



Radio Test Report

Report No.: RJ180912C10

Test Model: ZenoCCU

Received Date: Sep. 12, 2018

Test Date: Oct. 16 ~ Nov. 16, 2018

Issued Date: Nov. 26, 2018

Applicant: ADVANTECH CO., LTD

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

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Test Location: No.19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.)



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Release Control Record

Issue No.	Description	Date Issued
RJ180912C10	Original release	Nov. 26, 2018



1 Certificate of Conformity

Product: IPC

Brand: Zenoway

Test Model: ZenoCCU

Sample Status: Engineering sample

Applicant: ADVANTECH CO., LTD

Test Date: Oct. 16 ~ Nov. 16, 2018

Standards: ARIB STD-T66 (V3.7), MIC notice 88 Appendix 43
Certification Ordinance Article 2-1-19
RCR STD-33 (V5.4), MIC notice 88 Appendix 44
Article 2 Paragraph 1 of Item 19-2

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

Prepared by : Pettie Chen, **Date:** Nov. 26, 2018
Pettie Chen / Senior Specialist

Approved by : Bruce Chen, **Date:** Nov. 26, 2018
Bruce Chen / Project Engineer



2 Summary of Test Results

The EUT has been tested according to the following specifications:

Notice 88 Appendix 43 Reference	ARIB STD-T66 Ref.	Report Reference	Parameter	Test Results (Note)
General Provisions				
C	3.2 (4)	4.1	Frequency tolerance	C
D	3.2 (7)	4.2	Occupied bandwidth	C
E	3.2 (6)	4.4	Spurious emissions	C
Transmitting Equipment				
F	--	4.5	Antenna power	C
--	--	--	SAR	NA
Transmitting Antenna				
--	--	3.6	Type, configuration, etc. of transmitting antenna	C
--	--	3.6	Direction pattern of transmitting antenna	C
Receiving Equipment				
G	3.3 (1)	4.6	Spurious emissions of receiver	C
--	--	3.5	Refer to all articles for transmitting antenna	C
Operating Frequency 2400 to 2483.5MHz				
--	3.7 (1)	3.4	High Frequency / modulation section cannot be opened easily	C
--	3.1 (1)	3.1	Communication method	C
--	3.2 (1)a	3.1	Modulation method	C
--	3.2 (1)a	3.1	Spread spectrum method	C
--	3.2 (2)	4.5	Antenna power	C
--	3.6 (2)	4.5	Absolute gain of transmitting antenna	C
--	3.6 (2)	4.5	Angular width of principal radiation (AWPR)	C
--	3.2 (10)	4.9	Number of carriers within 1 MHz bandwidth in OFDM	C
--	3.2 (8)	4.3	Spreading bandwidth	C
--	3.2 (9)	4.3	Spreading factor	C
--	3.2 (11)	--	Frequency retention time (FH employed)	NA
--	3.4.1(1)	4.8	Interference Prevention Function	C
--	3.4.1(3)	4.7	Carrier Sense Capability	C
Note: C = Conform NC = Not Conform NT = Not Tested NA = Not Applicable				



Notice 88 Appendix 44 Reference	RCR STD-33 REF.	Report Reference	Parameter	Test Results (Note)
General Provisions				
C	3.2 (3)	4.1	Frequency tolerance	C
D	3.2 (7)	4.3	Occupied bandwidth	C
E	3.2 (6)	4.5	Spurious emissions	C
Transmitting Equipment				
F	--	4.6	Antenna power	C
--	--	--	SAR	NA
Transmitting Antenna				
--	--	3.6	Type, configuration, etc. of transmitting antenna	C
--	--	3.6	Direction pattern of transmitting antenna	C
Receiving Equipment				
H	3.3 (1)	4.7	Spurious emissions of receiver	C
--	--	3.4	Refer to all articles for transmitting antenna	C
Operating Frequency 2471 to 2497MHz				
49.20(2); a	3.7-1	3.2	High Frequency	C
49.20(2); a	3.7-1	3.4	Modulation section cannot be opened easily	
49.20(2); b	3.1	3.1	Communication method	C
49.20(2); c	3.2-4a.	3.1	Spread spectrum method	C
49.20(2); d	3.2-1	4.6	Antenna power	C
49.20(2); e	3.6-2	4.5	Absolute gain of transmitting antenna	C
49.20(2); f	3.2-8	4.3	Spreading bandwidth	C
49.20(2); g	3.2-9	4.3	Spreading factor	C
49.20(2); h	3.5-2	4.8	Interference immunity function	C
NOTE 1: C = Conform NC = Not Conform NT = Not Tested NA = Not Applicable				



2.1 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration	Calibration Authority	Cal. Method
Spectrum Analyzer / Rohde & Schwarz	FSV40	100980	Apr. 17, 2018	Apr. 16, 2019	Electronics Testing Center, Taiwan	c)
Signal Generator / Agilent	E4438C	MY45094468	Nov. 26, 2017	Nov. 25, 2018	Electronics Testing Center, Taiwan	c)
Power Meter / Anritsu	ML2495A	1232003	Dec. 29, 2017	Dec. 28, 2018	Electronics Testing Center, Taiwan	c)
Power Sensor / Anritsu	MA2411B	1207333	Dec. 28, 2017	Dec. 27, 2018	Electronics Testing Center, Taiwan	c)
Power Splitter / Agilent	11667B	52805	NA	NA	NA	d)
Power Splitter / Agilent	11667B	11628	NA	NA	NA	d)
DC Power Supply / Topward	6306A	727263	NA	NA	NA	d)

NOTE: Calibration Method

a) : Calibration conducted by the National Institute of Information and Communications Technology~NICT~ or a designated calibration agency under Article 102-18 paragraph (1)~ TELEC EngineeringCenter, Intertek Japan K.K., Keysight Technologies, Inc~.

b) : Correction conducted pursuant to the provisions of Article 135 or Article 144 of the MeasurementLaw (Law No. 51 of 1992)~Japan Calibration Service System~

c) : Calibration conducted in foreign countries, which shall be equivalent to the calibration conducted bythe NICT or a designated calibration agency under Article 102-18 paragraph (1)~ TELEC EngineeringCenter, Intertek Japan K.K., Keysight Technologies, Inc~.

d) : Calibration conducted by using other equipment that listed above from a) to c)

2.2 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in TR 100 028-1.

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

Parameter	Uncertainty
Occupied Bandwidth	491.896Hz
Spurious emissions	3.508dB
Output power density	2.889dB
Out of band radiated power	3.93dB
Frequency Tolerance	6805.18Hz

2.3 Modification Record

There were no modifications required for compliance.



3 General Information

3.1 General Description of EUT

Product	IPC
Brand	Zenoway
Test Model	ZenoCCU
Status of EUT	Engineering sample
Nominal Voltage	9-60Vdc
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b: 11/5.5/2/1Mbps 802.11g: 54/48/36/24/18/12/9/6Mbps 802.11n: up to 300Mbps
Operating Frequency	802.11b: 2412~2472MHz 802.11g/n (HT20): 2412~2472MHz 802.11n (HT40): 2422~2462MHz
Number of Channel	802.11b: 14 802.11g, 802.11n (HT20): 13 802.11n (HT40): 9
Rated RF Output Power Density	Refer to note
Conducted RF Output Power Density	Refer to note
Radiated RF Output Power Density	Refer to note
Antenna Type	Refer to note
Antenna Connector	Refer to note
Accessory Device	NA
Data Cable Supplied	NA

Note:

1. The EUT incorporates a MIMO function. Physically, the EUT provides 2 completed transmitters and 2 receivers.

Band	Modulation Mode	TX Function
2.4GHz	802.11b	2TX
	802.11g	2TX
	802.11n (HT20)	2TX
	802.11n (HT40)	2TX

2. The EUT uses following antenna.

Antenna 1							
Type	Monopole						
Connector	RP-SMA(M)						
Straight position							
Frequency (MHz)	2400	2450	2500	5150	5350	5750	5850
Gain (dBi)	1.04	1.25	0.82	0.85	1.38	0.28	1.04
Bent position 90°							
Frequency (MHz)	2400	2450	2500	5150	5350	5750	5850
Gain (dBi)	1.19	1.57	2.57	0.66	1.03	0.59	1.19



Antenna 2		
Type	Monopole	
Connector	SMA Male Reverse	
Frequency (MHz)	2400~2500	5150~5850
Gain (dBi)	1.64	-2.9

* The antenna 1 is the worst case for final tests.

3. The power table as below:

	Rated power (mW/MHz)	Conducted RF output power density (mW/MHz)	Radiated RF output power density (mW/MHz)
802.11b (Ch1-13)	9.0	8.712	15.744
802.11b (Ch 14)	9.0	8.281	14.965
802.11g	9.0	8.494	15.350
802.11n (HT20)	9.0	8.732	15.780
802.11n (HT40)	4.4	4.356	7.872



3.2 Description of Test Modes

Operated in 2412 ~ 2472MHz band:

14 channels are provided for 802.11b:

Channel	Freq. (MHz)	Channel	Freq. (MHz)
1	2412	8	2447
2	2417	9	2452
3	2422	10	2457
4	2427	11	2462
5	2432	12	2467
6	2437	13	2472
7	2442	14	2484

13 channels are provided for 802.11g, 802.11n (HT20):

Channel	Freq. (MHz)	Channel	Freq. (MHz)
1	2412	8	2447
2	2417	9	2452
3	2422	10	2457
4	2427	11	2462
5	2432	12	2467
6	2437	13	2472
7	2442		

9 channels are provided for 802.11n (HT40):

Channel	Freq. (MHz)	Channel	Freq. (MHz)
3	2422	8	2447
4	2427	9	2452
5	2432	10	2457
6	2437	11	2462
7	2442		

Note: The channels which were indicated in bold type of the above channel list were selected as representative test channel. Therefore only the data of the test channels were recorded in this report.



By means of test software (QRCT v3.0.252.0) provided by manufacture, the power levels during the tests were set according to the following codes:

802.11b		802.11g	
Channel	Power Setting	Channel	Power Setting
1	14.5	1	18
7	14.5	7	18.5
13	14	13	18
14	17.5		
802.11n (HT20)		802.11n (HT40)	
Channel	Power Setting	Channel	Power Setting
1	18.5	3	19
7	19	7	19
13	18.5	11	18

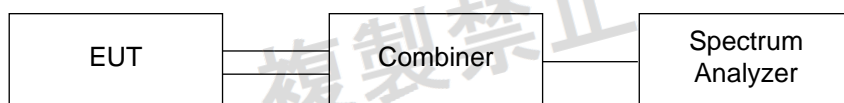
3.3 Test Conditions

Test Conditions	Voltage (Vdc)
V_{normal}	24
$V_{\text{max.}}$	26.4
$V_{\text{min.}}$	21.6

3.4 Assembly

The EUT used a kind of particular screw, which could not operated by a tool bought in the market. Only means of brute force will be able to open.

3.5 Test Setup





3.6 Antenna Specifications

3.6.1 Antenna Gain

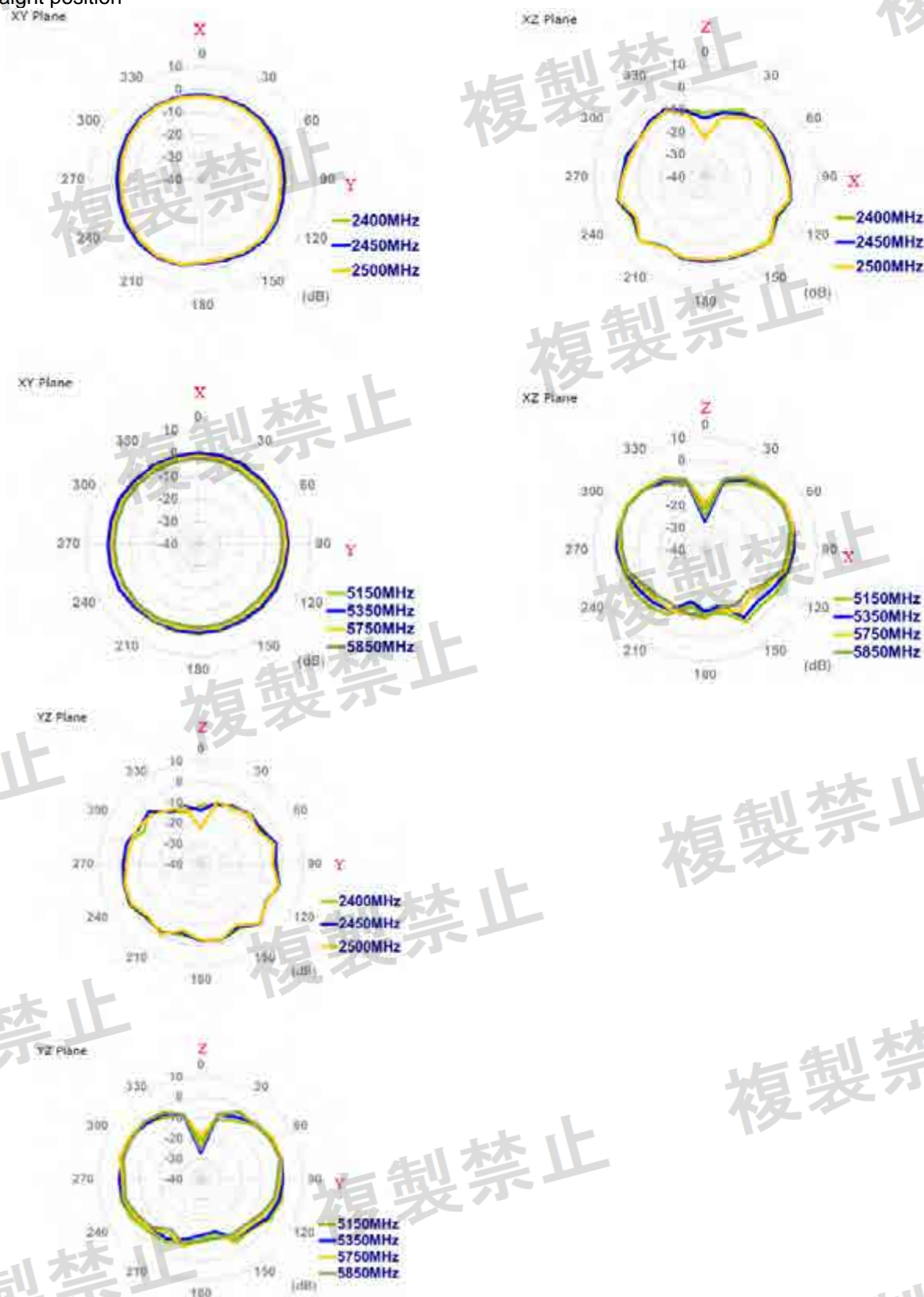
Antenna 1							
Type	Monopole						
Connector	RP-SMA(M)						
Straight position							
Frequency (MHz)	2400	2450	2500	5150	5350	5750	5850
Gain (dBi)	1.04	1.25	0.82	0.85	1.38	0.28	1.04
Bent position 90°							
Frequency (MHz)	2400	2450	2500	5150	5350	5750	5850
Gain (dBi)	1.19	1.57	2.57	0.66	1.03	0.59	1.19

