

FCC Test Report

Report No.: 2405U23287EA

Applicant: Astera LED Technology GmbH

Address: Schatzbogen 60 Munich Germany 81829

Product Name: LunaBulb Preplnlay

Product Model: FP7-PRPINL-E26/E27

Multiple Models: N/A

Trade Mark: ASTERA

FCC ID: X55FP7-PRPINL

Standards: FCC CFR Title 47 Part 15C (§15.247)

Test Date: 2024-07-23 to 2024-08-02

Test Result: Complied

Report Date: 2024-08-05

Reviewed by:

Abel chen

Abel Chen
Project Engineer

Approved by:

Jacob Kong

Jacob Kong
Manager

Prepared by:

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Revision History

Version No.	Issued Date	Description
00	2024-08-05	Original

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1 General Information

1.1 Client Information

Applicant:	Astera LED Technology GmbH
Address:	Schatzbogen 60 Munich Germany 81829
Manufacturer:	Astera Manufacturing Limited
Address:	101, 201, 301, 401, 501, Bldg. 3, CLT Science & Technology Park, No. 7, GanLiliu Road, Jihua subdistrict, Longgang District, Shenzhen, P.C.518112.

1.2 Product Description of EUT

The EUT is LunaBulb Preplnlay that contains a UHF radio and a certified BT/Wi-Fi module (FCC ID: 2AC7Z-ESP32WROVERE), this report covers the full testing of the UHF radio.

Sample Serial Number	2N95-1 for CE&RE test, 2N95-2 for RF conducted test (assigned by WATC)
Sample Received Date	2024-06-20
Sample Status	Good Condition
Frequency Range	917MHz – 922.2MHz
Maximum Conducted Peak Output Power	9.65dBm
Modulation Technology	GFSK
Spatial Streams	SISO (1TX, 1RX)
Antenna Gain [#]	-3.94dBi
Power Supply	DC 24V from adapter or DC 18V from battery
Adapter Information	Model: PA1050-240IB200 Input: AC100-240V, 50-60Hz, 1.8A Output: DC 24.0V/2.0A, 48.0W Max
Modification	Sample No Modification by the test lab

1.3 Antenna information

15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.	
Device Antenna information:	
The Lora antenna is an internal antenna which cannot replace by end-user, please see product internal photos for details.	

1.4 Related Submittal(s)/Grant(s)

No related submittal(s)/Grant(s)

1.5 Measurement Uncertainty

Parameter		Expanded Uncertainty (Confidence of 95%(U = 2Uc(y)))
AC Power Lines Conducted Emissions		±3.14dB
Emissions, Radiated	Below 30MHz	±2.78dB
	Below 1GHz	±4.84dB
	Above 1GHz	±5.44dB
Emissions, Conducted		1.75dB
Conducted Power		0.74dB
Frequency Error		150Hz
Bandwidth		0.34%
Power Spectral Density		0.74dB
Note: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.		

1.6 Laboratory Location

World Alliance Testing & Certification (Shenzhen) Co., Ltd

No. 1002, East Block, Laobing Building, Xingye Road 3012, Xixiang street, Bao'an District, Shenzhen, Guangdong, People's Republic of China

Tel: +86-755-29691511, Email: qa@watc.com.cn

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 463912, the FCC Designation No. : CN5040.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0160.

1.7 Test Methodology

FCC CFR 47 Part 2

FCC CFR 47 Part 15

KDB 558074 D01 DTS Meas Guidance v05r02

ANSI C63.10-2020

2 Description of Measurement

2.1 Test Configuration

Operating channels: (917.0MHz-922.2MHz)							
Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
0	917.0	14	918.4	28	919.8	42	921.2
1	917.1	15	918.5	29	919.9	43	921.3
...	...	...	...	...	...	...	...
...	...	...	...	...	...	51	922.1
...	...	...	...	...	...	52	922.2
...	...	...	...	...	...	/	/
12	918.2	26	919.6	40	921.0	/	/
13	918.3	27	919.7	41	921.1	/	/
According to ANSI C63.10-2020 chapter 5.6.1 Table 11 requirement, select lowest channel, middle channel, and highest channel in the frequency range in which device operates for testing. The detailed frequency points are as follows:							
Lowest channel		Middle channel		Highest channel			
Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)		
0	917.0	26	919.6	52	922.2		

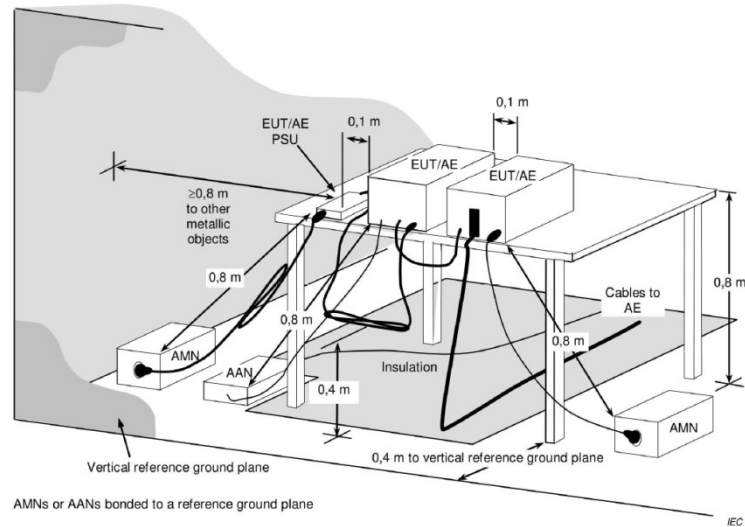
Test Mode:				
Transmitting mode:		The system was configured for testing in Engineering Mode, which was provided by the manufacturer.		
Exercise software [#] :		AsteriaSerialLog		
Mode	Data rate	Power Level Setting [#]		
		Low Channel	Middle Channel	High Channel
UHF	34kbps	Default	Default	Default
The exercise software and the maximum power setting that provided by manufacturer.				
Worst-Case Configuration:				
For AC line conducted emission and radiated emission 9kHz-30MHz was performed with the EUT transmits at the channel with highest output power as worst-case scenario.				

2.2 Test Auxiliary Equipment

Manufacturer	Description	Model	Serial Number
Unknown	Bulb*8	Unknown	Unknown

2.3 Test Setup

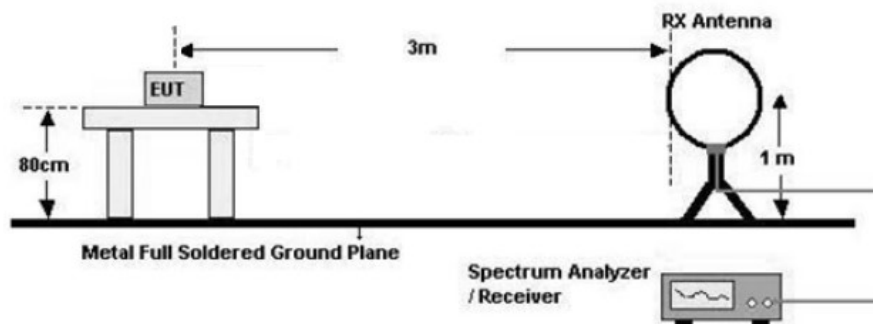
1) Conducted emission measurement:



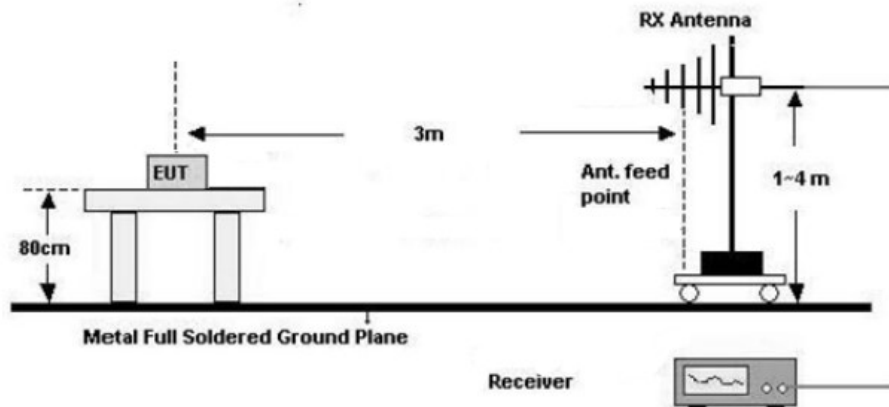
Note: The 0.8 m distance specified between EUT/AE/PSU and AMN/AAN, is applicable only to the EUT being measured. If the device is AE then it shall be >0.8 m.

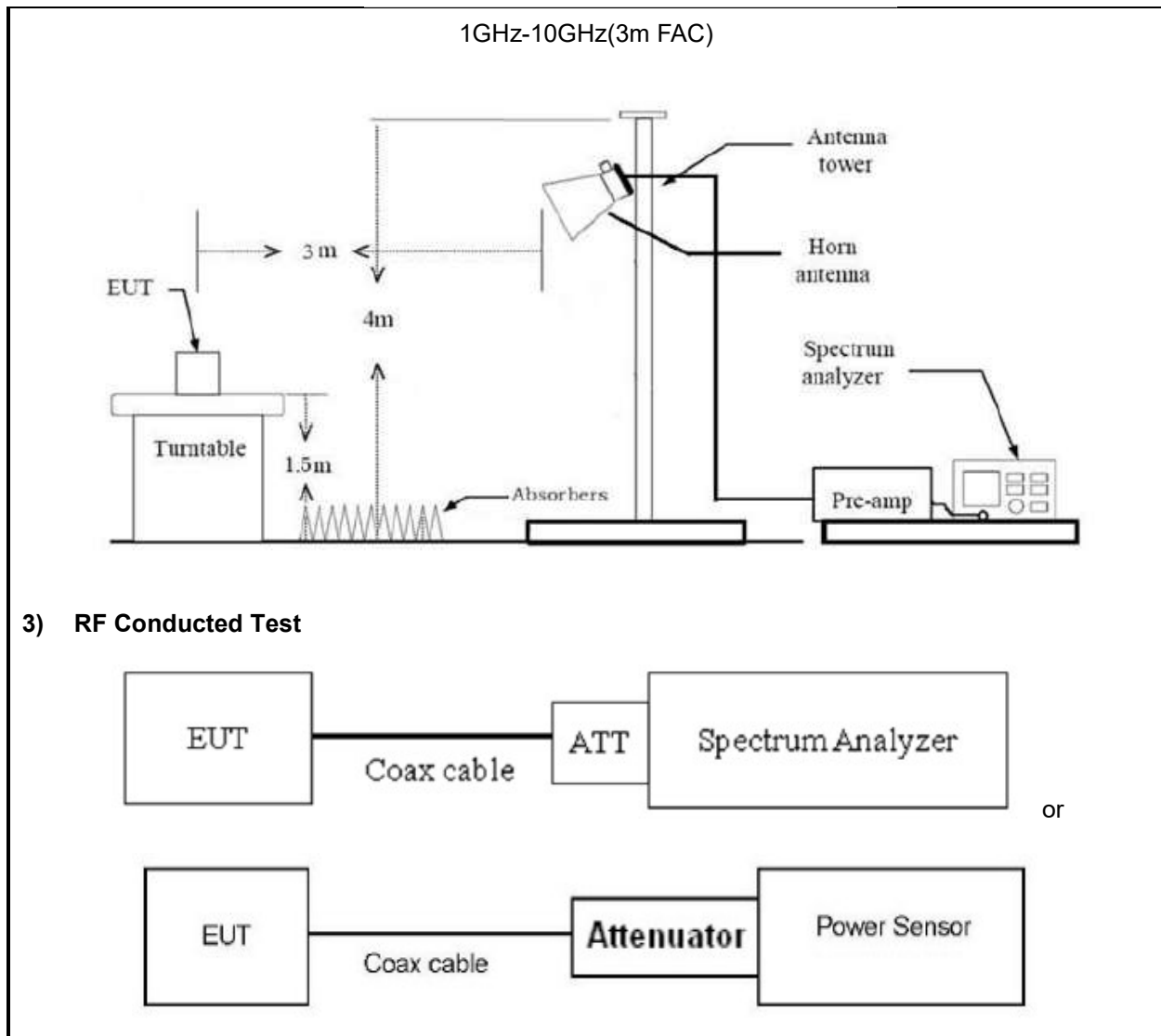
2) Radiated emission measurement:

Below 30MHz (3m SAC)



30MHz-1GHz (3m SAC)





2.4 Test Procedure

Conducted emission:

1. The E.U.T is placed on a non-conducting table 40cm from the vertical ground plane and 80cm above the horizontal ground plane (Please refer to the block diagram of the test setup and photographs).
2. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.
3. Line conducted data is recorded for both Line and Neutral

Radiated Emission Procedure:

a) For below 30MHz

1. All measurements were made at a test distance of 3 m. The measured data was extrapolated from the test distance (3m) to the specification distance (300 m from 9-490 kHz and 30 m from 490 kHz- 30 MHz) to clearly show the relative levels of fundamental and spurious emissions and demonstrate compliance with the requirement that the level of any spurious emissions be below the level of the

intentionally transmitted signal. The extrapolation factor for the limits were $40 \cdot \log(\text{test distance} / \text{specification distance})$.

