

TEST REPORT

Application No.: KSCR2501000089AT
FCC ID: 2BHG-0235C9NB
IC: 32743-0235C9NB
Applicant: KeyLife International Technology Limited
Address of Applicant: Workshop 7, 6th Floor Core 45, No. 43 Tsun Yip Street, Kowloon, HONG KONG
Manufacturer: KeyLife International Technology Limited
Address of Manufacturer: Workshop 7, 6th Floor Core 45, No. 43 Tsun Yip Street, Kowloon, HONG KONG
Equipment Under Test (EUT):
EUT Name: HomeBase
Model No.: H310,H310-B,H310-xxxxxxxx-yyyyyyy-zzz (where x,y,z may be blank, one letter or more combination letters from '0-9, A-Z and a-z'; '-' is option) ♦
♦ Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
For IC Model No.: H310,H310-B
Standard(s) : 47 CFR Part 15, Subpart C 15.231
RSS-210 issue 11
RSS-Gen Issue5 Amendment 2 (February 2021)
Date of Receipt: 2025-01-17
Date of Test: 2025-01-20 to 2025-03-11
Date of Issue: 2025-03-12

Test Result:	Pass*
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* 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.

Revision Record			
Version	Description	Date	Remark
00	Original	2025-03-12	/

Authorized for issue by:			
Tested By	 _____ Maker_Qi/Project Engineer		
Approved By	 _____ Terry Hou /Reviewer		

2 Test Summary

Radio Spectrum Technical Requirement				
Item	FCC Requirement	IC Requirement	Method	Result
Antenna Requirement	47 CFR Part 15, Subpart C 15.203	RSS-Gen Section 8.1.3	N/A	Pass

N/A: Not applicable

Radio Spectrum Matter Part				
Item	FCC Requirement	IC Requirement	Method	Result
Conducted Emissions at AC Power Line (150kHz-30MHz)	47 CFR Part 15, Subpart C 15.207	RSS-Gen Clause 8.8	ANSI C63.10 (2013) Section 6.2	Pass
20dB Bandwidth	47 CFR Part 15, Subpart C 15.231(c)	-	ANSI C63.10 (2020) Section 6.9	Pass
Dwell Time (15.231(e))	47 CFR Part 15, Subpart C 15.231(e)	RSS-210 A1.5	ANSI C63.10 (2020) Section 7.8.4	Pass
Field Strength of the Fundamental Signal (15.231(e))	47 CFR Part 15, Subpart C 15.231(e)	RSS-210 A1.5	ANSI C63.10 (2020) Section 6.5	Pass
Radiated Emissions below 1GHz	47 CFR Part 15, Subpart C 15.231(e) and 15.209	RSS-210 A1.5	ANSI C63.10 (2020) Section 6.4&6.5&6.6	Pass
Radiated Emissions above 1GHz	47 CFR Part 15, Subpart C 15.231(e) and 15.209	RSS-210 A1.5	ANSI C63.10 (2020) Section 6.6	Pass
99% Bandwidth	-	RSS-210 A1.4	RSS-Gen Section 6.7	Pass

Model No.: H310,H310-B,H310-xxxxxxxx-yyyyyyyy-zzz (where x,y,z may be blank, one letter or more combination letters from '0-9, A-Z and a-z'; '-' is option

Only the model H310 was tested.

There are series models mentioned in this report, and they are identical in electrical and electronic characters. Only the model H310 was tested since their differences were the model number and color.

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4 General Information

4.1 Details of E.U.T.

Power supply:	AC/DC Adapter: Model: DCT36W120300US-A3 Input: 100~240V~,50-60Hz,1A max Output: 12V/3A
S/N:	210235C9NB3249000011
Firmware Version:	GSHAV5R1B01D001SP22
Test Voltage:	AC 120V/60Hz
Operation Frequency	433.18MHz
Channel Numbers:	1
Modulation Type:	FSK
Antenna Type:	Internal Antenna
Transmitter type:	Periodicity

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Notebook	LENOVO	K27	EB24537645

4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	8.4×10^{-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) 5.9dB (Above 1GHz)
9	Radiated Spurious Emission Test	4.2dB (Below 30MHz) 4.5dB (30MHz-1GHz) 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: The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

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

None

4.7 Abnormalities from Standard Conditions

None

5 Equipment List

Item	Equipment	Manufacturer	Model	Inventory No	Cal Date	Cal. Due Date
Conducted Emission at Mains Terminals						
1	EMI Test Receive	R&S	ESCI	KS301101	03/19/2024	03/18/2025
2	LISN	R&S	ENV216	KS301197	01/15/2025	01/14/2026
3	LISN	Schwarzbeck	NNLK 8129	KS301091	01/15/2025	01/14/2026
4	Pulse Limiter	R&S	ESH3-Z2	KUS1902E001	12/05/2024	12/04/2025
5	CE test Cable	Thermax	/	CZ301102	01/14/2025	01/13/2026
6	Test Software	ESE	E3_V 6.111221a	/	N.C.R	N.C.R
RF Conducted Test						
1	Spectrum Analyzer	Keysight	N9020A	KUS1911E004-2	08/01/2024	07/31/2025
2	Spectrum Analyzer	Keysight	N9020A	KUS2001M001-2	08/01/2024	07/31/2025
3	Spectrum Analyzer	Keysight	N9030B	KSEM021-1	01/15/2025	01/14/2026
4	Signal Generator	R&S	SMBV100B	KSEM032	03/19/2024	03/18/2025
5	Signal Generator	R&S	SMW200A	KSEM020-1	08/02/2024	08/01/2025
6	Signal Generator	Agilent	N5182A	KUS2001M001-1	08/01/2024	07/31/2025
7	Radio Communication Test Station	Anritsu	MT8000A	KSEM001-1	08/01/2024	07/31/2025
8	Radio Communication Analyzer	Anritsu	MT8821C	KSEM002-1	03/19/2024	03/18/2025
9	Universal Radio Communication Tester	R&S	CMW500	KUS1911E004-1	08/13/2024	08/12/2025
10	Switcher	TST	FY562	KUS2001M001-4	01/15/2025	01/14/2026
11	AC Power Source	EXTECH	6605	KS301178	N.C.R	N.C.R
12	DC Power Supply	Agilent	E3632A	KS301180	N.C.R	N.C.R
13	Conducted Test Cable	Thermax	RF01-RF04	CZ301111-CZ301120	01/14/2025	01/13/2026
14	Temp. / Humidity Chamber	TERCHY	MHK-120AK	KS301190	08/26/2024	08/25/2025
15	Temperature & Humidity Recorder	Renke Control	RS-WS-N01-6J	KSEM024-5	03/19/2024	03/18/2025
16	Software	BST	TST-PASS	/	NCR	NCR
RF Radiated 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
3	Signal Generator	Agilent	E8257C	KS301066	08/06/2024	08/05/2025
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	03/22/2025
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	01/15/2025	01/14/2026
11	Amplifier(18~40GHz)	PANSHAN TECHNOLOGY	LNA180400G40	KSEM038	08/12/2024	08/11/2025
12	RE Test Cable	REBES MICROWAVE	/	CZ301097	08/23/2024	08/22/2025
13	Temperature & Humidity Recorder	Renke Control	RS-WS-N01-6J	KSEM024-4	03/19/2024	03/18/2025
14	Software	Faratronic	EZ_EMCA-3A1	/	NCR	NCR
15	Software	ESE	E3_V 6.111221a	/	NCR	NCR

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 Internal Antenna and no consideration of replacement.

