TEST REPORT

APPLICANT	:	MiMOMax Wireless Limited
PRODUCT NAME	:	900MHz TornadoX Transceiver
MODEL NAME	:	MWL-TORNADOX-BGGD
BRAND NAME	:	Ubiik Mimomax
FCC ID	:	XMK-MMXTRNXB008
STANDARD(S)	:	47 CFR Part 15 Subpart A and B
RECEIPT DATE	:	2024-07-29
TEST DATE	:	2024-09-06 to 2024-09-10
ISSUE DATE	:	2024-11-01

Edited by: Chen Bilian

Chen Bilian(Rapporteur)

Approved by: Xiao Xiong

Xiao Xiong(Supervisor)

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Change History		
Version	Date	Reason for change
1.0	2024-11-01	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 TornadoX Transceiver
EUT No.:	1#
Hardware Version:	P001
Software Version:	TRN_04.08.05
Frequency Range:	932.5 MHz ~ 935 MHz, 941.5 MHz ~ 944 MHz, 952 MHz ~ 960 MHz
Operating Voltage:	DC 10.5V to 60V

Note:

1. 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	2024.09.06	Fan Shengquan	PASS	No deviation
4	15.109	Radiated Emissions	2024.09.06 to 2024.09.10	Yuan Zihong	PASS	No deviation
5	15.111	Antenna Terminal Disturbance	2024.09.06	Fan Shengquan	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	
Radiated Emission	
Mode 1 :	EUT + DC Source + RF Cable + Attenuator + Antenna + PC + PC Adapter + RJ45 Cable + Ping Network Mode
Conducted Emission	
Mode 1 :	EUT + DC Source + RF Cable + Attenuator + Antenna + PC + PC Adapter + RJ45 Cable + Ping Network Mode
Antenna Terminal Disturbance	
Mode 1 :	EUT + DC Source + RF Cable + Attenuator + Antenna + PC + PC Adapter + RJ45 Cable + Sub 1GHz Rx Mode

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:

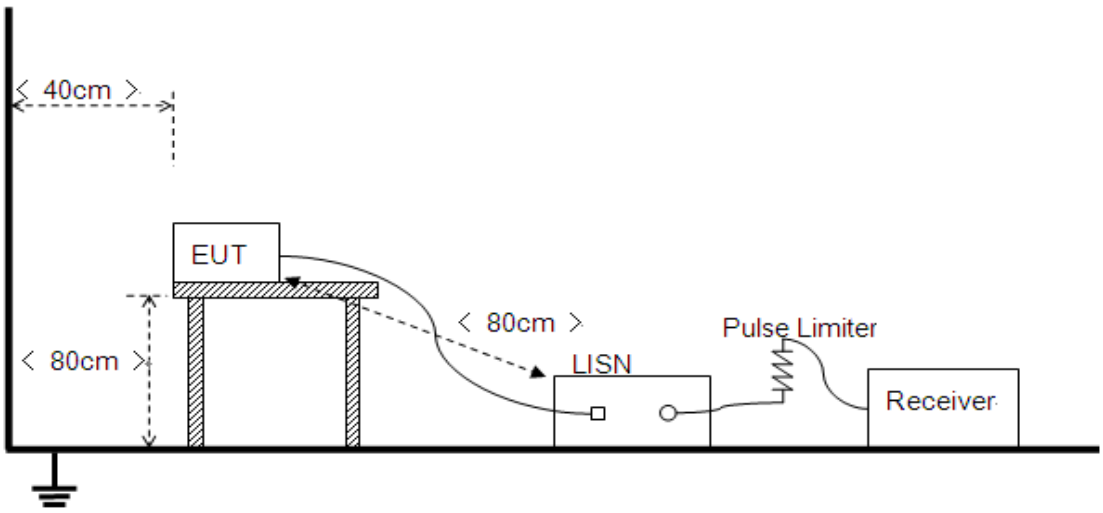
a) The limit subjects to the Class B digital device.

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.

The measurement results are obtained as below:

E [dBμV] $= U_R$[dBμV] + $L_{Cable\ loss}$ [dB] + A_{Factor} [dB]

U_R: Receiver Reading

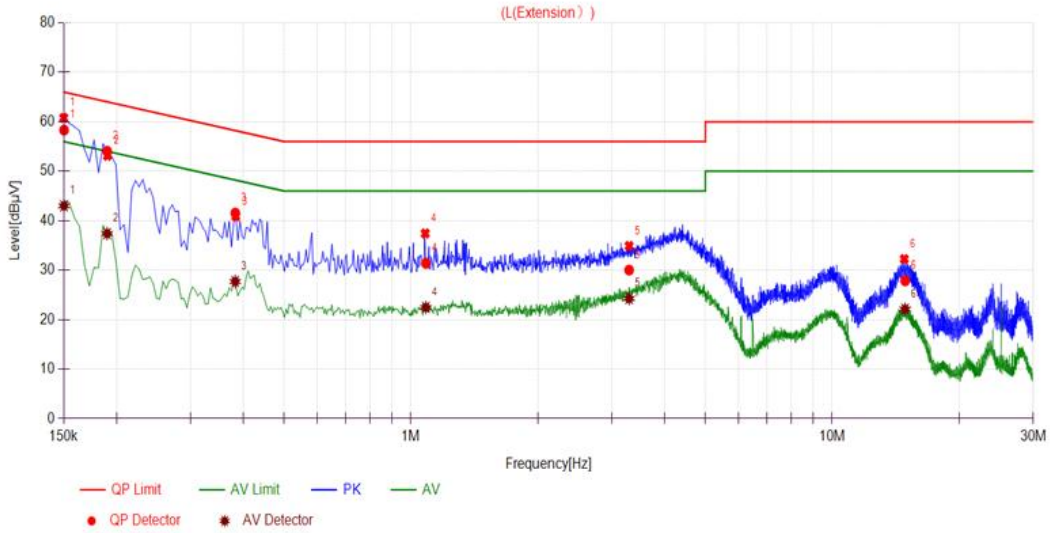
A_{Factor}: Voltage Division Factor of LISN

$L_{Cable\ loss}$: Correction Factor Contains Pulse Limiter and Cable

During the test, the total correction Factor $L_{Cable\ loss}$ and A_{Factor} were built in test software.

Start of Test: 2024-09-06 19:14:30

Test Graph

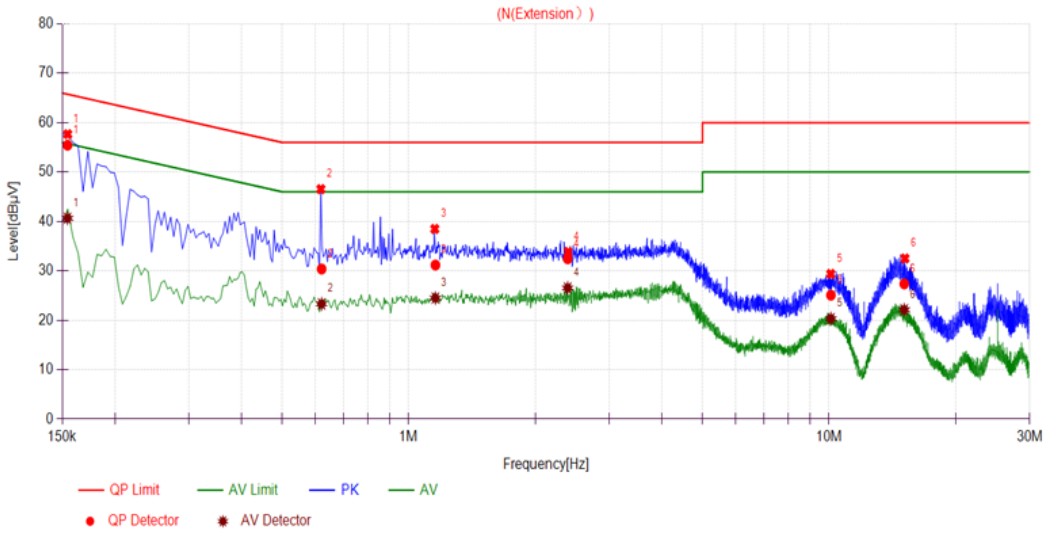


(Plot A:L Phase)

No.	Fre. (MHz)	Emission Level (dBµV)		Limit (dBµV)		Power-line	Verdict
		Quasi-peak	Average	Quasi-peak	Average		
1	0.1502	58.32	43.00	65.99	55.99	Line	PASS
2	0.1901	54.04	37.40	64.03	54.03		PASS
3	0.3829	41.55	27.70	58.22	48.22		PASS
4	1.0850	31.38	22.46	56.00	46.00		PASS
5	3.2949	30.02	24.27	56.00	46.00		PASS
6	14.8933	27.85	22.11	60.00	50.00		PASS

Start of Test: 2024-09-06 19:26:59

Test Graph



(Plot B: N Phase)

No.	Fre. (MHz)	Emission Level (dBµV)		Limit (dBµV)		Power-line	Verdict
		Quasi-peak	Average	Quasi-peak	Average		
1	0.1543	55.45	40.65	65.76	55.76	Neutral	PASS
2	0.6206	30.38	23.31	56.00	46.00		PASS
3	1.1576	31.18	24.49	56.00	46.00		PASS
4	2.3886	32.46	26.54	56.00	46.00		PASS
5	10.1004	25.08	20.32	60.00	50.00		PASS
6	15.0930	27.37	22.13	60.00	50.00		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

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).

