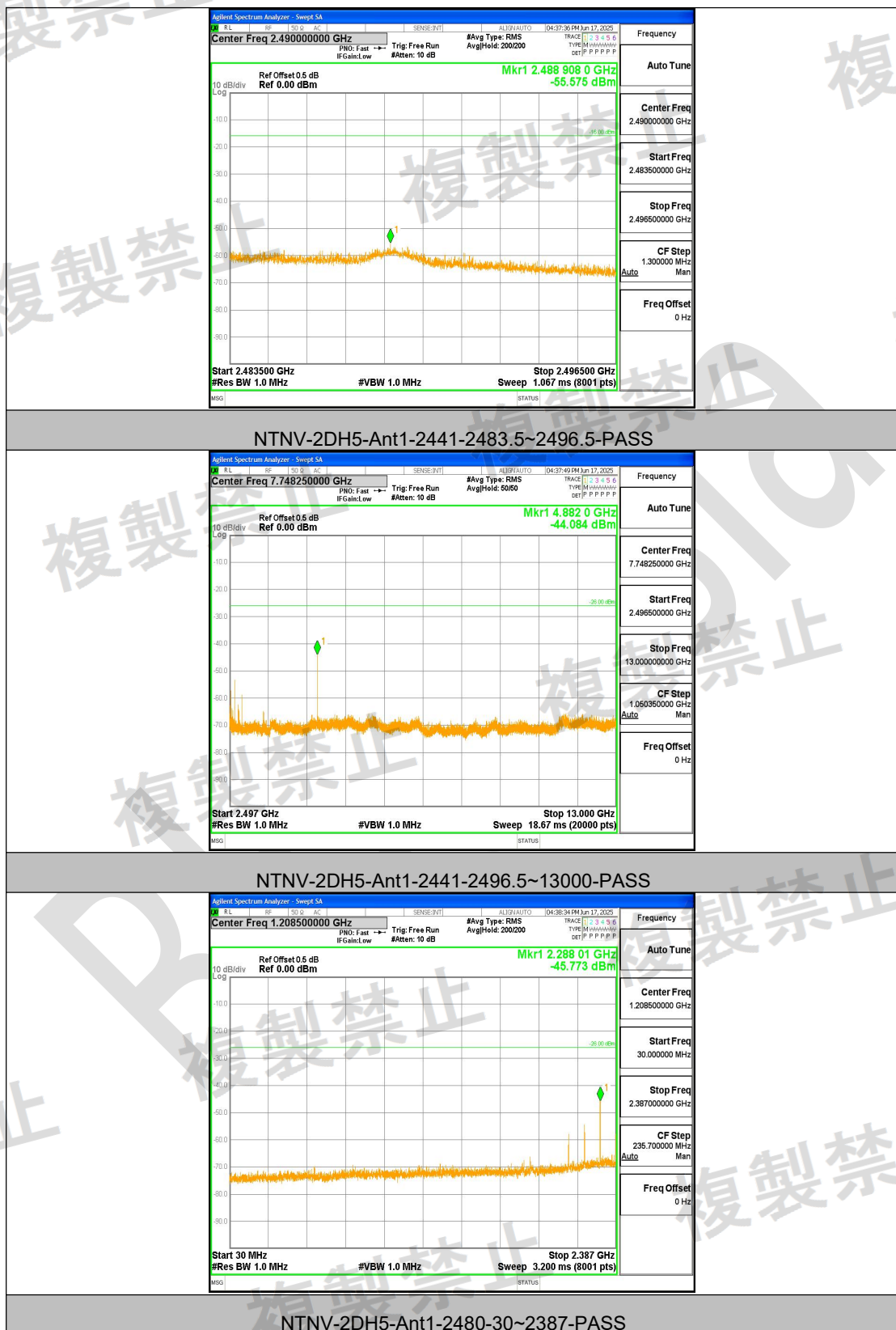
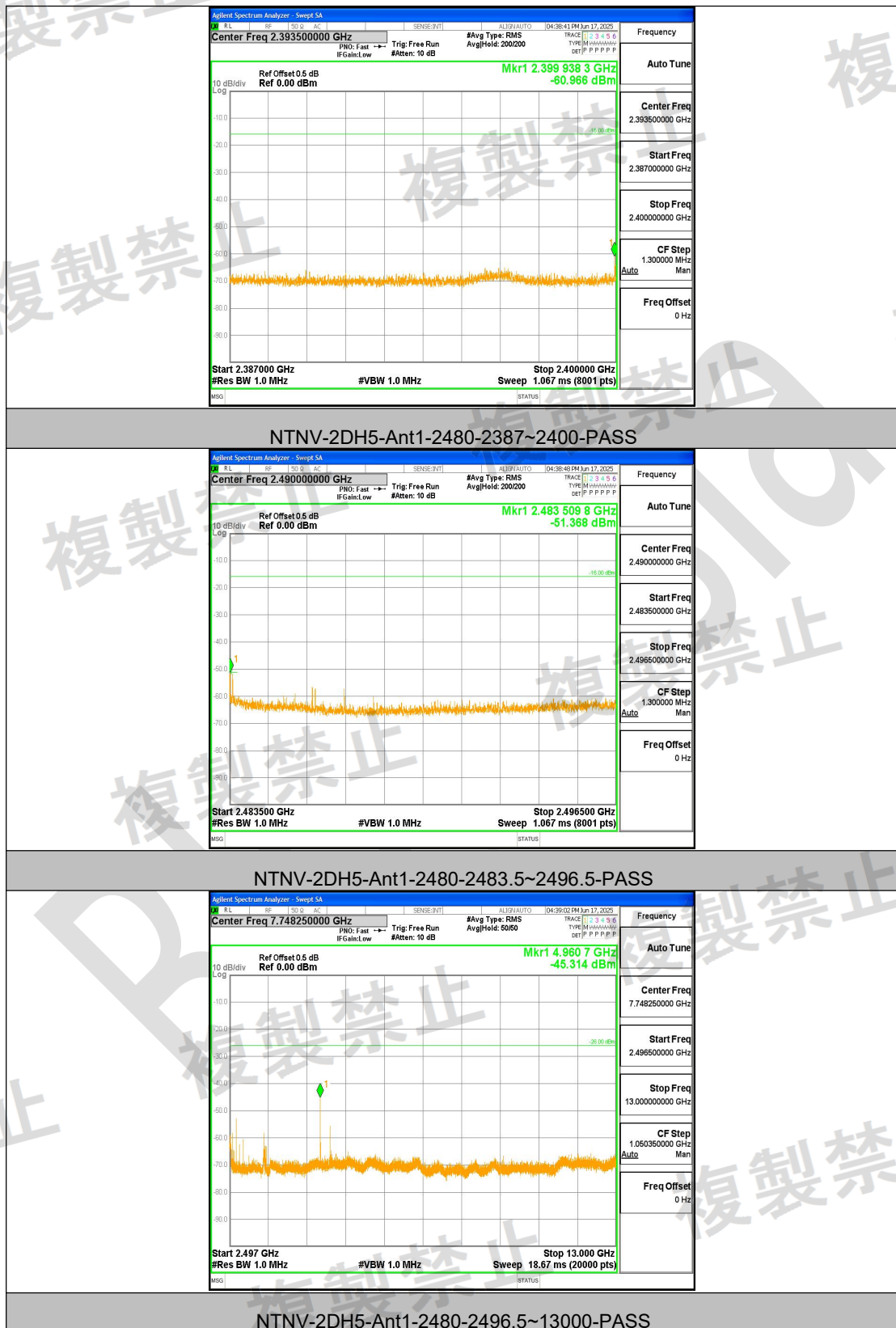
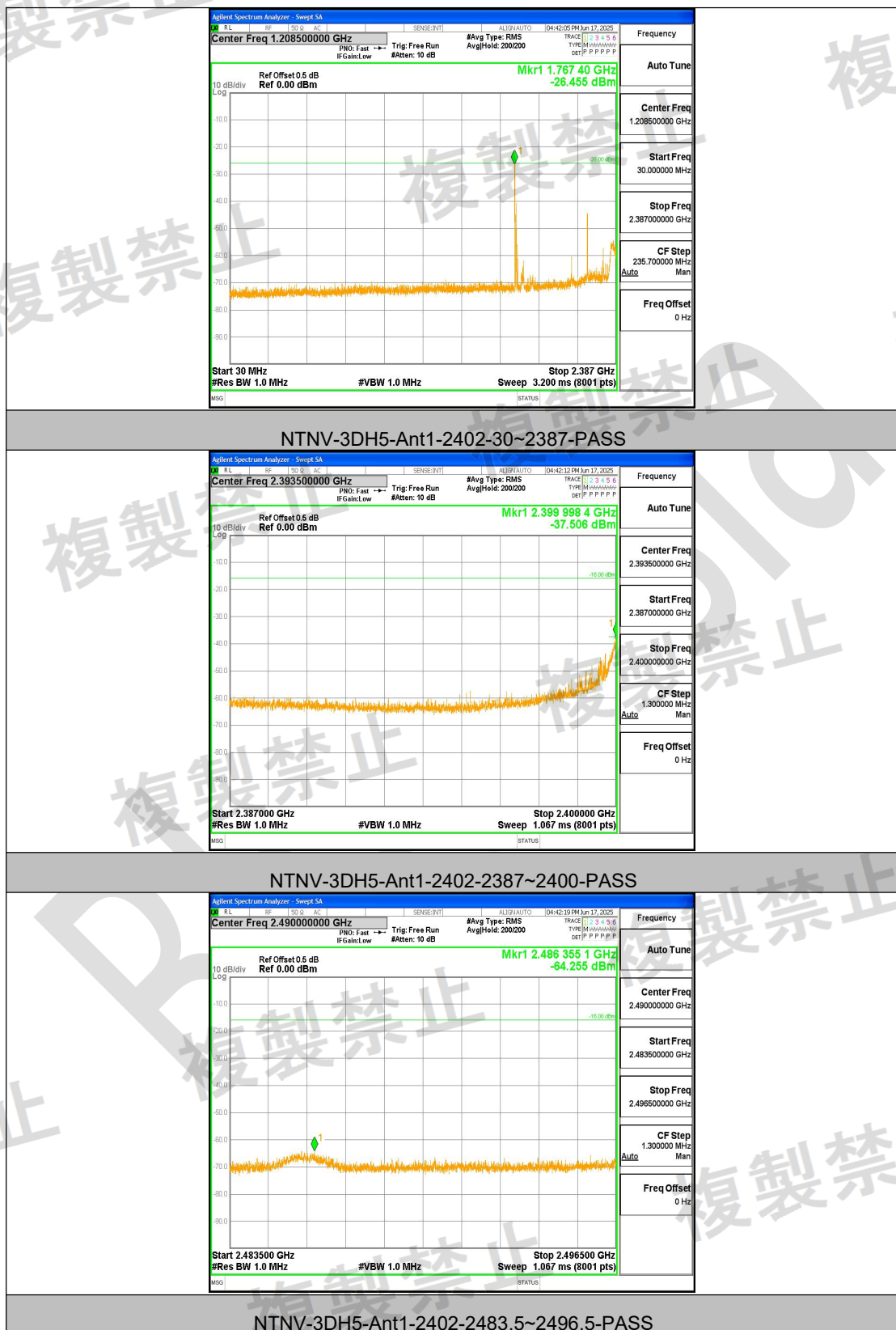