Antenna location: Refer to Internal photos

7 Radio Spectrum Matter Test Results

7.1 Conducted Emissions at AC Power Line (150kHz-30MHz)

Test Requirement 47 CFR Part 15, Subpart C 15.207

Test Method: ANSI C63.10 (2013) Section 6.2

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.

Detector: Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz

7.1.1 E.U.T. Operation

Operating Environment:

Temperature: 21.5 °C

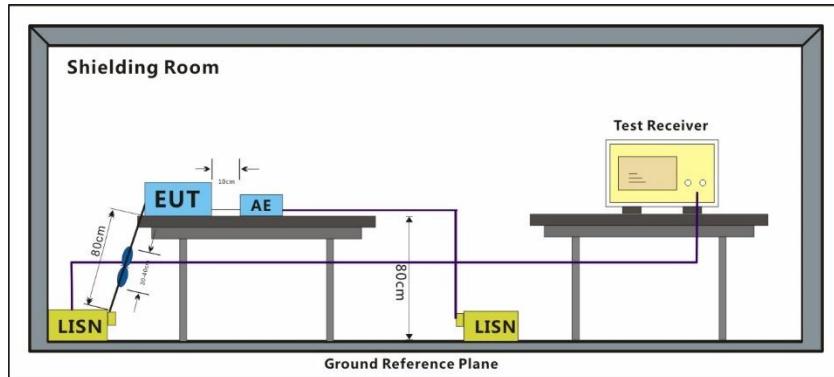
Humidity: 52.3 % RH

Atmospheric Pressure: 1010 mbar

7.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	04	Tx mode_Keep the EUT in continuously transmitting mode.

7.1.3 Test Setup Diagram

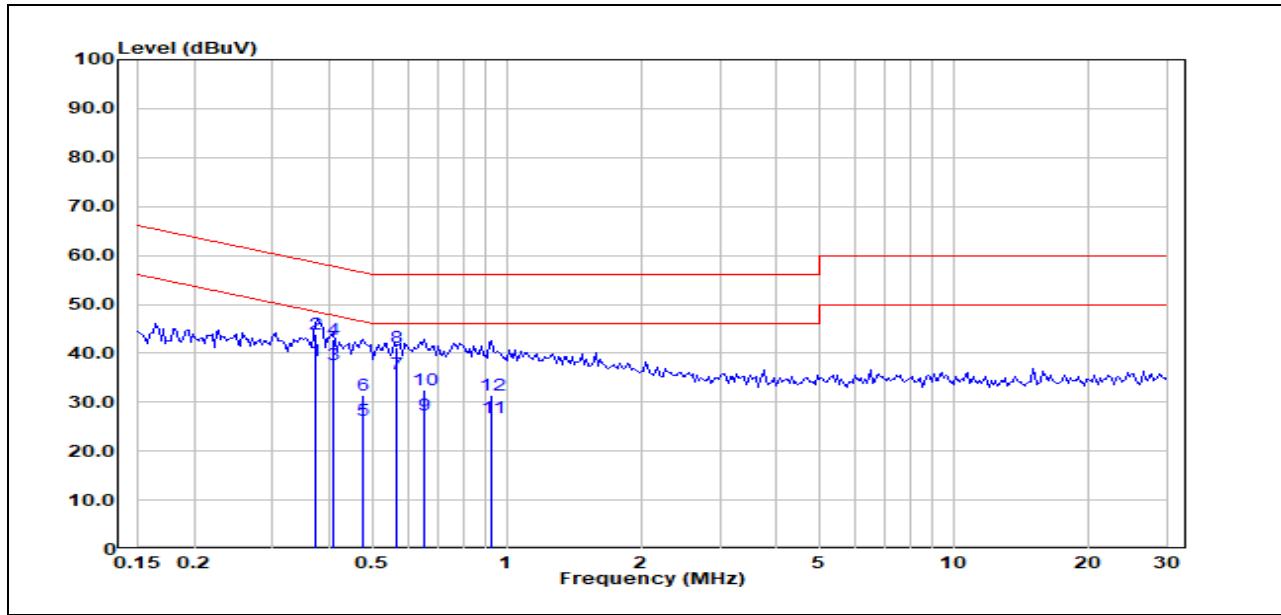


7.1.4 Measurement Procedure and Data

- 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 50ohm/50 μ H + 5ohm 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.

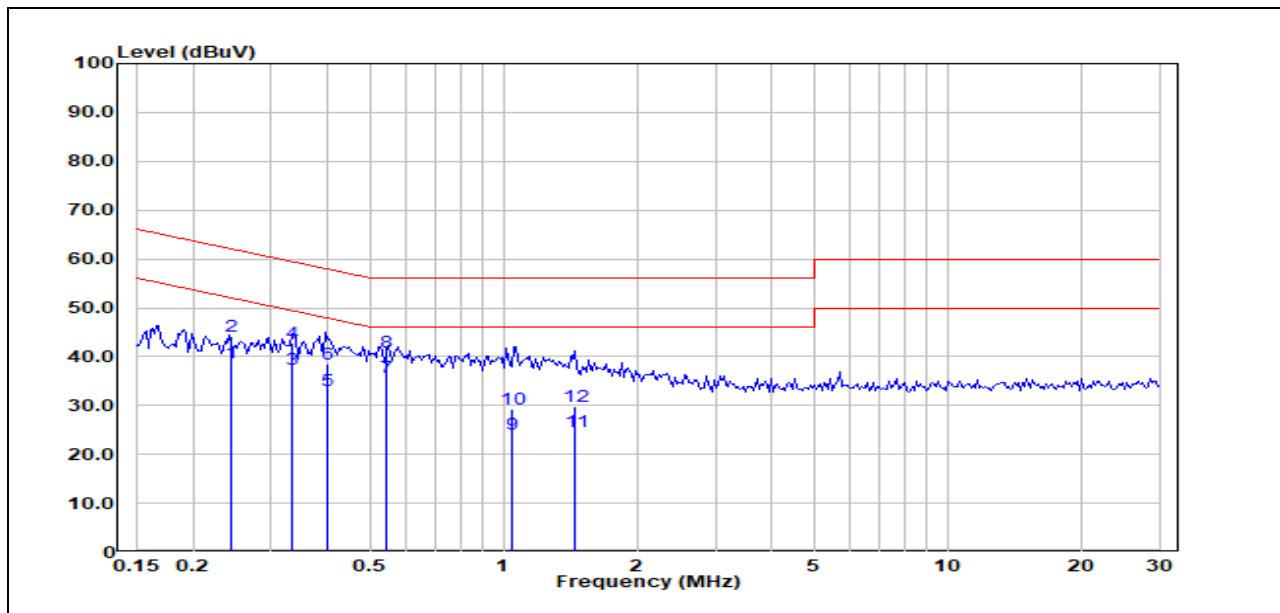
Remark: Level=Read Level+ Cable Loss+ LISN Factor

Test Mode: 00; Line: Live line

Test Data :

