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TEST REPORT

Date of Test: Date of Issue:	2024-12-05 to 2024-12-20 2024-12-24
Date of Receipt:	2024-11-28
Standard(s) :	47 CFR Part 15, Subpart C 15.225
Trade Mark:	unv
	Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
Model No.:	OEU-301E-HMKA;OEU-301E-HMKA-xxxxxxx-yyyyyyyyy-zzz("x","y","z" can be 0-9,A-Z,a-z or blank;"-" may be blank) ♣
EUT Name:	Apartment Door Station
Equipment Under Test (EUT):	
Address of Manufacturer:	No. 369, Xietong Road, Xixing Sub-district, Binjiang District, Hangzhou City, 310051, Zhejiang Province, China
Manufacturer:	Zhejiang Uniview Technologies Co., Ltd.
Address of Applicant:	No. 369, Xietong Road, Xixing Sub-district, Binjiang District, Hangzhou City, 310051, Zhejiang Province, China
Applicant:	Zhejiang Uniview Technologies Co., Ltd.
FCC ID:	2AL8S-0235C9H7
Application No.:	KSCR2411002408AT

* In the configuration tested, the EUT complied with the standards specified above.

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Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Compliance Certification Services (Kunshan) Inc.	No.10 Weiye Road, Development Zone, Kunshan, Jiangsu, China	t (86-512)57355888	www.sgsgroup.com.cn
程智电子科技(昆山)有限公司	中国・江苏省昆山开发区伟业路 10 号 215301	f (86-512)57370818	sgs.china@sgs.com



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Revision Record			
Version	Description	Date	Remark
00	Original	2024-12-24	/

Authorized for issue by:		
Tested By	Maker Qi	
	Maker_Qi/Project Engineer	
Approved By	Terry Mon	
	Terry Hou /Reviewer	



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2 Test Summary

Radio Spectrum Technical Requirement				
ltem	Standard	Method	Requirement	Result
Antenna Requirement	47 CFR Part 15, Subpart C 15.225	N/A	47 CFR Part 15, Subpart C 15.203	Pass

Radio Spectrum Matter Part				
Item	Standard	Method	Requirement	Result
Conducted Emissions at Mains Terminals (150kHz-30MHz)	47 CFR Part 15, Subpart C 15.225	ANSI C63.10 (2013) Section 6.2	47 CFR Part 15, Subpart C 15.207	Pass
20dB Bandwidth		ANSI C63.10 (2013) Section 6.9	47 CFR Part 15, Subpart C 15.215	Pass
Emission Mask		ANSI C63.10 (2013) Section 6.4	47 CFR Part 15, Subpart C 15.225(a)&(b)&(C)	Pass
Frequency tolerance		ANSI C63.10 (2013) Section 6.8	47 CFR Part 15, Subpart C 15.225(e)	Pass
Radiated Emissions (9kHz-30MHz)		ANSI C63.10 (2013) Section 6.4&6.5	47 CFR Part 15, Subpart C 15.225(d) & 15.209	Pass
Radiated Emissions (30MHz-1GHz)		ANSI C63.10 (2013) Section 6.4&6.5	47 CFR Part 15, Subpart C 15.225(d) & 15.209	Pass

Declaration of EUT Family Grouping:

Note: There are series models mentioned in this report, and they are identical in electrical and electronic characters. Only the model OEU-301E-HMKA was tested since their differences were the model number and appearance.



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4 General Information

4.1 Details of E.U.T.

Power supply:	DC 12V,1A; POE 48V,0.25A
Operation Frequency:	13.56MHz
Modulation Type:	ASK
Antenna Type:	FPC Antenna

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
AC Adapter	/	/	/
Notebook	LENOVO	K27	EB24537645

4.3 Measurement Uncertainty

No.	kom	Maggyroment Ungerteinty		
NO.	Item	Measurement Uncertainty		
1	Radio Frequency	8.4 x 10 ⁻⁸		
2	Timeout	2s		
3	Duty Cycle	0.37%		
4	Occupied Bandwidth	3%		
5	RF Conducted Power	0.6dB		
6	RF Power Density	2.9dB		
7	Conducted Spurious Emissions	0.75dB		
8	RF Radiated Power	5.2dB (Below 1GHz)		
0	KF Radiated Fower	5.9dB (Above 1GHz)		
		4.2dB (Below 30MHz)		
0	Radiated Spurious Emission Test	4.5dB (30MHz-1GHz)		
9		5.1dB (1GHz-18GHz)		
		5.4dB (Above 18GHz)		
10	Temperature Test	1°C		
11	Humidity Test	3%		
12	Supply Voltages	1.5%		
13	Time	3%		
Note: approx				



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4.4 Test Location

All tests were performed at:

Compliance Certification Services (Kunshan) Inc.

No.10 Weiye Rd, Innovation park, Eco&Tec, Development Zone, Kunshan City, Jiangsu, China. Tel: +86 512 5735 5888 Fax: +86 512 5737 0818

No tests were sub-contracted.

