REPORT No.: SZ22080045W02

TEST REPORT

APPLICANT	:	Y Soft Corporation, a.s.
PRODUCT NAME	:	USB Card Reader
MODEL NAME	:	MUS3077
BRAND NAME	:	YSoft MFX reader
FCC ID	:	XUY0YX0MUS3077
STANDARD(S)	:	47 CFR Part 15 Subpart C
RECEIPT DATE	:	2022-08-04
TEST DATE	:	2022-08-10 to 2022-08-14
ISSUE DATE	:	2022-09-16

Edited by: Zeng Xiaoying (Rapporteur)

Approved by: Shen Junsheng (Supervisor)

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DIRECTORY

Change History		
Version	**Date**	**Reason for change**
1.0	2022-09-16	First edition

1. Technical Information

Note: Provide by applicant.

1.1. Applicant and Manufacturer Information

Applicant:	Y Soft Corporation, a.s.
Applicant Address:	Technická 2948/13, 61600, Brno, Czech Republic
Manufacturer:	Y Soft Corporation, a.s.
Manufacturer Address:	Technická 2948/13, 61600, Brno, Czech Republic

1.2. Equipment Under Test (EUT) Description

Product Name:	USB Card Reader
Sample No.:	1#
Hardware Version:	N/A
Software Version:	N/A
Operating Frequency:	125kHz
Modulation Type:	AM
Antenna Type:	Coil Antenna

Note 1: For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.

1.3. Test Standards and Results

The objective of the report is to perform testing according to 47 CFR Part 15 Subpart C for the EUT FCC ID Certification:

No.	Identity	Document Title
1	47 CFR Part 15 (10-1-15 Edition)	Radio Frequency Devices

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

No.	Section	Description	Test Date	Test Engineer	Result	Method Determination /Remark
1	15.203	Antenna Requirement	N/A	N/A	PASS	No deviation
2	15.207	Conducted Emission	Aug. 10, 2022	Wu Zhaoling	PASS	No deviation
3	15.209(a)	Radiated Emission	Aug. 12&13, 2022	Gao Jianrou	PASS	No deviation
4	15.215(c)	20dB Bandwidth	Aug. 12, 2022	Gao Jianrou	PASS	No deviation

Note 1: The tests were performed according to the method of measurements prescribed in ANSI C63.10-2013. The EUT has been tested under continuous operating condition.

Note 2: Additions to, deviation, or exclusions from the method should be judged in the "method determination" column of add, deviate or exclude from the specific method should be explained in the "Remark" of the above table.

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.

1.4. Environmental Conditions

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

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

2. 47 CFR Part 15C Requirements

2.1. Antenna Requirement

2.1.1. Applicable Standard

According to FCC 15.203, 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 shall be considered sufficient to comply with the provisions of this section.

2.1.2. Result: Compliant

The EUT has a permanently and irreplaceable attached antenna. Please refer to the EUT internal photos.

2.2. Conducted Emission

2.2.1. Test Requirement

According to FCC section 15.207, 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).

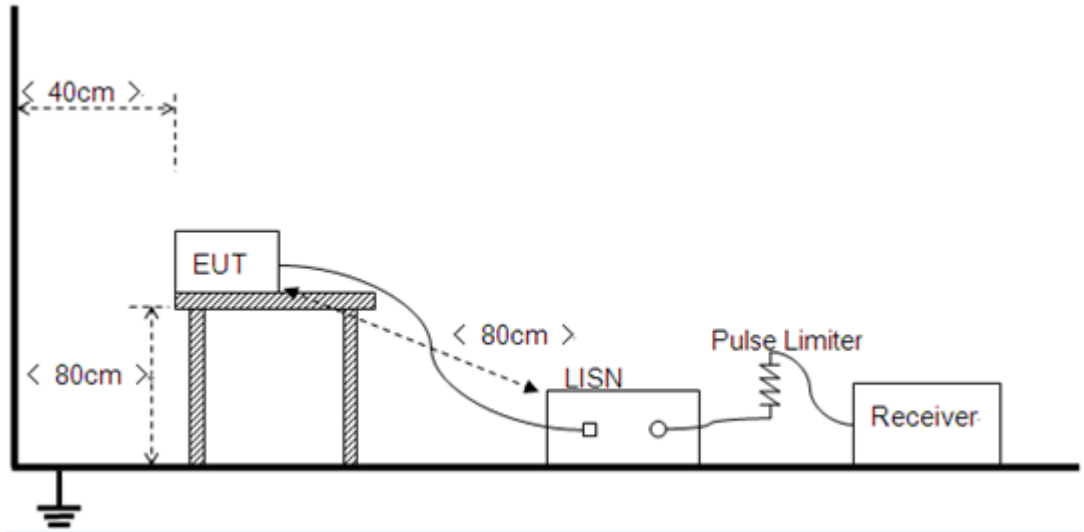
Frequency Range (MHz)	Conducted Limit (dBμV)	
	Quai-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
5 - 30	60	50

Note:

(a) The lower limit shall apply at the band edges.

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

2.2.2. Test Setup



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.