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.3747	18.29	20.07	38.36	48.40	-10.04	Average
2	0.3747	23.80	20.07	43.87	58.40	-14.53	QP
3	0.4104	17.64	20.06	37.70	47.64	-9.94	Average
4	0.4104	22.89	20.06	42.95	57.64	-14.69	QP
5	0.4764	6.27	20.04	26.31	46.40	-20.09	Average
6	0.4764	11.37	20.04	31.41	56.40	-24.99	QP
7	0.5662	15.83	19.93	35.76	46.00	-10.24	Average
8	0.5662	21.15	19.93	41.08	56.00	-14.92	QP
9	0.6547	7.49	19.81	27.30	46.00	-18.70	Average
10	0.6547	12.58	19.81	32.39	56.00	-23.61	QP
11	0.9282	6.94	19.83	26.77	46.00	-19.23	Average
12	0.9282	11.70	19.83	31.53	56.00	-24.47	QP

Test Mode: 00; Line: Neutral Line

Test Data :

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB)	(dBuV)	(dBuV)	(dB)	
1	0.2440	18.76	20.10	38.86	51.96	-13.10	Average
2	0.2440	23.95	20.10	44.05	61.96	-17.91	QP
3	0.3355	17.38	20.09	37.47	49.31	-11.84	Average
4	0.3355	22.60	20.09	42.69	59.31	-16.62	QP
5	0.4015	12.87	20.11	32.98	47.82	-14.84	Average
6	0.4015	18.36	20.11	38.47	57.82	-19.35	QP
7	0.5473	15.80	19.90	35.70	46.00	-10.30	Average
8	0.5473	21.06	19.90	40.96	56.00	-15.04	QP
9	1.0490	4.17	19.91	24.08	46.00	-21.92	Average
10	1.0490	9.31	19.91	29.22	56.00	-26.78	QP
11	1.4530	4.74	19.90	24.64	46.00	-21.36	Average
12	1.4530	9.79	19.90	29.69	56.00	-26.31	QP

7.2 20dB Bandwidth

Test Requirement 47 CFR Part 15, Subpart C 15.231(c)

Test Method: ANSI C63.10 (2013) Section 6.9

Measurement Distance: 3m

Limit:

Frequency range(MHz)	Limit
70-900	No wider than 0.25% of the center frequency
Above 900	No wider than 0.5% of the center frequency

7.2.1 E.U.T. Operation

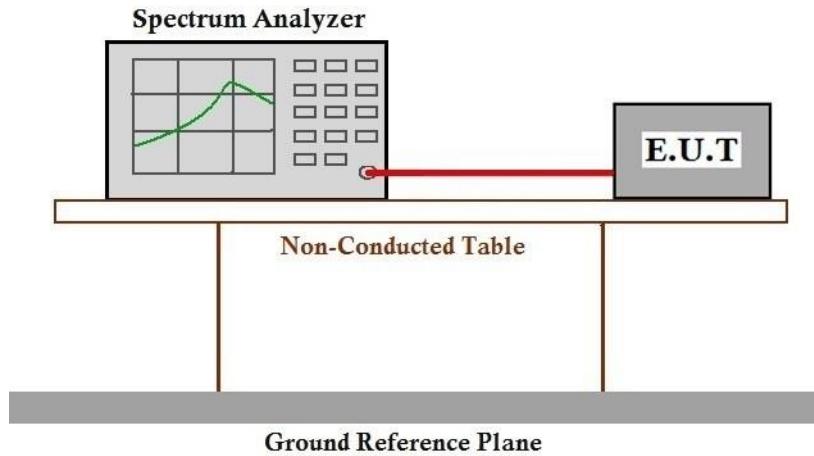
Operating Environment:

Temperature: 25.2 °C Humidity: 45.3 % RH Atmospheric Pressure: 1010 mbar

7.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	04	Tx mode_Keep the EUT in continuously transmitting mode.

7.2.3 Test Setup Diagram



7.2.4 Measurement Procedure and Data

Please Refer to Appendix for Details

7.3 Dwell Time (15.231(e))

Test Requirement 47 CFR Part 15, Subpart C 15.231(e)

Test Method: ANSI C63.10 (2013) Section 7.8.4

Measurement Distance: 3m

Limit:

In addition, devices operated under the provisions of this paragraph shall be provided with a means for automatically limiting operation so that the duration of each transmission shall not be greater than one second and the silent period between transmissions shall be at least 30 times the duration of the transmission but in no case less than 10 seconds.

7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 25.2 °C Humidity: 45.3 % RH Atmospheric Pressure: 1010 mbar

7.3.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	04	Tx mode_Keep the EUT in continuously transmitting mode.

7.3.3 Measurement Procedure and Data

Please Refer to Appendix for Details

7.4 Radiated Emissions below 1GHz

Test Requirement 47 CFR Part 15C Section 15.231(e) and 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)
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

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

7.4.1 E.U.T. Operation

Operating Environment:

Temperature: 25.2 °C

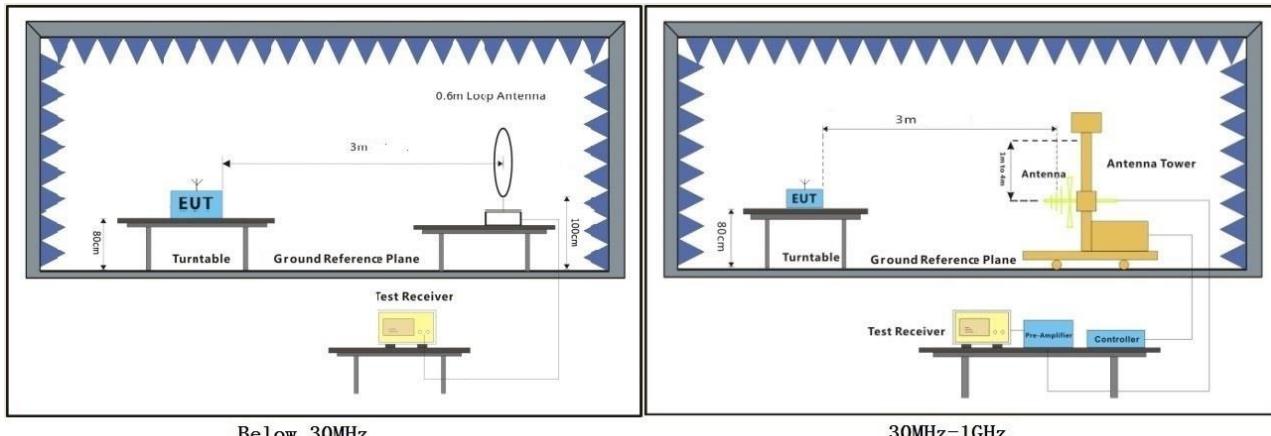
Humidity: 45.3 % RH

Atmospheric Pressure: 1010 mbar

7.4.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	07	Tx mode_Keep the EUT in continuously transmitting mode.

7.4.3 Test Setup Diagram



7.4.4 Measurement Procedure and Data

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 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 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:

- 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
- 2) Scan from 9kHz to 1GHz, 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.