Note:

1. SGS is not responsible for wrong test results due to incorrect information (e.g., max. internal working frequency, antenna gain, cable loss, etc) is provided by the applicant. (If applicable).

2. SGS is not responsible for the authenticity, integrity and the validity of the conclusion based on results of the data provided by applicant. (If applicable).

3. Sample source: sent by customer.

4.5 Test Facility

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

• A2LA

Compliance Certification Services (Kunshan) Inc. is accredited by the American Association for Laboratory Accreditation (A2LA). Certificate No. 2541.01.

• FCC

Compliance Certification Services (Kunshan) Inc. has been recognized as an accredited testing laboratory. Designation Number: CN1172.

• ISED

Compliance Certification Services (Kunshan) Inc. has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory. Company Number: 2324E

• VCCI

The 3m and 10m Semi-anechoic chamber and Shielded Room of Compliance Certification Services (Kunshan) Inc. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-20134, R-11600, C-11707, T-11499, G-10216 respectively.

4.6 Deviation from Standards

4.7 Abnormalities from Standard Conditions

None



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5 Equipment List

Item	Equipment	Manufacturer	Model	Inventory No	Cal Date	Cal. Due Date
Conducted	Emission at Mains Terminal	s				
1	EMI Test Receive	R&S	ESCI	KS301101	01/15/2024	01/14/2025
2	LISN	R&S	ENV216	KS301197	01/15/2024	01/14/2025
3	LISN	Schwarzbeck	NNLK 8129	KS301091	01/15/2024	01/14/2025
4	Pulse Limiter	R&S	ESH3-Z2	KUS1902E001	01/15/2024	01/14/2025
5	CE test Cable	Thermax	/	CZ301102	01/15/2024	01/14/2025
6	Test Software	ESE	E3_V 6.111221a	/	N.C.R	N.C.R
RF Radiate	d Test					•
1	Spectrum Analyzer	R&S	FSV40	KUS1806E003	08/06/2024	08/05/2025
2	Universal Radio Communication Tester	R&S	CMW500	KSEM009-1	03/19/2024	03/18/2025
4	Loop Antenna	COM-POWER	AL-130R	KUS1806E001	03/18/2023	03/17/2025
5	Bilog Antenna	TESEQ	CBL 6112D	KUS1806E005	06/29/2023	06/28/2025
6	Bilog Antenna	TESEQ	CBL 6112D	KUS1806E006	03/19/2024	03/18/2025
7	Horn-antenna(1-18GHz)	Schwarzbeck	BBHA9120D	KS301079	03/23/2024	08/22/2026
8	Horn-antenna(1-18GHz)	ETS-LINDGREN	3117	KS301186	04/07/2023	04/06/2025
9	Horn Antenna(18-40GHz)	Schwarzbeck	BBHA9170	CZ301058	01/07/2024	01/06/2026
10	Amplifier(30MHz~18GHz)	PANSHAN TECHNOLOGY	LNA:1~18G	KSEM010-1	01/15/2024	01/14/2025
11	Amplifier(18~40GHz)	PANSHAN TECHNOLOGY	LNA180400G40	KSEM038	08/12/2024	08/11/2025
12	RE Test Cable	REBES MICROWAVE	/	CZ301097	08/12/2024	08/11/2025
13	Temperature & Humidity Recorder	Renke Control	RS-WS-N01-6J	KSEM024-4	03/21/2024	03/20/2025
14	Software	Faratronic	EZ_EMC-v 3A1	/	NCR	NCR
15	Software	ESE	E3_V 6.111221a	/	NCR	NCR



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6 Radio Spectrum Technical Requirement

6.1 Antenna Requirement

6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203

6.1.2 Conclusion

15.203 requirement:

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, 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.

EUT Antenna:

The antenna is FPC antenna and no consideration of replacement.

Antenna location: Refer to Internal photos



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Radio Spectrum Matter Test Results 7

7.1 Conducted Emissions at Mains Terminals (150kHz-30MHz)

Test Requirement	47 CFR Part 15, Subpart C 15.207
Test Method:	ANSI C63.10 (2013) Section 6.2

Limit:

	Limit (dBuV)		
Frequency range (MHz)	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.

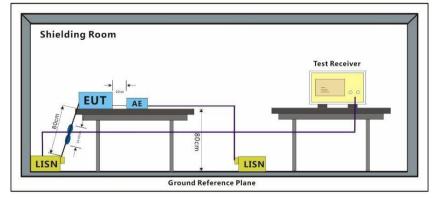
7.1.1 E.U.T. Operation

Operating Enviro	nment:			
Temperature:	21.6 °C	Humidity:	48.2 % RH	Atmospheric Pressure: 1010 mbar

7.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode with modulation

7.1.3 Test Setup Diagram





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7.1.4 Measurement Procedure and Data

1) The mains terminal disturbance voltage test was conducted in a shielded room.

2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a $500hm/50\mu$ H + 50hm linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.

3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,

4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.

