TEST REPORT

Applicant:	Nice North America LLC
Address:	5919 Sea Otter Place, Suite 100, Carlsbad, CA 92010 USA
Equipment Type:	Tilt Sensor
Model Name:	2GIG-TILT100-345
Brand Name:	2GIG
FCC ID:	EF400254
ISED Number:	1078A-00254
Test Standard:	47 CFR Part 15 Subpart C RSS-Gen Issue 5 RSS-210 Issue 11 (refer to section 3.1)
Sample Arrival Date:	Feb. 27, 2025
Test Date:	Feb. 28, 2025 - Mar. 14, 2025
Date of Issue:	Mar. 25, 2025

ISSUED BY:

Shanghai Tejet Communications Technology Co., Ltd. Testing Center

Tested by: Hai Su **Checked by:** Zhang Yanqing **Approved by:** Chen Zidong

(Technical Director)

Hai Su Zhang Yanqing Chen Zidong

Revision History

Version	Issue Date	Revisions
Rev. 01	Mar. 18, 2025	Initial Issue
Rev. 02	Mar. 25, 2025	Added antenna annotations for internnal photos. Modified the Test Standard RSS-210 Issue 10 to RSS-210 Issue 11 on coverpage and section 3.1. The original report is invalid.

TABLE OF CONTENTS

1 GENERAL INFORMATION

1.1 Test Laboratory

Name	Shanghai Tejet Communications Technology Co., Ltd. Testing Center
Address	1st to 2nd floors, Building 1, No. 222 Xuanlan Road, Xuanqiao Town, Pudong New District, Shanghai

1.2 Test Location

Name	Shanghai Tejet Communications Technology Co., Ltd. Testing Center
Location	1st to 2nd floors, Building 1, No. 222 Xuanlan Road, Xuanqiao Town, Pudong New District, Shanghai
Accreditation Certificate	The laboratory is a testing organization accredited by FCC as a accredited testing laboratory. The designation number is CN1352. The laboratory has been listed by Industry Canada to perform electromagnetic emission measurements. The recognition numbers of test site are 29671.

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	Nice North America LLC
Address	5919 Sea Otter Place, Suite 100, Carlsbad, CA 92010 USA

2.2 Manufacturer Information

Manufacturer	Nice North America LLC
Address	5919 Sea Otter Place, Suite 100, Carlsbad, CA 92010 USA

2.3 General Description for Equipment under Test (EUT)

EUT Name	Tilt Sensor
Model Name Under Test	2GIG-TILT100-345
Series Model Name	N/A
Description of Model name differentiation	N/A
Sample Number	SC-SZ2520093-S03 SC-SZ2520093-S02
Hardware Version	X2
Software Version	X1
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A

2.4 Technical Information

Network and Wireless connectivity	345MHz

The requirement for the following technical information of the EUT was tested in this report:

Modulation Type	OOK
Operating Frequency	345 MHz
Antenna Type	monopole Antenna
Antenna Gain	-6 dBi

3 SUMMARY OF TEST RESULTS

3.1 Test Standards

No.	Identity	Document Title
1	47 CFR Part 15, Subpart C	Intentional Radiators
2	ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices
3	RSS-Gen Issue 5	General Requirements for Compliance of Radio Apparatus
4	RSS-210 Issue 11	Licence-Exempt Radio Apparatus: Category I Equipment

3.2 Test Verdict

No.	Description	FCC Part No.	ISED Part No.	Test Result	Verdict
1	Antenna Requirement	15.203	RSS-Gen 6.8	--	Pass[Note1]
2	Conducted Emission	15.207	RSS-Gen 8.8	ANNEX A.1	N/A[Note2]
3	20 dB Bandwidth	15.231(c)	RSS-Gen 6.7	ANNEX A.2	Pass
4	Duty Cycle	15.35	--	ANNEX A.3	Pass
5	Field Strength of Fundamental Emissions	15.231(b)	RSS-210 8.9	ANNEX A.4	Pass
6	Radiated Emissions	15.209 15.231(b)	RSS-Gen 8.9	ANNEX A.5	Pass
7	Transmitting Time	15.231(a)	--	ANNEX A.6	Pass
Note 1: Please refer to section 5.1 Note 2: The EUT is powered by battery.					

4 GENERAL TEST CONFIGURATIONS

4.1 Test Environments

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

Relative Humidity	52% to 58%	
Atmospheric Pressure	101 kPa	
Temperature	NT (Normal Temperature)	+22.3℃ to +24.5℃
Working Voltage of the EUT	NV (Normal Voltage)	3.0V

4.2 Test Equipment List

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer	KEYSIGHT	N9020A	MY54420147	2025.02.12	2026.02.11
Spectrum Analyzer	KEYSIGHT	N9010B	MY60240977	2025.02.12	2026.02.11
Signal Generator	Anritsu	MG3710E	6262063515	2025.02.12	2026.02.11
Wideband Radio Communication Tester	R&S	CMW500	168792	2025.02.11	2026.02.10
EMI Receiver	KEYSIGHT	N9038A	MY55330122	2024.07.09	2025.07.08
EMI Receiver	R&S	ESRP3	102112	2025.02.11	2026.02.10
Test Antenna-Loop(9 kHz-30 MHz)	SCHWARZBECK	FMZB 1519	1519-177	2024.03.11	2027.03.10
Test Antenna-Bi-Log(30 MHz-3 GHz)	SCHWARZBECK	VULB 9163	9163-1203	2024.03.11	2027.03.10
Test Antenna-Horn(1-18 GHz)	SCHWARZBECK	BBHA 9120D	9120D-2134	2024.03.11	2027.03.10
Test Antenna-Horn (18-40 GHz)	A-INFO	LB-180400-KF	J211060307	2024.03.11	2027.03.10
Anechoic Chamber	YiHeng	9m*6m*6m	EMC001	2024.04.18	2027.04.17
EMI Receiver	KEYSIGHT	N9038A	MY55330115	2025.02.12	2026.02.11
LISN	SCHWARZBECK	NSLK 8127	8127-940	2025.02.11	2026.02.10
10dB Limiter	SCHWARZBECK	VTSD 9561-F	9561-F N00409	2025.02.11	2026.02.10
Shielded Room	YiHeng	5m*4m*3.2 m	EMC006	2024.02.22	2027.02.21