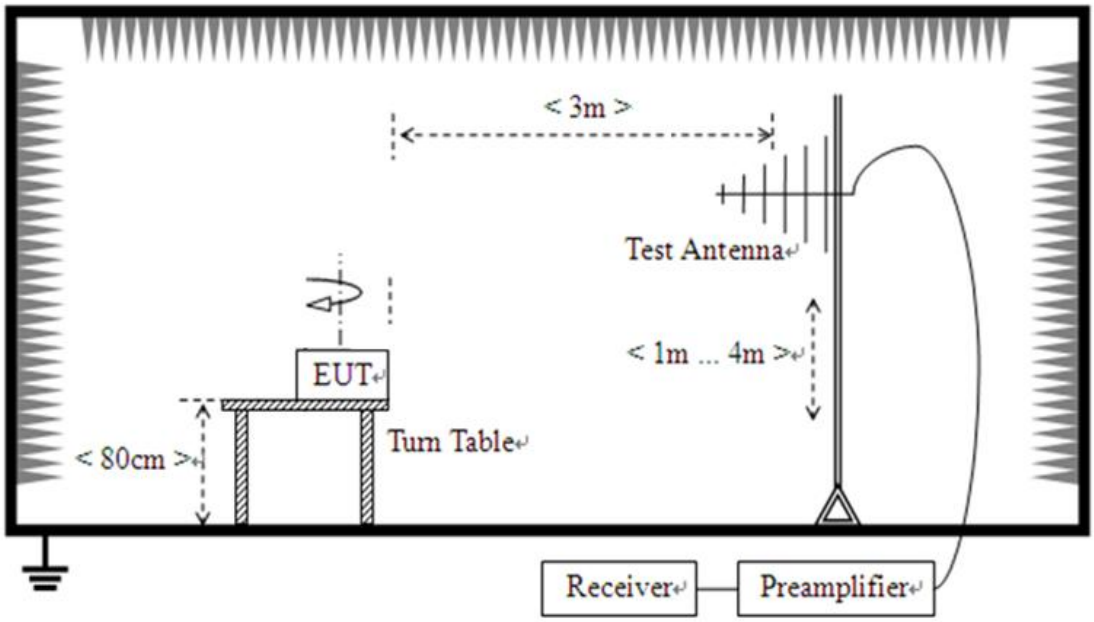
3.2.2. Frequency range of measurement

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

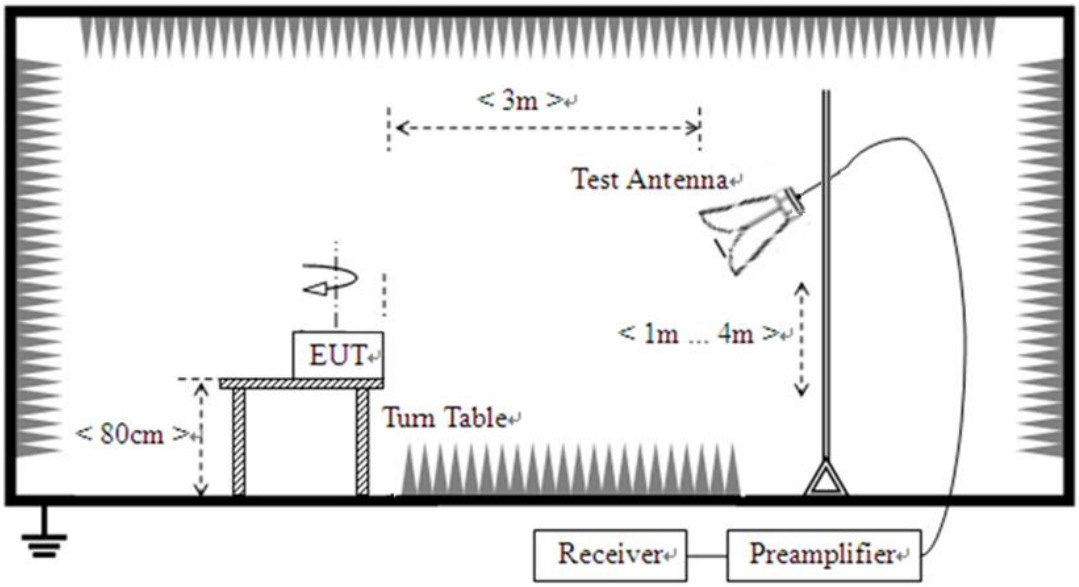
Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30.
1.705 – 108	1000.
108 – 500	2000.
500 – 1000	5000.
Above 1000	5th harmonic of the highest frequency or 40GHz, whichever is lower

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

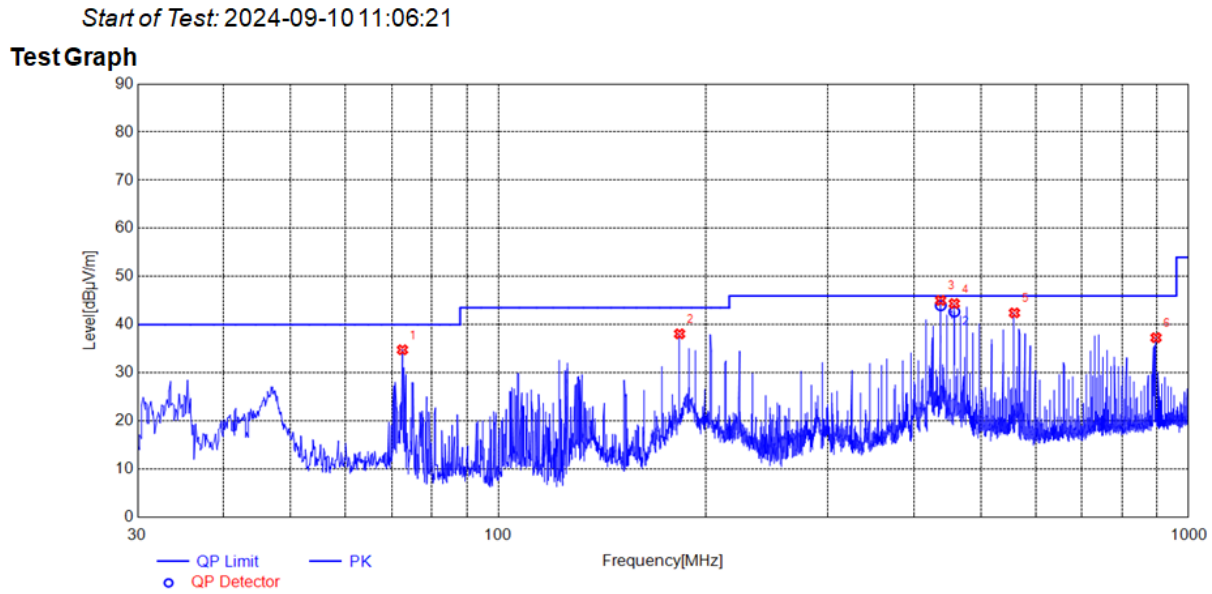
The maximum radiated emission is searched using PK, QP and AV detectors; the emission levels more than the limits, and that have narrow margins from the limits will be re-measured with AV and QP detectors. Both the vertical and the horizontal polarizations of the Test Antenna are considered to perform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

The measurement results are obtained as below:
E [dBμV/m] $=U_R$ [dBμV] + A_T[dB] + A_{Factor} [dB]; $A_T = L_{Cable\ loss}$ [dB] - G_{preamp} [dB]
A_T: Total correction Factor except Antenna
U_R: Receiver Reading
G_{preamp}: Preamplifier Gain
A_{Factor}: Antenna Factor at 3m

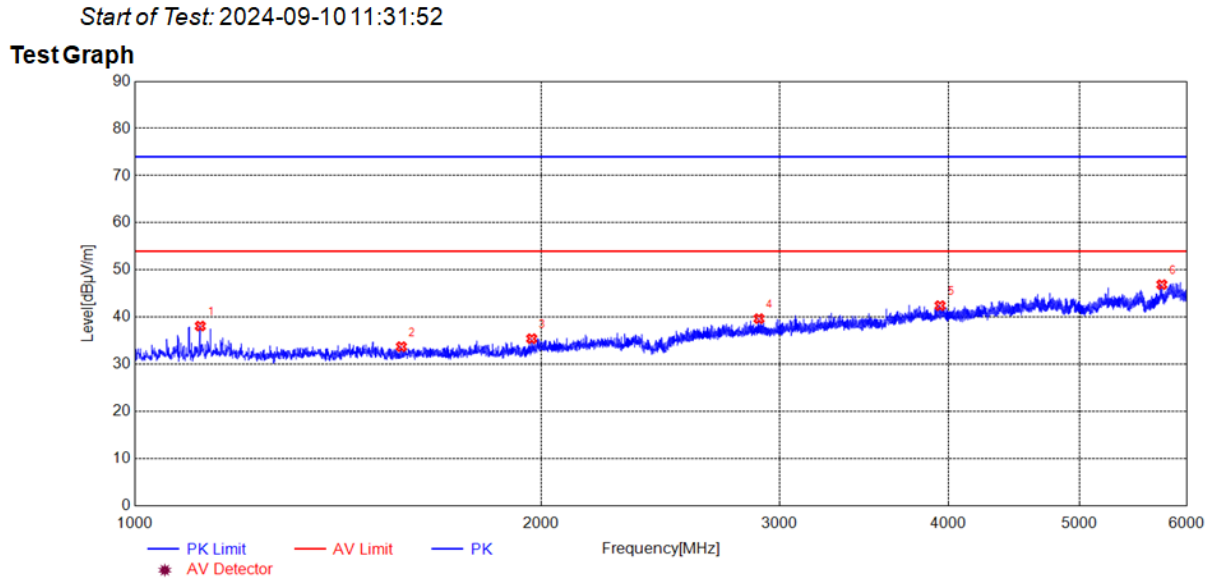
During the test, the total correction Factor A_T and A_{Factor} were built in test software.

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.



