JAPAN RADIO TEST REPORT

Client Information:

Applicant:	M5Stack Technology Co., Ltd
Applicant add.:	Block A10, Expo Bay South Coast, Fuhai Street, Bao'an District, Shenzhen, China

Product Information:

Product Name:	M5Cap CC1101
Model No.:	Cap CC1101
Derivative model No.:	N/A
Brand Name:	M5STACK
Standards:	Article 2 paragraph 1 item 8 ARIB STD-T93

Prepared By:

Dongguan Yaxu (AiT) Technology Limited

Add. : No. 22, Jinqianling Third Street, Jitigang, Huangjiang, Dongguan, Guangdong, China

Date of Receipt:	Jun 09, 2026	Date of Test:	Jun 09, 2026~Jul 07, 2026
Date of Issue:	Jul 08, 2026	Test Result:	Pass

This device has been tested and found to comply with the stated standard(s) which is compliance with the Article 2 Paragraph 1 Item 8 of the Certification and MIC Notice No.88 Appendix 9-1. And the report is applicable only to the tested sample.

Note: This report shall not be reproduced except in full, without the written approval of Dongguan Yaxu (AiT) Technology Limited, this document may be altered or revised by Dongguan Yaxu (AiT) Technology Limited, personal only, and shall be noted in the revision of the document. This test report must not be used by the client to claim product endorsement.

Reviewed by: Emiya Lin
Emiya Lin

Approved by: Simba Huang
Simba Huang

1 Contents

Page

COVER PAGE

1 CONTENTS 2

2 GENERAL INFORMATION 4

2.1 GENERAL DESCRIPTION OF EUT 4
2.2 TEST LOCATION 5
2.3 DESCRIPTION OF TEST SETUP 5
2.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE) 6
2.5 MEASUREMENT UNCERTAINTY 7
2.6 RADIO TECHNICAL REQUIREMENTS SPECIFICATION 7
2.7 MEASUREMENT SPECIFICATION 8
2.8 E.U.T. TEST CONDITIONS 9
2.9 ANTENNA REQUIREMENT 10

3 TEST RESULT 11

3.1 FREQUENCY TOLERANCE 11
3.1.1 Limit 11
3.1.2 Test procedure 11
3.1.3 Test Setup 11
3.1.4 Test Deviation 11
3.1.5 Test record 12
3.2 OCCUPIED BANDWIDTH (99%) 14
3.2.1 Limit 14
3.2.2 Test procedure 14
3.2.3 Test Setup 14
3.2.4 Test Deviation 14
3.2.5 Results of Occupied Bandwidth and Spread-spectrum Bandwidth / Spread Factor 15
3.3 ANTENNA POWER 17
3.3.1 Limit 17
3.3.2 Test procedure 17
3.3.3 Test Setup 17
3.3.4 Test Deviation 17
3.3.5 Test Result of Unwanted Emission Intensity 18
3.4 THE DURATION OF EACH TRANSMISSION 20
3.4.1 Limit 20
3.4.2 TEST SETUP 20
3.4.3 TEST DEVIATION 20
3.4.4 EUT OPERATION DURING TEST 20
3.4.5 Measurement Result 21
3.5 SPURIOUS EMISSIONS OF TX 22

3.5.1 Limit 22
3.5.2 Test procedure 22
3.5.3 Test Setup 22
3.5.4 Test Deviation 22
3.5.5 Test Result 23
3.6 CONSTRUCTION PROTECTION CONFIRMATION METHOD 31
3.6.1 Limit 31
3.6.2 Confirmation Method 31
3.7 SPURIOUS EMISSION OF RX 32
3.7.1 Test Result 33
4 PHOTOGRAPHS OF EUT 34

複製禁止

2 General Information

2.1 General Description of EUT

Manufacturer:	M5Stack Technology Co., Ltd
Manufacturer Address:	Block A10, Expo Bay South Coast, Fuhai Street, Bao'an District, Shenzhen, China
EUT Name:	M5Cap CC1101
Model No.:	Cap CC1101
Brand Name:	M5STACK
Derivative model No.:	N/A
Model difference:	N/A
Operation frequency:	315MHz
Number of channel:	1 Channel
Modulation Type and Antenna Type:	FSK External Antenna
H/W No.:	N/A
S/W No.:	N/A
Antenna Gain:	-3.13 dBi
Power Supply Range:	DC 5V 1000mA
Power Supply:	The same as above
Signal Cable:	N/A
Note:	
1.	For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

2.2 Test Location

All tests were performed at:

Dongguan Yaxu (AiT) Technology Limited

No. 22, Jinqianling Third Street, Jitigang, Huangjiang, Dongguan, Guangdong, China

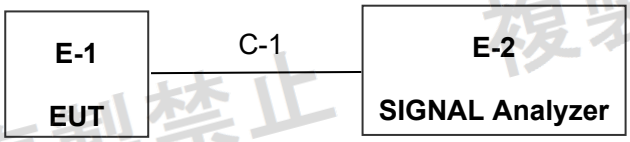
EUT channels and frequencies list:

Channel	Frequency (MHz)
1	315

2.3 Description of Test setup

EUT was tested in normal configuration (Please See following Block diagrams)