2. Loop antenna use, investigation was done on the three antenna orientations (parallel, perpendicular, ground-parallel)

b) For 30MHz-1GHz:

1. The EUT was placed on the tabletop of a rotating table 0.8 m the ground at a 3 m semi anechoic chamber. The measurement distance from the EUT to the receiving antenna is 3 m.
2. EUT works in each mode of operation that needs to be tested. The highest signal levels relative to the limit shall be determined by rotating the EUT from 0° to 360° and with varying the measurement antenna height between 1 m and 4 m in vertical and horizontal polarizations.

c) For above 1GHz:

1. The EUT was placed on the tabletop of a rotating table 1.5 m the ground at a 3 m fully anechoic room. The measurement distance from the EUT to the receiving antenna is 3 m.
2. EUT works in each mode of operation that needs to be tested, and having the EUT continuously working. The highest signal levels relative to the limit shall be determined by rotating the EUT from 0° to 360° and with varying the measurement antenna height between 1 m and 4 m in vertical and horizontal polarizations.
3. Open the test software to control the test antenna and test turntable. Perform the test, save the test results, and export the test data.
4. Base on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.

RF Conducted Test:

1. The antenna port of EUT was connected to the RF port of the test equipment (Power Meter or Spectrum analyzer) through Attenuator and RF cable.
2. The cable assembly insertion loss of 6.5dB (including 6.0 dB Attenuator and 0.5dB cable) was entered as an offset in the power meter. Note: Actual cable loss was unavailable at the time of testing, therefore a loss of 0.5dB was assumed as worst case. This was later verified to be true by laboratory. (if the RF cable provided by client, the cable loss declared by client)
3. The EUT is keeping in continuous transmission mode and tested in all modulation modes.

2.5 Measurement Method

Description of Test	Measurement Method
AC Line Conducted Emissions	ANSI C63.10-2020 Section 6.2
Maximum Conducted Output Power	ANSI C63.10-2020 Section 7.8.5
20 dB Emission Bandwidth	ANSI C63.10-2020 Section 6.9.2
99% Occupied Bandwidth	ANSI C63.10-2020 Section 6.9.3
Channel separation	ANSI C63.10-2020 Section 7.8.2
Number of hopping Frequency	ANSI C63.10-2020 Section 7.8.3
Time of occupancy (dwell time)	ANSI C63.10-2020 Section 7.8.4
100kHz Bandwidth of Frequency Band Edge	ANSI C63.10-2020 Section 7.8.7.2&6.10
Radiated emission	ANSI C63.10-2020 Section 7.8.8&6.3&6.4&6.5&6.6

2.6 Measurement Equipment

Manufacturer	Description	Model	Management No.	Calibration Date	Calibration Due Date
Conducted Emission Test					
ROHDE& SCHWARZ	EMI TEST RECEIVER	ESR	101817	2024/6/4	2025/6/3
R&S	LISN	ENV216	101748	2024/6/4	2025/6/3
N/A	Coaxial Cable	NO.12	N/A	2024/6/6	2025/6/5
Farad	Test Software	EZ-EMC	Ver. EMEC-3A1	/	/
Radiated Emission Test					
R&S	EMI test receiver	ESR3	102758	2024/6/4	2025/6/3
ROHDE& SCHWARZ	SPECTRUM ANALYZER	FSV40-N	101608	2024/6/4	2025/6/3
SONOMA INSTRUMENT	Low frequency amplifier	310	186014	2024/6/4	2025/6/3
COM-POWER	preamplifier	PAM-118A	18040152	2024/6/4	2025/6/3
BACL	Loop Antenna	1313-1A	4010611	2024/2/7	2027/2/6
SCHWARZBECK	Log - periodic wideband antenna	VULB 9163	9163-872	2023/7/7	2026/7/6
Astro Antenna Ltd	Horn antenna	AHA-118S	3015	2023/7/6	2026/7/5
N/A	Coaxial Cable	NO.9	N/A	2024/6/4	2025/6/3
N/A	Coaxial Cable	NO.14	N/A	2024/6/4	2025/6/3
N/A	Coaxial Cable	NO.15	N/A	2024/6/4	2025/6/3
N/A	Coaxial Cable	NO.16	N/A	2024/6/4	2025/6/3
N/A	Coaxial Cable	NO.17	N/A	2024/6/4	2025/6/3
Audix	Test Software	E3	191218 V9	/	/
RF Conducted Test					
ROHDE& SCHWARZ	SPECTRUM ANALYZER	FSU-26	200680/026	2024/6/4	2025/6/3
narda	6dB attenuator	603-06-1	N/A	2024/6/4	2025/6/3

Note: All equipment is calibrated with valid calibrations. Each measurement data is traceable to the national or International standards.

3 Test Results

3.1 Test Summary

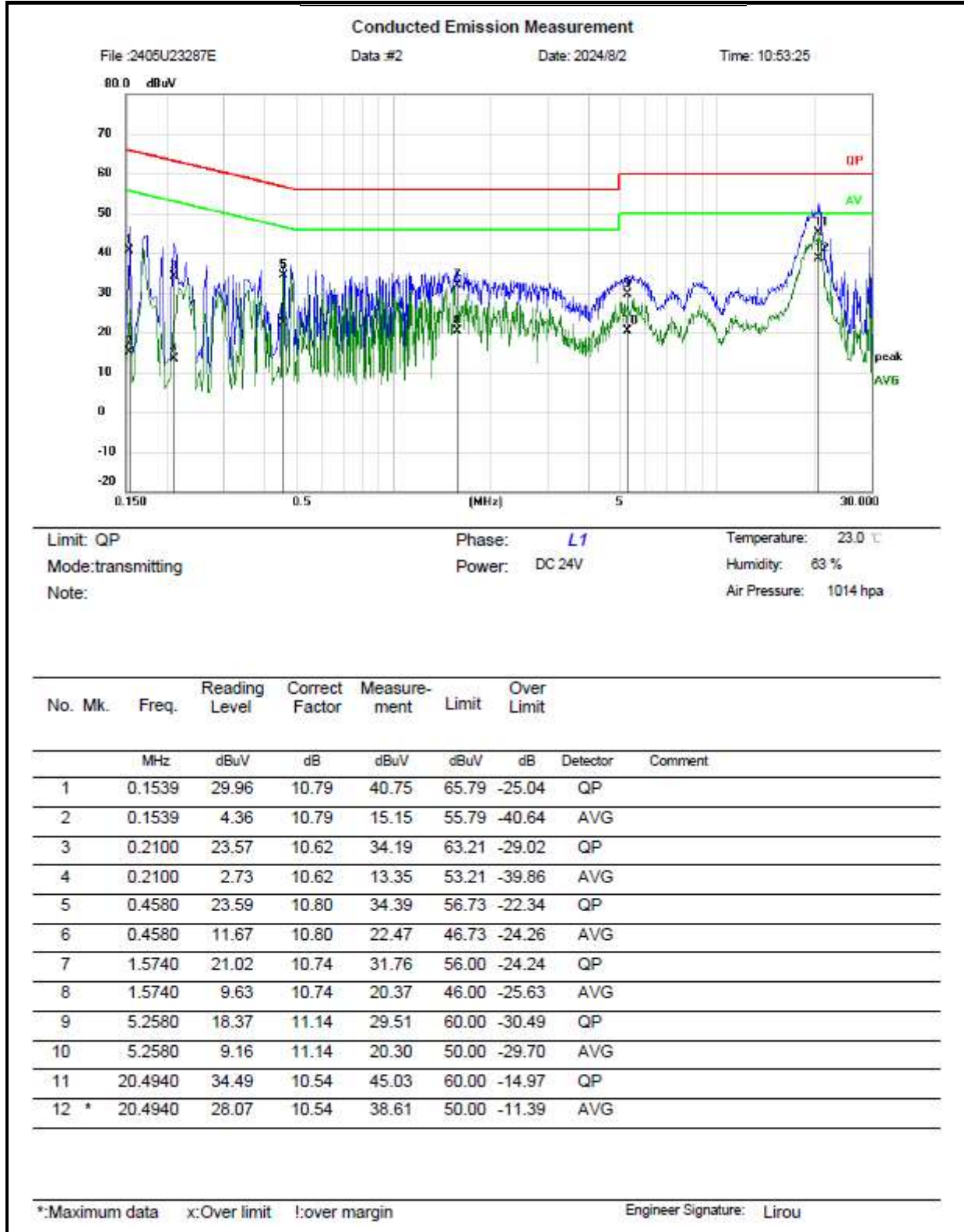
FCC Rules	Description of Test	Result
§15.203	Antenna Requirement	Compliance
§15.207 (a)	AC Line Conducted Emissions	Compliance
§15.247 (a)(1)(i)	20dB Emission Bandwidth	Compliance
-	99% Occupied Bandwidth	Report only
§15.247 (a)(1)(i)	Channel separation	Compliance
§15.247 (a)(1)(i)	Number of hopping Frequency	Compliance
§15.247 (a)(1)(i)	Time of occupancy (dwell time)	Compliance
§15.247(b)(2)	Maximum Conducted Output Power	Compliance
§15.247(d)	100kHz Bandwidth of Frequency Band Edge	Compliance
§15.205, §15.209, §15.247(d)	Radiated emission	Compliance