Antenna 2			
Type	Monopole		
Connector	SMA Male Reverse		
Frequency (MHz)	2400~2500		5150~5850
Gain (dBi)	1.64		-2.9

3.6.2 Antenna Pattern

Antenna 1

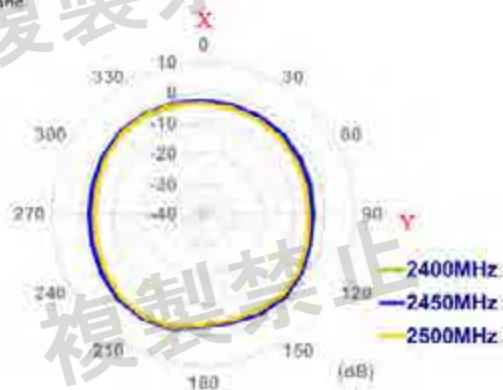
Straight position



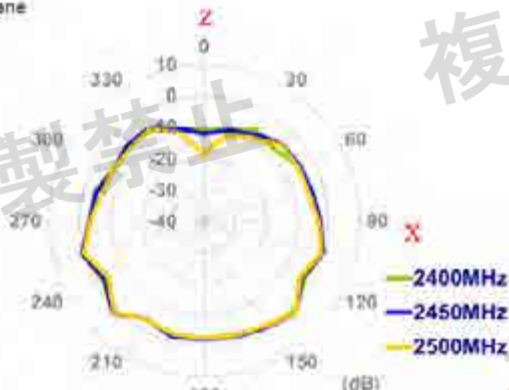


Bent position

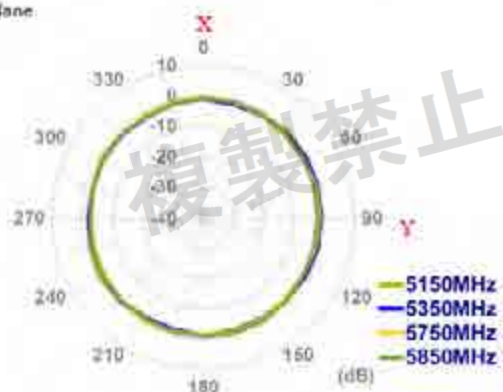
XY Plane



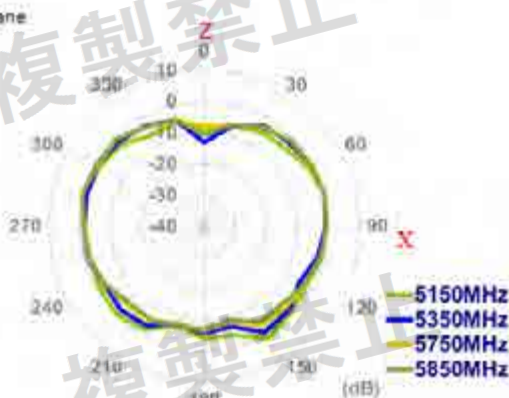
XZ Plane



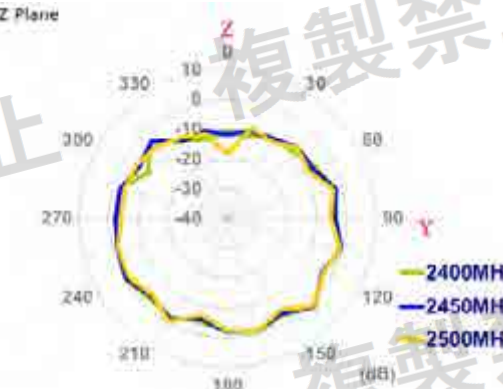
XY Plane



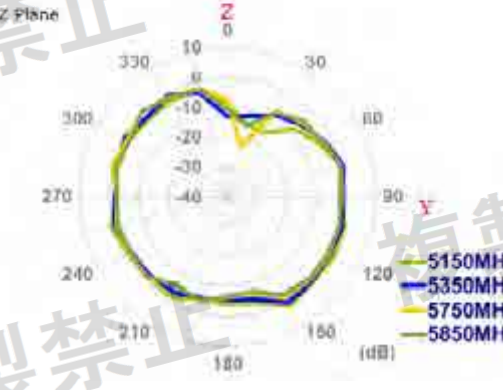
XZ Plane



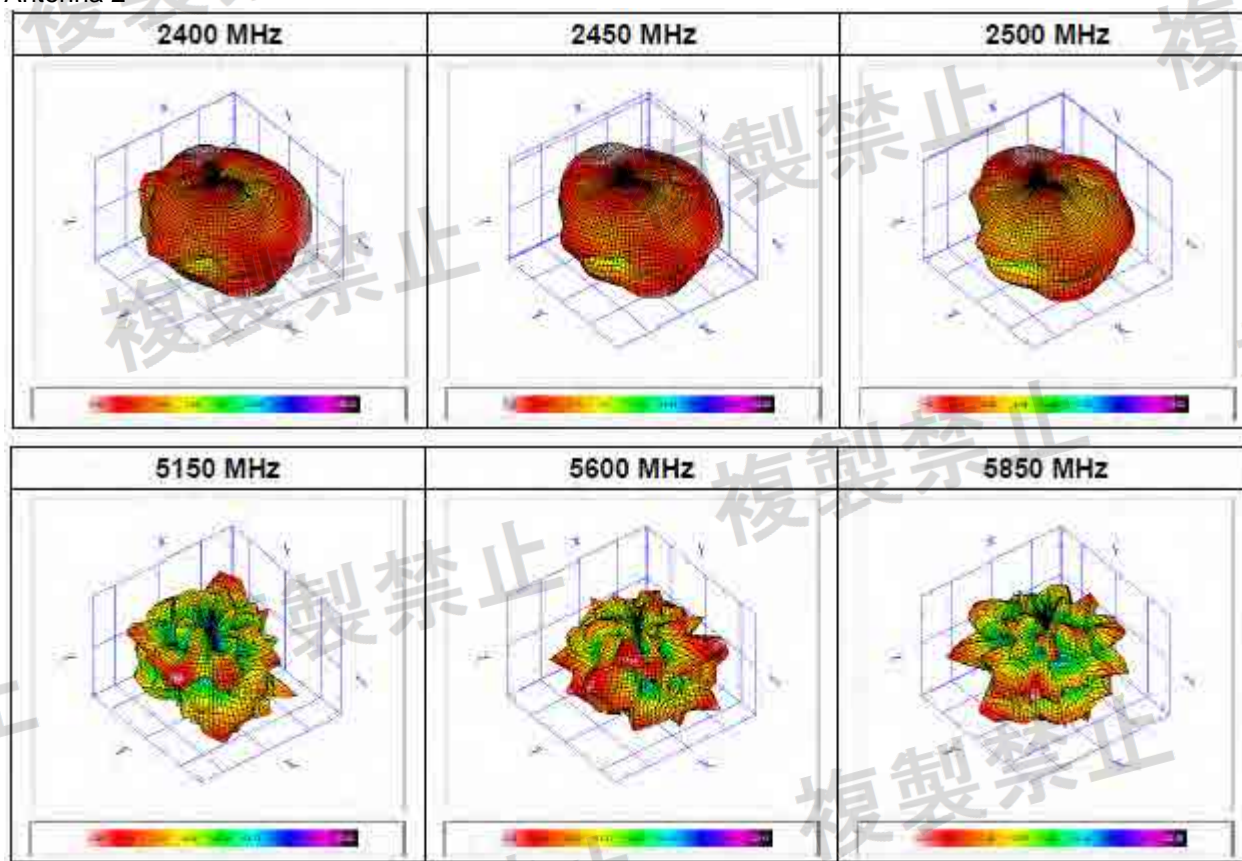
YZ Plane



YZ Plane



Antenna 2





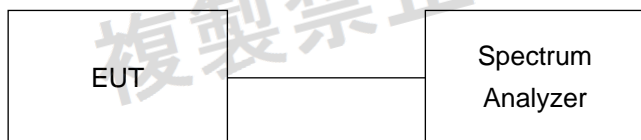
4 Test Results

4.1 Frequency Tolerance Measurement

4.1.1 Limits of Frequency Tolerance Measurement

Tolerance of frequency shall be +/- 50ppm

4.1.2 Test Setup



4.1.3 Test Results

802.11b / 802.11g / 802.11n (HT20)

Environmental Conditions		25 deg.C, 60% RH					
Channel	Frequency (MHz)	Vnormal		Vmax.		Vmin.	
		Carrier frequency (MHz)	Frequency tolerance (ppm)	Carrier frequency (MHz)	Frequency tolerance (ppm)	Carrier frequency (MHz)	Frequency tolerance (ppm)
1	2412	2411.978400	-8.955	2411.980000	-8.291	2411.983600	-6.799
7	2442	2441.982400	-7.207	2441.985200	-6.060	2441.986000	-5.733
13	2472	2471.984400	-6.310	2471.986000	-5.663	2471.987200	-5.177
14	2484	2483.985600	-5.797	2483.987200	-5.152	2483.988000	-4.830

802.11n (HT40)

Environmental Conditions		25 deg.C, 60% RH					
Channel	Frequency (MHz)	Vnormal		Vmax.		Vmin.	
		Carrier Frequency (MHz)	Frequency Tolerance (ppm)	Carrier Frequency (MHz)	Frequency Tolerance (ppm)	Carrier Frequency (MHz)	Frequency Tolerance (ppm)
3	2422	2421.986000	-5.780	2421.987600	-5.119	2421.988000	-4.954
7	2442	2441.986400	-5.569	2441.988000	-4.914	2441.988000	-4.914
11	2462	2461.986400	-5.523	2461.987600	-5.036	2461.988400	-4.711



4.2 Occupied Bandwidth Measurement (99% power bandwidth)

4.2.1 Limits of Occupied Bandwidth Measurement

Item	Limit	Remark
Occupied bandwidth	<26MHz	For 802.11b, g & 802.11n (HT20)
Occupied bandwidth	<38MHz	For 802.11n (HT40)

4.2.2 Test Setup





4.2.3 Test Results

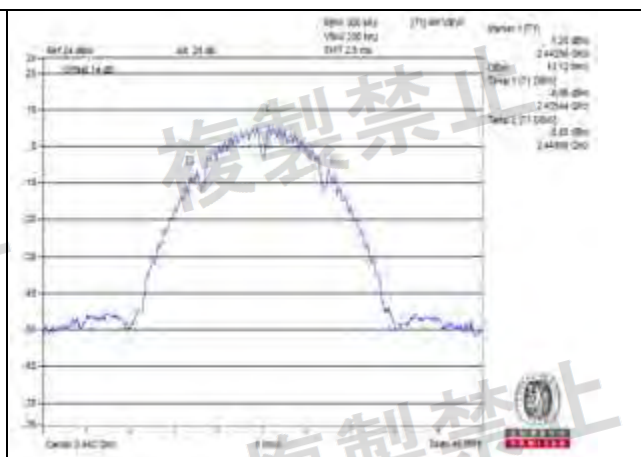
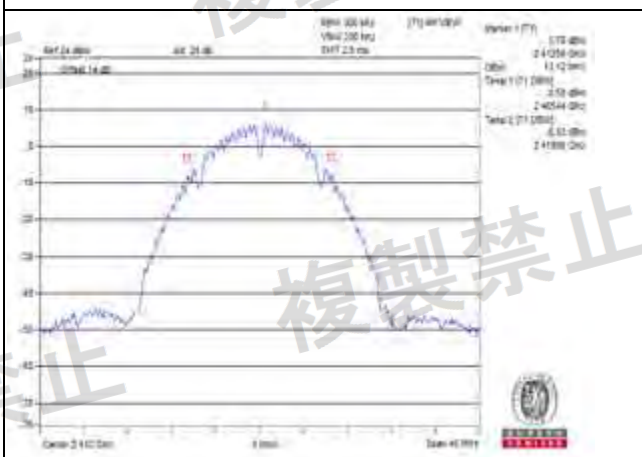
802.11b

Transmission Rate: 1M

Environmental Conditions		25 deg.C, 60% RH		
Channel	Frequency (MHz)	Vnormal	Vmax.	Vmin.
		Occupied Bandwidth (MHz)	Occupied Bandwidth (MHz)	Occupied Bandwidth (MHz)
1	2412	13.12	13.12	13.12
7	2442	13.12	13.12	13.12
13	2472	13.12	13.12	13.12
14	2484	19.04	19.04	19.04

Note: For the test plots please refer to the below pages.