Please Refer to Appendix for Details

7.5 Field Strength of the Fundamental Signal (15.231(e))

Test Requirement Field Strength of the Fundamental Signal (15.231(e))

Test Method: ANSI C63.10 (2013) Section 6.5

Measurement Distance: 3m

Limit:

Fundamental frequency(MHz)	Field strength of fundamental(microvolts/meter)	Field strength of spurious emissions(microvolts/meter)
40.66-40.70	1000	100
70-130	500	50
130-174	500 to 1500	50 to 150
174-260	1500	150
260-470	1500 to 5000	150 to 500
Above 470	5000	500

Remark: the emission limit is based on measurement instrumentation employing an average detector at a distance of 3 meters. The frequencies above 1000MHz 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.

7.5.1 E.U.T. Operation

Operating Environment:

Temperature: 25.2 °C

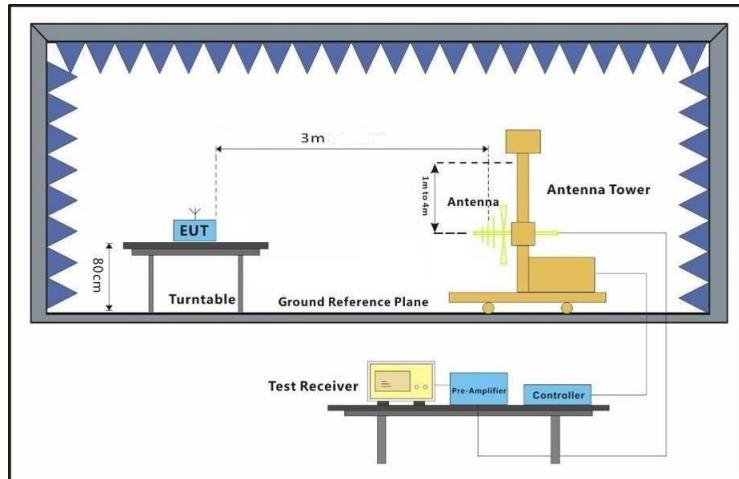
Humidity: 45.3 % RH

Atmospheric Pressure: 1010 mbar

7.5.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	07	Tx mode_Keep the EUT in continuously transmitting mode.

7.5.3 Test Setup Diagram



7.5.4 Measurement Procedure and Data

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. 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.
- c. 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.
- d. 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.
- e. 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.
- f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- g. 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.
- h. The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which 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

7.6 Radiated Emissions above 1GHz

Test Requirement 47 CFR Part 15C Section 15.231(e) and 15.209

Test Method: ANSI C63.10 (2013) Section 6.6

Measurement Distance: 3m

Limit:

For Restricted bands

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

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

For Other bands

Fundamental Frequency MHz	Field Strength of Fundamental (dB μ V/m @ 3 m)	Field Strength of Harmonics and Spurious Emissions (dB μ V/m @ 3 m)
40.66 to 40.70	60.00	40.00
70 to 130	53.98	33.98
130 to 174	**53.98 to 63.52	33.98 to 43.52
174 to 260	63.52	43.52
260 to 470	**63.52 to 73.98	43.52 to 53.98
Above 470	73.98	53.98
Detector:	Peak for pre-scan	
	QP for 30MHz to 1000 MHz: 120 kHz resolution bandwidth	
	Peak for Above 1 GHz: 1 MHz resolution bandwidth	

** linear interpolations

[Where F is the frequency in MHz, the formulas for calculating the maximum permitted fundamental field strengths are as follows:

for the band 130-174 MHz, uV/m at 3 meters = $(22.73 \times f) - 2454.55$;

for the band 260-470 MHz, uV/m at 3 meters = $(16.67 \times f) - 2833.33$.

The maximum permitted unwanted emission level is 20 dB below the maximum permitted fundamental level.]

The fundamental frequency of the EUT is 433.18 MHz

The limit for average or QP field strength dB μ V/m for the fundamental emission = 72.84 dB μ V/m

No fundamental is allowed in the restricted bands.

The limit for average field strength dB_{uV}/m for the spurious emission=52.84 dB_{uV}/m. Spurious in the restricted bands must be less than 52.84 dB_{uV}/m or 15.209, whichever limit permits a higher field strength.

7.6.1 E.U.T. Operation

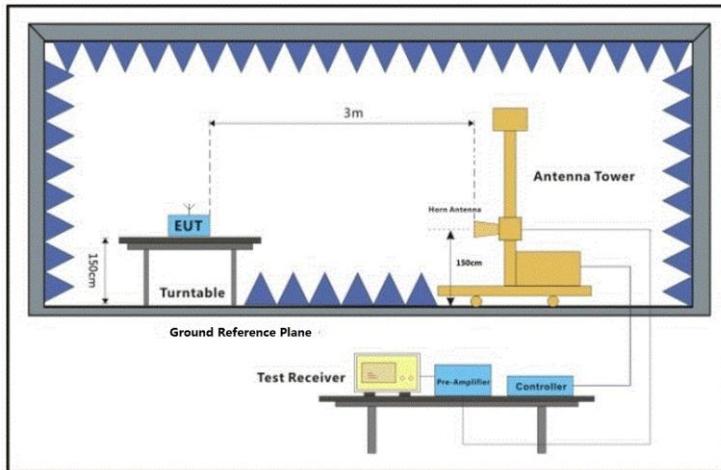
Operating Environment:

Temperature: 25.2 °C Humidity: 45.3 % RH Atmospheric Pressure: 1010 mbar

7.6.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	07	Tx mode_Keep the EUT in continuously transmitting mode.

7.6.3 Test Setup Diagram



7.6.4 Measurement Procedure and Data

- 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.
- 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 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 is worse case, only the test worst case mode is recorded in the report.

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
- 2) 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.

Please Refer to Appendix for Details

7.7 99% Bandwidth

Test Requirement RSS-210 A1.4

Test Method: RSS-Gen February 2021 Amendment 2 Section 6.7

7.7.1 E.U.T. Operation

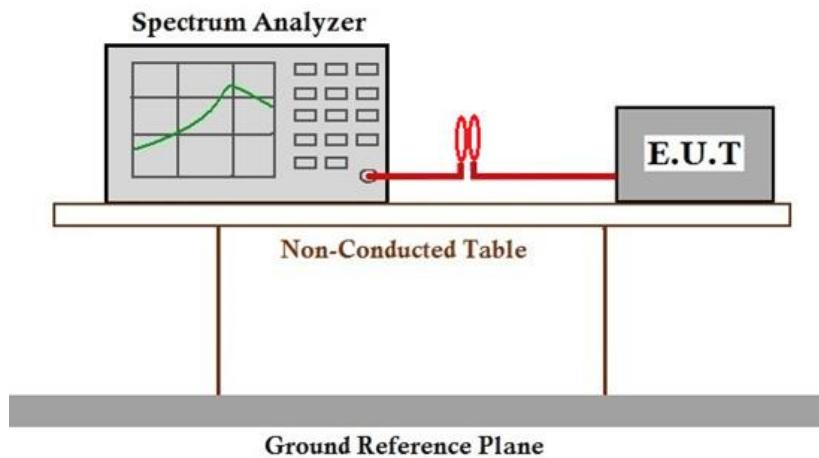
Operating Environment:

Temperature: 24.5 °C Humidity: 51.6 % RH Atmospheric Pressure: 1010 mbar

7.7.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	07	Tx mode_Keep the EUT in continuously transmitting mode.