2.2.3. Test Result

The maximum conducted interference is searched using Peak (PK), if 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. Set RBW=9kHz, VBW=30kHz. Refer to recorded points and plots below.

Note: Both of the test voltage AC 120V/60Hz and AC 230V/50Hz were considered and tested respectively, only the results of the worst case AC 120V/60Hz were recorded in this report.

A.Test Setup:

Test Mode: EUT+PC+125kHz TX

Test Voltage: AC 120V/60Hz

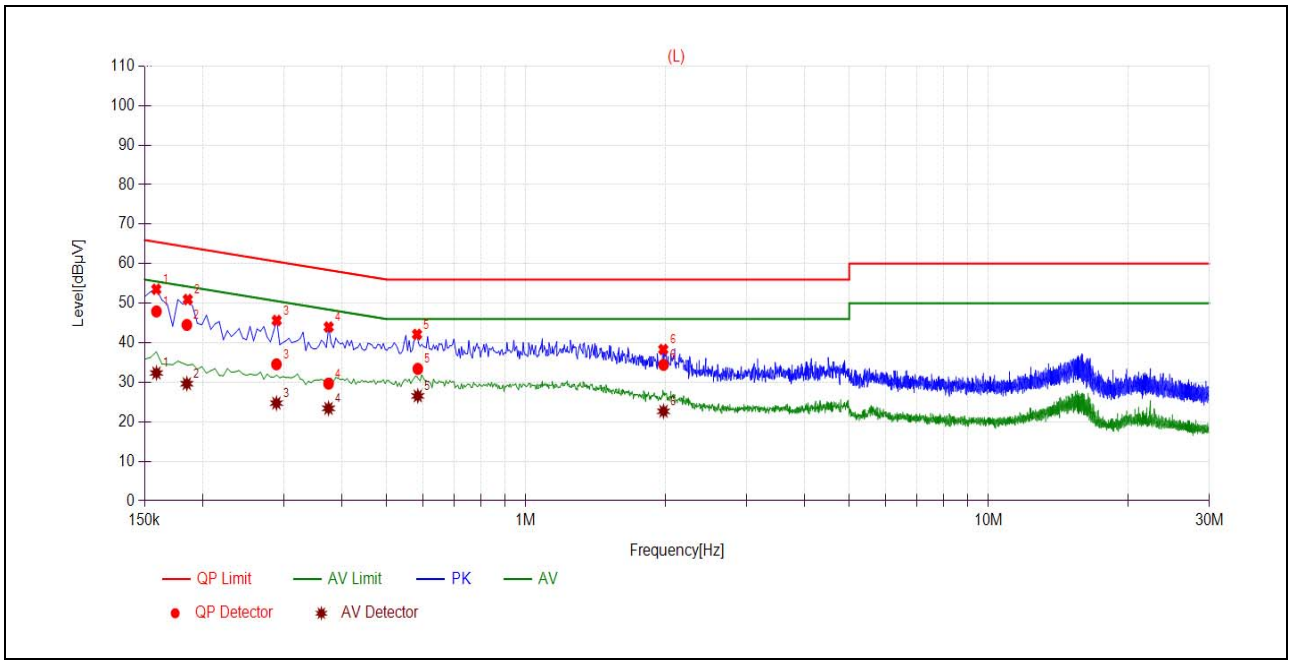
The measurement results are obtained as below:

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

U_R: Receiver Reading

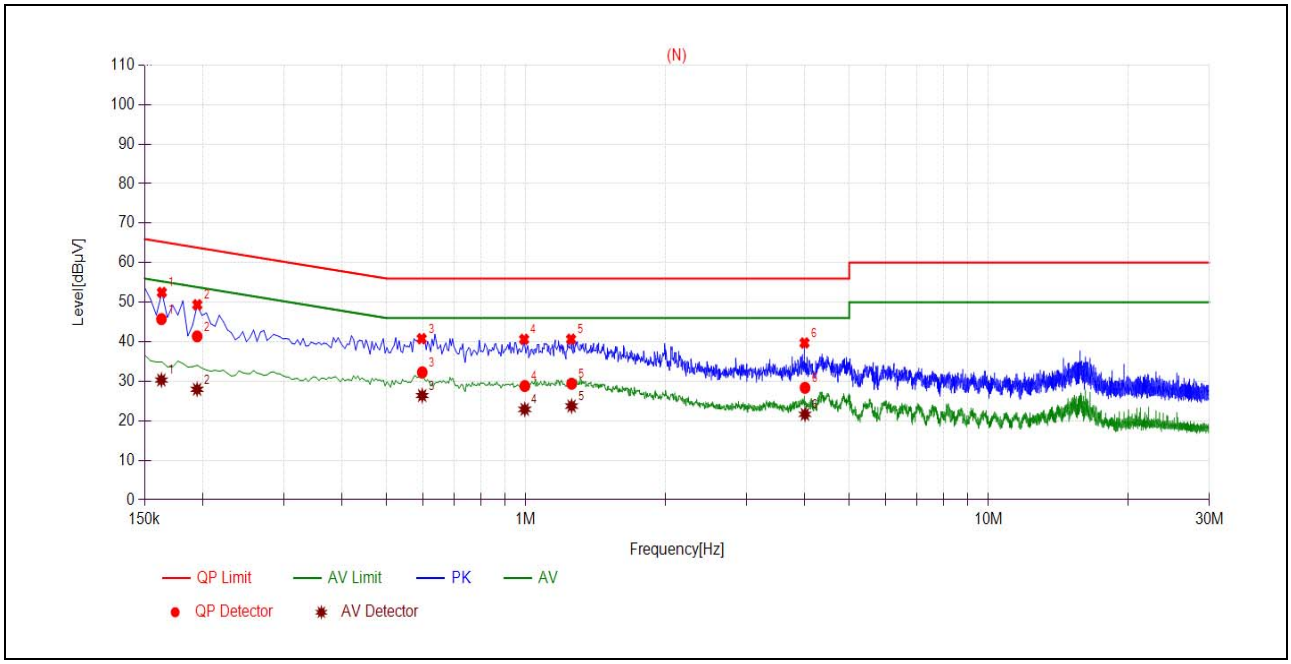
A_{Factor}: Voltage division factor of LISN