4.3 Test Software List

Description	Manufacturer	Software Version	Serial No.	Applicable Test Setup
BL410R	BALUN	V2.1.1.496	N/A	The section 4.6.1
BL410E	BALUN	V21.919	N/A	The section 4.6.1&4.6.2&4.6.3&4.6.4

4.4 Decision Rule

☐ No Need
☒ Use General conformity decision rule (Consider uncertainty or not ☒No ☐Yes)
☐ Use Special Conformity Decision Rule (Consider uncertainty or not ☐No ☐Yes)

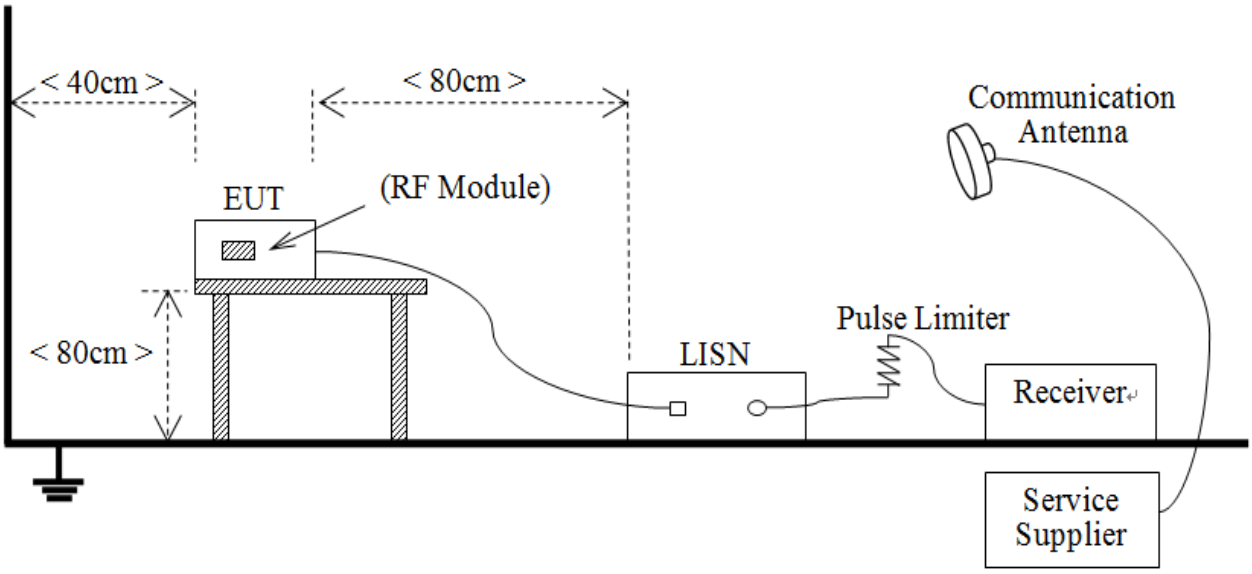
4.5 Measurement Uncertainty

The following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2.
This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Parameters	Uncertainty
Occupied Channel Bandwidth	2.4 %
RF output power, conducted	0.41 dB
Power Spectral Density, conducted	1.73 dB
Unwanted Emissions, conducted	1.73 dB
All emissions, radiated	4.57 dB
Temperature	0.82 °C
Humidity	4.1 %

