DEKRA Testing and Certification, S.A.U.
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C.I.F. A29507456

ISED CABid: ES1909

Test report No:
NIE:
65974RRF.002

Test Report
ARIB STD-T66 V 3.7 (2014-10-02)

(*) Identification of item tested	The Water Control Bluetooth can be used to automatically irrigate your garden by scheduling the timer on the smart phone and send it to the product via Bluetooth
(*) Trademark	GARDENA
(*) Model and /or type reference tested	Water Control Bluetooth (Art. 1889)
Other identification of the product	HW version: EP1 SW version: 1.4.4.8 FCC ID: 2AZXO-1889 IC: 27370-1889
(*) Features	Bluetooth LE 5.1
Manufacturer	GARDENA GERMANY AB PO Box 7454 S-103 92 Stockholm Sweden
Test method requested, standard	ARIB STD-T66 V 3.7 (2014-10-02). Ordinance Regulating Radio Equipment, Radio Regulatory Commission Regulations No 18 - November 30, 1950 (as amended). Article 2 Paragraph 1 Item 19.
Summary	IN COMPLIANCE
Approved by (name / position & signature)	Rafael López Martín EMC Consumer & RF Lab. Manager 2021.07.30 09:42:52 +02'00'
Date of issue	2021-07-30
Report template No	FDT08_23 (*) "Data provided by the client"

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Competences and guarantees

DEKRA Testing and Certification S.A.U. is a testing laboratory accredited by the National Accreditation Body (ENAC -Entidad Nacional de Acreditación), to perform the tests indicated in the Certificate No. 51/LE 147.

DEKRA Testing and Certification S.A.U. is an FCC-recognized accredited testing laboratory with the appropriate scope of accreditation that covers the performed tests in this report.

DEKRA Testing and Certification S.A.U. is an ISED-recognized accredited testing laboratory, CABid: ES1909, with the appropriate scope of accreditation that covers the performed tests in this report.

In order to assure the traceability to other national and international laboratories, DEKRA Testing and Certification S.A.U. has a calibration and maintenance program for its measurement equipment.

DEKRA Testing and Certification S.A.U. guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated on the report and, it is based on the knowledge and technical facilities available at DEKRA Testing and Certification S.A.U. at the time of performance of the test.

DEKRA Testing and Certification S.A.U. is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

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General conditions

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or competent Authorities.
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Uncertainty

Uncertainty (factor k=2) was calculated according to the DEKRA Testing and Certification S.A.U. internal document PODT000.

Data provided by the client

The following data has been provided by the client:

1. Information relating to the description of the sample ("Identification of the item tested", "Trademark", "Model and/or type reference tested").

2. The GARDENA Water Control (Art. 1889) is intended for private use in domestic and hobby gardens, exclusively for outdoor use, to control sprinklers and watering systems. The GARDENA Water Control can be used for automatic watering during holidays. The Water Control Bluetooth® Art. 1889 forms part of an irrigation system in conjunction with the Bluetooth® App.

3. Factory: Kitron Electronics Manufacturing (Ningbo) Co. Ltd.No. 189 Donghui Road, Nordic Industry Park, Zhenhai District, Ningbo 315221, China.

DEKRA Testing and Certification S.A.U. declines any responsibility with respect to the information provided by the client and that may affect the validity of result.

Usage of samples

Samples undergoing test have been selected by: The client.

- Sample S/01 is composed of the following elements:

Control Nº	Description	Model	Serial Nº	Date of reception
65059B/001	GARDENA Water Control	Water Control Bluetooth (Art. 1889)	--	2020/08/04

Sample S/01 has undergone the test(s): All Conducted tests indicated in Appendixes A, B.

Test sample description

Ports..... :	Port name and description	Cable					
		Specified max length [m]	Attached during test	Shielded	Coupled to patient(3)		
	--		☐	☐	☐		
Supplementary information to the ports..... :	--						
Rated power supply .....:	Voltage and Frequency		Reference poles				
			L1	L2	L3	N	PE
	☐ AC:		☐	☐	☐	☐	☐
	☒ DC: 9V battery						
Rated Power .....:	< 1W						
Clock frequencies.....:	48 MHz, 32.768 KHz						
Other parameters .....:	--						
Software version .....:	1.4.4.8						
Hardware version .....:	EP1						
Dimensions in cm (W x H x D) ....:	--						
Mounting position .....:	☐ Table top equipment						
	☐ Wall/Ceiling mounted equipment						
	☐ Floor standing equipment						
	☐ Hand-held equipment						
	☐ Other:						
Modules/parts.....:	Module/parts of test item			Type		Manufacturer	
	--						
	--						
Accessories (not part of the test item) .....:	Description			Type		Manufacturer	
	--						
	--						
Documents as provided by the applicant .....:	Description			File name		Issue date	
	--						

(3) Only for Medical Equipment

Identification of the client

GARDENA Manufacturing GmbH
Hans-Lorenser-Str. 40, 89079 Ulm, Germany

Testing period and place

Test Location	DEKRA Testing and Certification S.A.U.
Date (start)	2021-07-21
Date (finish)	2021-07-22

Document history

Report number	Date	Description
65974RRF.002	2021-07-30	First release

Environmental conditions

In the chamber for conducted measurements, the following limits were not exceeded during the test:

Temperature	Min. = 15 ºC Max. = 35 ºC
Relative humidity	Min. = 20 % Max. = 75 %

Remarks and comments

The tests have been performed by the technical personnel: Cristina Calle.

Used instrumentation:

Conducted measurements:

		Last Calibration	Due Calibration
1.	Shielded Room ETS LINDGREN S101	N.A.	N.A.
2.	Signal and Spectrum Analyzer 10 Hz - 40 GHz ROHDE AND SCHWARZ FSV40	2020/03	2022/03
3.	DC Power Supply, Agilent Technologies, N5770A	N.A.	N.A.
4.	Digital Multimeter FLUKE 179	2020/10	2021/10

Testing verdicts

Not applicable:	N/A
Pass:	P
Fail:	F
Not measured:	N/M

Summary

Bluetooth Low Energy (1M, 2M).

ARIB STD-T66 PARAGRAPH Requirement – Test case		Verdict	Remark
Chapter 3 Subclause 3.2 (1)	Transmitting equipment. Modulation system	P	
Chapter 3 Subclause 3.2 (2) and (3)	Transmitting equipment. Antenna power and tolerances for antenna power	P	
Chapter 3 Subclause 3.2 (4)	Transmitting equipment. Frequency tolerance	P	
Chapter 3 Subclause 3.2 (6)	Transmitting equipment. Spurious emission intensity	P	
Chapter 3 Subclause 3.2 (7)	Transmitting equipment. Permissible value for occupied bandwidth	P	
Chapter 3 Subclause 3.2 (8)	Transmitting equipment. Spread bandwidth	N/A	
Chapter 3 Subclause 3.2 (9)	Transmitting equipment. Process gain	N/A	
Chapter 3 Subclause 3.2 (10)	Transmitting equipment. Number of carriers	N/A	
Chapter 3 Subclause 3.2 (11)	Transmitting equipment. Dwell time	N/A	
Chapter 3 Subclause 3.3 (1)	Receiving equipment. Limit on secondary radiated emissions	P	
Chapter 3 Subclause 3.6 (2)	Antenna. Antenna gain	P	
Supplementary information and remarks: None.			

Appendix A: Test results. Bluetooth Low Energy 1M

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TEST CONDITIONS

Modulation:	GFSK.
Spread spectrum system:	No (Other digital modulation methods).
Nominal necessary Bandwidth:	1 MHz
Maximum declared antenna gain:	+3.3 dBi
Rated Antenna Power:	5 dBm (3.16 mW)
Type of Antenna:	Integrated
Operating nominal frequency range:	2400 MHz to 2483.5 MHz
Nominal power supply:	9 Vdc
Type of power supply:	DC voltage from Battery

TEST FREQUENCIES:

Low Channel: 2402 MHz

Middle Channel: 2440 MHz

High Channel: 2480 MHz

CONDUCTED MEASUREMENTS

The equipment under test was set up in a shielded room and its antenna port (SMA type) is connected to the spectrum analyser through a low loss RF cable. The reading of the spectrum analyser is corrected with the cable loss.

The DC supply voltage is applied using a power supply.

The Equipment Under Test (E.U.T) is set in continuous transmission with modulation using an implemented test mode. The test mode also permits to set the E.U.T. in receiving mode with the transmission disabled.

Subclause 3.2 (1). Modulation system

SPECIFICATION:

For spread spectrum systems, a Direct Sequence system (DS system), a Frequency Hopping system (FH system), a hybrid system combining these systems, or a hybrid system combining FH and orthogonal frequency division multiplexing systems (OFDM system) shall be used.

DS: A pseudo-random spreading code is combined with the information sequence to implement spreading function. The resulting signal modulates a carrier signal and consequently, the information signal is spread to a wide band signal.

FH: The transmitting signal is a sequence of pulses at different frequencies over a large bandwidth. This sequence is called as frequency hopping pattern.

RESULTS:

The equipment incorporates a Bluetooth Low Energy radio which uses digital modulation (GFSK) and 40 non-hopping channels over the frequency range 2400 MHz to 2483.5 MHz.

Verdict: PASS

Subclause 3.2 (2) and (3). Antenna power and tolerances for antenna power

SPECIFICATION:

Mode	Limit	Tolerance
a) FH, FH+DS, FH+OFDM	3 mW/MHz	-80% to +20%
b) OFDM (Narrow bandwidth), DS	10 mW/MHz	
c) Other than a & b	10 mW	
d) OFDM (Wide band)	5 mW/MHz	

RESULTS:

Mode: Other digital modulation methods than a & b.

Maximum Rated Antenna Power: 5 dBm (3,16 mW)

Channel	Measured antenna power (dBm)	Antenna power (mW)	Deviation from maximum rated antenna power (%)
Low (2402 MHz)	2.600	1.820	-42.456
Middle (2440 MHz)	2.420	1.746	-44.792
High (2480 MHz)	2.430	1.750	-44.665

Measurement uncertainty: < ± 2.01 dB

Verdict: PASS

Subclause 3.2 (4). Frequency tolerance

SPECIFICATION:

Frequency tolerance shall be ± 50 x 10^{-6} (50 ppm).

RESULTS:

Channel	Frequency error (Hz)	Frequency error (ppm)
Low (2402 MHz)	-24195	-10.073
Middle (2440 MHz)	-32110	-13.160
High (2480 MHz)	-31275	-12.611
Measurement uncertainty	<± 4.82 kHz	

Verdict: PASS

Subclause 3.2 (6). Spurious emission intensity

SPECIFICATION:

Permissible mean power of spurious emission of each frequency supplied to a feeder, that is, mean power of spurious emission in the 1 MHz bandwidth at frequency f other than frequency band used shall be as follows:

a. 2,387 MHz ≤ f ≤ 2,400 MHz and 2,483.5 MHz < f ≤ 2,496.5 MHz — 25 µW (-16 dBm) or less.

b. 2,387 MHz > f and 2,496.5 MHz < f — 2.5 µW (-26 dBm) or less.

RESULTS:

- LOW CHANNEL:

No spurious frequencies detected at less than 20 dB below the limit.

- MIDDLE CHANNEL:

No spurious frequencies detected at less than 20 dB below the limit.

- HIGH CHANNEL:

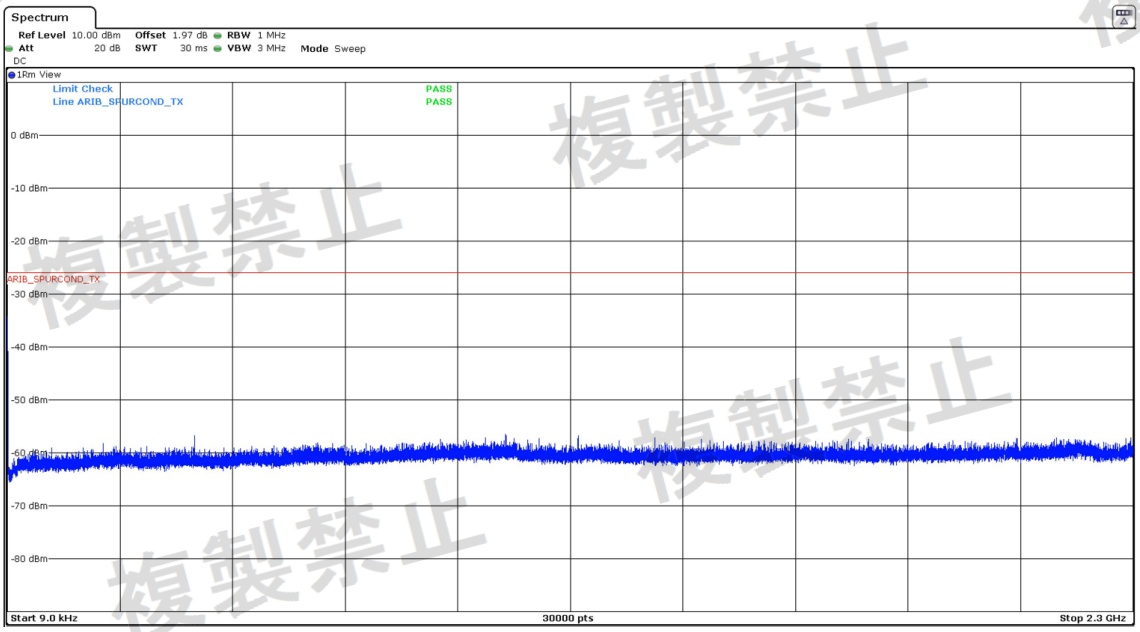
No spurious frequencies detected at less than 20 dB below the limit.

