TEST REPORT

APPLICANT	:	MiMOMax Wireless Limited
PRODUCT NAME	:	900MHz TornadoXR Transceiver
MODEL NAME	:	MWL-TORNADOX-*G*A/B/C
BRAND NAME	:	MiMOMax Wireless
FCC ID	:	XMK-MMXTRNXB003
STANDARD(S)	:	47 CFR Part 15 Subpart A and B
RECEIPT DATE	:	2022-11-30
TEST DATE	:	2023-01-10
ISSUE DATE	:	2023-02-03

Edited by: Chen Bilian

Chen Bilian(Rapporteur)

Approved by: Xiao Xiong

Xiao Xiong(Supervisor)

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DIRECTORY

1. Technical Information 3
1.1. Applicant and Manufacturer Information 3
1.2. Equipment Under Test (EUT) Description 3
2. Test Results 4
2.1. Applied Reference Documents 4
2.2. EUT Setup and Operating Conditions 5
3. 47 CFR Part 15B Requirements 6
3.1. Conducted Emission 6
3.2. Radiated Emission 10
3.3. Antenna Terminal Disturbance 20
Annex A Test Uncertainty 33
Annex B Testing Laboratory Information 34

Change History		
Version	Date	Reason for change
1.0	2023-02-03	First edition

1.Technical Information

Note: Provide by applicant

1.1. Applicant and Manufacturer Information

Applicant:	MiMOMax Wireless Limited
Applicant Address:	540 Wairakei Road, Christchurch 8053, New Zealand
Manufacturer:	MiMOMax Wireless Limited
Manufacturer Address:	540 Wairakei Road, Christchurch 8053, New Zealand

1.2. Equipment Under Test (EUT) Description

Product Name:	900MHz TornadoXR Transceiver
EUT No.:	1#
Hardware Version:	P001
Software Version:	TRN_04.08.00.HPT76
Frequency Range:	901 MHz ~902MHz; 930 MHz ~931MHz; 940 MHz ~941 MHz
Operating Voltage:	10.5V~60V DC

Note: For a more detailed description, please refer to specification or user's manual supplied by the applicant and/or manufacturer.

2. Test Results

2.1. Applied Reference Documents

The objective of the report is to perform testing according to 47 CFR Part 15 Subpart A and B:

No.	Identity	Document Title
1	47 CFR Part 15	Radio Frequency Devices

Test detailed items/section required by FCC rules and results are listed as below:

No.	Section	Description	Test Date	Test Engineer	Result	Method Determination Remark
1	15.101	Equipment authorization requirement	Receiver contained within a FCC Part 24 transceiver that has been certified. The receiver has therefore been verified.			No deviation
2	15.103	Exempted devices	Device is not exempt as it is a receiver that contains a digital device			No deviation
3	15.107	Conducted Emission	2023.01.10	Fan Zehang	PASS	No deviation
4	15.109	Radiated Emissions	2023.01.10	Lin Jiayong	PASS	No deviation
5	15.111	Antenna Terminal Disturbance	2023.01.10	Fan Zehang	PASS	No deviation

Note 1: Additions to, deviation, or exclusions from the method shall be judged in the “method determination" column of add, deviate or exclude from the specific method shall be explained in the "Remark" of the above table.

Note 2: TORNADOX TRANSCEIVER complies with FCC Part 15 Subparts A and B as a Class B Unintentional Radiator. Tests were performed according to the method of measurements prescribed in ANSI C63.4-2014.

Note 3: When the test result is a critical value,we will use the measurement uncertainty give the judgment result based on the 95% confidence intervals.

2.2. EUT Setup and Operating Conditions

Test Item	
Conducted Emission	
Mode 1 :	**EUT + 24V DC Source + PC + PC Adapter + 901.5 MHz Idle + Ping Network**
Mode 2 :	EUT + 24V DC Source + PC + PC Adapter + 930.5 MHz Idle + Ping Network
Mode 3 :	EUT + 24V DC Source + PC + PC Adapter + 940.5 MHz Idle + Ping Network
Radiated Emission	
Mode 1 :	**EUT + 24V DC Source + PC + PC Adapter + 901.5 MHz Idle + Ping Network**
Mode 2 :	EUT + 24V DC Source + PC + PC Adapter + 930.5 MHz Idle + Ping Network
Mode 3 :	EUT + 24V DC Source + PC + PC Adapter + 940.5 MHz Idle + Ping Network
Antenna Terminal Disturbance	
Mode 1 :	EUT + 24V DC Source + PC + PC Adapter + 901.5 MHz Idle + Ping Network
Mode 2 :	EUT + 24V DC Source + PC + PC Adapter + 930.5 MHz Idle + Ping Network
Mode 3 :	EUT + 24V DC Source + PC + PC Adapter + 940.5 MHz Idle + Ping Network
Remark: The above test mode in boldface (Mode 1) was the worst case of conducted emission test and radiated emission test, only the test data of these modes were reported.	

During the measurement, the environmental conditions were within the listed ranges:

Temperature (°C):	15 - 35
Relative Humidity (%):	30 - 60
Atmospheric Pressure (kPa):	86 - 106

3. 47 CFR Part 15B Requirements

3.1. Conducted Emission

3.1.1. Requirement

According to FCC section 15.107, the radio frequency voltage that is conducted back onto the AC power line on any frequency within the band 150kHz to 30MHz shall not exceed the limits in the following table, as measured using a 50μH/50Ω line impedance stabilization network (LISN).

Frequency Range (MHz)	Conducted Limit (dBμV)	
	Quasi-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
5 - 30	60	50

Note:

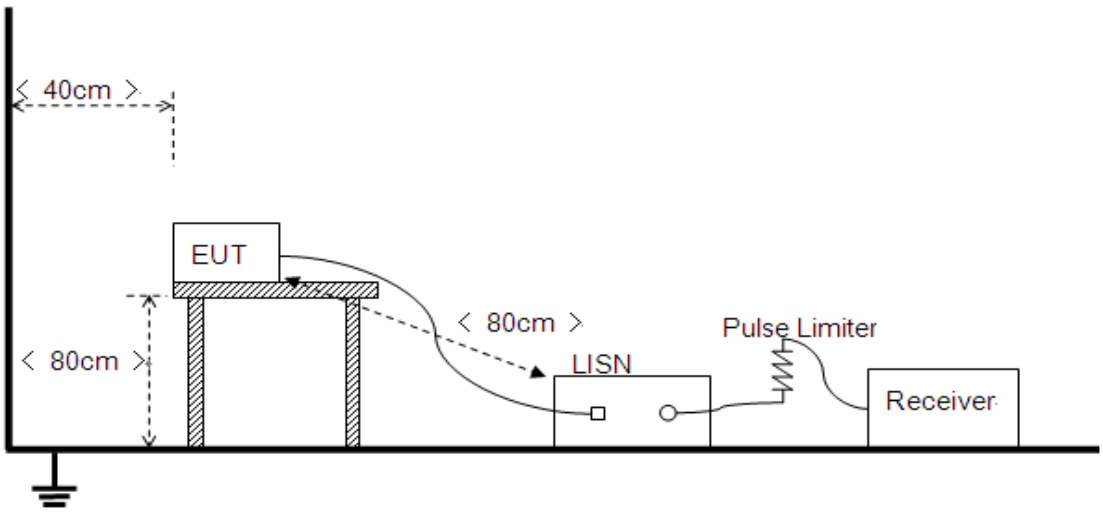
a) The limit subjects to the Class B digital device.

b) The lower limit shall apply at the band edges.

c) The limit decreases linearly with the logarithm of the frequency in the range 0.15 - 0.50MHz.

3.1.2. Test Setup

Please refer to Annex A for the photographs of the Test Configuration.



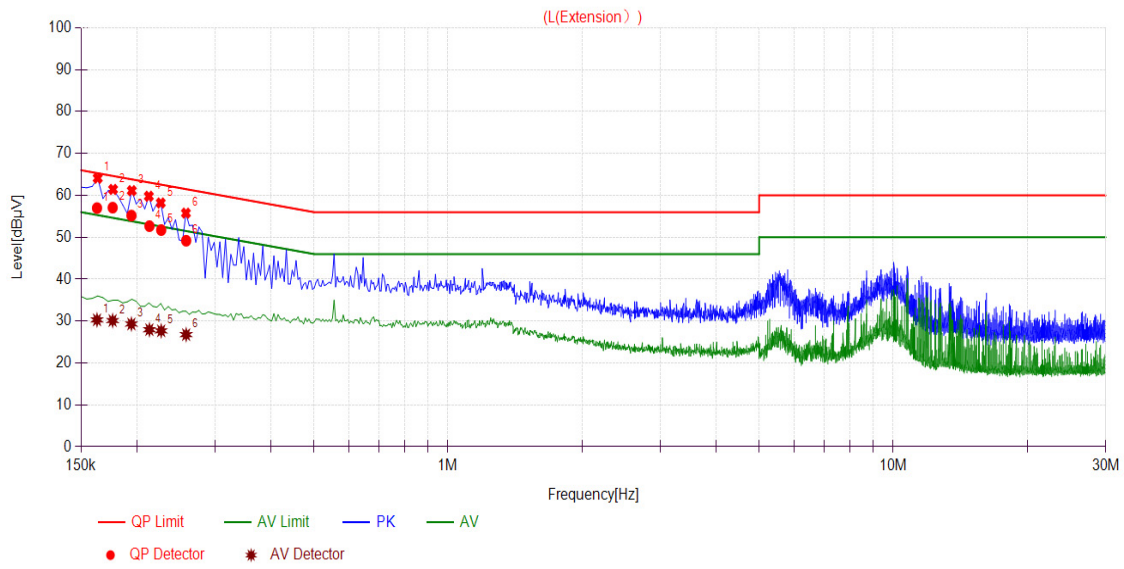
The EUT is placed on a 0.8m high insulating table, which stands on the grounded conducting floor, and keeps 0.4m away from the grounded conducting wall. The EUT is connected to the power mains through a LISN which provides 50Ω/50μH of coupling impedance for the measuring instrument. A Pulse Limiter is used to protect the measuring instrument. The factors of the whole test system are calibrated to correct the reading.

The power strip or extension cord has been investigated to make sure that the LISN integrity inma intained with respect to the impedance characteristics as prescribed in ANSI C63.4-2014 at Clause 4.3.

3.1.3. Test Result

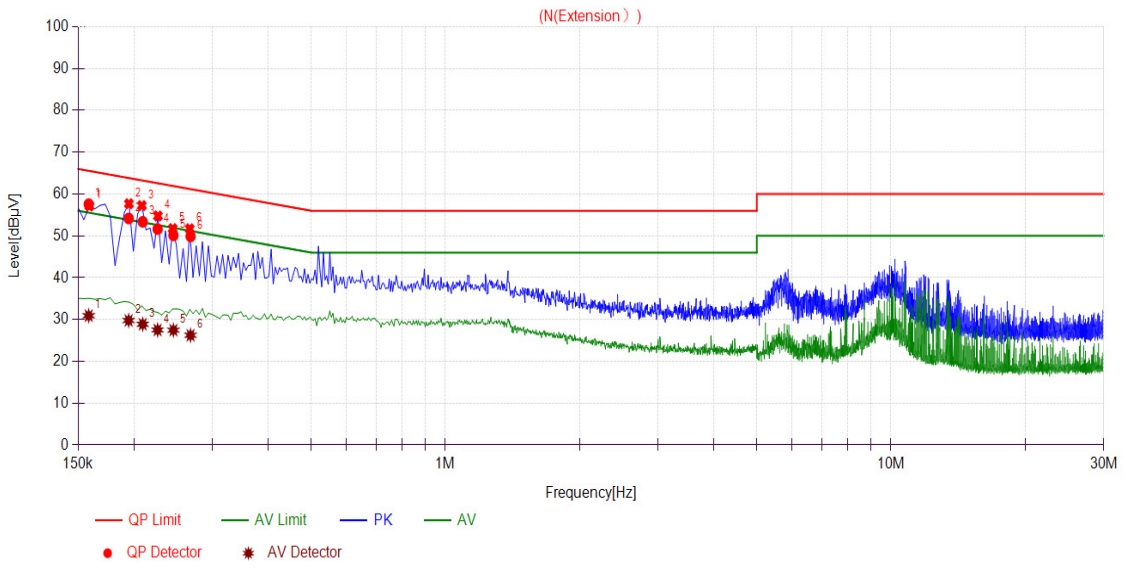
Set RBW=9 kHz, VBW=30 kHz. The maximum conducted interference is searched using Peak (PK), Quasi-peak (QP) and Average (AV) detectors; the emission levels more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed. All test modes are considered, refer to recorded points and plots below.