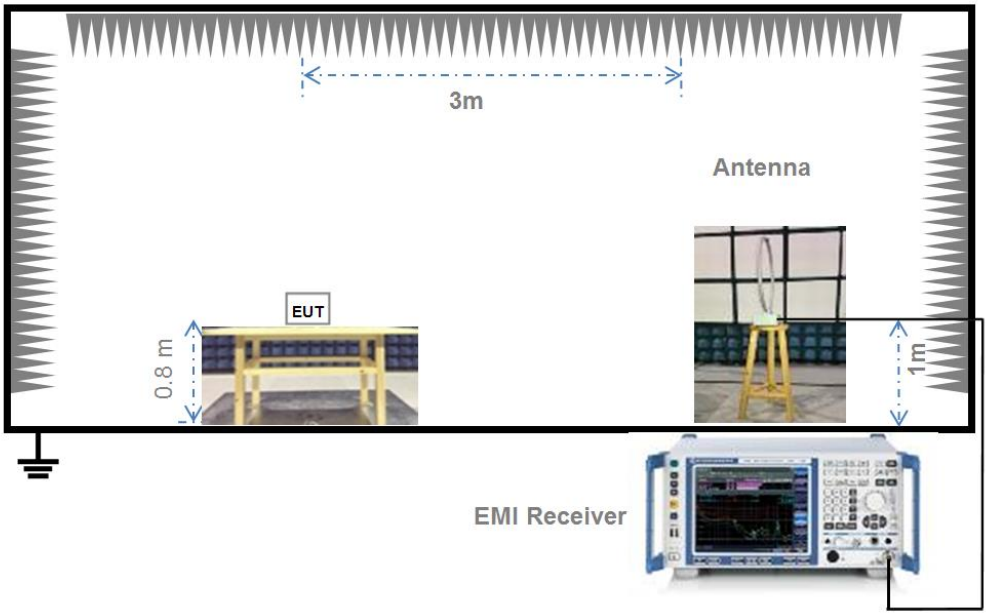
4.6 Description of Test Setup

4.6.1 For AC Power Supply Port Test



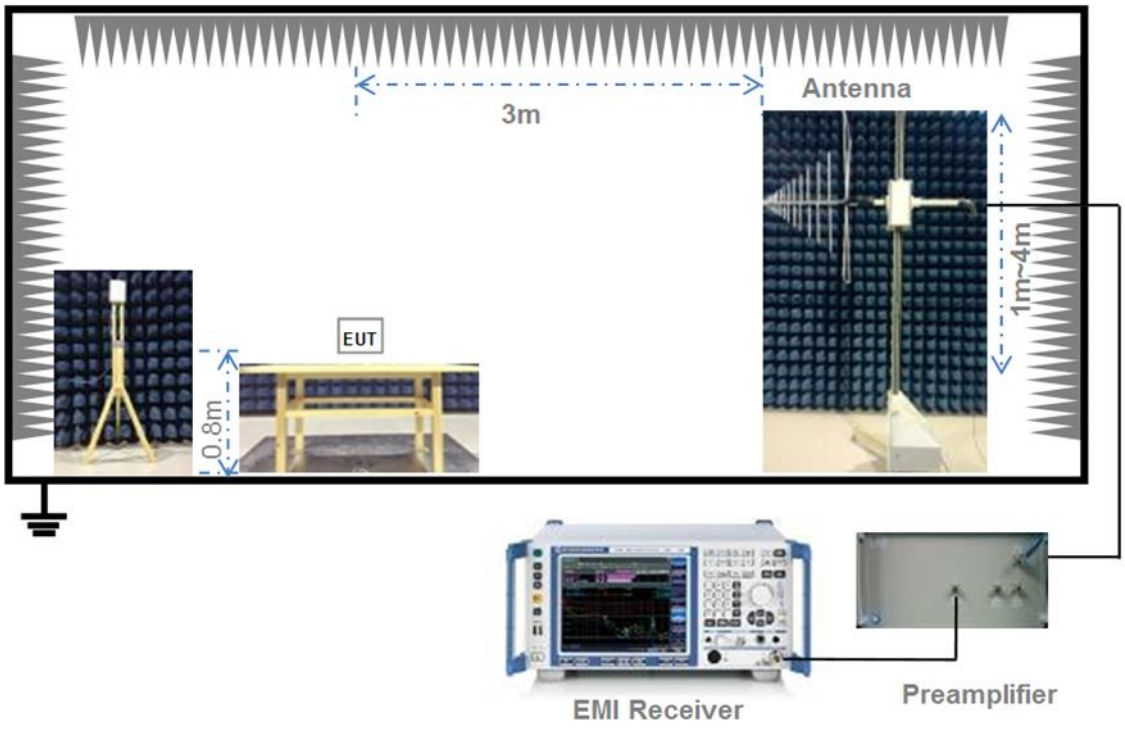
(Diagram 2)

4.6.2 For Radiated Test (Below 30 MHz)



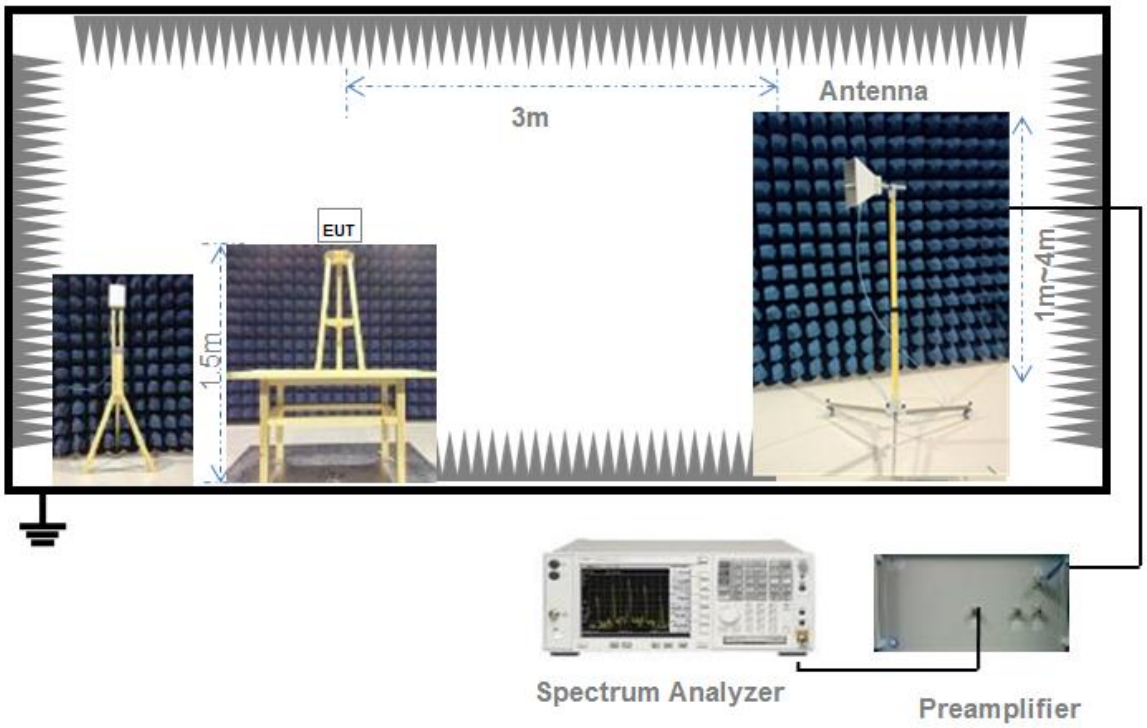
(Diagram 3)

4.6.3 For Radiated Test (30 MHz-1 GHz)



(Diagram 4)

4.6.4 For Radiated Test (Above 1 GHz)



(Diagram 5)

5 TEST ITEMS

5.1 Antenna Requirements

5.1.1 Relevant Standards

FCC §15.203 & 15.247(b); RSS -Gen 6.8

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. 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. This requirement does not apply to carrier current devices or to devices operated under the provisions of § 15.211, § 15.213, § 15.217, § 15.219, or § 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with § 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

If directional gain of transmitting antennas is greater than 6 dBi, the power shall be reduced by the same level in dB comparing to gain minus 6 dBi. For the fixed point-to-point operation, the power shall be reduced by one dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi. 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 FCC rule.

5.1.2 Antenna Anti-Replacement Construction

The Antenna Anti-Replacement as following method:

Protected Method	Description
The antenna is embedded in the product.	An embedded-in antenna design is used.

Reference Documents	Item
Photo	Please refer to the EUT Photo documents.

5.1.3 Antenna Gain

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.

5.2 Conducted Emission

5.2.1 Limit

FCC §15.207; RSS-Gen 8.8

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency within the band 150 kHz to 30 MHz 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
0.50 - 30	60	50

5.2.2 Test Setup

See section 4.4.1 for test setup description for the AC power supply port. The photo of test setup please refer to ANNEX B.