Measurement uncertainty: < ± 2.77 dB

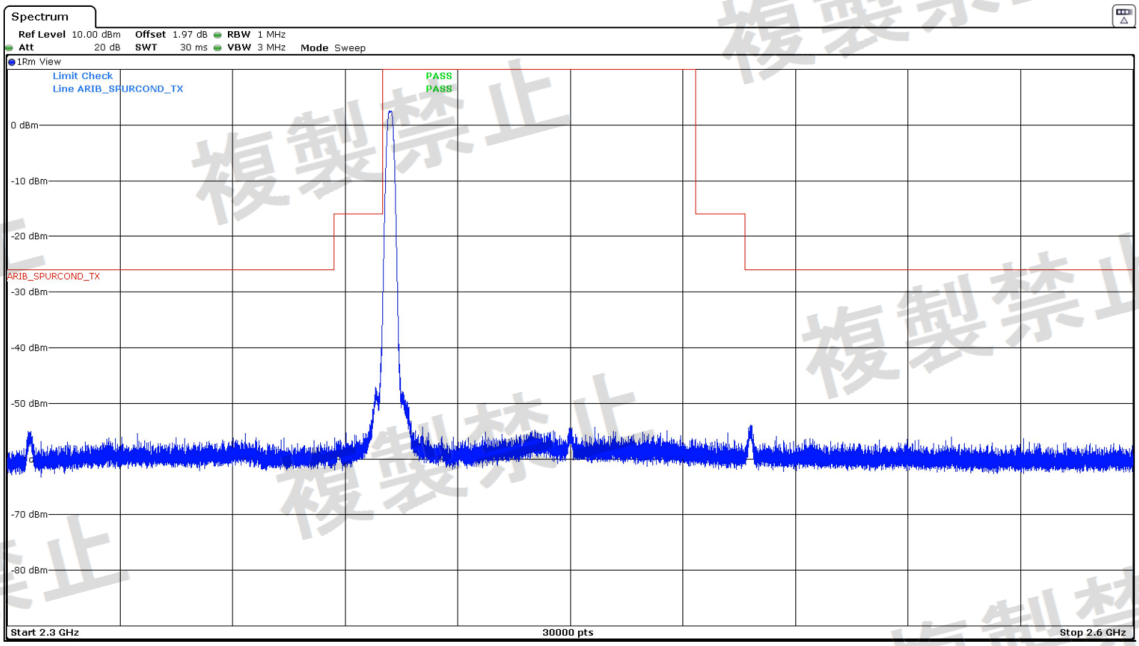
Verdict: PASS

- LOW CHANNEL:

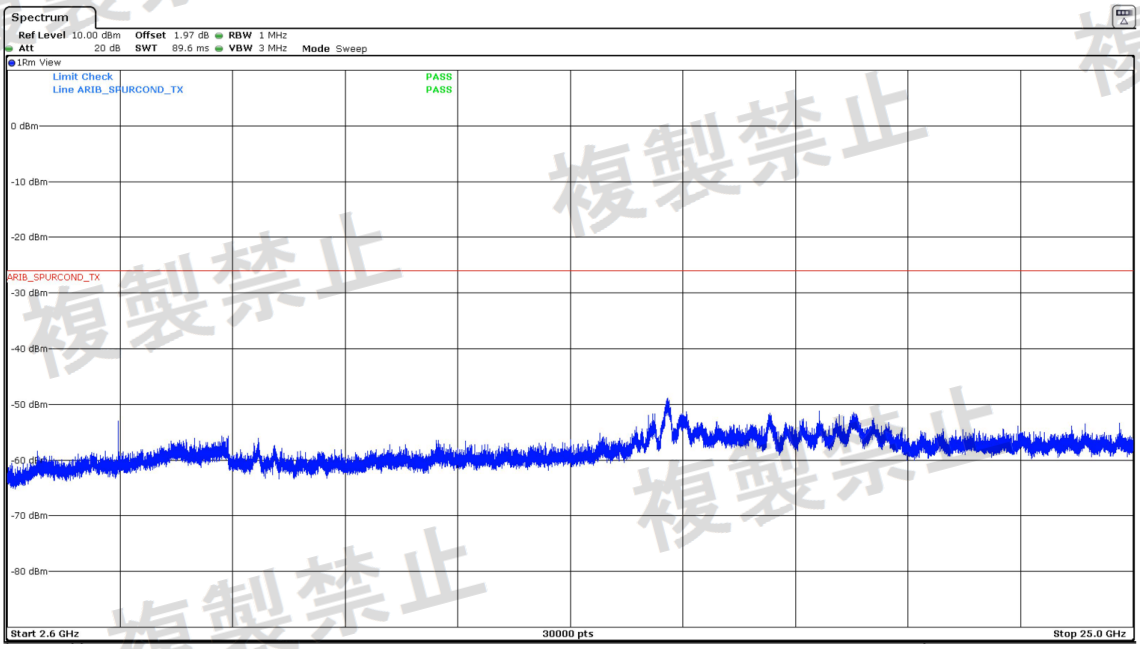
Frequency range 9 kHz – 2300 MHz



Frequency range 2300 MHz – 2600 MHz

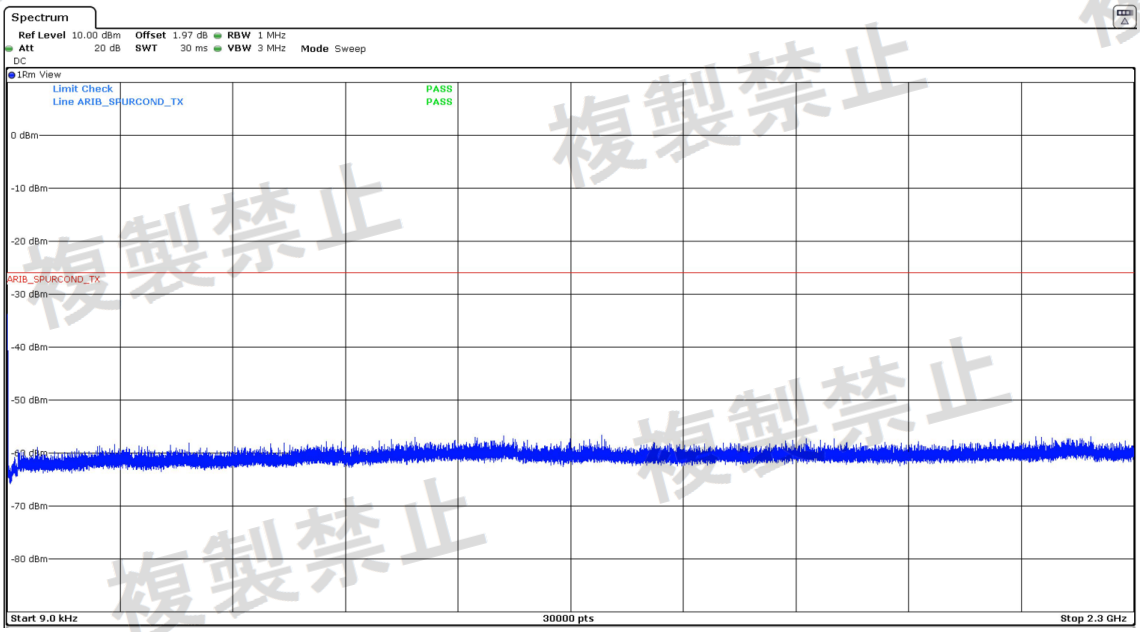


Frequency range 2600 MHz – 25000 MHz

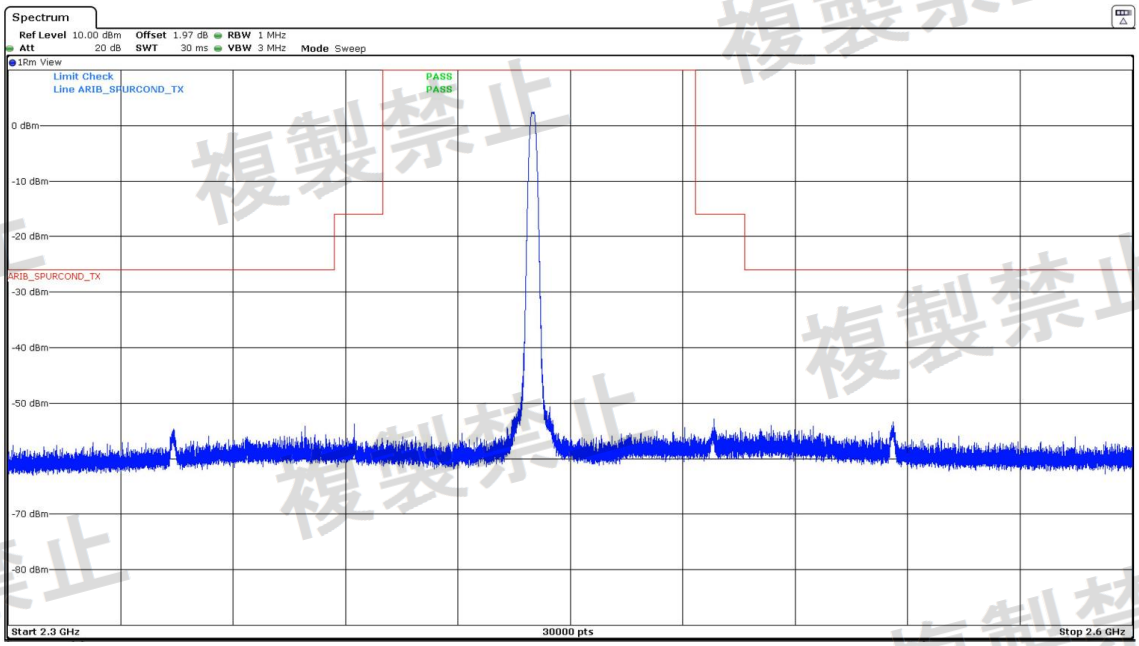


- MIDDLE CHANNEL:

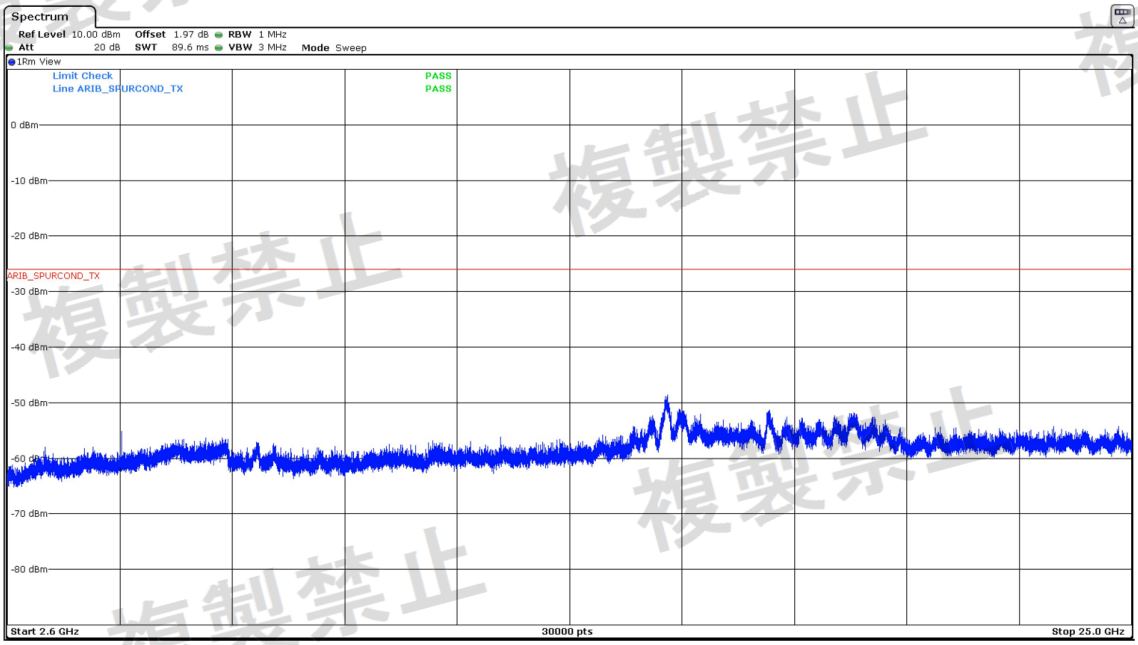
Frequency range 9 kHz – 2300 MHz



Frequency range 2300 MHz – 2600 MHz

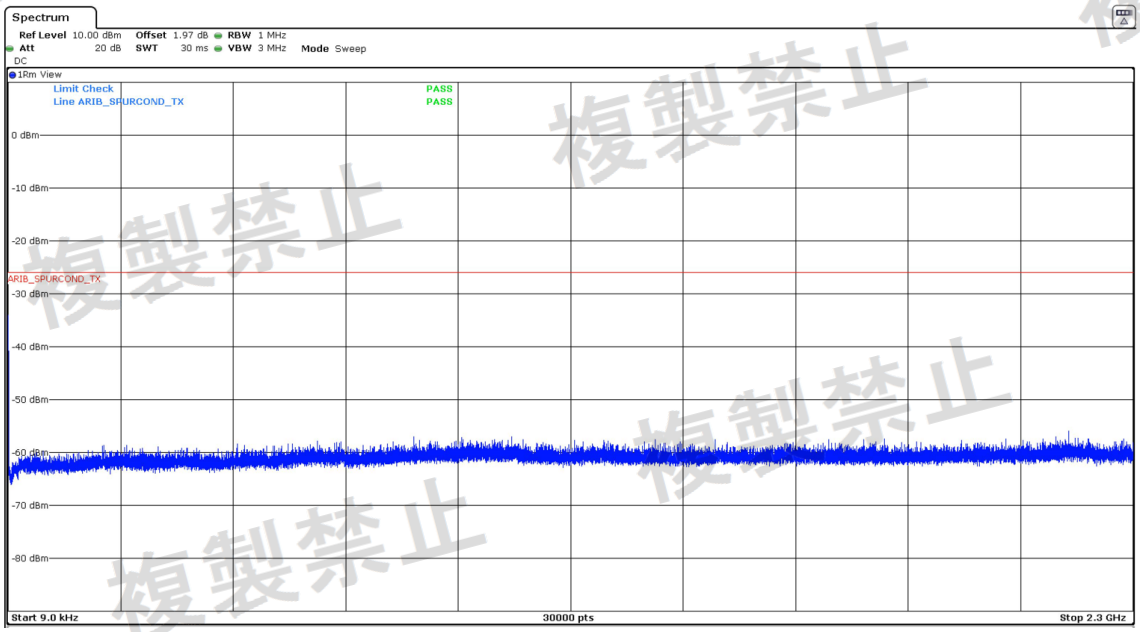


Frequency range 2600 MHz – 25000 MHz

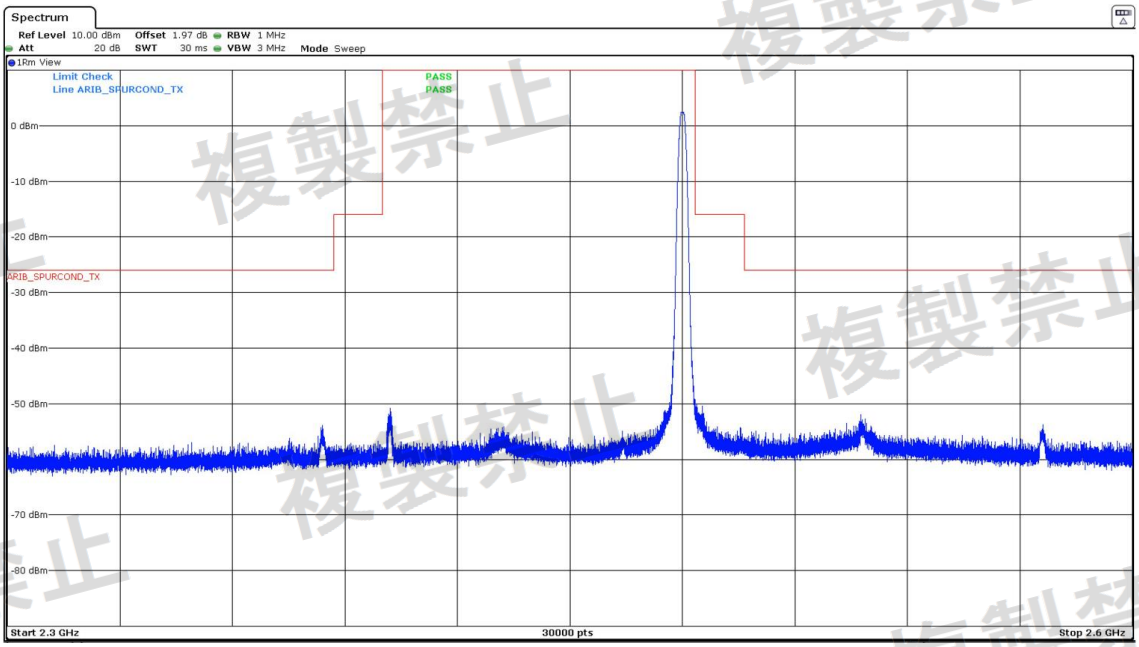


- HIGH CHANNEL:

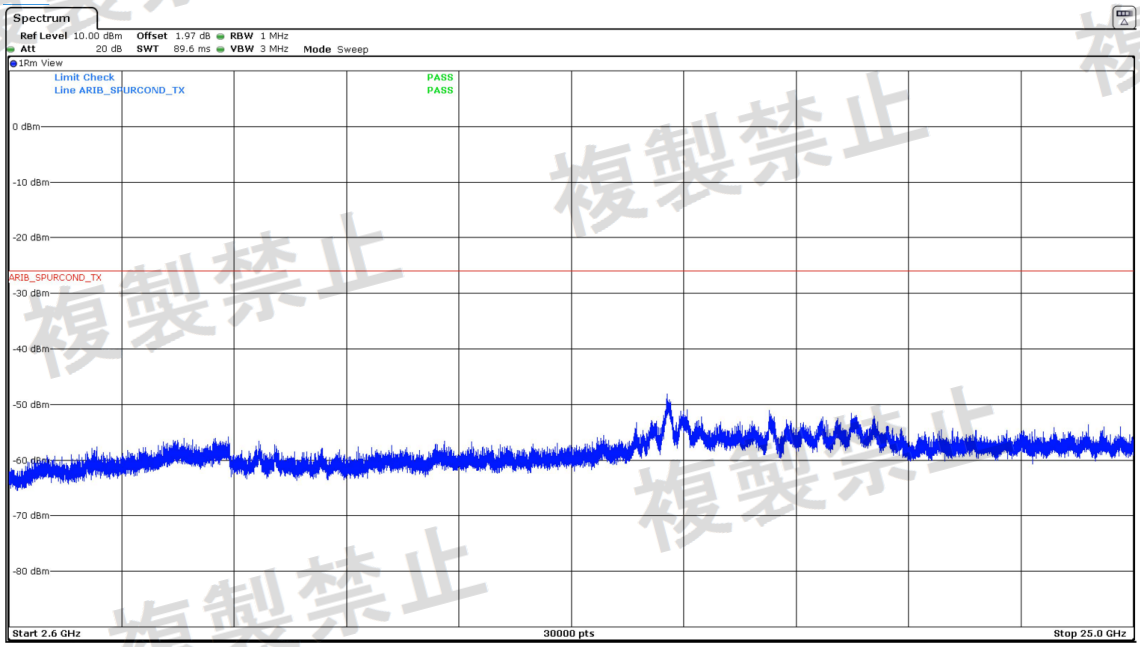
Frequency range 9 kHz – 2300 MHz



Frequency range 2300 MHz – 2600 MHz



Frequency range 2600 MHz – 25000 MHz



Subclause 3.2 (7). Permissible value for occupied bandwidth

SPECIFICATION:

Mode	Limit
FH	83.5 MHz
FH+DS	83.5 MHz
FH+OFDM	83.5 MHz
OFDM (Narrow bandwidth), DS	26 MHz
OFDM (Wide band)	38 MHz
Others	26 MHz

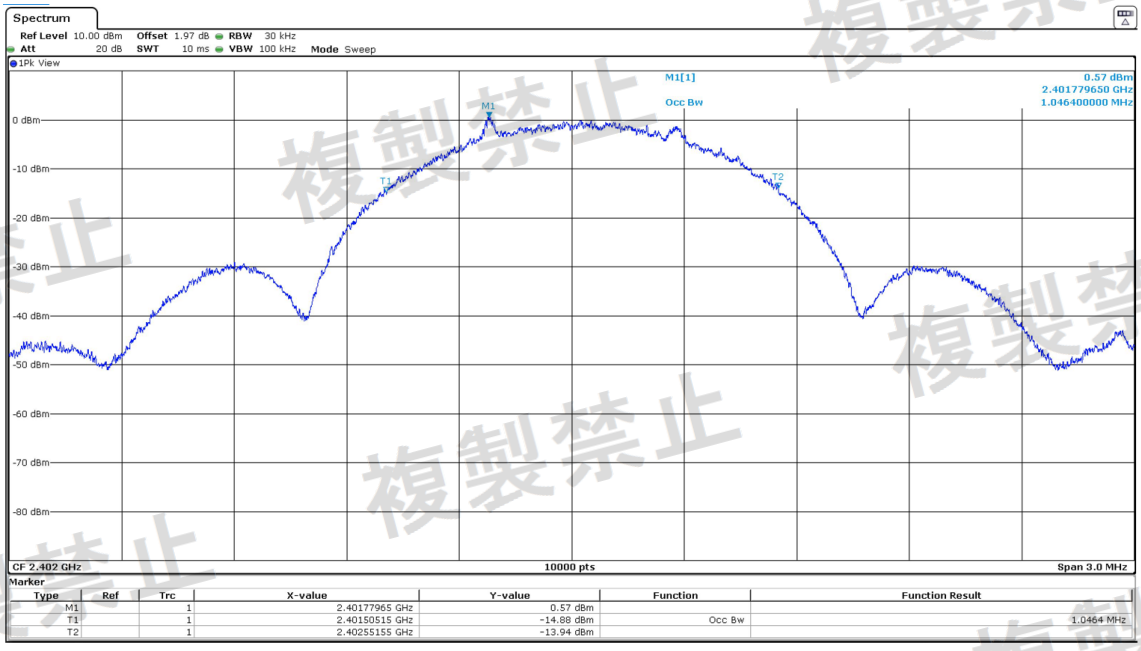
RESULTS:

Mode: Other digital modulation methods.

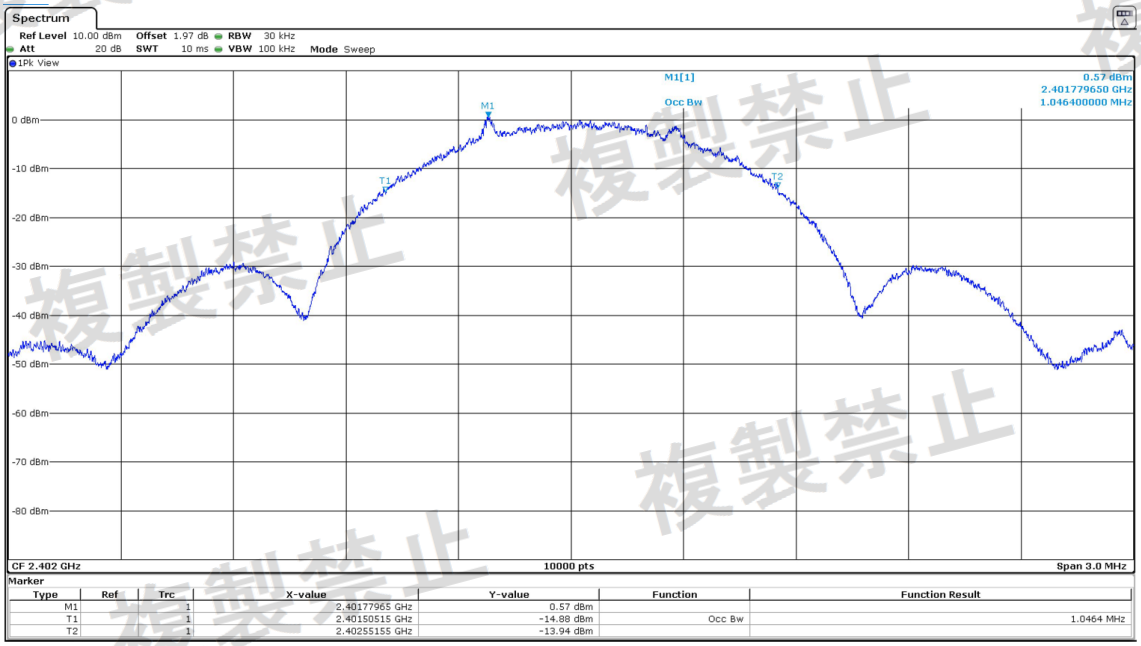
	Low Channel 2402 MHz	Middle Channel 2440 MHz	High Channel 2480 MHz
99% occupied bandwidth (MHz)	1.046	1.065	1.064
Limit	<26 MHz		
Measurement uncertainty (kHz)	<± 3.64		

Verdict: PASS

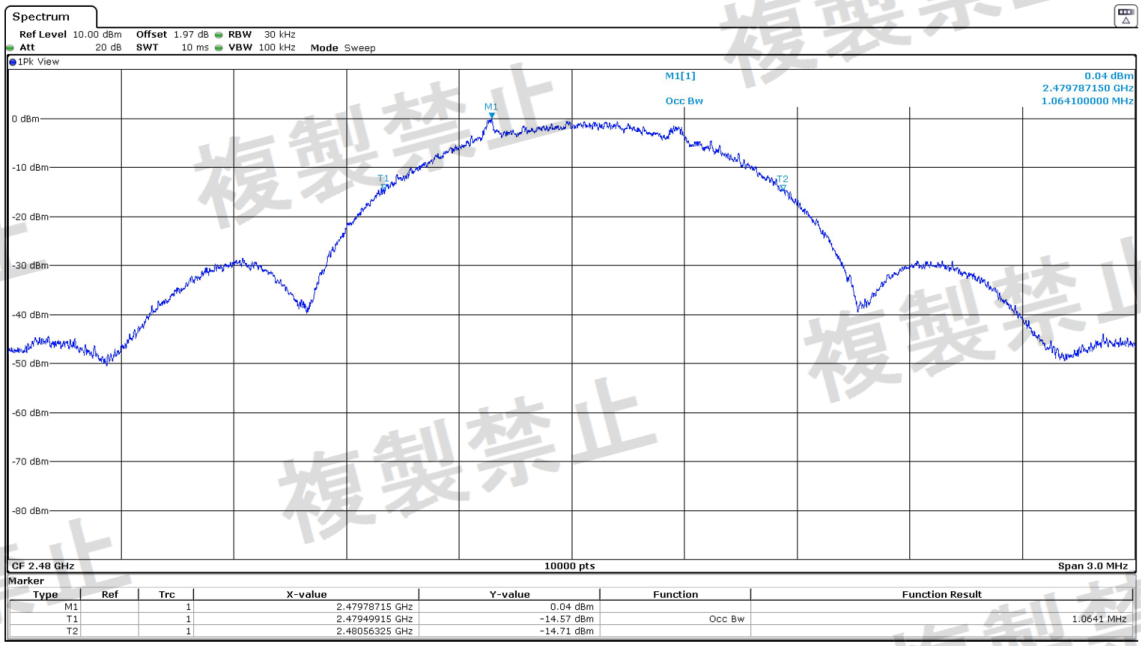
- LOW CHANNEL:



- MIDDLE CHANNEL:



- HIGH CHANNEL:



Subclause 3.3 (1). Receiving equipment. Limit on secondary radiated emissions

SPECIFICATION:

The limit on secondary emissions radiated from the receiving equipment within which the function of other radio equipment will not be impaired shall be, in terms of the power of a dummy antenna circuit that has the same electrical constant as the receiving antenna, 4 nW (-54 dBm) or less at a frequency below 1 GHz and 20 nW (-47 dBm) or less at a frequency of 1 GHz or higher as measured using the circuit.

RESULTS:

- LOW CHANNEL:

No spurious frequencies detected at less than 20 dB below the limit.

- MIDDLE CHANNEL:

No spurious frequencies detected at less than 20 dB below the limit.

- HIGH CHANNEL:

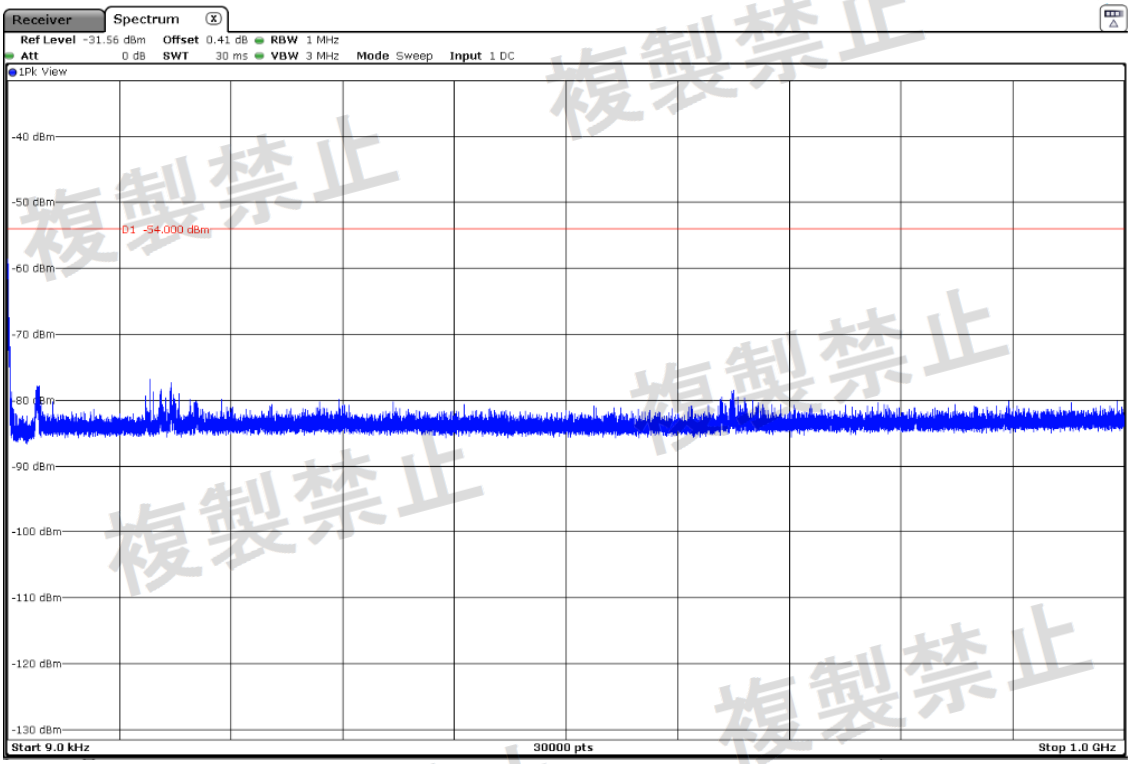
No spurious frequencies detected at less than 20 dB below the limit.

