

TEST REPORT

Report No..... : KS2503S1364E

FCC ID..... : 2BONP-V25-AI21-CN-C

Applicant..... : SUZHOU ALLIN INNOVATION TECHNOLOGY CO., LTD

Address..... : No.15, Jintian Road, Suzhou Industrial Park

Manufacturer..... : SUZHOU ALLIN INNOVATION TECHNOLOGY CO., LTD

Address..... : No.15, Jintian Road, Suzhou Industrial Park

Product Name..... : Digital Poster

Model/Type reference..... : V25-AI21-CN-C-B, V25-AI21-CN-C-L, V25-AI **-***** (The "*" in the model can be used with 0-9, A-Z, "-" or spaces)

Standard..... : 47 CFR Part 15.231

Date of Receipt..... : March 27, 2025

Date of Test Date..... : March 27, 2025 to June 07, 2025

Date of issue..... : June 09, 2025

Test result..... : Pass

Conclusion..... : The submitted sample was found to COMPLY with the standards above.

Prepared by:

Name: Chad Lin

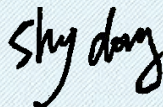
Title: Project Engineer



Approved by:

Name: Sky Dong

Title: EMC Supervisor



Testing Laboratory Name...: KSIGN(Guangdong) Testing Co., Ltd.

Address.....

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1. TEST SUMMARY

1.1. Test Standards

The tests were performed according to following standards:

47 CFR Part 15.231: Periodic operation in the band 40.66-40.70 MHz and above 70 MHz

ANSI C63.10-2013: American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

1.2. Report Version

Revised No.	Date of issue	Description
01	June 09, 2025	Original

1.3. Test Description

Test Item	Standard	Requirement	Result
Antenna requirement	47 CFR Part 15.231	47 CFR 15.203	Pass
Conducted Emission at AC power line	47 CFR Part 15.231	47 CFR 15.207(a)	Pass
20dB Bandwidth	47 CFR Part 15.231	47 CFR 15.231(c)	Pass
Dwell Time	47 CFR Part 15.231	47 CFR 15.231(a)(1) & (a)(2)	Pass
Duty Cycle	47 CFR Part 15.231	47 CFR 15.231(b) & (e)	Pass
Field Strength of The Fundamental Signal	47 CFR Part 15.231	47 CFR 15.231(b)	Pass
Radiated Emission (below 1GHz)	47 CFR Part 15.231	47 CFR 15.231	Pass
Radiated Emission (above 1GHz)	47 CFR Part 15.231	47 CFR 15.231	Pass

1.4. Test Facility

KSIGN(Guangdong) Testing Co., Ltd .

West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L 13261

KSIGN(Guangdong) Testing Co., Ltd. has been assessed and proved to be in Compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC17025: 2017 General Requirements) for the Competence of Testing and Calibration Laboratories.

A2LA-Lab Cert. No.: 5457.01

KSIGN(Guangdong) Testing Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

ISED# : 25693 CAB identifier.: CN0096

KSIGN(Guangdong) Testing Co., Ltd. has been listed by Innovation, Science and Economic Development Canada to perform electromagnetic emission measurement.

FCC-Registration No.: 294912 Designation Number: CN1328

KSIGN(Guangdong) Testing Co., Ltd. EMC Laboratory has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

1.5. Measurement Uncertainty

Test Items	Measurement Uncertainty
Conducted Emission (150k-30MHz)	± 3.34dB
RSE (30-1000MHz)	± 5.7dB
RSE (1-18GHz)	± 4.68dB

The reported uncertainty of measurement $y \pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %. Otherwise required by the applicant or Product Regulations. Decision Rule in this report did not consider the uncertainty.

2. GENERAL INFORMATION

2.1. General Description Of EUT

Test Sample Number:	KS2503S1364E-01, KS2503S1364E-02
Product Name:	Digital Poster
Model / Type reference:	V25-AI21-CN-C-B, V25-AI21-CN-C-L, V25-AI *-***** (The "*" in the model can be used with 0-9, A-Z, "-" or spaces)
Model Difference:	The differences product models are models software version, customer code and colors of . Different model names are available to meet market demands. Other power supply methods, appearance, internal structures, circuits and key components are the same, and do not affect safety and electromagnetic compatibility performance. According to the above information, all tests were performed on V25-AI21-CN-C-B.
Power Supply:	AC 120V/60Hz
Operation Frequency:	433.296MHz
Number of Channels:	1
Modulation Type:	ASK
Antenna Type:	PCB
Antenna Gain:	-0.75dBi
Max TX Power:	83.56dBuV/m
Hardware Version:	V2
Software Version:	V2

Note:Antenna gain provided by the applicant Can affect the validity of results

2.2. Accessory Equipment Information

The EUT was tested as an independent device.

2.3. Description of Test Modes

No.	Title	Description of Mode
Test Mode1	Tx	N/A

2.4. Operation channel list

Channel	Frequency (MHz)
1	433.296

2.5. Measurement Instruments List

Conducted Emission at AC power line				
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
LISN	R&S	ENV432	1326.6105.02	2025-12-22
EMI Test Receiver	R&S	ESR	102524	2026-01-10
Manual RF Switch	JS TOYO	/	MSW-01/002	2025-12-22
ISN CAT6	Schwarzbeck	CAT5 8158	227	2025-12-22
Color Signal Generator	Philips	PM5418	672926	2025-12-22
Power Absorbing Clamp	R&S	MDS-21	100925	2025-12-25
LISN	EVERFINE	LS-5	G657431CD14311 12	2025-12-22
Current Sensor Probe	Beijin ZHINAN	ZN23101	23013	2025-12-10
PV Artificial power network	Beijing KeHuan	KH8301	830120007	2025-07-23

20dB Bandwidth Dwell Time Duty Cycle				
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
Wideband Radio Communication Tester	R&S	CMU200	115297	2025-12-22
Audio Analyzer	R&S	UPL16	100001	2025-12-22
Shielding box	Gxiong	GX-5915A	2201113	2025-12-22
High Pass Filter	COM-MW Technology Co., Ltd	ZHPF-M1.2-9G-1 87	09203403	2025-12-22
Band Stop Filter	COM-MW Technology Co., Ltd	ZBSF6-C820-920 -188	09203401	2025-12-22
Splitter	COM-MW Technology Co., Ltd	ZPD-M1-8-2103	09203407	2025-12-22
Coaxial Cable	BEBES	A40-2.92M2.92F- 4.5M	1907021	2025-12-22
Hygrothermograph	Anymetre	JB913	/	2025-12-22
Climate Chamber	Angul	AGNH80L	1903042120	2025-12-22
Spectrum Analyzer	HP	8593E	3831U02087	2025-12-22
Dual Output DC Power Supply	Agilent	E3646A	MY40009992	2025-12-29
RF Control Unit	Tonscend	JS0806-2	/	2025-12-22
Analog Signal Generator	HP	83752A	3344A00337	2025-12-22
Vector Signal Generator	Agilent	N5182A	MY50142520	2025-12-22
Wideband Radio Communication Tester	R&S	CMW500	157282	2025-12-22
Spectrum Analyzer	R&S	FSV40-N	101798	2026-02-11

TRF No. RF_R1

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Field Strength of The Fundamental Signal Radiated Emission (below 1GHz) Radiated Emission (above 1GHz)				
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
Color Signal Generator	Philips	PM5418	672926	2025-12-22
Log Periodic Antenna	Schwarzbeck	VULB 9163	1230	2026-01-13
Pre-Amplifier	Schwarzbeck	BBV 9745	9745#129	2025-12-22
Broadcast Television Signal Generator	R&S	SFE100	141038	2025-12-22
Analog Signal Generator	Agilent	8648A	3847M00445	2025-12-22
EMI Test Receiver	R&S	ESR	102525	2026-01-10
Loop Antenna	Beijin ZHINAN	ZN30900C	18050	2025-12-22
Horn Antenna	Schwarzbeck	BBHA 9120 D	2023	2025-12-25
Pre-Amplifier	EMCI	EMC051835SE	980662	2025-12-22
Spectrum Analyzer	Keysight	N9020A	MY46471971	2025-12-22

TRF No. RF_R1

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3. Evaluation Results (Evaluation)

3.1. Antenna requirement

Test Requirement:	Refer to 47 CFR Part 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.
Conclusion:	The EUT uses a PCB antenna, the max antenna gain is less than 6dBi, which is deemed to comply with the antenna requirement.