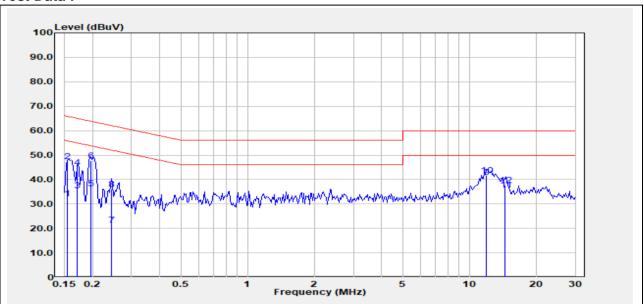
5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

Remark: Level=Read Level+ Cable Loss+ LISN Factor



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Test Mode: 00; Line: Live line



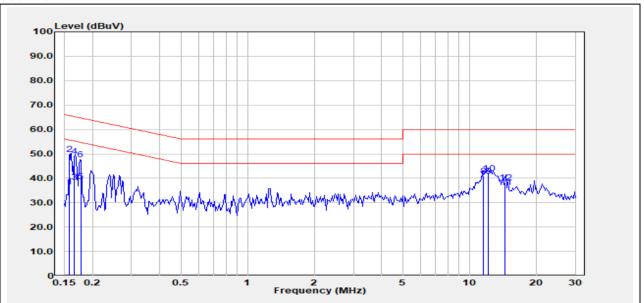
Test Data :

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB)	(dBuV)	(dBuV)	(dB)	
1	0.1534	11.99	20.24	32.23	55.81	-23.58	Average
2	0.1534	27.32	20.24	47.56	65.81	-18.25	QP
3	0.1710	15.28	20.16	35.44	54.91	-19.47	Average
4	0.1710	24.84	20.16	45.00	64.91	-19.91	QP
5	0.1969	16.13	20.06	36.19	53.74	-17.55	Average
6	0.1969	27.63	20.06	47.69	63.74	-16.05	QP
7	0.2426	1.45	20.07	21.52	52.01	-30.49	Average
8	0.2426	15.98	20.07	36.05	62.01	-25.96	QP
9	11.9480	20.98	19.82	40.80	50.00	-9.20	Average
10	11.9480	22.03	19.82	41.85	60.00	-18.15	QP
11	14.5140	16.01	19.75	35.76	50.00	-14.24	Average
12	14.5140	17.85	19.75	37.60	60.00	-22.40	QP



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Test Mode: 00; Line: Neutral Line



Test Data :

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB)	(dBuV)	(dBuV)	(dB)	
1	0.1574	16.44	20.17	36.61	55.60	-18.99	Average
2	0.1574	29.65	20.17	49.82	65.60	-15.78	QP
3	0.1653	18.45	20.16	38.61	55.19	-16.58	Average
4	0.1653	28.86	20.16	49.02	65.19	-16.17	QP
5	0.1768	18.52	20.14	38.66	54.64	-15.98	Average
6	0.1768	27.45	20.14	47.59	64.64	-17.05	QP
7	11.5430	19.77	19.84	39.61	50.00	-10.39	Average
8	11.5430	21.06	19.84	40.90	60.00	-19.10	QP
9	12.1520	21.12	19.84	40.96	50.00	-9.04	Average
10	12.1520	22.20	19.84	42.04	60.00	-17.96	QP
11	14.5130	16.52	19.84	36.36	50.00	-13.64	Average
12	14.5130	18.45	19.84	38.29	60.00	-21.71	QP



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7.2 20dB Bandwidth

Test Requirement	47 CFR Part 15, Subpart C 15.215
Test Method:	ANSI C63.10 (2013) Section 6.9
Measurement Distance:	3m

7.2.1 E.U.T. Operation

Operating Environment: Temperature: 20.8 °C

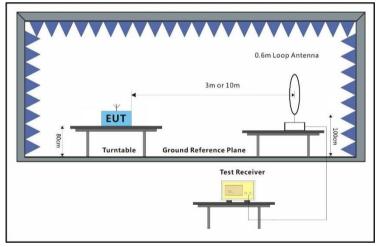
Humidity: 49.5 % RH

Atmospheric Pressure: 1010 mbar

7.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode with modulation

7.2.3 Test Setup Diagram



7.2.4 Measurement Procedure and Data

The useful radiated emission from the EUT was detected by the spectrum analyser with peak detector.

Please Refer to Appendix for Details



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7.3 Emission Mask

Test Requirement47 CFR Part 15, Subpart C 15.225(a)&(b)&(C)Test Method:ANSI C63.10 (2013) Section 6.4Measurement Distance:3m

Limit:

(a) The field strength of any emissions within the band 13.553-13.567 MHz shall not exceed 15,848 microvolts/meter at 30 meters.

- (b) Within the bands 13.410-13.553 MHz and 13.567-13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.
- (c) Within the bands 13.110-13.410 MHz and 13.710-14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.

(d) The field strength of any emissions appearing outside of the 13.110-14.010 MHz band shall not exceed the general radiated emission limits in § 15.209.