Measurement uncertainty: < ± 2.94 dB

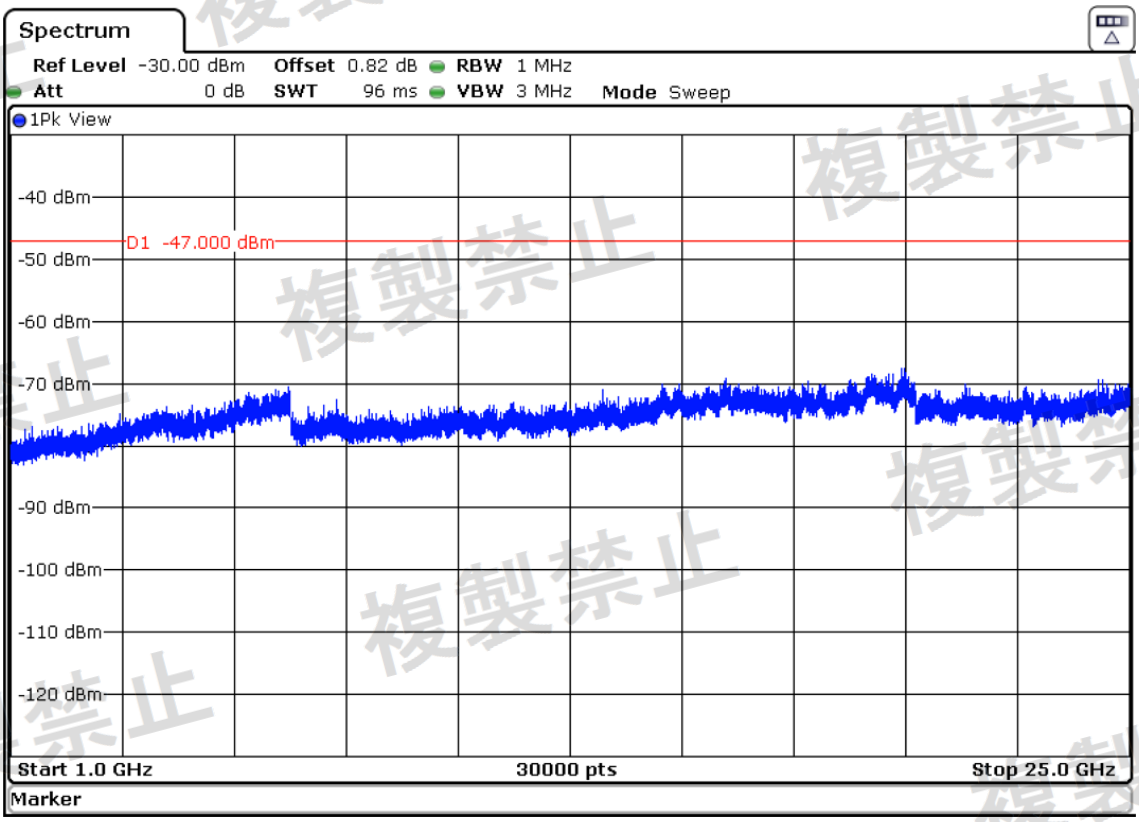
Verdict: PASS

- LOW CHANNEL:

Frequency range 9 kHz – 1 GHz

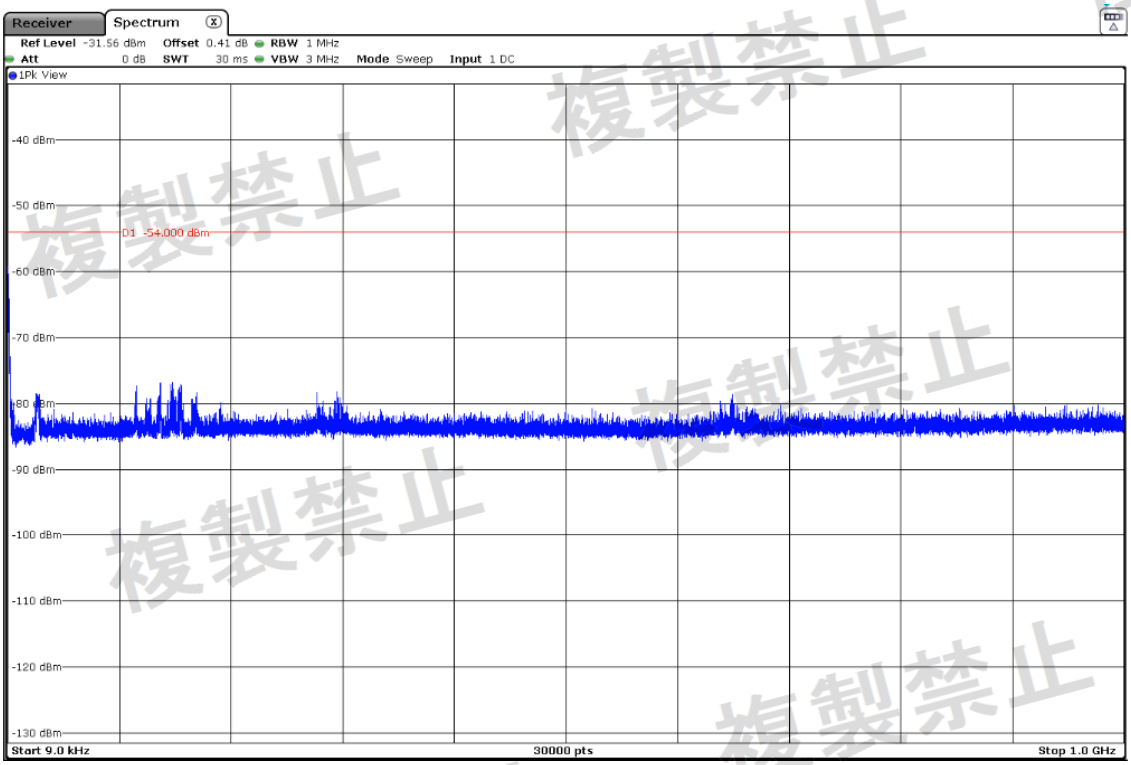


Frequency range 1 – 25 GHz

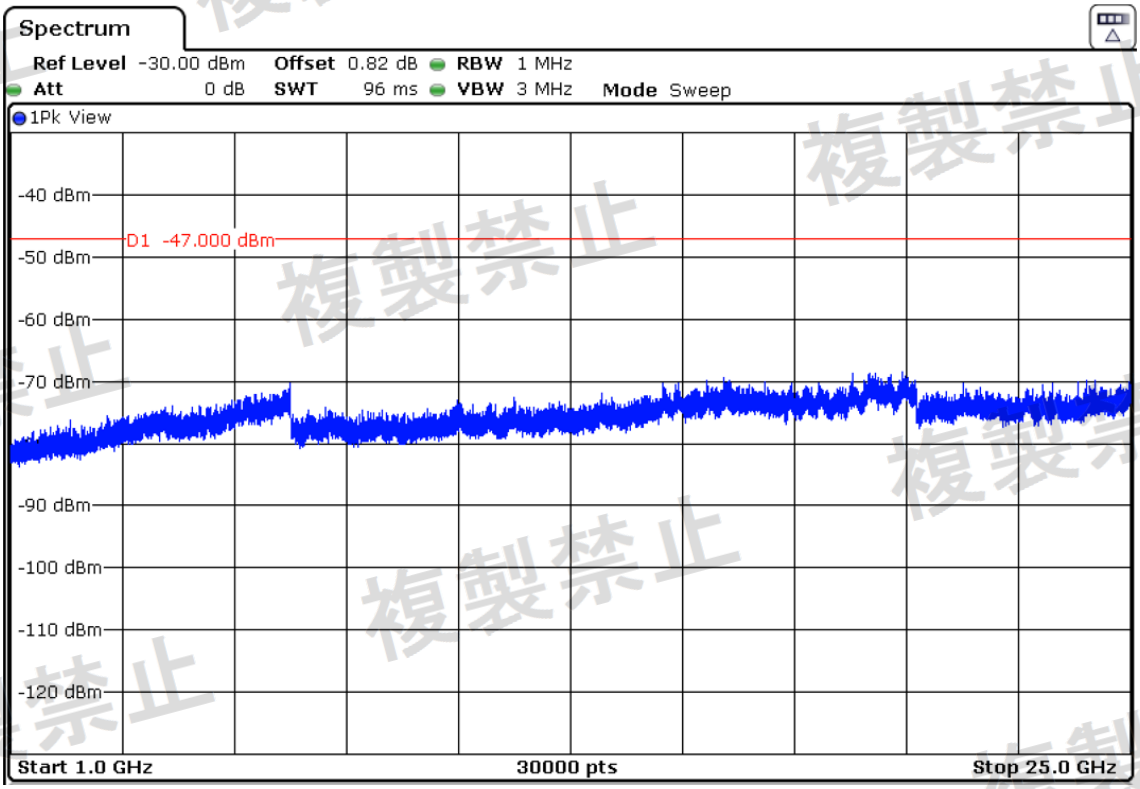


- MIDDLE CHANNEL:

Frequency range 9 kHz – 1 GHz

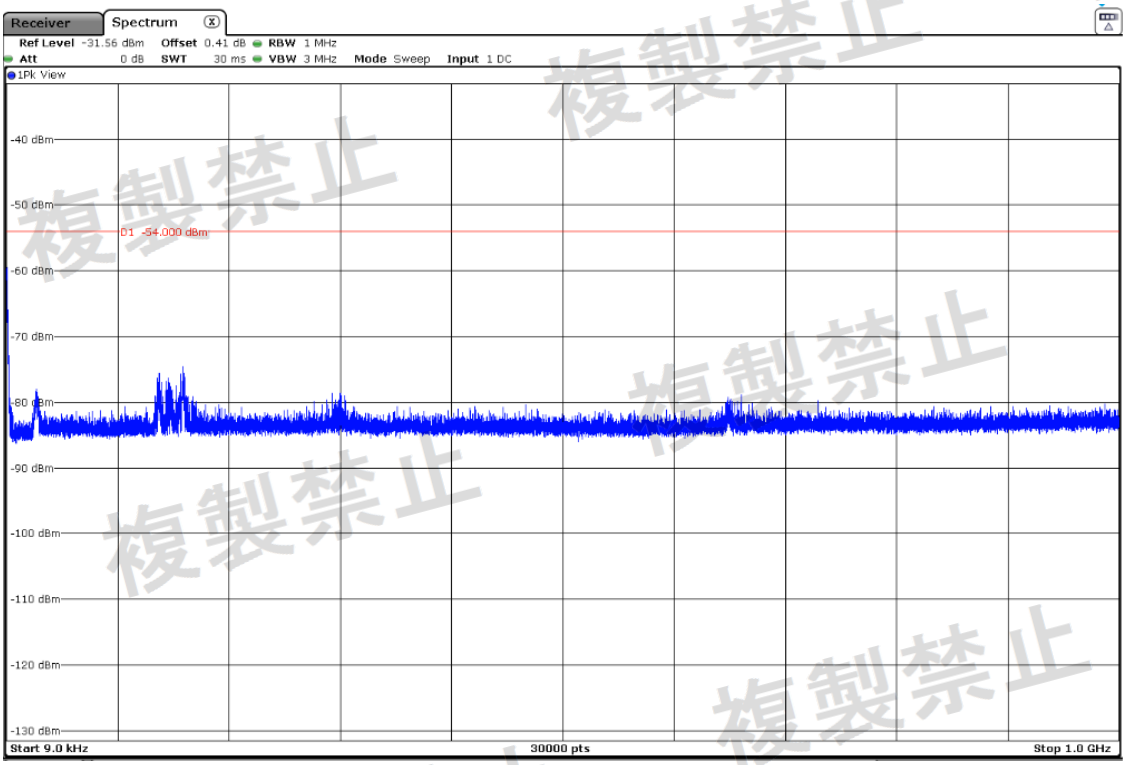


Frequency range 1 – 25 GHz

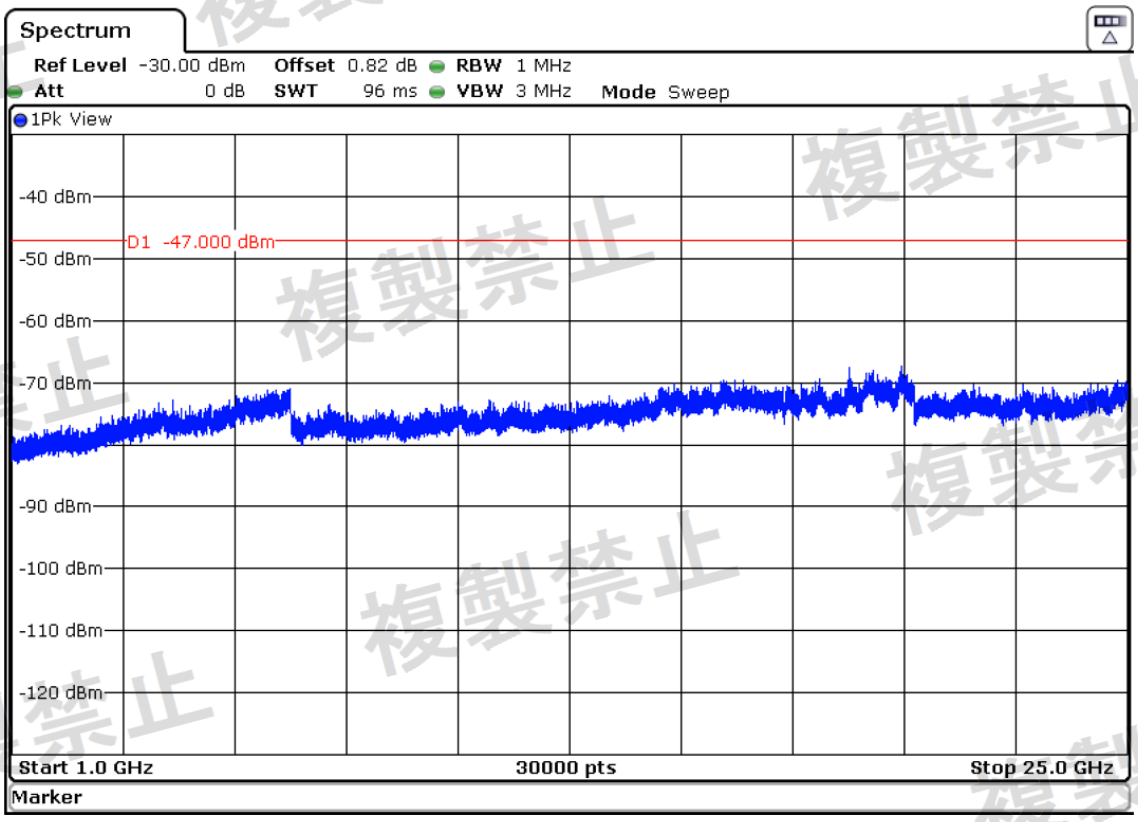


- HIGH CHANNEL:

Frequency range 9 kHz – 1 GHz



Frequency range 1 – 25 GHz



Subclause 3.6 (2). Antenna gain

SPECIFICATION:

a: The absolute gain of the transmitting antenna shall be 12.14 dB or less. However, when the equivalent isotropic radiated power EIRP (equivalent isotropic radiated power in the 1 MHz bandwidth in the case of spread spectrum and OFDM systems) is equal to or less than the value obtained by applying an antenna power with the mean power of 10 mW with its absolute gain being 12.14 dB, the shortage shall be compensated for by the gain of the transmitting antenna (Note that mean power is 10 mW in the 1 MHz bandwidth in the case of spread spectrum and OFDM systems; however, mean power of 3 mW in the 1 MHz bandwidth is applied if the FH system, a hybrid system combining DS and FH systems, or a hybrid system combining FH and OFDM systems is employed and the frequency band of 2,427 - 2,470.75 MHz is used).

b: The Half-Power Beam width Angle HPBA (angle between two points at which radiated power becomes 1/2) of the transmitting antenna's horizontal and vertical planes shall not exceed the value as determined by the following formula:

$$HPBA \leq 360 / A \text{ [degrees]}$$

where constant A is equal to the value obtained by dividing the equivalent isotropic radiated power EIRP (equivalent isotropic radiated power in the 1 MHz bandwidth in the case of spread spectrum and OFDM systems) by the value obtained by applying an antenna power with the mean power of 10 mW with its absolute gain being 2.14 dB, and shall be assumed to be 1 if it is less than 1 (Note that mean power is 10 mW in the 1 MHz bandwidth in the case of spread spectrum and OFDM systems; however, mean power of 3 mW in the 1 MHz bandwidth is applied if the FH system, a hybrid system combining DS and FH systems, or a hybrid system combining the FH and OFDM systems is employed and the frequency band of 2,427 - 2,470.75 MHz is used).

Therefore

$$A = EIRP (mW) / (10 mW \times \text{absolute gain}) = EIRP (mW) / 16.37$$

Where absolute gain is the linear value corresponding to 2.14 dB = 1.637.

RESULTS:

Maximum Declared Antenna Gain: +3.3 dBi

Channel	Measured antenna power (dBm)	Radiated power EIRP (dBm)	Radiated power EIRP (mW)	A = EIRP (mW) /16.37
Low (2402 MHz)	2.60	5.90	3.89	< 1
Middle (2440 MHz)	2.42	5.72	3.73	< 1
High (2480 MHz)	2.43	5.73	3.74	< 1

Since A is < 1, it is assumed to be 1, and therefore the half-power beam width must be 360º or less.

Verdict: PASS

Appendix B: Test results. Bluetooth Low Energy 2M

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TEST CONDITIONS

Modulation:	GFSK.
Spread spectrum system:	No (Other digital modulation methods).
Nominal necessary Bandwidth:	2 MHz
Maximum declared antenna gain:	+3.3 dBi
Rated Antenna Power:	5 dBm (3.16 mW)
Type of Antenna:	Integrated
Operating nominal frequency range:	2400 MHz to 2483.5 MHz
Nominal power supply:	9 Vdc
Type of power supply:	DC voltage from Battery

TEST FREQUENCIES:

Low Channel: 2402 MHz

Middle Channel: 2440 MHz

High Channel: 2480 MHz

CONDUCTED MEASUREMENTS

The equipment under test was set up in a shielded room and its antenna port (SMA type) is connected to the spectrum analyser through a low loss RF cable. The reading of the spectrum analyser is corrected with the cable loss.