B.Test Plot:



(L Phase)

No.	Fre. (MHz)	Emission Level (dBµV)		Limit (dBµV)		Power-line	Verdict
		Quai-peak	Average	Quai-peak	Average		
1	0.1591	47.93	32.36	65.51	55.51	Line	PASS
2	0.1851	44.51	29.65	64.25	54.25		PASS
3	0.2891	34.55	24.71	60.55	50.55		PASS
4	0.3746	29.66	23.40	58.40	48.40		PASS
5	0.5841	33.40	26.54	56.00	46.00		PASS
6	1.9841	34.42	22.65	56.00	46.00		PASS



(N Phase)

No.	Fre. (MHz)	Emission Level (dBµV)		Limit (dBµV)		Power-line	Verdict
		Quai-peak	Average	Quai-peak	Average		
1	0.1631	45.73	30.32	65.30	55.30	Neutral	PASS
2	0.1948	41.36	27.96	63.83	53.83		PASS
3	0.5971	32.26	26.39	56.00	46.00		PASS
4	0.9945	28.80	22.89	56.00	46.00		PASS
5	1.2557	29.38	23.73	56.00	46.00		PASS
6	4.0107	28.36	21.63	56.00	46.00		PASS

2.3. Radiated Emission

2.3.1. Test Requirement

Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table.

The level of any unwanted emissions from an intentional radiator operating under these general provisions shall not exceed the level of the fundamental emission. For intentional radiators which operate under the provisions of other Sections within this Part and which are required to reduce their unwanted emissions to the limits specified in this table, the limits in this table are based on the frequency of the unwanted emissions and not the fundamental frequency. However, the level of any unwanted emission shall not exceed the level of the fundamental frequency.

The emission limits shown in the following table are based on measurements employing a CISPR quasi-peak detector except for the frequency 9-90kHz, 110-490kHz and above 1000MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

Frequency Range (MHz)	Field Strength(μV/m)	Distance(m)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

NOTE:

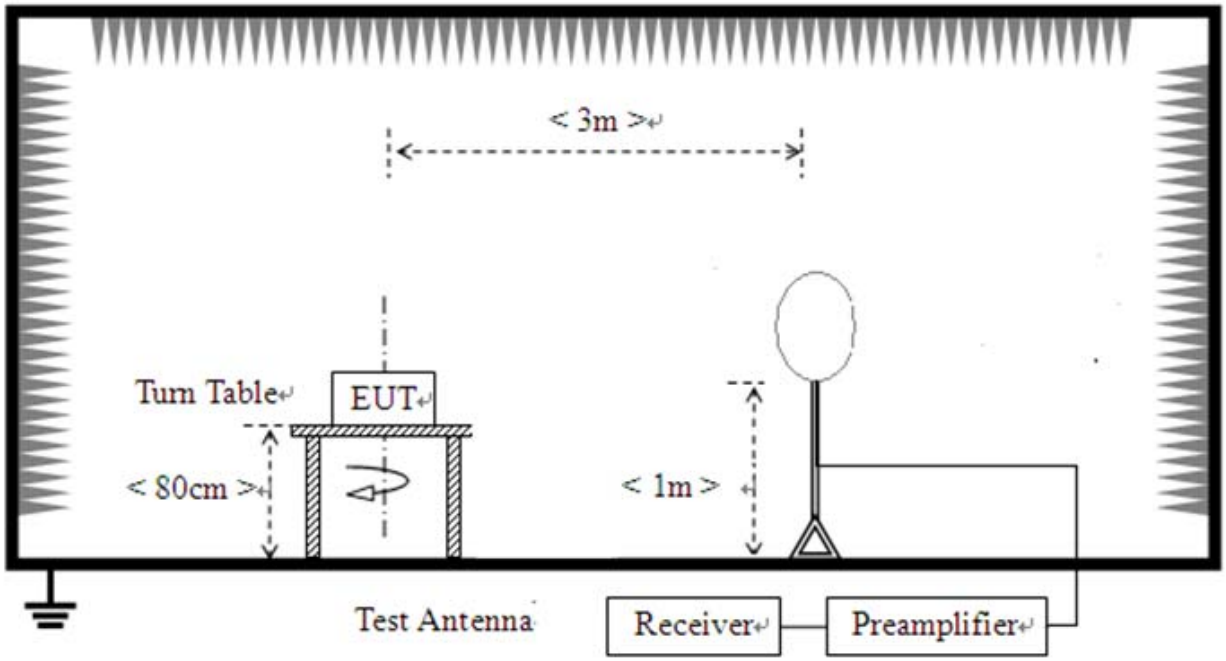
a) Field Strength (dBμV/m) = 20*log[Field Strength (μV/m)].