A. Test Plot and Suspicious Points:



(Plot A:L Phase)

No.	Fre. (MHz)	Emission Level (dBµV)		Limit (dBµV)		Power-line	Verdict
		Quasi-peak	Average	Quasi-peak	Average		
1	0.1629	56.97	30.28	65.31	55.31	Line	PASS
2	0.1766	57.08	30.12	64.64	54.64		PASS
3	0.1946	55.17	29.30	63.84	53.84		PASS
4	0.2136	52.66	27.95	63.06	53.06		PASS
5	0.2270	51.72	27.67	62.56	52.56		PASS
6	0.2583	49.18	26.76	61.49	51.49		PASS



(Plot B: N Phase)

No.	Fre. (MHz)	Emission Level (dBμV)		Limit (dBμV)		Power-line	Verdict
		Quasi-peak	Average	Quasi-peak	Average		
1	0.1584	57.58	30.91	65.55	55.55	Neutral	PASS
2	0.1947	54.17	29.77	63.83	53.83		PASS
3	0.2094	53.36	28.87	63.23	53.23		PASS
4	0.2261	51.63	27.50	62.59	52.59		PASS
5	0.2454	50.12	27.45	61.91	51.91		PASS
6	0.2681	49.89	26.23	61.18	51.18		PASS

3.2. Radiated Emission

3.2.1. Requirement

According to FCC section 15.109 (a), the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency range (MHz)	Field Strength Limitation at 3m Measurement Distance	
	(μV/m)	(dBμV/m)
30.0 - 88.0	100	20log 100
88.0 - 216.0	150	20log 150
216.0 - 960.0	200	20log 200
Above 960.0	500	20log 500

For CB receivers, the field strength of radiated emissions within the frequency range of 25-30 MHz shall not exceed 40 microvolts/meter at a distance of 3 meters.

As shown in FCC section 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector. When average radiated emission measurements are specified in this part, including emission measurements below 1000MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit for the frequency being investigated unless a different peak emission limit is otherwise specified in the rules.

Note:

1) The tighter limit shall apply at the boundary between two frequency range.
2) Limitation expressed in dBμV/m is calculated by 20log Emission Level(μV/m).

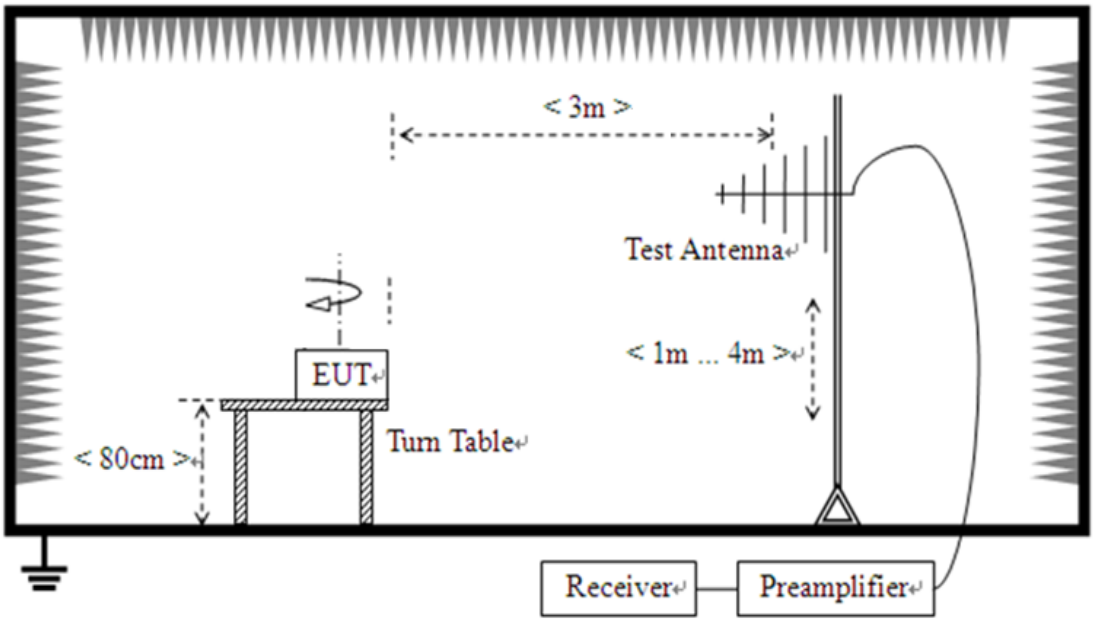
3.2.2. Frequency range of measurement

According to 15.33(b)(1), the frequency range of radiated measurement for the EUT is listed in the following table:

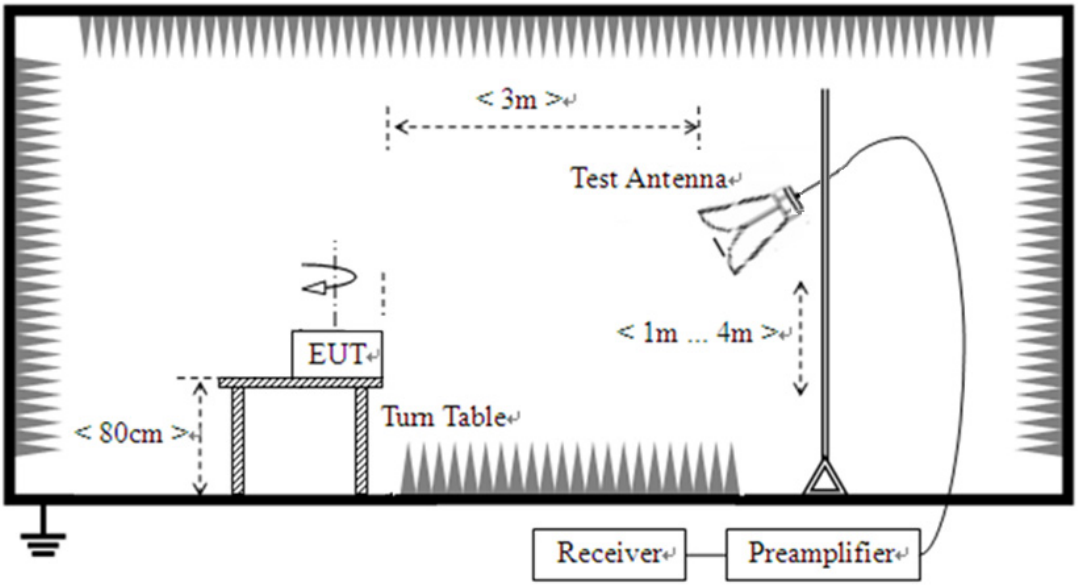
Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	**Upper frequency of measurement range (MHz)**
Below 1.705	30.
1.705 – 108	1000.
108 – 500	2000.
500 – 1000	5000.
Above 1000	5th harmonic of the highest frequency or 40GHz, whichever is lower

3.2.3. Test Setup

1) For radiated emissions from 30MHz to 1GHz



2) For radiated emissions above 1GHz



The test is performed in a 3m Semi-Anechoic Chamber, the antenna factor, cable loss and so on of the site (factors) is calculated to correct the reading. The EUT is placed on a 0.8m high insulating Turn Table, and keeps 3m away from the Test Antenna, which is mounted on a variable-height antenna master tower.

For the test Antenna:

In the frequency range above 30MHz, Bi-Log Test Antenna (30MHz to 1GHz) and Horn Test Antenna (above 1GHz)are used. Test Antenna is 3m away from the EUT. Test Antenna height is varied from 1m to 4m above the ground to determine the maximum value of the field strength. The emission levels at both horizontal and vertical polarizations should be tested.

For measurements below 1GHz the resolution bandwidth is set to 120 kHz for peak detection measurements or 120kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

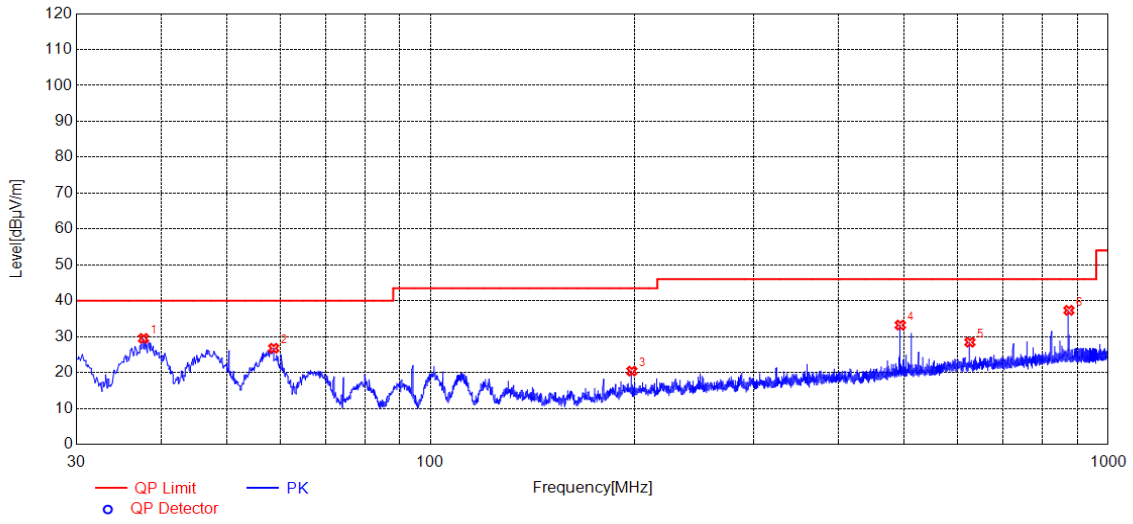
For measurements above 1GHz the resolution bandwidth is set to 1MHz, the video bandwidth is set to 3MHz for peak measurements and as applicable for average measurements.

3.2.4. Test Result

The maximum radiated emission is searched using PK, QP and AV detectors; the emission levels more than the limits, and that have narrow margins from the limits will be re-measured with AV and QP detectors. Both the vertical and the horizontal polarizations of the Test Antenna are considered to perform the tests. All test modes are considered, refer to recorded points and plots below.