The DC supply voltage is applied using a power supply.

The Equipment Under Test (E.U.T) is set in continuous transmission with modulation using an implemented test mode. The test mode also permits to set the E.U.T. in receiving mode with the transmission disabled.

Subclause 3.2 (1). Modulation system

SPECIFICATION:

For spread spectrum systems, a Direct Sequence system (DS system), a Frequency Hopping system (FH system), a hybrid system combining these systems, or a hybrid system combining FH and orthogonal frequency division multiplexing systems (OFDM system) shall be used.

DS: A pseudo-random spreading code is combined with the information sequence to implement spreading function. The resulting signal modulates a carrier signal and consequently, the information signal is spread to a wide band signal.

FH: The transmitting signal is a sequence of pulses at different frequencies over a large bandwidth. This sequence is called as frequency hopping pattern.

RESULTS:

The equipment incorporates a Bluetooth Low Energy radio which uses digital modulation (GFSK) and 40 non-hopping channels over the frequency range 2400 MHz to 2483.5 MHz.

Verdict: PASS

Subclause 3.2 (2) and (3). Antenna power and tolerances for antenna power

SPECIFICATION:

Mode	Limit	Tolerance
a) FH, FH+DS, FH+OFDM	3 mW/MHz	-80% to +20%
b) OFDM (Narrow bandwidth), DS	10 mW/MHz	
c) Other than a & b	10 mW	
d) OFDM (Wide band)	5 mW/MHz	

RESULTS:

Mode: Other digital modulation methods than a & b.

Maximum Rated Antenna Power: 5 dBm (3.16 mW)

Channel	Measured antenna power (dBm)	Antenna power (mW)	Deviation from maximum rated antenna power (%)
Low (2402 MHz)	2.520	1.786	-43.506
Middle (2440 MHz)	2.330	1.710	-45.925
High (2480 MHz)	2.380	1.730	-45.298

Measurement uncertainty: < ± 2.01 dB

Verdict: PASS

Subclause 3.2 (4). Frequency tolerance

SPECIFICATION:

Frequency tolerance shall be ± 50 x 10^{-6} (50 ppm).

RESULTS:

Channel	Frequency error (Hz)	Frequency error (ppm)
Low (2402 MHz)	-49515	-20.614
Middle (2440 MHz)	-32425	-13.289
High (2480 MHz)	-30815	-12.425
Measurement uncertainty	<± 4.65 kHz	

Verdict: PASS

Subclause 3.2 (6). Spurious emission intensity

SPECIFICATION:

Permissible mean power of spurious emission of each frequency supplied to a feeder, that is, mean power of spurious emission in the 1 MHz bandwidth at frequency f other than frequency band used shall be as follows:

a. 2,387 MHz ≤ f ≤ 2,400 MHz and 2,483.5 MHz < f ≤ 2,496.5 MHz — 25 µW (-16 dBm) or less.

b. 2,387 MHz > f and 2,496.5 MHz < f — 2.5 µW (-26 dBm) or less.

RESULTS:

- LOW CHANNEL:

No spurious frequencies detected at less than 20 dB below the limit.

- MIDDLE CHANNEL:

No spurious frequencies detected at less than 20 dB below the limit.

- HIGH CHANNEL:

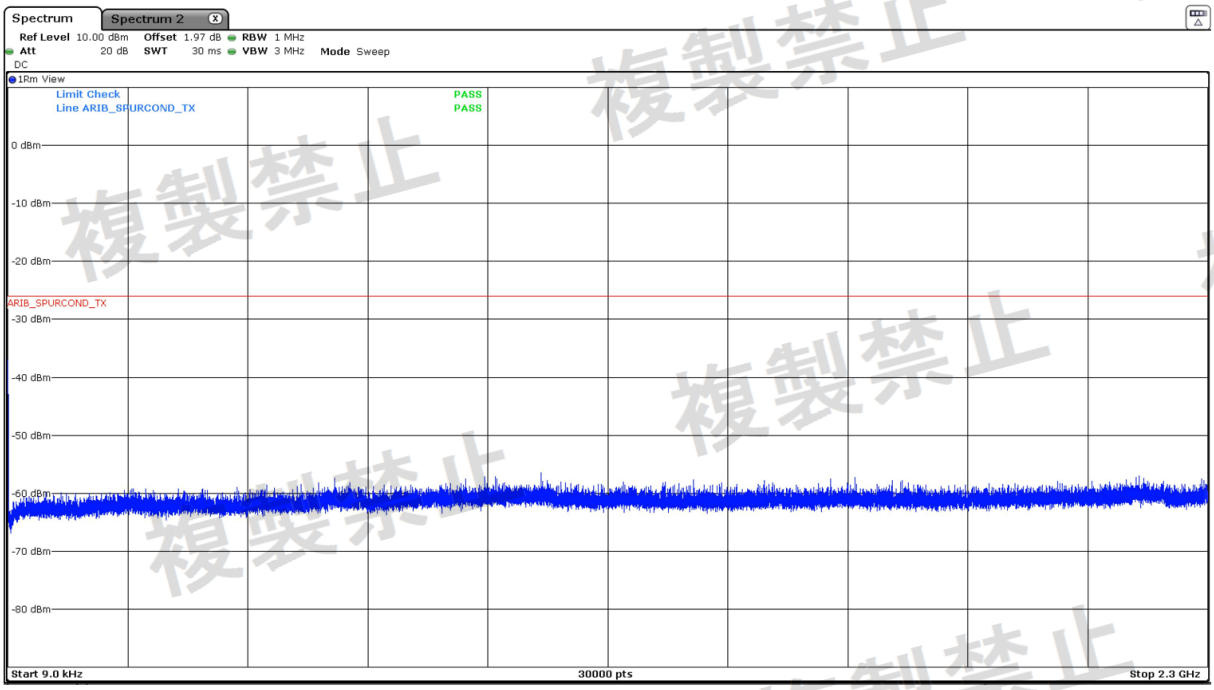
No spurious frequencies detected at less than 20 dB below the limit.

Measurement uncertainty: < ± 2.77 dB

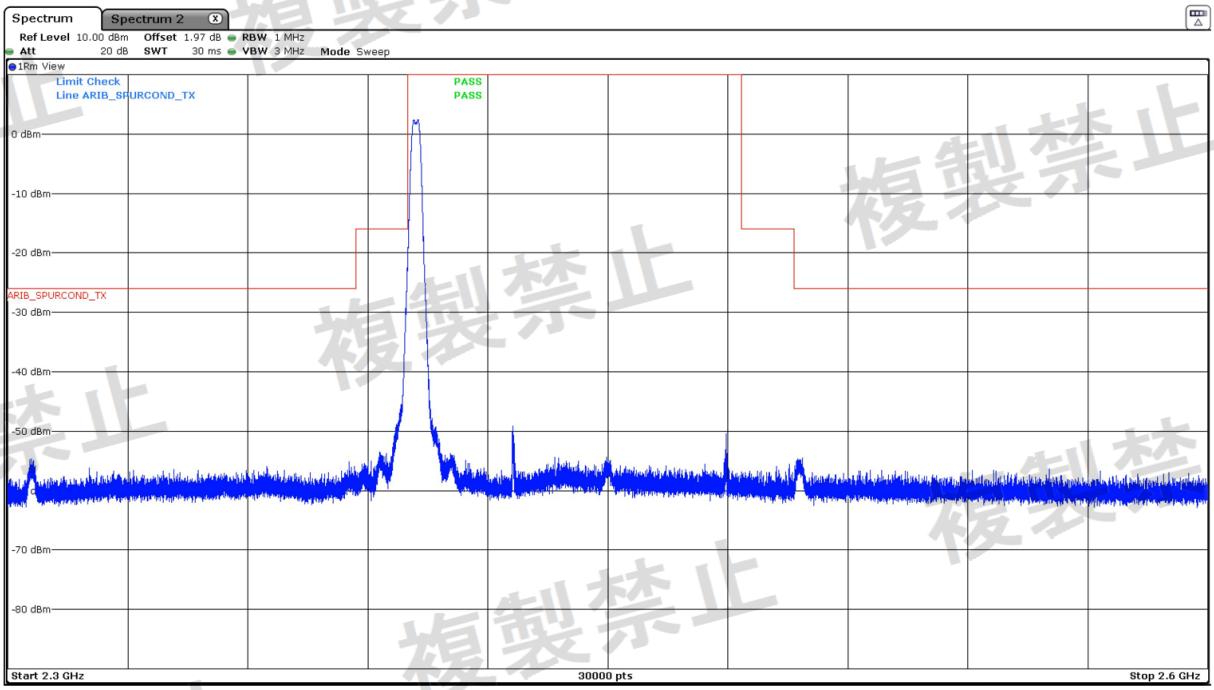
Verdict: PASS

- LOW CHANNEL:

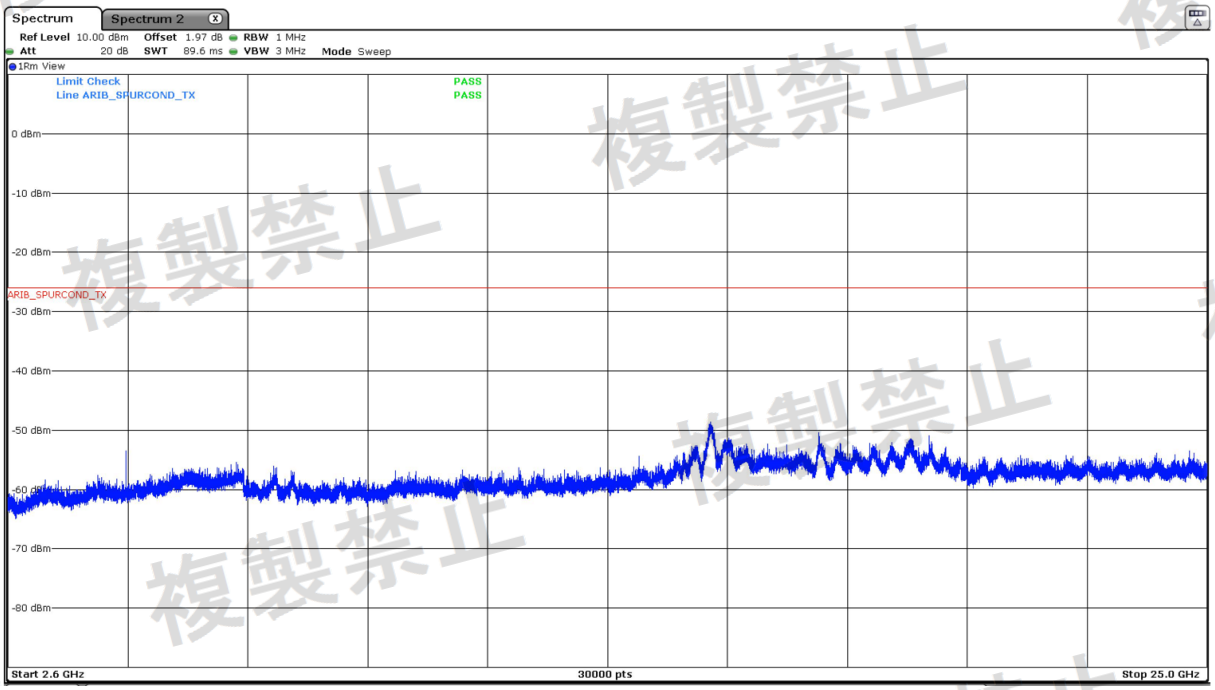
Frequency range 9 kHz – 2300 MHz



Frequency range 2300 MHz – 2600 MHz

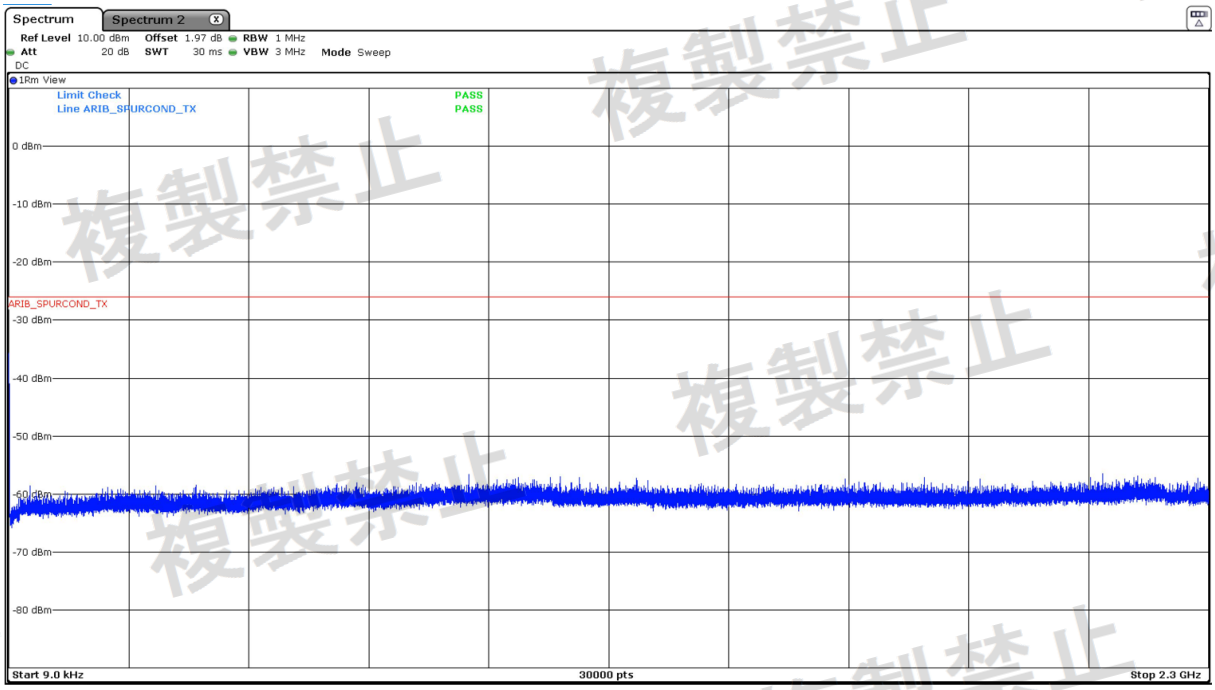


Frequency range 2600 MHz – 25000 MHz

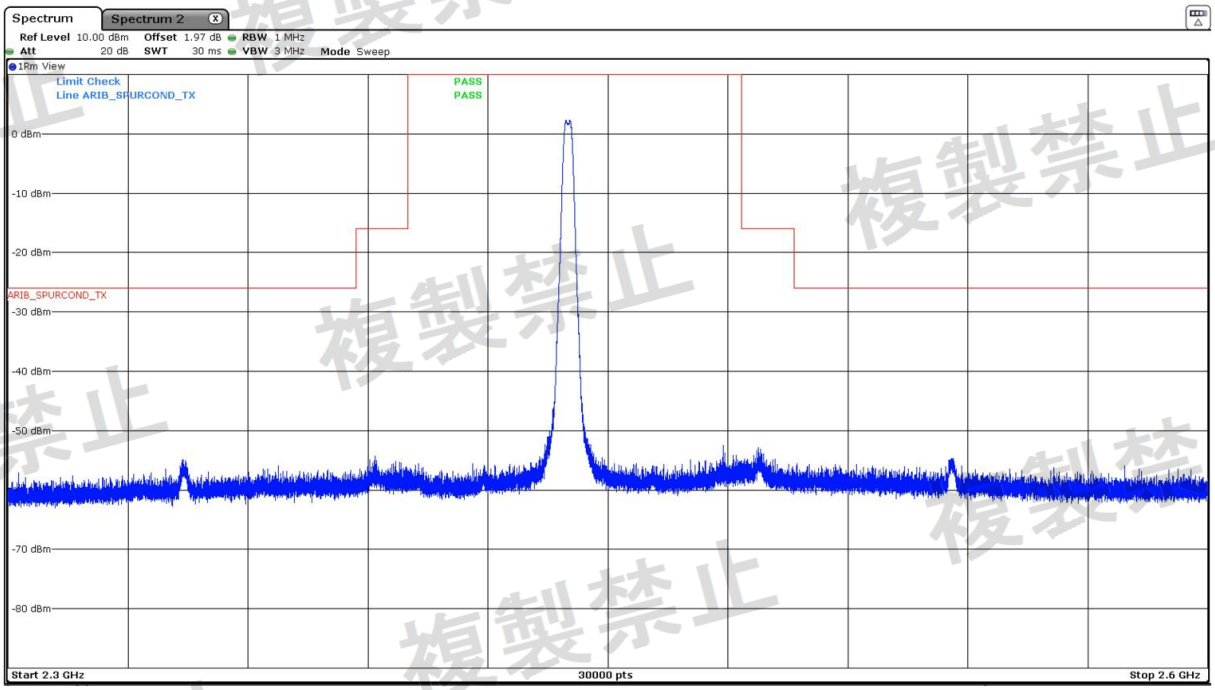


- MIDDLE CHANNEL:

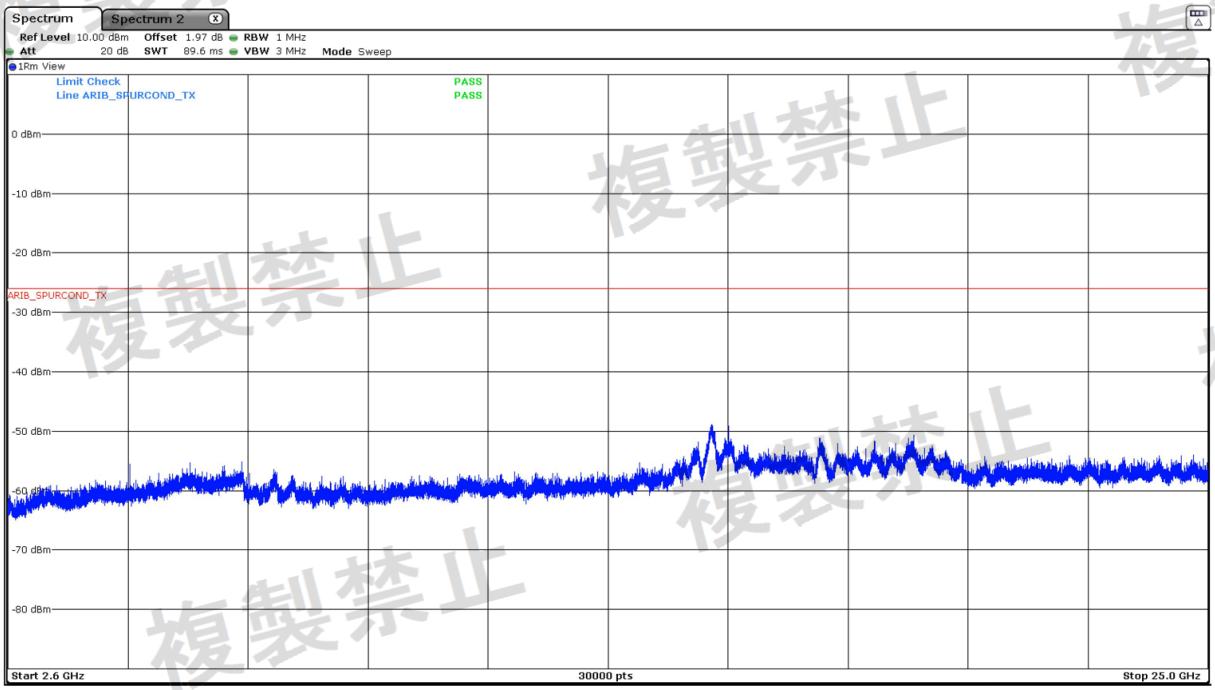
Frequency range 9 kHz – 2300 MHz



Frequency range 2300 MHz – 2600 MHz

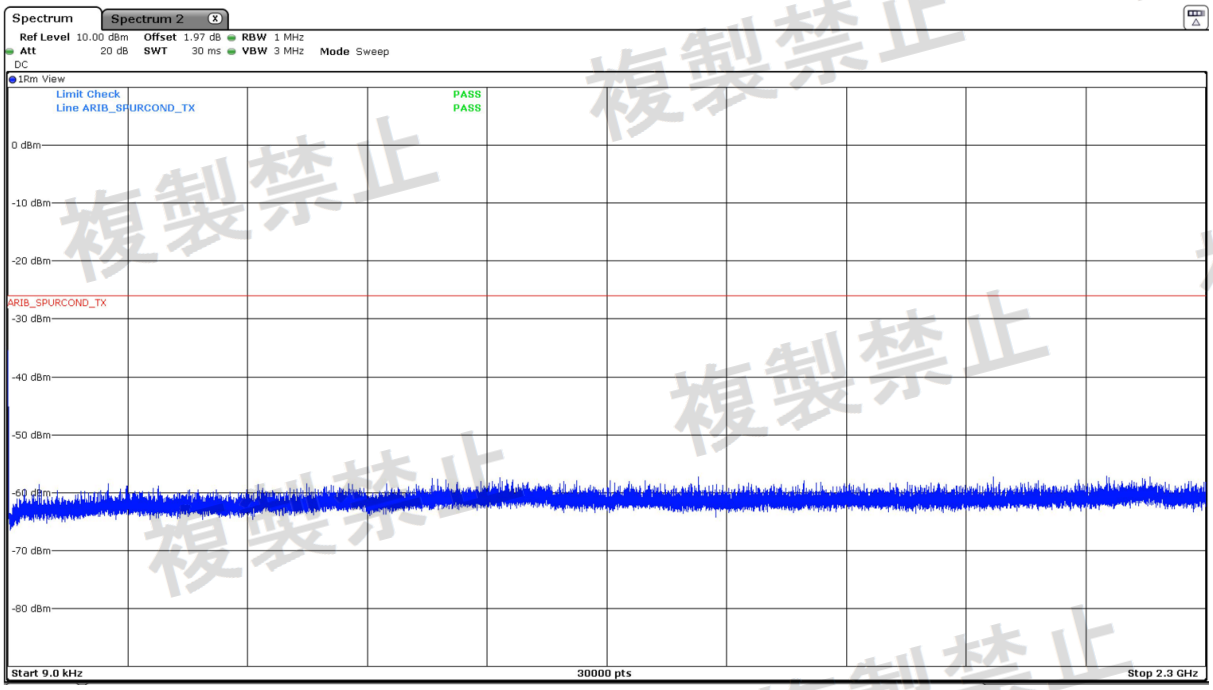


Frequency range 2600 MHz – 25000 MHz

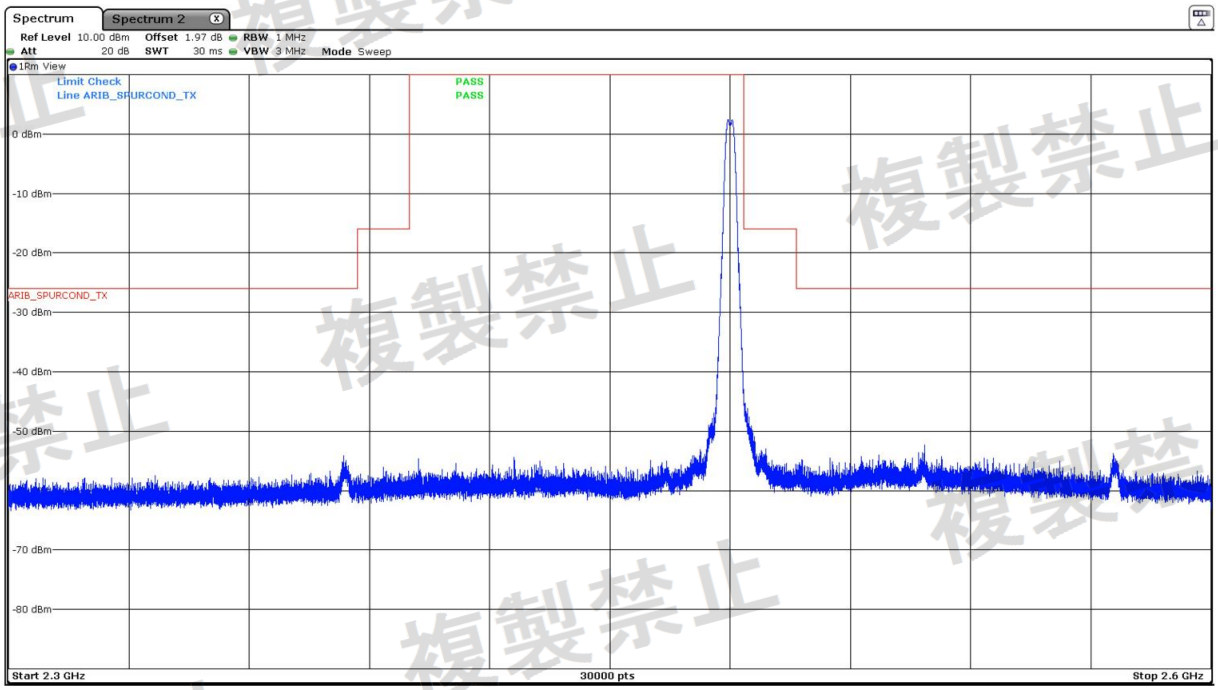


- HIGH CHANNEL:

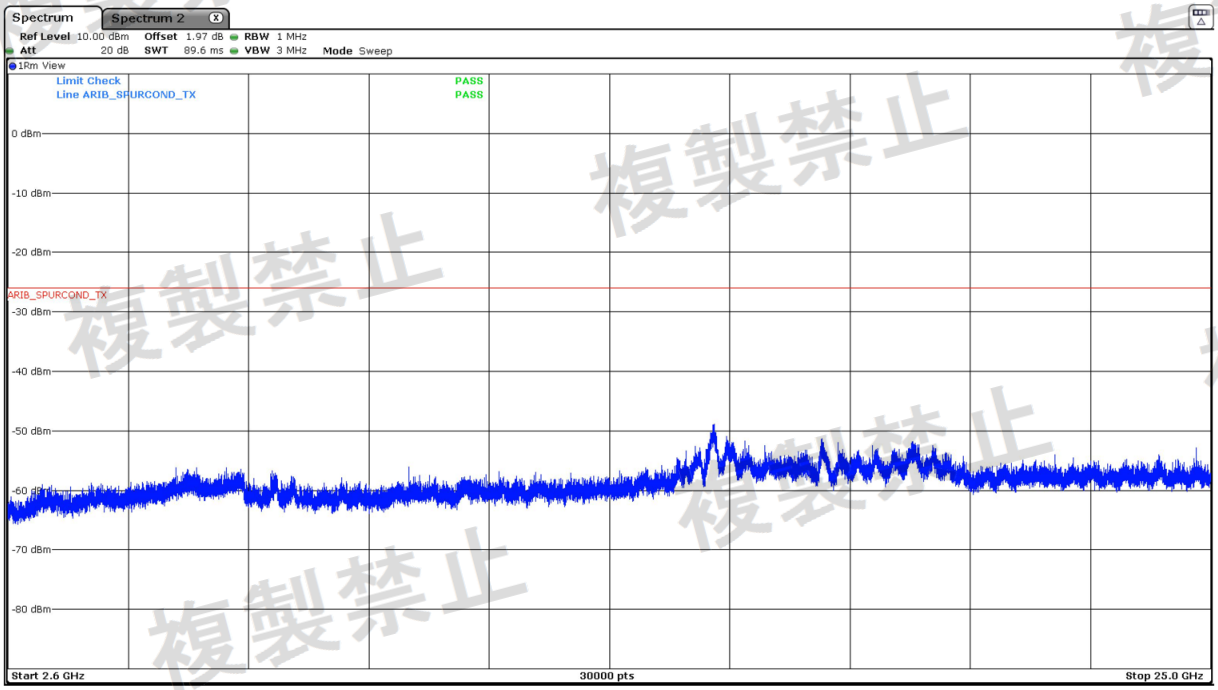
Frequency range 9 kHz – 2300 MHz



Frequency range 2300 MHz – 2600 MHz



Frequency range 2600 MHz – 25000 MHz



Subclause 3.2 (7). Permissible value for occupied bandwidth

SPECIFICATION:

Mode	Limit
FH	83.5 MHz
FH+DS	83.5 MHz
FH+OFDM	83.5 MHz
OFDM (Narrow bandwidth), DS	26 MHz
OFDM (Wide band)	38 MHz
Others	26 MHz

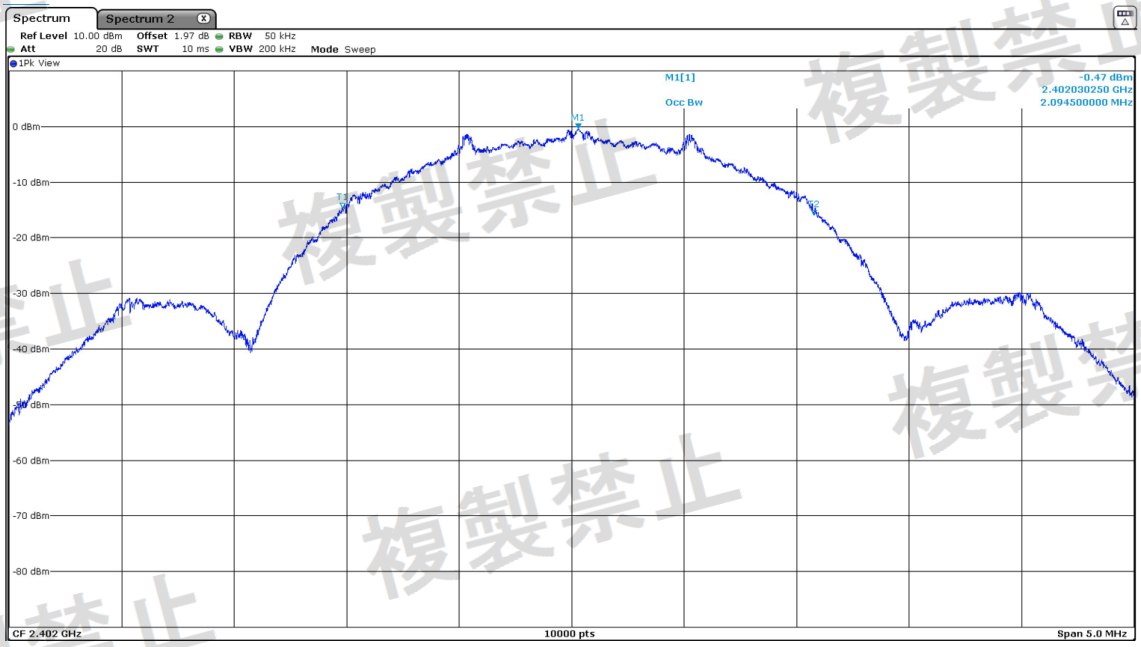
RESULTS:

Mode: Other digital modulation methods.