Below 30MHz

The limit at 30m test distance is below:

$$FS_{\text{limit}} = FS_{\text{max}} - 40 \log \left(\frac{d_{\text{limit}}}{d_{\text{measure}}}\right)$$

where

FS_{limit}	is the calculation of field strength at the limit distance, expressed in $dB\mu V/m$
FS_{max}	is the measured field strength, expressed in dBµV/m
d_{measure}	is the distance of the measurement point from the EUT
d_{limit}	is the reference distance or the distance of the $\lambda/2\pi$ point

The field strength of any emissions within the band 13.553-13.567 MHz shall not exceed 84dBuV/m at 30 meters.

7.3.1 E.U.T. Operation

Operating Environ	iment:					
Temperature:	20.8 °C	Humidity:	49.5 % RH	Atmospheric Pressure:	1010	mbar

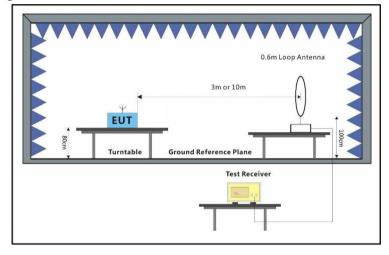
7.3.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode with modulation



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7.3.3 Test Setup Diagram



7.3.4 Measurement Procedure and Data

For testing performed with the loop antenna, the center of the loop was positioned 1 m above the ground and positioned with its plane vertical at the specified distance from the EUT. During testing the loop was rotated about its vertical axis for maximum response at each azimuth and also investigated with the loop positioned in the horizontal plane. Only the worst position of vertical was shown in the report.

Please Refer to Appendix for Details



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7.4 Frequency tolerance

Test Requirement	47 CFR Part 15, Subpart C 15.225(e)
Test Method:	ANSI C63.10 (2013) Section 6.8
Measurement Distance:	3m

Limit:

±0.01

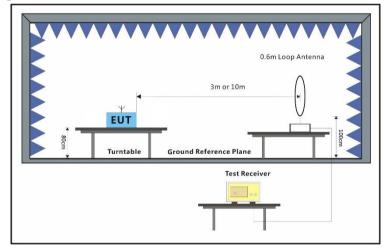
7.4.1 E.U.T. Operation

Operating Enviro	nment:					
Temperature:	20.8 °C	Humidity:	49.5 % RH	Atmospheric Pressure:	1010	mbar

7.4.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode with modulation

7.4.3 Test Setup Diagram



7.4.4 Measurement Procedure and Data

The EUT was placed in an environmental test chamber and powered such that control element received normal voltage and the transmitter provided maximum RF output.

Please Refer to Appendix for Details



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7.5 Radiated Emissions (9kHz-30MHz)

Test Requirement47 CFR Part 15, Subpart C 15.225(d) & 15.209Test Method:ANSI C63.10 (2013) Section 6.4&6.5Measurement Distance:3m

Limit:

Frequency(MHz)	Field strength (microvolts/meter)	Limit (dBuV/m)	Detector	Measurement Distance (meters)
0.009-0.490	2400/F(kHz)	-	-	300
0.490-1.705	24000/F(kHz)	-	-	30
1.705-30	30	-	-	30

Below 30MHz

If field strength is measured at only a single point, then that point shall be at the radial from the EUT that produces the maximum emission at the frequency being measured, as described in 5.4. If that point is closer to the EUT than $\lambda/2\pi$ and the limit distance is greater than $\lambda/2\pi$, the measurement shall be extrapolated to the limit distance by conservatively presuming that the field strength decreases at a 40 dB/decade of distance rate to the $\lambda/2\pi$ distance, and at a 20 dB/decade of distance rate beyond $\lambda/2\pi$. This shall be accomplished using Equation (2):

$$FS_{(10m)} = FS_{(30/300m)} + 40\log\{d_{(near field)}/d_{(10m)}\} + 20\log\{d_{(30/300m)}/d_{(near field)}\}$$
(2)

If the single point measured is at a distance greater than $\lambda/2\pi$, then extrapolation to the limit distance shall be calculated using Equation (3):

$$FS_{(10m)} = FS_{(30/300m)} + 20\log\{d_{(30/300m)}/d_{(10m)}\}$$
(3)

If both the single point and the limit distance are equal to or closer to the EUT than $\lambda/2\pi$, then extrapolation to the limit distance shall be calculated using Equation (4):

$$FS_{(10m)} = FS_{(30/300m)} + 40\log\{d_{(30/300m)}/d_{(10m)}\}$$
(4)

Remark:

 $d_{\text{near field}} = 47.77 \ / \ f_{\text{MHz}}$ where f_{MHz} is the frequency of the emission being measured in MHz.