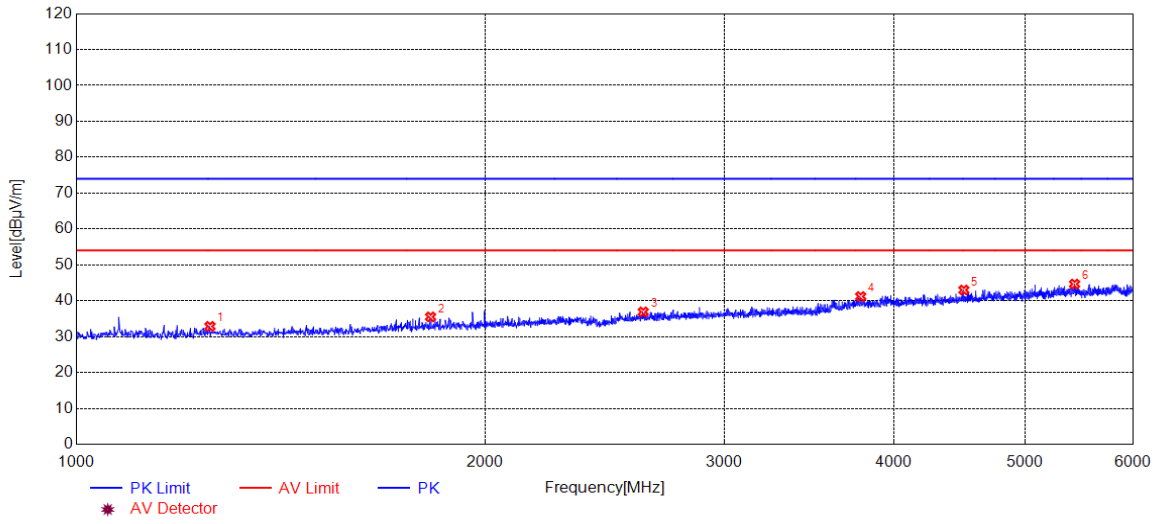
The amplitude of emissions which are attenuated more than 20 dB below the permissible value need not be reported.

Note: All radiated emission tests were performed in X, Y, Z axis direction, and only the worst axis test condition was recorded in this test report.



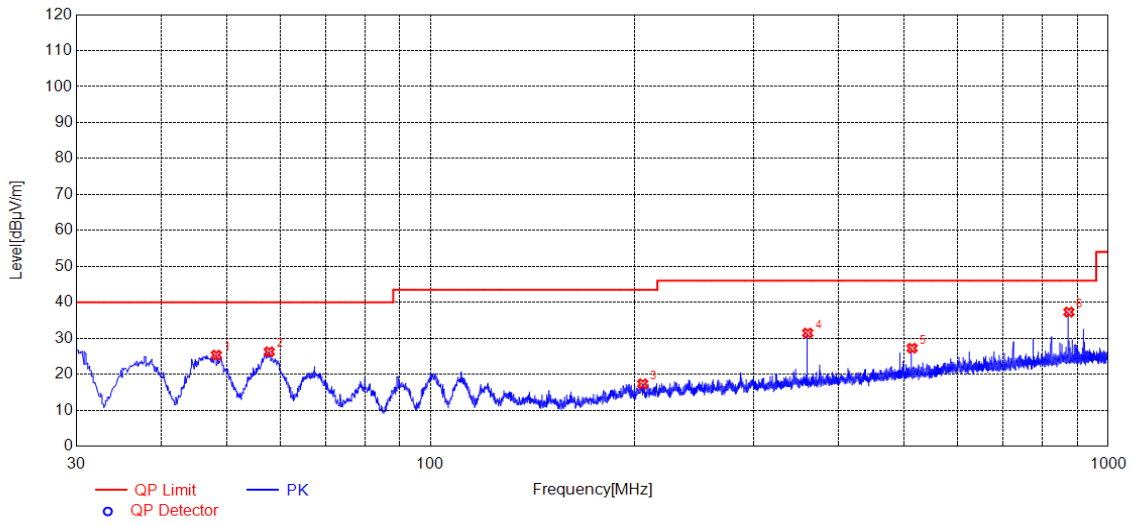
(Plot A: ANT-Vertical,30MHz - 1GHz)

No.	Fre. MHz	Pk dBµV/m	QP dBµV/m	AV dBµV/m	Limit-PK dBµV/m	Limit-QP dBµV/m	Limit-AV dBµV/m	ANT	Verdict
1	37.6638	29.51	N.A.	N.A.	N.A.	40.00	N.A.	V	PASS
2	58.6179	26.76	N.A.	N.A.	N.A.	40.00	N.A.	V	PASS
3	198.0208	20.41	N.A.	N.A.	N.A.	43.50	N.A.	V	PASS
4	493.2213	33.22	N.A.	N.A.	N.A.	46.00	N.A.	V	PASS
5	624.9605	28.44	N.A.	N.A.	N.A.	46.00	N.A.	V	PASS
6	874.9545	37.33	N.A.	N.A.	N.A.	46.00	N.A.	V	PASS



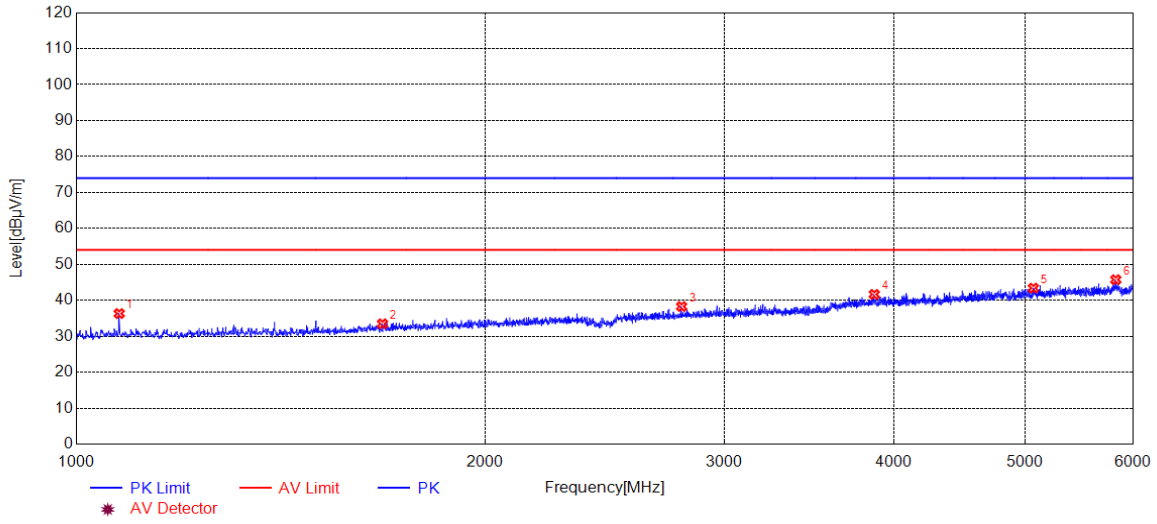
(Plot B: ANT-Vertical,1GHz - 6GHz)

No.	Fre. MHz	Pk dBμV/m	QP dBμV/m	AV dBμV/m	Limit-PK dBμV/m	Limit-QP dBμV/m	Limit-AV dBμV/m	ANT	Verdict
1	1254.0508	32.87	N.A.	N.A.	74.00	N.A.	54.00	V	PASS
2	1823.1646	35.51	N.A.	N.A.	74.00	N.A.	54.00	V	PASS
3	2615.3231	36.90	N.A.	N.A.	74.00	N.A.	54.00	V	PASS
4	3782.5565	41.19	N.A.	N.A.	74.00	N.A.	54.00	V	PASS
5	4505.7011	42.99	N.A.	N.A.	74.00	N.A.	54.00	V	PASS
6	5436.8874	44.65	N.A.	N.A.	74.00	N.A.	54.00	V	PASS



(Plot C:ANT- Horizontal, 30MHz - 1GHz)

No.	Fre. MHz	Pk dBµV/m	QP dBµV/m	AV dBµV/m	Limit-PK dBµV/m	Limit-QP dBµV/m	Limit-AV dBµV/m	ANT	Verdict
1	48.2378	25.32	N.A.	N.A.	N.A.	40.00	N.A.	H	PASS
2	57.7448	26.25	N.A.	N.A.	N.A.	40.00	N.A.	H	PASS
3	205.4905	17.35	N.A.	N.A.	N.A.	43.50	N.A.	H	PASS
4	360.0270	31.48	N.A.	N.A.	N.A.	46.00	N.A.	H	PASS
5	513.3993	27.24	N.A.	N.A.	N.A.	46.00	N.A.	H	PASS
6	874.9545	37.29	N.A.	N.A.	N.A.	46.00	N.A.	H	PASS



(Plot D:ANT- Horizontal, 1GHz - 6GHz)

No.	Fre. MHz	Pk dBµV/m	QP dBµV/m	AV dBµV/m	Limit-PK dBµV/m	Limit-QP dBµV/m	Limit-AV dBµV/m	ANT	Verdict
1	1075.0150	36.32	N.A.	N.A.	74.00	N.A.	54.00	H	PASS
2	1680.1360	33.49	N.A.	N.A.	74.00	N.A.	54.00	H	PASS
3	2791.3583	38.28	N.A.	N.A.	74.00	N.A.	54.00	H	PASS
4	3870.5741	41.66	N.A.	N.A.	74.00	N.A.	54.00	H	PASS
5	5069.8140	43.40	N.A.	N.A.	74.00	N.A.	54.00	H	PASS
6	5830.9662	45.75	N.A.	N.A.	74.00	N.A.	54.00	H	PASS

The test result for CB receiver RSE（25-30MHz）.

Test mode	Fre. MHz	QP dBμV/m	Limit-QP dBμV/m	ANT	Verdict
Mode 1	25.150	24.63	32.04	V	PASS
	26.462	23.92			PASS
	27.651	22.66			PASS
	28.550	22.84			PASS
	29.631	23.89			PASS
	29.881	23.88			PASS
	25.251	22.15	32.04	H	PASS
	25.674	20.62			PASS
	26.623	20.22			PASS
	27.468	21.33			PASS
	28.589	22.81			PASS
	29.556	22.54			PASS

3.3. Antenna Terminal Disturbance

3.3.1. Requirement

In addition to the radiated emission limits, receivers that operate (tune) in the frequency range 30 to 960 MHz and CB receivers that provide terminals for the connection of an external receiving antenna may be tested to demonstrate compliance with the provisions of §15.109 with the antenna terminals shielded and terminated with a resistive termination equal to the impedance specified for the antenna, provided these receivers also comply with the following: With the receiver antenna terminal connected to a resistive termination equal to the impedance specified or employed for the antenna, the power at the antenna terminal at any frequency within the range of measurements specified in §15.33 shall not exceed 2.0 nanowatts(-57dBm).