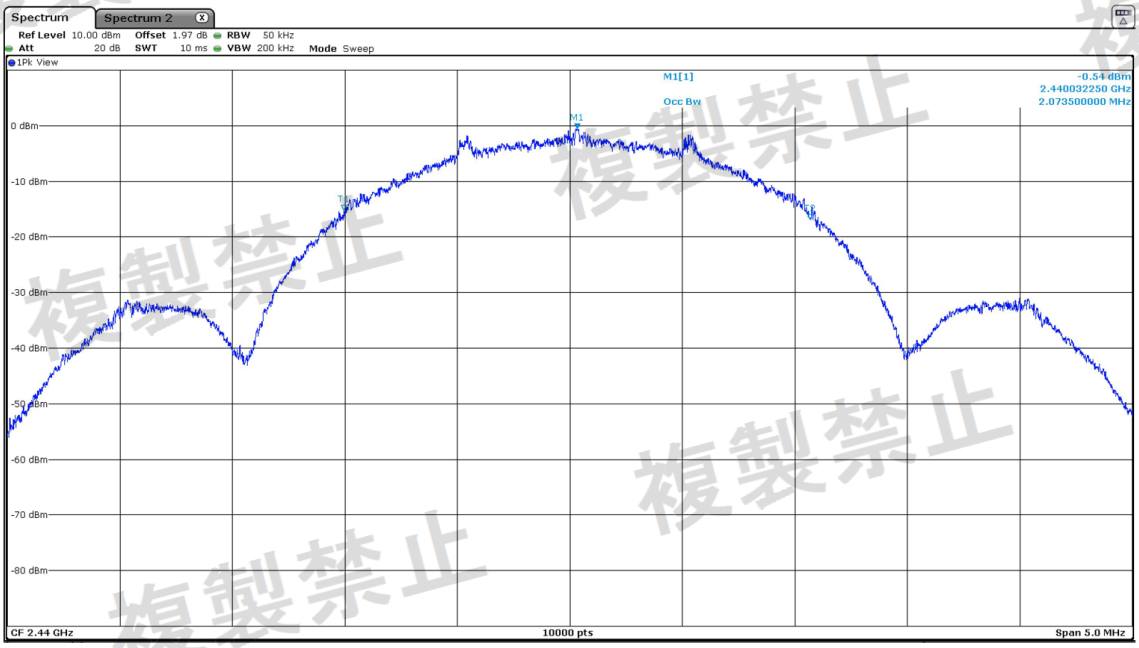
	Low Channel 2402 MHz	Middle Channel 2440 MHz	High Channel 2480 MHz
99% occupied bandwidth (MHz)	2.094	2.073	2.108
Limit	<26 MHz		
Measurement uncertainty (kHz)	<±6.06		

Verdict: PASS

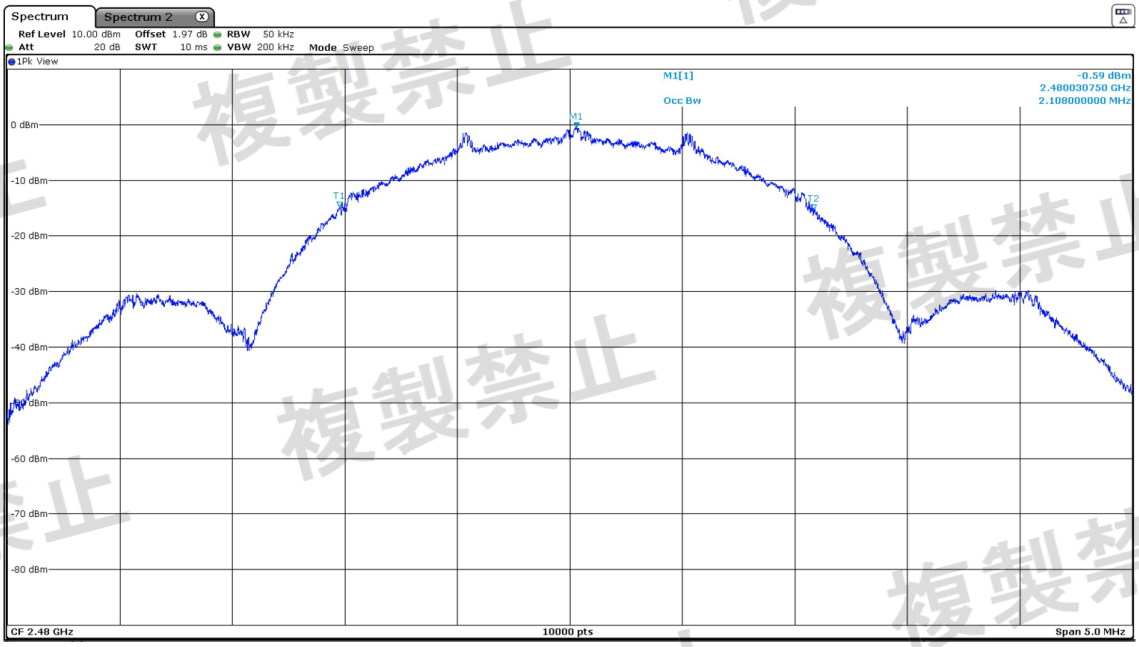
- LOW CHANNEL:



- MIDDLE CHANNEL:



- HIGH CHANNEL:



Subclause 3.3 (1). Receiving equipment. Limit on secondary radiated emissions

SPECIFICATION:

The limit on secondary emissions radiated from the receiving equipment within which the function of other radio equipment will not be impaired shall be, in terms of the power of a dummy antenna circuit that has the same electrical constant as the receiving antenna, 4 nW (-54 dBm) or less at a frequency below 1 GHz and 20 nW (-47 dBm) or less at a frequency of 1 GHz or higher as measured using the circuit.

RESULTS:

- LOW CHANNEL:

No spurious frequencies detected at less than 20 dB below the limit.

- MIDDLE CHANNEL:

No spurious frequencies detected at less than 20 dB below the limit.

- HIGH CHANNEL:

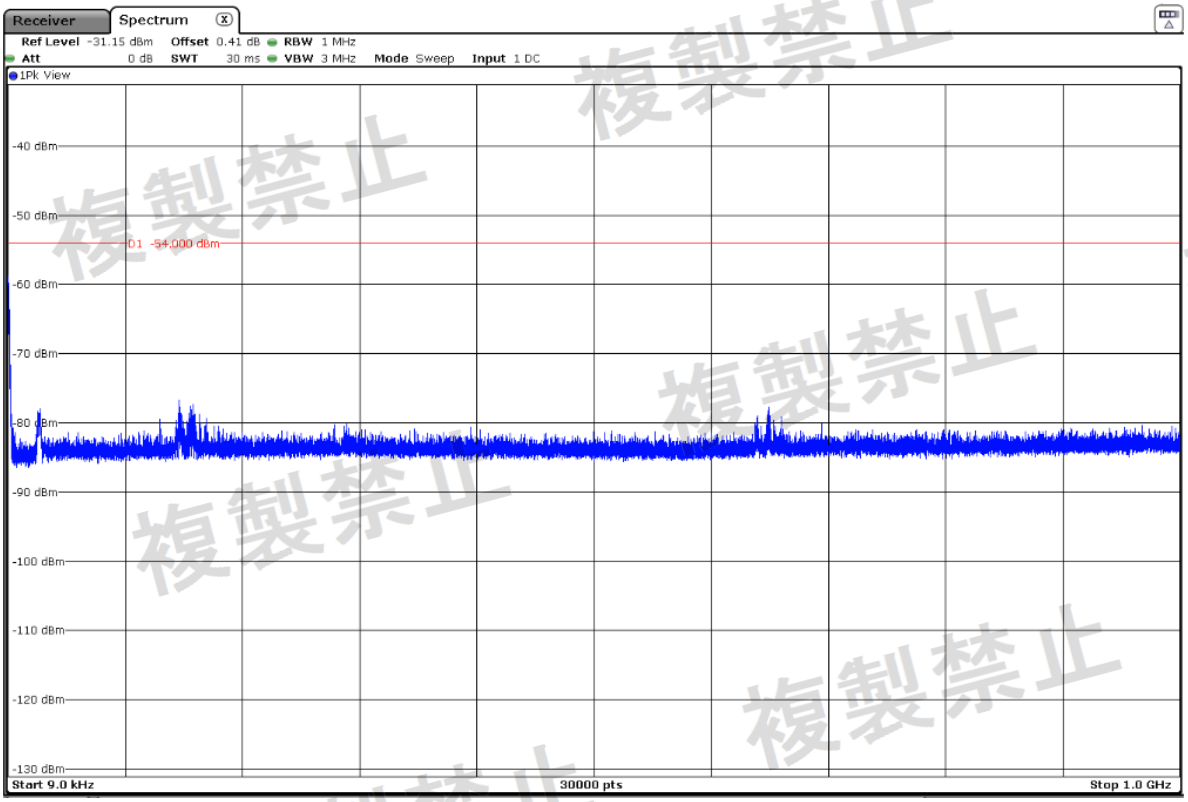
No spurious frequencies detected at less than 20 dB below the limit.

Measurement uncertainty: < ± 2.94 dB

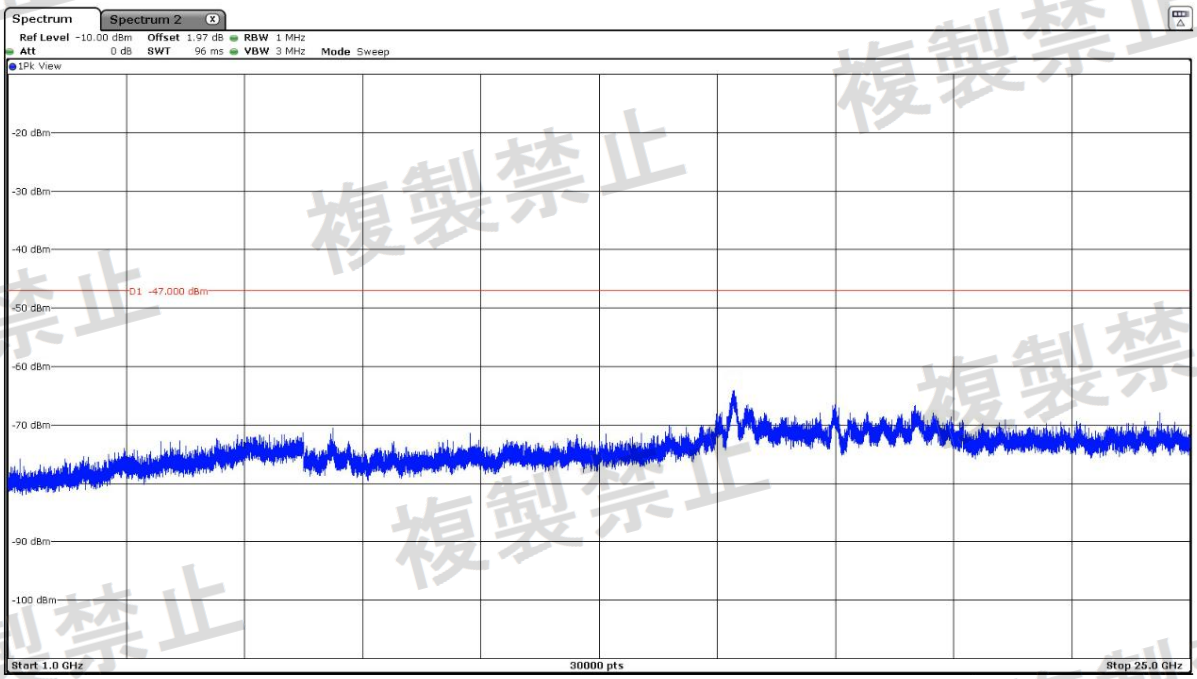
Verdict: PASS

- LOW CHANNEL:

Frequency range 9 kHz – 1 GHz

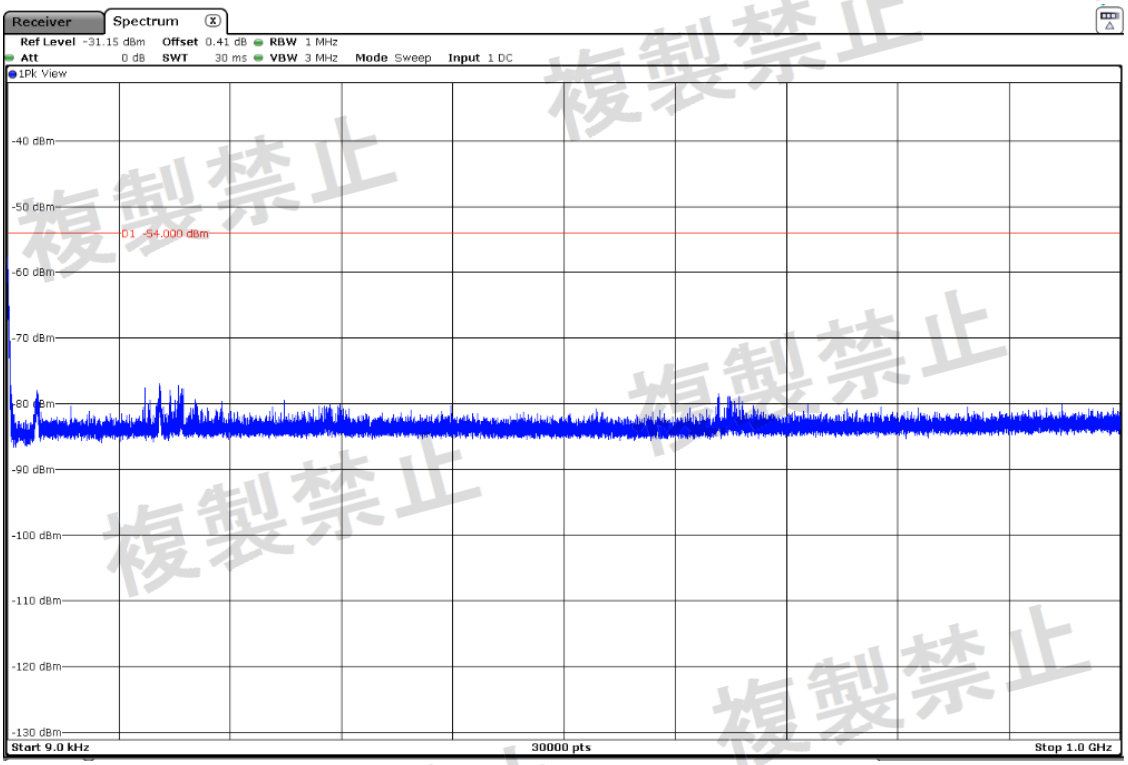


Frequency range 1 – 25 GHz

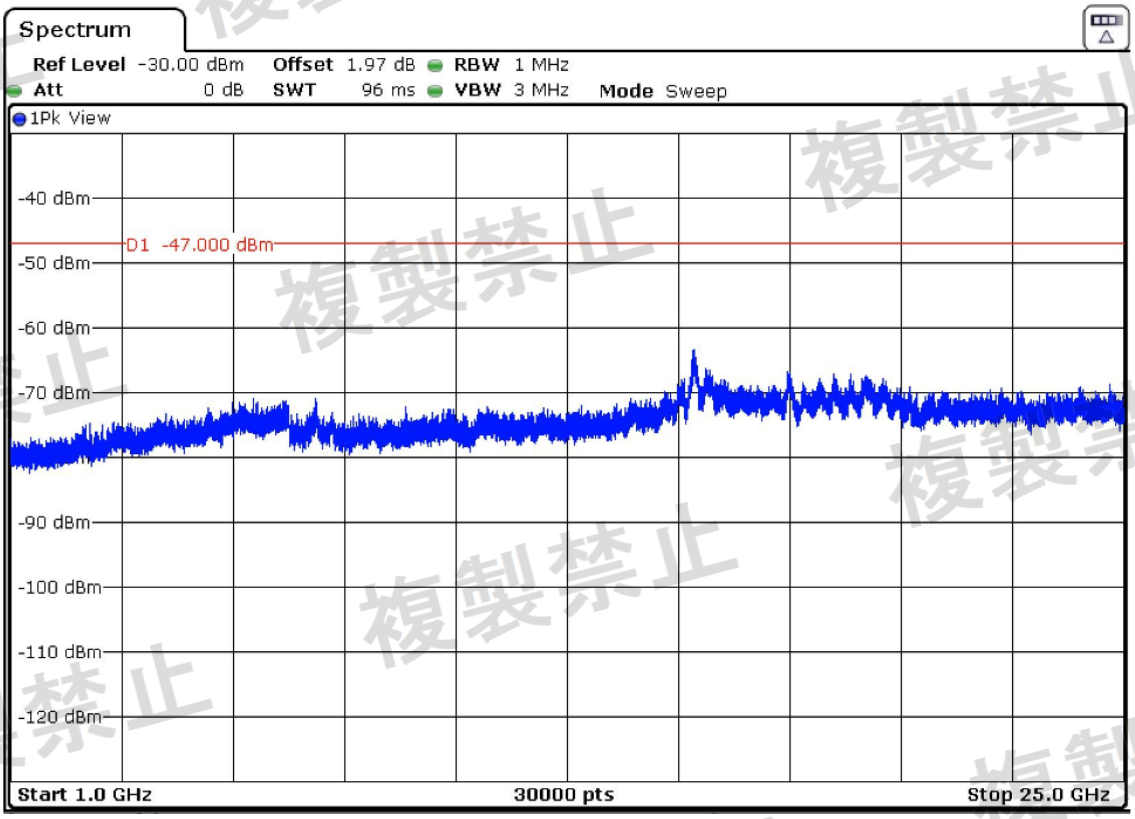


- MIDDLE CHANNEL:

Frequency range 9 kHz – 1 GHz

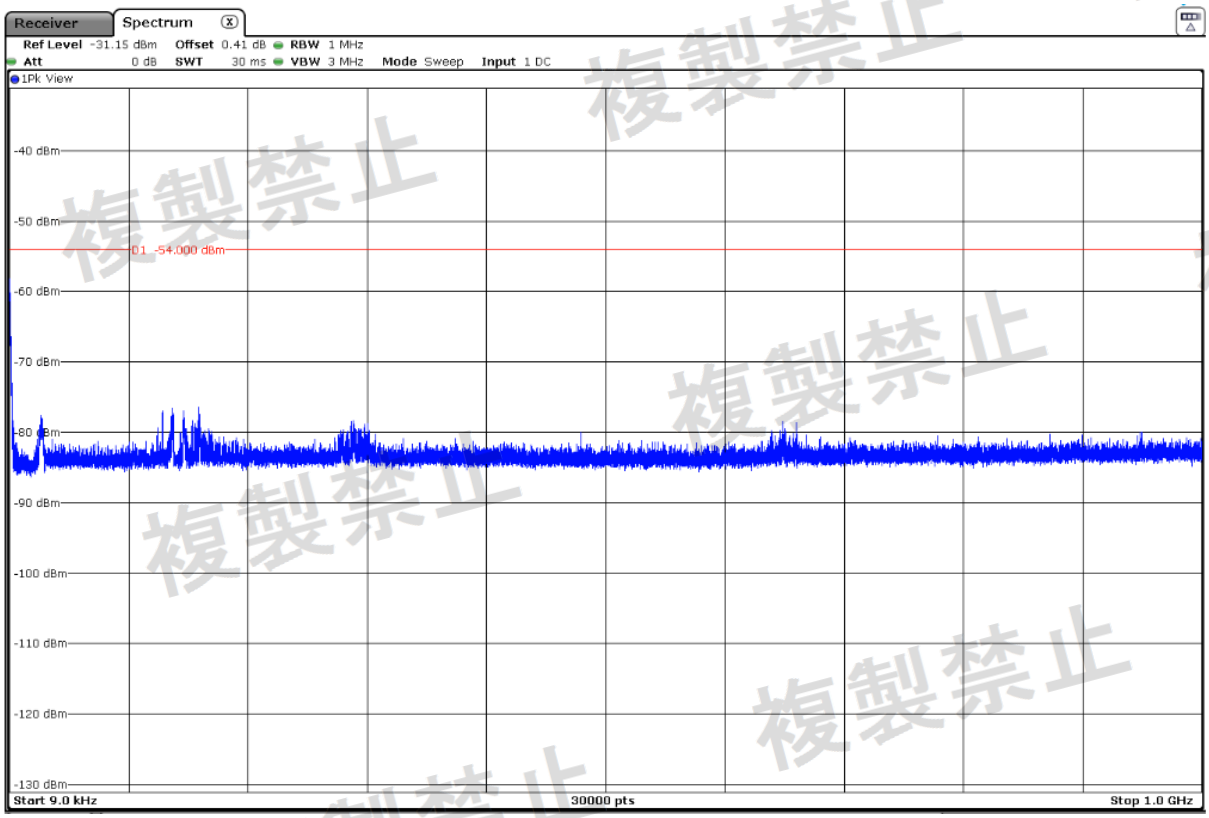


Frequency range 1 – 25 GHz

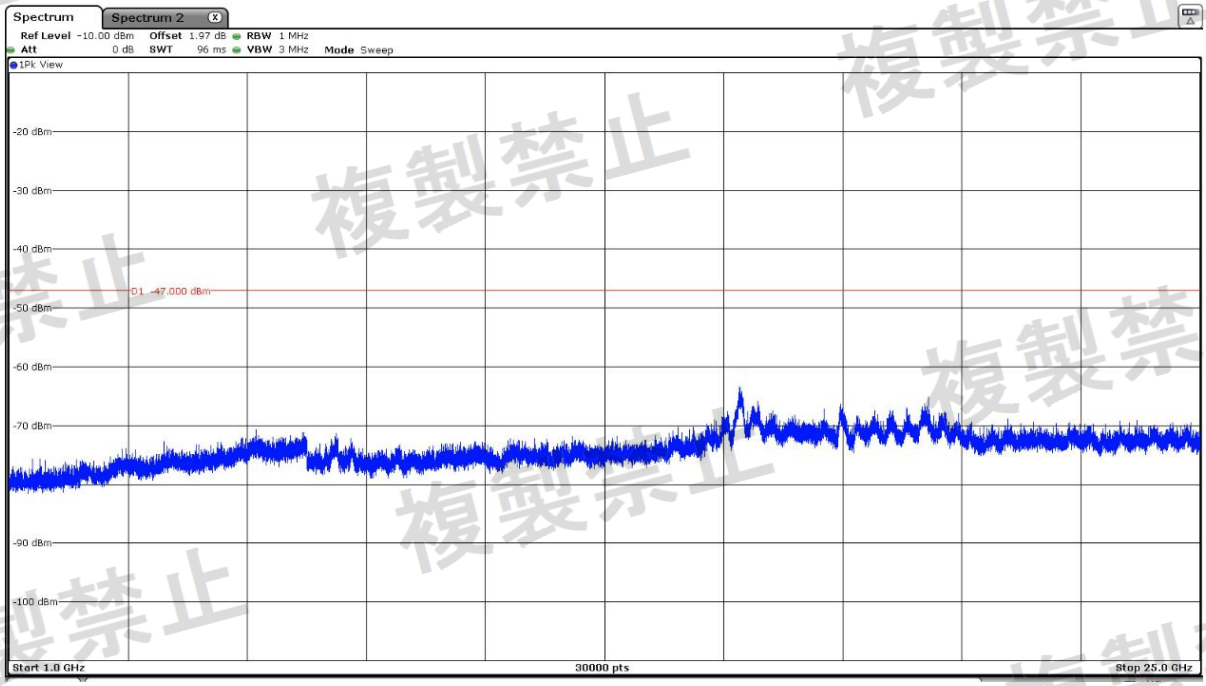


- HIGH CHANNEL:

Frequency range 9 kHz – 1 GHz



Frequency range 1 – 25 GHz



Subclause 3.6 (2). Antenna gain

SPECIFICATION:

a: The absolute gain of the transmitting antenna shall be 12.14 dB or less. However, when the equivalent isotropic radiated power EIRP (equivalent isotropic radiated power in the 1 MHz bandwidth in the case of spread spectrum and OFDM systems) is equal to or less than the value obtained by applying an antenna power with the mean power of 10 mW with its absolute gain being 12.14 dB, the shortage shall be compensated for by the gain of the transmitting antenna (Note that mean power is 10 mW in the 1 MHz bandwidth in the case of spread spectrum and OFDM systems; however, mean power of 3 mW in the 1 MHz bandwidth is applied if the FH system, a hybrid system combining DS and FH systems, or a hybrid system combining FH and OFDM systems is employed and the frequency band of 2,427 - 2,470.75 MHz is used).

b: The Half-Power Beam width Angle HPBA (angle between two points at which radiated power becomes 1/2) of the transmitting antenna's horizontal and vertical planes shall not exceed the value as determined by the following formula:

$$HPBA \leq 360 / A \text{ [degrees]}$$

where constant A is equal to the value obtained by dividing the equivalent isotropic radiated power EIRP (equivalent isotropic radiated power in the 1 MHz bandwidth in the case of spread spectrum and OFDM systems) by the value obtained by applying an antenna power with the mean power of 10 mW with its absolute gain being 2.14 dB, and shall be assumed to be 1 if it is less than 1 (Note that mean power is 10 mW in the 1 MHz bandwidth in the case of spread spectrum and OFDM systems; however, mean power of 3 mW in the 1 MHz bandwidth is applied if the FH system, a hybrid system combining DS and FH systems, or a hybrid system combining the FH and OFDM systems is employed and the frequency band of 2,427 - 2,470.75 MHz is used).

Therefore

$$A = EIRP (mW) / (10 mW \times \text{absolute gain}) = EIRP (mW) / 16.37$$

Where absolute gain is the linear value corresponding to 2.14 dB = 1.637.

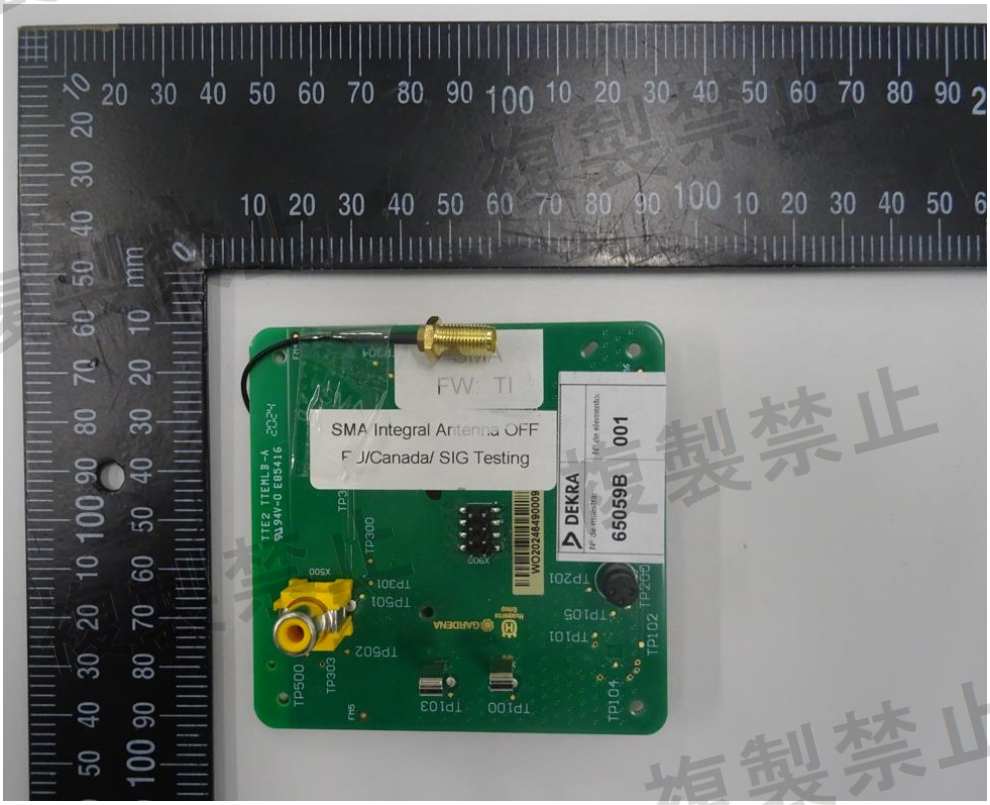
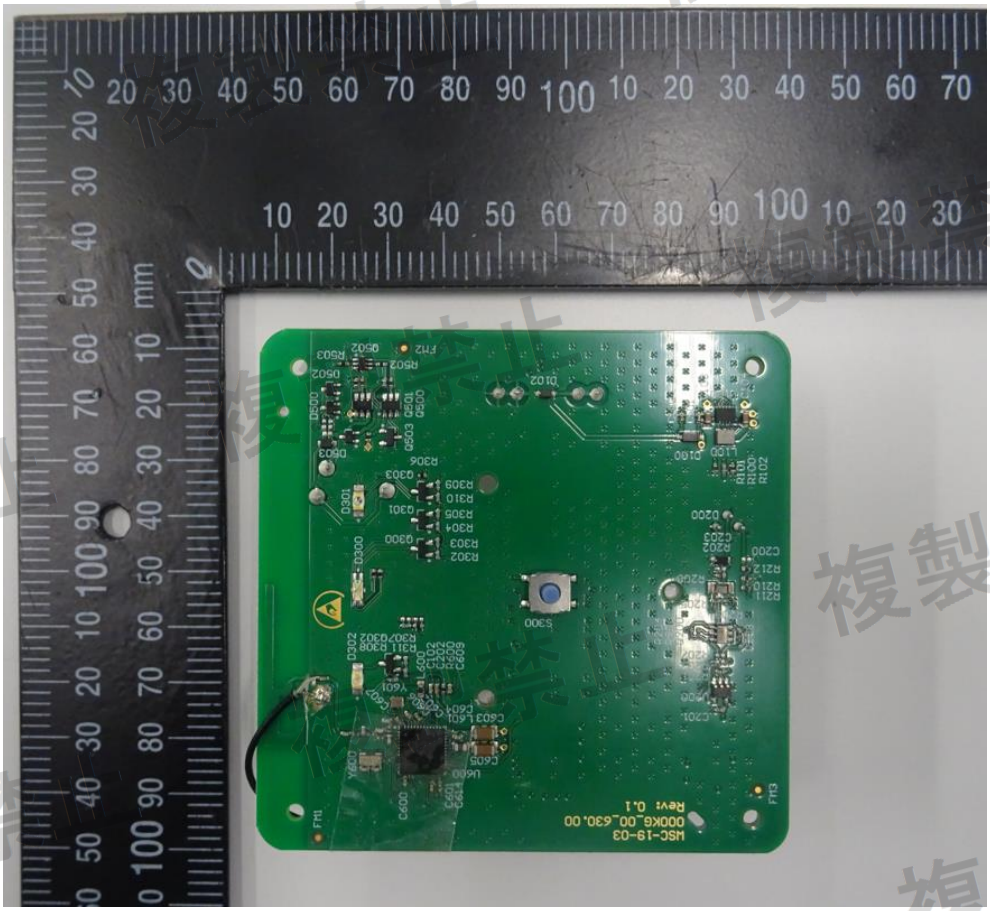
RESULTS:

Maximum Declared Antenna Gain: +3.3 dBi

Channel	Measured antenna power (dBm)	Radiated power EIRP (dBm)	Radiated power EIRP (mW)	A = EIRP (mW) /16.37
Low (2402 MHz)	2.52	5.82	3.82	< 1
Middle (2440 MHz)	2.33	5.63	3.66	< 1
High (2480 MHz)	2.38	5.68	3.70	< 1

Since A is < 1, it is assumed to be 1, and therefore the half-power beam width must be 360º or less.

Verdict: PASS

Appendix C: Photographs

EQUIPMENT VIEW