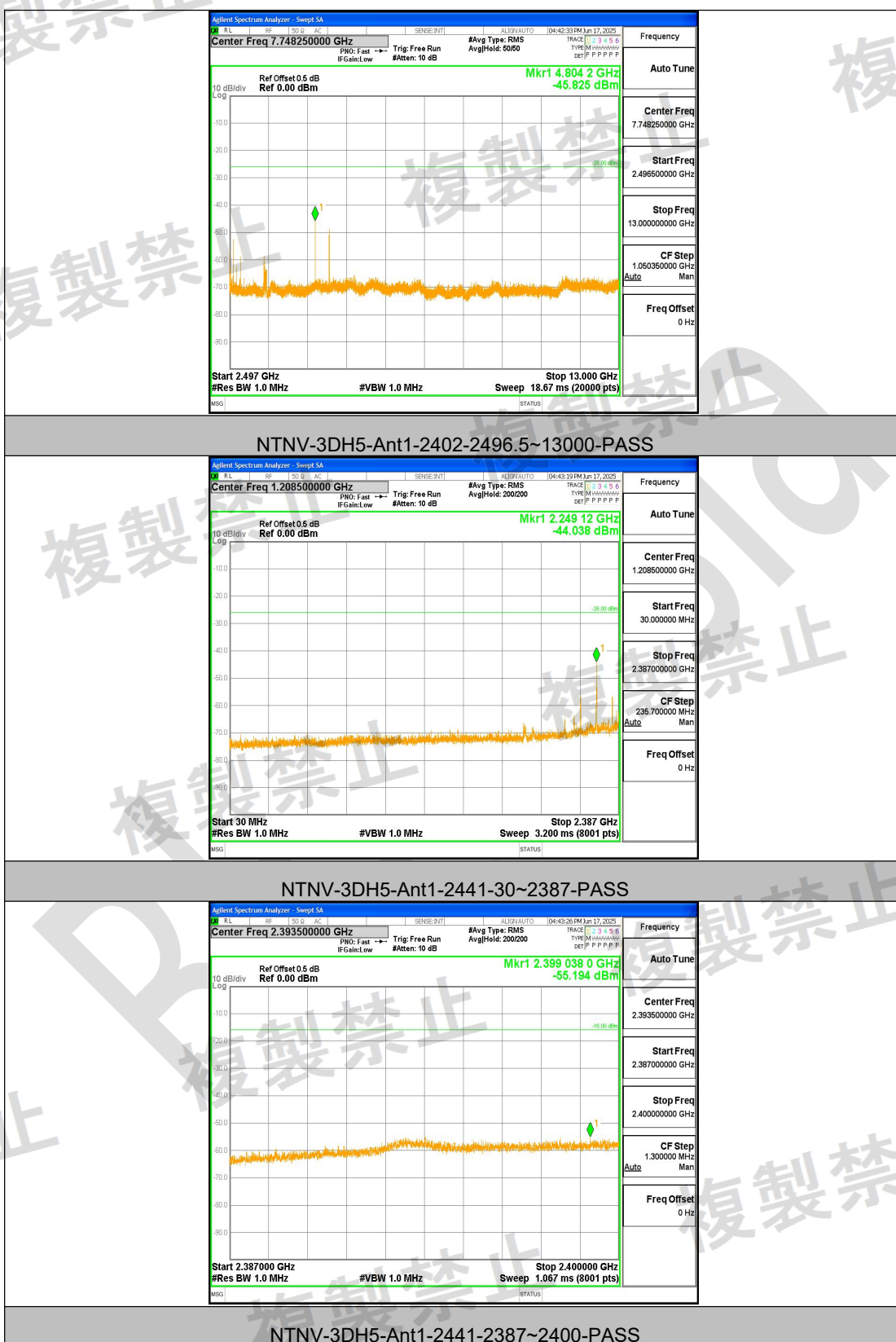
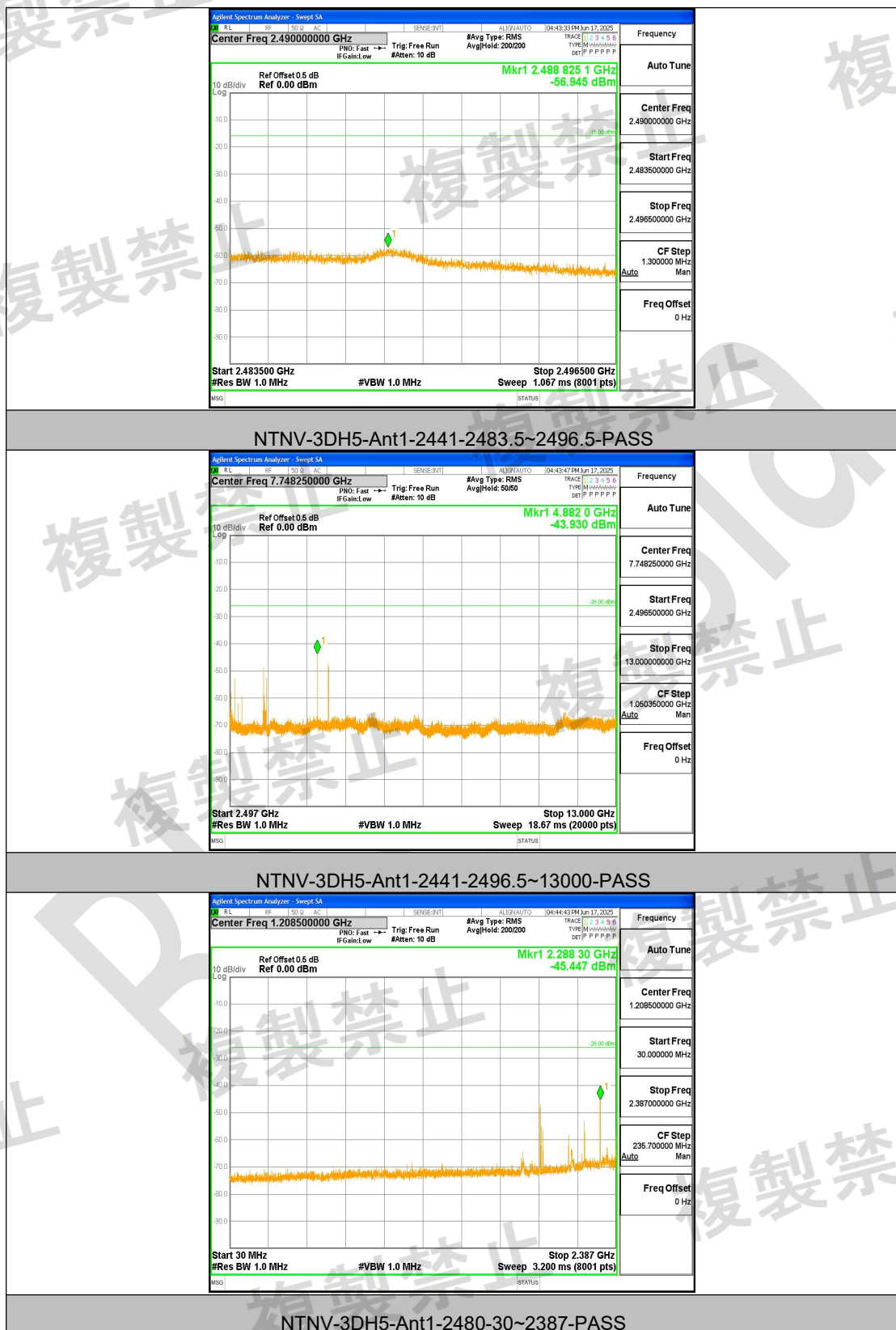