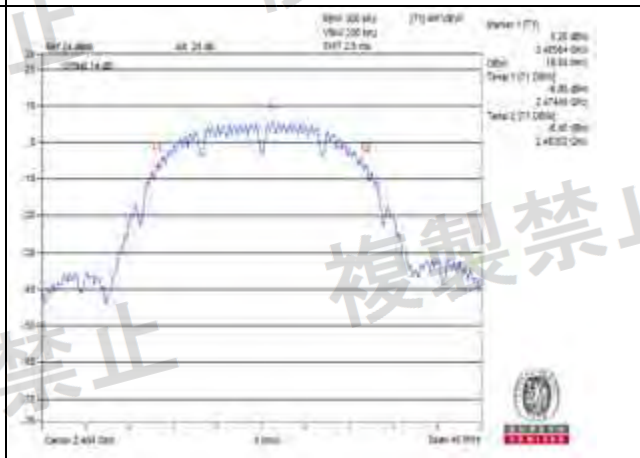
Vnormal



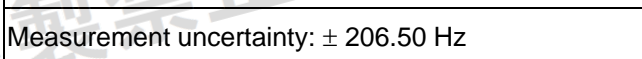
Channel 1



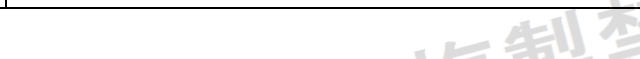
Channel 7



Channel 13



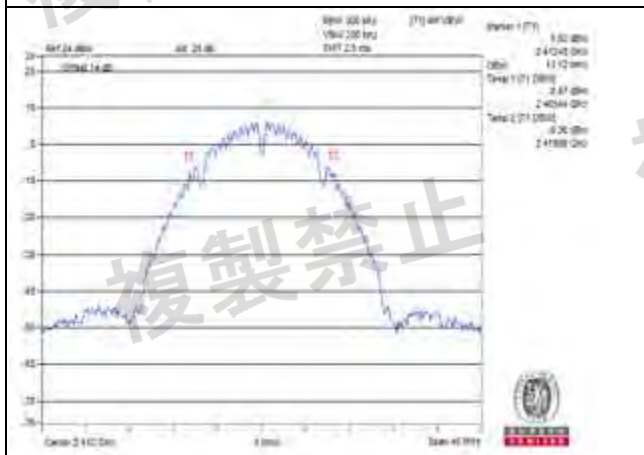
Channel 14



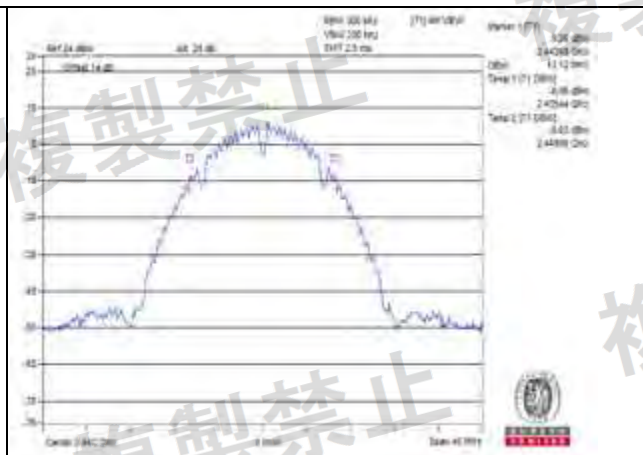
Measurement uncertainty: ± 206.50 Hz



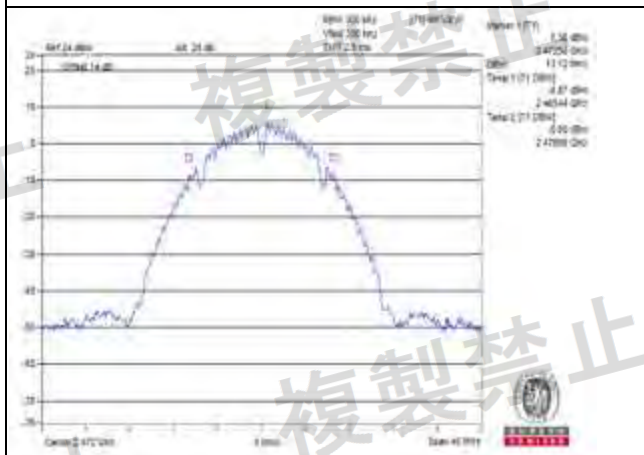
Vmax.



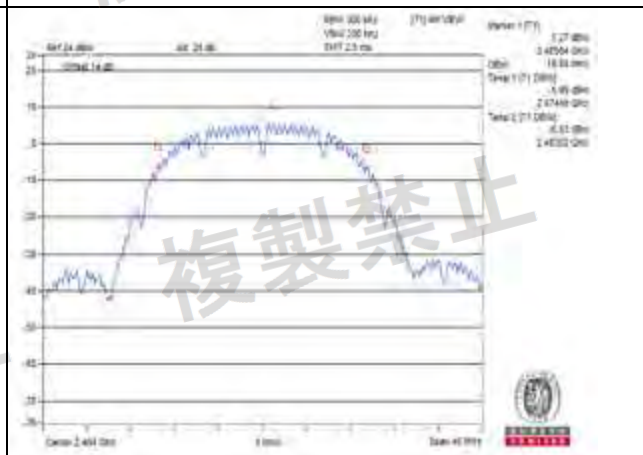
Channel 1



Channel 7



Channel 13

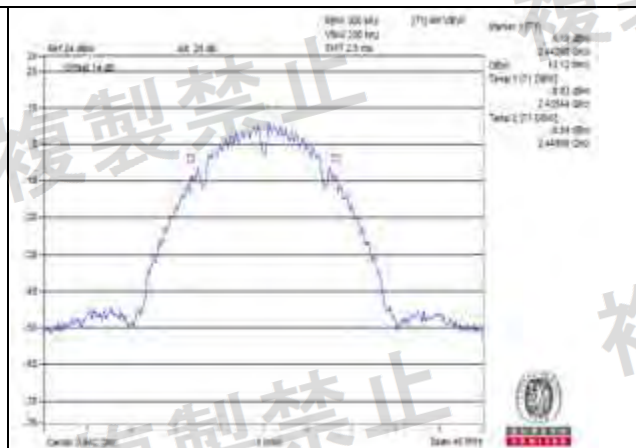
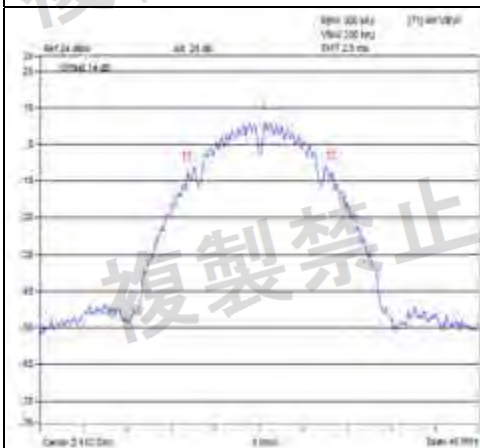


Channel 14

Measurement uncertainty: ± 206.50 Hz

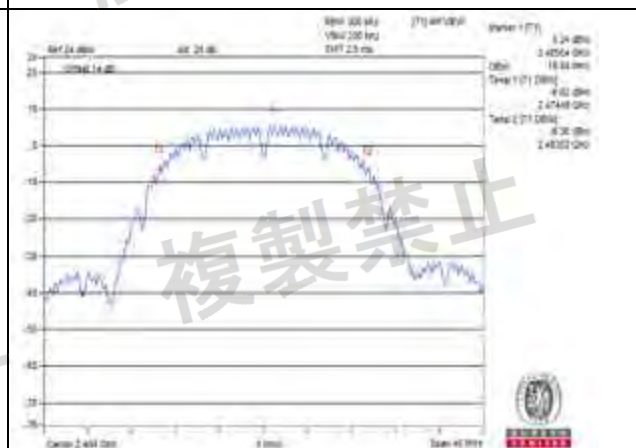
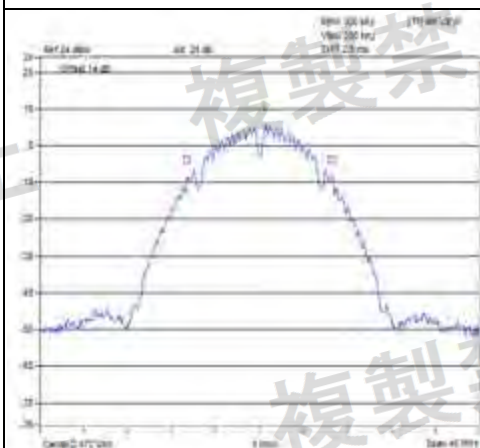


V_{min}.



Channel 1

Channel 7



Channel 13

Channel 14

Measurement uncertainty: ± 206.50 Hz

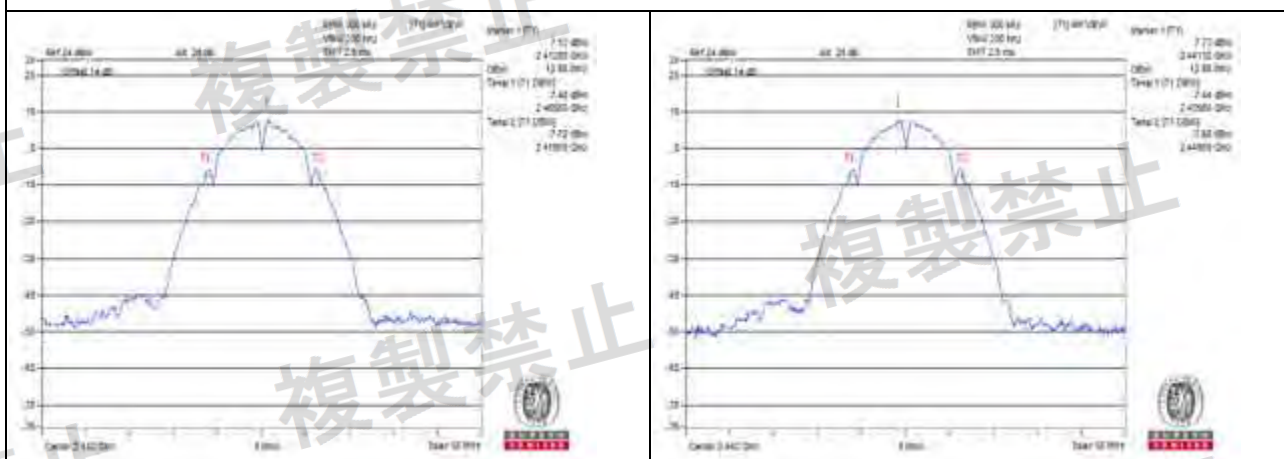


Transmission Rate: 2M

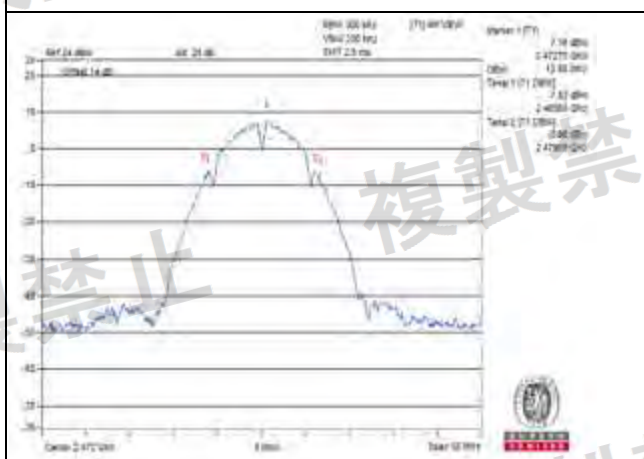
Environmental Conditions		25 deg.C, 60% RH		
Channel	Frequency (MHz)	Vnormal	Vmax.	Vmin.
		Occupied Bandwidth (MHz)	Occupied Bandwidth (MHz)	Occupied Bandwidth (MHz)
1	2412	12.90	12.90	12.90
7	2442	12.90	12.90	12.90
13	2472	12.90	12.90	12.90
14	2484	19.00	19.00	19.00

Note: For the test plots please refer to the below pages.

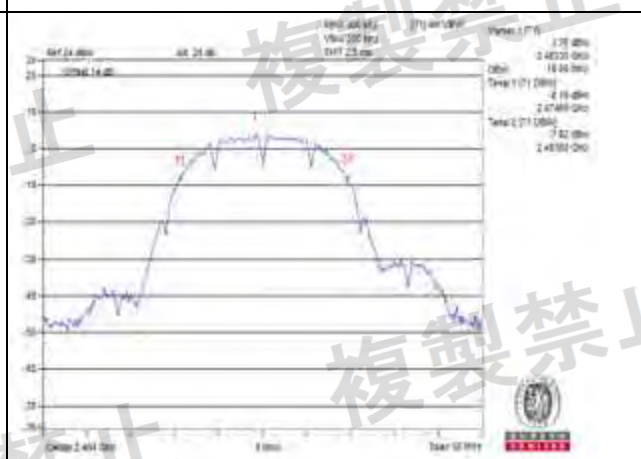
Vnormal



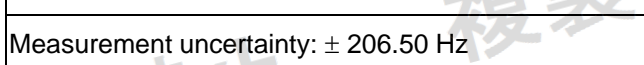
Channel 1



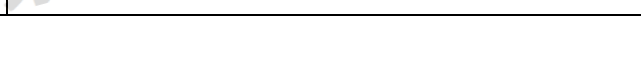
Channel 7



Channel 13



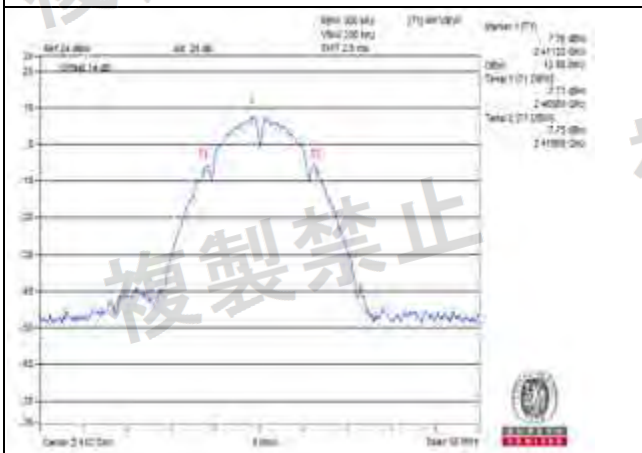
Channel 14



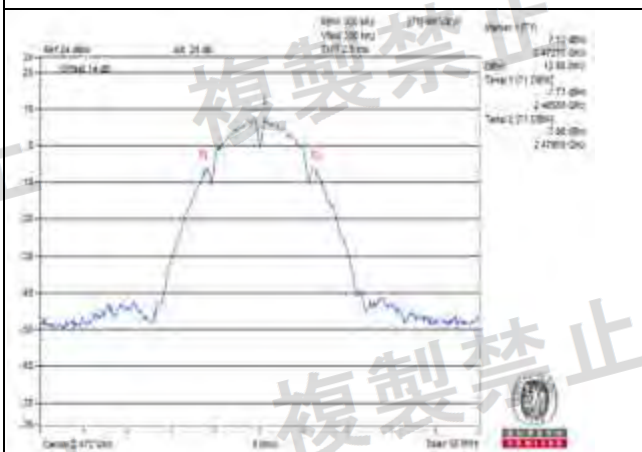
Measurement uncertainty: ± 206.50 Hz



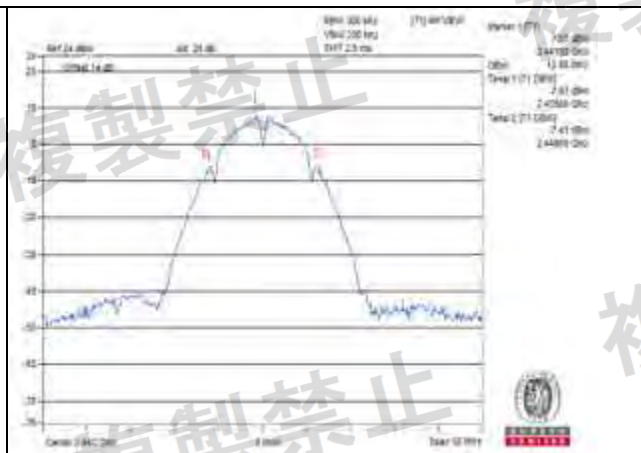
Vmax.