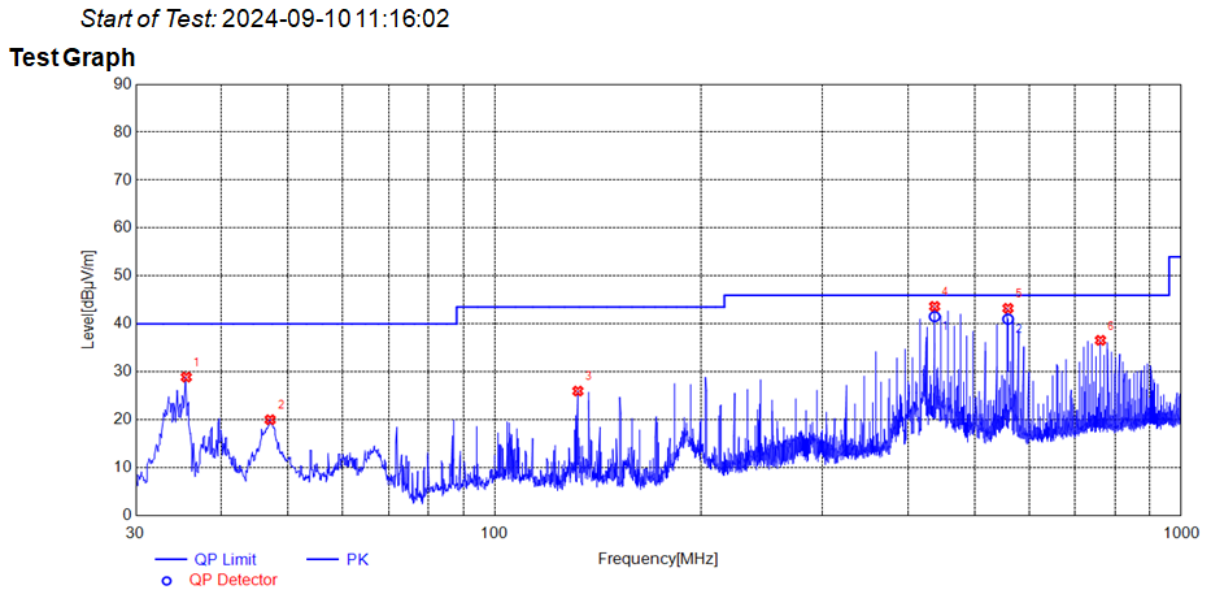
(Plot A: ANT-Vertical, 30MHz - 1GHz)

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	72.5873	34.79	N.A.	N.A.	N.A.	40.00	N.A.	V	PASS
2	182.9843	38.10	N.A.	N.A.	N.A.	43.50	N.A.	V	PASS
3	437.1497	45.04	44.00	N.A.	N.A.	46.00	N.A.	V	PASS
4	457.5218	44.40	42.68	N.A.	N.A.	46.00	N.A.	V	PASS
5	559.1879	42.45	N.A.	N.A.	N.A.	46.00	N.A.	V	PASS
6	896.8787	37.30	N.A.	N.A.	N.A.	46.00	N.A.	V	PASS



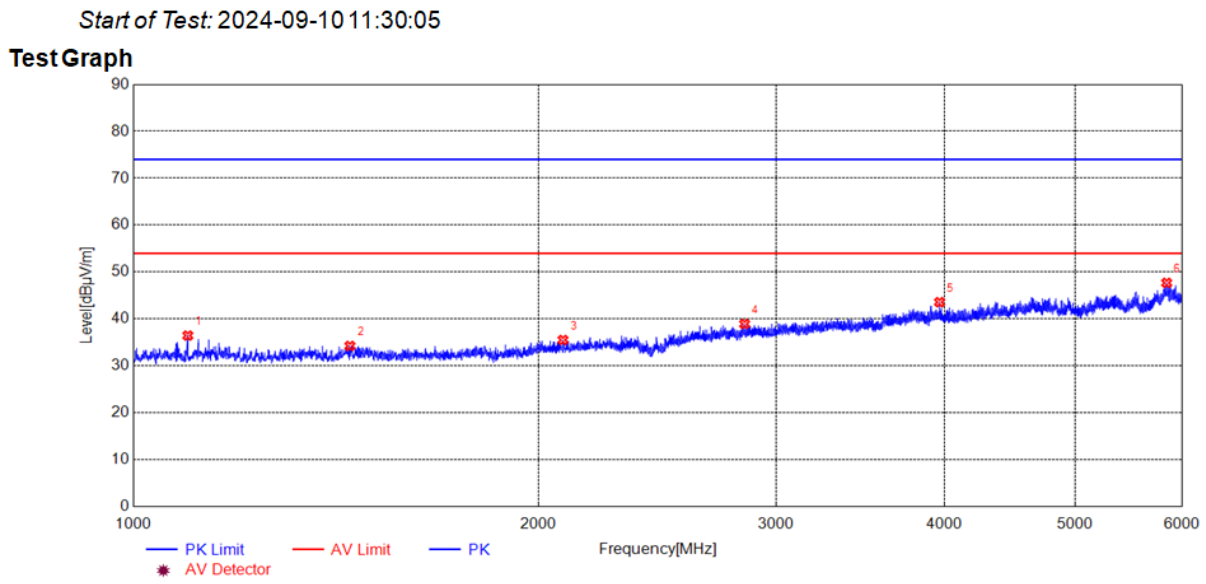
(Plot B: ANT-Vertical, 1GHz - 6GHz)

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	1118.5000	38.12	N.A.	N.A.	74.00	N.A.	54.00	V	PASS
2	1575.5000	33.75	N.A.	N.A.	74.00	N.A.	54.00	V	PASS
3	1967.0000	35.45	N.A.	N.A.	74.00	N.A.	54.00	V	PASS
4	2897.0000	39.69	N.A.	N.A.	74.00	N.A.	54.00	V	PASS
5	3944.0000	42.45	N.A.	N.A.	74.00	N.A.	54.00	V	PASS
6	5754.0000	46.91	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	35.5296	28.90	N.A.	N.A.	N.A.	40.00	N.A.	H	PASS
2	47.0737	20.02	N.A.	N.A.	N.A.	40.00	N.A.	H	PASS
3	132.1512	25.99	N.A.	N.A.	N.A.	43.50	N.A.	H	PASS
4	437.2467	43.66	41.54	N.A.	N.A.	46.00	N.A.	H	PASS
5	559.1879	43.26	40.99	N.A.	N.A.	46.00	N.A.	H	PASS
6	762.5203	36.58	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	1098.0000	36.46	N.A.	N.A.	74.00	N.A.	54.00	H	PASS
2	1448.5000	34.25	N.A.	N.A.	74.00	N.A.	54.00	H	PASS
3	2084.5000	35.52	N.A.	N.A.	74.00	N.A.	54.00	H	PASS
4	2843.0000	38.94	N.A.	N.A.	74.00	N.A.	54.00	H	PASS
5	3967.0000	43.58	N.A.	N.A.	74.00	N.A.	54.00	H	PASS
6	5848.5000	47.70	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	25.32	23.81	32.04	V	PASS
	25.77	25.74			PASS
	26.63	21.18			PASS
	27.54	22.07			PASS
	28.63	24.38			PASS
	29.88	21.18			PASS
	25.34	24.82	32.04	H	PASS
	26.65	25.74			PASS
	26.92	21.09			PASS
	27.35	22.63			PASS
	28.47	22.97			PASS
	29.74	21.08			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.

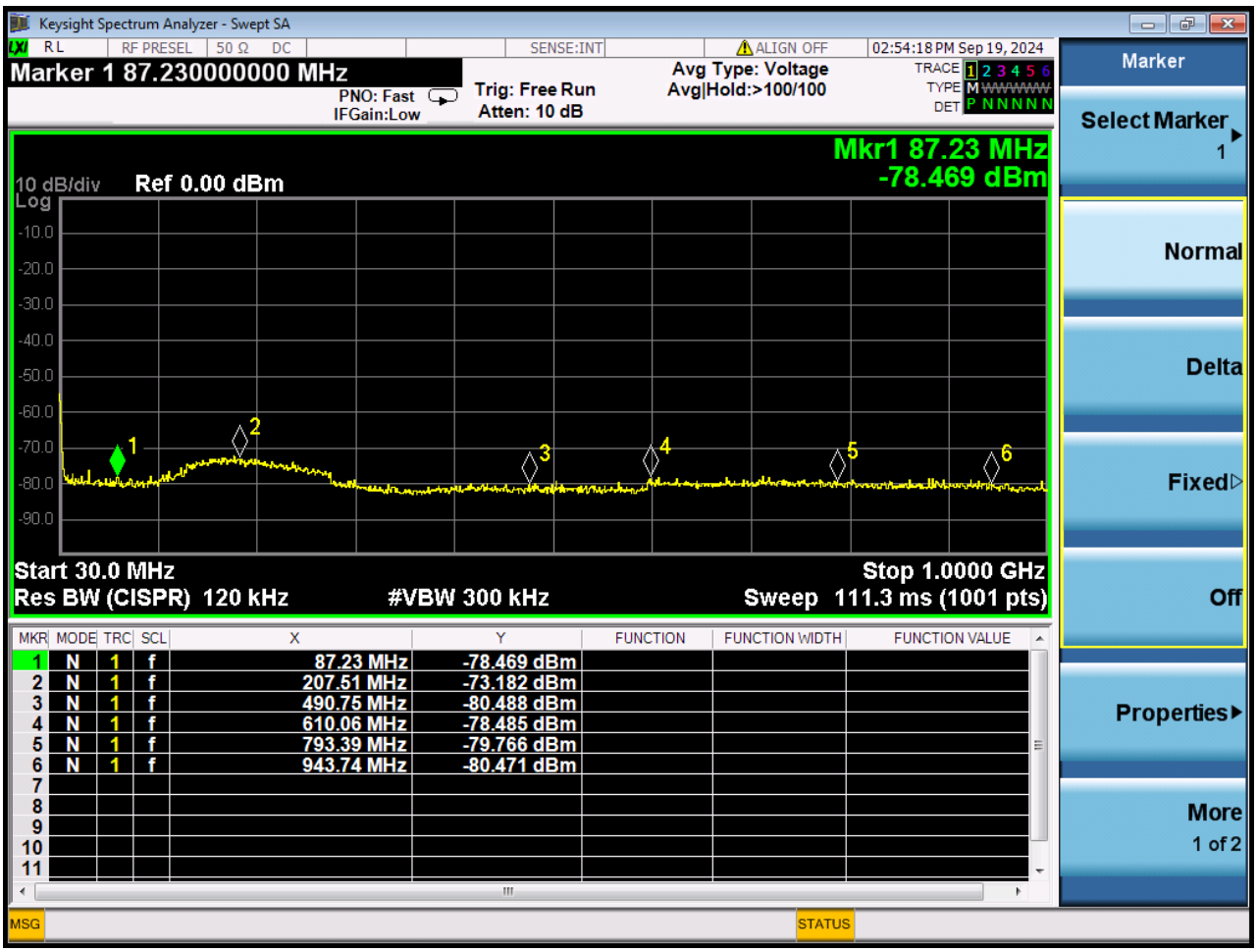
3.3.2. Test Result

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

H port, Operate at 933.5MHz, 30MHz -1000MHz

Fre. MHz	$P_{Reading\ value}$ dBm	Factor dB	$P_{Final\ value}$ dBm	Limit dBm	Verdict
87.23	-78.469	0.08	-78.389	-57	PASS
207.51	-73.182	0.16	-73.022	-57	PASS
490.75	-80.488	0.35	-80.138	-57	PASS
610.06	-78.485	0.55	-77.935	-57	PASS
793.39	-79.766	0.65	-79.116	-57	PASS
943.74	-80.471	0.79	-79.681	-57	PASS