Remark:

1) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level = Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor



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$$FS_{\text{limit}} = FS_{\text{max}} - 40\log\left(\frac{d_{\text{limit}}}{d_{\text{measure}}}\right)$$

where

FS_{limit}	is the calculation of field strength at the limit distance, expressed in $dB\mu V/m$
FS_{\max}	is the measured field strength, expressed in dBµV/m
d_{measure}	is the distance of the measurement point from the EUT
d_{limit}	is the reference distance or the distance of the $\lambda/2\pi$ point

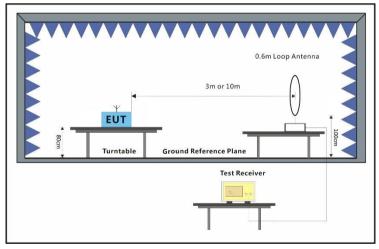
7.5.1 E.U.T. Operation

Operating Enviror	nment:					
Temperature:	20.8 °C	Humidity:	49.5 % RH	Atmospheric Pressure:	1010	mbar

7.5.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode with modulation

7.5.3 Test Setup Diagram



7.5.4 Measurement Procedure and Data

For testing performed with the loop antenna, the center of the loop was positioned 1 m above the ground and positioned with its plane vertical at the specified distance from the EUT. During testing the loop was rotated about its vertical axis for maximum response at each azimuth and also investigated with the loop positioned in the horizontal plane.

Please Refer to Appendix for Details



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7.6 Radiated Emissions (30MHz-1GHz)

Test Requirement	47 CFR Part 15, Subpart C 15.225(d) & 15.209
Test Method:	ANSI C63.10 (2013) Section 6.4&6.5
Measurement Distance:	3m

Limit:

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands above 1000 MHz. Radiated emission limits in these three bands (9-90kHz,110-490kHz and Above 1GHz) are based on measurements employing an average detector, 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.

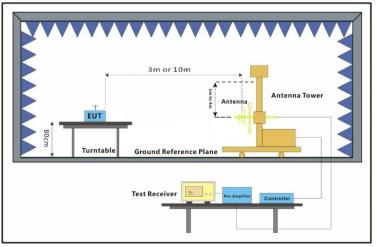
7.6.1 E.U.T. Operation

Operating Environment: Temperature: 20.8 °C Humidity: 49.5 % RH Atmospheric Pressure: 1010 mbar

7.6.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode with modulation

7.6.3 Test Setup Diagram





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7.6.4 Measurement Procedure and Data

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground for below 1GHz 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 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 peak, quasi-peak or average method as specified and then reported in a data sheet. g. The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, only the test worst case mode is recorded in the report. Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

Please Refer to Appendix for Details



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8 Test Setup Photo

Refer to Appendix - Test Setup Photo for KSCR2411002408AT

9 EUT Constructional Details (EUT Photos)

Refer to Appendix_Photographs of EUT Constructional Details for KSCR2411002408AT



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10 Appendix

10.1 20dB Bandwidth

20dB bandwidth (kHz)	F∟ (MHz)	Fн (MHz)	Limit(MHz)	Result
0.3862	13.55956	13.55994	13.110 – 14.010	Pass
Test plot as follows:				