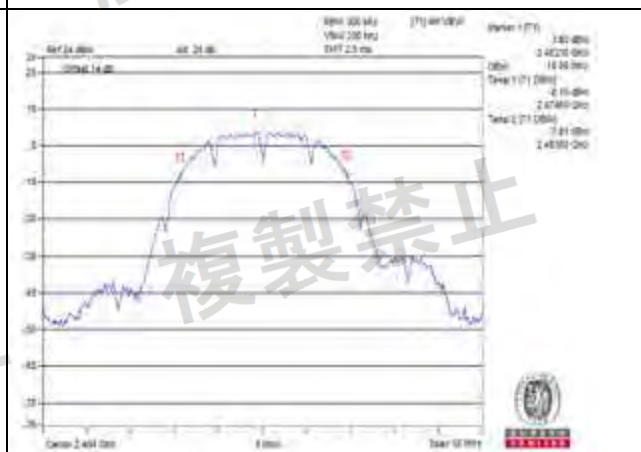
Channel 1



Channel 13



Channel 7



Channel 14

Measurement uncertainty: ± 206.50 Hz

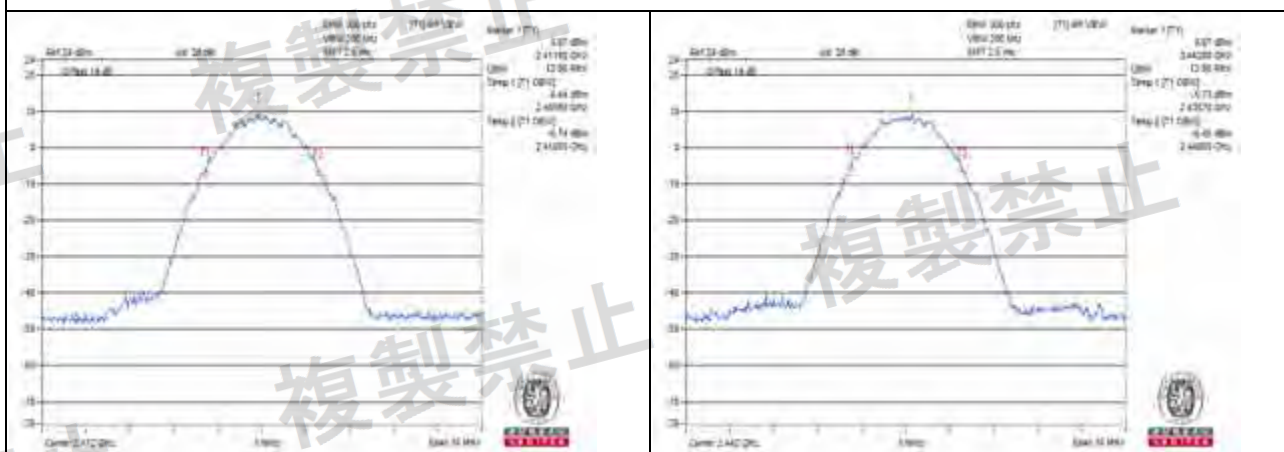


Transmission Rate: 5.5M

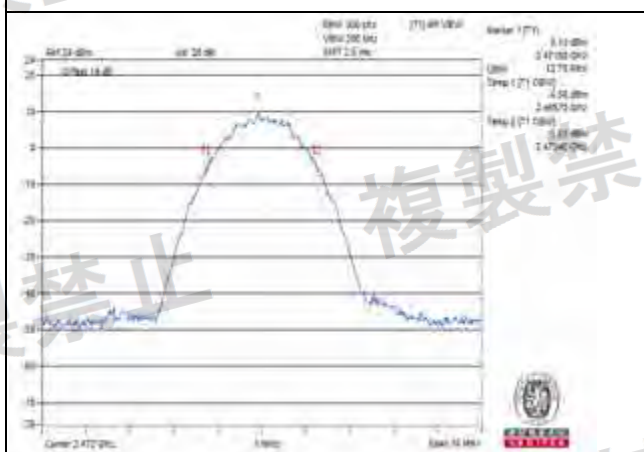
Environmental Conditions		25 deg.C, 60% RH		
Channel	Frequency (MHz)	Vnormal	Vmax.	Vmin.
		Occupied Bandwidth (MHz)	Occupied Bandwidth (MHz)	Occupied Bandwidth (MHz)
1	2412	12.90	12.90	12.90
7	2442	12.80	12.80	12.80
13	2472	12.70	12.70	12.70
14	2484	18.90	19.00	19.00

Note: For the test plots please refer to the below pages.

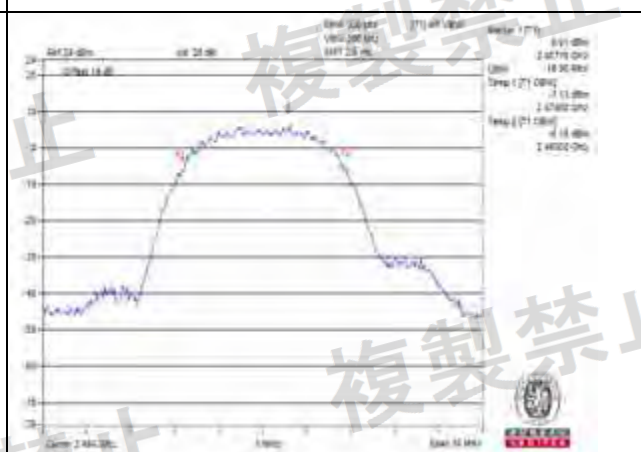
Vnormal



Channel 1



Channel 7



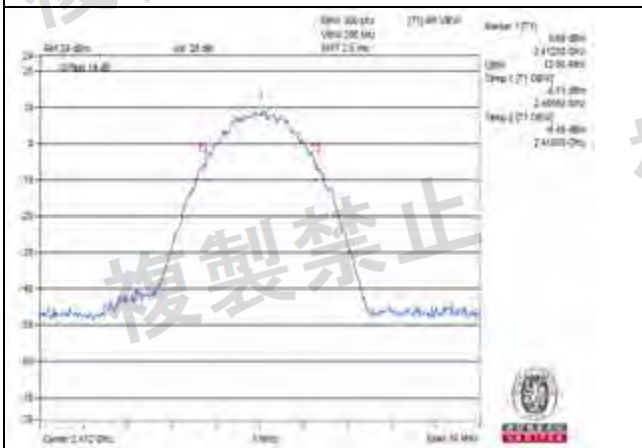
Channel 13

Measurement uncertainty: ± 206.50 Hz

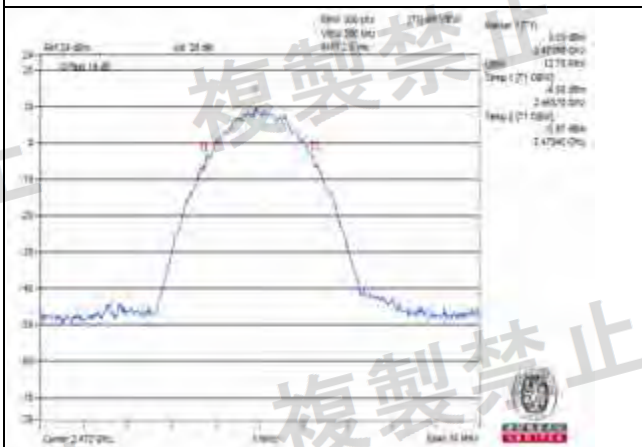
Channel 14



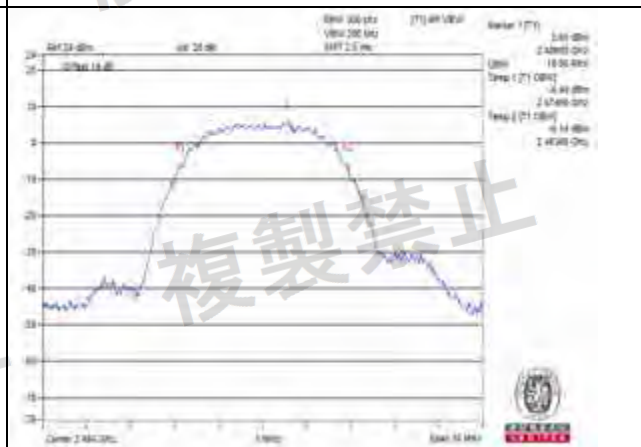
Vmax.



Channel 1



Channel 7



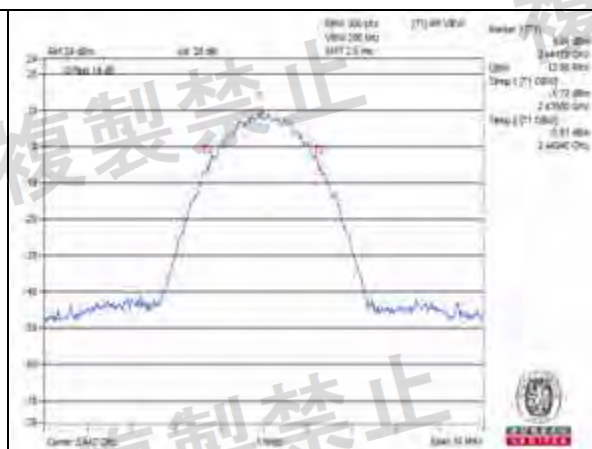
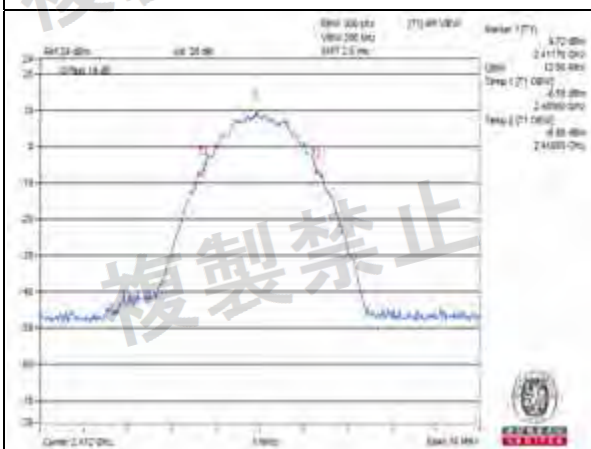
Channel 13

Channel 14

Measurement uncertainty: ± 206.50 Hz

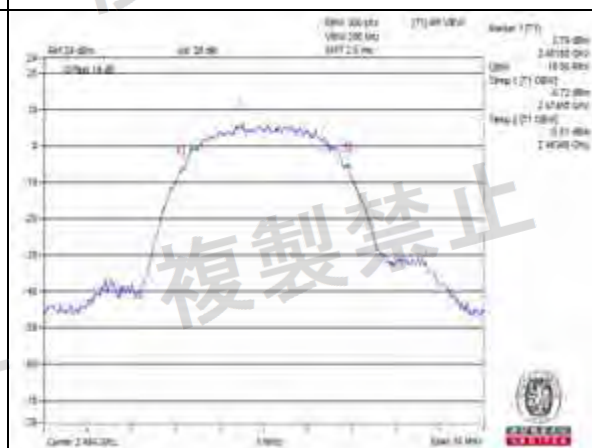
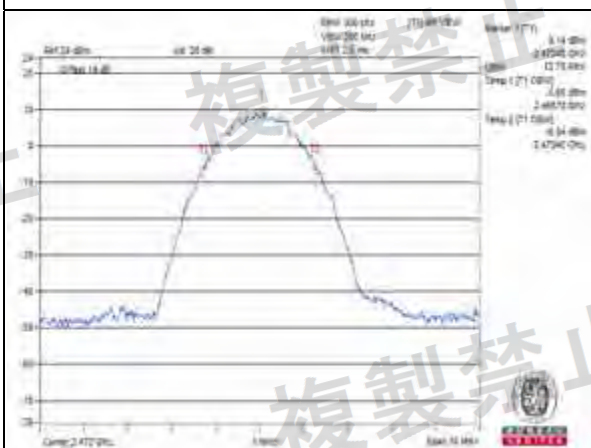


Vmin.