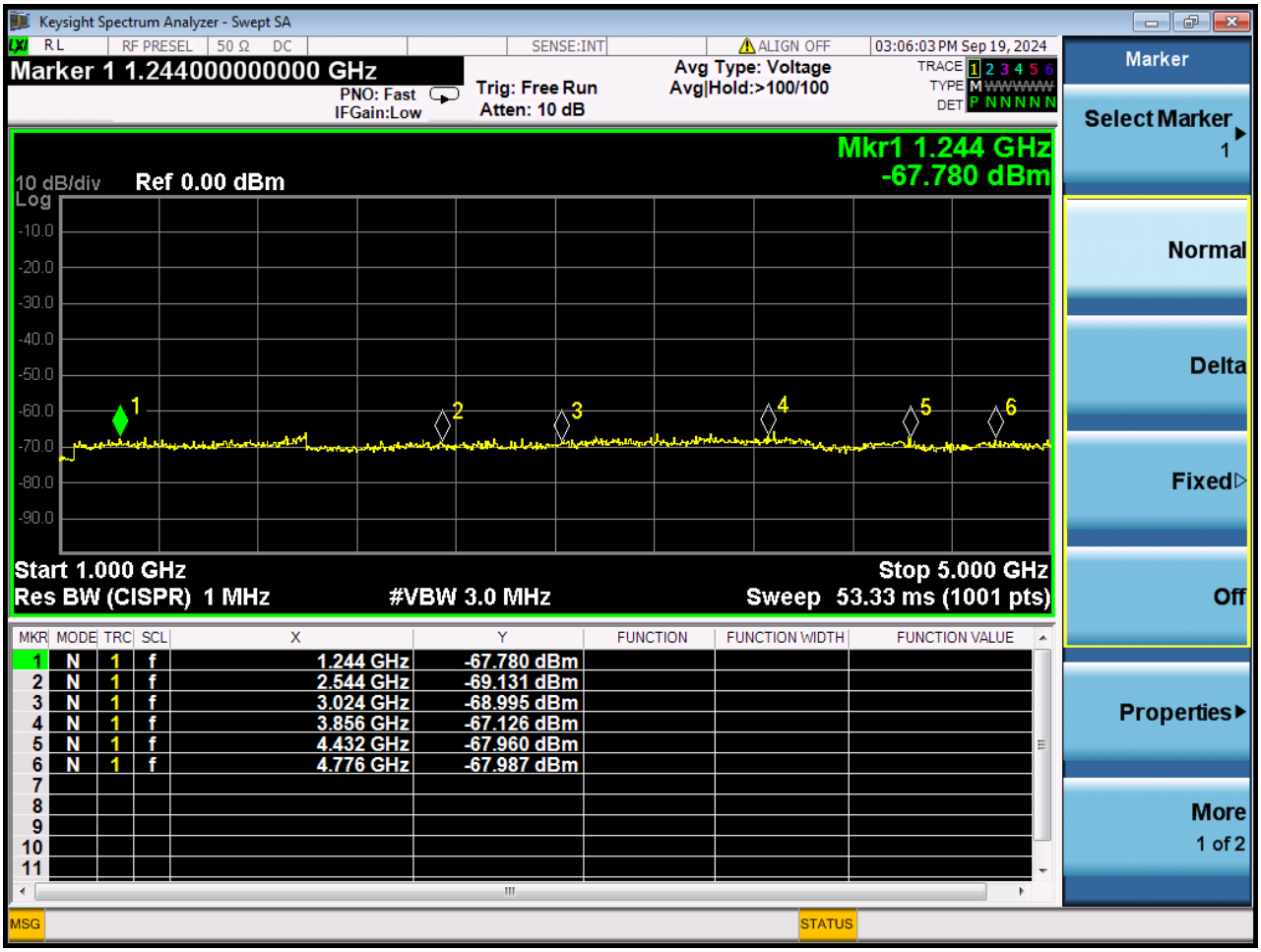
Attach spectrum pictures of $P_{Readingvalue}$ for this test here:



H port, Operate at 933.5MHz, 1GHz -5GHz

Fre. GHz	$P_{Reading\ value}$ dBm	Factor dB	$P_{Final\ value}$ dBm	Limit dBm	Verdict
1.244	-67.78	1.25	-66.53	-57	PASS
2.544	-69.131	1.59	-67.541	-57	PASS
3.024	-68.995	2.36	-66.635	-57	PASS
3.856	-97.126	3.45	-93.676	-57	PASS
4.432	-67.96	4.66	-63.3	-57	PASS
4.776	-67.987	4.78	-63.207	-57	PASS

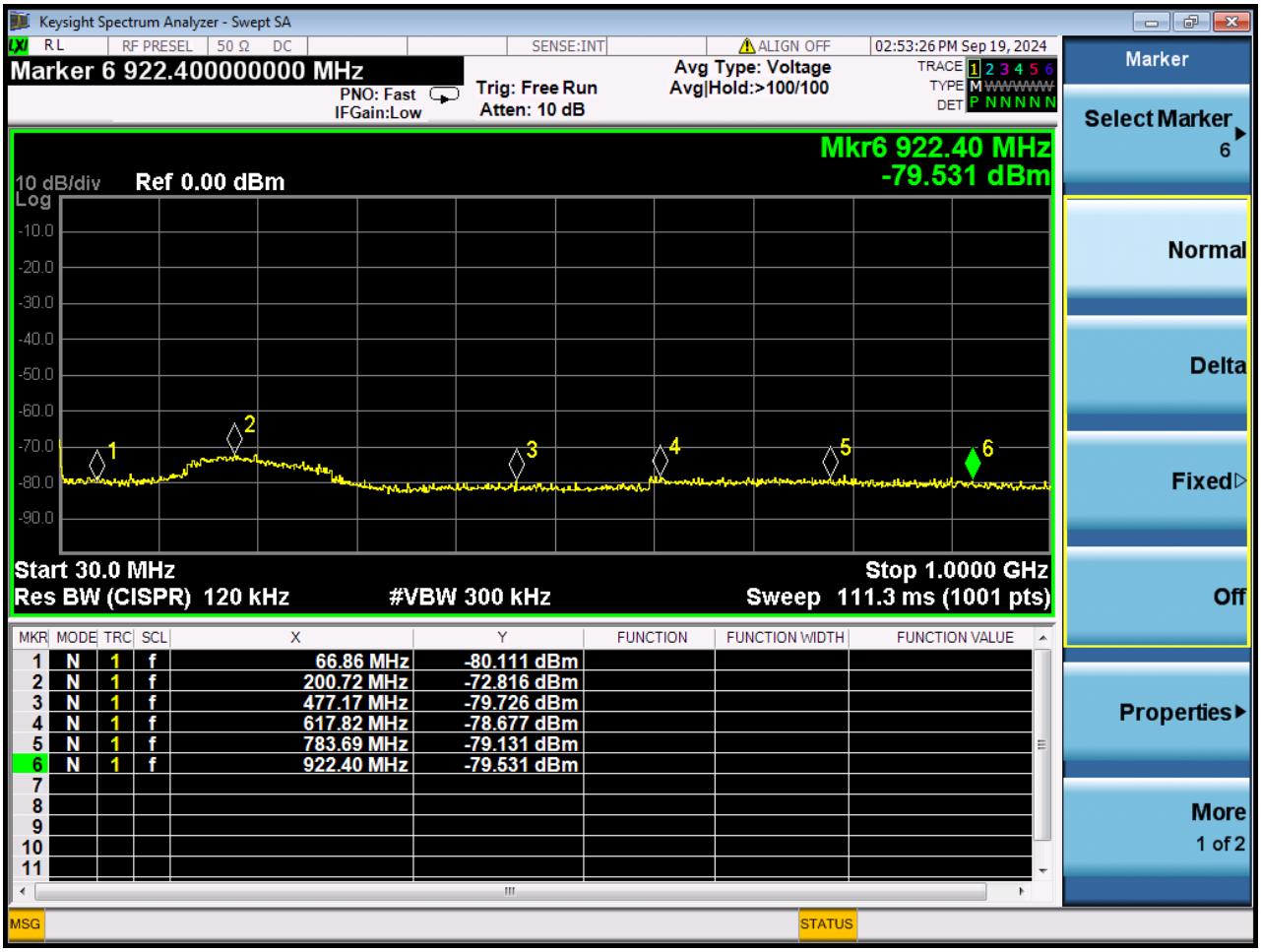
Attach spectrum pictures of $P_{Readingvalue}$ for this test here:



V port, Operate at 933.5MHz, 30MHz -1000MHz

Fre. MHz	$P_{Reading\ value}$ dBm	Factor dB	$P_{Final\ value}$ dBm	Limit dBm	Verdict
66.86	-80.111	0.6	-79.511	-57	PASS
200.72	-72.816	0.15	-72.666	-57	PASS
477.17	-79.726	0.46	-79.266	-57	PASS
617.82	-78.677	0.37	-78.307	-57	PASS
783.69	-79.131	0.89	-78.241	-57	PASS
922.4	-79.531	0.96	-78.571	-57	PASS