7.7.3 Test Setup Diagram



7.7.4 Measurement Procedure and Data

Please Refer to Appendix for Details

8 Test Setup Photo

Refer to Appendix - Test Setup Photo for KSCR2501000089AT

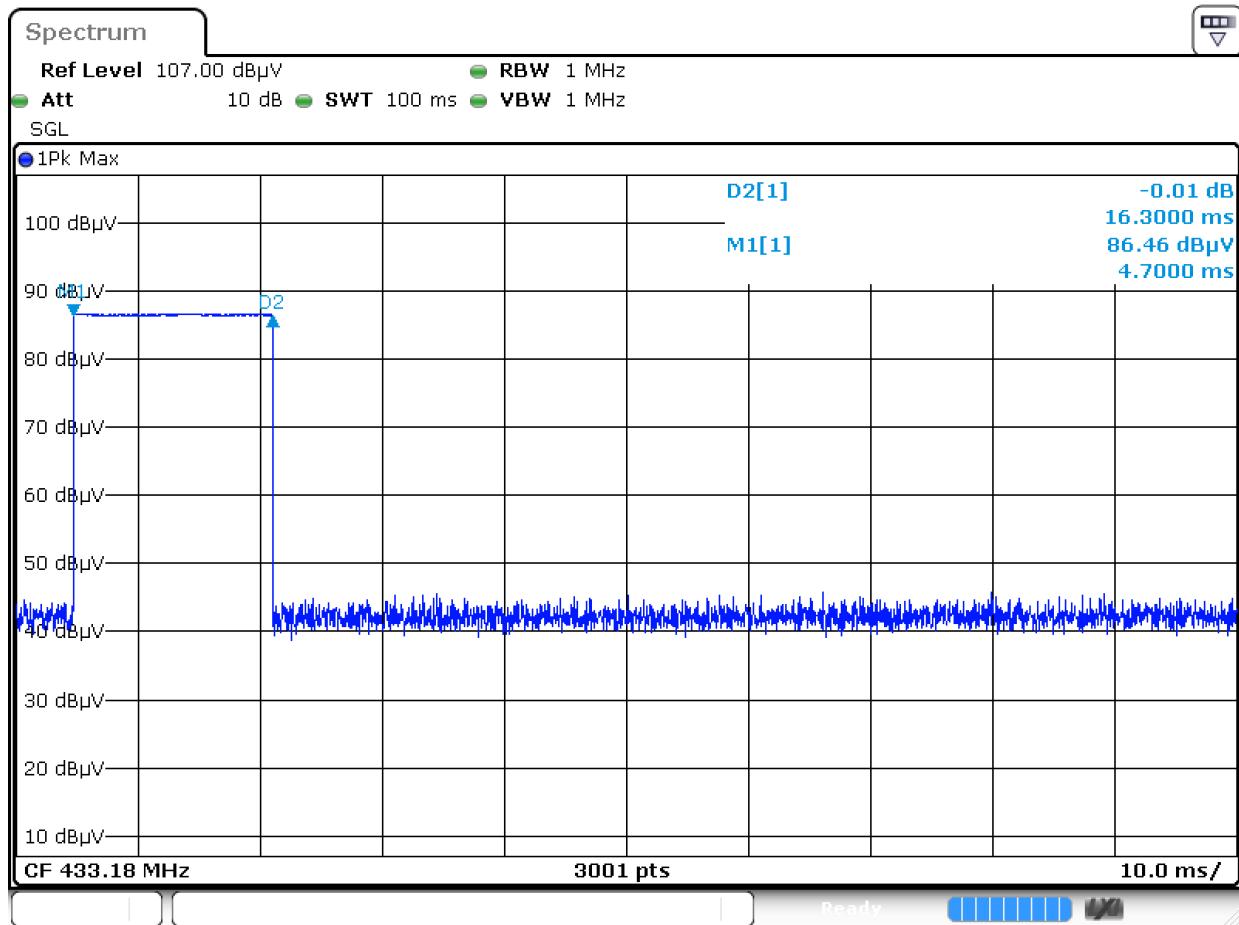
9 EUT Constructional Details (EUT Photos)

Refer to Appendix - Photographs of EUT Constructional Details for KSCR2501000089AT

10 Appendix

10.1 Field Strength of the Fundamental Signal

Test channel	Freq. (MHz)	Result Level (dB μ V/m)	Limit Line (dB μ V/m)	Over Limit (dB)	Detector	Polarization
Channel 1	433.18	83.20	92.84	-9.64	Peak	Vertical
		87.32	92.84	-5.52	Peak	Horizontal
		67.44	72.84	-5.40	AVG	Vertical
		71.56	72.84	-1.28	AVG	Horizontal



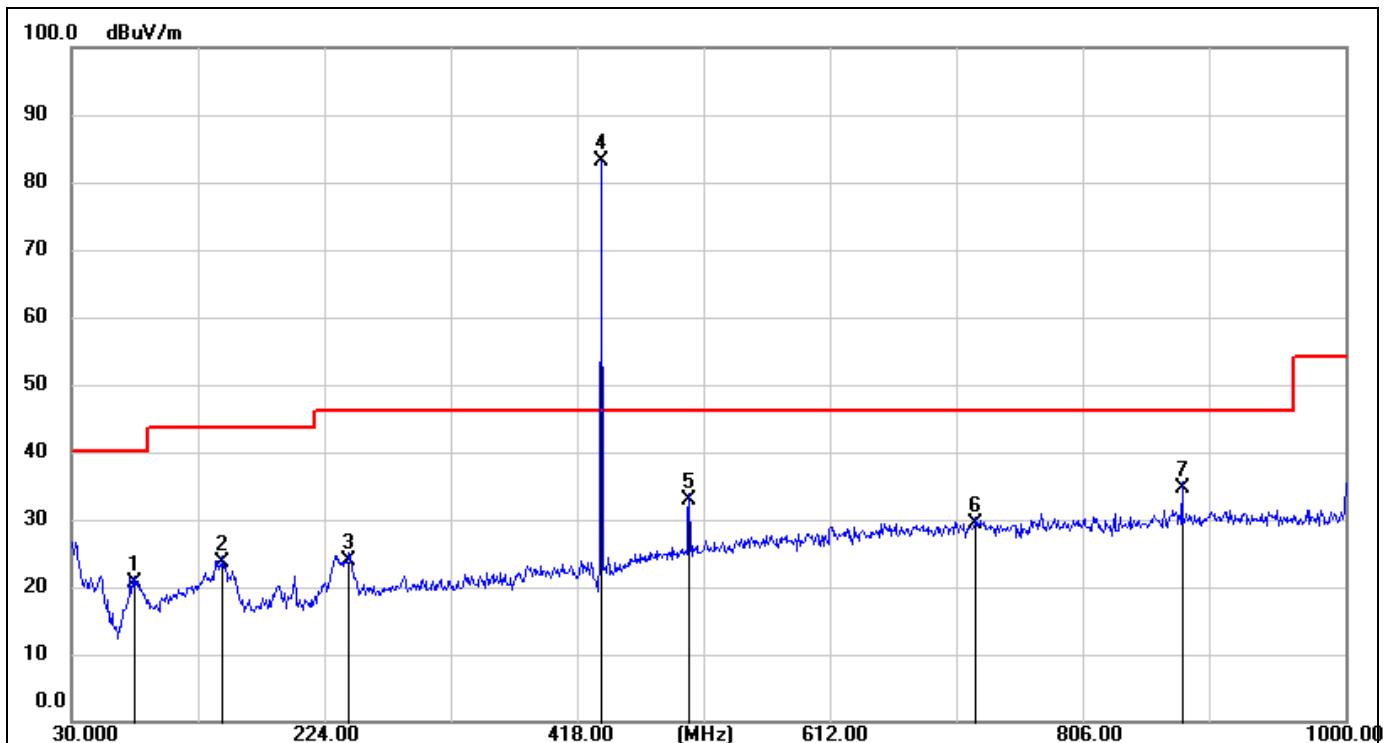
Remark:

1. If the Peak value below the AV Limit, the AV test doesn't perform for this submission.
2. Average level = Peak level - Duty Cycle Factor
3. Duty Cycle Factor = $20 \cdot \log_{10}(\text{Duty Cycle}) = -15.76 \text{ dB}$

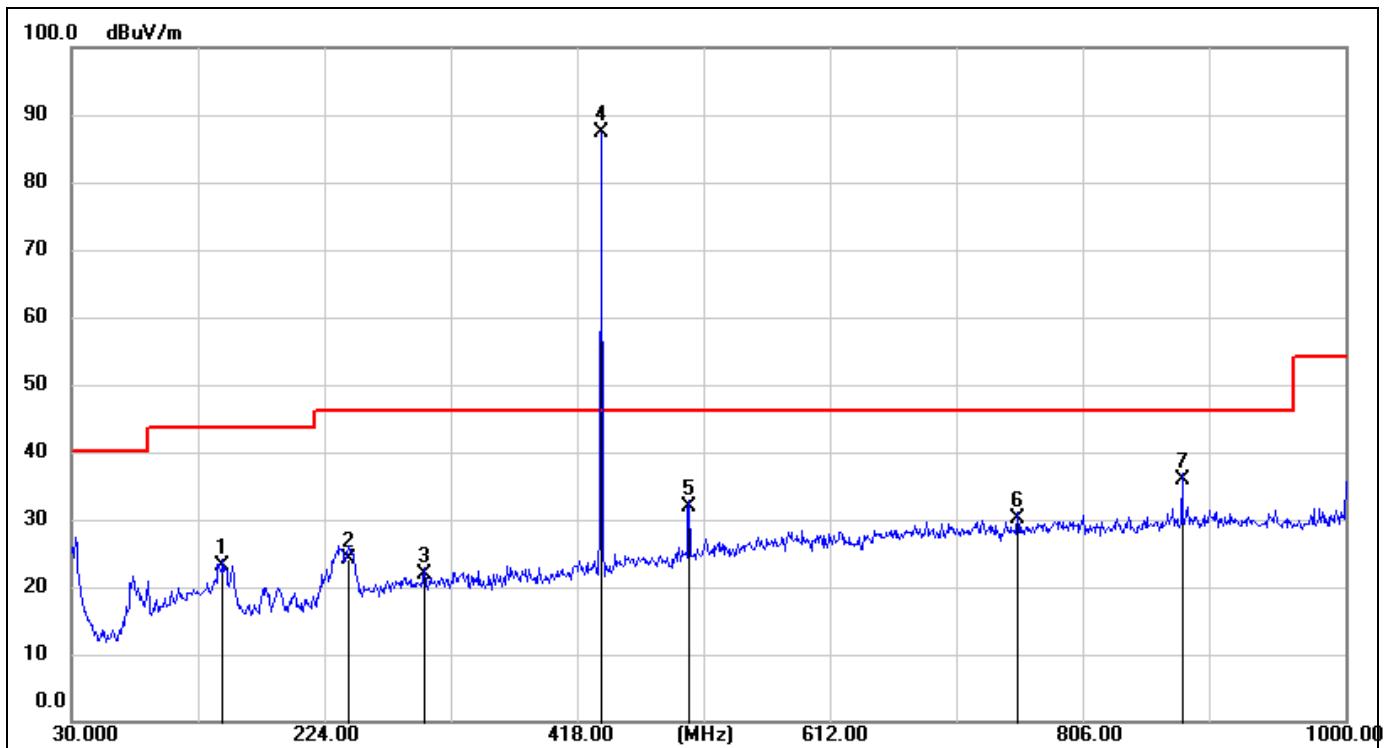
10.2 Spurious Emissions

Below 1GHz:

Vertical:



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	77.5300	10.89	9.63	20.52	40.00	-19.48	QP
2	145.4300	10.96	12.72	23.68	43.50	-19.82	QP
3	241.4600	10.34	13.66	24.00	46.00	-22.00	QP
4	433.5200	66.43	18.77	83.20	Fundamental frequency		
5	500.4500	11.92	20.95	32.87	46.00	-13.13	QP
6	718.7000	26.89	2.45	29.34	46.00	-16.66	QP
7	875.8400	32.24	2.34	34.58	46.00	-11.42	QP

Horizontal:


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	145.4300	10.31	12.72	23.03	43.50	-20.47	QP
2	240.4900	10.53	13.70	24.23	46.00	-21.77	QP
3	298.6900	5.83	15.94	21.77	46.00	-24.23	QP
4	433.5200	70.55	18.77	87.32	Fundamental frequency		
5	500.4500	10.87	20.95	31.82	46.00	-14.18	QP
6	750.7100	27.69	2.41	30.10	46.00	-15.90	QP
7	875.8400	33.51	2.34	35.85	46.00	-10.15	QP