4. Radio Spectrum Matter Test Results (RF)

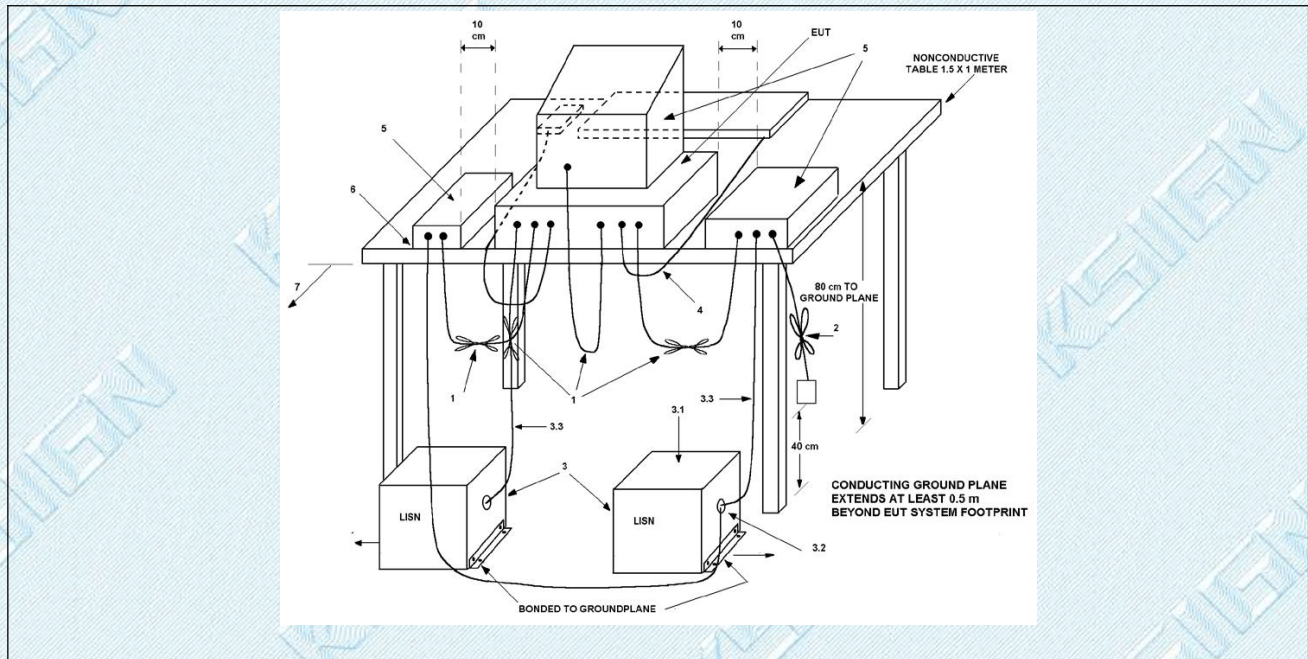
4.1. Conducted Emission at AC power line

Test Requirement:	Except as shown in paragraphs (b) and (c) of this section, 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 or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN).		
Test Limit:	Frequency of emission (MHz)	Conducted limit (dB μ V)	
		Quasi-peak	Average
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	5-30	60	50
	*Decreases with the logarithm of the frequency.		
Test Method:	ANSI C63.10-2013 section 6.2		
Procedure:	Refer to ANSI C63.10-2013 section 6.2, standard test method for ac power-line conducted emissions from unlicensed wireless devices		

4.1.1. E.U.T. Operation:

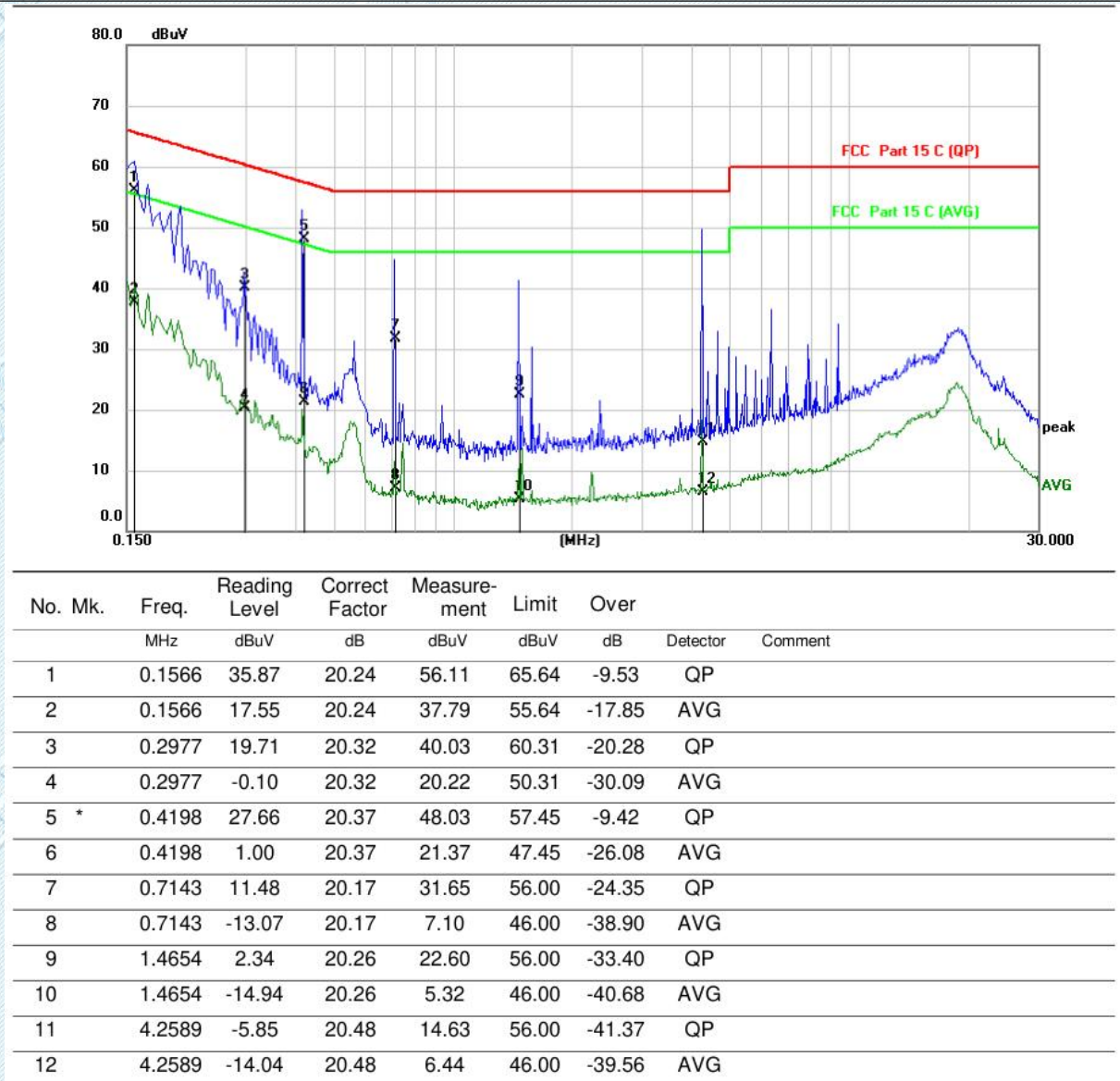
Operating Environment:	
Temperature:	23.3 °C
Humidity:	50.1 %
Atmospheric Pressure:	101 kPa
Final test mode:	Test Mode 1