Measurements were attempted over the range of 30 MHz– 5 GHz

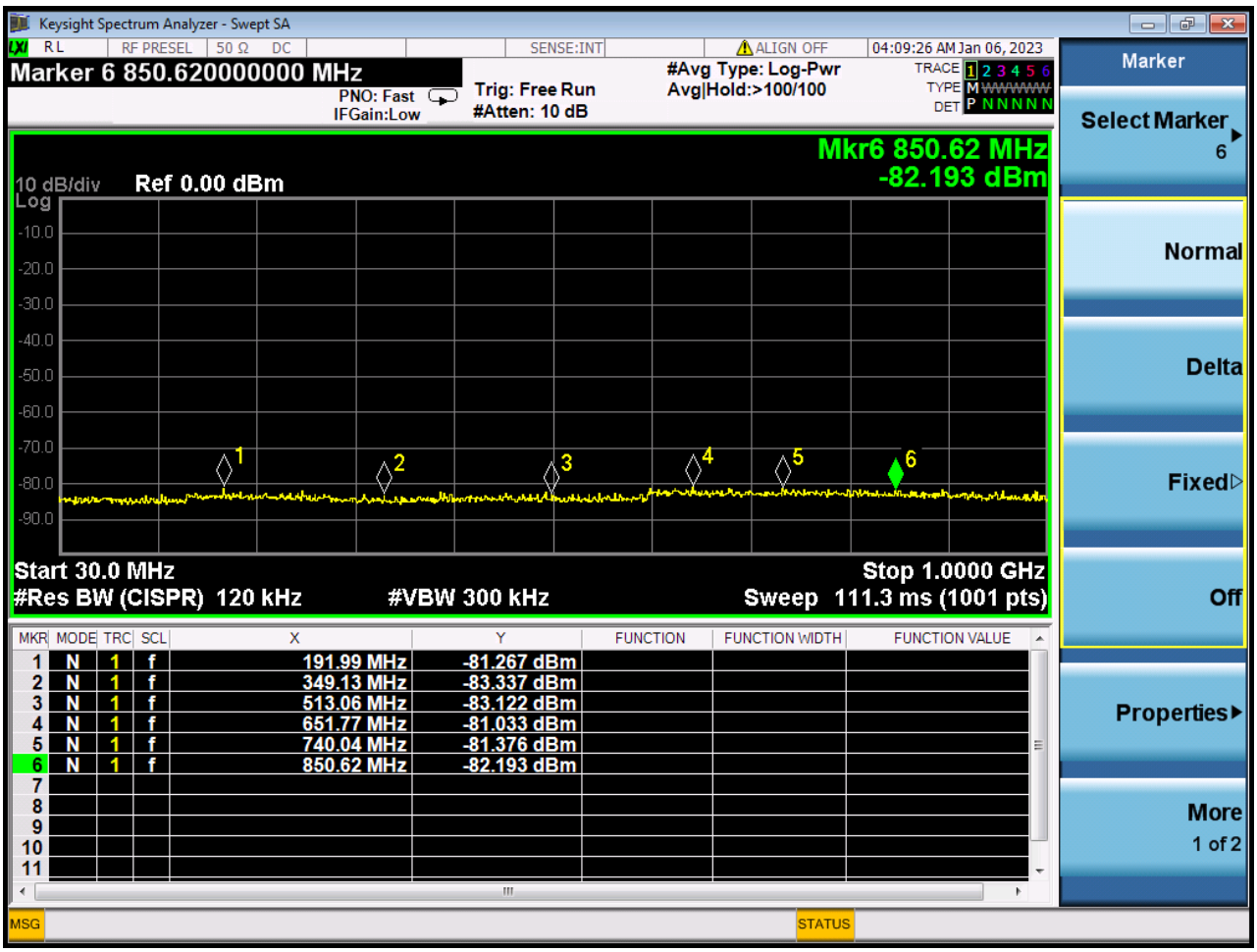
3.3.2. Test Result

Note: $P_{Final\ value}$(dBm) = $P_{Reading\ value}$(dBm) + Factor(dB) ,
Factor = Cable loss(dB)

H port, Operate at 901.5MHz, 30MHz -1000MHz

Fre. MHz	$P_{Reading\ value}$ dBm	Factor dB	$P_{Final\ value}$ dBm	Limit dBm	Verdict
191.99	-81.267	0.15	-81.117	-57	PASS
349.13	-83.337	0.28	-83.057	-57	PASS
513.06	-83.122	0.41	-82.712	-57	PASS
651.77	-81.033	0.51	-80.523	-57	PASS
740.04	-81.376	0.58	-80.796	-57	PASS
850.62	-82.193	0.67	-81.523	-57	PASS

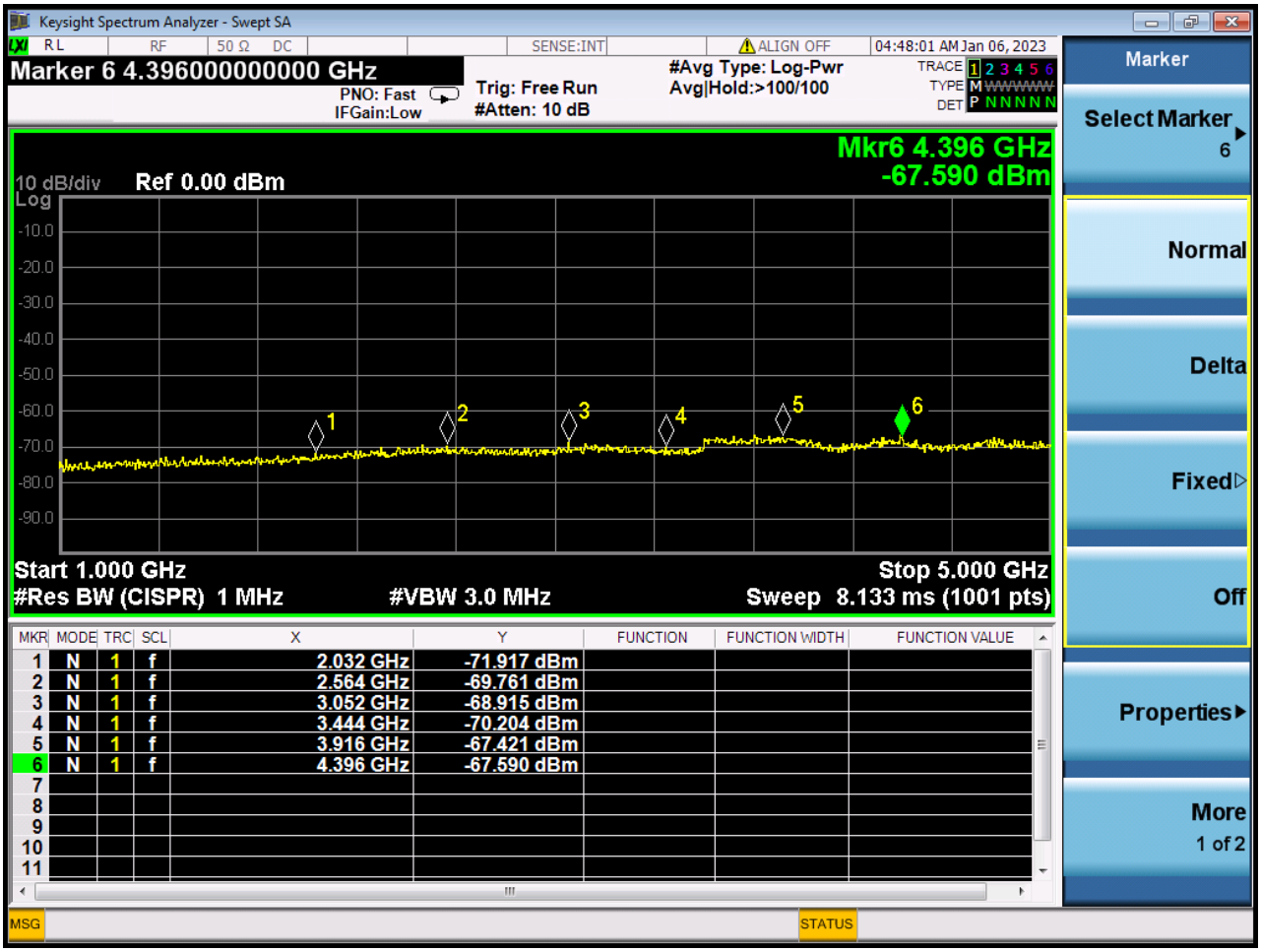
Attach spectrum pictures of $P_{Reading\ value}$ for this test here:



H port, Operate at 901.5MHz, 1GHz -5GHz

Fre. GHz	$P_{Reading\ value}$ dBm	Factor dB	$P_{Final\ value}$ dBm	Limit dBm	Verdict
2.032	-71.917	1.4	-70.517	-57	PASS
2.564	-69.761	1.77	-67.991	-57	PASS
3.052	-68.915	2.11	-66.805	-57	PASS
3.444	-70.204	2.38	-67.824	-57	PASS
3.916	-67.421	2.7	-64.721	-57	PASS
4.396	-67.59	3.03	-64.56	-57	PASS

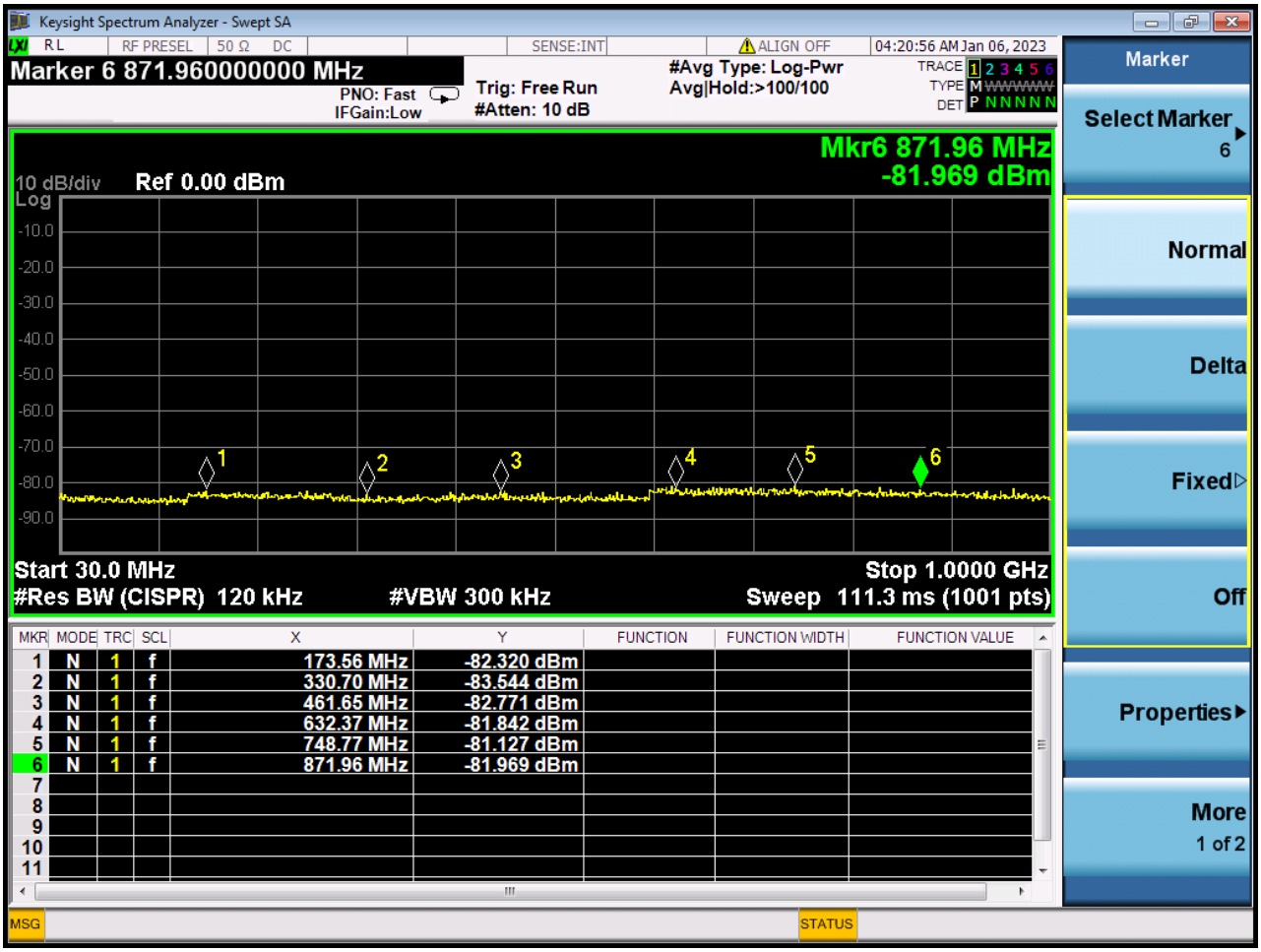
Attach spectrum pictures of $P_{Readingvalue}$ for this test here:



V port, Operate at 901.5MHz, 30MHz -1000MHz

Fre. MHz	$P_{Reading\ value}$ dBm	Factor dB	$P_{Final\ value}$ dBm	Limit dBm	Verdict
173.56	-82.32	0.14	-82.18	-57	PASS
330.7	-83.544	0.26	-83.284	-57	PASS
461.65	-82.771	0.36	-82.411	-57	PASS
632.37	-81.842	0.5	-81.342	-57	PASS
748.77	-81.127	0.59	-80.537	-57	PASS
871.96	-81.969	0.69	-81.279	-57	PASS

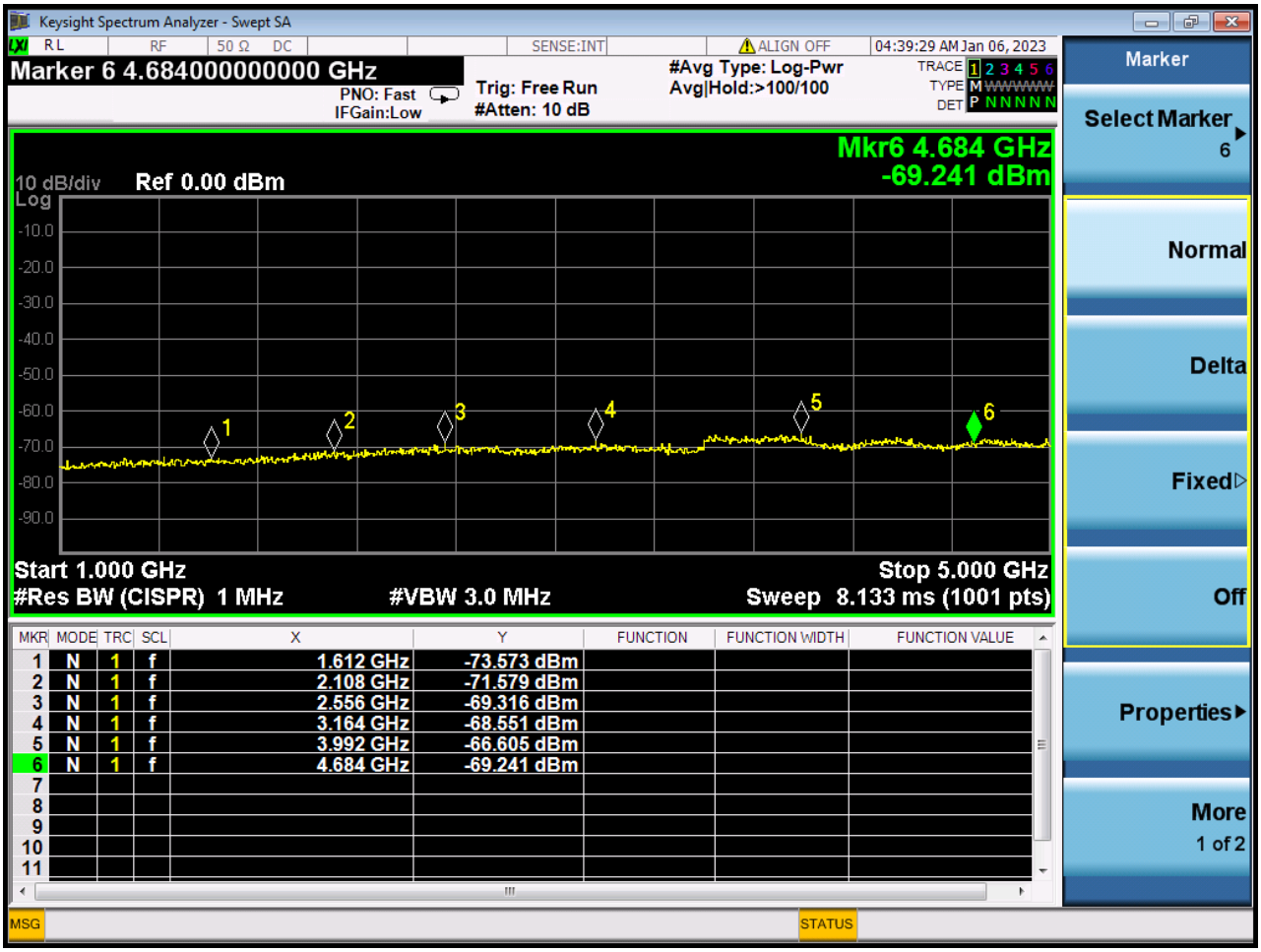
Attach spectrum pictures of $P_{Readingvalue}$ for this test here:



V port, Operate at 901.5MHz, 1GHz -5GHz

Fre. GHz	$P_{Reading\ value}$ dBm	Factor dB	$P_{Final\ value}$ dBm	Limit dBm	Verdict
1.612	-73.573	1.11	-72.463	-57	PASS
2.108	-71.579	1.45	-70.129	-57	PASS
2.556	-69.316	1.76	-67.556	-57	PASS
3.164	-68.551	2.18	-66.371	-57	PASS
3.992	-66.605	2.75	-63.855	-57	PASS
4.684	-69.241	3.23	-66.011	-57	PASS

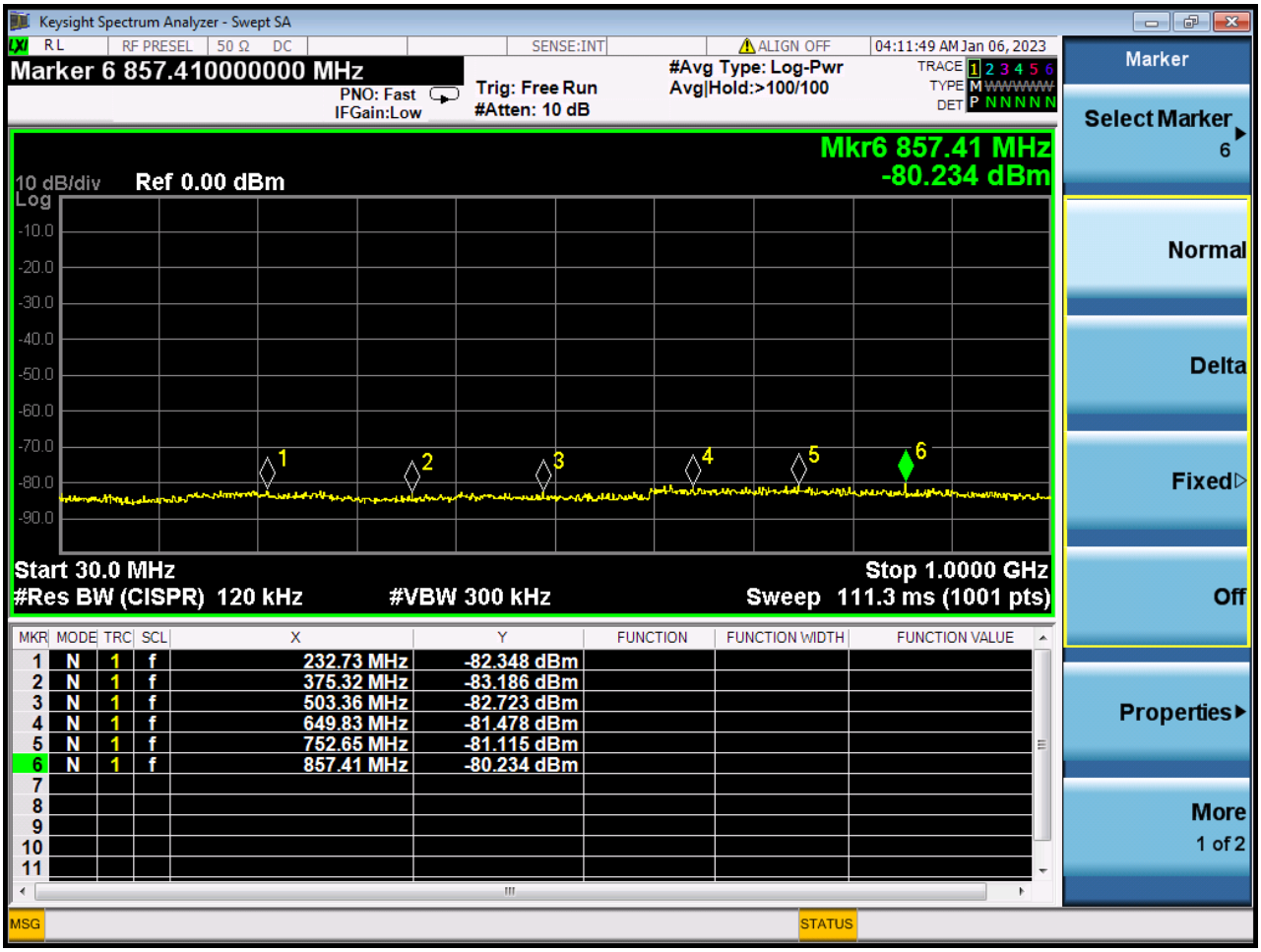
Attach spectrum pictures of $P_{Readingvalue}$ for this test here:



H port, Operate at 930.5MHz, 30MHz -1000MHz

Fre. MHz	$P_{Reading\ value}$ dBm	Factor dB	$P_{Final\ value}$ dBm	Limit dBm	Verdict
232.73	-82.348	0.18	-82.168	-57	PASS
375.32	-83.186	0.3	-82.886	-57	PASS
503.36	-82.723	0.4	-82.323	-57	PASS
649.83	-81.478	0.51	-80.968	-57	PASS
752.65	-81.115	0.59	-80.525	-57	PASS
857.41	-80.234	0.68	-79.554	-57	PASS