Ref Level 97.00 dBµV • RBW 100 Hz Att 10 dB SWT 19 ms VBW 300 Hz Mode FFT • IPK Max 03[1] 0.0 386.20 386.20 386.20 386.20 • 0 dBµV 0 dBµV 03[1] 0.0 386.20 386.20 386.20 • 0 dBµV 0 dBµV M1[1] 43.81 dBµV M3 0.0 386.20 • 0 dBµV M3 0 M3 0.0 386.20 386.20 • 0 dBµV M3 0 M3 0.0 386.20 386.20 • 0 dBµV M3 0 M3 0 93 0 93 • 0 dBµV M3 0 03 0 93 0 93 • 0 dBµV 01 43.830 dBµV M3 0 03 0 03 0 • 0 dBµV 0 0 0 0 0 0 0 0 • 0 dBµV 0 0 <th>Spect</th> <th></th>	Spect												
● 1Pk Max 03[1] 0.0, 90 dBµV 03[1] 386.20 80 dBµV M1[1] 43.81 d 80 dBµV M2 13.559553070 l 70 dBµV M2 0 60 dBµV M2 60 dBµV M2 60 dBµV M2 90 dBµV M2 60 dBµV M2 90 dBµV M2 90 dBµV M2 90 dBµV M2 90 dBµV M3 91 dBµV M3 92 dBµV M3 93 dBµV M3 940 dBµV M3 95 dBµV M3 96 dBµV M3 97 dBµV M3 98 dBµV M3 98 dBµV M3 99 dBµV M3		evel (('
90 dBµV 0.0 90 dBµV 90 dBµV 80 dBµV 90 dBµV 90 dBµV 9			1	U dB SWI 19	Jms 😑 🕻	/ BW 300 Hz	Mod	e FFT					
90 dBµV 386.200 80 dBµV 390 d	∎трк М	ax			1		-		0[4]				0.01.4
80 dBµV M1[1] 43.81 d 70 dBµV M2 13.5595530701 70 dBµV M2 1 60 dBµV M2 1 50 dBµV M3 1 90 dBµV M3 0 10 dBµV M3 0 11 13.5595507 MHz 3001 pts Span 1.0 k M3 1 13.559755 MHz 63.83 dBµV M3 1 13.559755 MHz 63.83 dBµV	00 40.0							D;	3[1]				
80 dBµV 70 dBµV 60 dBµV 50 dBµV 13.559553070 M2 60 dBµV 50 dBµV 10 dBµV 20 dBµV 20 dBµV 10 dBµV 1	90 UDH1							м	1[1]				
70 dBµV M2 60 dBµV M2 60 dBµV 03 50 dBµV 01 43.830 dBµV 40 dBµV 03 40 dBµV 03 30 dBµV 03 10 dBµV 03 0 dBµV 03 10 dBµV 03 10 dBµV 001 pts Span 1.0 k Span 1.0 k Type Ref Trc X-value Y-value Function Function Result M1 1 11 13.559755 MHz 63.83 dBµV 0.01 dB	80 dBuA	,							1[1]			13,559	
60 dBµV M1 D3 M1 50 dBµV D1 43.830 dBµV D3 M1 40 dBµV D1 43.830 dBµV D3 M1 30 dBµV D1 43.830 dBµV D3 D1 30 dBµV D1 43.830 dBµV D1 D1 30 dBµV D1 43.830 dBµV D1 D1 30 dBµV D1 43.830 dBµV D1 D1 20 dBµV D1 43.830 dBµV D1 D1 10 dBµV D1 43.830 dBµV D1 D1 0 dBµV D1 43.81 dBµV D1 0 dW D1 386.2 Hz 0.01 dB	00 000												
60 dBµV M1 D3 M1 50 dBµV D1 43.830 dBµV D3 M1 40 dBµV D3 D3 D1 30 dBµV D1 D3 D1 30 dBµV D1 D1 D1 10 dBµV D1 D1 D1 11 13.55955307 MHz 43.81 dBµV D1 11 13.559755 MHz G3.83 dBµV D1 11 13.659755 MHz D.01 dB D1	70 dBu\	,											
50 dBµV M1 03 03 40 dBµV 01 43.830 dBµV 03 03 30 dBµV 0 03 03 30 dBµV 0 0 03 20 dBµV 0 0 0 10 dBµV 0 0 0 0 dBµV 0 0 0 0 dBµV 0 0 0 10 dBµV 0 0 0 0 dBµV 0 0 0 10 dBµV 0 0 0 0 dBµV 0 0 0 10 dBµV 0 0 0 0 dBµV 0 0 0 dBµV		-					2						
40 dBµV D1 43.830 dBµV D3 30 dBµV - - - 30 dBµV - - - 20 dBµV - - - 10 dBµV - - - 0 dBµV - - - 10 dBµV - - - 0 dBµV - - - 10 dBµV - - - 0 dBµV - - - 10 dBµV - - - 11 13.55955307 MHz 63.83 dBµV - 12 11 3.559755 MHz 0.01 dB -	60 dBµ\	/											
40 dBµV D1 43.830 dBµV D3 30 dBµV - - - 30 dBµV - - - 20 dBµV - - - 10 dBµV - - - 0 dBµV - - - 10 dBµV - - - 0 dBµV - - - 10 dBµV - - - 0 dBµV - - - 10 dBµV - - - 11 13.55955307 MHz 63.83 dBµV - 12 11 3.559755 MHz 0.01 dB -													
40 dBµV 43.830 dBµV 40 dBµV<	50 dBµ\	/		M									
40 dBμV 30 dBμV		—	1 43.8							_D3			
20 dBµV Image: descent of the second of th	40 dBµ\	/								_			
20 dBμV Image: constraint of the second s													
10 dBµV Image: Horizon of the second of th	30 dBµ\	/											
10 dBμV Image: Horizon and Horizon													
O dBµV Image: CF 13.55976 MHz Span 1.0 k CF 13.55976 MHz 3001 pts Span 1.0 k Marker You Ref Trc X-value Y-value Function Function Result M1 1 13.55955307 MHz 43.81 dBµV Image: CF 13.55955307 MHz 63.83 dBµV Image: CF 13.55955307 MHz 1mage: CF 13.55955307 MHz 1mage: CF 13.55955307 MHz Image: CF 13.55955307 MHz 1mage: CF 13.55955307 MHz Image: CF 13.55955307 MHz I	20 dBh/	/											
O dBµV Image: CF 13.55976 MHz Span 1.0 k CF 13.55976 MHz 3001 pts Span 1.0 k Marker You Ref Trc X-value Y-value Function Function Result M1 1 13.55955307 MHz 43.81 dBµV Image: CF 13.55955307 MHz 63.83 dBµV Image: CF 13.55955307 MHz 1mage: CF 13.55955307 MHz 1mage: CF 13.55955307 MHz Image: CF 13.55955307 MHz 1mage: CF 13.55955307 MHz Image: CF 13.55955307 MHz I	10 40.4	,											
CF 13.55976 MHz 3001 pts Span 1.0 k Marker Type Ref Trc X-value Y-value Function Function Result M1 1 13.55955307 MHz 43.81 dBµV <td< td=""><td>το αθμν</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	το αθμν												
CF 13.55976 MHz 3001 pts Span 1.0 k Marker Type Ref Trc X-value Y-value Function Function Result M1 1 13.55955307 MHz 43.81 dBµV <td< td=""><td>O dBuV-</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	O dBuV-												
Marker Type Ref Trc X-value Y-value Function Function Result M1 1 13.55955307 MHz 43.81 dBµV M2 1 13.559755 MHz 63.83 dBµV D3 M1 1 386.2 Hz 0.01 dB			5 MHz			300	l nts					Sr	an 1 0 kHz
Type Ref Trc X-value Y-value Function Function Result M1 1 13.55955307 MHz 43.81 dBµV M2 1 13.55955307 MHz 63.83 dBµV M2 1 386.2 Hz 0.01 dB			,			000	1 pt5						
M1 1 13.55955307 MHz 43.81 dBµV M2 1 13.559755 MHz 63.83 dBµV D3 M1 1 386.2 Hz 0.01 dB			Trc	X-value	•	Y-value	1	Func	tion		Fun	ction Resu	lt
M2 1 13.559755 MHz 63.83 dBµV D3 M1 1 386.2 Hz 0.01 dB		1.01					μν	7 4110					
	M2		1										
	D3	M1	1	38	36.2 Hz	0.01	dB						
Measuring			1						Me	asuri			X