b) If measurement is made at 3m distance, then F.S Limitation at 3m distance is adjusted by using the formula of Ld1 = Ld2 * $(d2/d1)^2$.
Example:
F.S Limit at 30m distance is 30uV/m, then F.S Limitation at 3m distance is adjusted as
Ld1 = 30uV/m * $(10)^2$ = 100 * 30uV/m

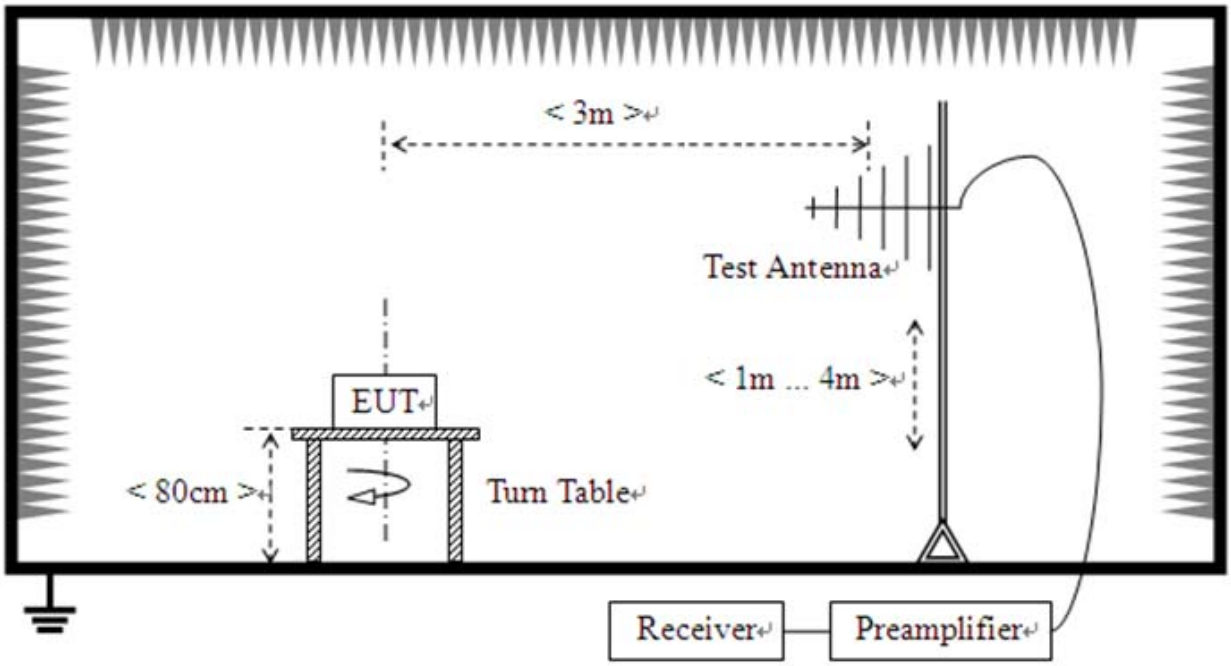
c) In the emission tables above, the tighter limit applies at the band edges.

2.3.2. Test Setup

1) For radiated emissions below 30MHz



2) For radiated emissions from 30MHz to1GHz



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 of 9 kHz to 30MHz, magnetic field is measured with Loop Test Antenna. The Test Antenna is positioned with its plane vertical at 1m distance from the EUT. The center of the Loop Test Antenna is 1m above the ground. During the measurement the Loop Test Antenna rotates about its vertical axis for maximum response at each azimuth about the EUT.

In the frequency range above 30MHz, Bi-Log Test Antenna (30MHz to 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.