5.2.3 Test Procedure

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. Refer to recorded points and plots below.
Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a nominal 120 VAC, 50/60 Hz and 240 VAC, 50/60 Hz) for which the device is capable of operation. A device rated for 50/60 Hz operation need not be tested at both frequencies provided the radiated and line conducted emissions are the same at both frequencies.

5.2.4 Test Result

Please refer to ANNEX A.1.

5.3 20 dB Bandwidth

5.3.1 Limit

FCC §15.231; RSS-Gen 6.7

The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.

5.3.2 Test Setup

See section 4.4.3 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.3.3 Test Procedure

Use the following spectrum analyzer settings:

Span = two times and five times the OBW

RBW = 1% to 5% of the OBW

VBW ≥ three times RBW

Sweep = auto

Detector function = peak

Trace = max hold

5.3.4 Test Result

Please refer to ANNEX A.2.

5.4 Field Strength of Fundamental Emissions and Radiated Emissions

5.4.1 Limit

FCC §15.231 & §15.209; RSS-210 8.9

According to FCC section 15.231(b), In addition to the provisions of §15.205, the field strength of emissions from intentional radiators operated under this section shall not exceed the following:

Fundamental frequency (MHz)	Field strength of fundamental (microvolts/meter)	Field strength of spurious emissions (microvolts/meter)
40.66-40.70	2250	225
70-130	1250	125
130-174	[1]1250 to 3750	125 to 375
174-260	3750	375
260-470	[1]3750 to 12500	375 to 1250
Above 470	12500	1250
[1]Linear interpolations.		

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:

Frequency (MHz)	Field Strength (μV/m)
0.009 - 0.490	2400/F(kHz)
0.490 - 1.705	24000/F(kHz)
1.705 - 30.0	30
30 - 88	100
88 - 216	150
216 - 960	200
Above 960	500

Note:

1. For Above 1000 MHz, the emission limit in this paragraph is based on measurement instrumentation employing an average detector, measurement using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.

2. For above 1000 MHz, limit field strength of harmonics: 54dBuV/m@3m (AV) and 74dBuV/m@3m (PK).

5.4.2 Test Setup

See section 4.4.2 to 4.4.4 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.4.3 Test Procedure

The measurement frequency range is from 30 MHz to the 10th harmonic of the fundamental frequency. The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. Mid channels on all channel bandwidth verified. Only the worst RB size/offset presented. The power of the EUT transmitting frequency should be ignored.

All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

Use the following spectrum analyzer settings:
Span = wide enough to fully capture the emission being measured
RBW = 1 MHz for f ≥ 1 GHz, 100 kHz for f < 1 GHz
VBW ≥ RBW
Sweep = auto
Detector function = peak
Trace = max hold

5.4.4 Test Result

Please refer to ANNEX A.4 & A.5.

5.5 Transmitting Time

5.5.1 Limit

FCC §15.231

Intentional radiators which are employed for radio control purposes during emergencies involving fire, security, and safety of life, when activated to signal an alarm, may operate during the pendency of the alarm condition

5.5.2 Test Setup

See section 4.4.3 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.5.3 Test Procedure

The EUT transmitter was activated, the spectrum analyzer single sweep was triggered while a command on the EUT was activated and plots were captured

5.5.4 Test Result

Please refer to ANNEX A.6.

ANNEX A TEST RESULT

A.1 Conducted Emissions

Note: Not applicable.

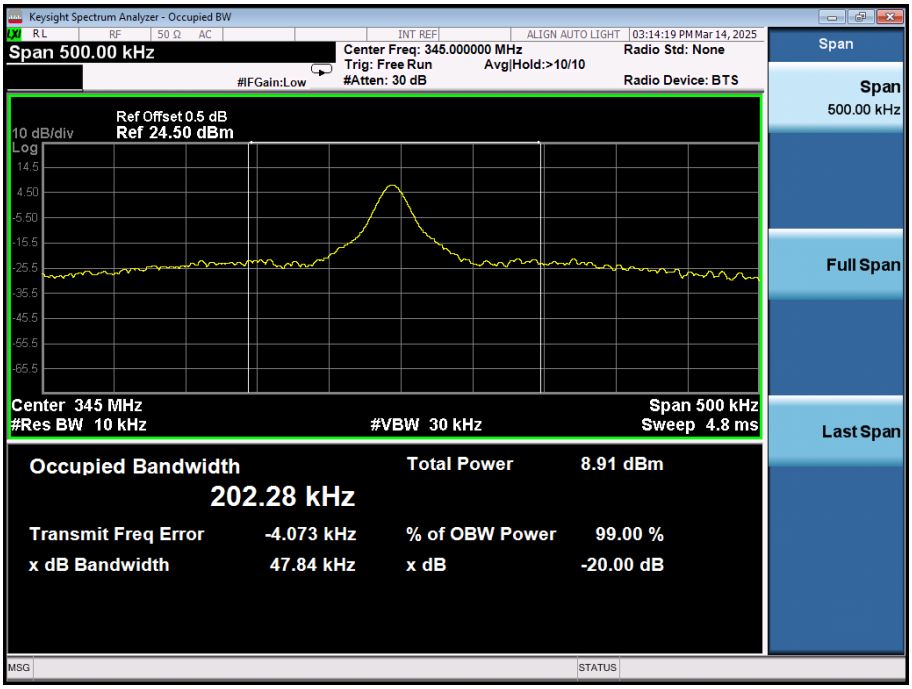
A.2 20 dB Bandwidth

Test Data

Frequency (MHz)	20 dB Bandwidth (kHz)	99% Bandwidth (kHz)	Limit (kHz)	Verdict
345.00	47.84	202.28	862.50	Pass