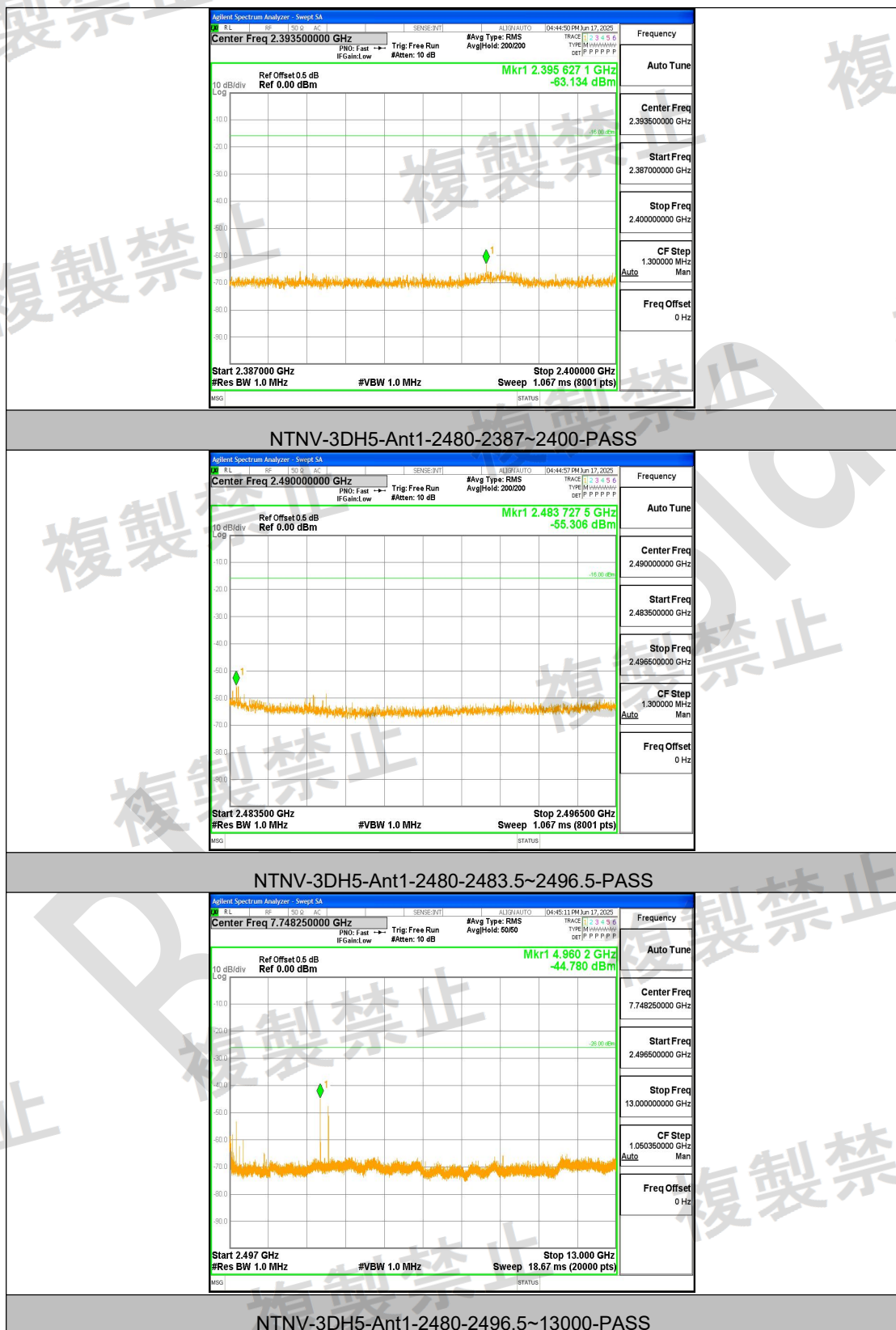




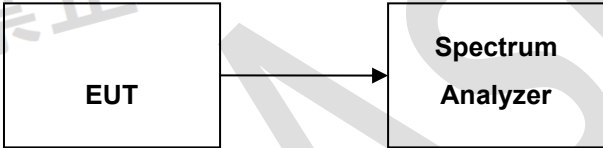








6.1.8 Dwell Time

Test Requirement:	Item 19 of Article 2 Paragraph 1		
Test Method:	MIC Notice No.88 Appendix No.43		
EUT Operation:			
Ambient:	Temp.: 24°C	Humid.: 46%	Press.: 1010 mbar
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. Modulation/Spread/Hopping ON, Hopping frequency is fixed, Bluetooth equipment is setting DH5 mode		
Test Configuration:	 <pre> graph LR EUT[EUT] --> SA[Spectrum Analyzer] </pre>		
EUT conditions:	Modulation/Spread/Hopping ON, Hopping frequency is fixed, Bluetooth equipment is setting DH5 mode For equipment using diffusion code, set to the test diffusion code and modulate with standard coding test signal.		
Spectrum Analyzer conditions:	Frequency: Test Frequency (fixed hopping frequency) Span 0 Hz RBW 1 MHz VBW 1 MHz Sweep Time EUT condition Trigger Video Trigger Measures the Transmission time of 1 burst (sec) Measures the Burst cycle (sec)		
Calculation procedure :	Dwell time= 0.4s x Spreading Rate x one burst time x Number of transmission (1s) Note: Spreading rate = [Spread bandwidth (actual measurement value)] / [Transmission rate] Number of transmission (1s) of DH1/2DH1/3DH1=1600/(2x79) Number of transmission (1s) of DH3/2DH3/3DH3=1600/(4x79) Number of transmission (1s) of DH5/2DH5/3DH5=1600/(6x79)		
Technical standard:	Less than 0.4 sec		
Test result:	PASS		