Channel 1

Channel 7



Channel 13

Channel 14

Measurement uncertainty: ± 206.50 Hz

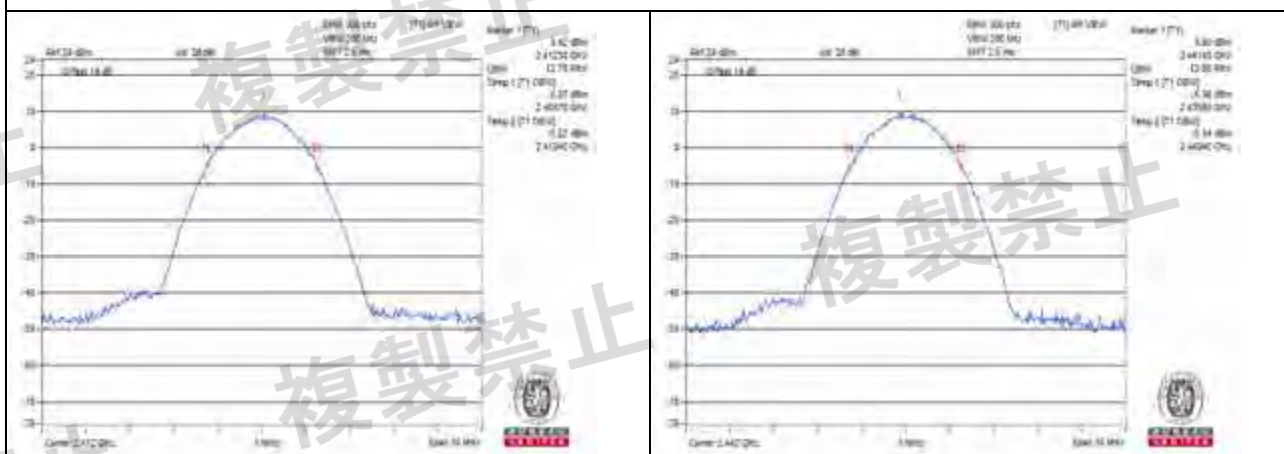


Transmission Rate: 11M

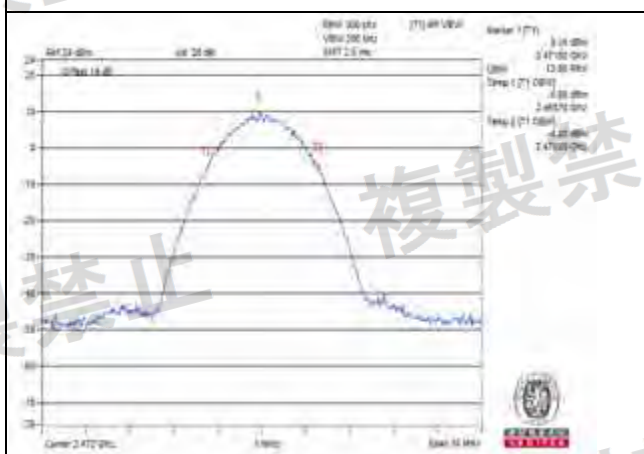
Environmental Conditions		25 deg.C, 60% RH		
Channel	Frequency (MHz)	Vnormal	Vmax.	Vmin.
		Occupied Bandwidth (MHz)	Occupied Bandwidth (MHz)	Occupied Bandwidth (MHz)
1	2412	12.70	12.90	12.80
7	2442	12.80	12.80	12.70
13	2472	12.80	12.80	12.80
14	2484	19.00	19.10	19.00

Note: For the test plots please refer to the below pages.

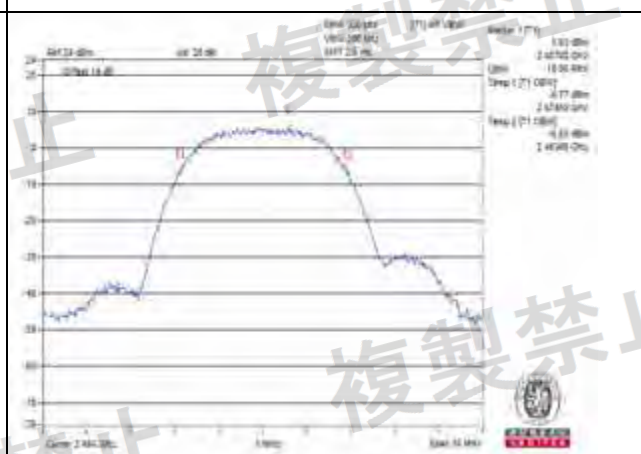
Vnormal



Channel 1



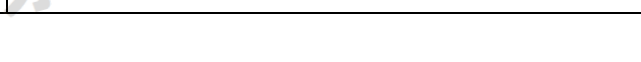
Channel 7



Channel 13

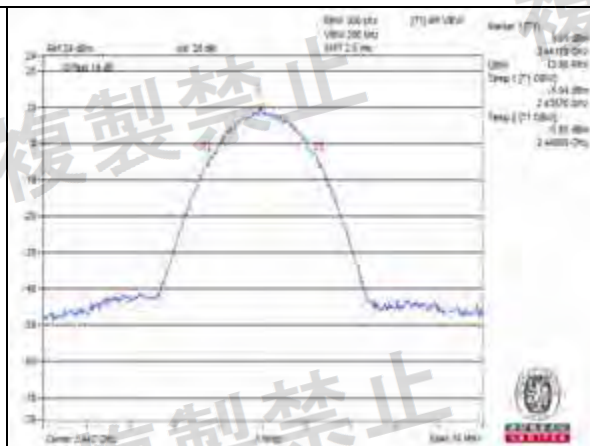
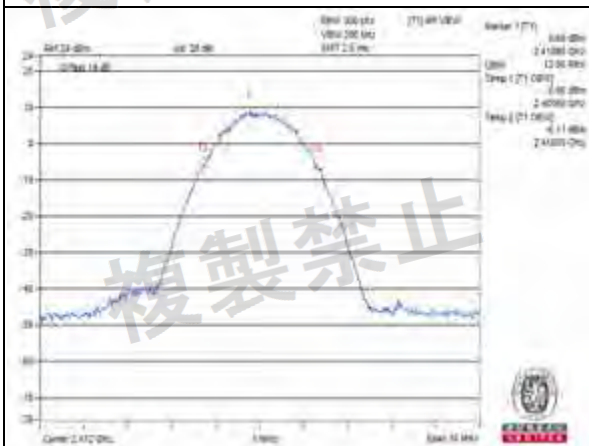
Measurement uncertainty: ± 206.50 Hz

Channel 14



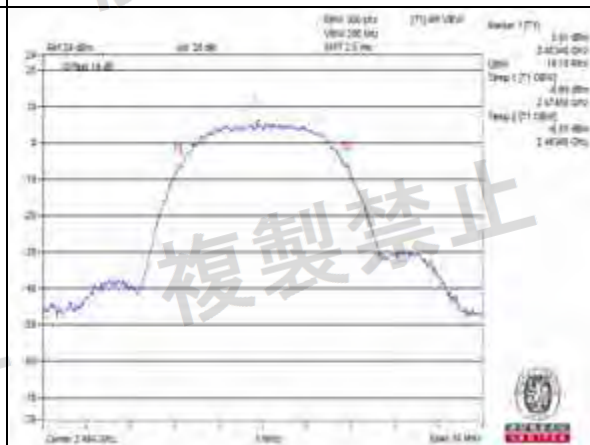
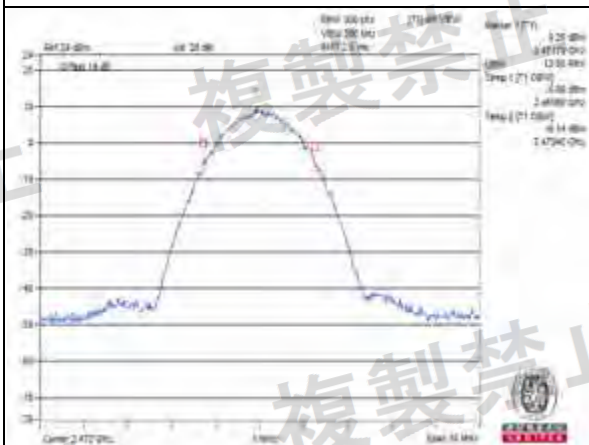


Vmax.



Channel 1

Channel 7



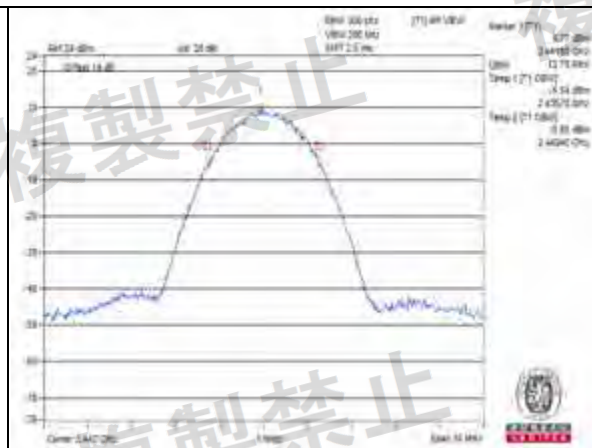
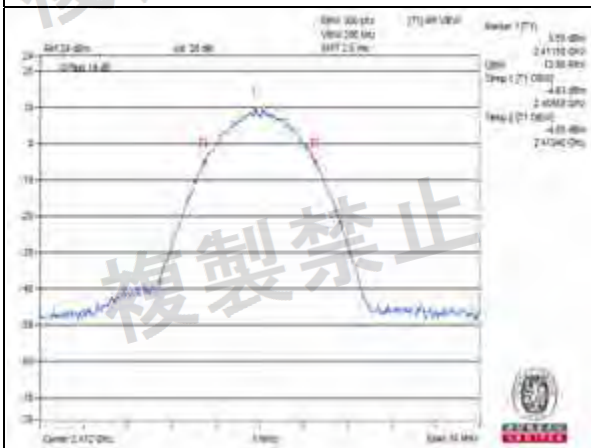
Channel 13

Channel 14

Measurement uncertainty: ± 206.50 Hz

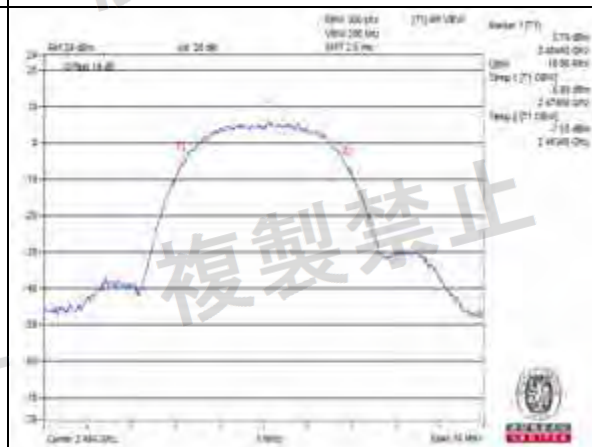
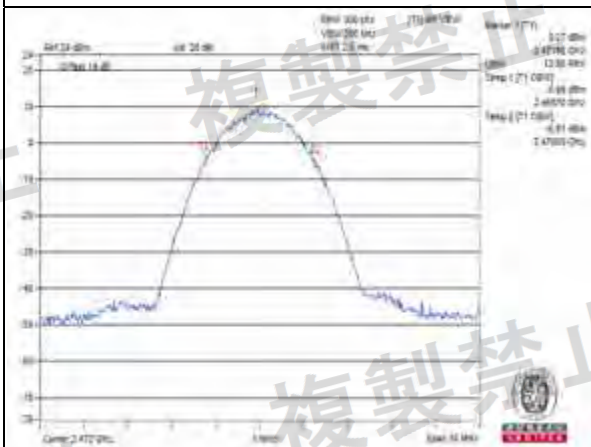


Vmin.



Channel 1

Channel 7



Channel 13

Channel 14

Measurement uncertainty: ± 206.50 Hz

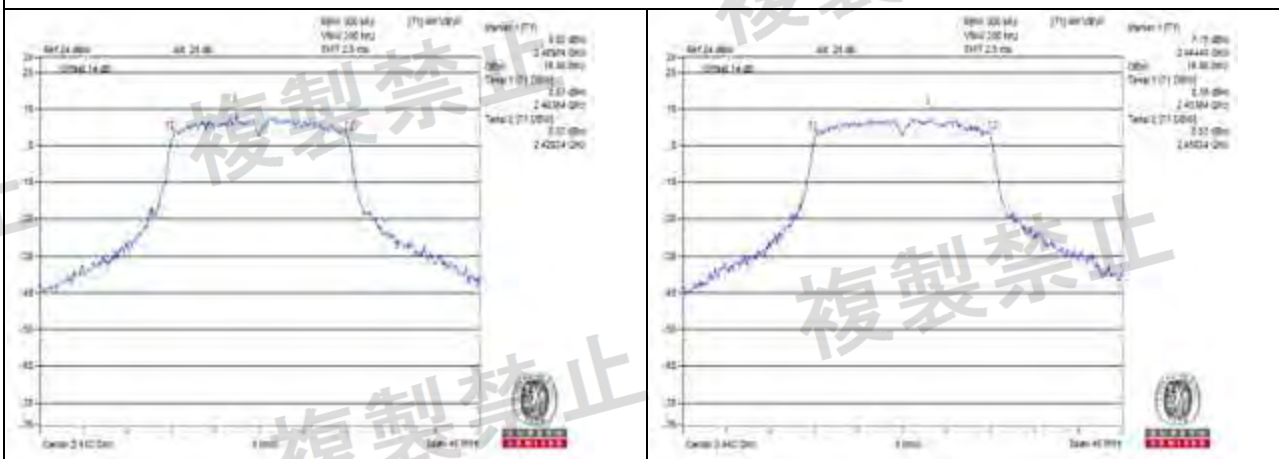


802.11g

Environmental Conditions		25 deg.C, 60% RH		
Channel	Frequency (MHz)	Vnormal	Vmax.	Vmin.
		Occupied Bandwidth (MHz)	Occupied Bandwidth (MHz)	Occupied Bandwidth (MHz)
1	2412	16.40	16.40	16.40
7	2442	16.40	16.40	16.40
13	2472	16.32	16.40	16.40

Note: For the test plots please refer to the below pages.