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10.2 99% Bandwidth

99% bandwidth	(kHz)	F∟ (MH	łz)	F н (MHz)		Limit(MHz	<u>z</u>)	Result
0.284572	2	13.559	60	13.5	5989	1	3.110 – 14	010	Pass
Test plot as fol	lows:								I
Spectrum									
Ref Level 97.00 di	λυν		RBW 100) Hz					(
		VT 19 ms 🗕			de FFT				
) 1Pk Max	ub 31	A I 19 IIIS 🛑	*D** 300		ue FFI				
JIPK Max									
					M1	[1]			53.54 dBµ
90 dBµV									3.559766980 MH
					000	: Bw		2	84.571809396 H
80 dBµV									
70 dBµV									
60 dBµV	_								
					M1				
50 dBµV									
40 dBµV									
+0 uBμν							X 70		
			11/						
30 dBµV								<u></u>	
20 dBuV									
10 dBµV—									
0 dBµV									
CF 13.5597 MHz	1	1		3001 pt:	<u> </u>				Span 1.0 kHz
				5001 pt	•				3pun 1.0 KH/
1arker									
Type Ref Trc		value	<u>Y-va</u>		Functi	on	Fi	unction	Result
M1 1		976698 MHz		54 dBµV		_			
T1 1		603366 MHz		60 dBµV	000	5 BW		2	284.571809396 Hz
T2 1	13.559	887937 MHz	30.	96 dBµV					



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10.3 Frequency tolerance

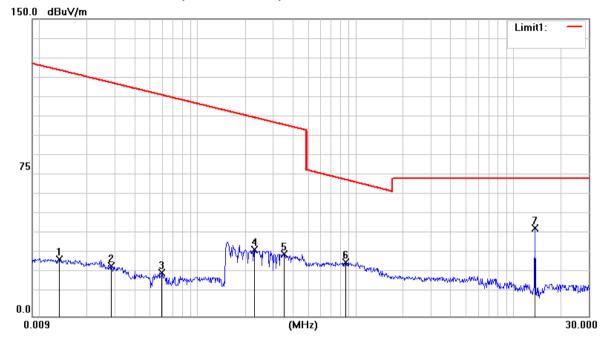
Nominal Operation Frequency: 13.56MHz

Test Conditions		Test Result	Deviation	Limit	Desult	
Temp (℃)	Volt (V AC)	(MHz)	(kHz)	(kHz)	Result	
Tnom (-20)	Vnom (120)	13.5596	-0.4		Pass	
Tnom (-10)	Vnom (120)	13.5595	-0.5		Pass	
Tnom (0)	Vnom (120)	13.5599	-0.1		Pass	
Tnom (10)	Vnom (120)	13.5594	-0.6		Pass	
Tnom (20)	Vnom (120)	13.5598	-0.2	±0.01%	Pass	
Tnom (30)	Vnom (120)	13.5596	-0.4	(1.3560kHz)	Pass	
Tnom (40)	Vnom (120)	13.5598	-0.2		Pass	
Tnom (50)	Vnom (120)	13.5596	-0.4		Pass	
T (00)	Vmin (102)	13.5597	-0.3		Pass	
Tnom (20)	Vmax (138)	13.5595	-0.5		Pass	

Note: Deviation (kHz) = (Test Result-13.56MHz)*1000



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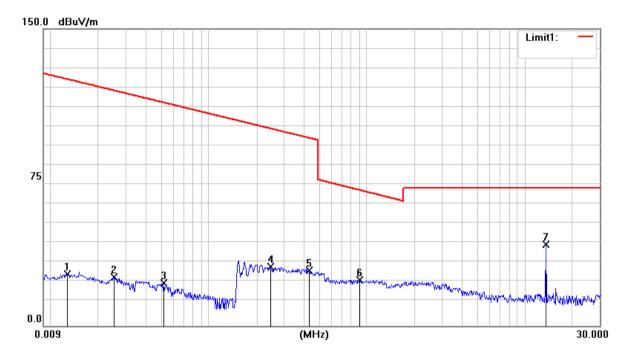