Test Result

Test Condition	Test Mode	Antenna	Frequency [MHz]	BurstWidth [ms]	Result[s]	Limit [s]	Verdict
NTNV	DH5	Ant1	Hop_2441	2.89	0.308	≤0.4	PASS
NTNV	2DH5	Ant1	Hop_2441	2.89	0.308	≤0.4	PASS
NTNV	3DH5	Ant1	Hop_2441	2.89	0.308	≤0.4	PASS

Remark: Calculated method: Dwell time=0.4s x Spreading Rate x One burst time x number of transmission (1s)

Note: Spreading rate=[Spread bandwidth (actual measurement value)]/[Transmission rate]

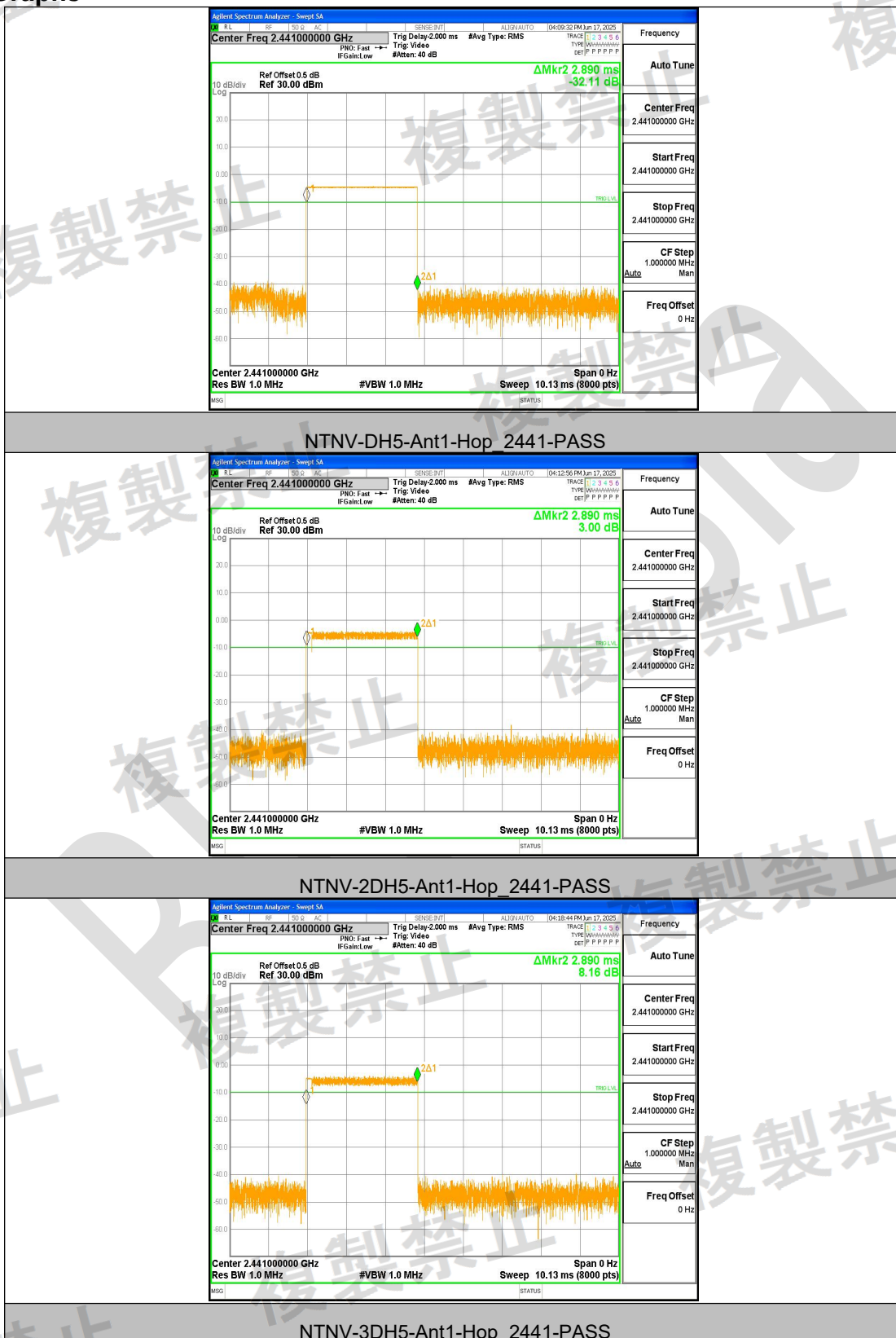
Transmission rate is 1.0 Mbps.

One burst time [s]= Mark2/1000, Mark2 selected in Test Graphs

Number of transmission (1s) of DH5/2DH5/3DH5=1600/(6 x 79)

No. of hopping channel=79

Test Graphs



6.1.9 Pseudorandom Frequency Hopping Sequence

Standard requirement

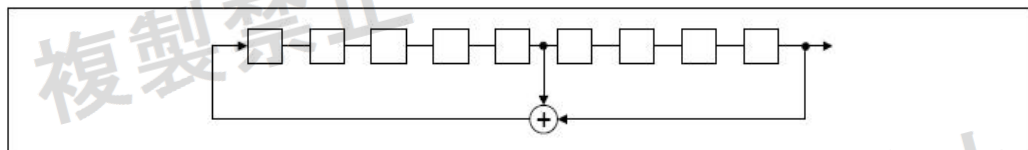
Article 2, Item (19) Notice 88 Appendix 43, 44, 45 requirement:

The EUT shall have the capability to transmit or to receive the MAC identification automatically, so that sender and receiver shall exclude other equipment.

EUT Pseudorandom Frequency Hopping Sequence

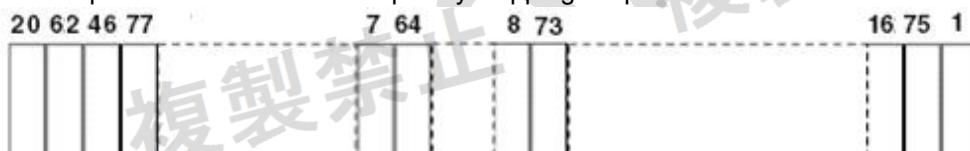
The pseudorandom sequence may be generated in a nine-stage shift register whose 5th and 9th stage outputs are added in a modulo-two addition stage. and the result is fed back to the input of the first stage. The sequence begins with the first ONE of 9 consecutive ONES; i.e. the shift register is initialized with nine ones.

- Number of shift register stages: 9
- Length of pseudo-random sequence: $2^9 - 1 = 511$ bits
- Longest sequence of zeros: 8 (non-inverted signal)



Linear Feedback Shift Register for Generation of the PRBS sequence

An example of Pseudorandom Frequency Hopping Sequence as follow:



Each frequency used equally on the average by each transmitter.

The system receivers have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shift frequencies in synchronization with the transmitted signals.