1. Block diagram of EUT configuration (TX Mode)



2.4 Description of Support Units(Conducted Mode)

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

No	Test Equipment	Manufacturer	Model No	Serial No	Cal. Date	Cal. Due Date	Cal. Institution
1	SIGNAL Analyzer	R&S	FSV40	101470	2025.09.26	2026.09.25	LISAI
2	EMI Measuring Receiver	R&S	ESPI	100773	2025.09.25	2026.09.24	LISAI
3	Mobile phone	Samsung	GALAXY S4	R33D20 SQYNW	N/A	N/A	LISAI
4	DC Power supply	Manson	HCS-3604	G521100 129	2025.09.25	2026.09.24	LISAI
5	Digital Phosphor Oscilloscope	Tektronix	TDS3012	B021220	2025.09.25	2026.09.24	LISAI
6	Signal Generator	Agilent	N5182A	MY50143 009	2025.09.26	2026.09.25	LISAI
7	RF Automatic Test system	MW	MW100-RFCB	21033016	2025.09.26	2026.09.25	LISAI
8	RF Software	MW	MTS 8310	2.0.0.0	N/A	N/A	N/A
Note:Calibration by the calibration agencies listed in the table correspond to paragraph 4 (ii) (c) of Article 24-2 in the Radio Law.							

☐(a) Calibration conducted by the National Institute of Information and Communications Technology (NICT) or a designated calibration agency under Article 102-18-1 of the Radio Act.

☐(b) Calibration conducted based on the regulations of Article 135 or 144 of the Measurement Act.

☒(c) Calibration conducted in foreign countries, which is equivalent to calibration conducted by the NICT or a designated calibration agency under Article 102-18-1 of the Radio Act.

☐(d) Calibration, etc. conducted by using measuring instruments and other facilities listed at the bottom of appended table 3 of the Radio Act, which is to have been calibrated as described in (a) through (c) above.

2.5 Measurement Uncertainty

No.	Item	Uncertainty
1	RF Frequency	8.5×10^{-7}
2	Antenna Power	0.8dB
3	TX-RX Spurious Emissions	0.5dB
4	Temperature	0.7℃
5	Humidity	3.2%
6	DC / AC Power Source	1.4%

2.6 Radio Technical Requirements Specification

Tabel 1: Radio Technical Requirements Specification for 315MHz band low-power data communication system.

Items	Technical standard
designated frequency	315MHz
Communication method	One-way communication
Tolerance of frequency ($\times10^{-6}$)	±4.0
Antenna power	250 μW
Antenna gain	0dBi
Tolerance of spurious emission intensity	2.5μW
Spreading bandwidth	30kHz
Spreading rate of spectrum	
Limit of secondary radiated emissions	2.5μW
Interference prevention function	Shall have the function of automatic transmission and reception of identification sign.
Structure	a. The radio equipment shall be housed in a single cabinet, and the cabinet shall not be capable of being opened easily. However, this shall not apply to power supply equipment, controllers, and so forth announced separately by the minister. b. It shall have no feeder or grounding device. c. It shall be equipped with a transmission time restriction device which comply with the technical conditions announced separately by the minister.

2.7 Measurement Specification

Test Requirement	Description of Test	RESULT
MIC notification. No.88 of 2004, Annex 22-1	Frequency Tolerance	PASS
MIC notification. No.88 of 2004, Annex 22-1	Occupied Bandwidth (99%)	PASS
MIC notification. No.88 of 2004, Annex 22-1	Antenna Power	PASS
MIC notification. No.88 of 2004, Annex 22-1	The Duration Of Each Transmission	PASS
MIC notification. No.88 of 2004, Annex 22-1	Spurious Emissions of Tx	PASS
MIC notification. No.88 of 2004, Annex 22-1	Construction Protection Confirmation Method	PASS
MIC notification. No.88 of 2004, Annex 22-1	Spurious Emission of Rx	N/A

Remark:

EUT: In this whole report EUT means Equipment Under Test.

Tx: In this whole report Tx (or tx) means Transmitter.

Rx: In this whole report Rx (or rx) means Receiver.

RF: In this whole report RF means Radio Frequency.

2.8 E.U.T. test conditions

Power supply: TX: DC 5.0V

The measurement of the voltage at normal voltage and Extreme voltage as follow :

Voltage Fluctuation Test	Normal Voltage	High Voltage +10% of Normal Voltage	Low Voltage -10% of Normal Voltage
Input To EUT	DC 5.0V	DC 5.5V	DC 4.5V
Output To RF Module	DC 3.30V	DC 3.30V	DC 3.30V

When the supply voltage input to the RF unit circuit of the test equipment from the external power source varies within the range of ±10%, the fluctuation of the input voltage of the circuit does not exceed ±1%. Therefore, all measurements are conducted under normal voltage conditions.

Temperature: 26.0 °C

Humidity: 60.0 % RH

Atmospheric Pressure: 1000 -1010 mbar

Test frequencies: If the EUT can be set to 3 of more different (carrier) frequencies in 1 allocated band, testing shall be performed using the Lowest, Middle and the Highest frequency (L, M and H). If there are 2 or fewer frequencies, testing shall be performed with the available frequencies.