Test plots

20 dB Bandwidth



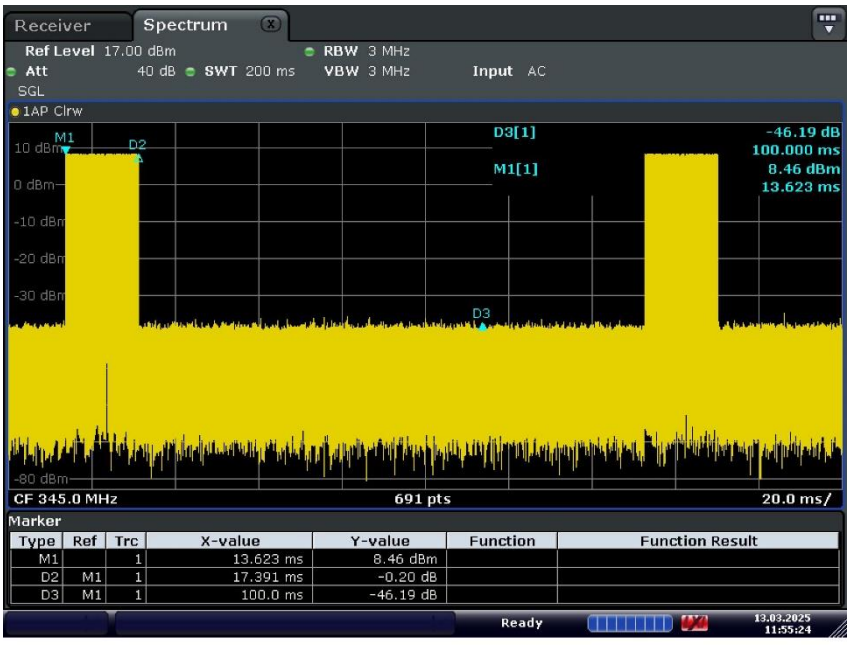
A.3 Duty cycle

Test Data and Plot

Data Transmissions		Number of pulses
The number of pulses Group		1
Long pulse duration	0.28986 ms	11
Short pulse duration	0.15217 ms	42
Total transmissions duration	0.28986*11+0.15217*42=9.57960 ms	
On time within 100 msec	1*9.55064=9.57960 ms	
Duty cycle correction factor	20*log(9.57960/100)=-20.37305 dB	

Therefore, the average factor is found by 20log(Duty cycle) = -20.37305 dB, AV factor=-20dB

Number of Packet/100 ms



Date: 13.MAR.2025 11:55:24

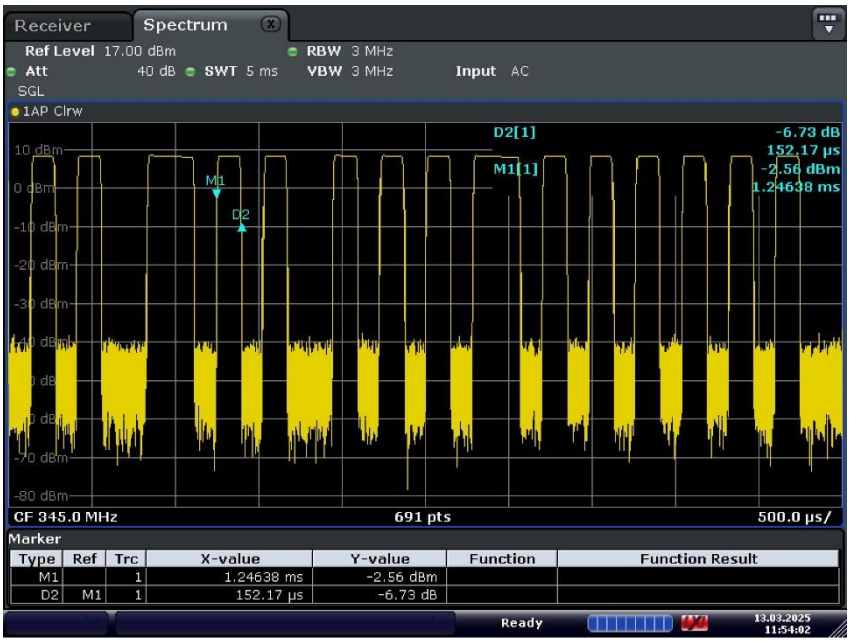
Number of Pulses/Packet

Date: 13.MAR.2025 11:54:39

Long Pulse Duration

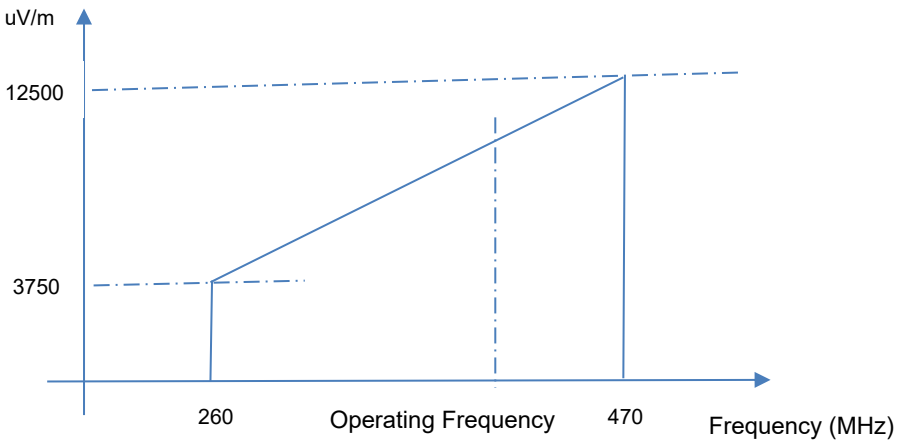
Date: 13.MAR.2025 11:53:35

Short Pulse Duration



Date: 13.MAR.2025 11:54:02

A.4 Field Strength of Fundamental Emissions



The Field Strength of Fundamental Emissions (Operating Frequency) is:
3750 uV/m = 20*log (3750) dBuV/m = 71.48 dBuV/m

12500 uV/m = 20*log (12500) dBuV/m = 81.94 dBuV/m

Test Data

Field Strength of Fundamental Emissions and Field strength of spurious emissions Value					
Operating Frequency (MHz)	Field Strength (dBuV/m)	Detector	Limit @3m (dBuV/m)	Margin (dB)	Antenna
344.989	82.82	PEAK	96.50	13.68	Vertical
	87.63	PEAK	96.50	8.87	Horizontal
	62.37	AVERAGE	76.50	14.13	Vertical
	67.19	AVERAGE	76.50	9.31	Horizontal
689.977	31.66	PEAK	101.94	70.28	Vertical
	37.40	PEAK	101.94	64.54	Horizontal
	10.77	AVERAGE	81.94	71.17	Vertical
	17.24	AVERAGE	81.94	64.70	Horizontal