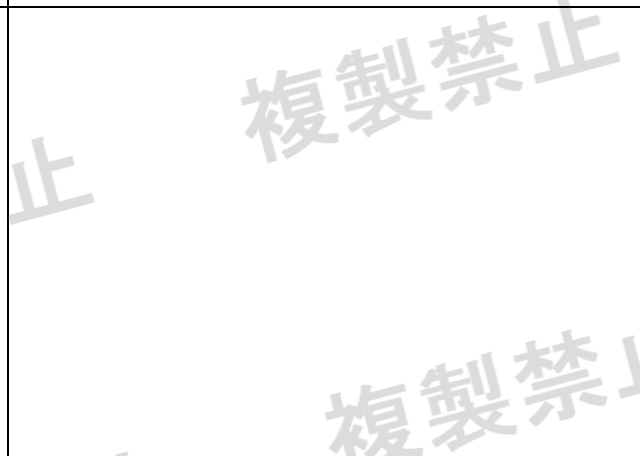
Vnormal



Channel 1



Channel 7

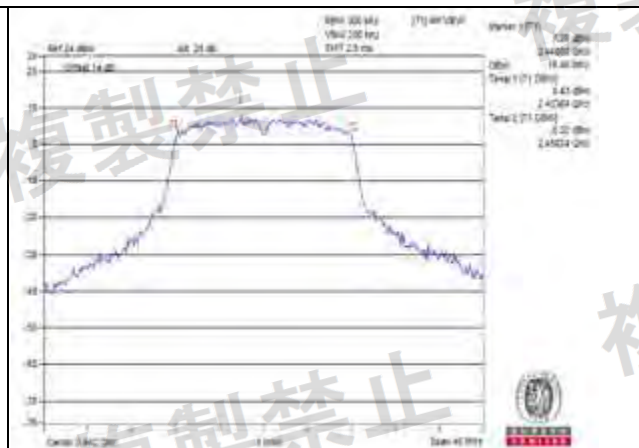
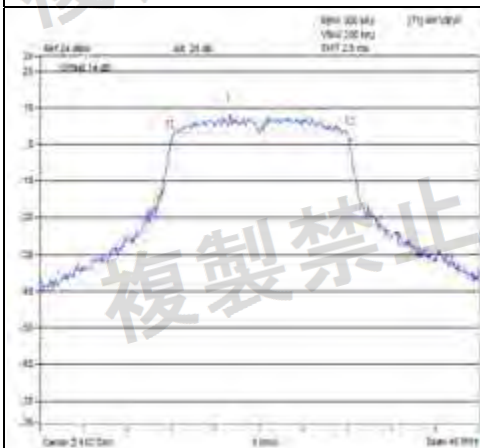


Channel 13

Measurement uncertainty: ± 206.50 Hz

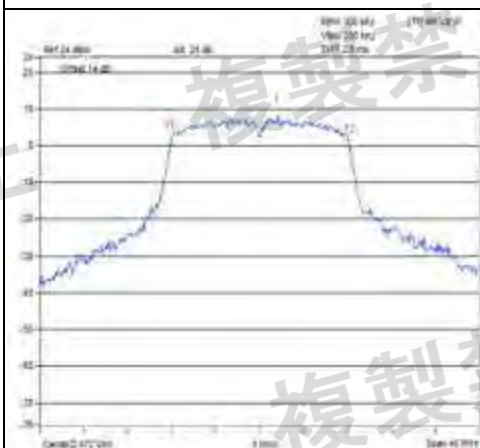


V_{min}.



Channel 1

Channel 7



Channel 13

Measurement uncertainty: ± 206.50 Hz

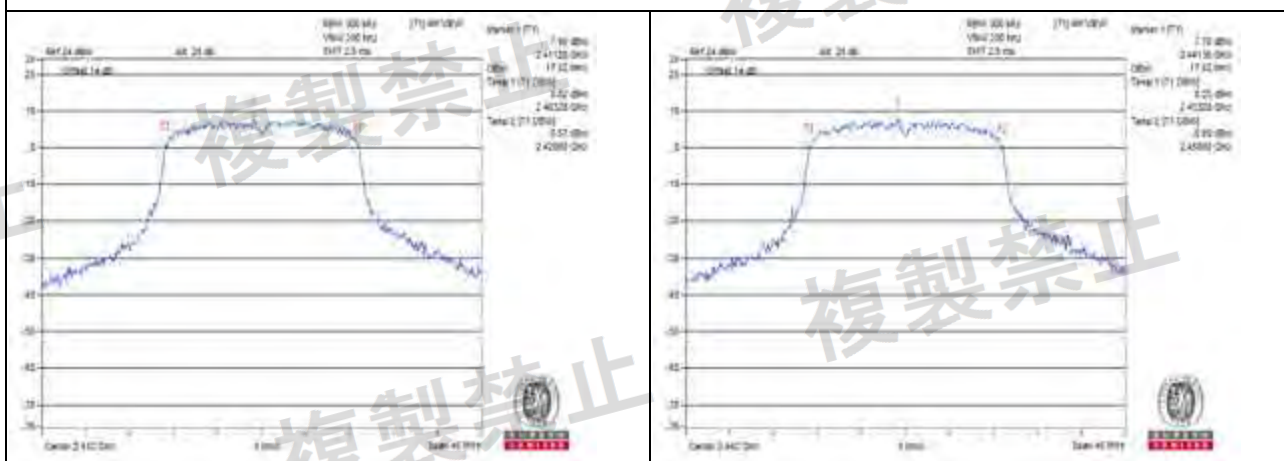


802.11n (HT20)

Environmental Conditions		25 deg.C, 60% RH		
Channel	Frequency (MHz)	Vnormal	Vmax.	Vmin.
		Occupied Bandwidth (MHz)	Occupied Bandwidth (MHz)	Occupied Bandwidth (MHz)
1	2412	17.52	17.52	17.52
7	2442	17.52	17.52	17.52
13	2472	17.52	17.52	17.52

Note: For the test plots please refer to the below pages.

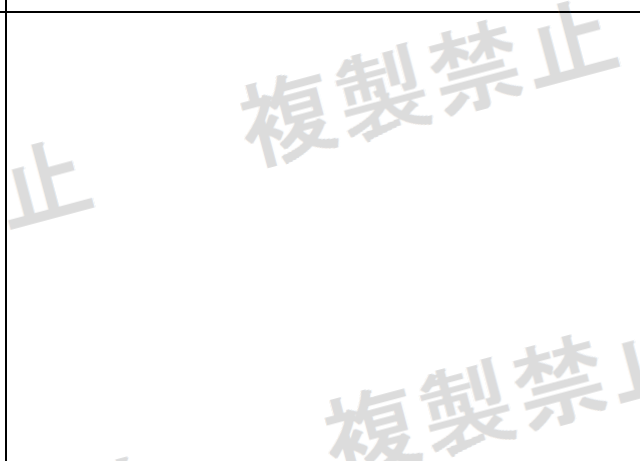
Vnormal



Channel 1



Channel 7

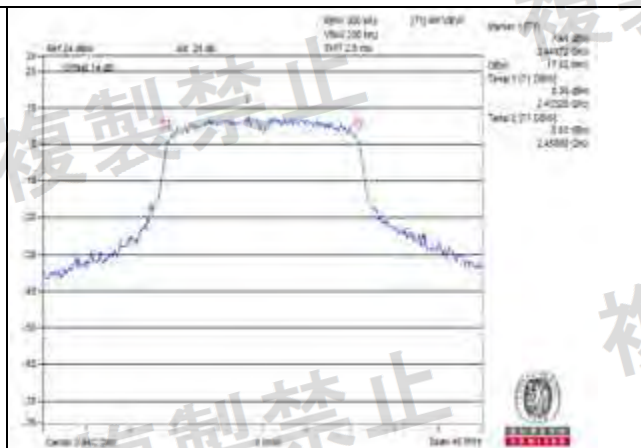
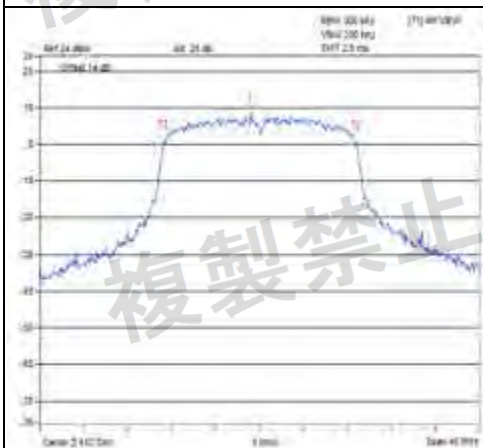


Channel 13

Measurement uncertainty: ± 206.50 Hz

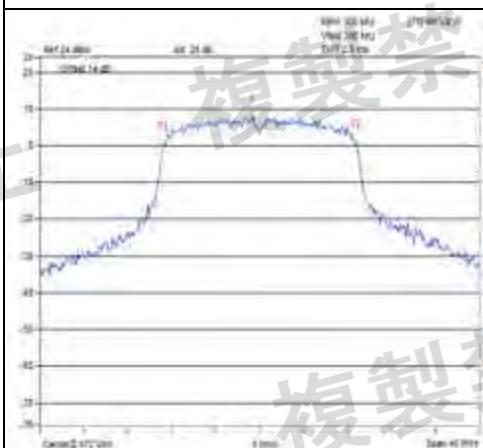


Vmax.



Channel 1

Channel 7

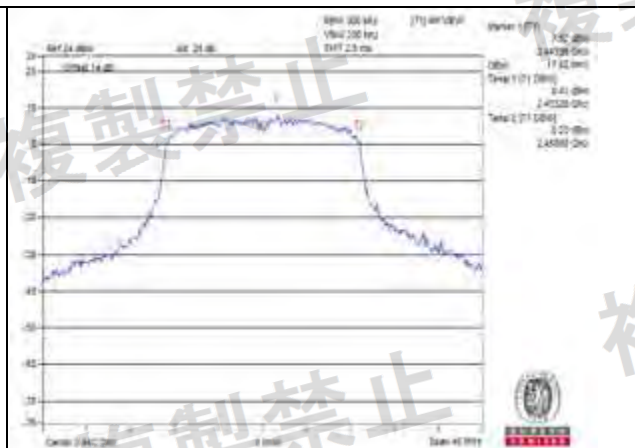
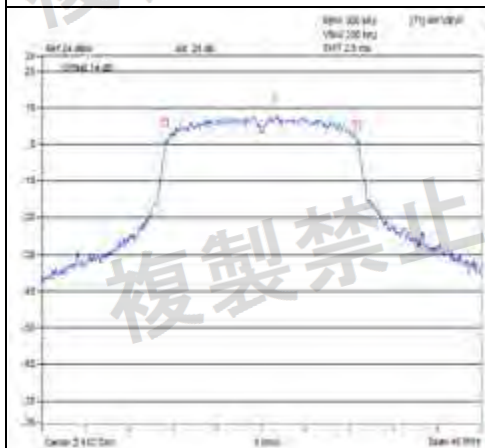


Channel 13

Measurement uncertainty: ± 206.50 Hz

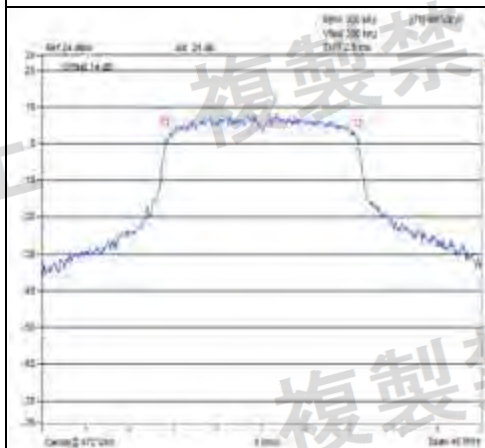


V_{min}.



Channel 1

Channel 7



Channel 13

Measurement uncertainty: ± 206.50 Hz

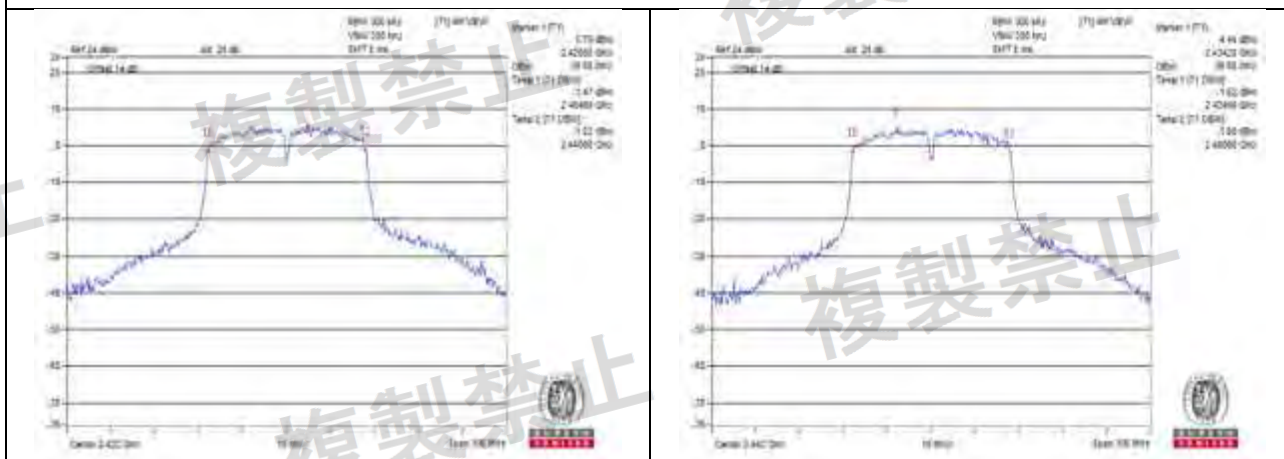


802.11n (HT40)

Environmental Conditions		25 deg.C, 60% RH		
Channel	Frequency (MHz)	Vnormal	Vmax.	Vmin.
		Occupied Bandwidth (MHz)	Occupied Bandwidth (MHz)	Occupied Bandwidth (MHz)
3	2422	36.00	35.80	36.00
7	2442	36.00	36.00	36.00
11	2462	36.00	36.00	36.00

Note: For the test plots please refer to the below pages.