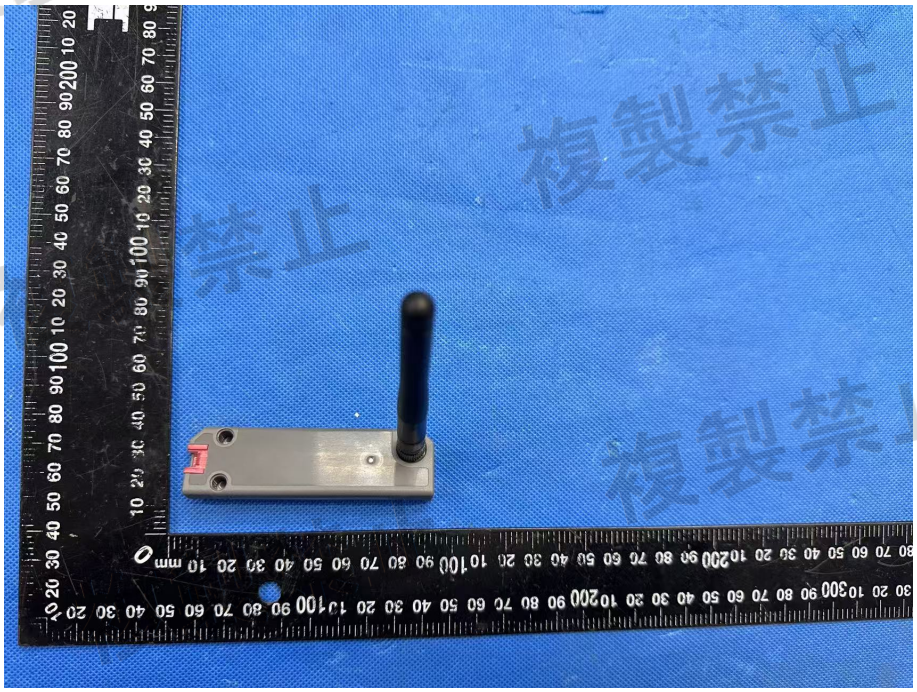
2.9 Antenna Requirement

Standard requirement

Antennas shall be designed without a feeder or grounding device.

EUT Antenna

The antenna is External Antenna and no consideration of replacement. The best case gain of the antenna is -3.13dBi.



Result: An antenna connector is available, all relevant tests will be carried out conducted

3 Test Result

3.1 Frequency Tolerance

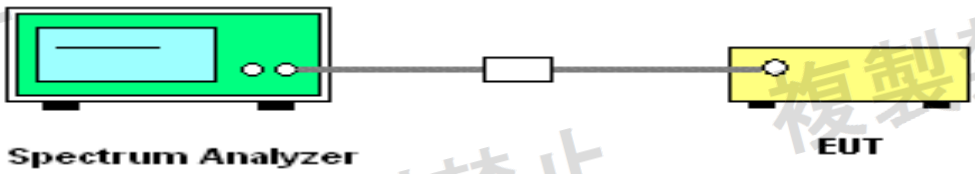
3.1.1 Limit

Item	Limits
Frequency Tolerance	312MHz-315.25MHz

3.1.2 Test procedure

1. Test Conditions:
   Frequency Counter or Spectrum Analyzer is used for measurement.
2. EUT conditions:
   Modulation/Spread/Hopping OFF, CW Tx
3. Spectrum Analyzer conditions:
   Frequency: Test Frequency
   Span 1MHz
   RBW 10 kHz (Modulation ON),
   VBW 10 kHz (Modulation ON),
   Sweep Time Auto
   Detector mode Positive peak
   Indication mode Max hold

3.1.3 Test Setup



3.1.4 Test Deviation

There is no deviation with the original standard.

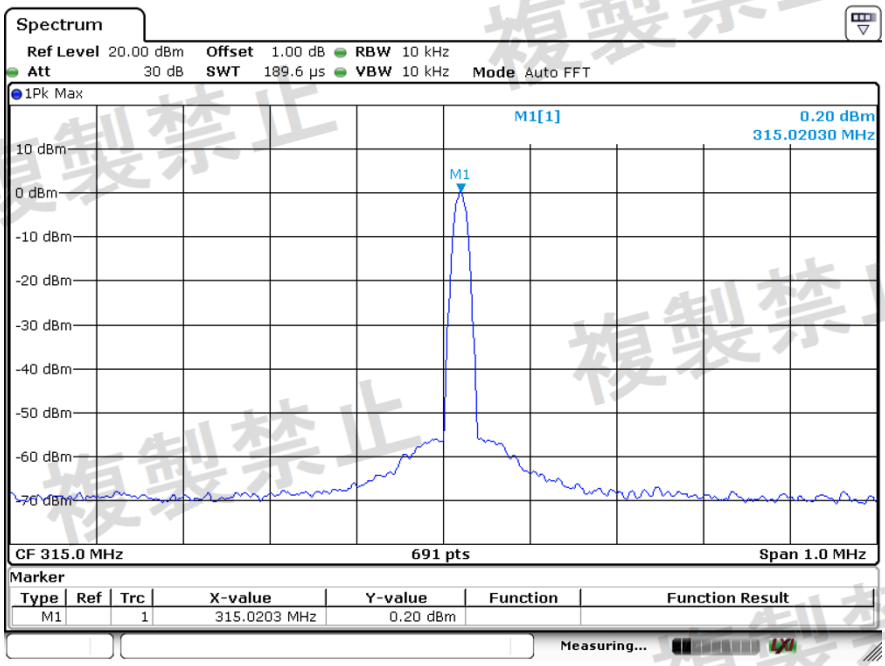
3.1.5 Test record

Test channel	Test Frequency (MHz)	Test Result / Normal Voltage / 5V DC	Limit
Channel 1	315	315.0203	312MHz-315.25MHz

Note: The nominal frequency shall be confirmed by the applicant and test lab.

Result plot as follows:

Normal voltage :5V



Test result: The unit does meet the requirements.