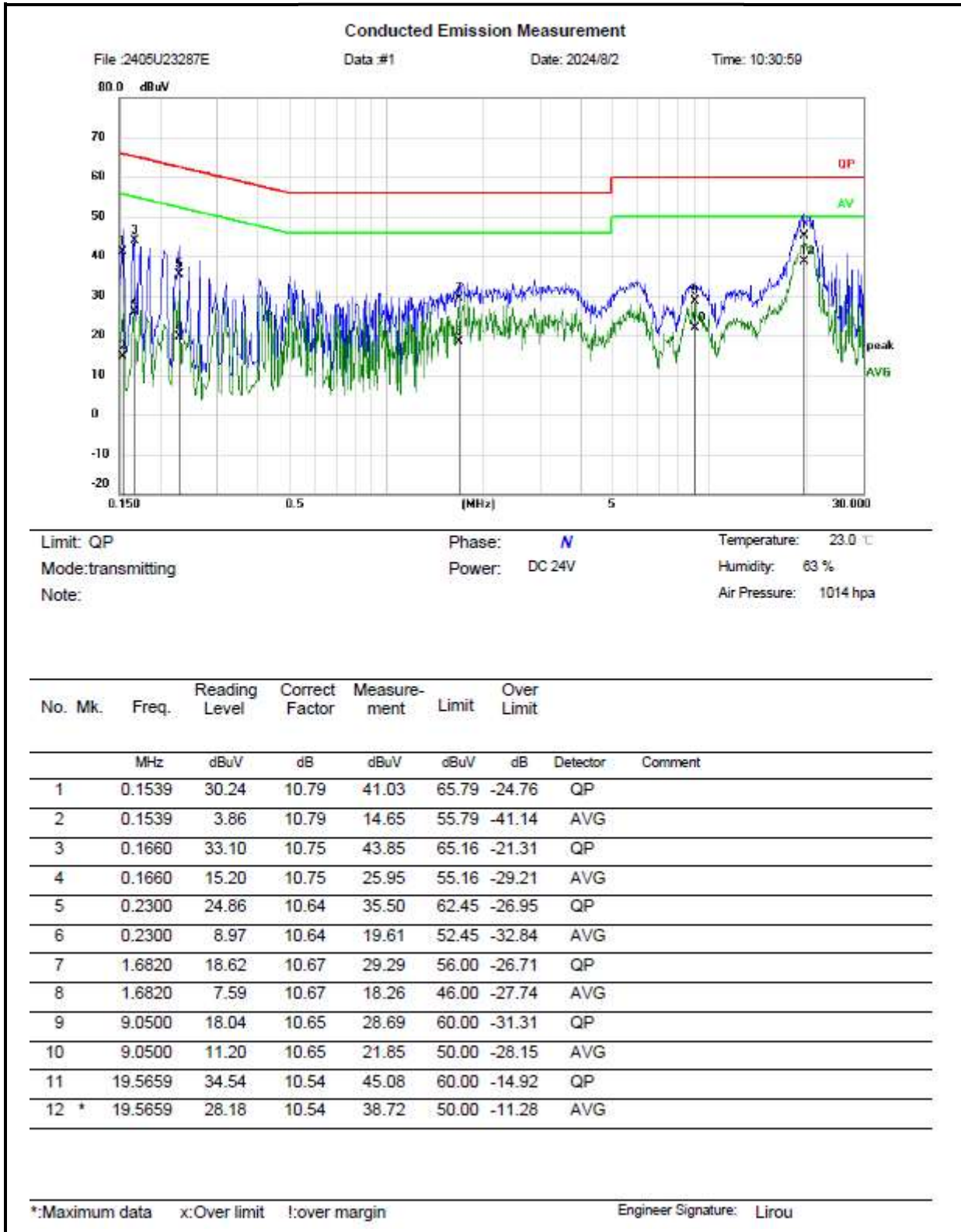
3.2 Limit

Test items	Limit
AC Line Conducted Emissions	See details §15.207 (a)
Conducted Output Power	For frequency hopping systems operating in the 902–928 MHz band: 1 watt for systems employing at least 50 hopping channels; and, 0.25 watts for systems employing less than 50 hopping channels, but at least 25 hopping channels, as permitted under paragraph (a)(1)(i) of this section.
20dB Emission Bandwidth Channel separation Number of hopping Frequency Time of occupancy (dwell time)	For frequency hopping systems operating in the 902–928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.
Spurious Emissions, 100kHz Bandwidth of Frequency Band Edge	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

3.3 AC Line Conducted Emissions Test Data

Test Date:	2024-08-02	Test By:	Lirou Li
Environment condition:	Temperature: 23.0°C; Relative Humidity:63%; ATM Pressure: 101.4kPa		





Remark:

Measurement (dBuV)= Reading Level (dBuV) + Correct Factor(dB)

Correct Factor(dB)= LISN Voltage Division Factor (dB)+ Cable loss(dB)

Over Limit = Measurement – Limit

3.4 Radiated emission Test Data

9 kHz-30MHz:

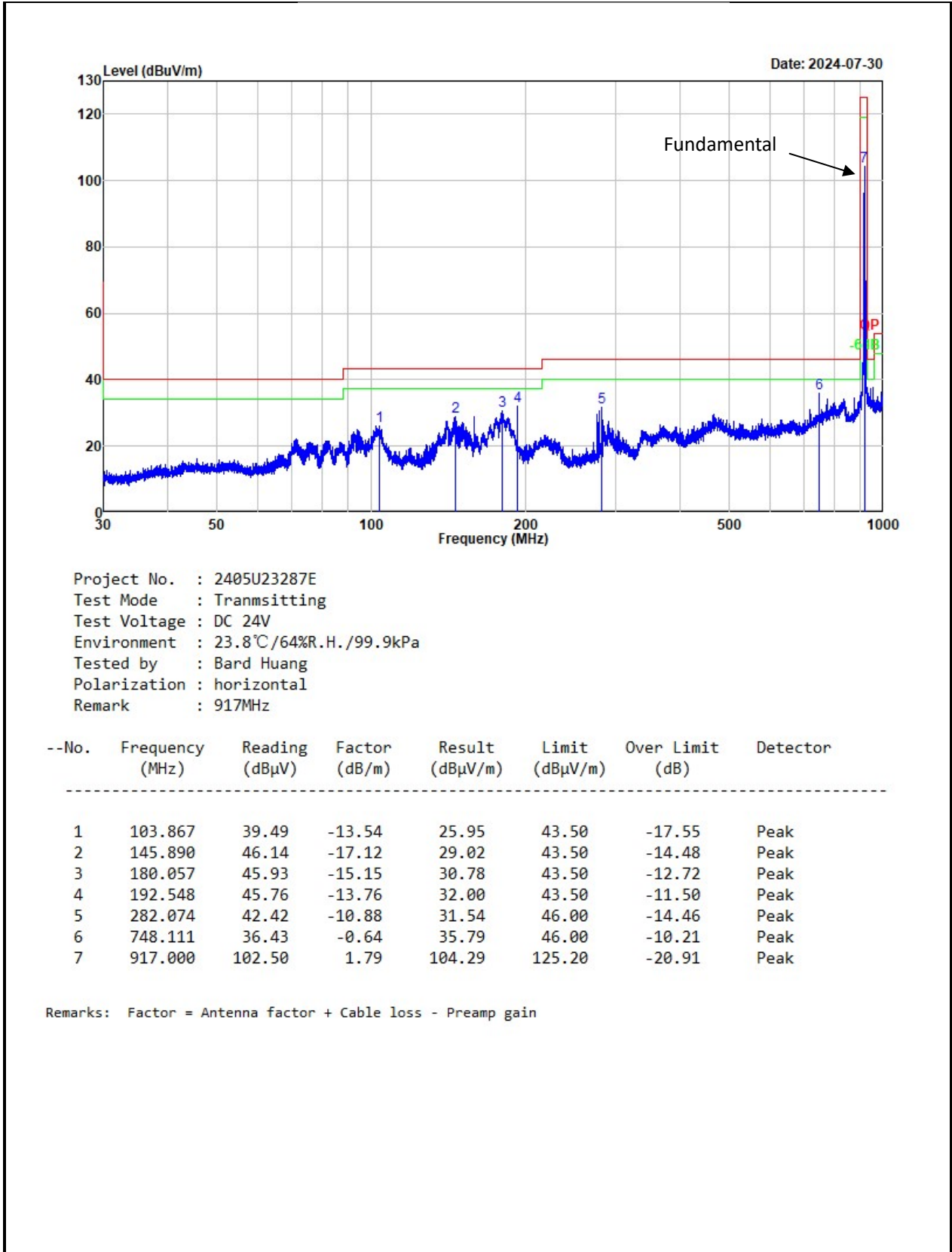
Test Date:	2024-07-30	Test By:	Bard Huang
Environment condition:	Temperature: 23.8°C; Relative Humidity:64%; ATM Pressure: 99.9kPa		

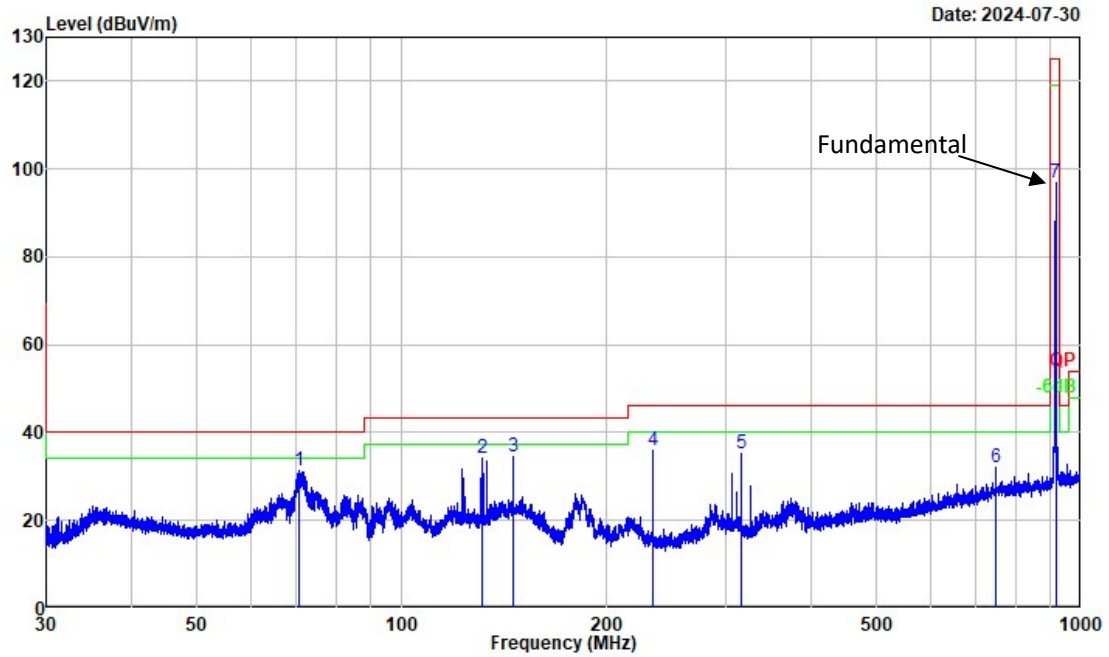
For radiated emissions below 30MHz, there were no emissions found within 20dB of limit.

30MHz-1GHz:

Test Date:	2024-07-30	Test By:	Bard Huang
Environment condition:	Temperature: 23.8°C; Relative Humidity:64%; ATM Pressure: 99.9kPa		

Low Channel:



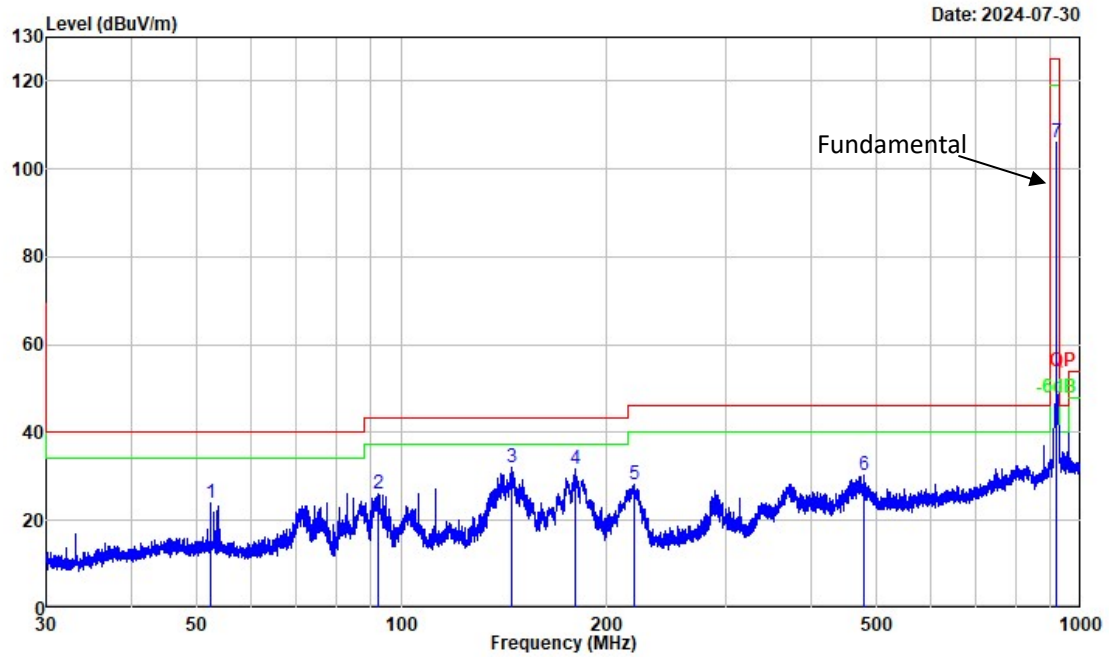


Project No. : 2405U23287E
 Test Mode : Transmitting
 Test Voltage : DC 24V
 Environment : 23.8°C/64%R.H./99.9kPa
 Tested by : Bard Huang
 Polarization : vertical
 Remark : 917MHz