4.1.2. Test Setup Diagram:



4.1.3. Test Data:

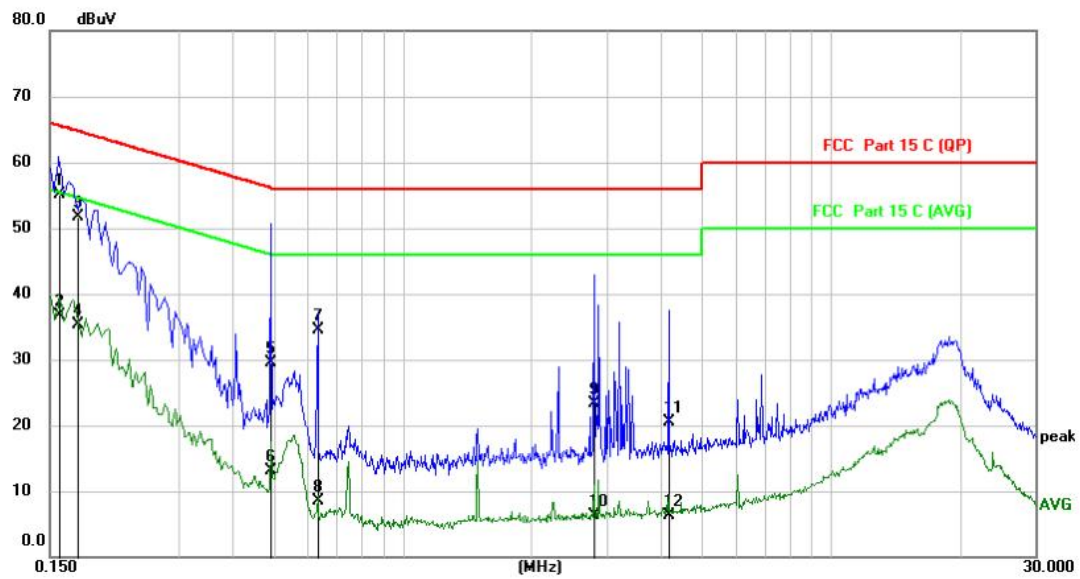
Test Mode1 / Line: Line



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Test Mode1 / Line: Neutral


No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1 *	0.1580	34.85	20.24	55.09	65.57	-10.48	QP	
2	0.1580	16.41	20.24	36.65	55.57	-18.92	AVG	
3	0.1731	31.43	20.26	51.69	64.81	-13.12	QP	
4	0.1731	15.00	20.26	35.26	54.81	-19.55	AVG	
5	0.4939	9.01	20.41	29.42	56.10	-26.68	QP	
6	0.4939	-7.21	20.41	13.20	46.10	-32.90	AVG	
7	0.6340	14.15	20.26	34.41	56.00	-21.59	QP	
8	0.6340	-11.80	20.26	8.46	46.00	-37.54	AVG	
9	2.7927	2.92	20.39	23.31	56.00	-32.69	QP	
10	2.7927	-14.13	20.39	6.26	46.00	-39.74	AVG	
11	4.1848	0.06	20.48	20.54	56.00	-35.46	QP	
12	4.1848	-14.08	20.48	6.40	46.00	-39.60	AVG	

TRF No. RF_R1

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4.2. 20dB Bandwidth

Test Requirement:	47 CFR 15.231(c)
Test Limit:	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.
Test Method:	ANSI C63.10-2013, section 6.9.2
Procedure:	<p>a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the EMI receiver or spectrum analyzer shall be between two times and five times the OBW.</p> <p>b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW and video bandwidth (VBW) shall be approximately three times RBW, unless otherwise specified by the applicable requirement.</p> <p>c) Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than $[10 \log (OBW/RBW)]$ below the reference level. Specific guidance is given in 4.1.5.2.</p> <p>d) Steps a) through c) might require iteration to adjust within the specified tolerances.</p> <p>e) The dynamic range of the instrument at the selected RBW shall be more than 10 dB below the target “-xx dB down” requirement; that is, if the requirement calls for measuring the -20 dB OBW, the instrument noise floor at the selected RBW shall be at least 30 dB below the reference value.</p> <p>f) Set detection mode to peak and trace mode to max hold.</p> <p>g) Determine the reference value: Set the EUT to transmit an unmodulated carrier or modulated signal, as applicable. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace (this is the reference value).</p> <p>h) Determine the “-xx dB down amplitude” using $[(\text{reference value}) - \text{xx}]$. Alternatively, this calculation may be made by using the marker-delta function of the instrument.</p> <p>i) If the reference value is determined by an unmodulated carrier, then turn the EUT modulation ON, and either clear the existing trace or start a new trace on the spectrum analyzer and allow the new trace to stabilize. Otherwise, the trace from step g) shall be used for step j).</p> <p>j) Place two markers, one at the lowest frequency and the other at the highest frequency of the envelope of the spectral display, such that each marker is at or slightly below the “-ixx dB down amplitude” determined in step h). If a marker is below this “-xx dB down amplitude” value, then it shall be as close as possible to this value. The occupied bandwidth is the frequency</p>

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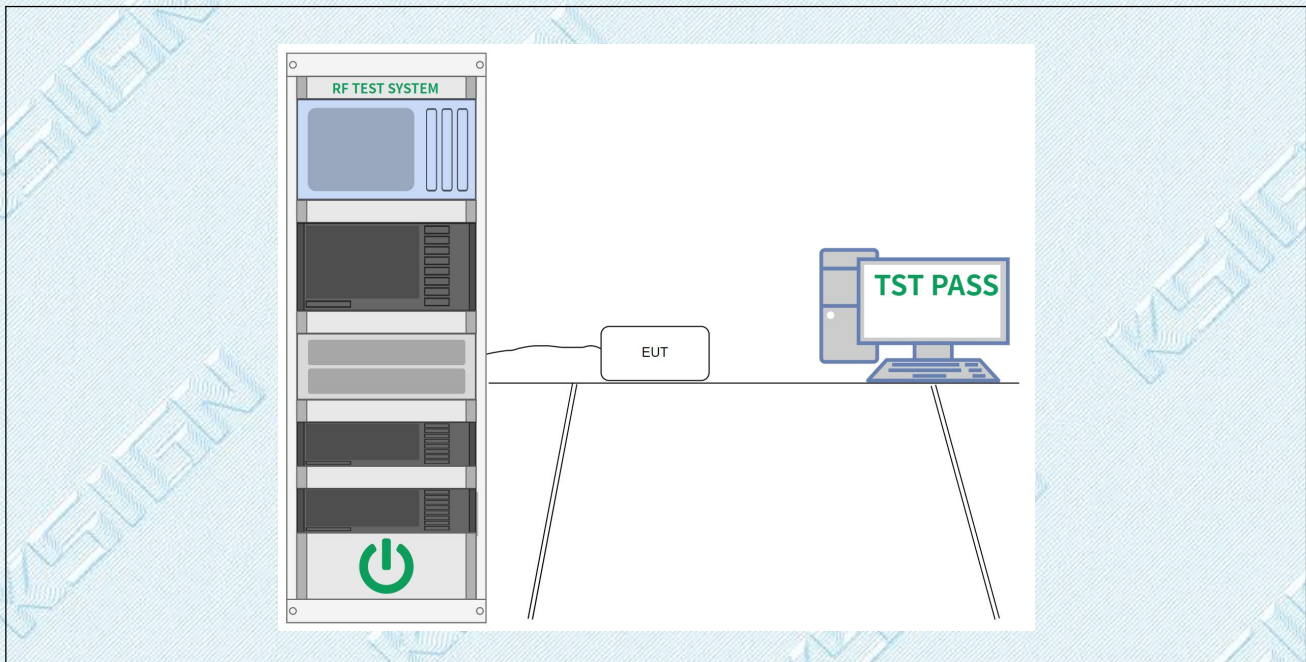
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	<p>difference between the two markers. Alternatively, set a marker at the lowest frequency of the envelope of the spectral display, such that the marker is at or slightly below the “ixx dB down amplitude” determined in step h). Reset the marker-delta function and move the marker to the other side of the emission until the delta marker amplitude is at the same level as the reference marker amplitude. The marker-delta frequency reading at this point is the specified emission bandwidth.</p> <p>k) The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).</p>
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4.2.1. E.U.T. Operation:

Operating Environment:	
Temperature:	25 °C
Humidity:	42.3 %
Atmospheric Pressure:	101 kPa
Final test mode:	Test Mode1