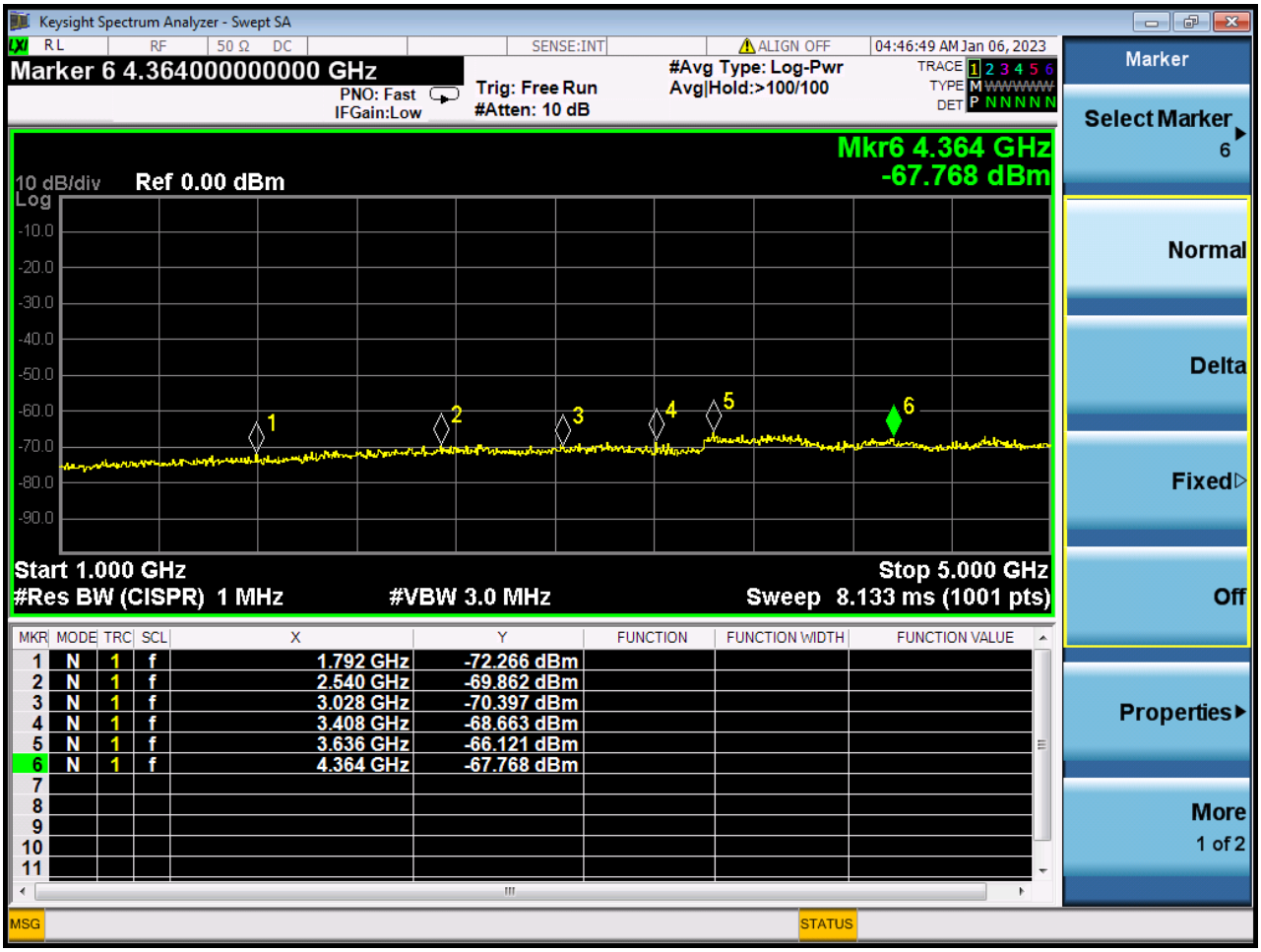
Attach spectrum pictures of $P_{Readingvalue}$ for this test here:



H port, Operate at 930.5MHz, 1GHz -5GHz

Fre. GHz	$P_{Reading\ value}$ dBm	Factor dB	$P_{Final\ value}$ dBm	Limit dBm	Verdict
1.792	-72.266	1.24	-71.026	-57	PASS
2.54	-69.862	1.75	-68.112	-57	PASS
3.028	-70.397	2.09	-68.307	-57	PASS
3.408	-68.663	2.35	-66.313	-57	PASS
3.636	-66.121	2.51	-63.611	-57	PASS
4.364	-67.768	3.01	-64.758	-57	PASS

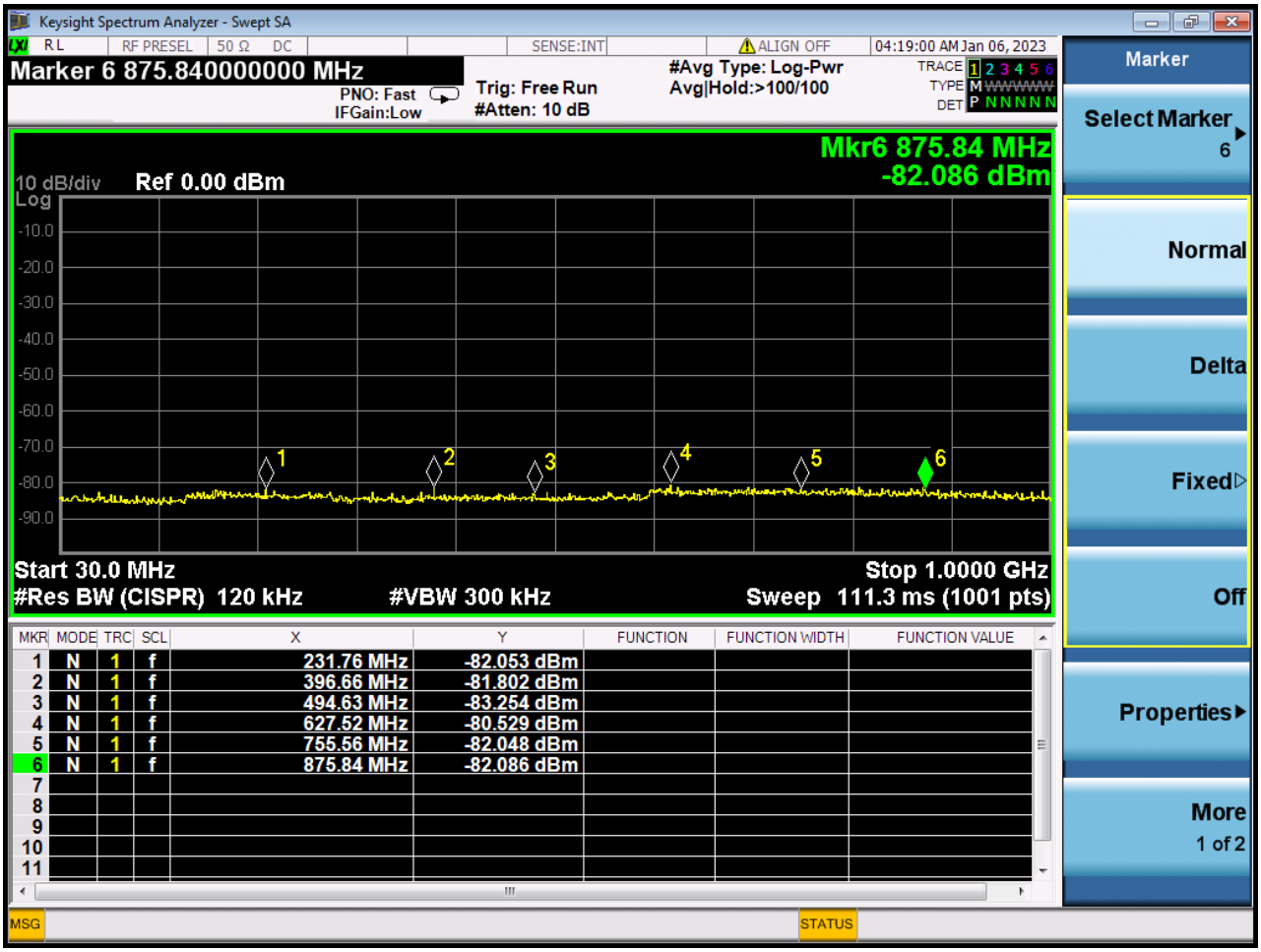
Attach spectrum pictures of $P_{Readingvalue}$ for this test here:



V port, Operate at 930.5MHz, 30MHz -1000MHz

Fre. MHz	$P_{Reading\ value}$ dBm	Factor dB	$P_{Final\ value}$ dBm	Limit dBm	Verdict
231.76	-82.053	0.18	-81.873	-57	PASS
396.66	-81.802	0.31	-81.492	-57	PASS
494.63	-83.254	0.39	-82.864	-57	PASS
627.52	-80.529	0.5	-80.029	-57	PASS
755.56	-82.048	0.6	-81.448	-57	PASS
875.84	-82.086	0.69	-81.396	-57	PASS

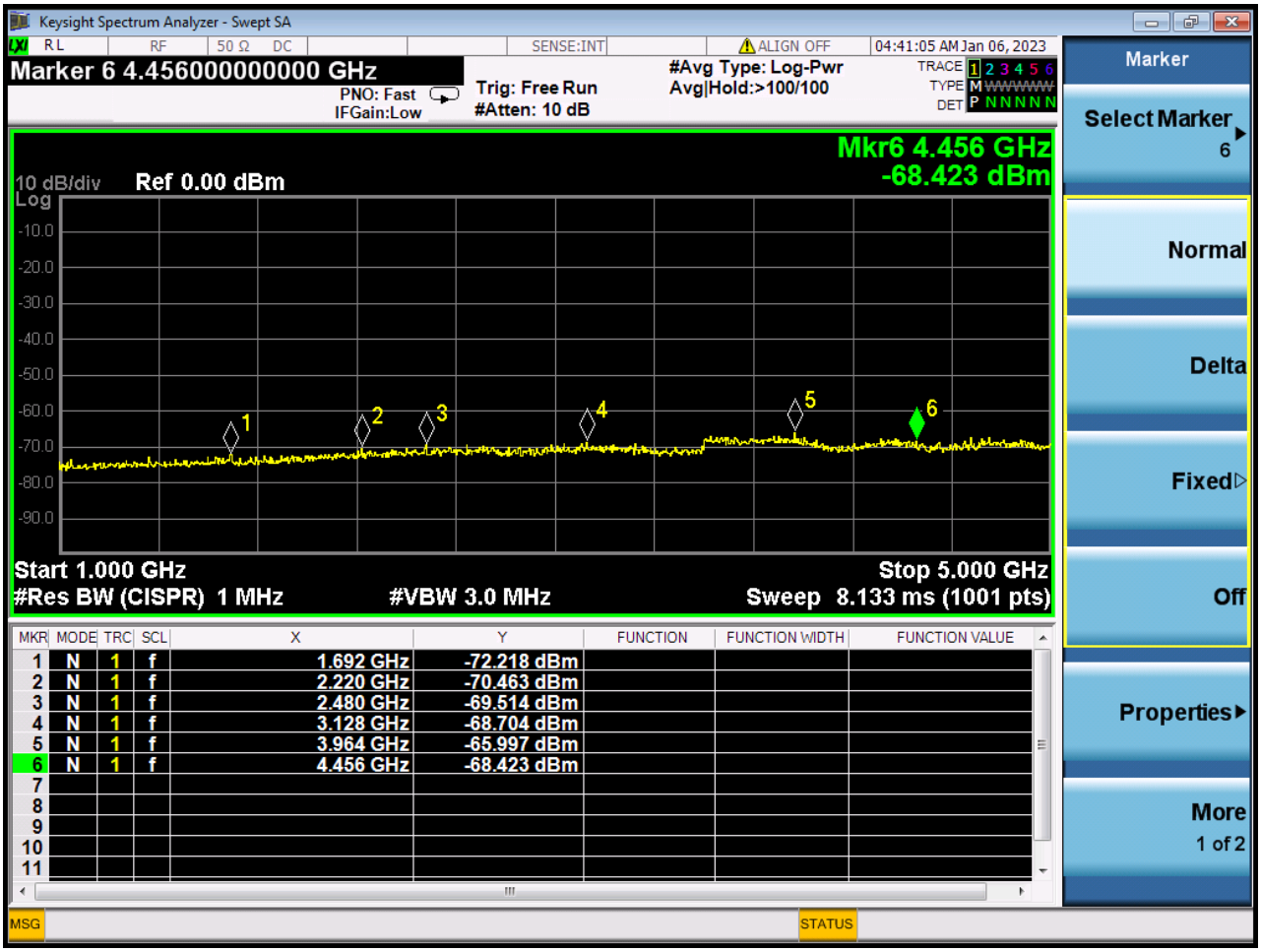
Attach spectrum pictures of $P_{Readingvalue}$ for this test here:



V port, Operate at 930.5MHz, 1GHz -5GHz

Fre. GHz	$P_{Reading\ value}$ dBm	Factor dB	$P_{Final\ value}$ dBm	Limit dBm	Verdict
1.692	-72.218	1.17	-71.048	-57	PASS
2.22	-70.463	1.53	-68.933	-57	PASS
2.48	-69.514	1.71	-67.804	-57	PASS
3.128	-68.704	2.16	-66.544	-57	PASS
3.964	-65.997	2.74	-63.257	-57	PASS
4.456	-68.423	3.07	-65.353	-57	PASS

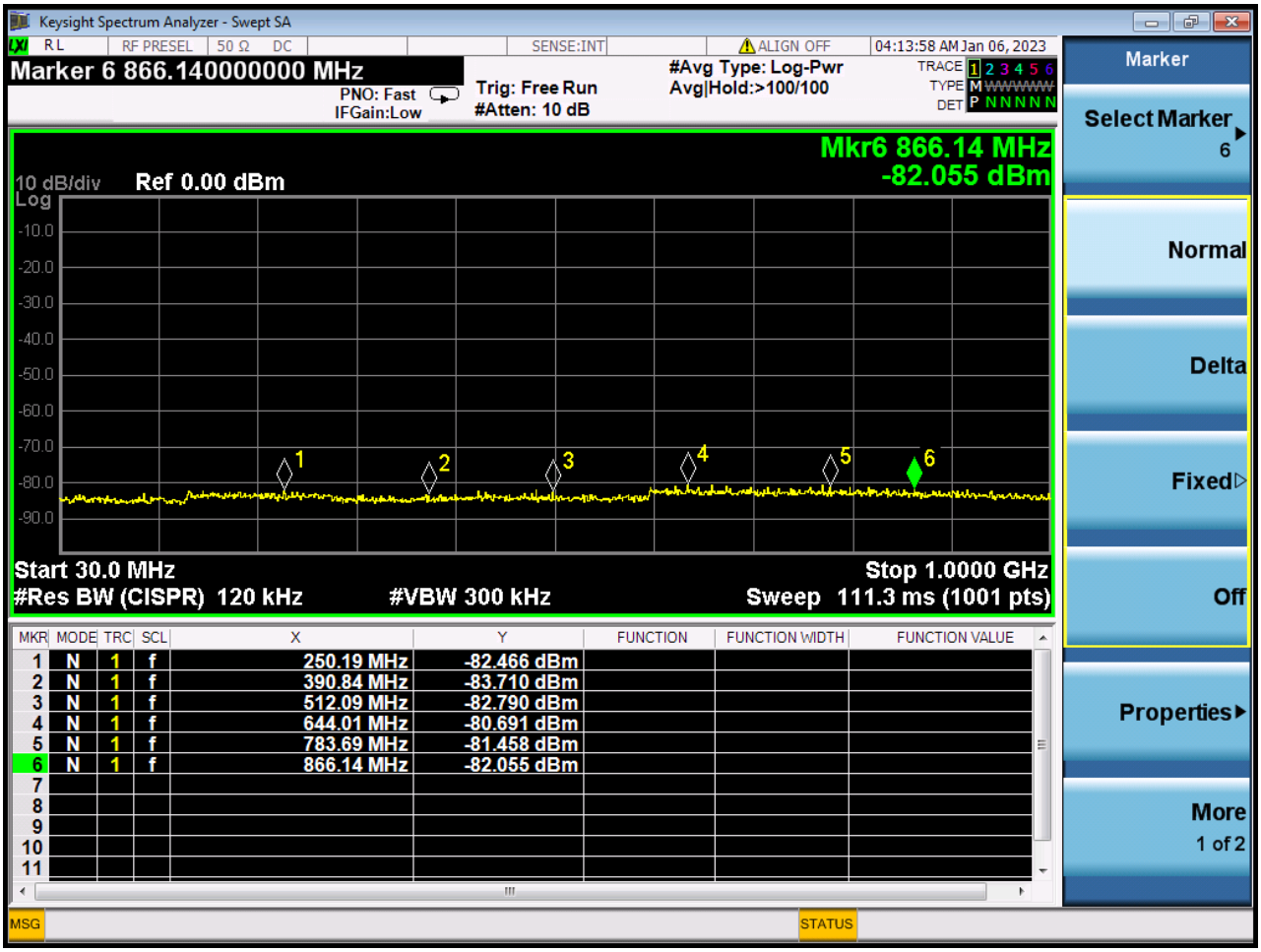
Attach spectrum pictures of $P_{Readingvalue}$ for this test here:



H port, Operate at 940.5MHz, 30MHz -1000MHz

Fre. MHz	$P_{Reading\ value}$ dBm	Factor dB	$P_{Final\ value}$ dBm	Limit dBm	Verdict
250.19	-82.466	0.2	-82.266	-57	PASS
390.84	-83.71	0.31	-83.4	-57	PASS
512.09	-82.79	0.4	-82.39	-57	PASS
644.01	-80.691	0.51	-80.181	-57	PASS
783.69	-81.458	0.62	-80.838	-57	PASS
866.14	-82.055	0.68	-81.375	-57	PASS

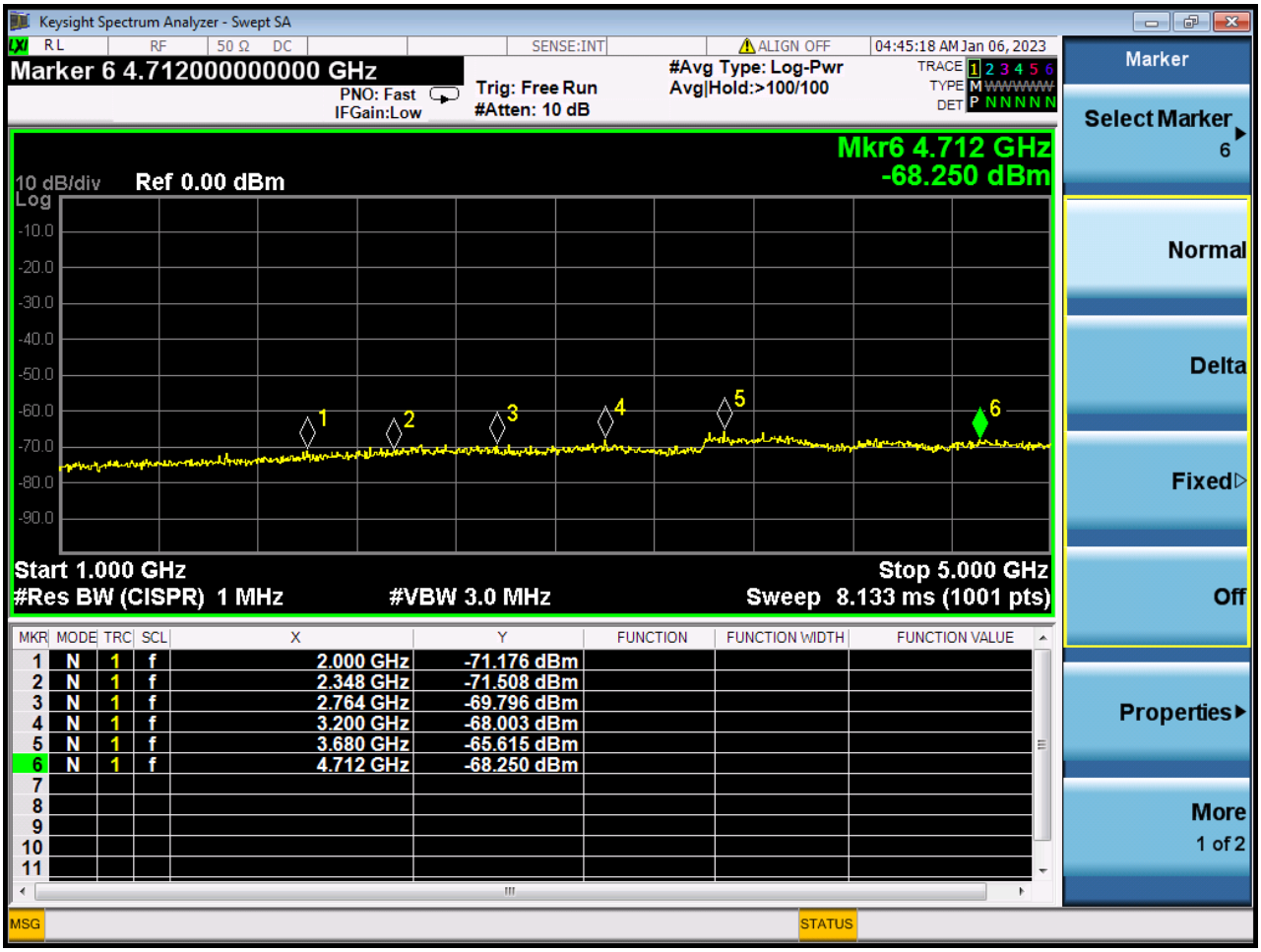
Attach spectrum pictures of $P_{Reading\ value}$ for this test here:



H port, Operate at 940.5MHz, 1GHz -5GHz

Fre. GHz	$P_{Reading\ value}$ dBm	Factor dB	$P_{Final\ value}$ dBm	Limit dBm	Verdict
2	-71.176	1.38	-69.796	-57	PASS
2.348	-71.508	1.62	-69.888	-57	PASS
2.764	-69.796	1.91	-67.886	-57	PASS
3.2	-68.003	2.21	-65.793	-57	PASS
3.68	-65.615	2.54	-63.075	-57	PASS
4.712	-68.25	3.25	-65	-57	PASS