--No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector
1	70.684	47.50	-16.21	31.29	40.00	-8.71	Peak
2	131.494	51.13	-16.97	34.16	43.50	-9.34	Peak
3	146.018	51.78	-17.12	34.66	43.50	-8.84	Peak
4	234.640	47.97	-12.11	35.86	46.00	-10.14	Peak
5	316.544	45.09	-9.95	35.14	46.00	-10.86	Peak
6	748.111	32.80	-0.64	32.16	46.00	-13.84	Peak
7	917.000	95.03	1.79	96.82	125.20	-28.38	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain

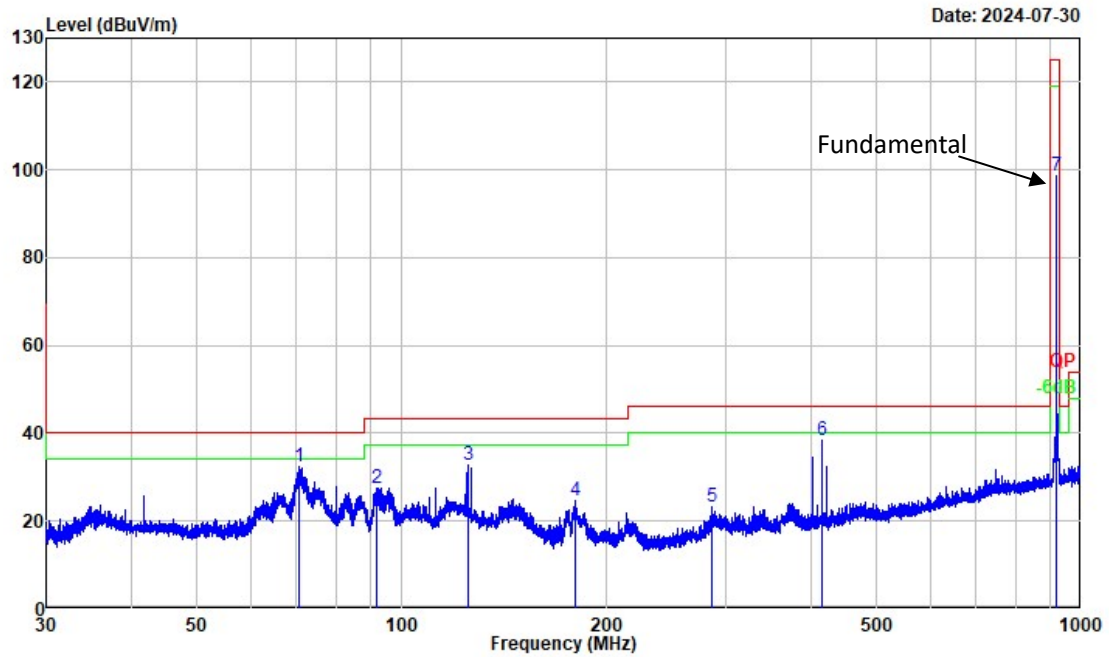
Middle Channel:



Project No. : 2405U23287E
Test Mode : Transmitting
Test Voltage : DC 24V
Environment : 23.8°C/64%R.H./99.9kPa
Tested by : Bard Huang
Polarization : horizontal
Remark : 919.6MHz

--No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Detector
1	52.418	36.27	-12.17	24.10	40.00	-15.90	Peak
2	92.516	40.94	-14.85	26.09	43.50	-17.41	Peak
3	145.507	49.19	-17.13	32.06	43.50	-11.44	Peak
4	180.215	46.95	-15.14	31.81	43.50	-11.69	Peak
5	219.707	41.11	-12.91	28.20	46.00	-17.80	Peak
6	479.011	36.69	-6.43	30.26	46.00	-15.74	Peak
7	919.600	104.13	1.83	105.96	125.20	-19.24	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain

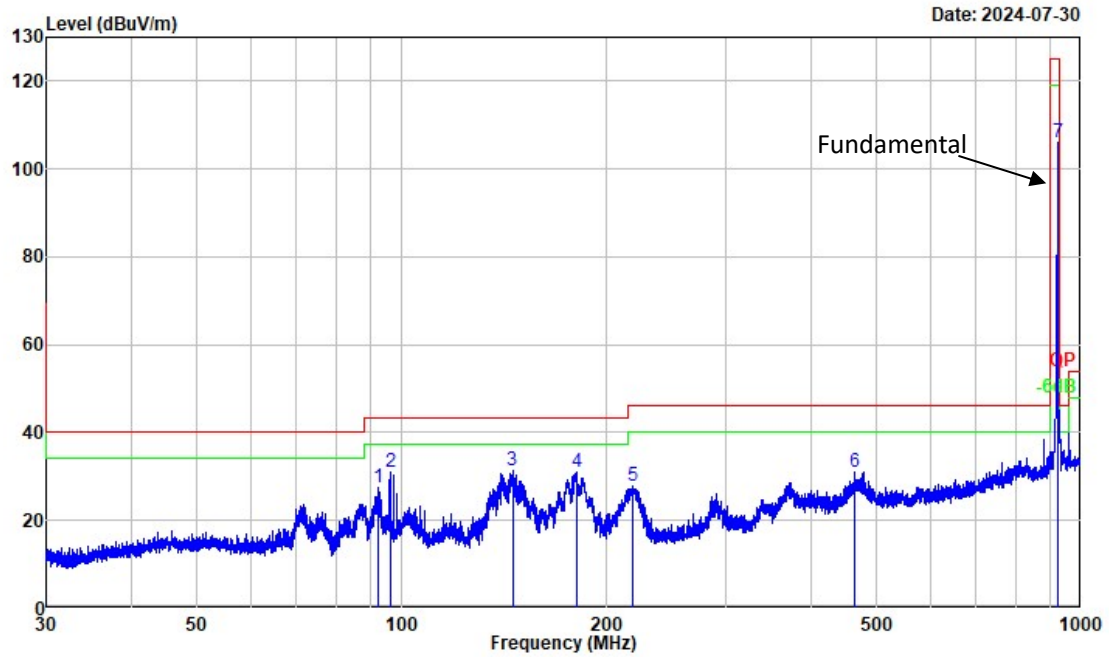


Project No. : 2405U23287E
Test Mode : Transmitting
Test Voltage : DC 24V
Environment : 23.8°C/64%R.H./99.9kPa
Tested by : Bard Huang
Polarization : vertical
Remark : 919.6MHz

--No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector
1	70.529	48.62	-16.14	32.48	40.00	-7.52	Peak
2	91.950	42.52	-14.96	27.56	43.50	-15.94	Peak
3	125.084	49.25	-16.36	32.89	43.50	-10.61	Peak
4	180.452	39.85	-15.11	24.74	43.50	-18.76	Peak
5	285.682	34.12	-10.78	23.34	46.00	-22.66	Peak
6	415.951	45.66	-7.16	38.50	46.00	-7.50	Peak
7	919.600	96.83	1.83	98.66	125.20	-26.54	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain

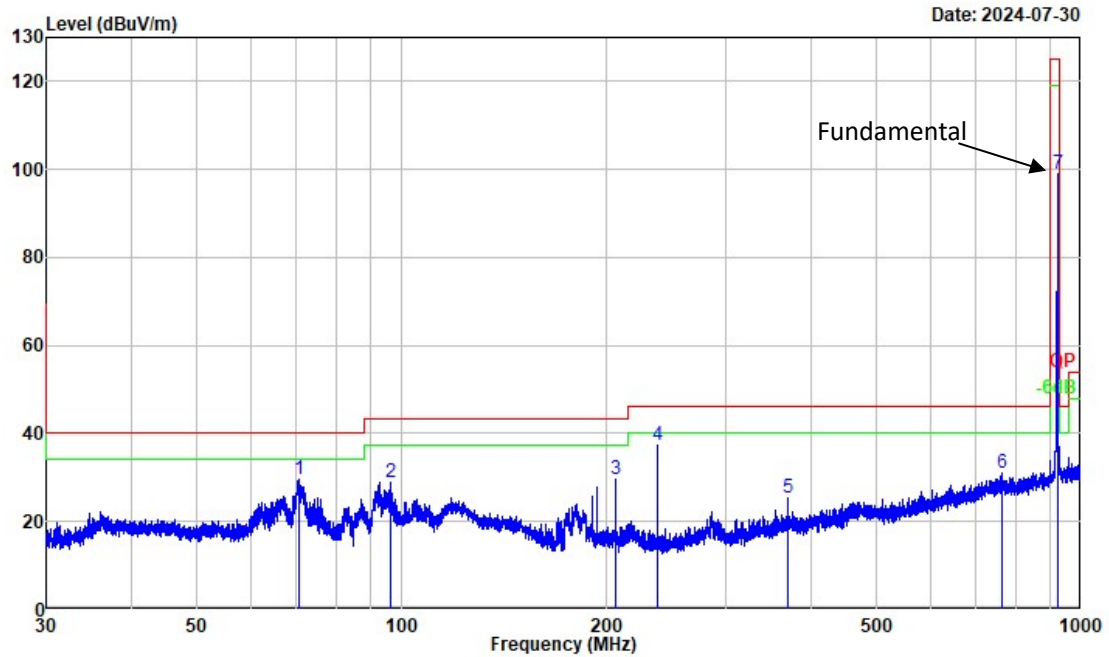
High Channel:



Project No. : 2405U23287E
Test Mode : Transmitting
Test Voltage : DC 24V
Environment : 23.8°C/64%R.H./99.9kPa
Tested by : Bard Huang
Polarization : horizontal
Remark : 922.2MHz

--No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector
1	92.273	42.22	-14.90	27.32	43.50	-16.18	Peak
2	96.155	45.23	-14.33	30.90	43.50	-12.60	Peak
3	145.634	48.53	-17.12	31.41	43.50	-12.09	Peak
4	180.689	46.04	-15.08	30.96	43.50	-12.54	Peak
5	219.418	40.80	-12.92	27.88	46.00	-18.12	Peak
6	463.519	37.97	-6.79	31.18	46.00	-14.82	Peak
7	922.200	104.23	1.91	106.14	125.20	-19.06	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain



Project No. : 2405U23287E
Test Mode : Transmitting
Test Voltage : DC 24V
Environment : 23.8°C / 64%R.H. / 99.9kPa
Tested by : Bard Huang
Polarization : vertical
Remark : 922.2MHz

--No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Detector
1	70.808	46.00	-16.26	29.74	40.00	-10.26	Peak
2	96.281	43.32	-14.31	29.01	43.50	-14.49	Peak
3	206.176	42.69	-13.12	29.57	43.50	-13.93	Peak
4	238.372	49.48	-12.01	37.47	46.00	-8.53	Peak
5	370.981	33.62	-8.24	25.38	46.00	-20.62	Peak
6	766.368	31.35	-0.35	31.00	46.00	-15.00	Peak
7	922.200	97.12	1.91	99.03	125.20	-26.17	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain

Remark:

Result = Reading + Factor

Factor = Antenna factor + Cable loss – Amplifier gain

Over Limit = Result – Limit

Above 1GHz:

Test Date:	2024-07-30	Test By:	Bard Huang
Environment condition:	Temperature: 23.8°C; Relative Humidity:64%; ATM Pressure: 99.9kPa		

Frequency (MHz)	Reading level (dBμV)	Polar	Corrected Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark
Low Channel							
1834.000	53.78	horizontal	-3.28	50.50	74.00	-23.50	Peak
2751.000	51.04	horizontal	-2.50	48.54	74.00	-25.46	Peak
1834.000	48.23	vertical	-3.28	44.95	74.00	-29.05	Peak
2751.000	51.62	vertical	-2.50	49.12	74.00	-24.88	Peak
Middle Channel							
1839.200	53.91	horizontal	-3.29	50.62	74.00	-23.38	Peak
2758.800	51.41	horizontal	-2.49	48.92	74.00	-25.08	Peak
1839.200	48.61	vertical	-3.29	45.32	74.00	-28.68	Peak
2758.800	50.31	vertical	-2.49	47.82	74.00	-26.18	Peak
High Channel							
1844.400	49.61	vertical	-3.29	46.32	74.00	-27.68	Peak
2766.600	51.20	vertical	-2.50	48.70	74.00	-25.30	Peak
1844.400	53.33	horizontal	-3.29	50.04	74.00	-23.96	Peak
2766.600	52.93	horizontal	-2.50	50.43	74.00	-23.57	Peak