6.1.10 Interference prevention function

1) Measurement system diagram

(1) When transmitting identification code



2) Condition of measuring instrument

- (1) Demodulator must be able to demodulate the transmitting signal emitted by test equipment and to indicate the identification code.

3) Condition of test equipment The mode of normal use.

4) Measuring operation procedure

- (1) When test equipment has the function to transmit identification code automatically:

- A) Transmit the predetermined identification code from test equipment.
B) Confirm the transmitted identification code by demodulator.

MAC Address:

58:47:CA:37:37:C2

5) Test result: The unit does meet the requirements (Good).

Test result: PASS

6.1.11 RF accessibility

Standard requirement

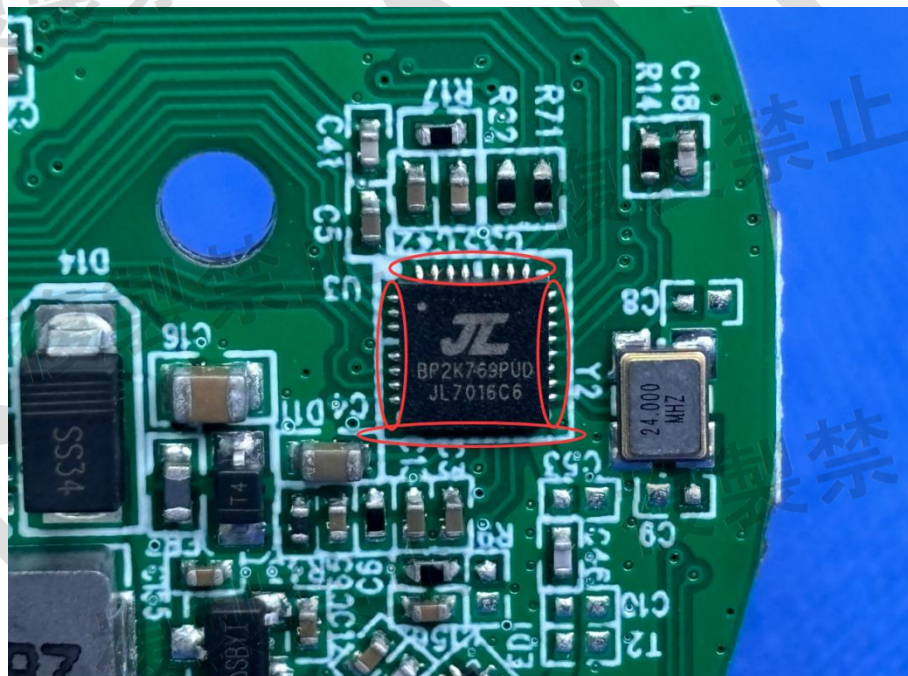
Article 49-20, paragraph 1 (a)

The EUT shall be constructed in such a way that sensitive RF parts, (like modulation and oscillator parts) cannot be reached easily by the user. These parts shall be covered by soldered metal caps or glue or by other mechanical covers. If the covers are fixed with screws, these shall be not the common type(s) like a Phillips, but special versions like Torx, so that the user cannot open the device with common tools.

RF and Modulation parts are mounted on PCB with surface mount technology, the chip is welded on PCB, and there is no any adjustable parts on PCB or adjustable parts are not exposed.