3.2 Occupied Bandwidth (99%)

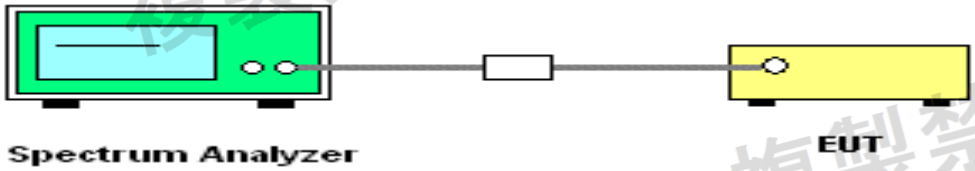
3.2.1 Limit

Item	Limits
Occupied Band Width:	1MHz or less

3.2.2 Test procedure

1. Test Conditions:
   Spectrum Analyzer is used for measurement.
2. EUT conditions:
   For equipment using modulate signal which standard coding test signal.
3. Spectrum Analyzer conditions:
   Frequency: Test Frequency
   Span 3MHz,
   RBW 30 KHz
   VBW 30 KHz
   Sweep Time Auto
   detector mode Positive peak
   Indication mode Max hold
   OBW 99%

3.2.3 Test Setup



3.2.4 Test Deviation

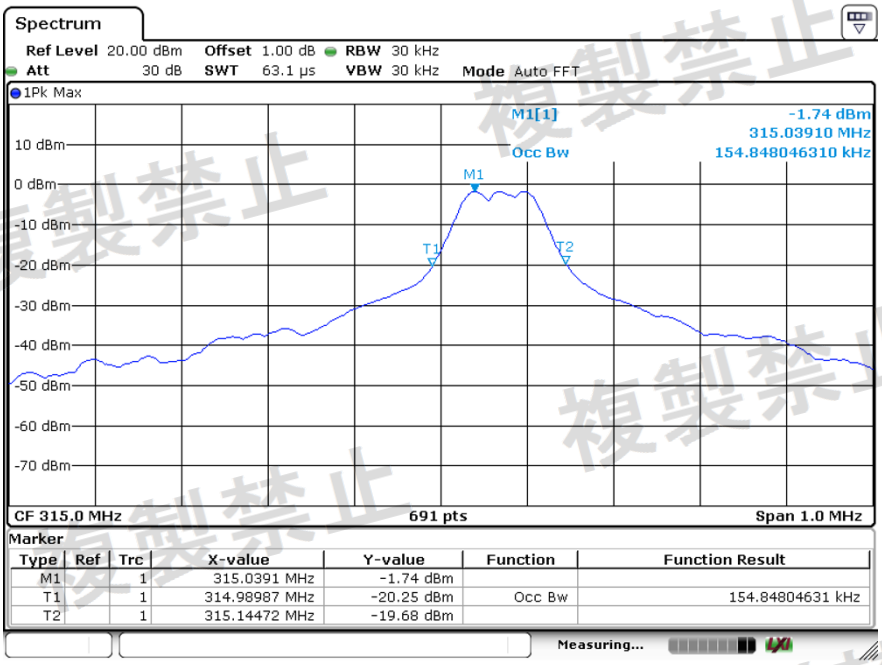
There is no deviation with the original standard.

3.2.5 Results of Occupied Bandwidth and Spread-spectrum Bandwidth / Spread Factor

Test channels	Test Result	Unit	Limit
	Normal Voltage		
	5V DC		
Channel 1 (315MHz)	0.1548	MHz	1MHz or less

Result plot as follows:

Normal voltage :5V



Test result: The unit does meet the requirements.

3.3 Antenna Power

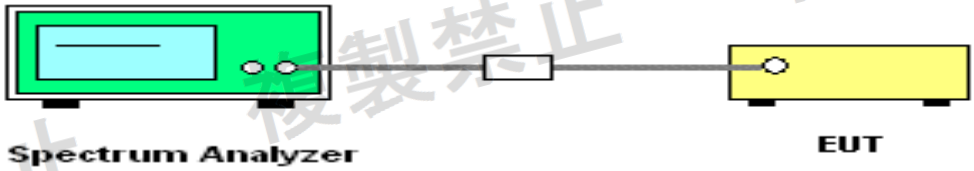
3.3.1 Limit

Item	Limits
Antenna Power (EIRP)	250 μW (for 312 - 315.05MHz) 25 μW(315.05 - 315.25 MHz)
Antenna Power Error	Permissible deviation from rated power: upper limit: +20%, lower limit: not specified

3.3.2 Test procedure

1. Test Conditions:
   Power meter or Spectrum Analyzer is used for measurement.
2. EUT conditions:
   For equipment using modulate signal which standard coding test signal.
3. Spectrum Analyzer conditions:
   Frequency: Test Frequency
   Span 20 MHz
   RBW 1MHz
   VBW 1MHz
   Sweep Time Auto
   detector mode Positive peak
   Indication mode Max hold
4. Antenna Power Error is definition that actual measure antenna power tolerance between + 20% power range that base on manufacturer declare the EIRP.

3.3.3 Test Setup



3.3.4 Test Deviation

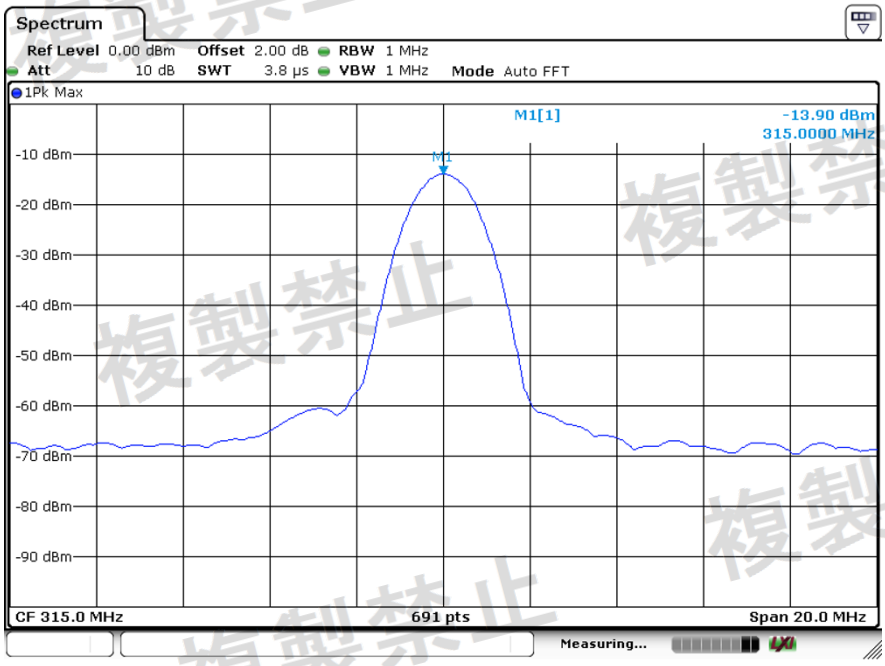
There is no deviation with the original standard.