Remark:

Corrected Amplitude= Reading level + corrected Factor

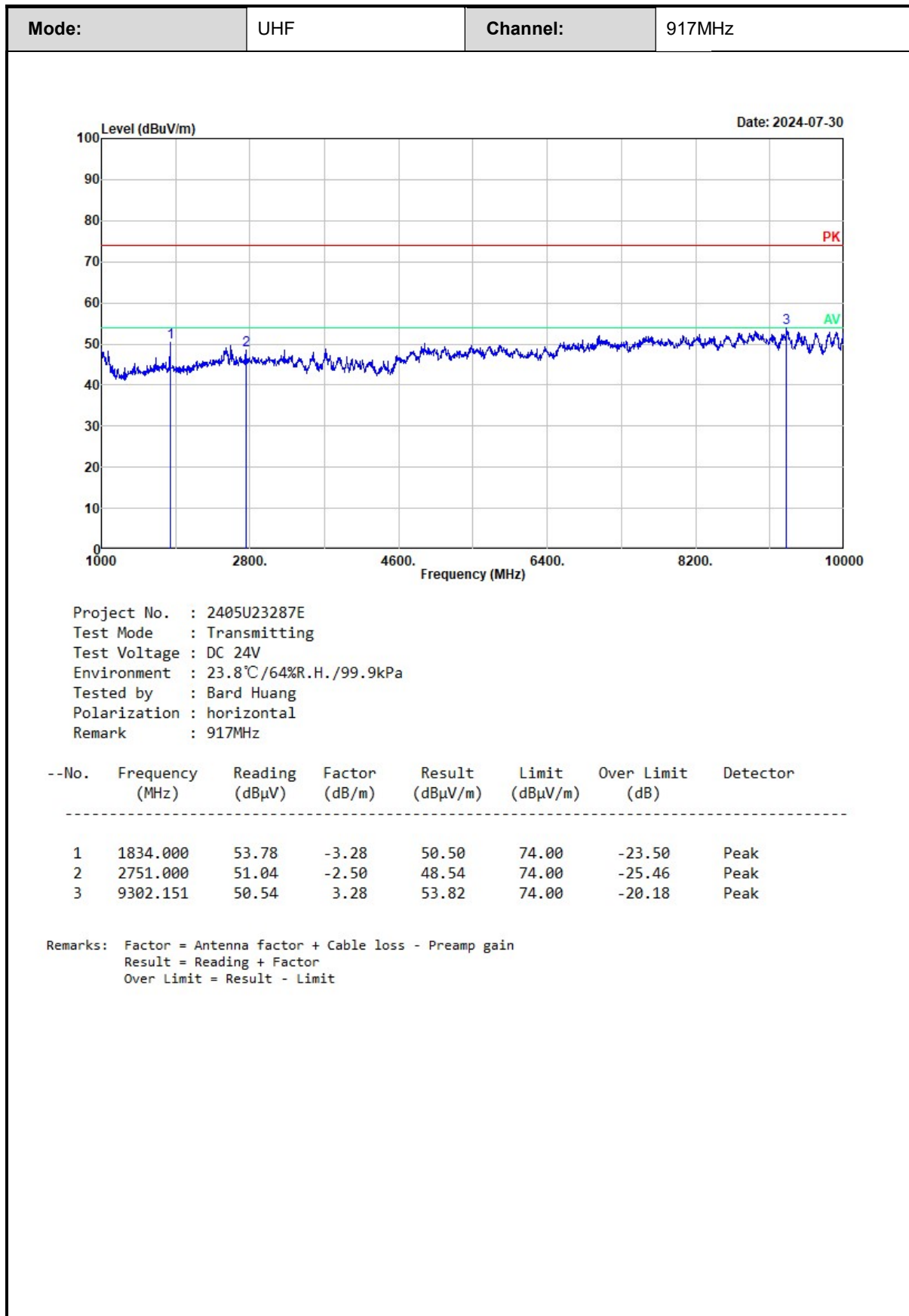
Corrected Factor = Antenna factor + Cable loss – Amplifier gain

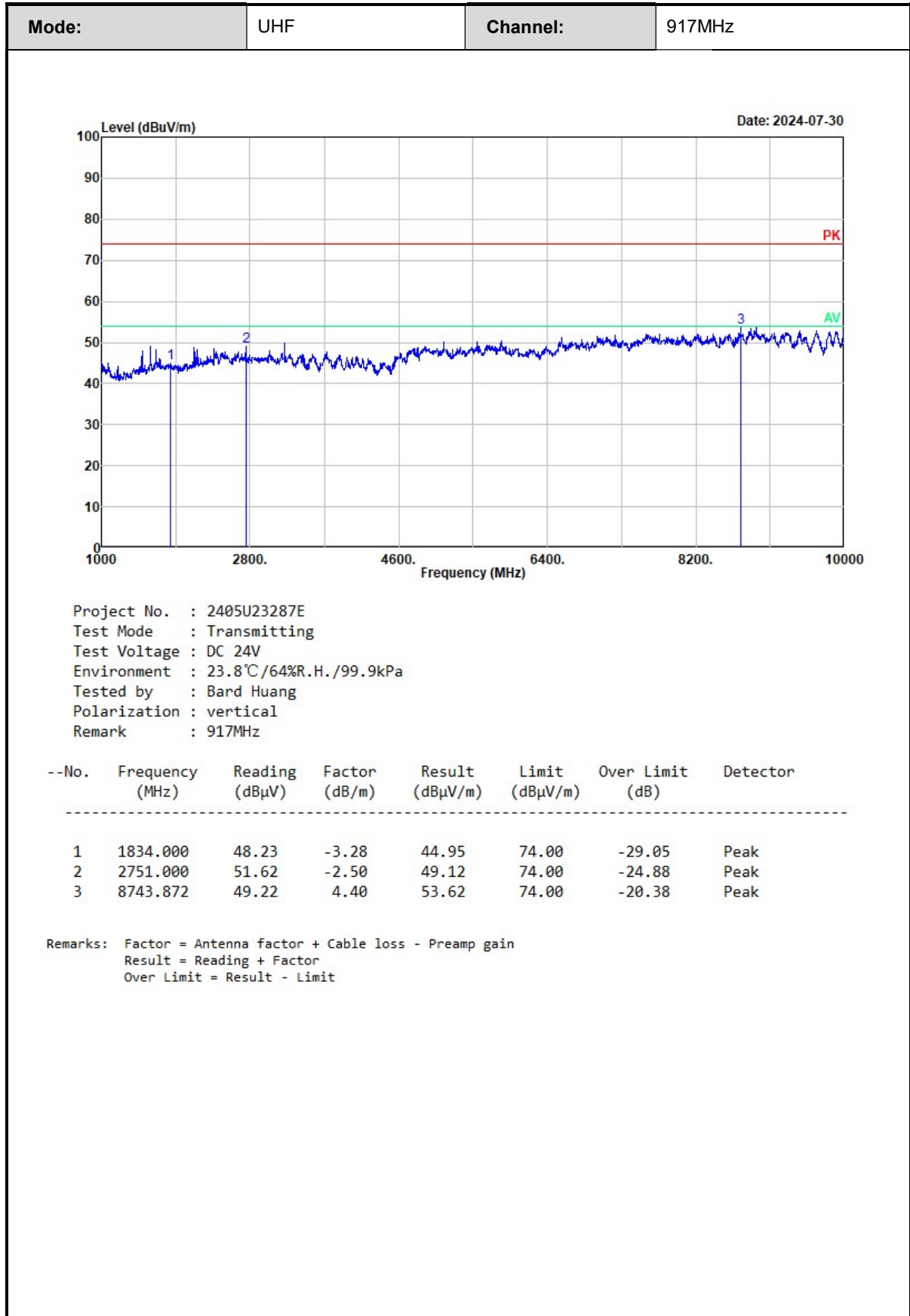
Margin = Corrected Amplitude – Limit

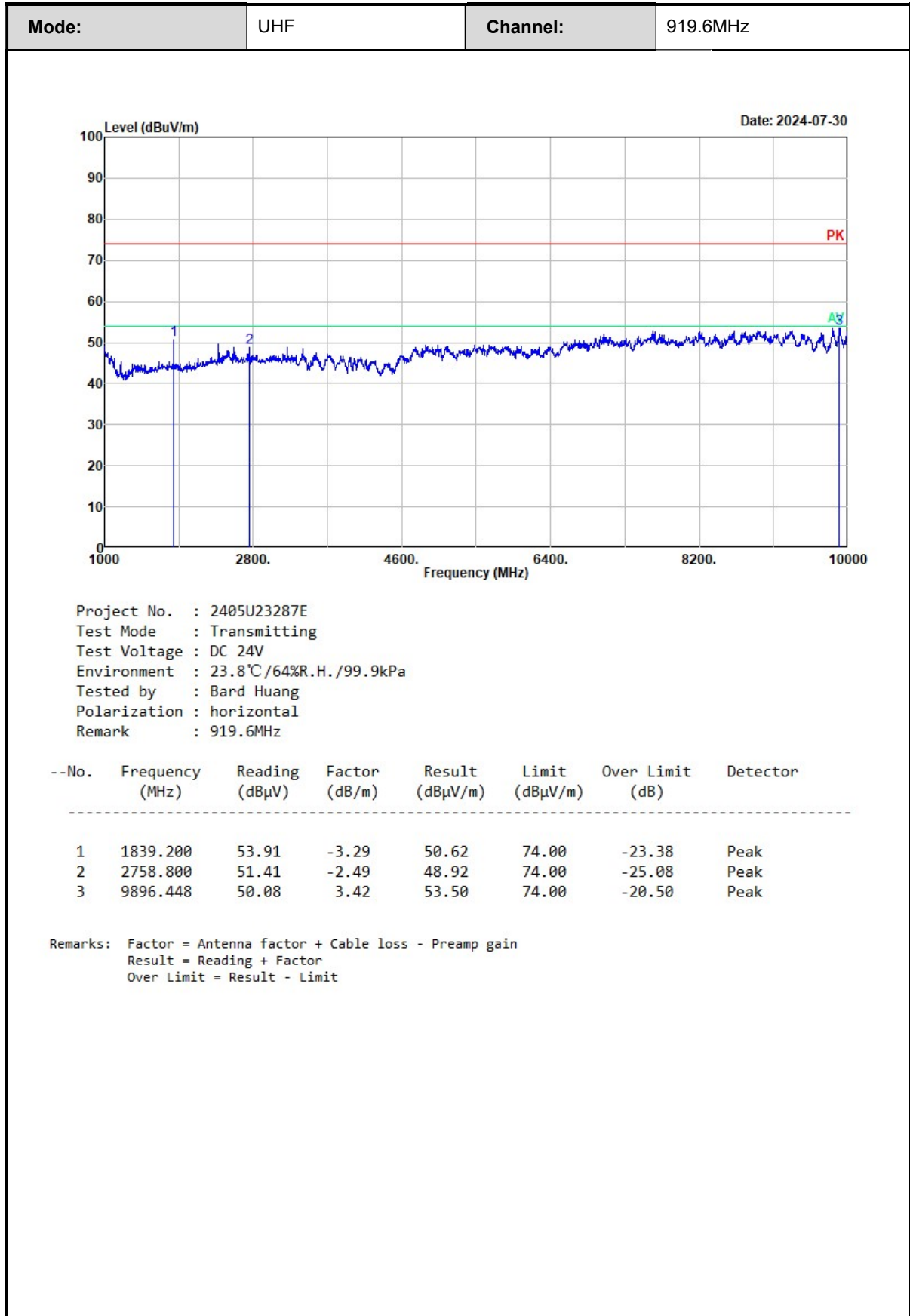
For the test result of Peak below the Peak limit more than 20dB, which can compliance with the average limit, just the Peak level was recorded.