Vnormal



Channel 3

Channel 7

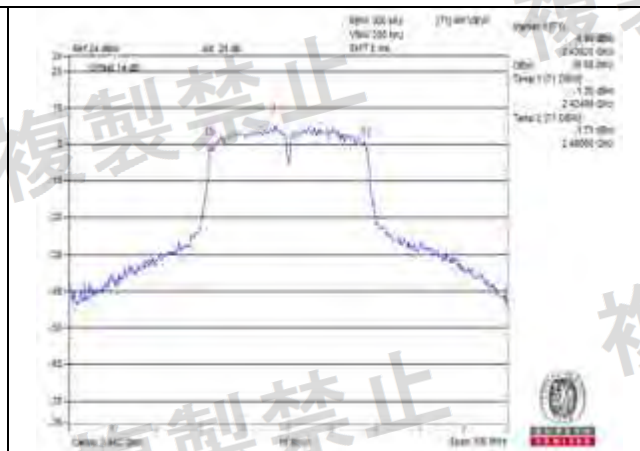


Channel 11

Measurement uncertainty: ± 206.50 Hz

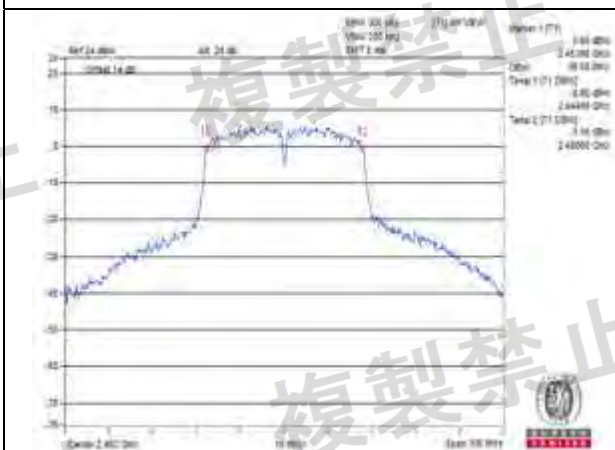


Vmax.



Channel 3

Channel 7

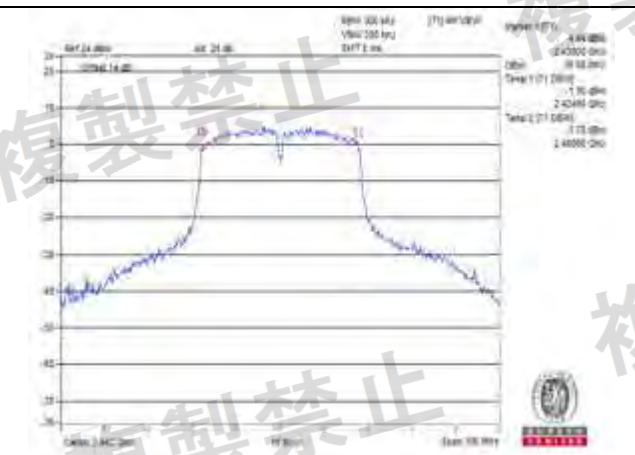
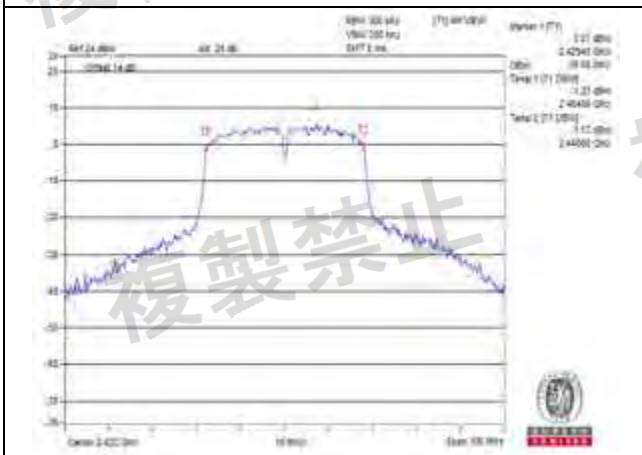


Channel 11

Measurement uncertainty: ± 206.50 Hz

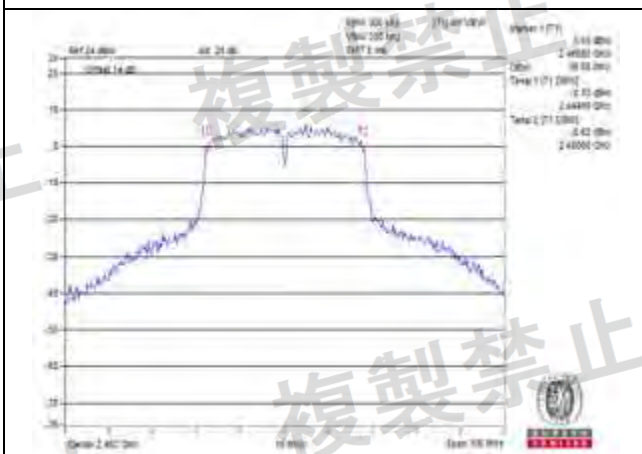


Vmin.



Channel 3

Channel 7



Channel 11

Measurement uncertainty: ± 206.50 Hz



4.3 Spreading Bandwidth Measurement (90% power bandwidth)

4.3.1 Limits of Spreading Bandwidth and Spreading Factor Measurement

Item	Limit	Remark
Spreading Bandwidth	$\geq 500\text{kHz}$	(For DSSS, FHSS)
Spreading Factor	≥ 5	Operating frequency 2400 to 2483.5MHz

4.3.2 Test Setup





4.3.3 Test Results

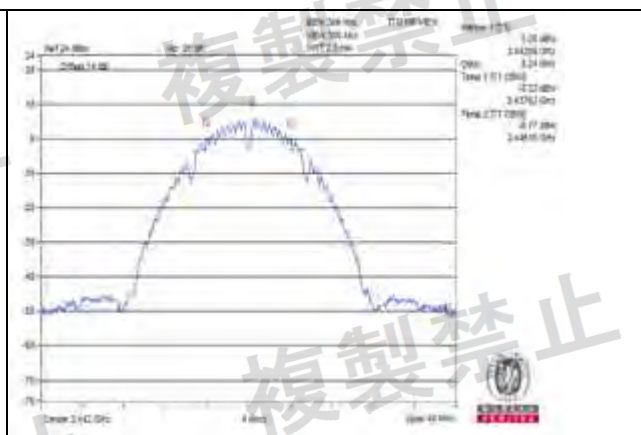
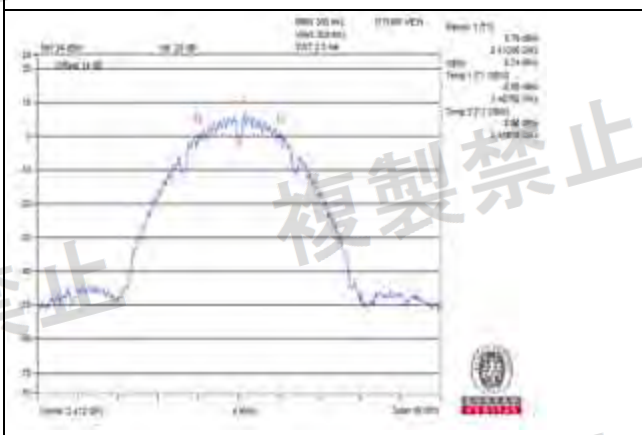
802.11b

Transmission Rate: 1M

Environmental Conditions		25 deg.C, 60% RH					
Channel	Frequency (MHz)	Vnormal		Vmax.		Vmin.	
		Occupied Bandwidth (MHz)	Spreading Factor	Occupied Bandwidth (MHz)	Spreading Factor	Occupied Bandwidth (MHz)	Spreading Factor
1	2412	8.24	8.24	8.24	8.24	8.24	8.24
7	2442	8.24	8.24	8.24	8.24	8.24	8.24
13	2472	8.24	8.24	8.24	8.24	8.24	8.24
14	2484	14.08	14.08	14.08	14.08	14.08	14.08

- Note: 1. For the test plots please refer to the below pages.
2. Spreading Factor: 90% channel power bandwidth / 1.

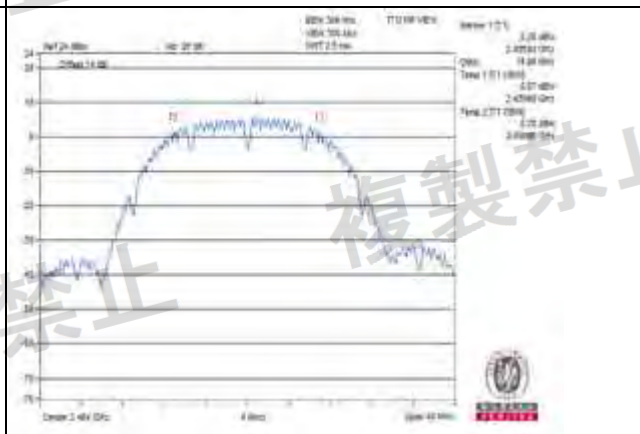
Vnormal



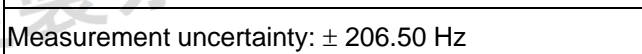
Channel 1



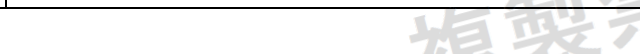
Channel 7



Channel 13



Channel 14

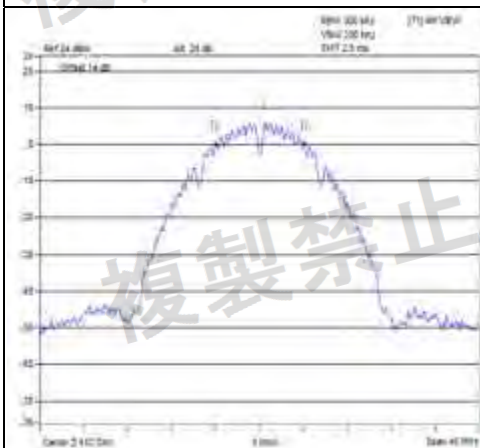


Measurement uncertainty: ± 206.50 Hz

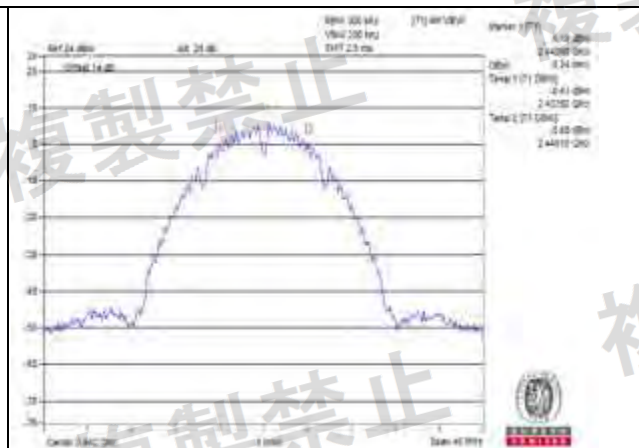
Report Format Version: 6.1.1



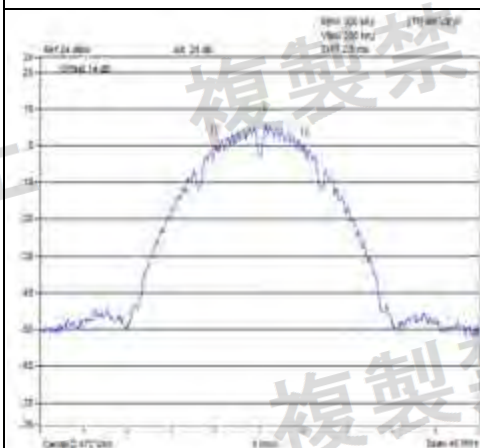
Vmin.



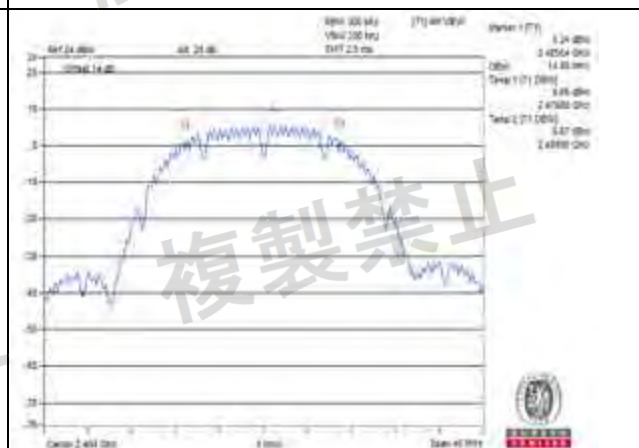
Channel 1



Channel 7



Channel 13



Channel 14

Measurement uncertainty: ± 206.50 Hz



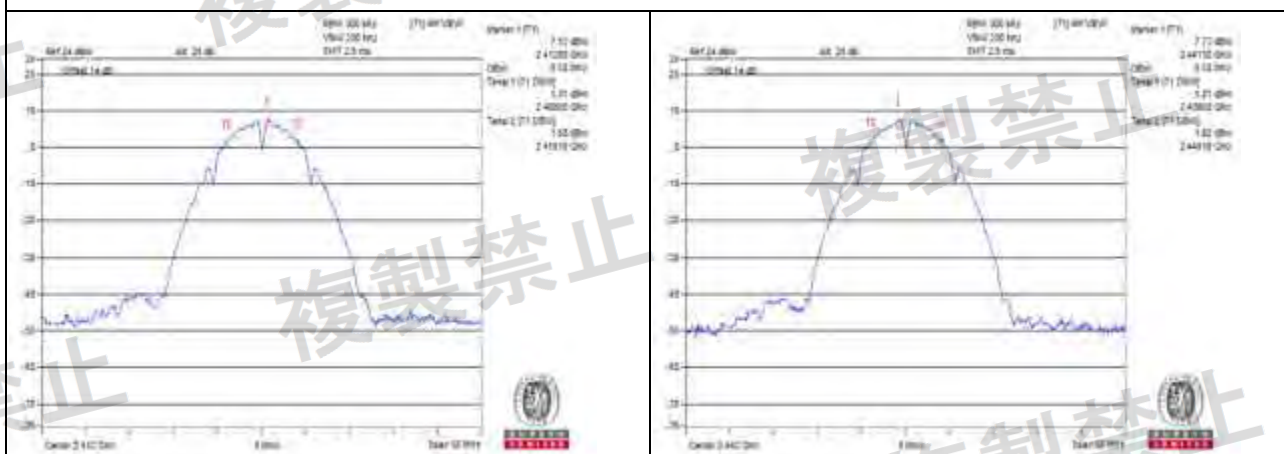
Transmission Rate: 2M

Environmental Conditions		25 deg.C, 60% RH					
Channel	Frequency (MHz)	Vnormal		Vmax.		Vmin.	
		Occupied Bandwidth (MHz)	Spreading Factor	Occupied Bandwidth (MHz)	Spreading Factor	Occupied Bandwidth (MHz)	Spreading Factor
1	2412	8.10	8.10	8.10	8.10	8.10	8.10
7	2442	8.10	8.10	8.10	8.10	8.20	8.20
13	2472	8.10	8.10	8.20	8.20	8.10	8.10
14	2484	14.20	14.20	14.20	14.20	14.20	14.20

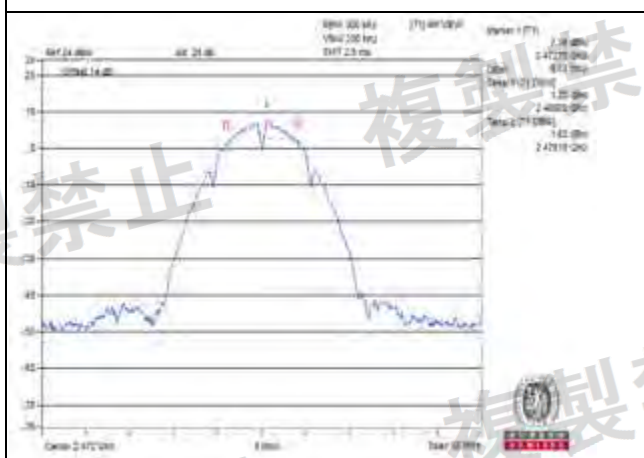
Note: 1. For the test plots please refer to the below pages.