The interval of terminals: 0.5mm

Number of terminals: 30



6.2 Receiver Requirements

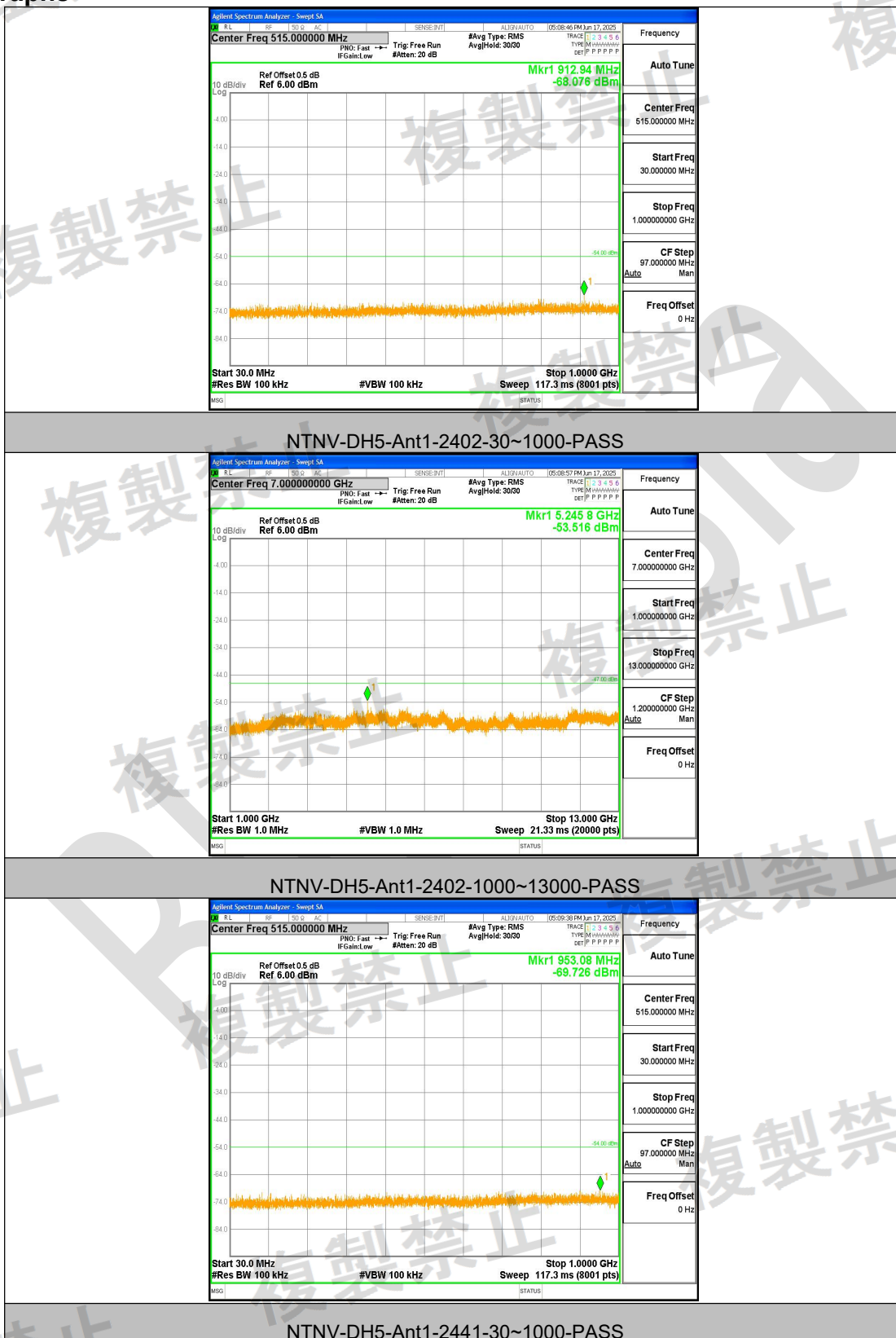
6.2.1 Spurious Emissions of Rx

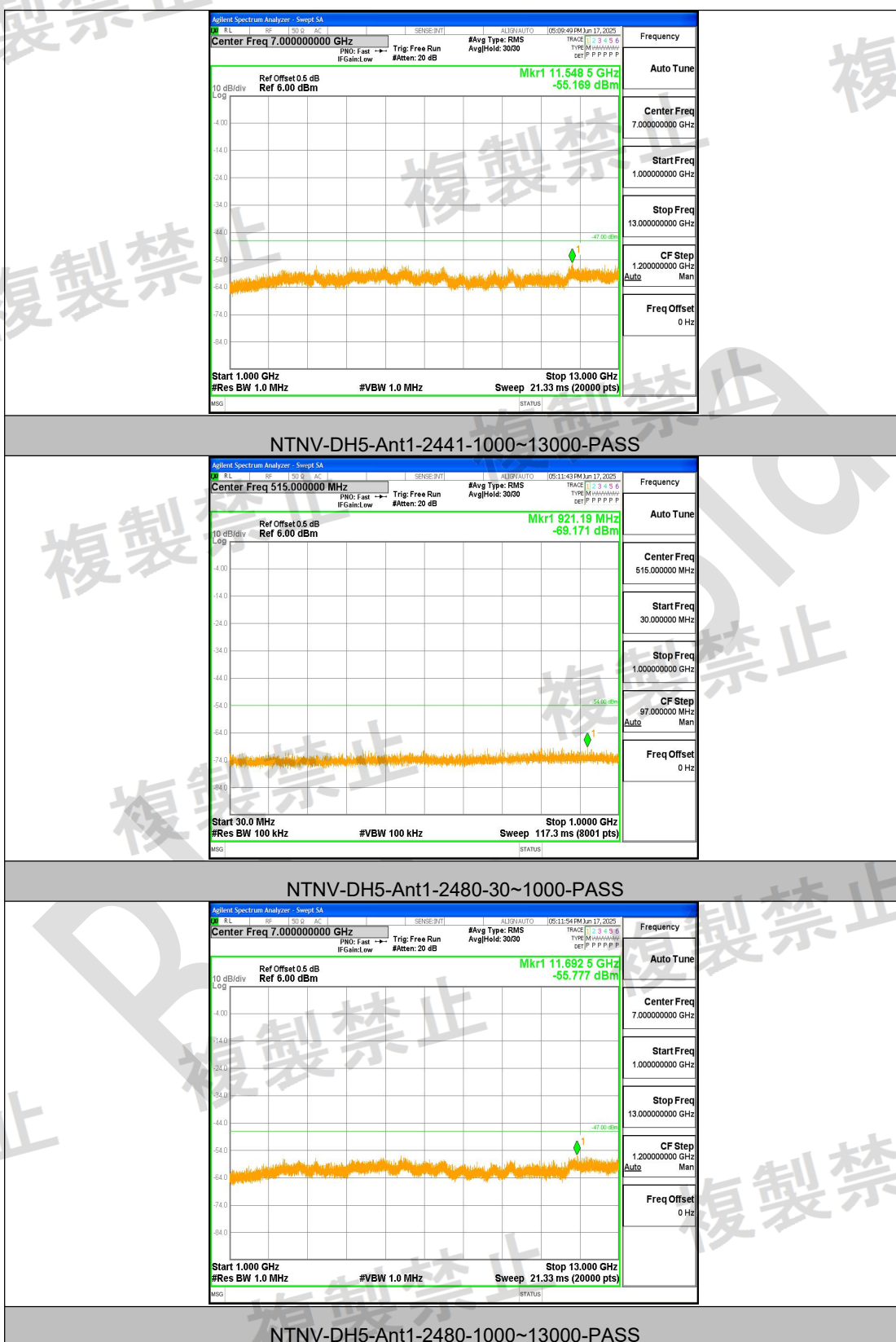
Test Requirement:	Item 19 of Article 2 Paragraph 1		
Test Method:	MIC Notice No.88 Appendix No.43		
EUT Operation:			
Ambient:	Temp.: 24°C	Humid.: 46%	Press.: 1010 mbar
Test Status:	Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, 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:	 <pre> graph LR EUT[EUT] --> SA[Spectrum Analyzer] </pre>		
EUT conditions:	Rx		
Measurement Procedure:	Step1 All spurious are measured from 30MHz to 13 GHz by peak mode.		
Spectrum Analyzer conditions(Step 1):	Frequency: 30MHz – 2400MHz , 2483.5MHz –13GHz 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		
Spectrum Analyzer Conditions(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		
Technical standard:	(1) Below 1 GHz : 4 nW ; -54dbm (2) 1 GHz and over : 20 nW ; -47dbm		
Test result:	PASS		