4.2.2. Test Setup Diagram:



4.2.3. Test Data:



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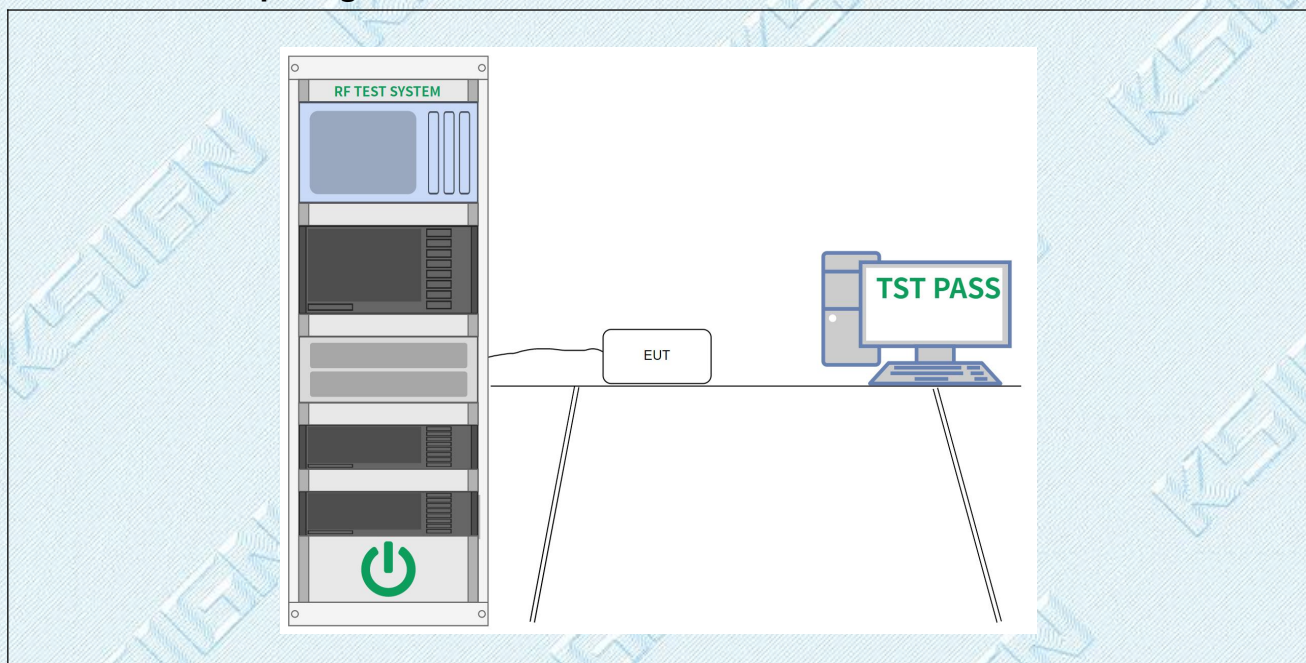
4.3. Dwell Time

Test Requirement:	47 CFR 15.231(a)(1) & (a)(2)
Test Limit:	<p>(1) A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.</p> <p>(2) A transmitter activated automatically shall cease transmission within 5 seconds after activation.</p>
Test Method:	ANSI C63.10-2013, Section 7.4
Procedure:	<p>For evaluation of periodic operation characteristics, the following procedure may be used:</p> <p>a) Trigger the spectrum analyzer sweep on the RF waveform of the unlicensed wireless device.</p> <p>b) Set the spectrum analyzer sweep time greater than the specified time for periodic operation.</p> <p>c) Manually activate and deactivate the unlicensed wireless device and confirm that it ceases transmission within the specified time of deactivation.</p> <p>d) Document the test results.</p> <p>e) Verify and document that periodic transmissions at regular predetermined intervals do not exist, except where regulatory requirements allow polling or supervision transmissions, including data, to determine system integrity.</p> <p>Compliance is addressed by an attestation supported by the equipment theory of operation.</p>

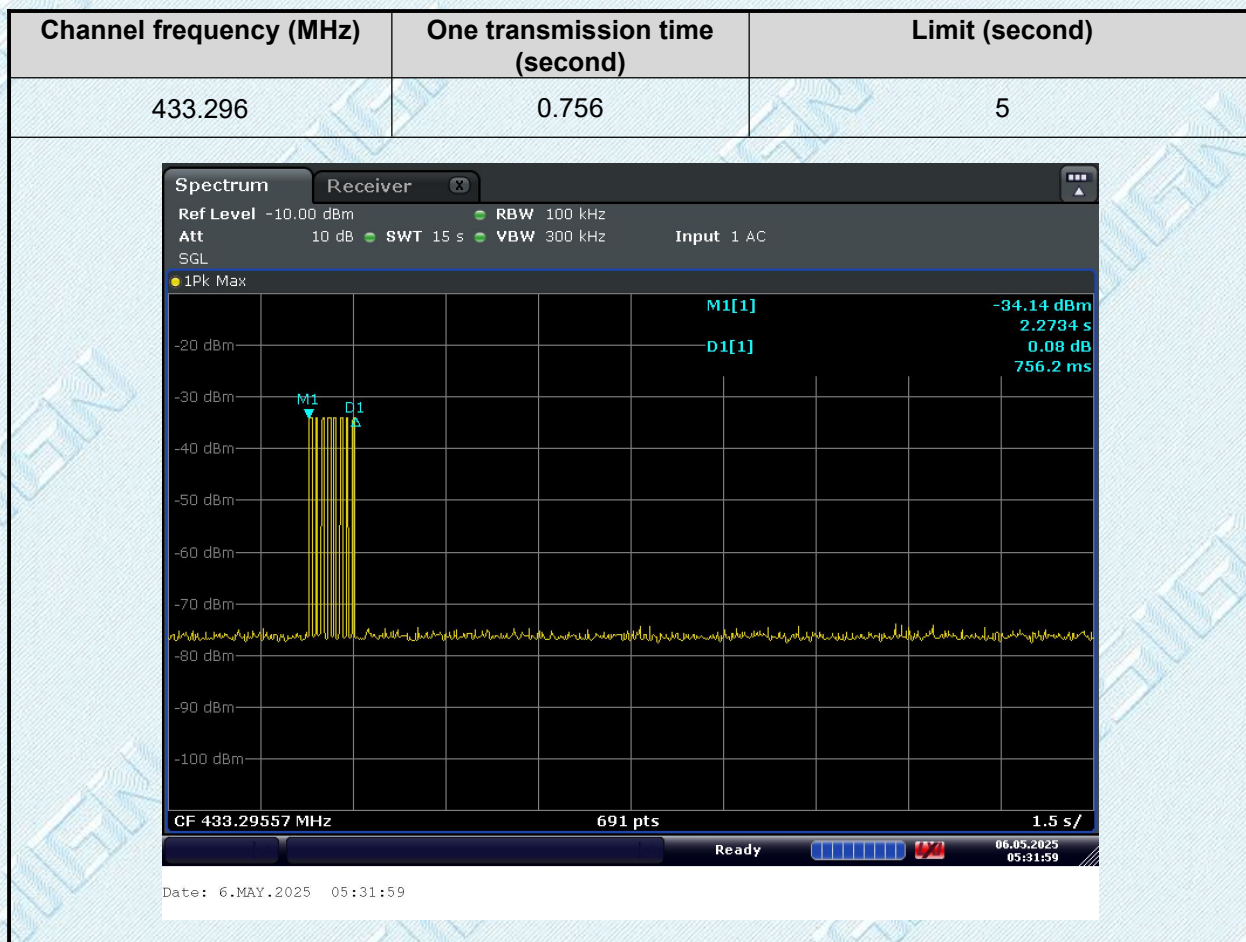
4.3.1. E.U.T. Operation:

Operating Environment:	
Temperature:	25 °C
Humidity:	42.3 %
Atmospheric Pressure:	101 kPa
Final test mode:	Test Mode1

