 2.Emission Level (dBuV/m) = Reading Value (dBuV) + Correction Factor (dB/m).
3. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
4. The emission levels of other frequencies were less than 20dB margin against the limit.
5. Margin value = Emission level-Limit value.



No.	Frequency (MHz)	Reading Level(dBuV)	Factor (dB)	Measure-ment(dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1539	17.77	19.77	37.54	55.79	-18.25	AVG
2	0.2060	31.44	20.01	51.45	63.37	-11.92	peak
3	0.2580	28.98	19.93	48.91	61.50	-12.59	peak
4	0.3060	12.12	19.88	32.00	50.08	-18.08	AVG
5	0.4820	25.40	19.58	44.98	56.30	-11.32	peak
6	0.5899	15.05	19.64	34.69	46.00	-11.31	AVG
7	0.6820	25.90	19.73	45.63	56.00	-10.37	peak
8	0.6820	16.75	19.73	36.48	46.00	-9.52	AVG
9	0.9020	12.93	19.75	32.68	46.00	-13.32	AVG
10	0.9260	24.72	19.76	44.48	56.00	-11.52	peak
11	18.6660	24.31	22.80	47.11	60.00	-12.89	peak
12	19.9860	8.00	23.25	31.25	50.00	-18.75	AVG



*****END*****