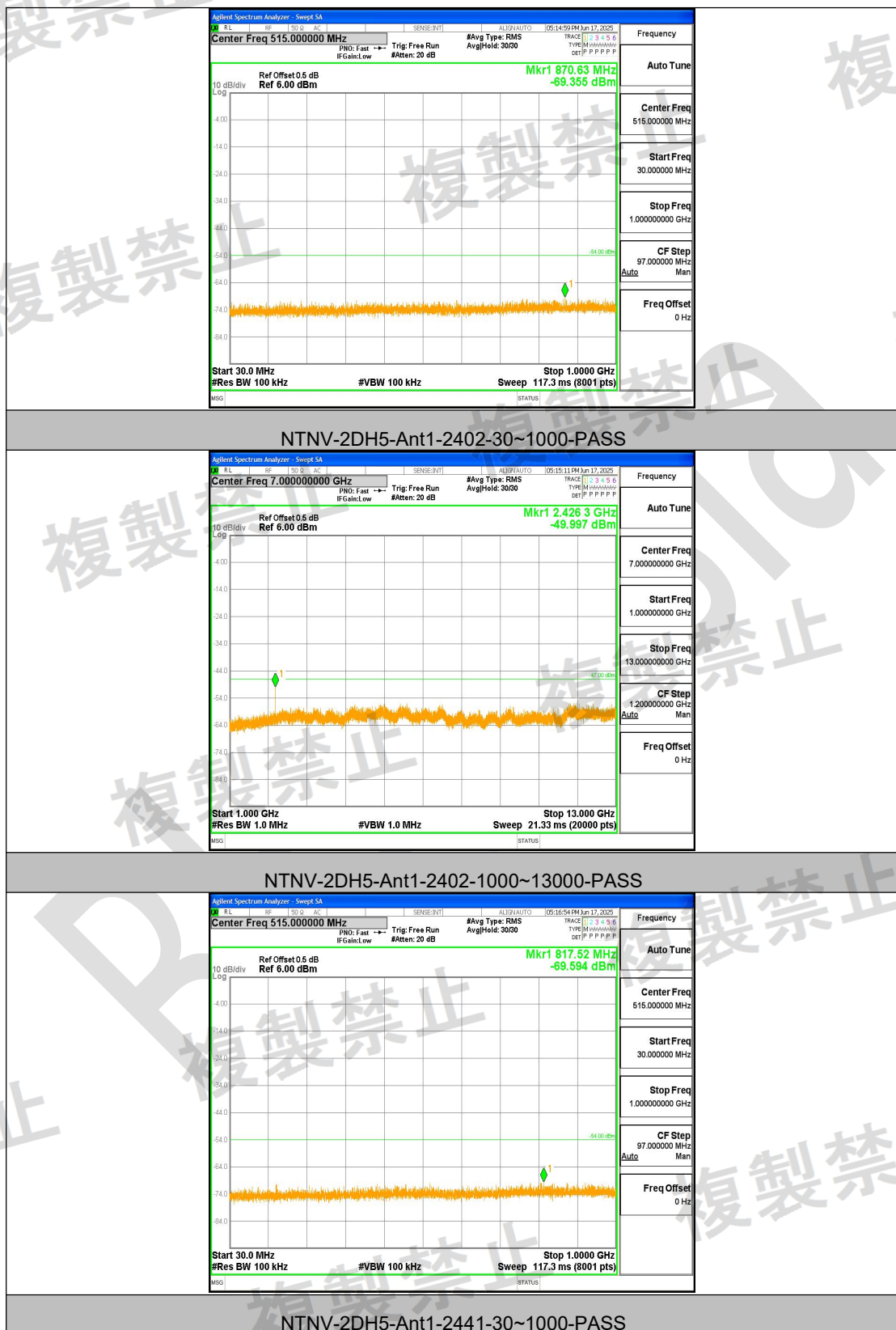
Test Result

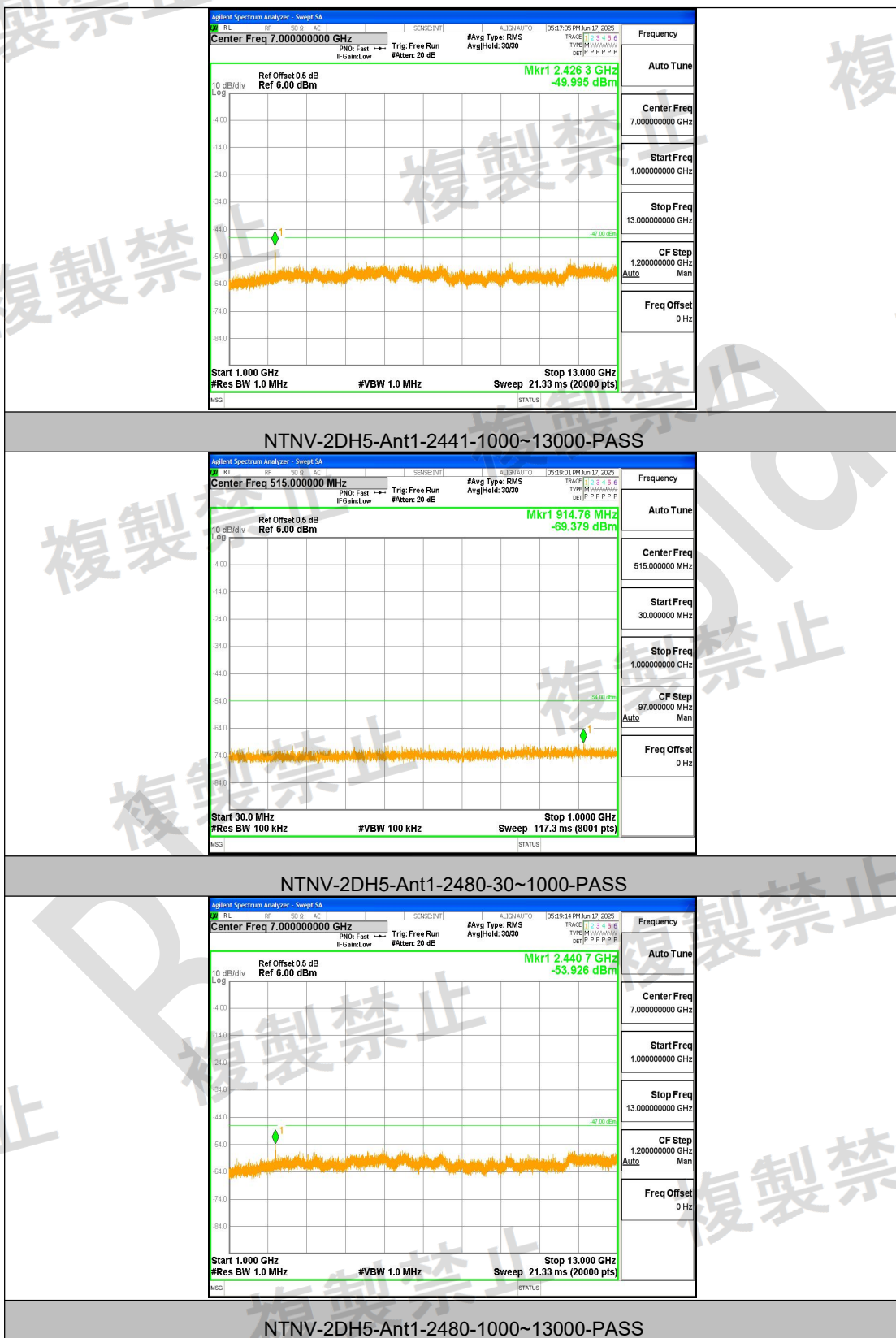
Test Condition	Test Mode	Antenna	Frequency [MHz]	Freq. Range [MHz]	Freq. [MHz]	Result [dBm]	Limit [dBm]	Verdict
NTNV	DH5	Ant1	2402	30~1000	912.94	-68.08	≤-54	PASS
NTNV	DH5	Ant1	2402	1000~13000	5245.81	-53.52	≤-47	PASS
NTNV	DH5	Ant1	2441	30~1000	953.08	-69.73	≤-54	PASS
NTNV	DH5	Ant1	2441	1000~13000	11548.53	-55.17	≤-47	PASS
NTNV	DH5	Ant1	2480	30~1000	921.19	-69.17	≤-54	PASS
NTNV	DH5	Ant1	2480	1000~13000	11692.53	-55.78	≤-47	PASS
NTNV	2DH5	Ant1	2402	30~1000	870.63	-69.36	≤-54	PASS
NTNV	2DH5	Ant1	2402	1000~13000	2426.27	-50.00	≤-47	PASS
NTNV	2DH5	Ant1	2441	30~1000	817.52	-69.59	≤-54	PASS
NTNV	2DH5	Ant1	2441	1000~13000	2426.27	-50.00	≤-47	PASS
NTNV	2DH5	Ant1	2480	30~1000	914.76	-69.38	≤-54	PASS
NTNV	2DH5	Ant1	2480	1000~13000	2440.67	-53.93	≤-47	PASS
NTNV	3DH5	Ant1	2402	30~1000	911.25	-69.19	≤-54	PASS
NTNV	3DH5	Ant1	2402	1000~13000	5696.43	-55.53	≤-47	PASS
NTNV	3DH5	Ant1	2441	30~1000	826.37	-69.54	≤-54	PASS
NTNV	3DH5	Ant1	2441	1000~13000	6358.87	-55.46	≤-47	PASS
NTNV	3DH5	Ant1	2480	30~1000	776.42	-69.27	≤-54	PASS
NTNV	3DH5	Ant1	2480	1000~13000	5749.84	-55.59	≤-47	PASS