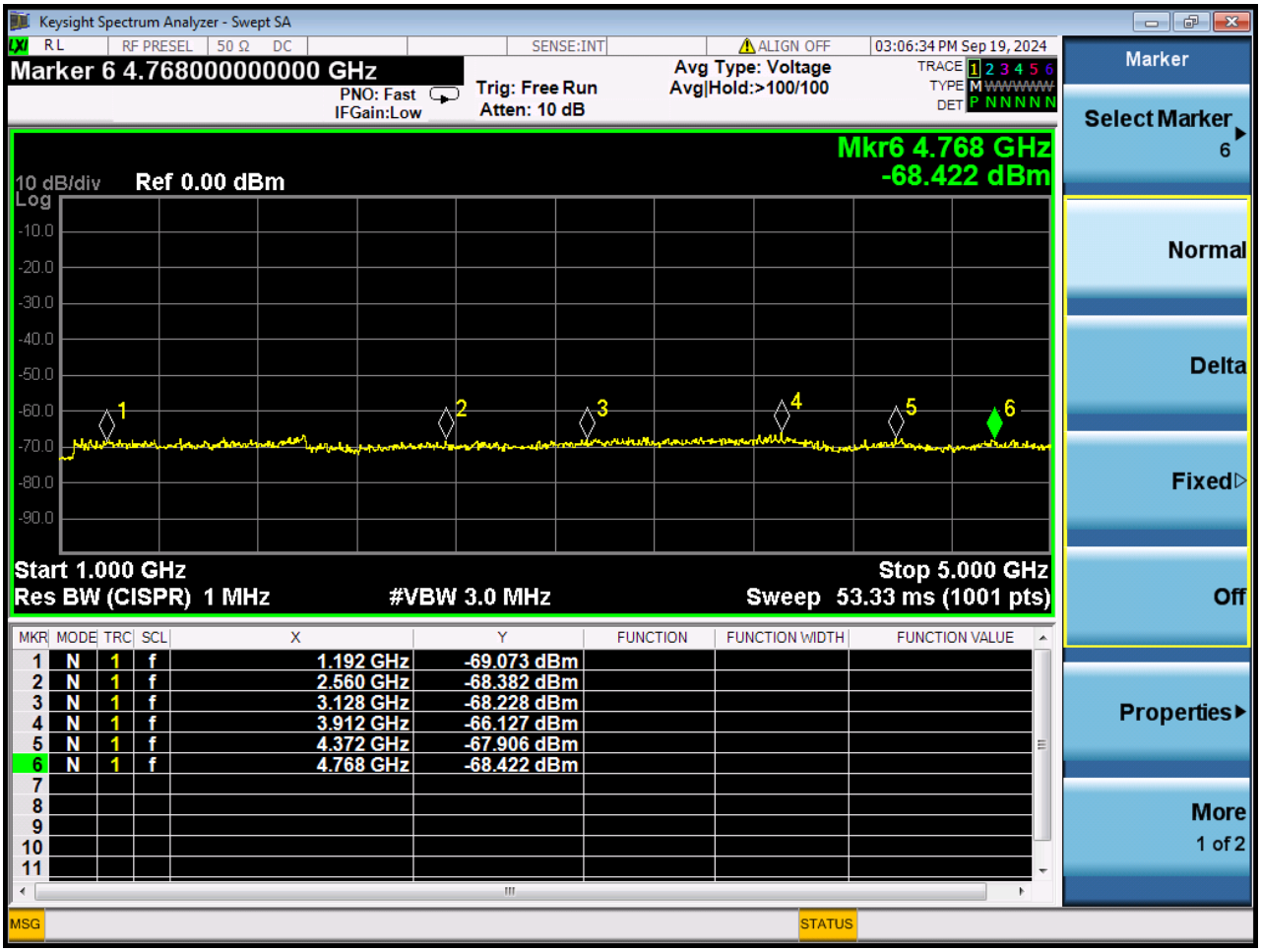
Attach spectrum pictures of $P_{Readingvalue}$ for this test here:



V port, Operate at 933.5MHz, 1GHz -5GHz

Fre. GHz	$P_{Reading\ value}$ dBm	Factor dB	$P_{Final\ value}$ dBm	Limit dBm	Verdict
1.192	-69.073	1.3	-67.773	-57	PASS
2.56	-68.382	1.39	-66.992	-57	PASS
3.128	-68.228	2.59	-65.638	-57	PASS
3.912	-66.127	3.88	-62.247	-57	PASS
4.372	-67.906	3.93	-63.976	-57	PASS
4.768	-68.422	4.56	-63.862	-57	PASS

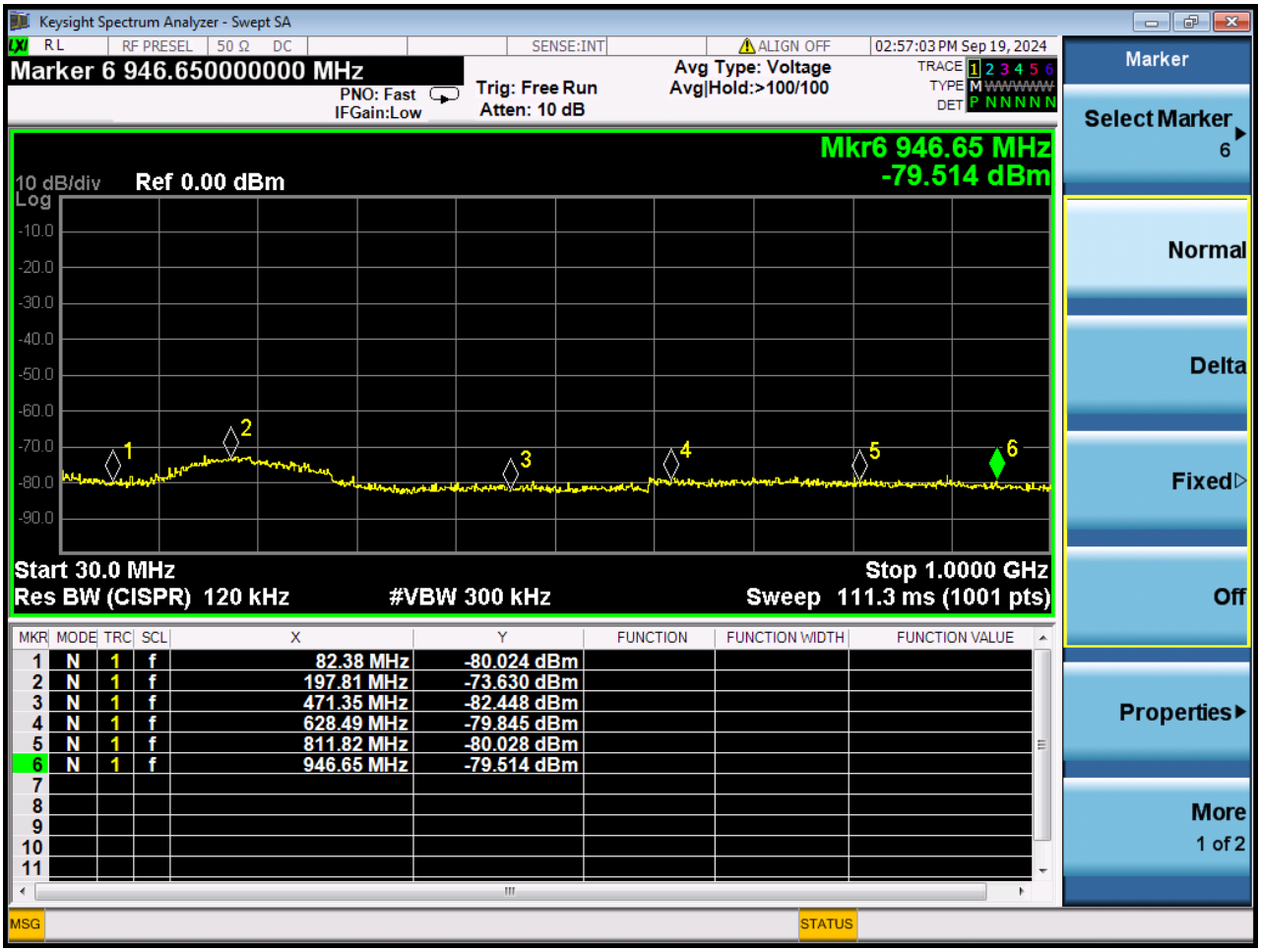
Attach spectrum pictures of $P_{Readingvalue}$ for this test here:



H port, Operate at 942.5MHz, 30MHz -1000MHz

Fre. MHz	$P_{Reading\ value}$ dBm	Factor dB	$P_{Final\ value}$ dBm	Limit dBm	Verdict
82.38	-80.024	0.15	-79.874	-57	PASS
197.81	-73.63	0.26	-73.37	-57	PASS
471.35	-82.448	0.36	-82.088	-57	PASS
628.49	-79.845	0.39	-79.455	-57	PASS
811.82	-80.028	0.59	-79.438	-57	PASS
946.65	-79.514	0.8	-78.714	-57	PASS

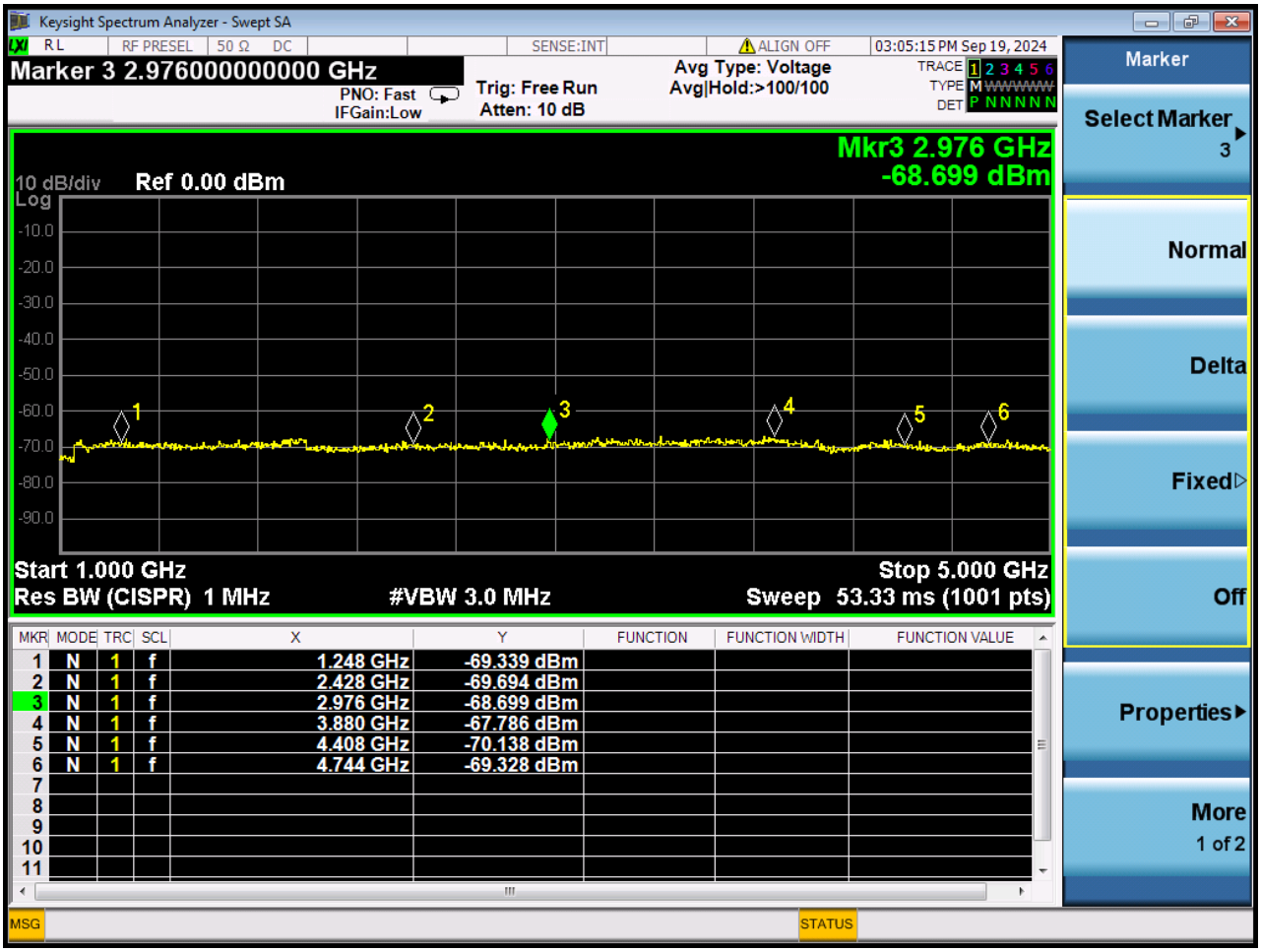
Attach spectrum pictures of $P_{Reading\ value}$ for this test here:



H port, Operate at 942.5MHz, 1GHz -5GHz

Fre. GHz	$P_{Reading\ value}$ dBm	Factor dB	$P_{Final\ value}$ dBm	Limit dBm	Verdict
1.248	-69.339	1.34	-67.999	-57	PASS
2.428	-69.694	1.99	-67.704	-57	PASS
2.976	-68.699	2.45	-66.249	-57	PASS
3.88	-67.786	3.78	-64.006	-57	PASS
4.408	-70.138	4.22	-65.918	-57	PASS
4.744	-69.328	4.37	-64.958	-57	PASS

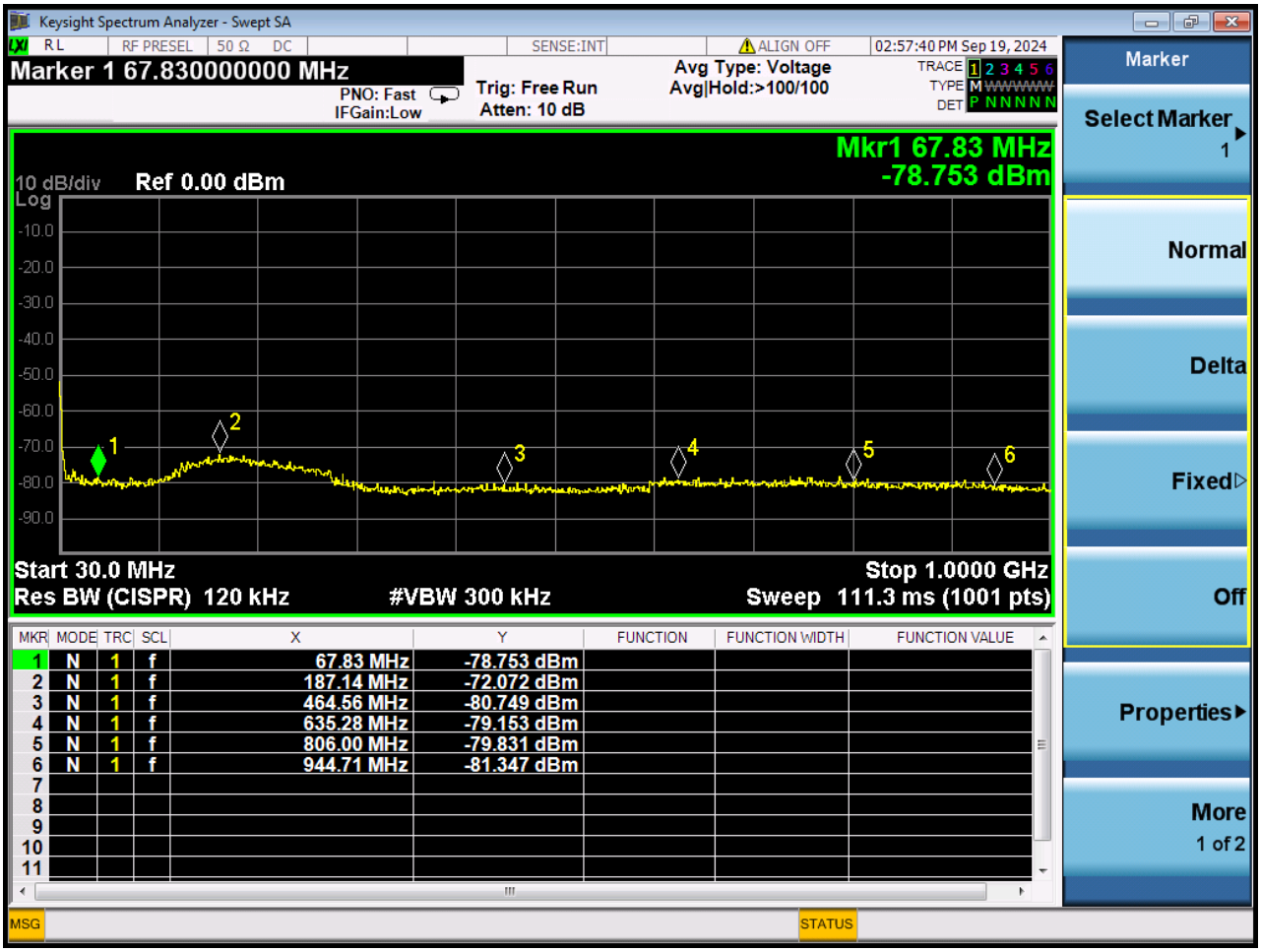
Attach spectrum pictures of $P_{Readingvalue}$ for this test here:



V port, Operate at 942.5MHz, 30MHz -1000MHz

Fre. MHz	$P_{Reading\ value}$ dBm	Factor dB	$P_{Final\ value}$ dBm	Limit dBm	Verdict
67.83	-78.753	0.14	-78.613	-57	PASS
187.14	-72.072	0.19	-71.882	-57	PASS
464.56	-80.749	0.29	-80.459	-57	PASS
635.28	-79.153	0.36	-78.793	-57	PASS
806	-79.831	0.59	-79.241	-57	PASS
944.71	-81.347	0.78	-80.567	-57	PASS

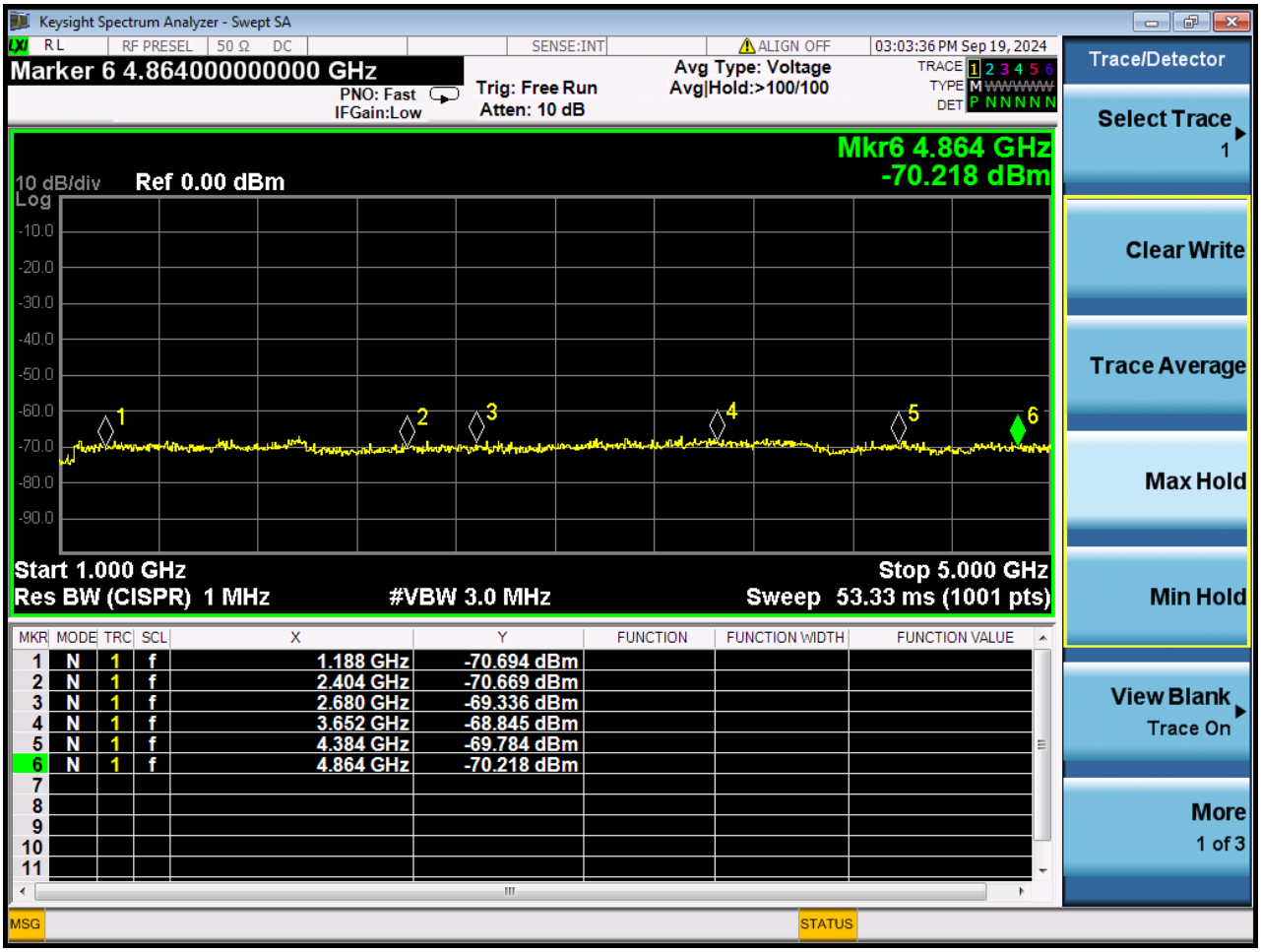
Attach spectrum pictures of $P_{Readingvalue}$ for this test here:



V port, Operate at 942.5MHz, 1GHz -5GHz

Fre. GHz	$P_{Reading\ value}$ dBm	Factor dB	$P_{Final\ value}$ dBm	Limit dBm	Verdict
1.188	-70.694	1.6	-69.094	-57	PASS
2.404	-70.669	2.56	-68.109	-57	PASS
2.68	-69.336	3.49	-65.846	-57	PASS
3.652	-68.845	3.6	-65.245	-57	PASS
4.394	-69.784	4.6	-65.184	-57	PASS
4.864	-70.218	4.8	-65.418	-57	PASS

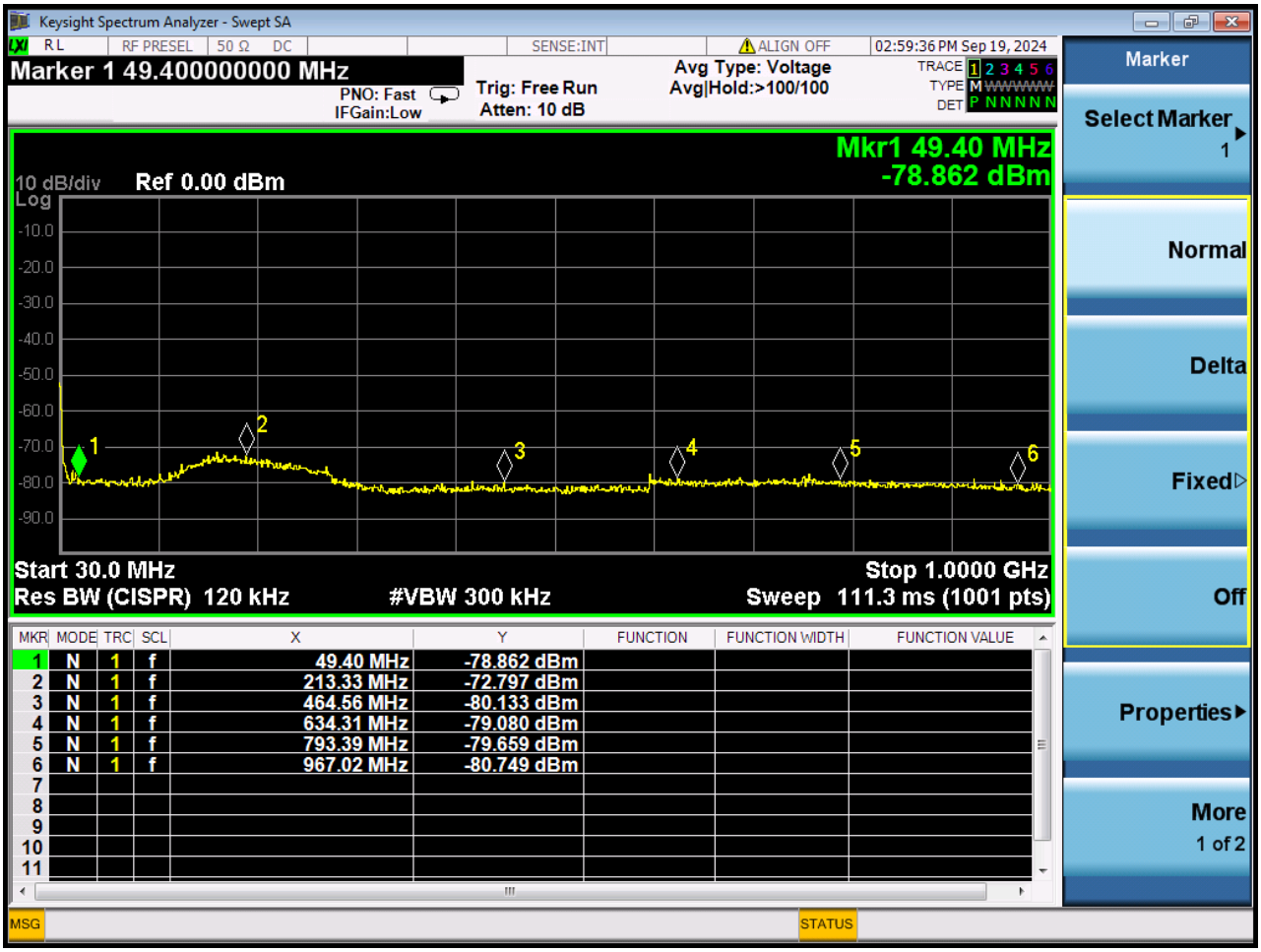
Attach spectrum pictures of $P_{Readingvalue}$ for this test here:



H port, Operate at 952.5MHz, 30MHz -1000MHz

Fre. MHz	$P_{Reading\ value}$ dBm	Factor dB	$P_{Final\ value}$ dBm	Limit dBm	Verdict
49.4	-78.862	0.36	-78.502	-57	PASS
213.33	-72.797	0.59	-72.207	-57	PASS
464.56	-80.133	0.68	-79.453	-57	PASS
634.31	-79.08	0.49	-78.59	-57	PASS
793.39	-79.659	0.66	-78.999	-57	PASS
967.02	-80.749	0.79	-79.959	-57	PASS

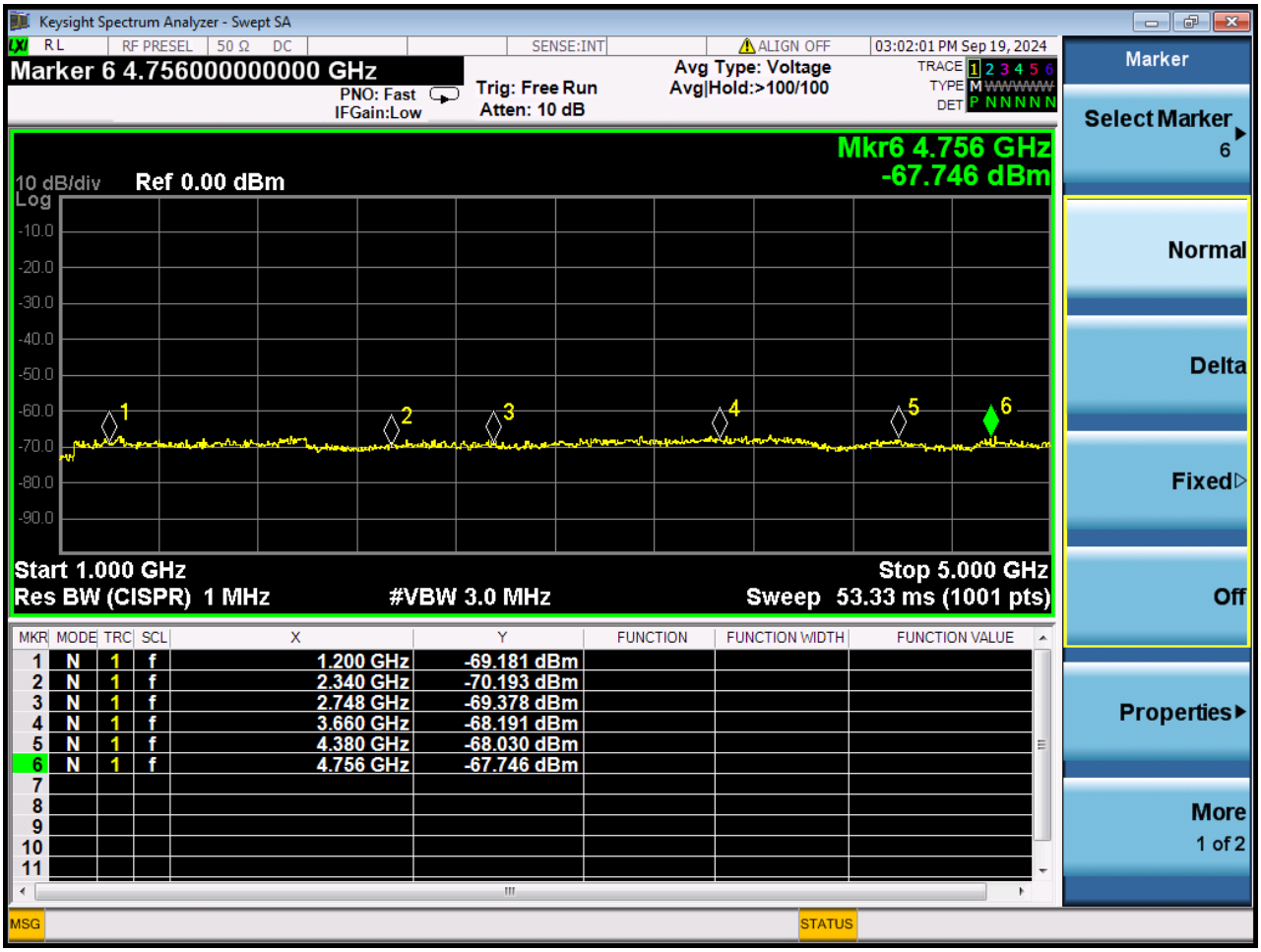
Attach spectrum pictures of $P_{Readingvalue}$ for this test here:



H port, Operate at 952.5MHz, 1GHz -5GHz

Fre. GHz	$P_{Reading\ value}$ dBm	Factor dB	$P_{Final\ value}$ dBm	Limit dBm	Verdict
1.2	-69.181	1.66	-67.521	-57	PASS
2.34	-70.193	2.5	-67.693	-57	PASS
2.748	-69.378	3.5	-65.878	-57	PASS
3.66	-68.191	3.9	-64.291	-57	PASS
4.38	-68.03	4.56	-63.47	-57	PASS
4.756	-67.746	4.7	-63.046	-57	PASS