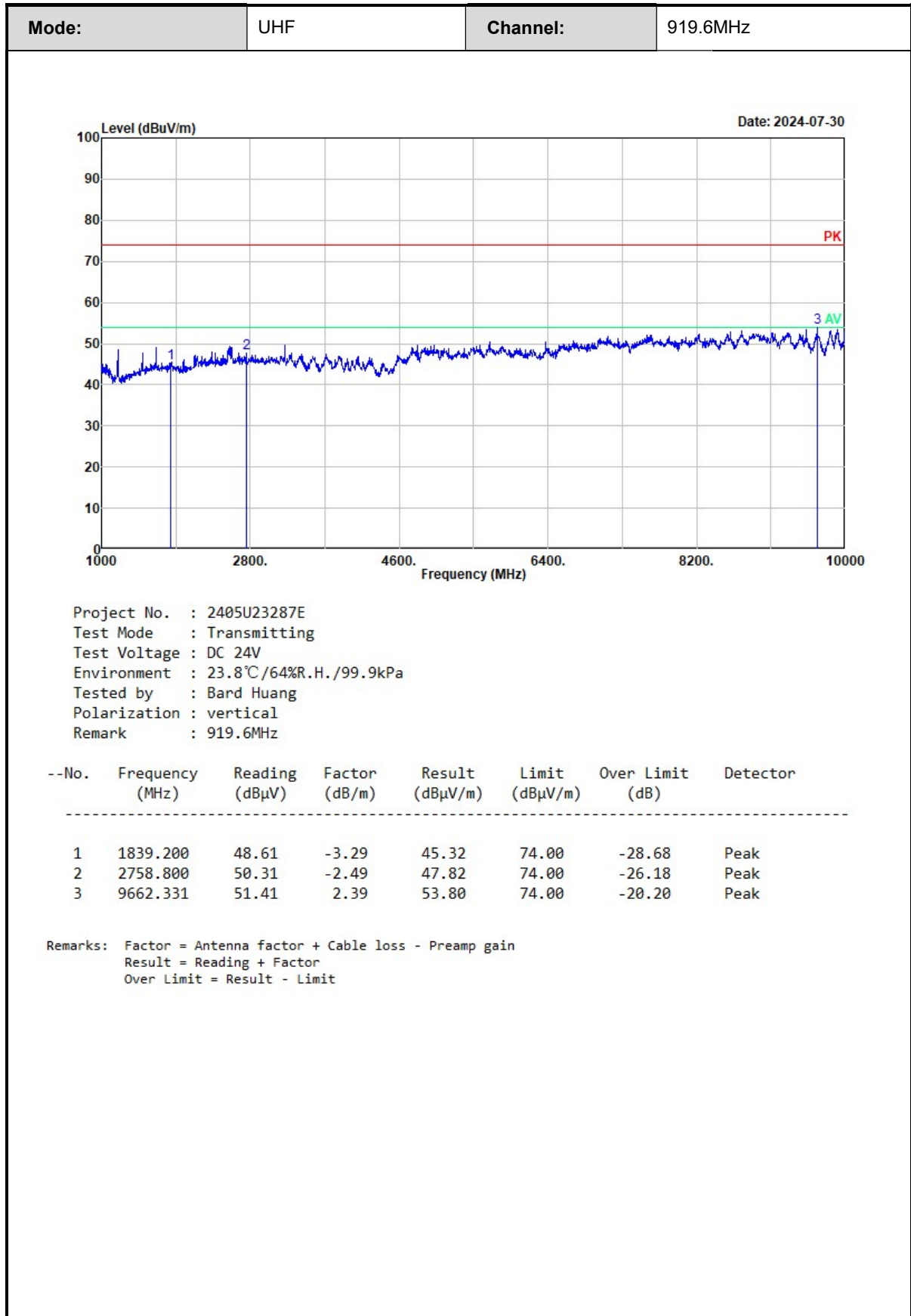
The emission levels of other frequencies that were lower than the limit 20dB, not show in test report.

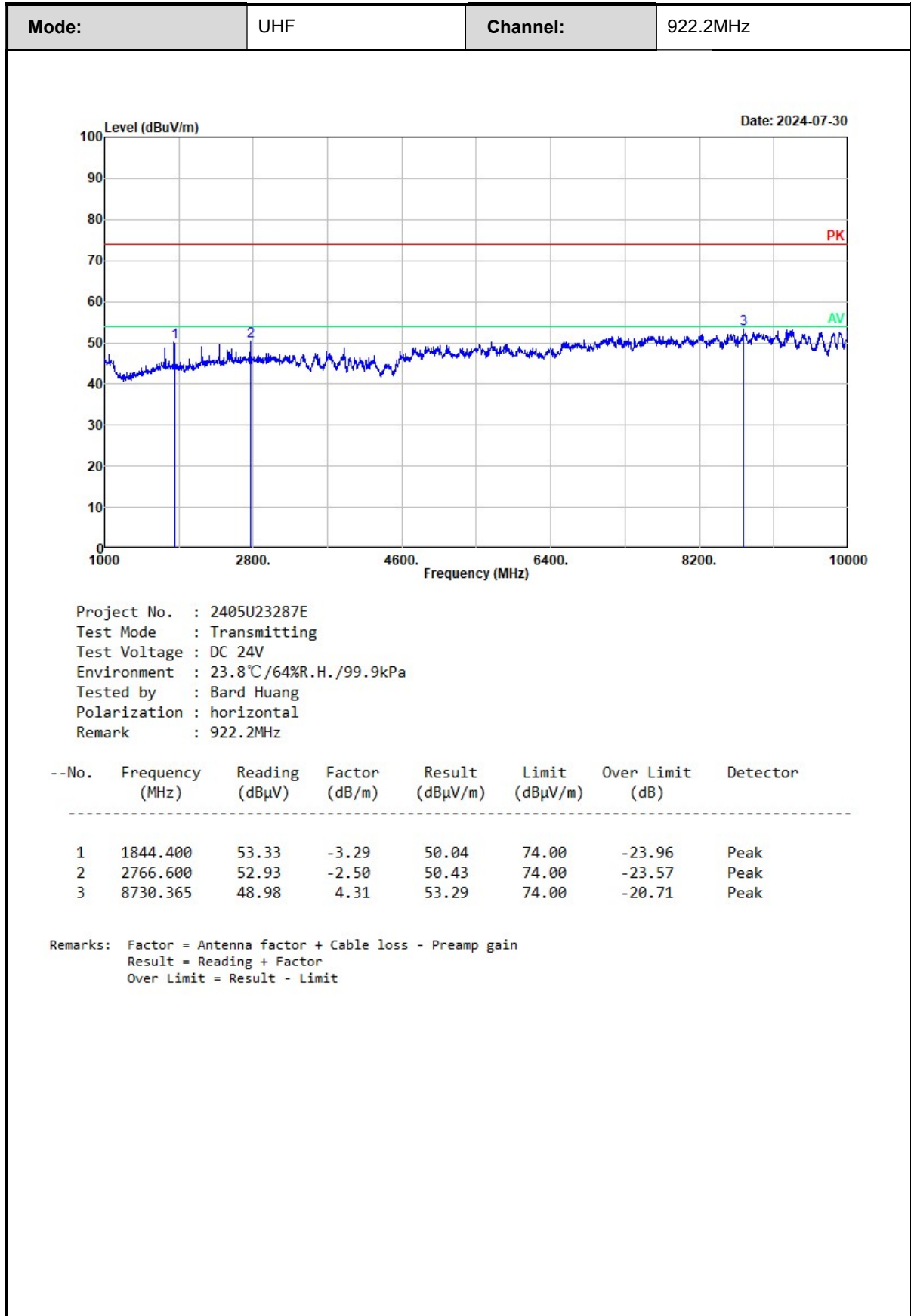
Test plot for example as below:

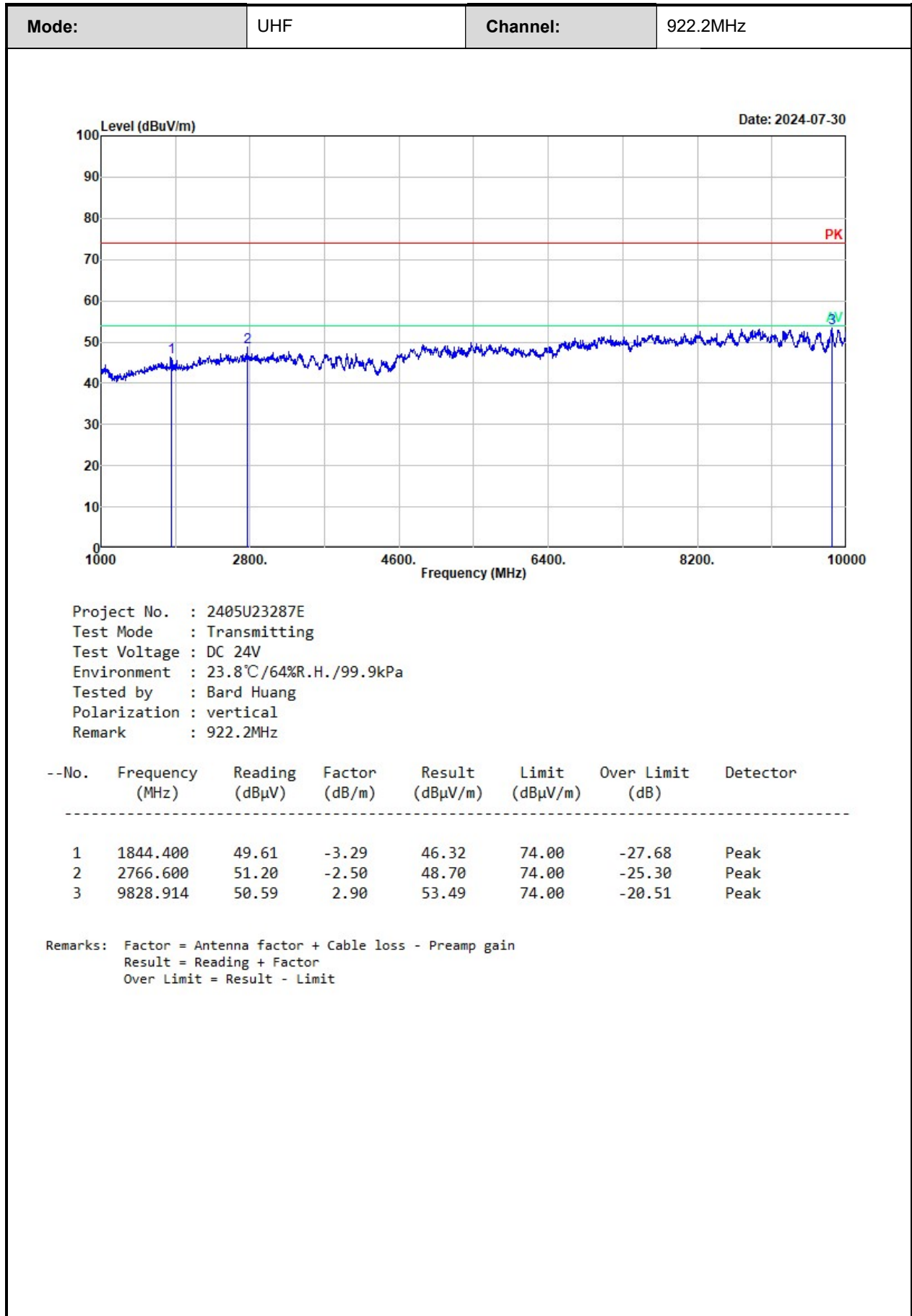












3.5 RF Conducted Test Data

Test Date:	2024-07-23	Test By:	Ryan Zhang
Environment condition:	Temperature: 23.1°C; Relative Humidity:58%; ATM Pressure: 100.3kPa		

3.5.1 20 dB Emission Bandwidth and 99% Occupied Bandwidth

Test Mode	Channel [MHz]	20dB BW [kHz]	99% OBW [kHz]	20dB BW Limit [kHz]	Verdict
GFSK	917.0	57.400	59.640	250	Pass
	919.6	59.360	59.640	250	Pass
	922.2	59.360	59.640	250	Pass