Above 1GHz

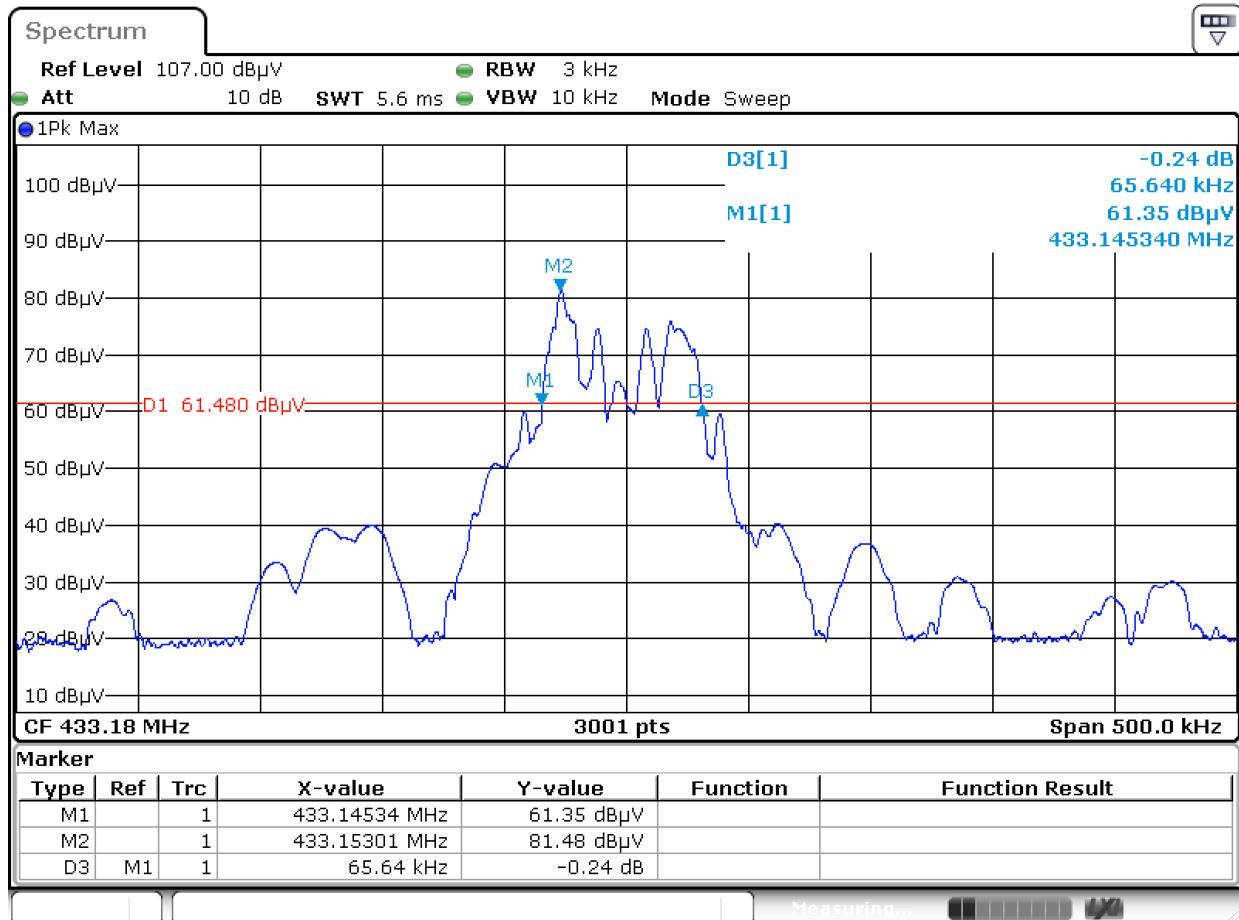
Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	polarization
1	1540.120	63.95	-28.57	35.38	54.00	-18.62	peak	Vertical
2	2375.260	61.57	-24.78	36.79	54.00	-17.21	peak	Vertical
3	4380.850	59.21	-19.31	39.90	54.00	-14.10	peak	Vertical
4	1900.520	62.30	-28.10	34.20	54.00	-19.80	peak	Horizontal
5	3325.700	62.29	-22.52	39.77	54.00	-14.23	peak	Horizontal
6	4600.580	59.17	-18.68	40.49	54.00	-13.51	peak	Horizontal

10.3 20dB Bandwidth

Measurement Data:

Frequency (MHz)	20dB bandwidth (kHz)	Limit (kHz)	Results
433.18	65.64	1083	Pass

Test plot as follows:

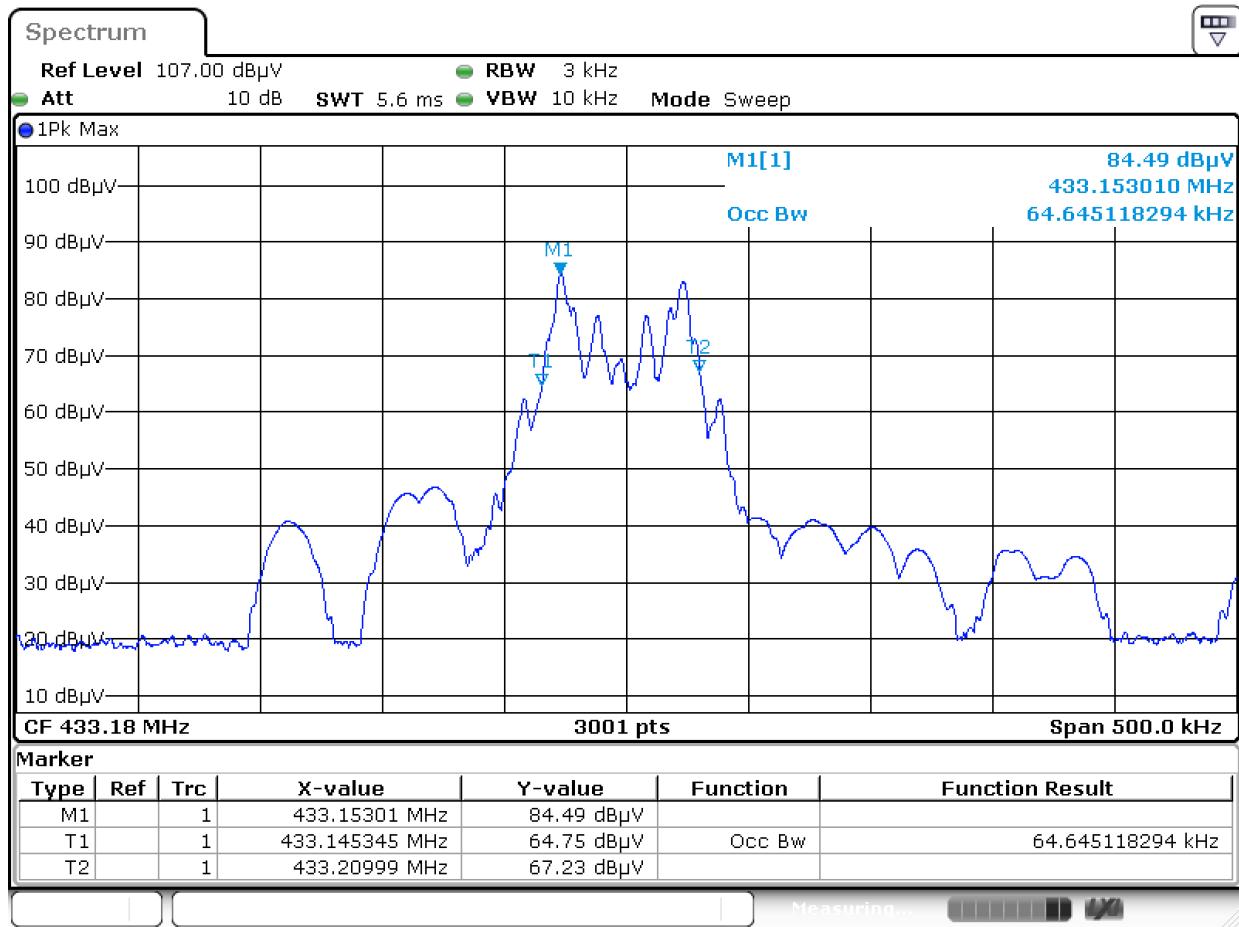


10.4 99% Bandwidth

Measurement Data:

99% bandwidth (kHz)	FL (MHz)	FH (MHz)	Limit (MHz)	Result
64.65	433.1463	433.2100	/	Pass

Test plot as follows:

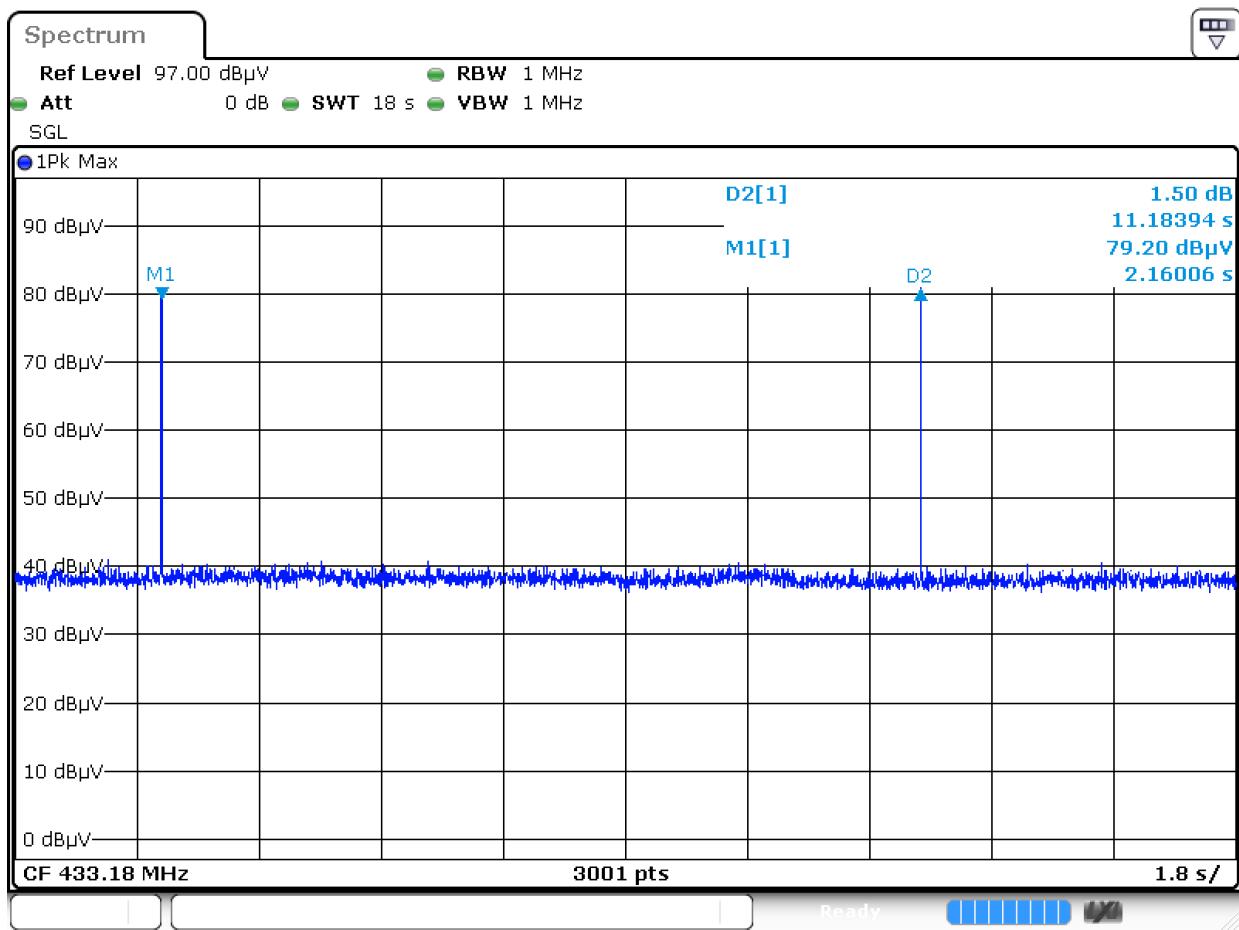


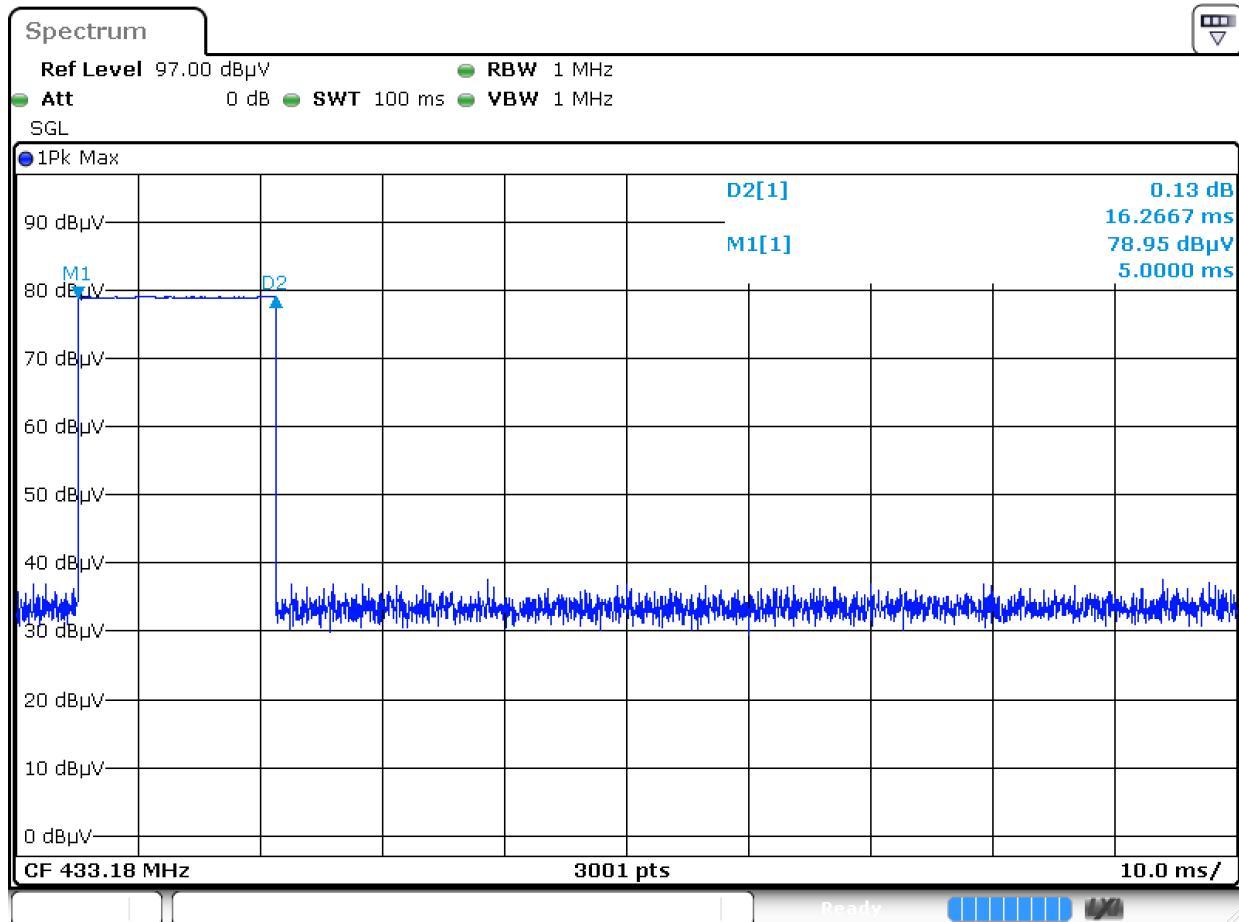
10.5 Dwell Time

Measurement Data:

Test item	Limit (s)	Results
Transmission Duration	$\geq 10\text{s}$	Pass
Ontime	$\leq 1\text{s}$	Pass

Test plot as follows:





- End of the Report -