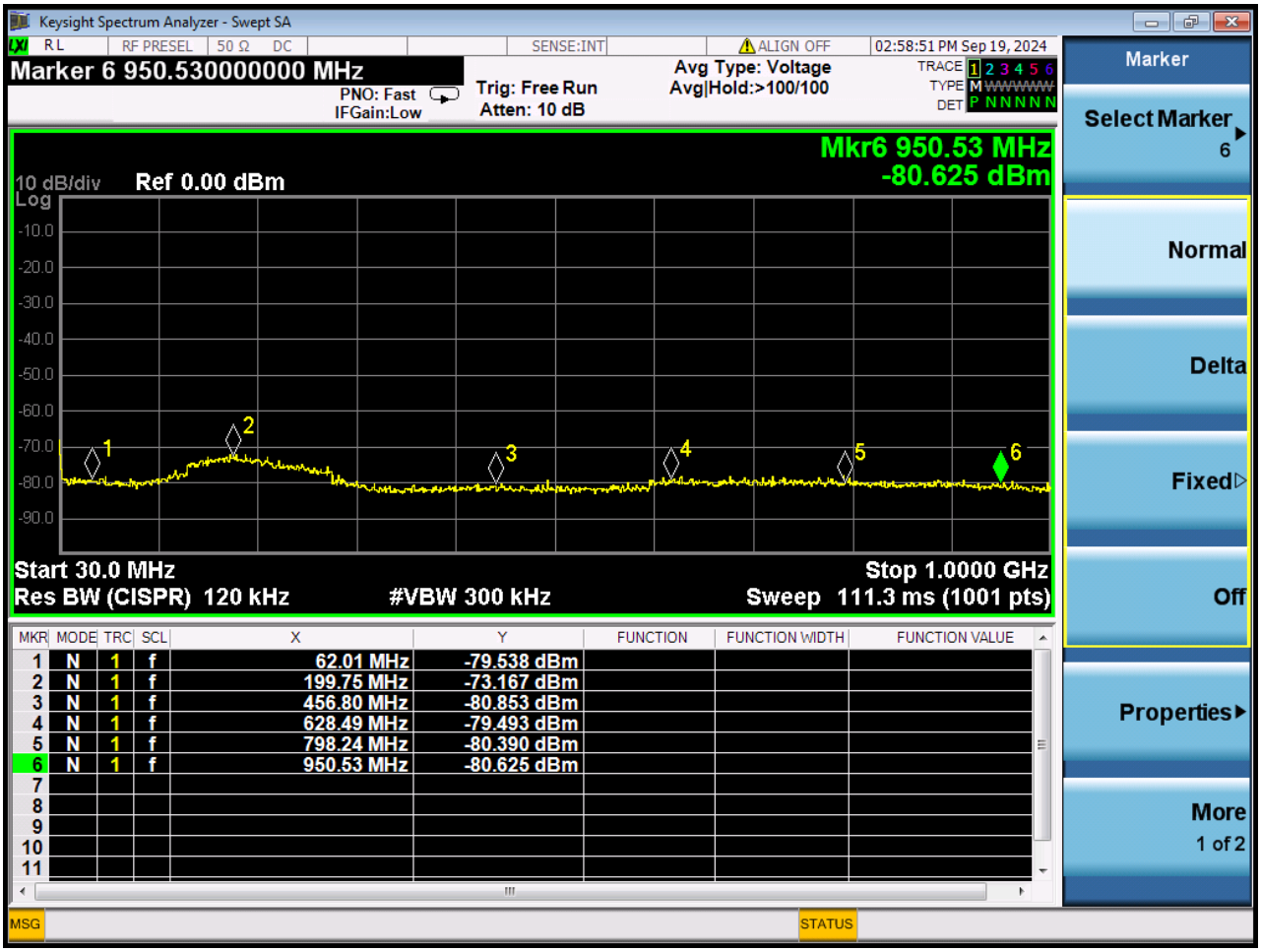
Attach spectrum pictures of $P_{Readingvalue}$ for this test here:



V port, Operate at 952.5MHz, 30MHz -1000MHz

Fre. MHz	$P_{Reading\ value}$ dBm	Factor dB	$P_{Final\ value}$ dBm	Limit dBm	Verdict
62.01	-79.538	0.2	-79.338	-57	PASS
199.75	-73.167	0.35	-72.817	-57	PASS
456.8	-80.853	0.39	-80.463	-57	PASS
628.49	-79.493	0.7	-78.793	-57	PASS
798.24	-80.39	0.88	-79.51	-57	PASS
950.53	-80.625	0.98	-79.645	-57	PASS

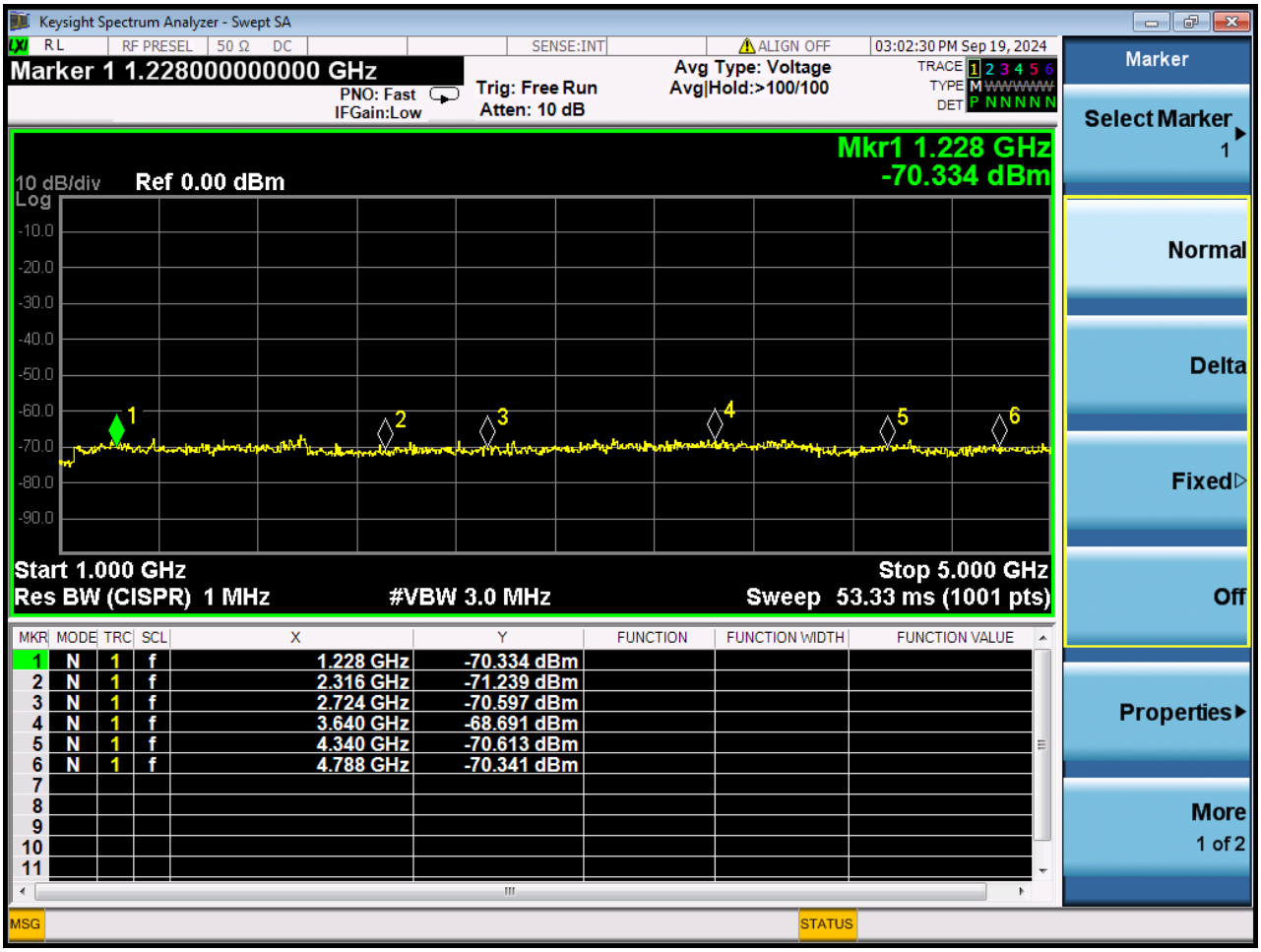
Attach spectrum pictures of $P_{Readingvalue}$ for this test here:



V port, Operate at 952.5MHz, 1GHz -5GHz

Fre. GHz	$P_{Reading\ value}$ dBm	Factor dB	$P_{Final\ value}$ dBm	Limit dBm	Verdict
1.228	-70.334	1.9	-68.434	-57	PASS
2.316	-71.239	2.6	-68.639	-57	PASS
2.742	-70.597	3.7	-66.897	-57	PASS
3.64	-68.691	3.89	-64.801	-57	PASS
4.34	-70.613	4.6	-66.013	-57	PASS
4.788	-70.341	4.79	-65.551	-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:	FL.1-3, 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:	FL.1-3, 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	9163-519	SCHWARZBECK	2024/6/22	2025/6/21
Horn Antenna	BBHA 9120D	01774	SCHWARZBECK	2024/6/22	2025/6/21
Receiver	N9038A	MY56400093	KEYSIGHT	2024/1/25	2025/1/24
6db Attenuator	BW-N6W5+	E191001	Mini-circuits	2023/9/19	2024/9/18
Preamplifier	S020180L3203	61171/61172	LUCIX CORP.	2024/5/30	2025/5/29
Preamplifier	S10M100L3802	46732	LUCIX CORP.	2024/5/30	2025/5/29

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	2024/6/3	2025/6/2
LISN	NSLK 8127	8127449	Schwarzbeck	2024/2/2	2025/2/1
10dB Pulse Limiter	VTSD 9561-F	VTSD 9561 F-B #206	SCHWARZBECK	2024/5/30	2025/5/29
System Simulator	CMW500	152038	R&S	2023/9/19	2024/9/18

6. Ancillary Equipment Utilized

Description	Model	Serial No.	Manufacturer
DC source	N/A	97850427	VICTORY
RJ45 Cable	N/A	N/A	N/A
PC	E740C	PF-ORVKN9	LENOVO
PC Adapter	SA10E75791	SA10M42529	LENOVO

END OF REPORT