A.5 Radiated Emission

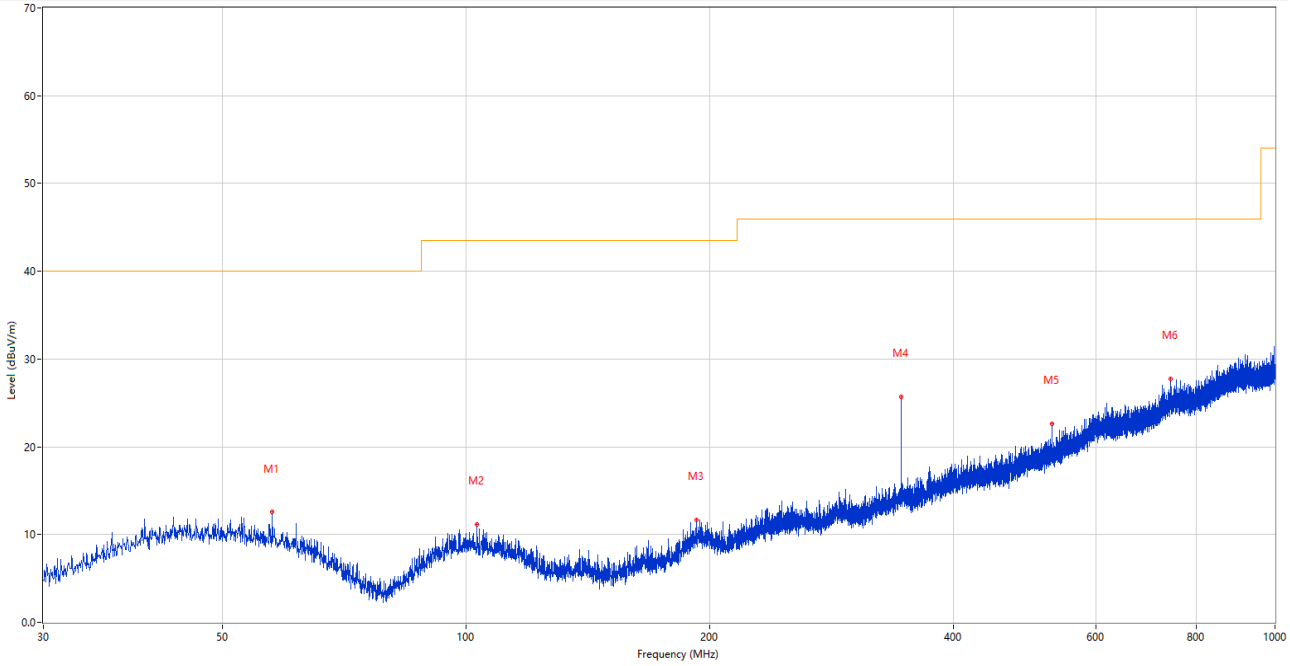
Note [1]: The symbol of "--" in the table which means not application.

Note [2]: The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.

Note [4]: The verdict please refer to the A.3 field strength of fundamental emissions and field strength of spurious emissions value.