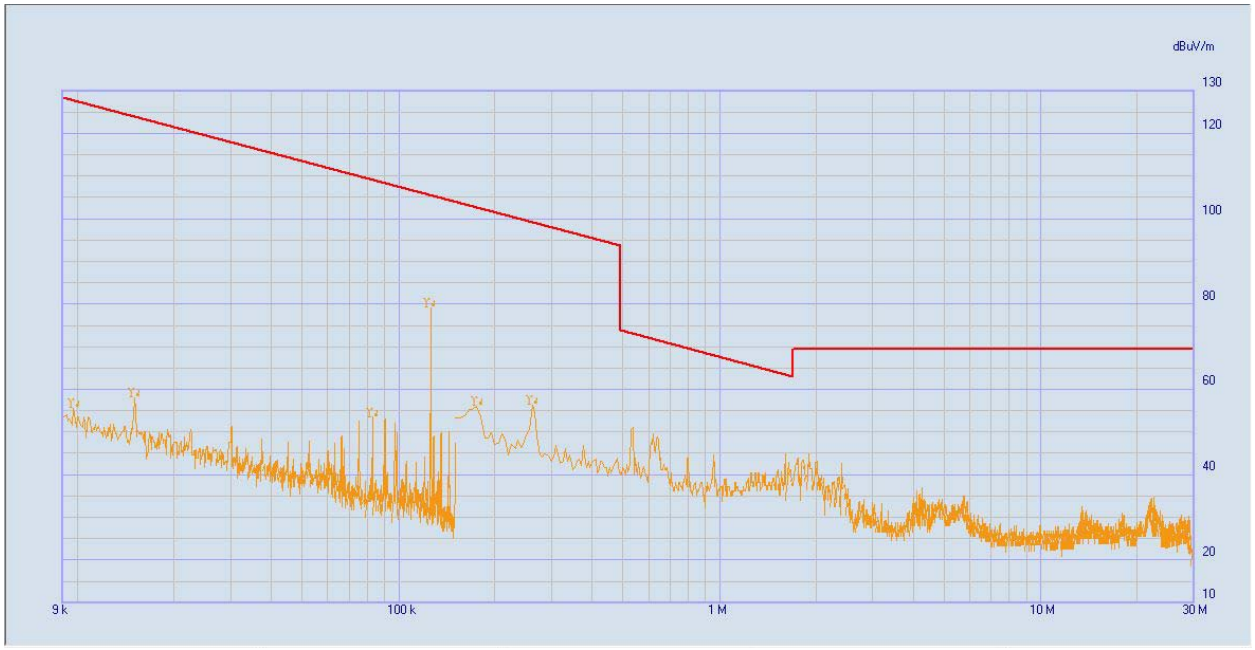
For measurements frequency range from 0.009MHz to 0.15MHz, the resolution bandwidth is set to 200kHz.

For measurements frequency range from 0.15MHz to 30MHz the resolution bandwidth is set to 9kHz.

The emission limits shown in the above are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz and 110-490 kHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

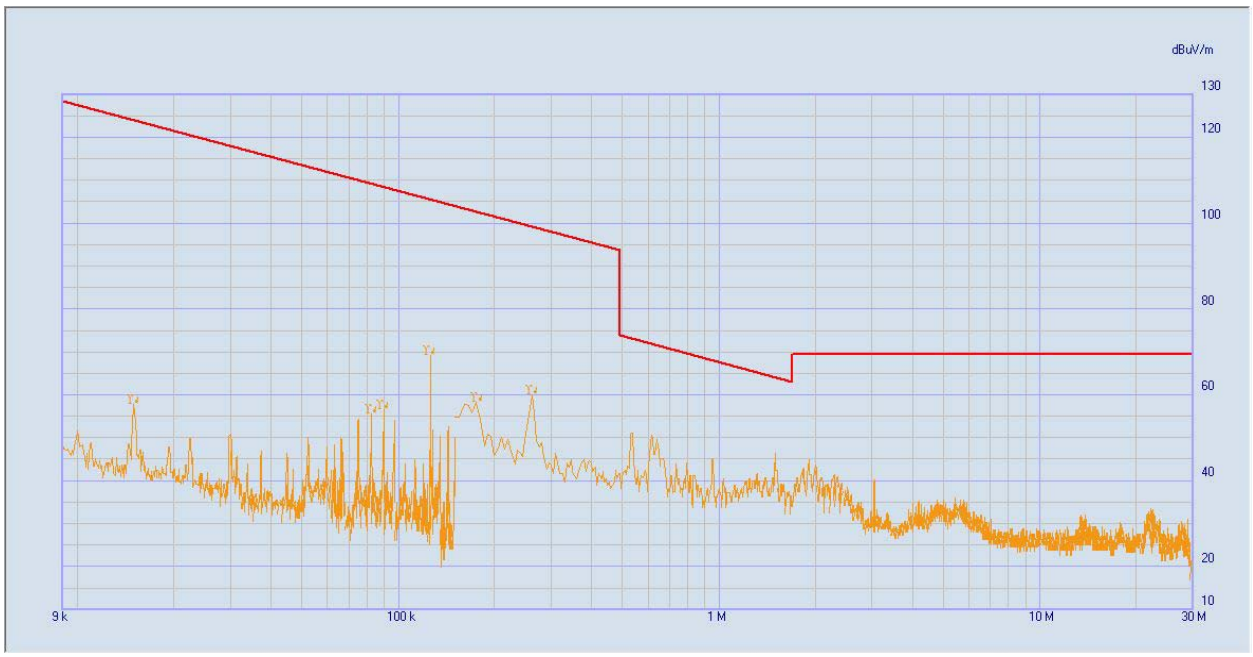
2.3.3. Test Result

A.Radiated Emission <30MHz (9kHz-30MHz, opened)