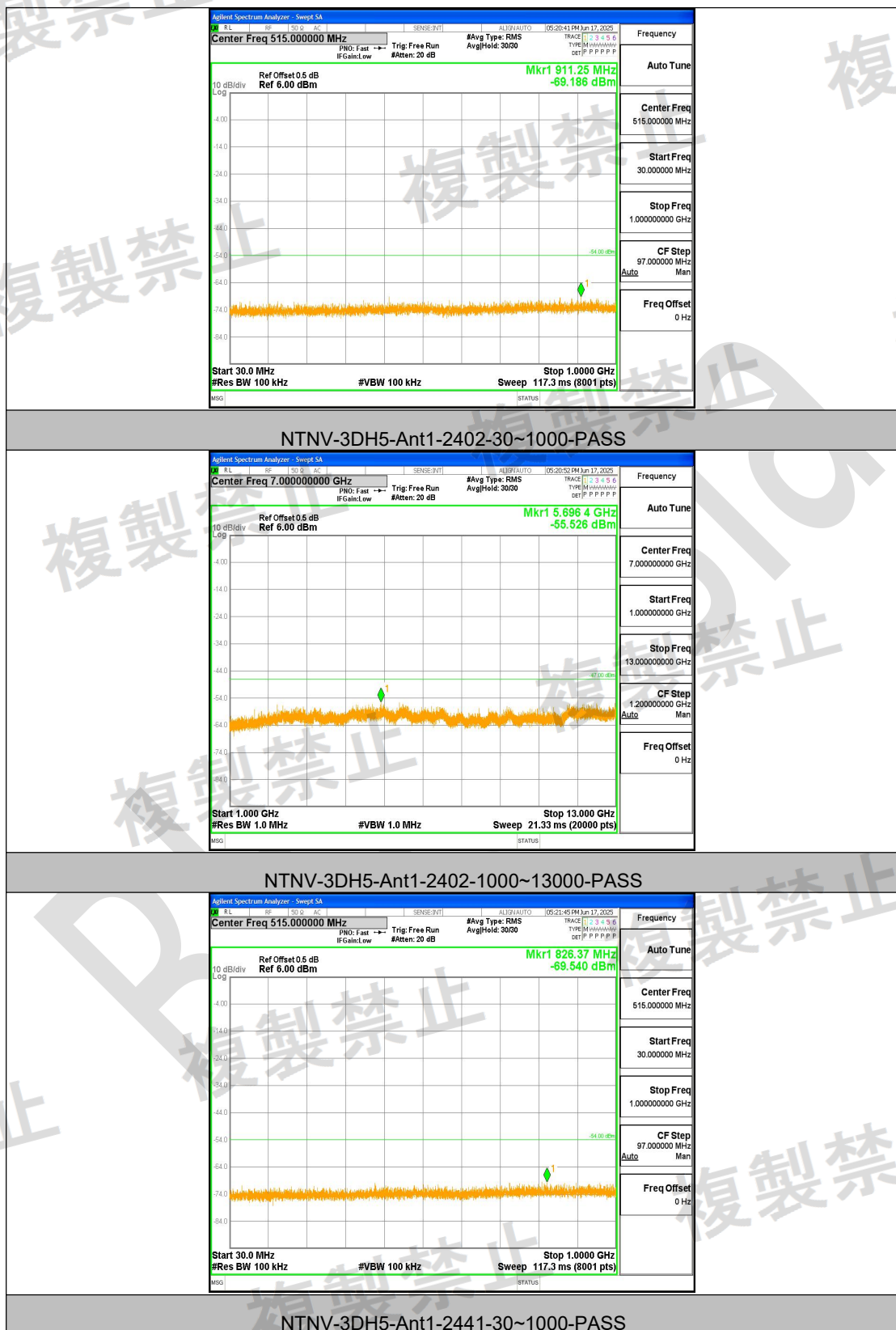
Test Graphs

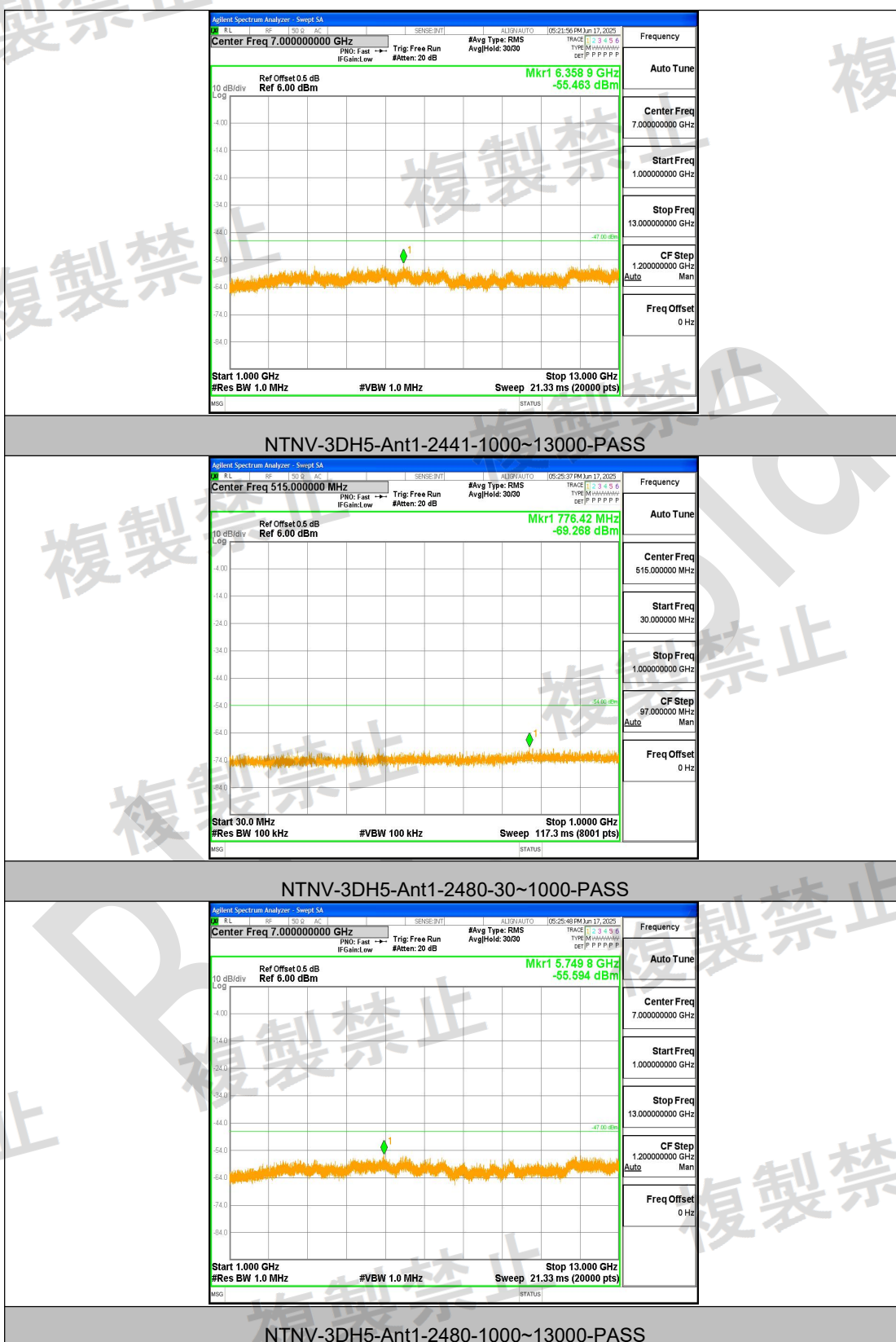




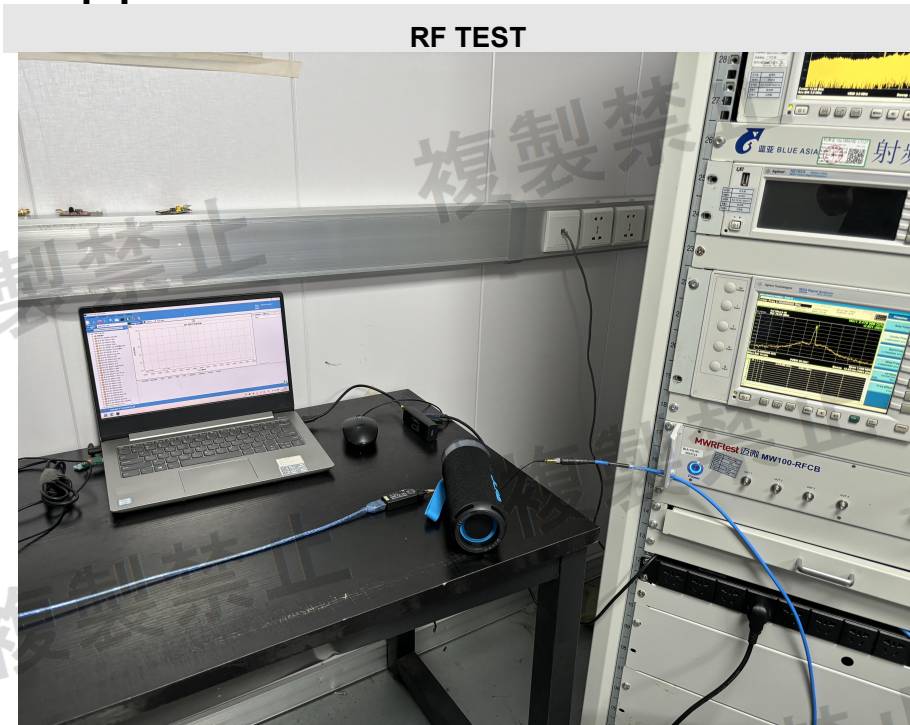








7 Test setup photo



8 Photographs

8.1 EUT Constructional Details

Reference to the test report no. BLA-EMC-202506-A5301

*** End of Report ***

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BlueAsia Technical Services (Shenzhen) Co., Ltd

Tel: +86-755-23059481

Email: marketing@cbblueasia.com www.cbblueasia.com

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