4.3.2. Test Setup Diagram:



4.3.3. Test Data:



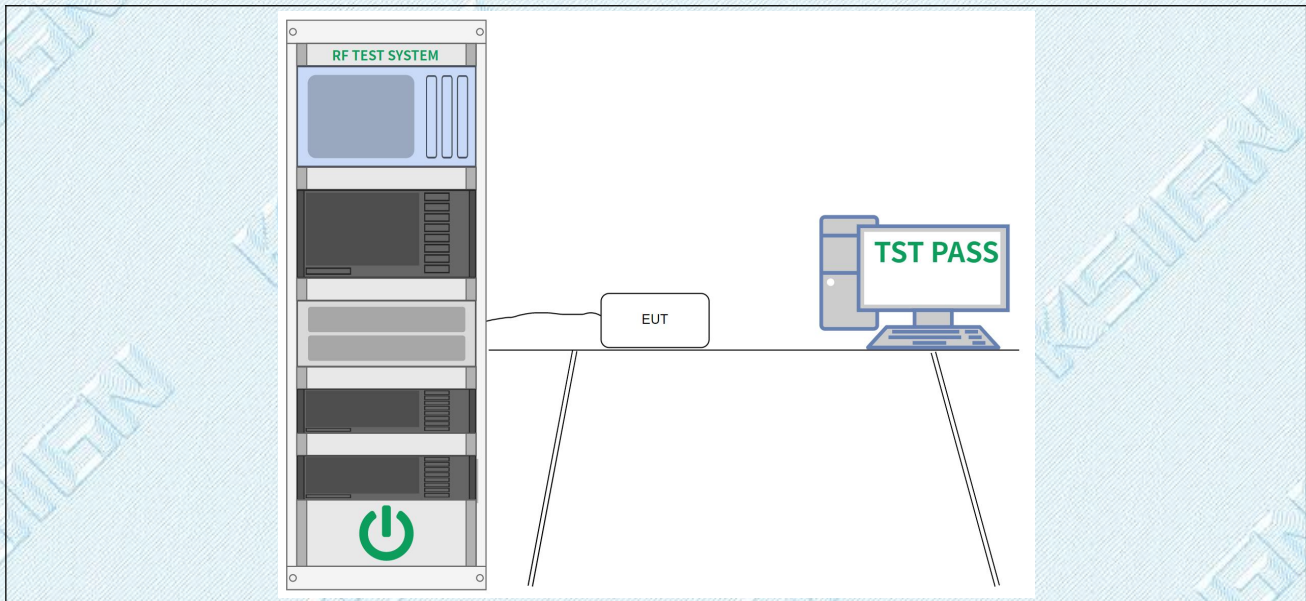
4.4. Duty Cycle

Test Requirement:	47 CFR 15.231(b) & (e)
Test Limit:	No limit, only for Report Use.
Test Method:	ANSI C63.10-2013, Section 7.5
Procedure:	<p>a) Adjust and configure any EUT switches, controls, or input data streams to ensure that the EUT is transmitting or encoded to obtain the “worst-case” pulse ON time.</p> <p>b) Couple the final radio frequency output signal to the input of a spectrum analyzer. This may be performed by a radiated, direct connection (i.e., conducted) or by a “near-field” coupling method. The signal received shall be of sufficient level to trigger adequately the spectrum analyzer sweep display. NOTE—If the bandwidth of the pulse is greater than the RBW of the spectrum analyzer, then a similar measurement may be performed using a wideband digital storage oscilloscope (DSO).</p> <p>c) Adjust the center frequency of the spectrum analyzer to the center of the RF signal.</p> <p>d) Set the spectrum analyzer for ZERO SPAN.</p> <p>e) Adjust the SWEEP TIME to obtain at least a 100 ms period of time on the horizontal display axis of the spectrum analyzer.</p> <p>f) If the pulse train is periodic (i.e., consists of a series of pulses that repeat in a characteristic pattern over a constant time period), and the period (T) is less than or equal to 100 ms, then:</p> <ol style="list-style-type: none"> 1) Set the TRIGGER on the spectrum analyzer to capture at least one period of the pulse train, including any blanking intervals. 2) Determine the total maximum pulse “ON time” (t_{ON}) over one period of the pulse train. An example of a periodic pulse train and the associated period is shown in Figure 14. If the pulse train contains pulses of different widths, then t_{ON} is determined by summing the duration of all of the pulses within the pulse train [i.e., $t_{ON} = \sum(t_1 + t_2 + \dots t_n)$]. 3) The duty cycle is then determined by dividing the total maximum “ON time” by the period of the pulse train (t_{ON}/T). <p>g) If the pulse train is nonperiodic or is periodic with a period that exceeds 100 ms, or as an alternative to step f), then:</p> <ol style="list-style-type: none"> 1) Set the TRIGGER on the spectrum analyzer to capture the greatest amount of pulse “ON time” over 100 ms. 2) Find the 100 ms period that contains the maximum “on time”; this may require summing the duration of multiple pulses as described in step f2). 3) Determine the duty cycle by dividing the total maximum “ON time” by 100 ms ($t_{ON}/100$ ms).

4.4.1. E.U.T. Operation:

Operating Environment:	
Temperature:	25 °C
Humidity:	42.3 %
Atmospheric Pressure:	101 kPa
Final test mode:	Test Mode1

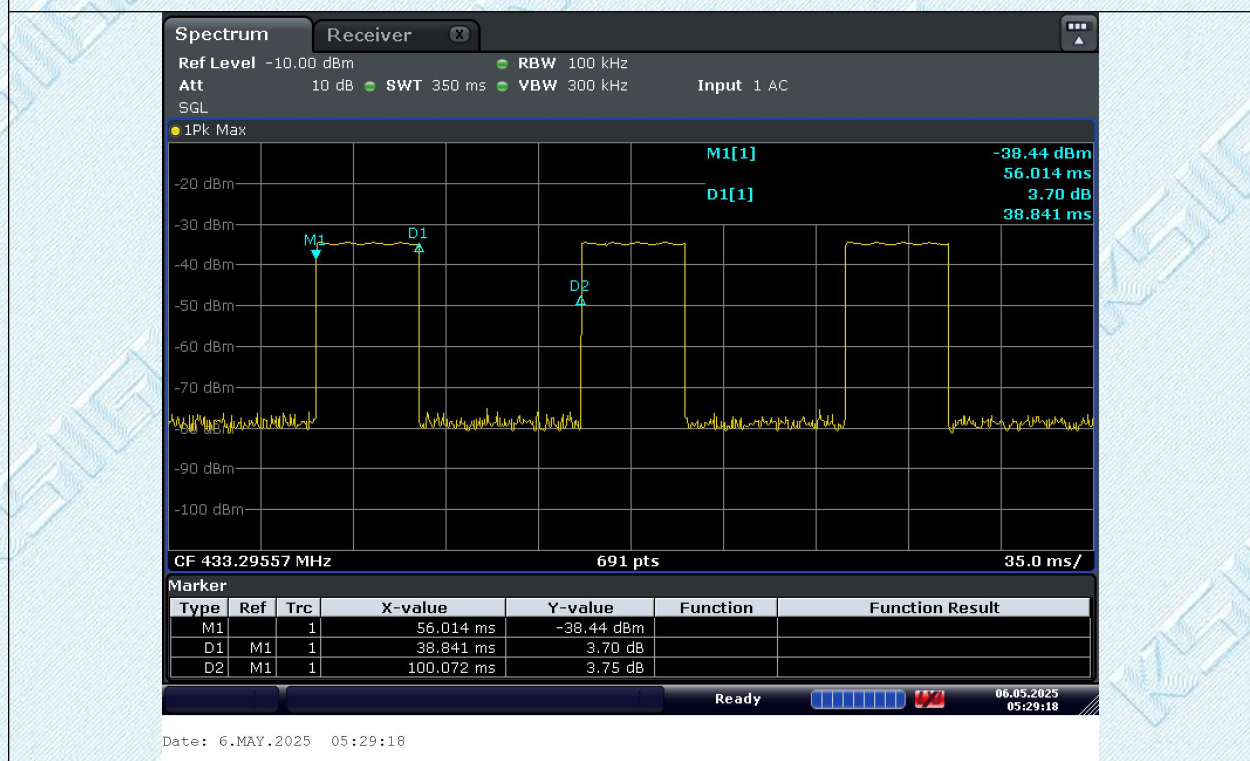
4.4.2. Test Setup Diagram:



4.4.3. Test Data:

T_{on} (s)	$T_{on}+T_{off}$ (s)
0.0388	0.1

$$\text{Duty cycle factor (dB)} = 20\log (T_{on} / (T_{on} + T_{off})) \text{ (dB)} = -8.22\text{(dB)}$$



4.5. Field Strength of The Fundamental Signal

Test Requirement:	47 CFR 15.231(b)		
Test Limit:	Fundamental frequency (MHz)	Field strength of fundamental (microvolts/meter)	Field strength of spurious emissions (microvolts/meter)
	40.66-40.70	2,250	225
	70-130	1,250	125
	130-174	¹ 1,250 to 3,750	¹ 125 to 375
	174-260	3,750	375
	260-470	¹ 3,750 to 12,500	¹ 375 to 1,250
	Above 470	12,500	1,250
¹ Linear interpolations. (1) The above field strength limits are specified at a distance of 3 meters. The tighter limits apply at the band edges.			
Test Method:	ANSI C63.10-2013, Section 6.5		
Procedure:	Below 1GHz: a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. b. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using quasi-peak method as specified and then reported in a data sheet. g. Test the EUT in the lowest channel, the middle channel, the Highest channel. h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case. i. Repeat above procedures until all frequencies measured was complete. Remark: 1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor 2. Scan from 9kHz to 30MHz, the disturbance below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported. 3. The disturbance below 1GHz was very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. Above 1GHz: a. For above 1GHz, the EUT was placed on the top of a rotating table 1.5		