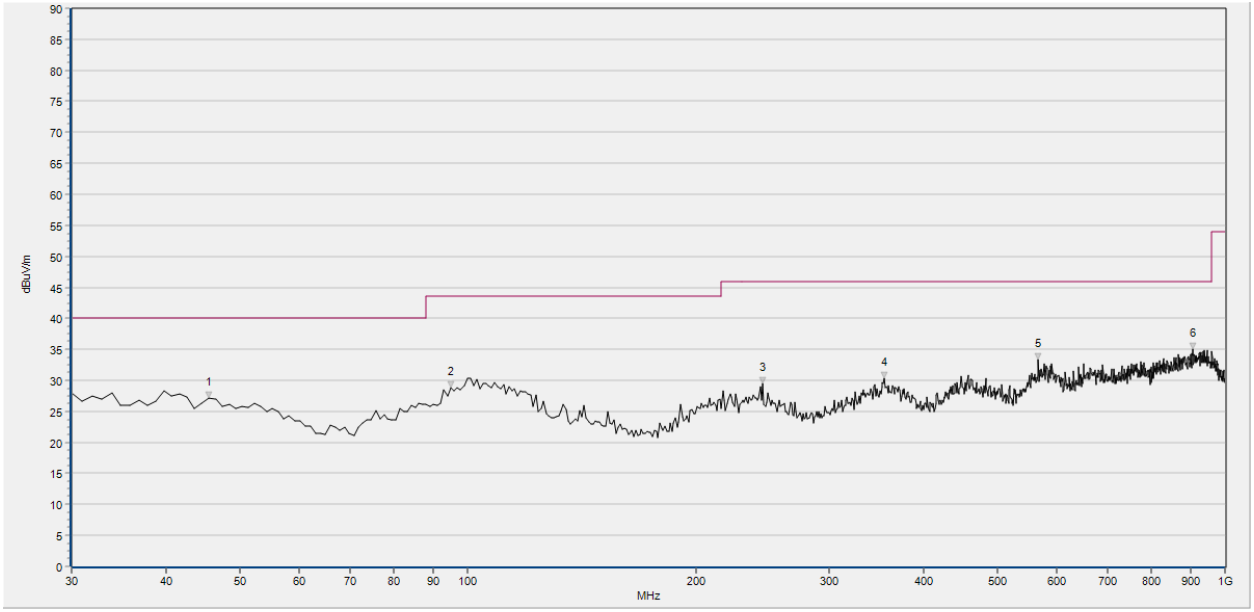
No.	Frequency (MHz)	Detector Type	Level at 3m (dBµV/m)	Limit at 3m (dBµV/m)
1	0.010	Quasi Peak	55.62	127.60
2	0.015	Quasi Peak	58.11	124.08
3	0.082	Quasi Peak	53.43	109.33
4	0.125	Quasi Peak	79.18	105.67
5	0.175	Quasi Peak	56.14	102.74
6	0.260	Quasi Peak	56.28	99.30

B.Radiated Emission <30MHz (9kHz-30MHz, closed)



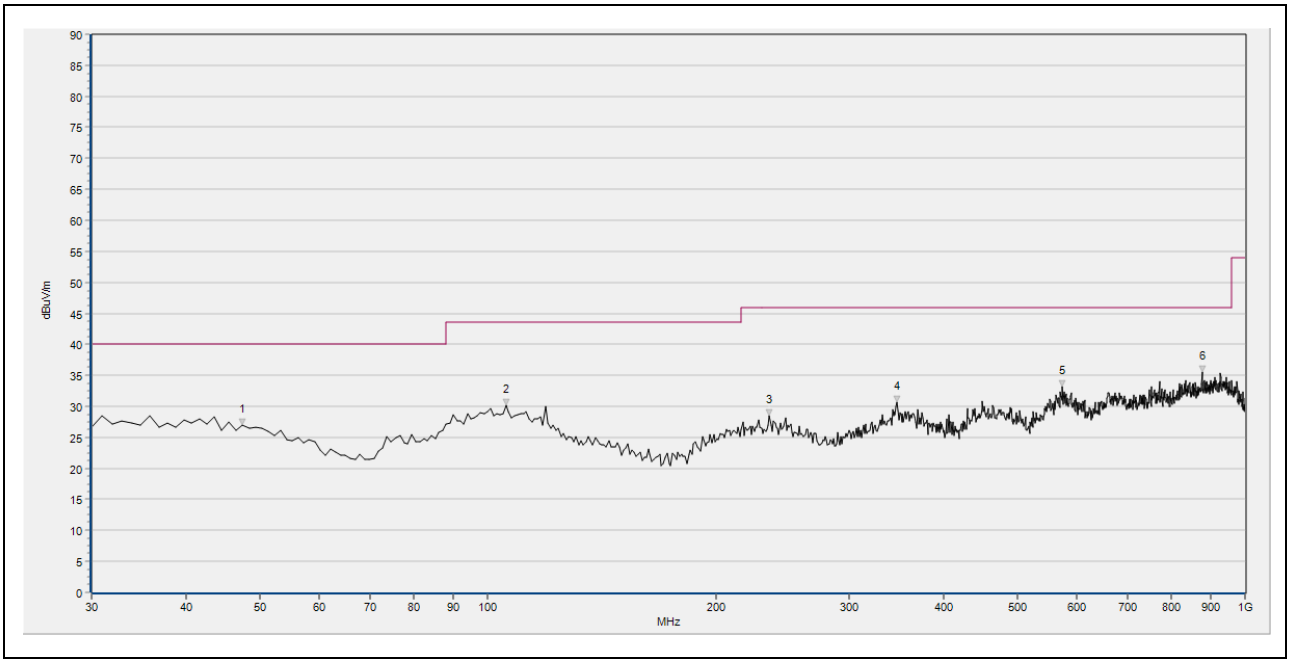
No.	Frequency (MHz)	Detector Type	Level at 3m (dBμV/m)	Limit at 3m (dBμV/m)
1	0.015	Quasi Peak	57.73	124.08
2	0.082	Quasi Peak	55.42	109.33
3	0.089	Quasi Peak	56.49	108.62
4	0.125	Quasi Peak	69.19	105.67
5	0.175	Quasi Peak	58.34	102.74
6	0.260	Quasi Peak	60.05	99.30