3.3.5 Test Result of Unwanted Emission Intensity

Test channels	Test Result Normal Voltage 5V DC	Unit	Limit
Channel 1 (315MHz)	-13.90	dBm (EIRP)	250 μW (EIRP) or less Error ＋20%
	0.041	mW (EIRP)	
	2.50	%	
Remark: Normal antenna power: 0.04 mW (EIRP) EIRP = P – Loss +G (Loss=0.5dB, G=-3.13dBi)			

Result plot as follows:

Normal voltage :5V

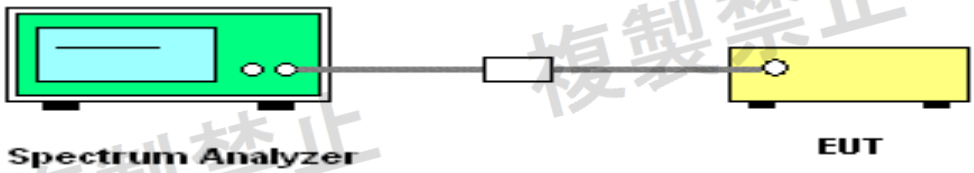


3.4 The Duration Of Each Transmission

3.4.1 Limit

Transmission time control:
Transmission time/transmission suspension time
RF equipment with no cyclical transmission: Transmission time less than 5 s
Manual transmission: Transmission time less than 90 s
RF equipment with cyclical transmission: For each transmission time less than 1 s
Transmission suspension time is 30 times the transmission time AND higher than 10 s.

3.4.2 TEST SETUP



3.4.3 TEST DEVIATION

There is no deviation with the original standard.

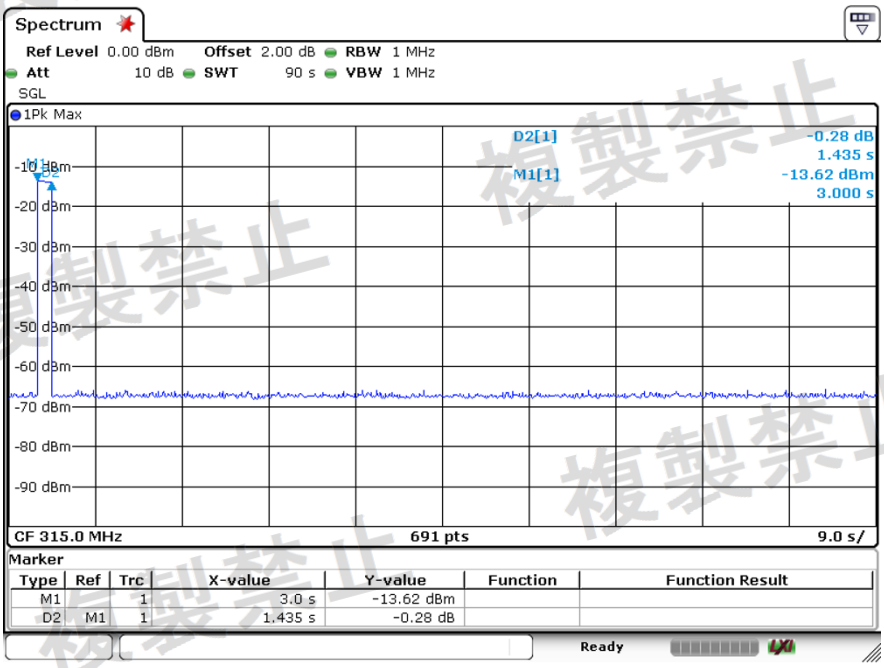
3.4.4 EUT OPERATION DURING TEST

The EUT was programmed to be in continuously transmitting mode.

3.4.5 Measurement Result

Note: All the modes have been tested and the only shows the worst case mode.

EUT:	M5Cap CC1101	Model Name :	Cap CC1101
Temperature:	26 ℃	Relative Humidity:	60%
Pressure:	1010 hPa	Test Voltage :	DC 5.0V
Test Mode :	Transmitter Part (TX Channel 1: 315MHz)		