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	<p>meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.</p> <p>b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</p> <p>c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.</p> <p>d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.</p> <p>e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</p> <p>f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak or average method as specified and then reported in a data sheet.</p> <p>g. Test the EUT in the lowest channel, the middle channel, the Highest channel.</p> <p>h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.</p> <p>i. Repeat above procedures until all frequencies measured was complete.</p> <p>Remark:</p> <p>1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor</p> <p>2. Scan from 18GHz to 40GHz, the disturbance above 18GHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.</p> <p>3. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.</p> <p>4. The disturbance above 18GHz were very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.</p>
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4.5.1. E.U.T. Operation:

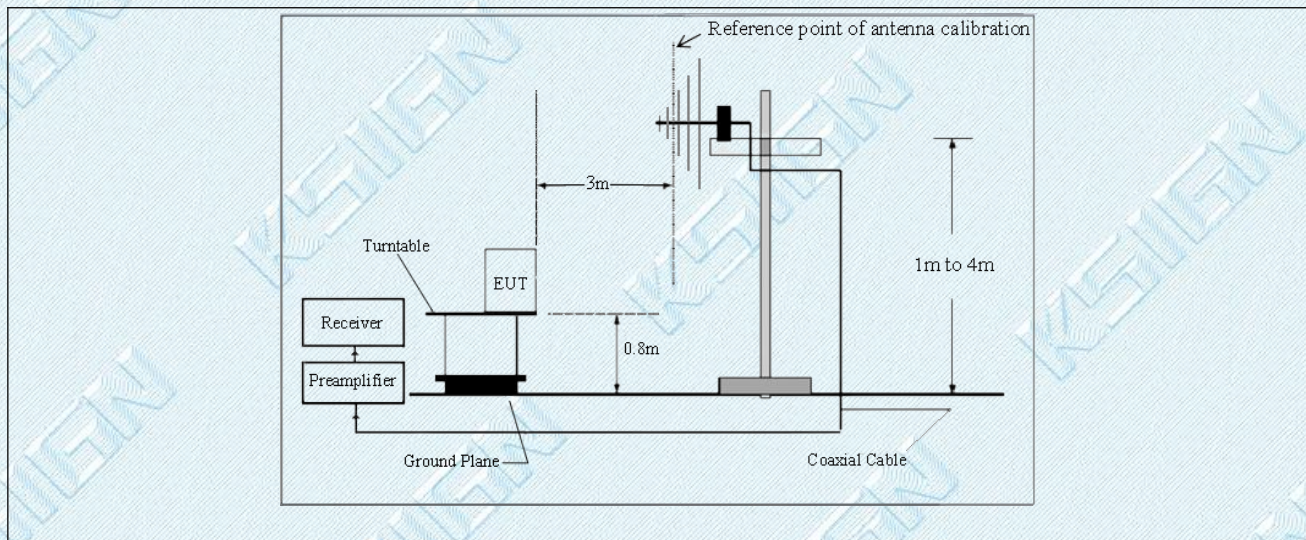
Operating Environment:	
Temperature:	25 °C
Humidity:	42.3 %
Atmospheric Pressure:	101 kPa
Final test mode:	Test Mode1

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4.5.2. Test Setup Diagram:



4.5.3. Test Data:

Frequency (MHz)	QP Level (dBuV/m)	QP Level Limit (dBuV/m)	Margin (dB)	Polarization
433.296	83.56	100.80	-17.24	Horizontal
433.296	81.99	100.80	-18.81	Vertical

Frequency (MHz)	QP Level (dBuV/m)	Duty cycle factor(dB)	AV Level (dBuV/m)	AV Level Limit (dBuV/m)	Margin (dB)	Polarization
433.296	83.56	-8.22	75.34	80.80	-5.46	Horizontal
433.296	81.99	-8.22	73.77	80.80	-7.03	Vertical

Note:

Measurement=Reading Level+Correct Factor

AV Level=QP Level +Duty cycle factor

4.6. Radiated Emission (below 1GHz)

Test Requirement:	47 CFR 15.231		
Test Limit:	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
	0.009-0.490	2400/F(kHz)	300
	0.490-1.705	24000/F(kHz)	30
	1.705-30.0	30	30
	30-88	100 **	3
	88-216	150 **	3
	216-960	200 **	3
	Above 960	500	3
<p>** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.</p> <p>In the emission table above, the tighter limit applies at the band edges.</p> <p>The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.</p>			
Test Method:	ANSI C63.10-2013, Section 6.5		
Procedure:	<p>a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.</p> <p>b. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</p> <p>c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.</p> <p>d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.</p> <p>e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</p> <p>f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using quasi-peak method as specified and then reported in a data sheet.</p> <p>g. Test the EUT in the lowest channel, the middle channel, the Highest channel.</p> <p>h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.</p> <p>i. Repeat above procedures until all frequencies measured was complete.</p> <p>Remark:</p> <p>1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor</p> <p>2. Scan from 9kHz to 30MHz, the disturbance below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.</p> <p>3. The disturbance below 1GHz was very low and the harmonics were the</p>		

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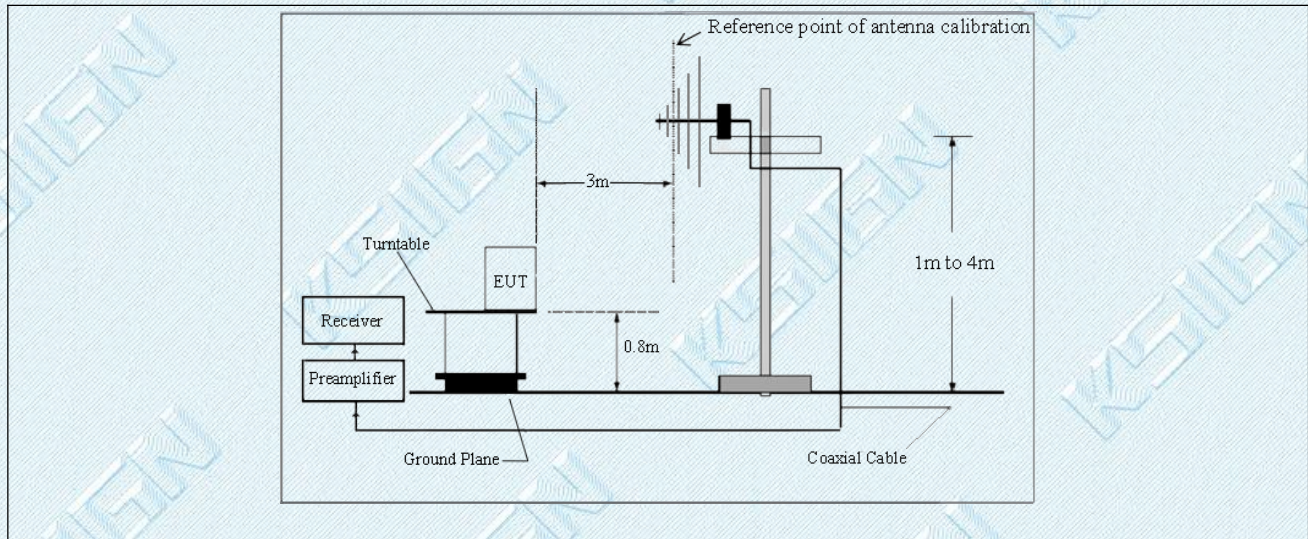
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	highest point could be found when testing, so only the above harmonics had been displayed.
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4.6.1. E.U.T. Operation:

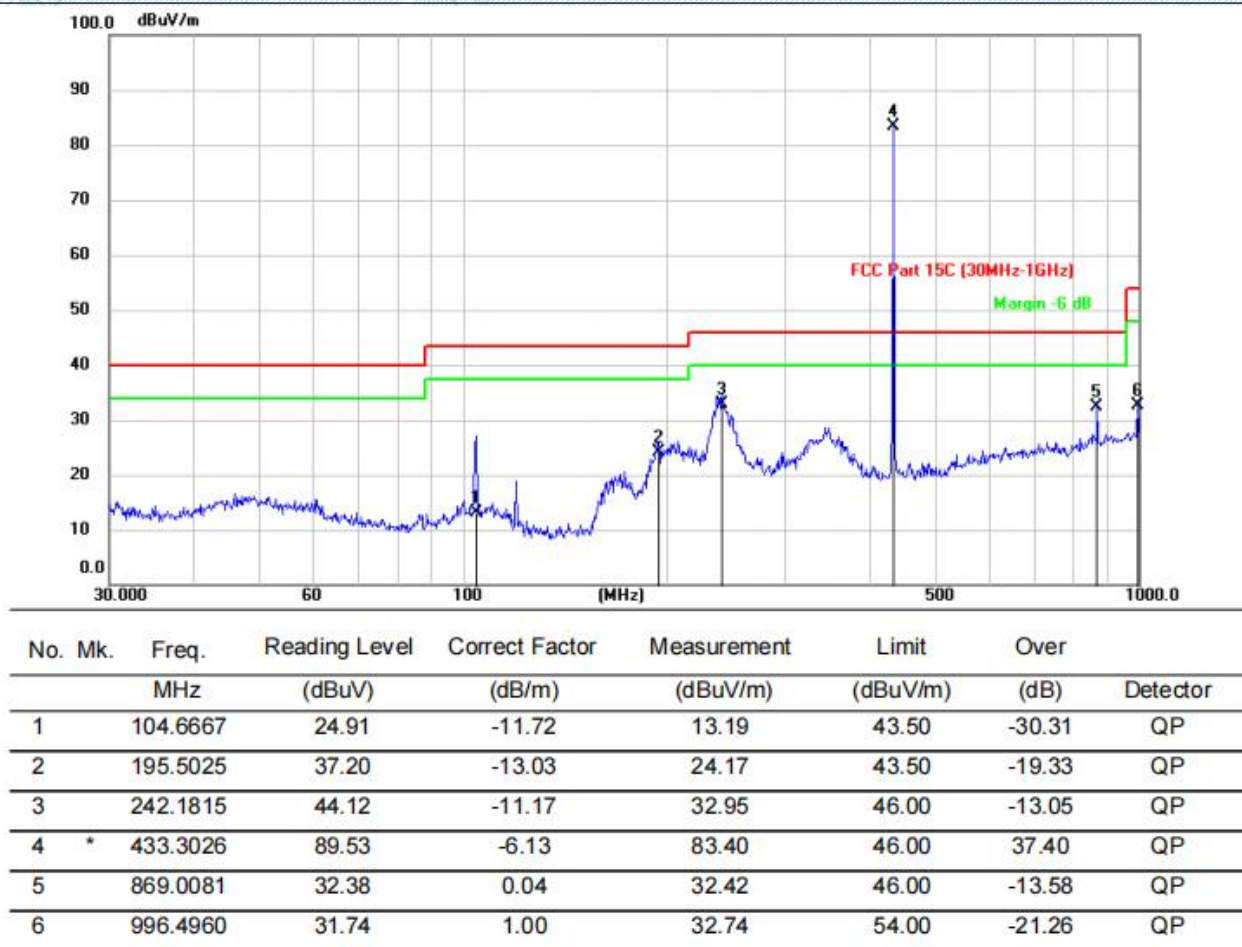
Operating Environment:	
Temperature:	25 °C
Humidity:	42.3 %
Atmospheric Pressure:	101 kPa
Final test mode:	Test Mode1

4.6.2. Test Setup Diagram:



4.6.3. Test Data:

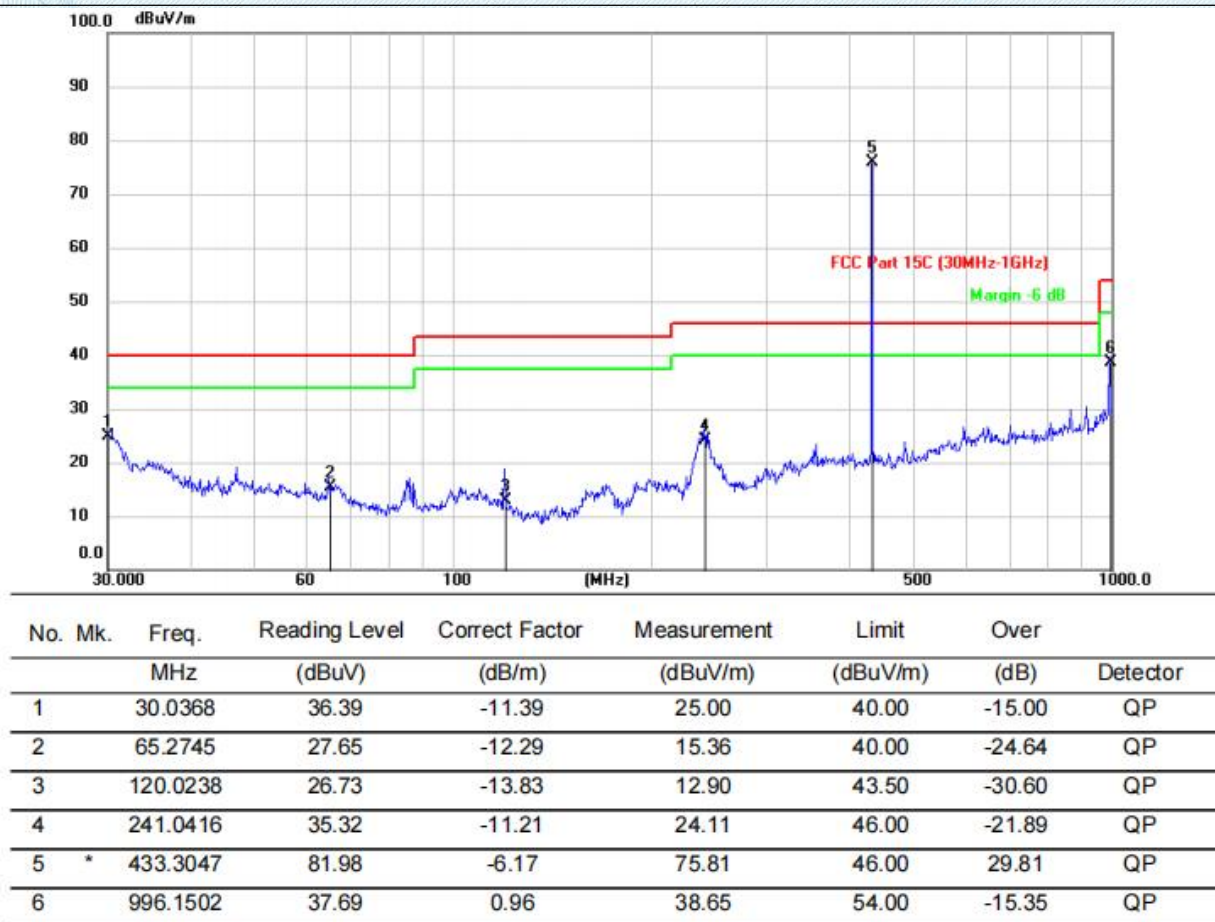
Test Mode1 / Polarization: Horizontal



Note:

1.No. 4 is fundamental

2.Measurement=Reading Level+Correct Factor

Test Mode1 / Polarization: Vertical


Note:

1.No. 5 is fundamental

2.Measurement=Reading Level+Correct Factor

9K-30MHz:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

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4.7. Radiated Emission (above 1GHz)

Test Requirement:	47 CFR 15.231		
Test Limit:	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
	0.009-0.490	2400/F(kHz)	300
	0.490-1.705	24000/F(kHz)	30
	1.705-30.0	30	30
	30-88	100 **	3
	88-216	150 **	3
	216-960	200 **	3
	Above 960	500	3
<p>** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.</p> <p>In the emission table above, the tighter limit applies at the band edges.</p> <p>The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.</p>			
Test Method:	ANSI C63.10-2013, Section 6.6		
Procedure:	<p>a. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.</p> <p>b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</p> <p>c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.</p> <p>d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.</p> <p>e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</p> <p>f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak or average method as specified and then reported in a data sheet.</p> <p>g. Test the EUT in the lowest channel, the middle channel, the Highest channel.</p> <p>h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.</p> <p>i. Repeat above procedures until all frequencies measured was complete.</p> <p>Remark:</p> <p>1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor</p> <p>2. Scan from 18GHz to 40GHz, the disturbance above 18GHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.</p> <p>3. As shown in this section, for frequencies above 1GHz, the field strength limits</p>		