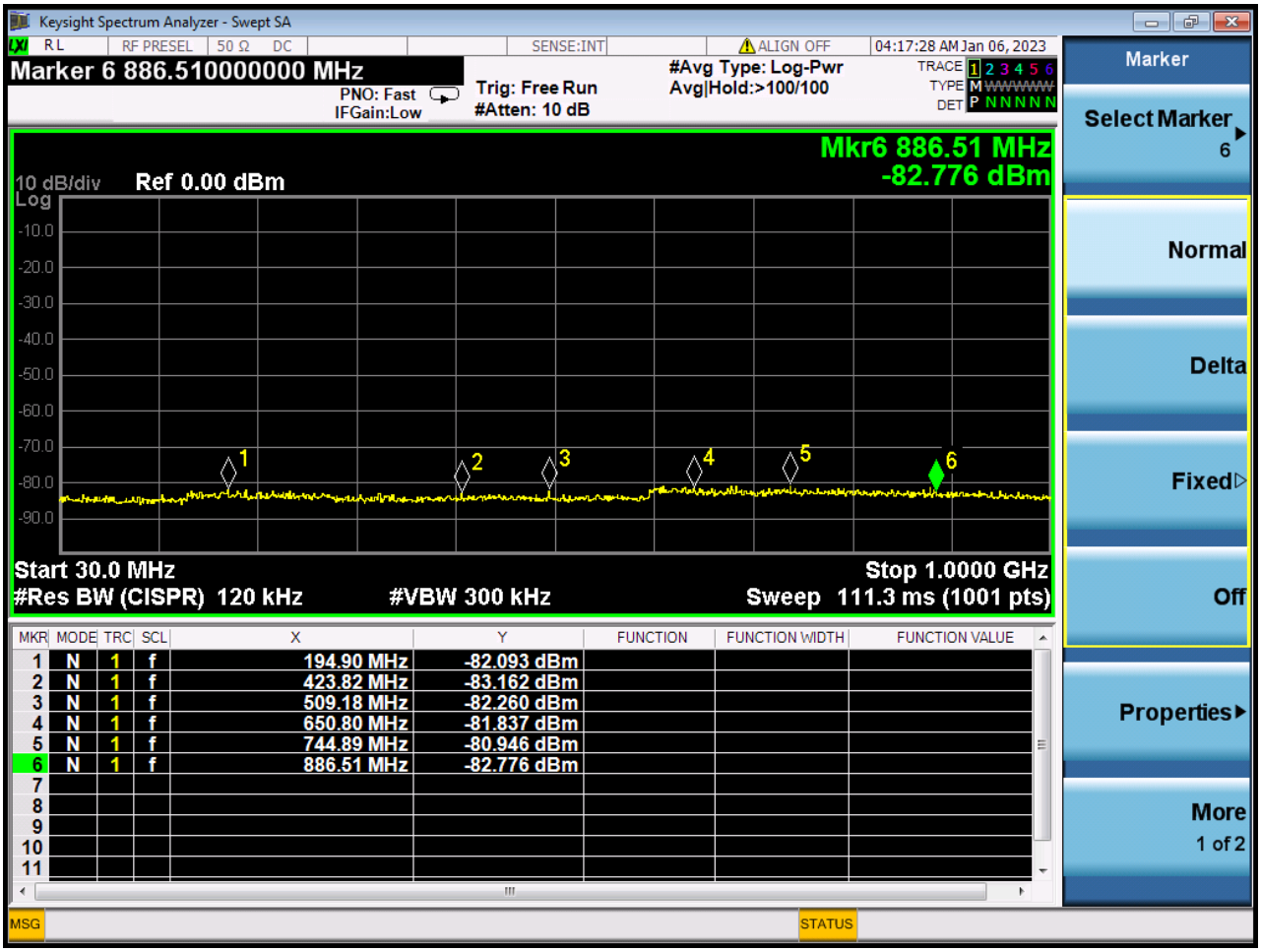
Attach spectrum pictures of $P_{Readingvalue}$ for this test here:



V port, Operate at 940.5MHz, 30MHz -1000MHz

Fre. MHz	$P_{Reading\ value}$ dBm	Factor dB	$P_{Final\ value}$ dBm	Limit dBm	Verdict
194.9	-82.093	0.15	-81.943	-57	PASS
423.82	-83.162	0.33	-82.832	-57	PASS
509.18	-82.26	0.4	-81.86	-57	PASS
650.8	-81.837	0.51	-81.327	-57	PASS
744.89	-80.946	0.59	-80.356	-57	PASS
886.51	-82.776	0.7	-82.076	-57	PASS

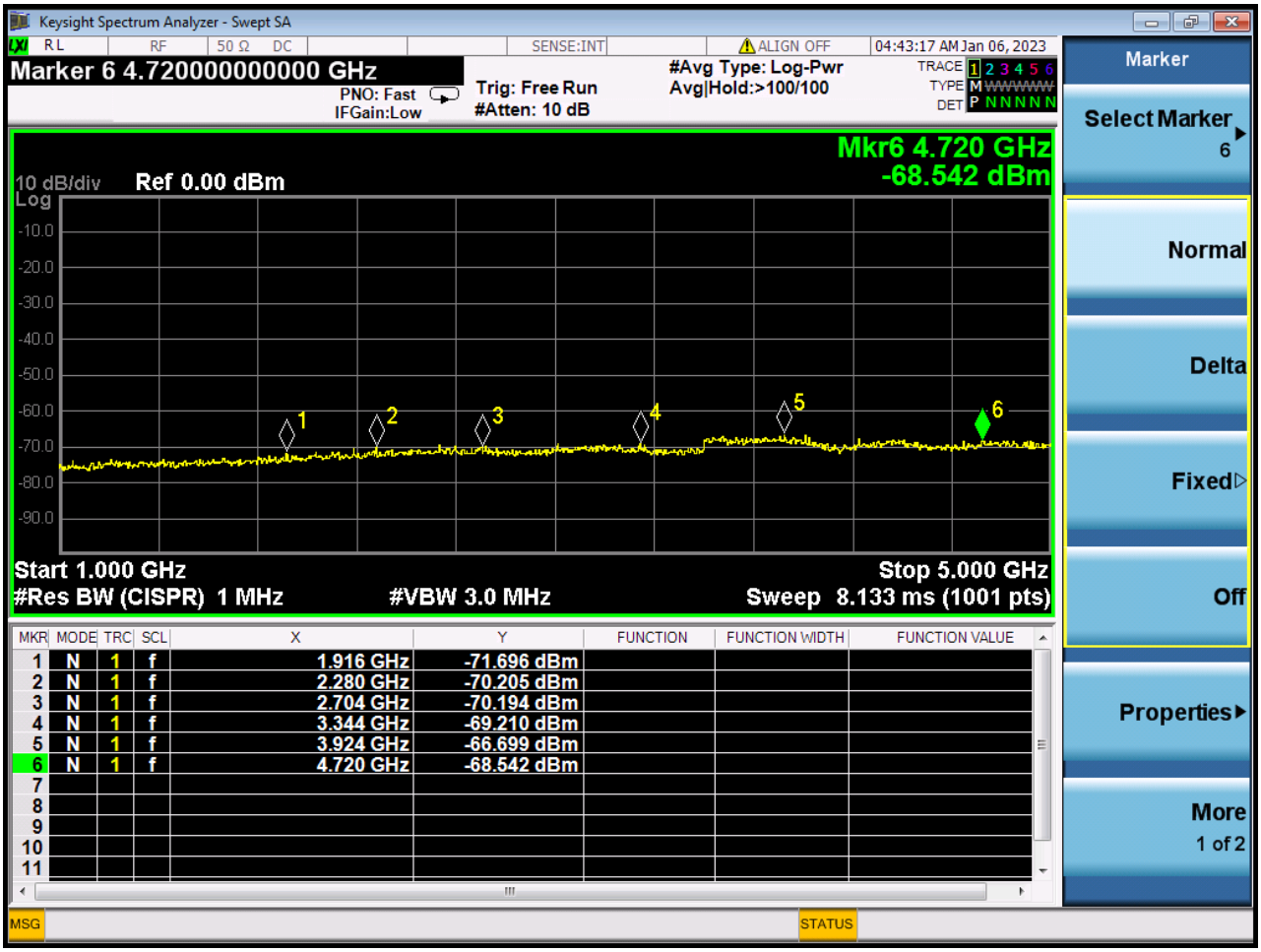
Attach spectrum pictures of $P_{Readingvalue}$ for this test here:



V port, Operate at 940.5MHz, 1GHz -5GHz

Fre. GHz	$P_{Reading\ value}$ dBm	Factor dB	$P_{Final\ value}$ dBm	Limit dBm	Verdict
1.916	-71.696	1.32	-70.376	-57	PASS
2.28	-70.205	1.57	-68.635	-57	PASS
2.704	-70.194	1.87	-68.324	-57	PASS
3.344	-69.21	2.31	-66.9	-57	PASS
3.924	-66.699	2.71	-63.989	-57	PASS
4.72	-68.542	3.26	-65.282	-57	PASS

Attach spectrum pictures of $P_{Readingvalue}$ for this test here:



Annex A Test Uncertainty

The uncertainty is calculated using the methods suggested in the "Guide to the Expression of Uncertainty in Measurement" (GUM) published by ISO.

Uncertainty of Conducted Emission Measurement

Measuring Uncertainty for a Level of Confidence of 95%(U=2Uc(y))	9kHz-150kHz	±3.3dB
	150kHz-30MHz	±2.8dB

Uncertainty of Radiated Emission Measurement

Measuring Uncertainty for a Level of Confidence of 95%(U=2Uc(y))	30MHz-200MHz	±5.06dB
	200MHz-1000MHz	±5.04dB
	1GHz-6GHz	±5.18dB
	6GHz-18GHz	±5.48dB

Annex B Testing Laboratory Information

1. Identification of the Responsible Testing Laboratory

Laboratory Name:	Shenzhen Morlab Communications Technology Co., Ltd.
Laboratory Address:	FL1-3, Building A, FeiYang Science Park, No.8 LongChang Road, Block67, BaoAn District, ShenZhen ,GuangDong Province, P. R. China
Telephone:	+86 755 36698555
Facsimile:	+86 755 36698525

2. Identification of the Responsible Testing Location

Name:	Shenzhen Morlab Communications Technology Co., Ltd.
Address:	FL1-3, Building A, FeiYang Science Park, No.8 LongChang Road, Block67, BaoAn District, ShenZhen ,GuangDong Province, P. R. China

3. Accreditation Certificate

Accredited Testing Laboratory:	The FCC designation number is CN1192. Test firm registration number is 226174. (Shenzhen Morlab Communications Technology Co., Ltd.)

4. Test Software Utilized

Model	Version Number	Producer
TS+ -[JS32-RE]	Version 2.5.0.6	Tonscend
TS+ -[JS32-CE]	Version 2.5.0.0	Tonscend

5. Test Equipments Utilized

Description	Model	Serial No.	Manufacturer	Cal. Date	Due. Date
Bi-Log Antenna	VULB 9163	9163-274	SCHWARZBECK	2022/11/7	2025/11/6
Bi-Log Antenna	VULB 9163	9163-519	SCHWARZBECK	2022/5/25	2025/5/24
Horn Antenna	BBHA 9120D	9120D-963	SCHWARZBECK	2022/5/25	2025/5/24
Horn Antenna	BBHA 9120D	01774	SCHWARZBECK	2022/7/13	2025/7/12
Horn Antenna	BBHA9170	BBHA9170 #773	SCHWARZBECK	2022/7/14	2025/7/13
Receiver	N9038A	MY54130016	Agilent	2022/7/7	2023/7/6
Receiver	N9038A	MY56400093	KEYSIGHT	2022/3/3	2023/3/2
6db Attenuator	BW-N6W5+	E191001	Mini-circuits	2022/10/11	2023/10/10
Preamplifier	S020180L3203	61171/61172	LUCIX CORP.	2022/7/8	2023/7/7
Preamplifier	S10M100L3802	46732	LUCIX CORP.	2022/7/8	2023/7/7
Preamplifier	DCLNA0118-40C-S	DS77209	Decentest	2022/7/23	2023/7/22
RF Coaxial Cable	PE330	MRE001	Pasternack	N/A	N/A
RF Coaxial Cable	CLU18	MRE002	Pasternack	N/A	N/A
RF Coaxial Cable	CLU18	MRE003	Pasternack	N/A	N/A
RF Coaxial Cable	QA360-40-KK-0.5	22290045	Qualwave	N/A	N/A
RF Coaxial Cable	QA360-40-KKF-2	22290046	Qualwave	N/A	N/A
RF Coaxial Cable	QA500-18-NN-5	22120181	Qualwave	N/A	N/A
RF Coaxial Cable	BNC	MRE04	Qualwave	N/A	N/A
Receiver	ESPI	101052	R&S	2022/7/7	2023/7/6

LISN	NSLK 8127	8127449	Schwarzbeck	2022/3/3	2023/3/2
10dB Pulse Limiter	VTSD 9561-F	VTSD 9561 F-B #206	SCHWARZBECK	2022/7/6	2023/7/5

6. Ancillary Equipment Utilized

Description	Manufacturer	Model	Serial No.
DC source	LINI-T	N/A	C2040182272
PC	APPLE	A1370	N/A
PC Adapter	APPLE	A1374	N/A

END OF REPORT