Item	Duration of each transmission (Td)	LIMIT	RESULT
Time	1.435s	<5s	PASS

3.5 Spurious Emissions of Tx

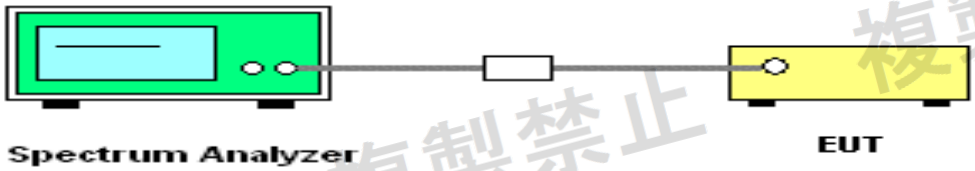
3.5.1 Limit

Item	Limits
TX Spurious Emission	≦ 250 Nw(-36dBm)/100KHz (30MHz≦f≦311MHz)
	≦250 Nw(-36dBm)/100KHz (311MHz<f≦312MHz)
	≦250 Nw(-36dBm)/100KHz (315.25MHz<f≦316.25MHz)
	≦ 250 Nw(-36dBm)/100KHz (316.25MHz≦f<1000MHz)
	≦1 Uw(-30dBm)/1MHz (1000MHz≦f<3000MHz)

3.5.2 Test procedure

1. EUT have transmitted the maximum modulation signal and fixed channelize.
2. Setting of SA is following as: Below 1GHz RB:100KHz / VB:100KHz
   Above 1GHz RB:1MHz / VB:1MHz / AT: 10Db Ref: 0dBm / Sweep time: Auto
   Sweep Mode: Continuous sweep / Detect mode: Positive peak
   Trace mode: Max hold
3. Setting of SA is following as 30MHz and stop frequency 311MHz Then to mark peak reading value + Factor shall be less than 250Nw.
4. Setting of SA is following as 311MHz and stop frequency 312MHz Then to mark peak reading value + Factor shall be less than 250Nw.
5. SA adjusted to start frequency 315.25MHz and stop frequency 316.25MHz. Then to mark peak reading value + Factor shall be less than 250Nw.
6. SA adjusted to start frequency 316.25MHz and stop frequency 1000MHz Then to mark peak reading value + Factor shall be less than 250Nw
7. SA adjusted to start frequency 1000MHz and stop frequency 3000MHz Then to mark peak reading value + Factor shall be less than 1Mw
   RBW/VBW:100KHz(30MHz~1GHz)/1MHz(1GHz~3GHz)
   Sweep Time Auto
   detector mode Peak
   Indication mode Max hold

3.5.3 Test Setup



3.5.4 Test Deviation

There is no deviation with the original standard.

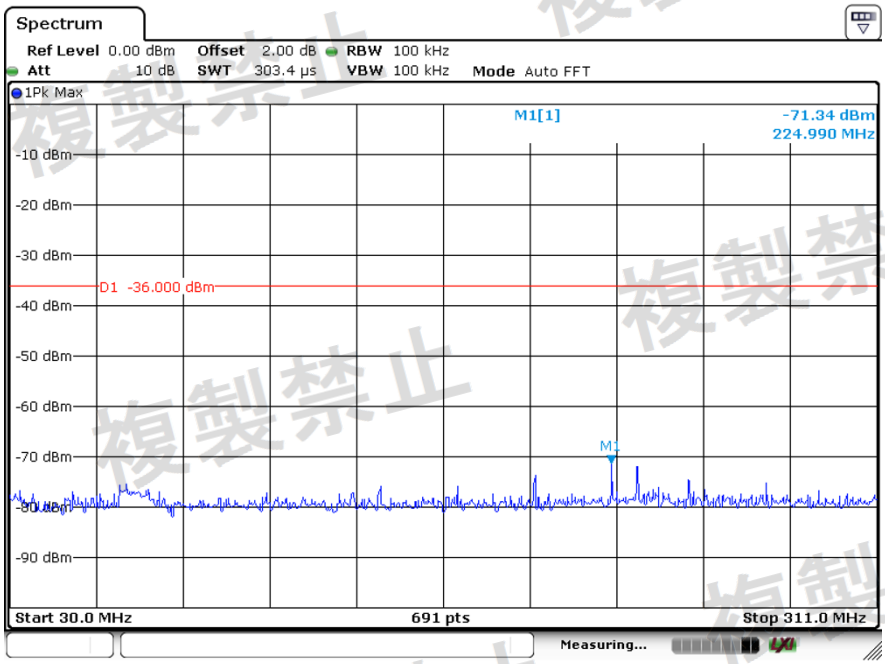
3.5.5 Test Result

Test channel	Test Frequency (MHz)	Test Result	Unit	Limit (dBm)
		Normal Voltage		
		5V DC		
Channel 1 (315MHz)	30-311	-71.34	dBm	-36.00
	311-312	-73.74		-36.00
	315.25-316.25	-39.47		-36.00
	316.25-1000	-41.10		-36.00
	1000-3000	-33.04		-30.00

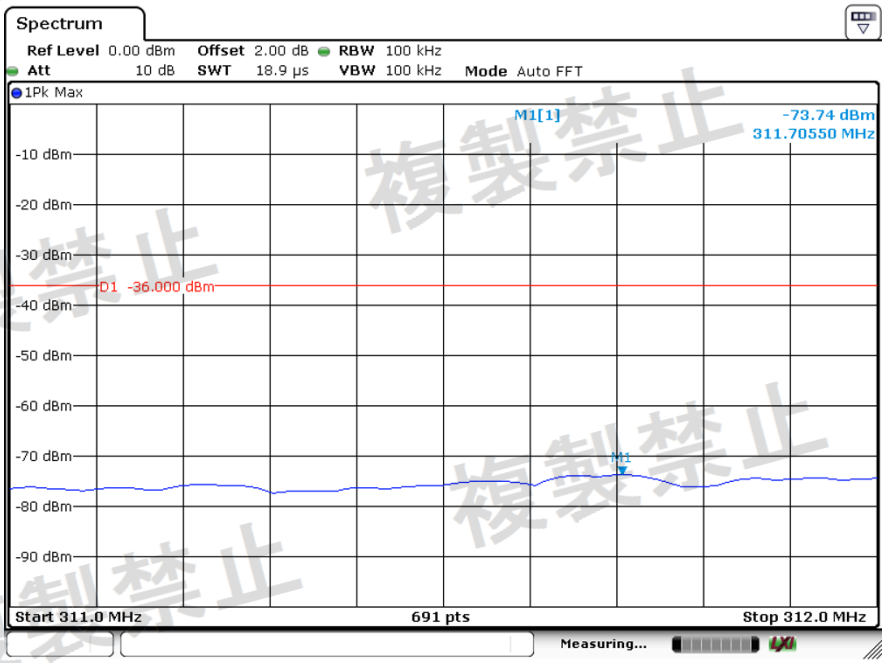
Result plot as follows:

Normal voltage :5V

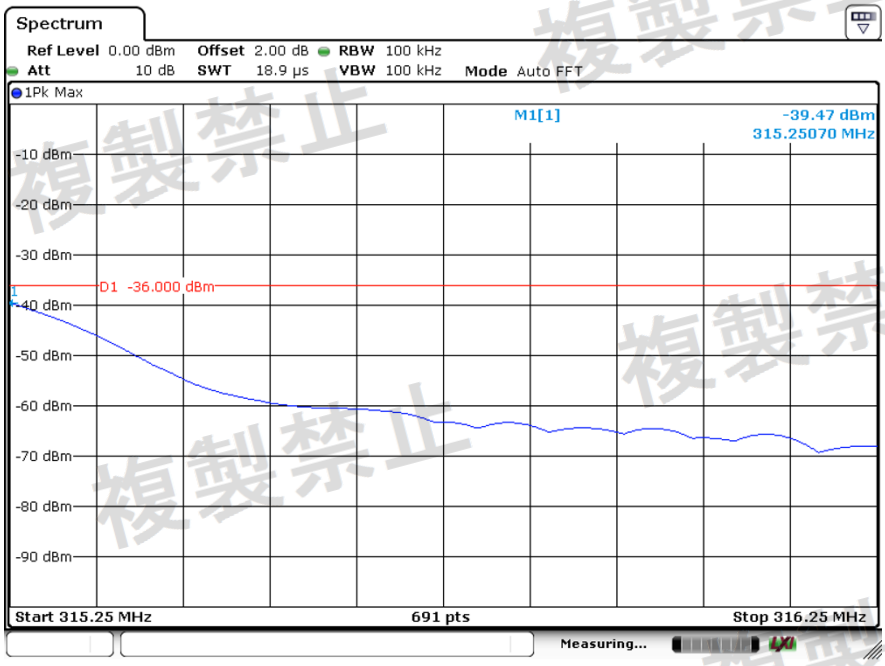
30 MHz to 311MHz:



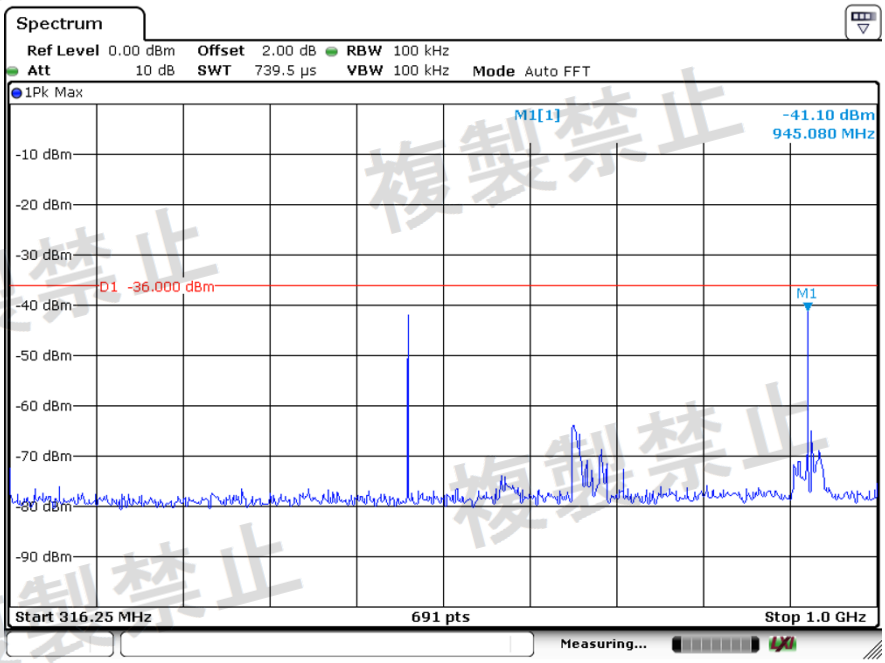
311MHz to 312MHz:



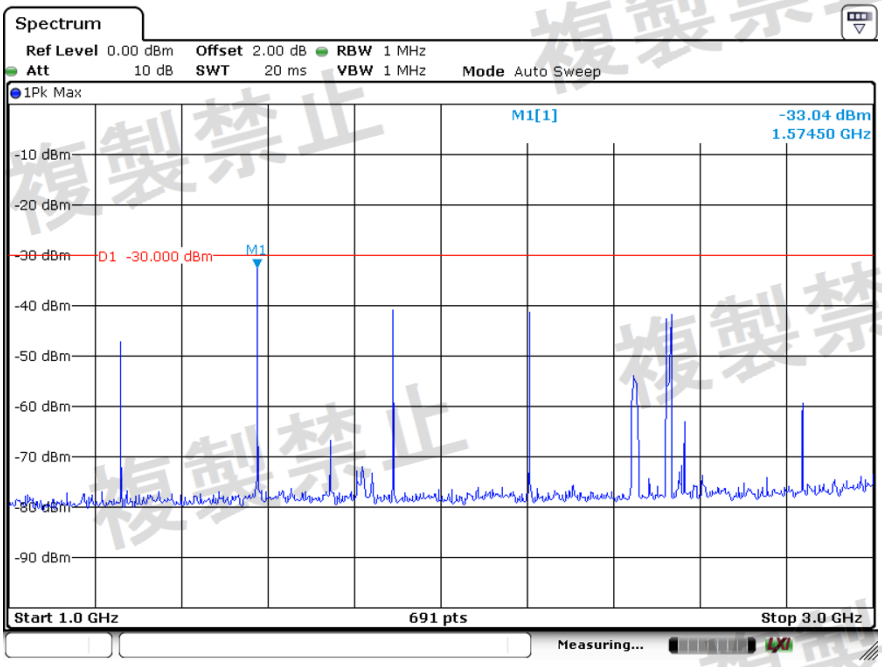
315.25MHz to 316.25MHz:



316.25MHz to 1GHz:



1GHz to 3GHz:



3.6 Construction Protection Confirmation Method

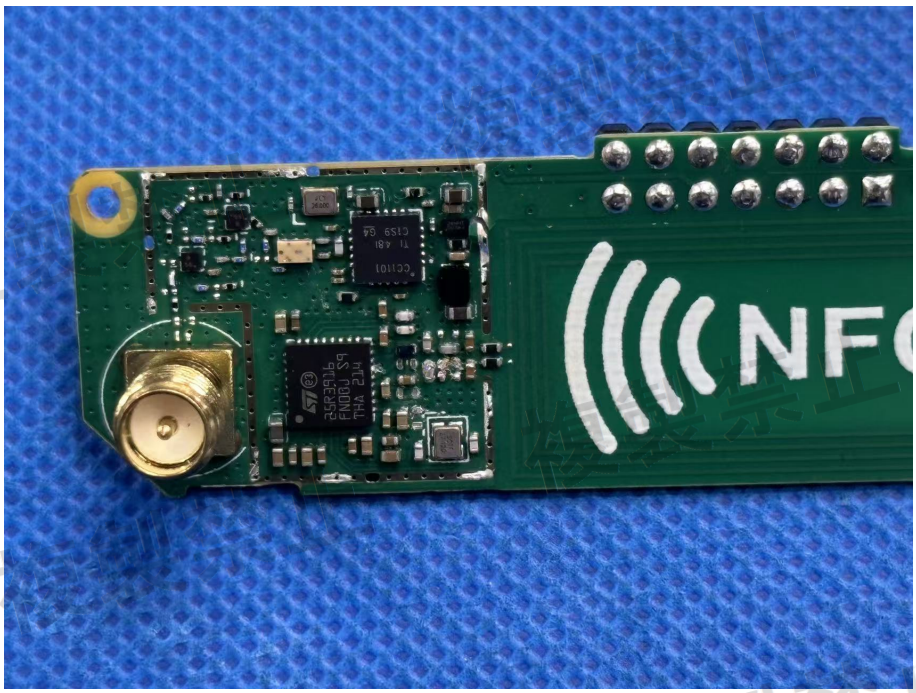
3.6.1 Limit

a.The radio equipment shall be housed in a single cabinet, and the cabinet shall not be capable of being opened easily. However, this shall not apply to power supply equipment, controllers, and so forth announced separately by the minister.

b. It shall have no feeder or grounding device.

c. It shall be equipped with a transmission time restriction device which comply with the technical conditions announced separately by the minister.

3.6.2 Confirmation Method

Protected Method	Description
Ultrasonic bonding	The Product cannot be manipulated since it is a highly integrated design in IC and has no accessible adjustable components. It is not easily changed by users. Please refer to following for photo for details.
	

3.7 Spurious Emission of Rx

Test Requirement:

(1)Below 1 GHz : 4 Nw or less(-54dbm)/100KHz(30MHz≦f<1000MHz)
(2)1 GHz and over : 4 Nw or less(-54dbm)/1000MHz(1000MHz≦f<3000MHz)

Temperature: 23.0 °C

Humidity: 55 % RH

Test Status: Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below.

Test Configuration:

Test Procedure:

1. Test Conditions: Spectrum Analyzer is used for measurement.
2. EUT conditions:
   Modulation/Spread/Hopping ON
   For equipment using diffusion code, set to the test diffusion code and modulate with standard coding test signal.
3. Spectrum Analyzer conditions:
   Step 1
   All spurious are measured from 30 MHz to 13 GHz by peak mode.
   Step 2
   IF the value measured by Step1 is 2 Db or less, measure in average mode.
   Test setup for Step 1:
   Frequency: 30 MHz – 1000 MHz , 1 GHz –3 GHz
   RBW 100 kHz (30 – 1GHz) , 1 MHz (over 1GHz)
   VBW 100 kHz (30 – 1GHz) , 1 MHz (over 1GHz)
   Sweep Time Auto
   detector mode Positive peak
   Indication mode Max hold
   Test setup for Step 2:
   Frequency: Spurious Frequency
   Span 0 Hz
   RBW 100 kHz (30 – 1GHz) , 1 MHz (over 1GHz)
   VBW 100 kHz (30 – 1GHz) , 1 MHz (over 1GHz)
   Sweep Time Auto
   detector mode Sample
   Indication mode Max hold

3.7.1 Test Result

Note: The EUT does not have a receiving function.

4 Photographs of EUT

Please refer to AiTDG-260609002 EUT.

End of the report