10.4 Radiated Emissions(9kHz-30MHz)

Item	Freq.	Read Level	Correct Factor	Result Level@3 m	Result Level@S PEC	Limit Line@SP EC	Over Limit	Detector	Polarity
(Mark)	(MHz)	(dBµV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)		
1	0.0134	8.69	19.91	28.6	-51.4	44.15	-95.55	QP	Coaxial
2	0.0284	5.18	19.96	25.14	-54.86	37.82	-92.68	QP	Coaxial
3	0.0596	1.95	20.04	21.99	-58.01	31.57	-89.58	QP	Coaxial
4	0.228	13.12	20.3	33.42	-46.58	20.25	-66.83	QP	Coaxial
5	0.3538	11.16	20.29	31.45	-48.55	16.55	-65.1	QP	Coaxial
6	0.8618	6.95	20.27	27.22	-12.78	28.91	-41.69	QP	Coaxial
7	13.6227	24.79	19.8	44.59	4.59	29.5	-24.91	Peak	Coaxial



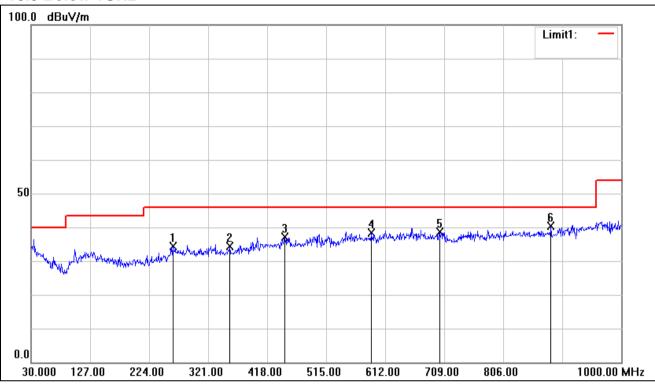
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Item	Freq.	Read Level	Correct Factor	Result Level@3 m	Result Level@S PEC	Limit Line@SP EC	Over Limit	Detector	Polarity
(Mark)	(MHz)	(dBµV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)		
1	0.0128	6.23	19.91	26.14	-53.86	44.54	-98.4	QP	Coplanar
2	0.0252	4.74	19.95	24.69	-55.31	38.82	-94.13	QP	Coplanar
3	0.0522	1.4	20.02	21.42	-58.58	32.68	-91.26	QP	Coplanar
4	0.2467	9.67	20.3	29.97	-50.03	19.59	-69.62	QP	Coplanar
5	0.4328	7.65	20.29	27.94	-52.06	14.85	-66.91	QP	Coplanar
6	0.9083	2.85	20.27	23.12	-16.88	28.45	-45.33	QP	Coplanar
7	13.6227	21.32	19.8	41.12	1.12	29.5	-28.38	Peak	Coplanar



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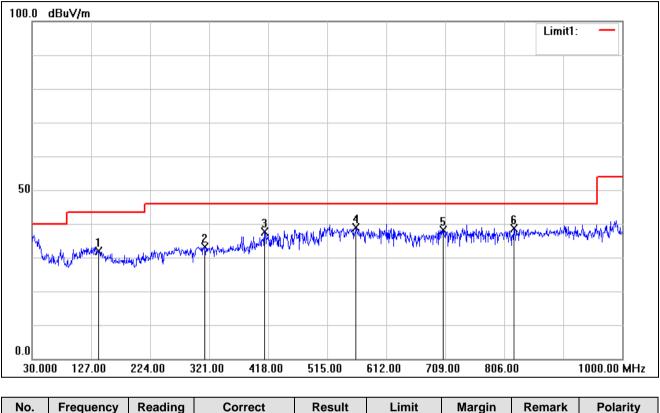


10.5 Below 1GHz

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark	Polarity
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)		
1	262.8000	13.33	21.00	34.33	46.00	-11.67	QP	Horizontal
2	356.8900	12.38	22.05	34.43	46.00	-11.57	QP	Horizontal
3	447.1000	13.02	24.15	37.17	46.00	-8.83	QP	Horizontal
4	589.6900	11.32	27.05	38.37	46.00	-7.63	QP	Horizontal
5	702.2100	36.14	2.45	38.59	46.00	-7.41	QP	Horizontal
6	884.5700	38.10	2.39	40.49	46.00	-5.51	QP	Horizontal



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No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark	Polarity
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)		
1	139.6100	13.16	18.64	31.80	43.50	-11.70	QP	Vertical
2	314.2100	12.32	20.93	33.25	46.00	-12.75	QP	Vertical
3	412.1800	13.71	23.92	37.63	46.00	-8.37	QP	Vertical
4	562.5300	11.34	27.44	38.78	46.00	-7.22	QP	Vertical
5	705.1200	35.79	2.45	38.24	46.00	-7.76	QP	Vertical
6	821.5200	36.37	2.16	38.53	46.00	-7.47	QP	Vertical

- End of the Report -