3.5.2 Maximum Conducted Peak Output Power

Test Mode	Channel[MHz]	Conducted power [dBm]	Limit[dBm]	Verdict
GFSK	917.0	9.60	30	Pass
	919.6	9.63	30	Pass
	922.2	9.65	30	Pass

3.5.3 Channel separation

Test Mode	Channel[MHz]	Result[kHz]	Limit[kHz]	Verdict
GFSK	917.0	100.000	57.400	Pass
	919.6	100.215	59.360	Pass
	922.2	100.000	59.360	Pass

Note: Limit $\geq$ 20dB BW

3.5.4 Number of hopping Frequency

Test Mode	Channel	Result[Num]	Limit[Num]	Verdict
GFSK	Hop	53	$\geq$ 50	Pass

3.5.5 Time of occupancy (dwell time)

Test Mode	Channel[MHz]	Pulse Time [ms]	Total Hops [Num]	Result[s]	Limit[s]	Verdict
GFSK	919.6	20.317	15	0.305	<=0.4	Pass

Note:

Result = Total Hops* Pulse time

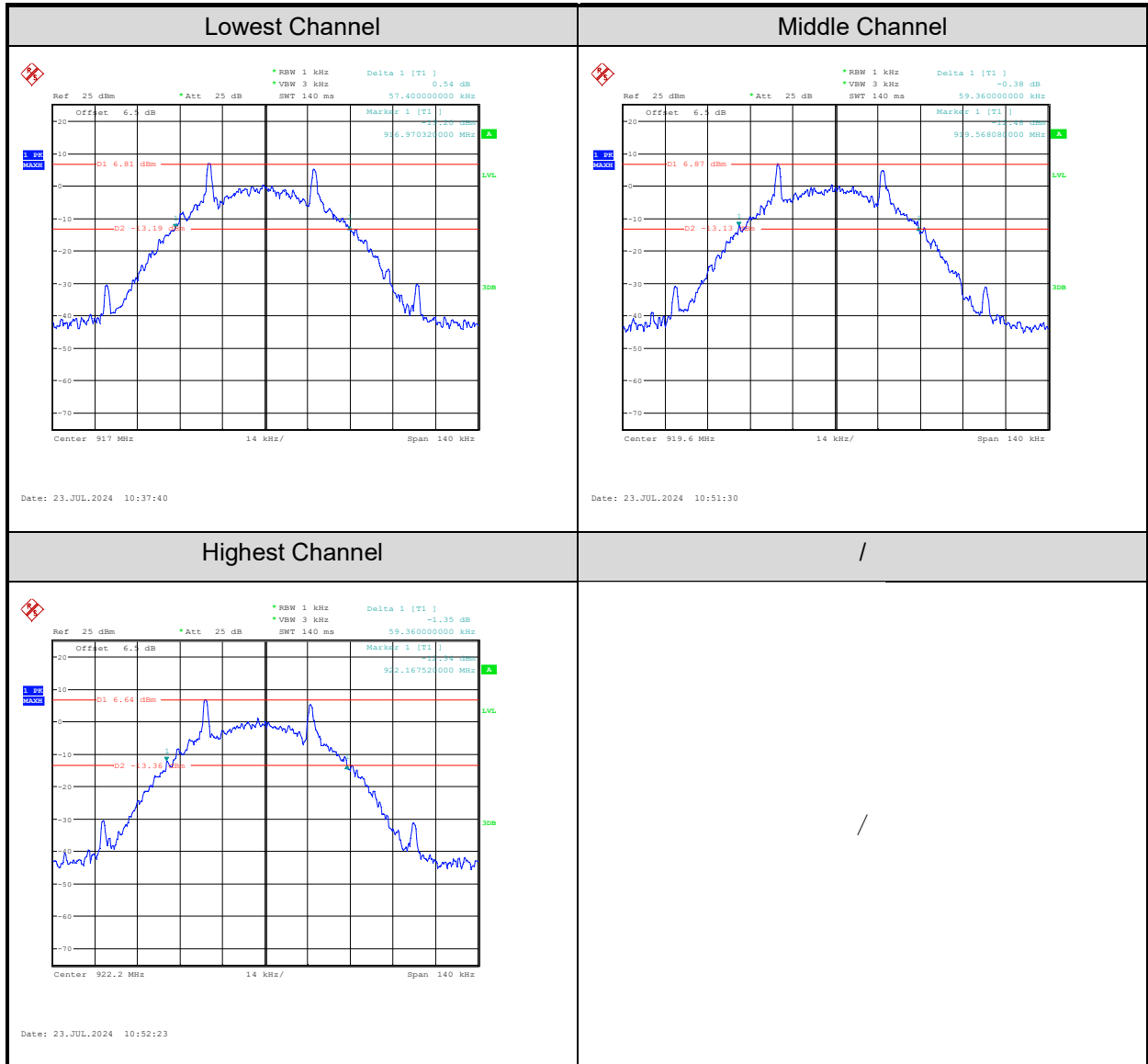
Observe period is 20s

3.5.6 100 kHz Bandwidth of Frequency Band Edge

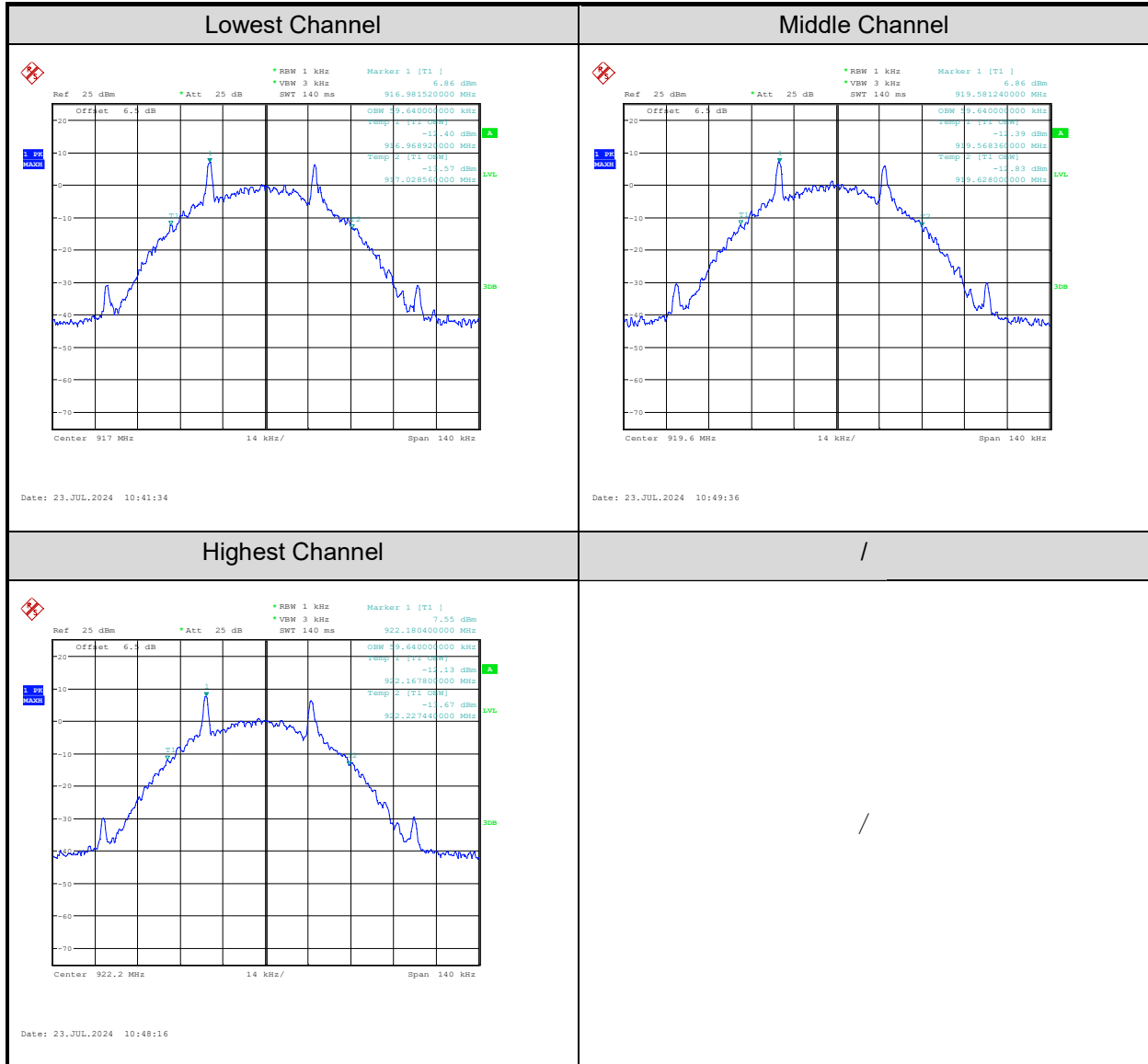
EUT Operation Mode	Test Modes	Bandedge	Result (dB)	Limit (dB)
Non-Hopping	FHSS	Lower	Refer to test plot	Refer to test plot
		Upper	Refer to test plot	Refer to test plot
Hopping	FHSS	Lower	Refer to test plot	Refer to test plot
		Upper	Refer to test plot	Refer to test plot

Test Plots:

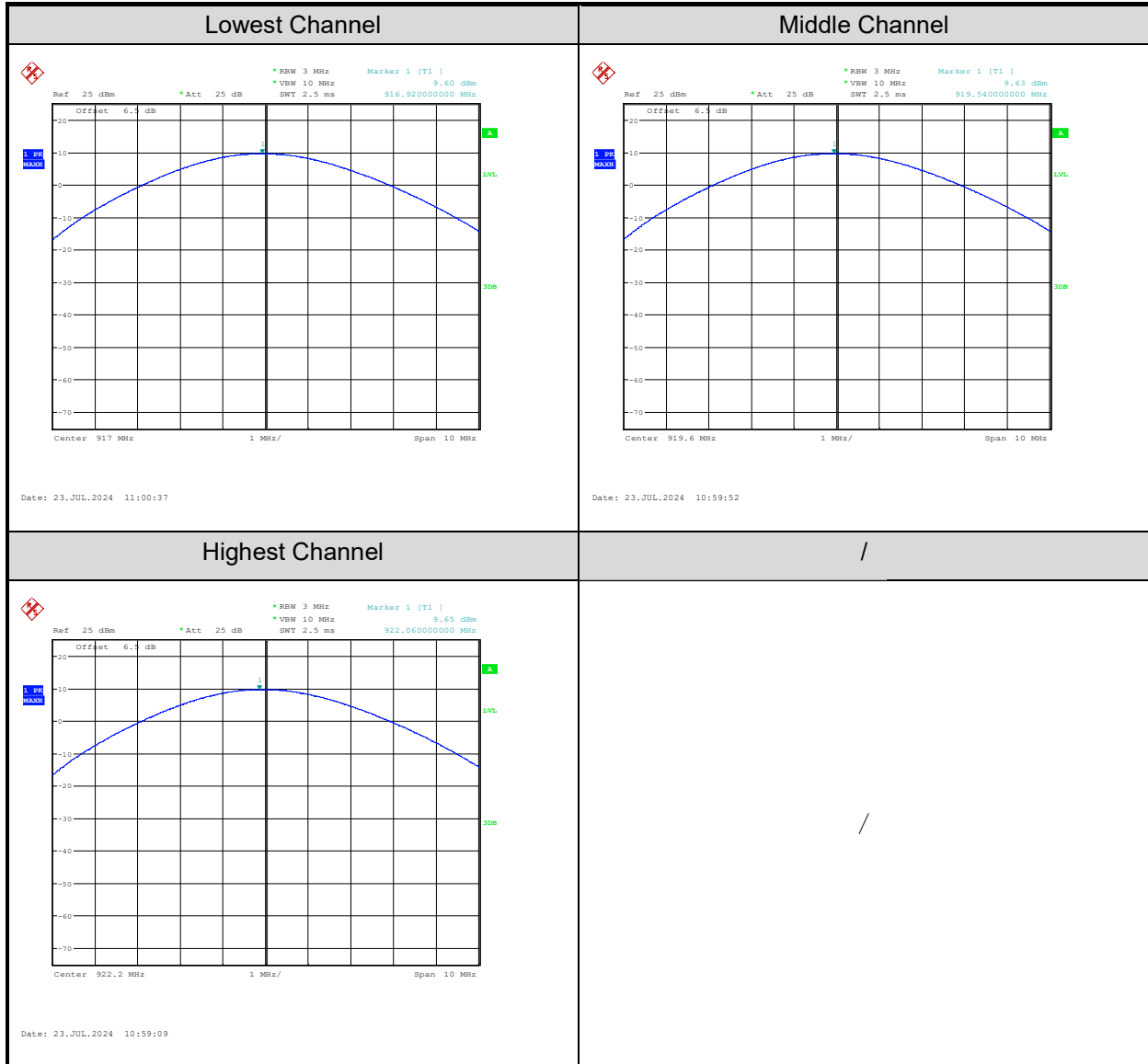
20 dB Emission Bandwidth:



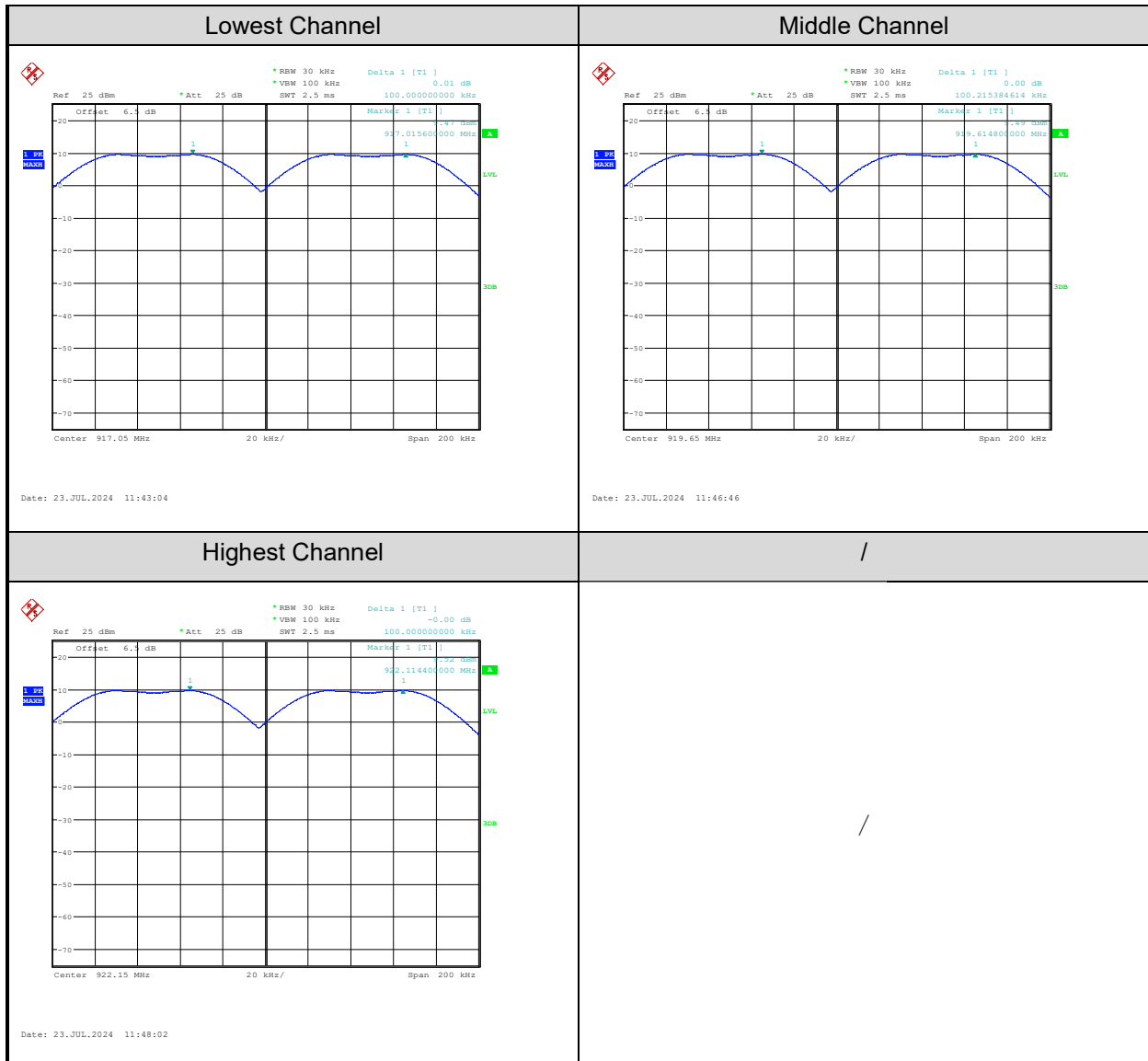
99% Occupied Bandwidth:



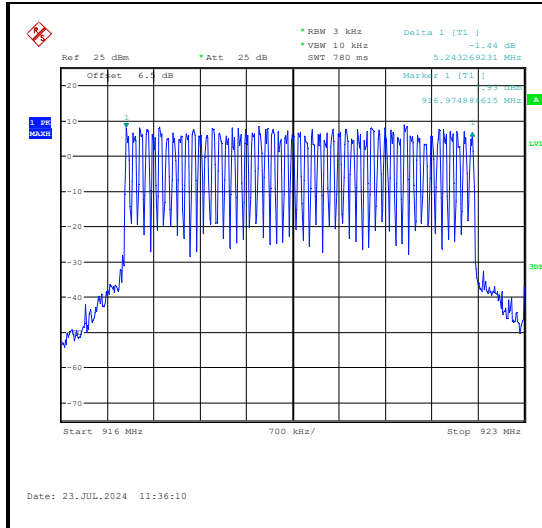
Maximum Conducted Peak Output Power



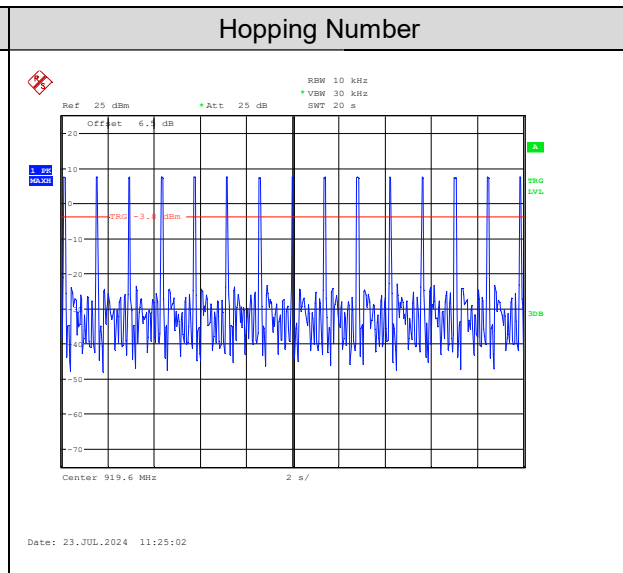
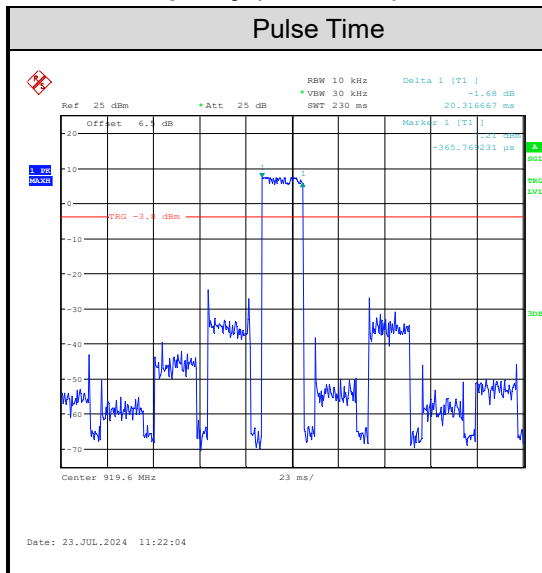
Channel separation:



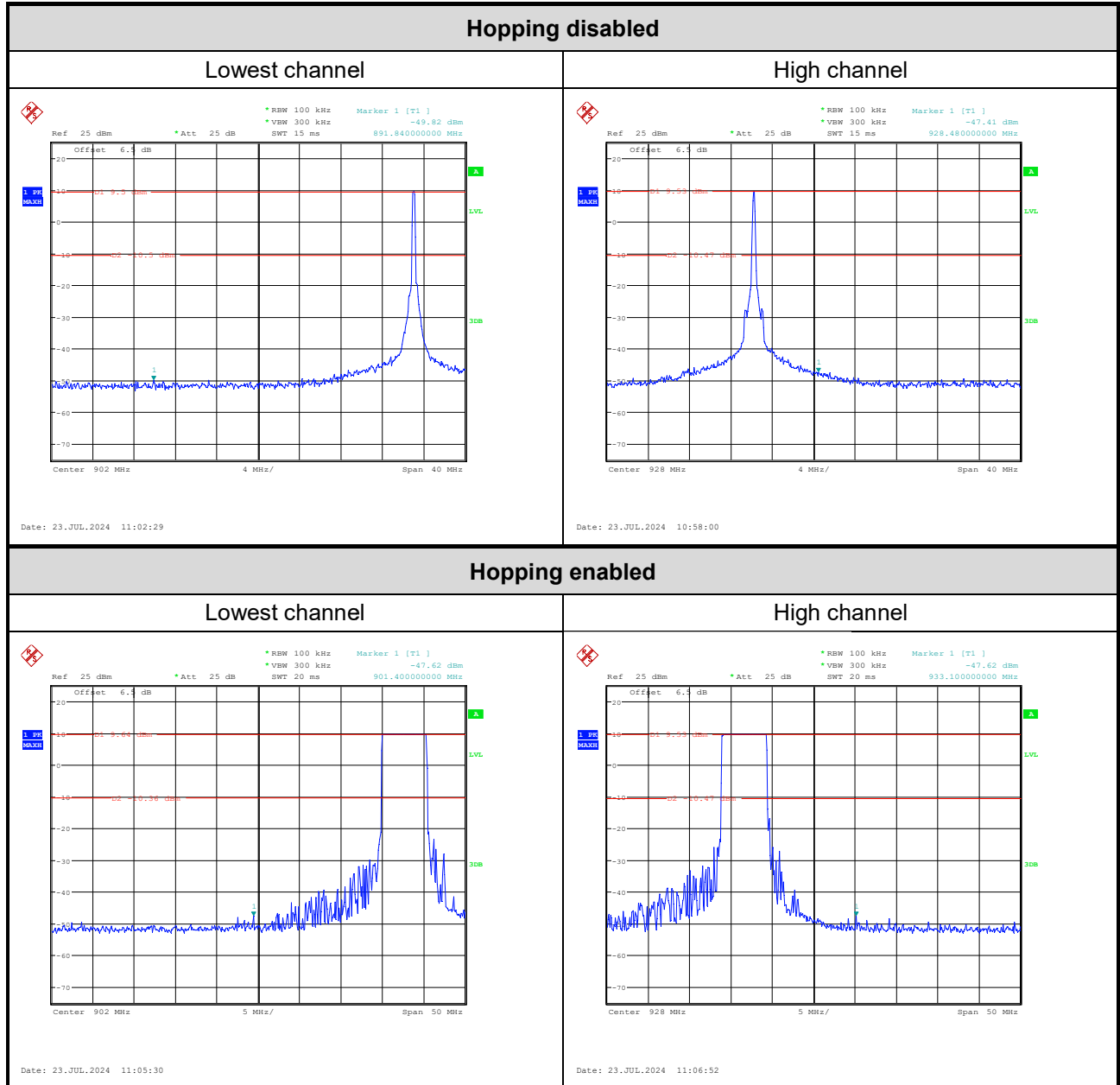
Number of hopping Frequency



Time of occupancy (dwell time)



100kHz Bandwidth of Frequency Band Edge:



4 Test Setup Photo

Please refer to the attachment 2405U23287E Test Setup photo.

5 E.U.T Photo

Please refer to the attachment 2405U23287E External photo and 2405U23287E Internal photo.

---End of Report---