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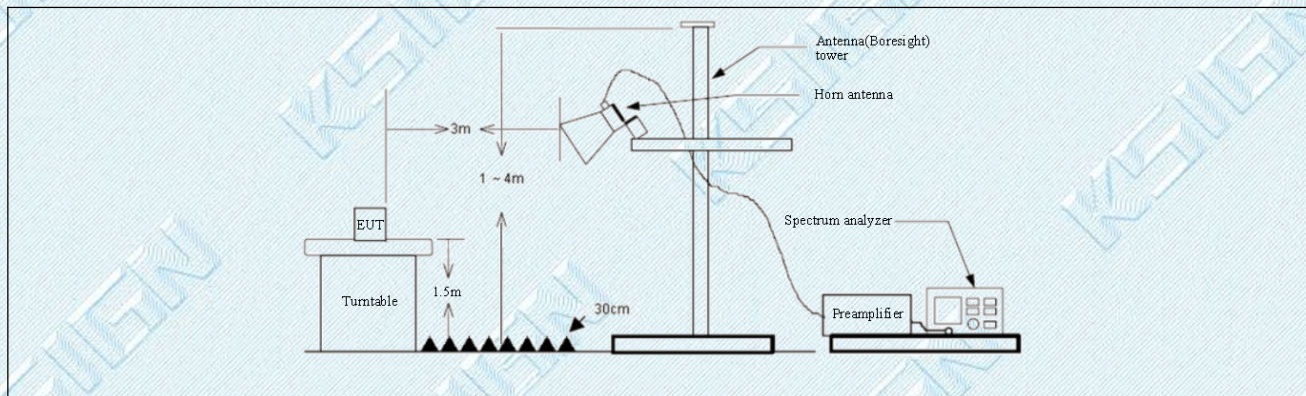
are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

4. The disturbance above 18GHz were very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.

4.7.1. E.U.T. Operation:

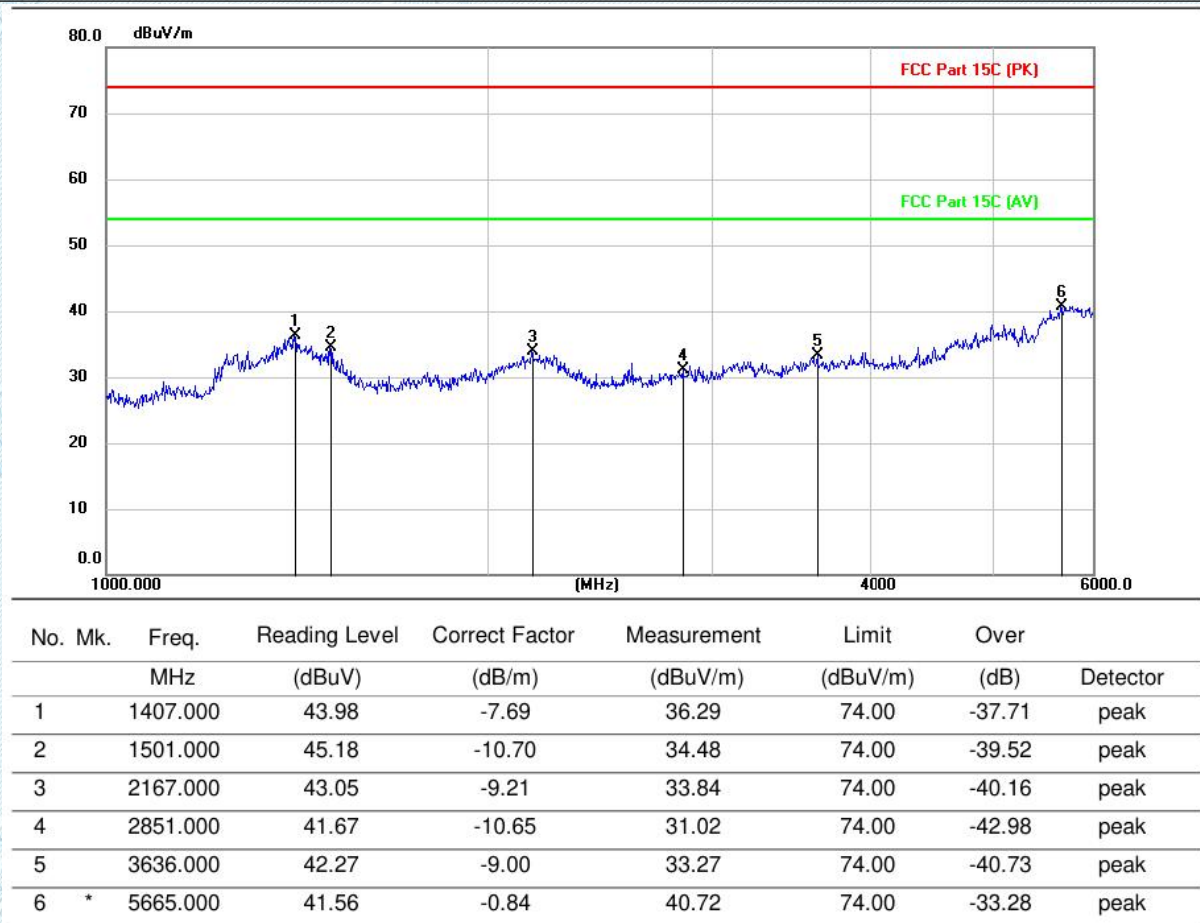
Operating Environment:	
Temperature:	25 °C
Humidity:	42.3 %
Atmospheric Pressure:	101 kPa
Final test mode:	Test Mode1

4.7.2. Test Setup Diagram:



4.7.3. Test Data:

Test Mode1 / Polarization: Horizontal



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Test Mode1 / Polarization: Vertical


No.	Mk.	Freq. MHz	Reading Level (dBuV)	Correct Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Detector
1		1426.000	45.97	-7.89	38.08	74.00	-35.92	peak
2		1733.000	45.93	-12.91	33.02	74.00	-40.98	peak
3		2166.500	43.64	-9.21	34.43	74.00	-39.57	peak
4		3143.500	43.50	-9.73	33.77	74.00	-40.23	peak
5		3900.000	44.77	-8.88	35.89	74.00	-38.11	peak
6	*	5746.000	41.80	-0.43	41.37	74.00	-32.63	peak

Note:

1.Measurement = Reading level + Correct Factor

Correct Factor=Antenna Factor + Cable Loss - Preamplifier Factor

Over = Measurement -Limit

2. Since the peak value is less than the limit of the AVG value, there is no AVG data.

5. EUT TEST PHOTOS

Conducted Emission at AC power line



Radiated Emission (below 30MHz)



Radiated Emission (below 1GHz)



Radiated Emission (above 1GHz)



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20dB Bandwidth&Dwell Time



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6. PHOTOGRAPHS OF EUT CONSTRUCTIONAL

Refer to Appendix - EUT Photos for KS2503S1364E.

--THE END--

Important Notice

1. The results are valid only for the samples submitted.
2. The report is invalid without the "APPROVED Seal" and the "Riding Seam Seal".
3. This report is invalid without the signature of the main inspector, reviewer, or approver.
4. The testing report cannot be partially copied without the written consent of our laboratory.
5. If the report is not stamped with the "CMA" logo, it indicates that the report does not have any social certification effect in China.
6. Product information, customer information, and sample sources are all provided by the client, and we are not responsible for their authenticity.
7. The inspection basis or inspection items marked with "★" are not within the scope of CNAS, CMA and A2LA accreditation in this laboratory.
8. Reports that are transferred, copied, stolen, impersonated, altered, or tampered with in any media form without authorization are invalid.
9. If you have any objections to this report, you can appeal to our unit within 15 days after receiving the report. Failure to do so will not be accepted.
10. For situations where compliance decision needs to be made based on test result, such as when there are no relevant decision rules required by the regulations, standards, or technical specifications used, or when there are no relevant customer requirements, the report issued by our laboratory refer to ILAC-G8:09-2019 and CNAS-GL015:2022 using simple acceptance decision rules.

Laboratory: KSGN(Guangdong) Testing Co., Ltd.

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