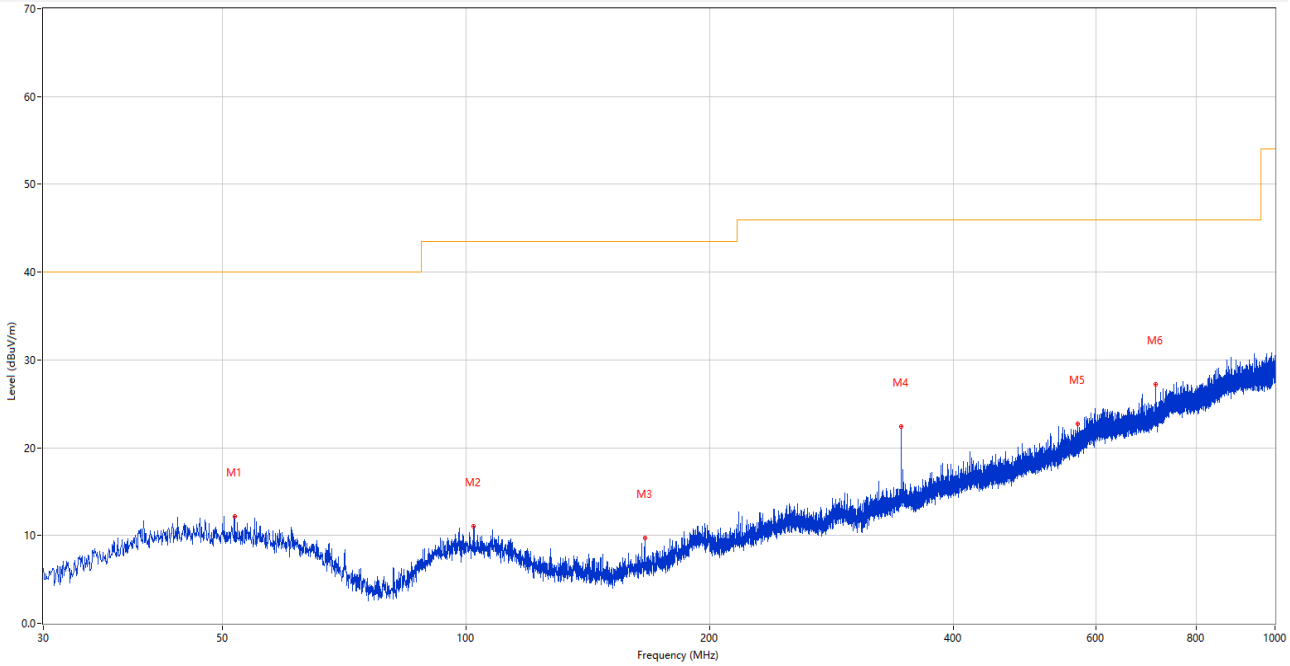
Test Data and Plots

30 MHz to 1 GHz, ANT H



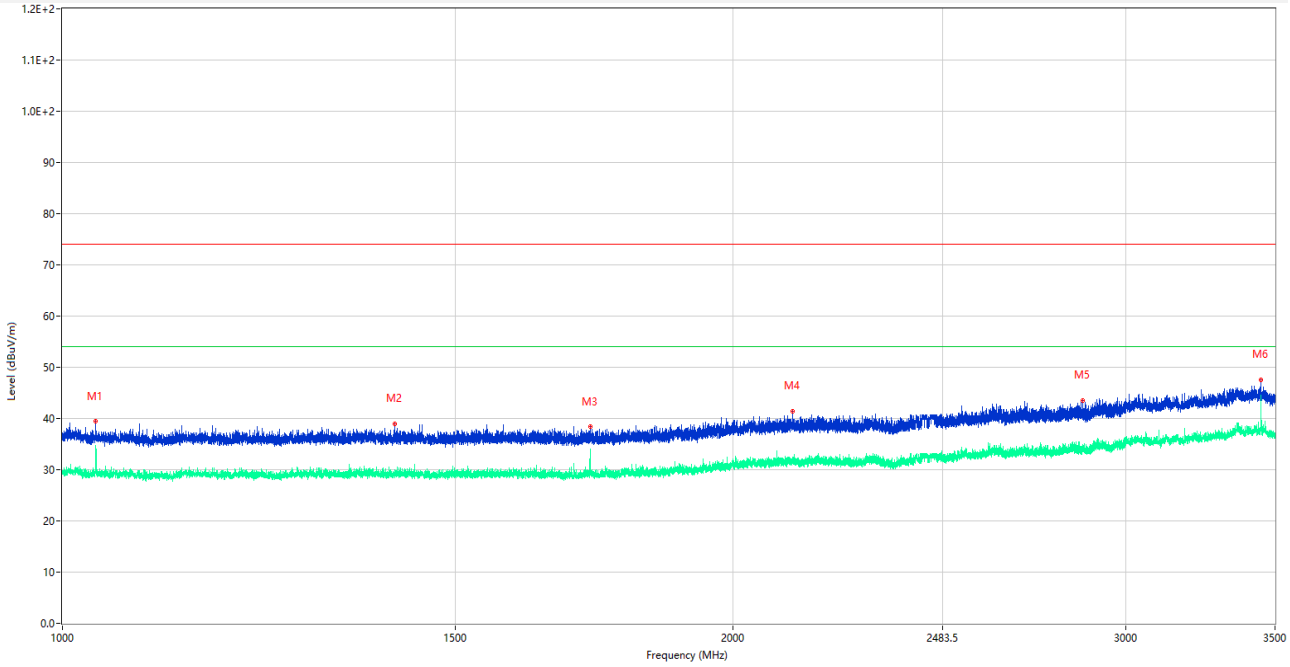
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	57.596	12.54	-25.55	40.0	27.46	Peak	175.00	100	Horizontal	Pass
2	103.138	11.14	-26.11	43.5	32.36	Peak	360.00	200	Horizontal	Pass
3	192.669	11.71	-25.90	43.5	31.79	Peak	90.00	200	Horizontal	Pass
4	345.008	25.72	-21.51	46.0	20.28	Peak	181.00	100	Horizontal	Pass
5	530.229	22.64	-17.44	46.0	23.36	Peak	314.00	100	Horizontal	Pass
6	743.484	27.77	-12.01	46.0	18.23	Peak	0.00	100	Horizontal	Pass

30 MHz to 1 GHz, ANT V



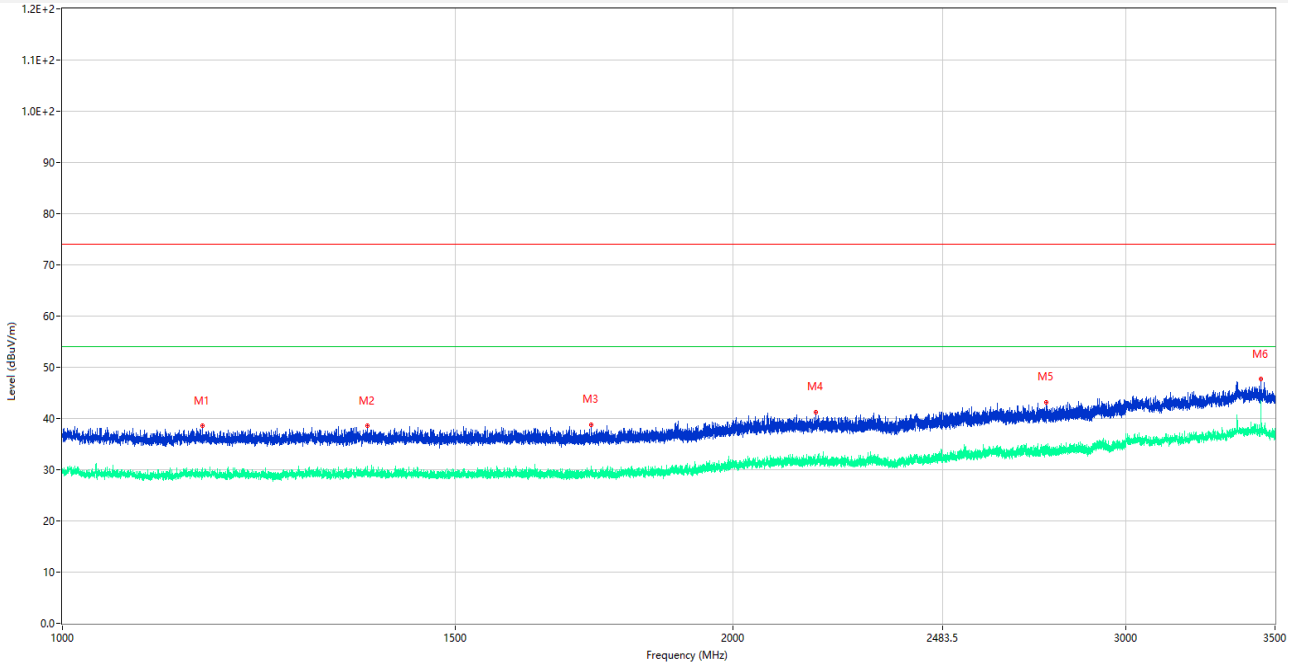
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	51.728	12.20	-24.68	40.0	27.80	Peak	315.00	100	Vertical	Pass
2	102.168	11.08	-26.09	43.5	32.42	Peak	359.00	100	Vertical	Pass
3	166.236	9.71	-28.45	43.5	33.79	Peak	27.00	200	Vertical	Pass
4	344.959	22.46	-21.51	46.0	23.54	Peak	360.00	200	Vertical	Pass
5	570.144	22.68	-16.59	46.0	23.32	Peak	360.00	200	Vertical	Pass
6	712.201	27.26	-13.53	46.0	18.74	Peak	39.00	200	Vertical	Pass