C.Radiated Emission >30MHz (30MHz-1GHz)



(30MHz – 1GHz, Test Antenna Horizontal)

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	45.520	27.20	N/A	N/A	N/A	40.00	N/A	H	PASS
2	94.990	28.77	N/A	N/A	N/A	43.50	N/A	H	PASS
3	245.340	29.49	N/A	N/A	N/A	46.00	N/A	H	PASS
4	354.950	30.34	N/A	N/A	N/A	46.00	N/A	H	PASS
5	566.410	33.31	N/A	N/A	N/A	46.00	N/A	H	PASS
6	906.880	34.96	N/A	N/A	N/A	46.00	N/A	H	PASS



(30MHz – 1GHz, Test Antenna Vertical)

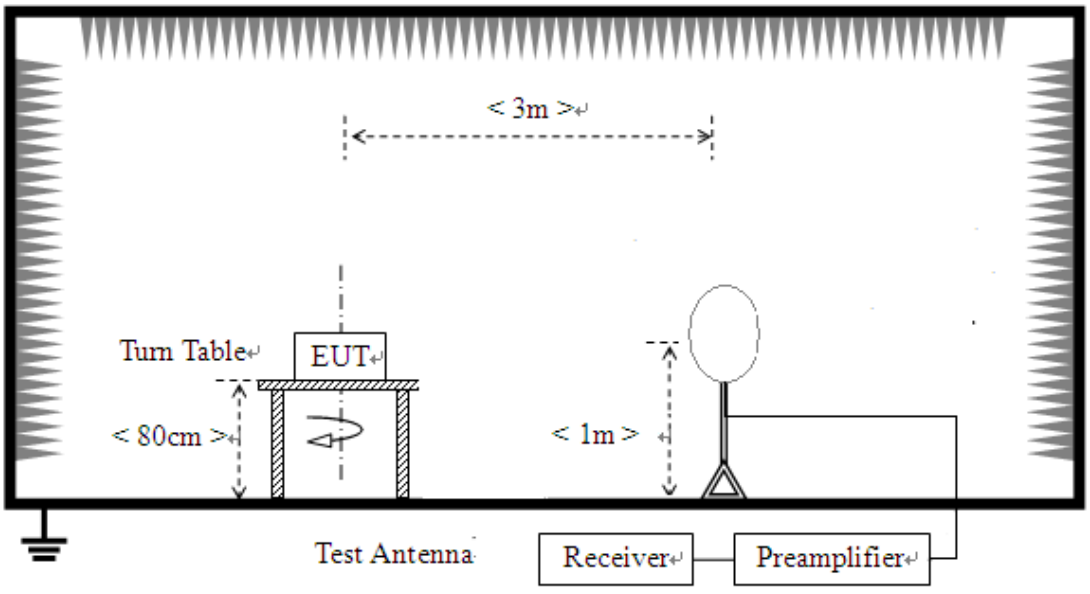
No.	Fre. MHz	Pk dBμV/m	QP dBμV/m	AV dBμV/m	Limit-PK dBμV/m	Limit-QP dBμV/m	Limit-AV dBμV/m	ANT	Verdict
1	47.460	27.07	N/A	N/A	N/A	40.00	N/A	V	PASS
2	105.660	30.15	N/A	N/A	N/A	43.50	N/A	V	PASS
3	235.640	28.42	N/A	N/A	N/A	46.00	N/A	V	PASS
4	347.190	30.61	N/A	N/A	N/A	46.00	N/A	V	PASS
5	574.170	33.15	N/A	N/A	N/A	46.00	N/A	V	PASS
6	877.780	35.55	N/A	N/A	N/A	46.00	N/A	V	PASS

2.4. 20 dB Bandwidth

2.4.1. Standard Applicable

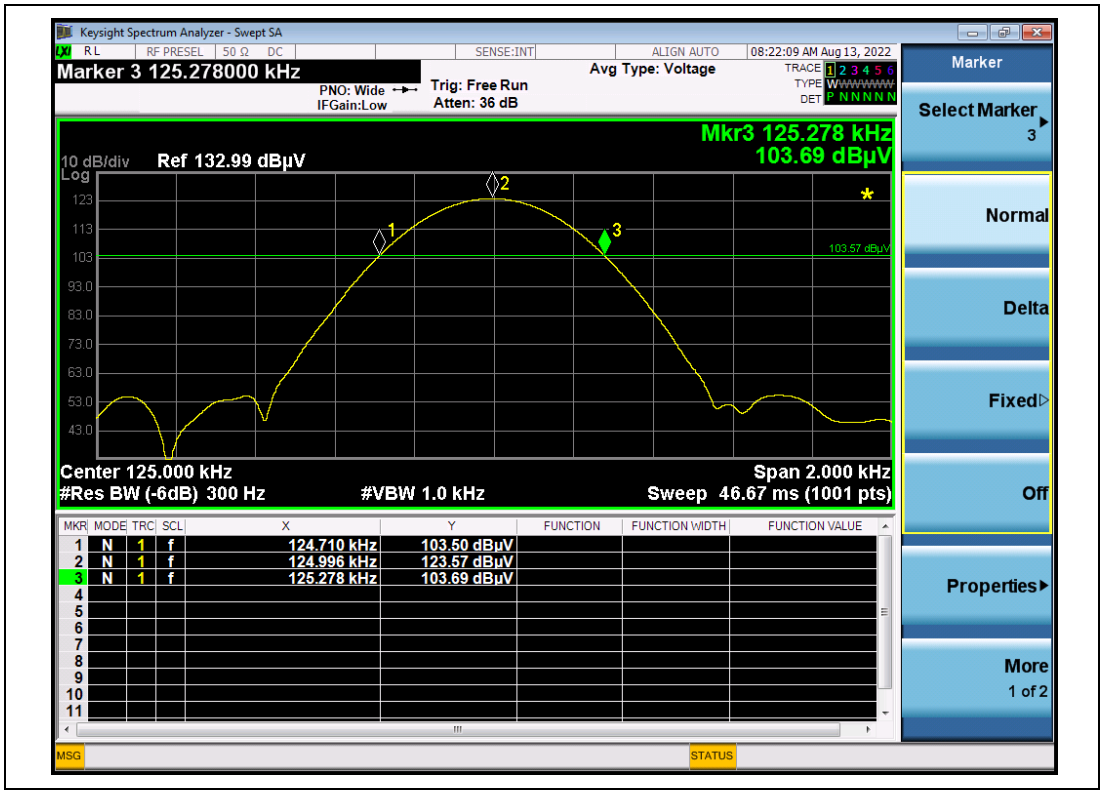
Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated. In the case of intentional radiators operating under the provisions of subpart E, the emission bandwidth may span across multiple contiguous frequency bands identified in that subpart. The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage. If frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation.

2.4.2. Test Setup



2.4.3. Test Result

Frequency(kHz)	20 dB Bandwidth (kHz)	Verdict
125	0.568	PASS



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.

Radiated Emission:	±3.1dB
Conducted Emission:	±1.8dB
Bandwidth	±5%

Annex B Testing Laboratory Information

1. Identification of the Responsible Testing Laboratory

Laboratory Name:	Shenzhen Morlab Communications Technology Co., Ltd.
Laboratory Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, 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.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China

3. Facilities and Accreditations

All measurement facilities used to collect the measurement data are located at FL.3, Building A, FeiYang Science Park, Block 67, BaoAn District, Shenzhen, 518101 P. R. China. The test site is constructed in conformance with the requirements of ANSI C63.10-2013 and CISPR Publication 22; the FCC designation number is CN1192, the test firm registration number is 226174.

4. Test Equipments Utilized

4.1 Radiated Test Equipments

Equipment Name	Serial No.	Type	Manufacturer	Cal. Date	Due Date
Receiver	MY54130016	N9038A	Agilent	2022.07.06	2023.07.05
Test Antenna - Bi-Log	9163-519	VULB 9163	Schwarzbeck	2022.05.25	2025.05.24
Test Antenna - Loop	1520-022	FMZB1519	Schwarzbeck	2022.02.11	2025.02.10
Anechoic Chamber	N/A	9m*6m*6m	CRT	2020.01.06	2023.01.05

4.2 Conducted Emission Test Equipments

Equipment Name	Serial No.	Type	Manufacturer	Cal. Date	Due Date
Receiver	MY56400093	N9038A	KEYSIGHT	2022.03.03	2023.03.02
LISN	812744	NSLK 8127	Schwarzbeck	2022.03.03	2023.03.02
Pulse Limiter (10dB)	VTSD 9561 F-B #206	VTSD 9561-F	Schwarzbeck	2022.07.06	2023.07.05
Coaxial Cable(BNC) (30MHz-26GHz)	CB01	EMC01	Morlab	N/A	N/A
Notebook computer	20210357	P144G	DELL	N/A	N/A

4.3 Test Software Utilized

Model	Software Version	Manufacturer
TS+ -[JS32-RE]	Version 2.5.0.6	Tonscend
TS+ -[JS32-CE]	Version 2.5.0.0	Tonscend
PMM Emission Suite	Version 2.02	narda

END OF REPORT