1 GHz to 6 GHz, ANT H



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1035.000	39.44	-15.35	74.0	34.56	Peak	0.00	150	Vertical	Pass
1**	1035.000	32.67	-15.35	54.0	21.33	AV	0.00	150	Vertical	Pass
2	1409.100	38.99	-15.99	74.0	35.01	Peak	0.00	150	Vertical	Pass
2**	1409.100	29.21	-15.99	54.0	24.79	AV	0.00	150	Vertical	Pass
3	1725.700	38.46	-16.16	74.0	35.54	Peak	149.00	150	Vertical	Pass
3**	1725.700	30.07	-16.16	54.0	23.93	AV	149.00	150	Vertical	Pass
4	2125.800	41.49	-13.30	74.0	32.51	Peak	185.00	150	Vertical	Pass
4**	2125.800	31.37	-13.30	54.0	22.63	AV	185.00	150	Vertical	Pass
5	2870.100	43.57	-9.70	74.0	30.43	Peak	359.00	150	Vertical	Pass
5**	2870.100	33.81	-9.70	54.0	20.19	AV	359.00	150	Vertical	Pass
6	3450.000	47.59	-4.99	74.0	26.41	Peak	0.00	150	Vertical	Pass
6**	3450.000	44.26	-4.99	54.0	9.74	AV	0.00	150	Vertical	Pass

1 GHz to 6 GHz, ANT V



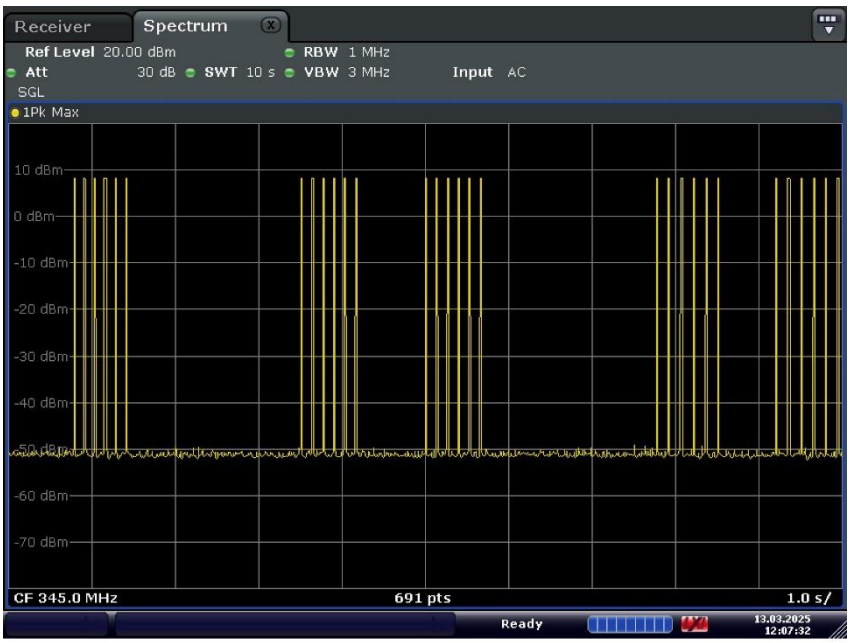
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1155.500	38.52	-15.61	74.0	35.48	Peak	133.00	150	Vertical	Pass
1**	1155.500	28.98	-15.61	54.0	25.02	AV	133.00	150	Vertical	Pass
2	1370.200	38.52	-15.92	74.0	35.48	Peak	154.00	150	Vertical	Pass
2**	1370.200	29.19	-15.92	54.0	24.81	AV	154.00	150	Vertical	Pass
3	1726.700	38.82	-16.18	74.0	35.18	Peak	65.00	150	Vertical	Pass
3**	1726.700	28.96	-16.18	54.0	25.04	AV	65.00	150	Vertical	Pass
4	2177.200	41.15	-12.86	74.0	32.85	Peak	119.00	150	Vertical	Pass
4**	2177.200	31.54	-12.86	54.0	22.46	AV	119.00	150	Vertical	Pass
5	2762.800	43.08	-10.34	74.0	30.92	Peak	216.00	150	Vertical	Pass
5**	2762.800	33.17	-10.34	54.0	20.83	AV	216.00	150	Vertical	Pass
6	3450.000	47.68	-4.99	74.0	26.32	Peak	59.00	150	Vertical	Pass
6**	3450.000	40.97	-4.99	54.0	13.03	AV	59.00	150	Vertical	Pass

A.6 Transmitter Time

Test Data and Plot

Intentional radiators which are employed for radio control purposes during emergencies involving fire, security, and safety of life, when activated to signal an alarm, may operate during the pendency of the alarm condition

Active time



Date: 13.MAR.2025 12:07:32

ANNEX B TEST SETUP PHOTOS

Please refer the document “BL-SZ2520841-AR-1.PDF”.

ANNEX C EUT EXTERNAL PHOTOS

Please refer the document “BL-SZ2520841-AW.PDF”.

ANNEX D EUT INTERNAL PHOTOS

Please refer the document “BL-SZ2520841-AI.PDF”.

Statement

1. The Testing Center guarantees the scientificity, accuracy and impartiality of the test, and is responsible for all the information in the report, except the information provided by the customer. The customer is responsible for the impact of the information provided on the validity of the results.

2. For the report with Accreditation Symbol, the items marked with "☆" are not within the accredited scope.

3. This report is invalid if it is altered, without the signature of the testing and approval personnel, or without the test report stamp.

4. The test data and results are only valid for the tested samples provided by the customer.

5. This report shall not be partially reproduced without the written permission of the Testing Center.

6. Any objection shall be raised to the Testing Center within 30 days after receiving the report.

--END OF REPORT--