2. Spreading Factor: 90% channel power bandwidth / 1.

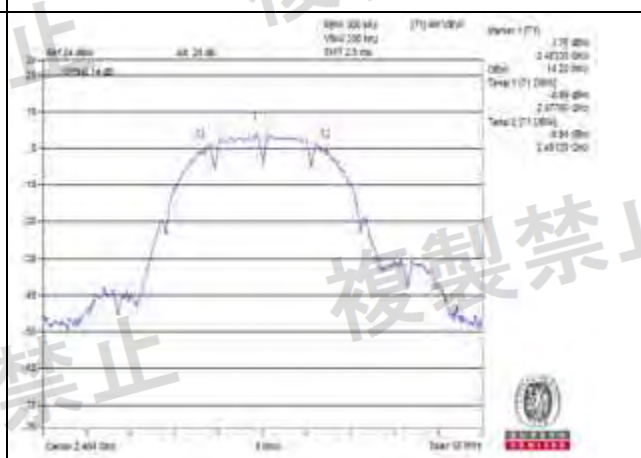
Vnormal



Channel 1



Channel 7



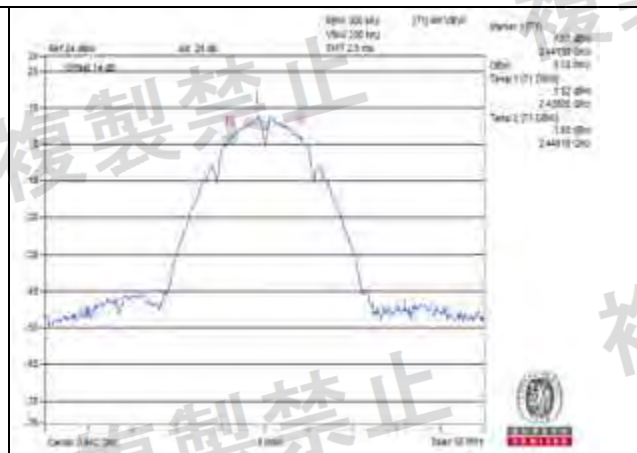
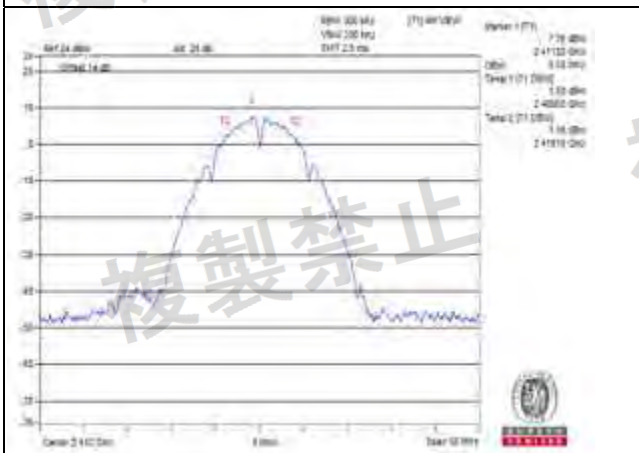
Channel 13

Measurement uncertainty: ± 206.50 Hz

Channel 14

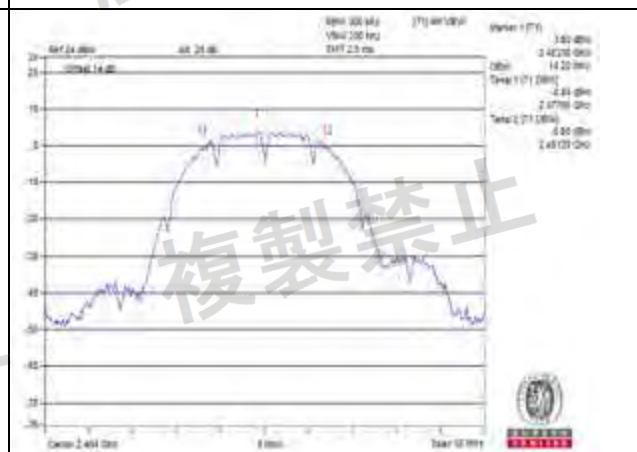
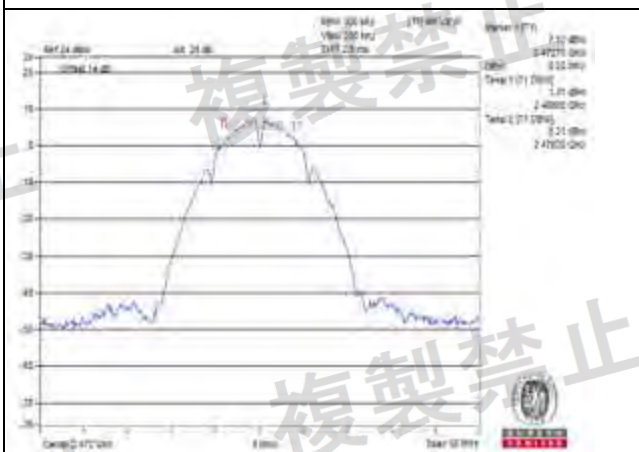


Vmax.



Channel 1

Channel 7



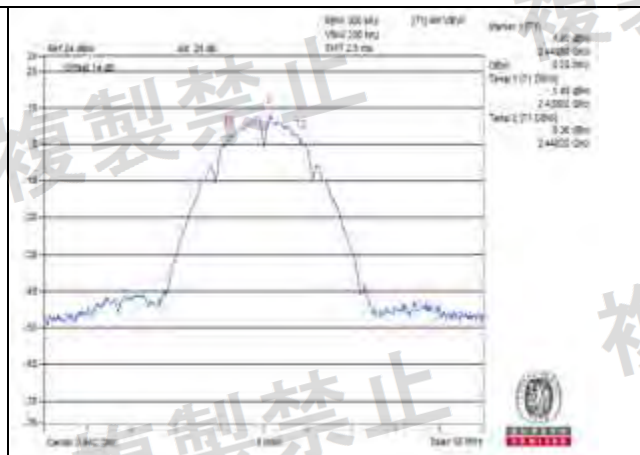
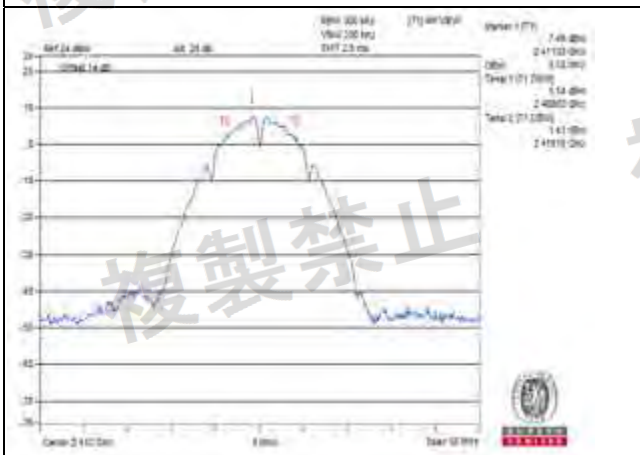
Channel 13

Channel 14

Measurement uncertainty: ± 206.50 Hz

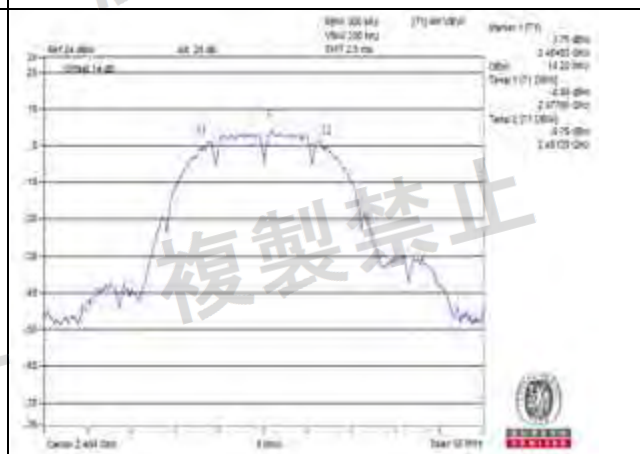
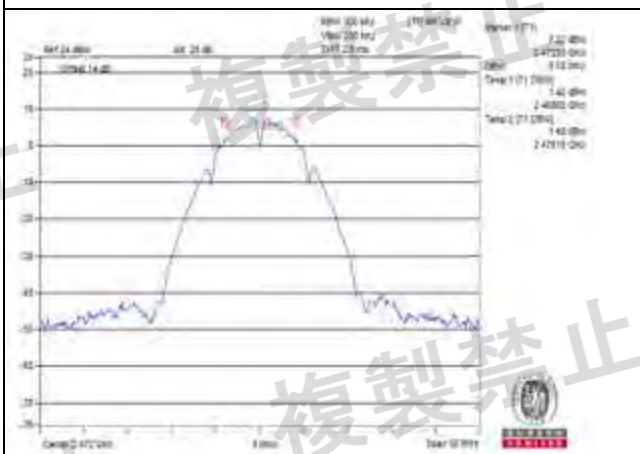


Vmin.



Channel 1

Channel 7



Channel 13

Channel 14

Measurement uncertainty: ± 206.50 Hz

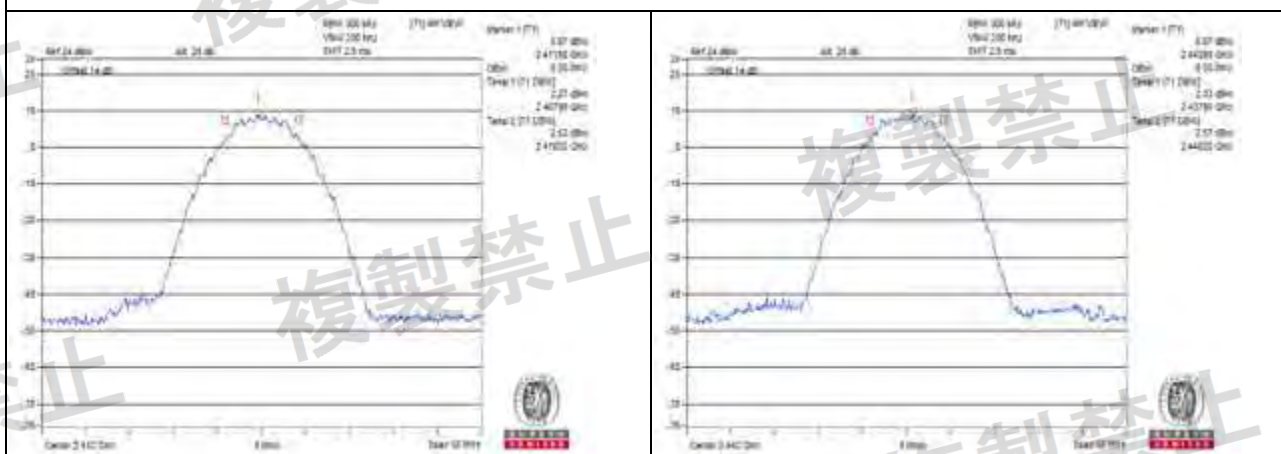


Transmission Rate: 5.5M

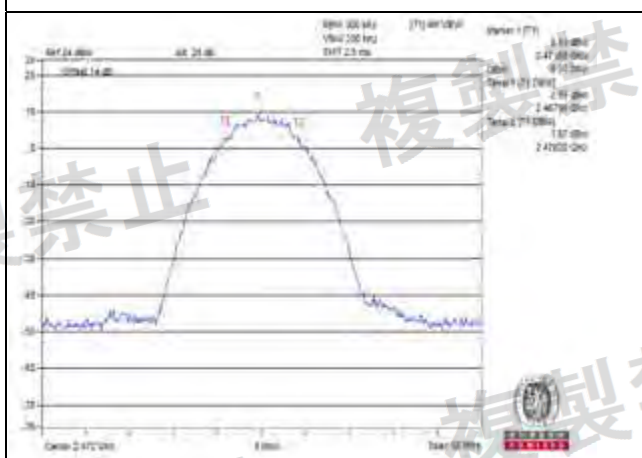
Environmental Conditions		25 deg.C, 60% RH					
Channel	Frequency (MHz)	Vnormal		Vmax.		Vmin.	
		Occupied Bandwidth (MHz)	Spreading Factor	Occupied Bandwidth (MHz)	Spreading Factor	Occupied Bandwidth (MHz)	Spreading Factor
1	2412	8.30	6.03	8.30	6.03	8.30	6.03
7	2442	8.30	6.03	8.30	6.03	8.30	6.03
13	2472	8.30	6.03	8.30	6.03	8.20	5.96
14	2484	14.00	10.18	13.90	10.10	14.10	10.25

- Note: 1. For the test plots please refer to the below pages.
2. Spreading Factor: 90% channel power bandwidth / 1.375.

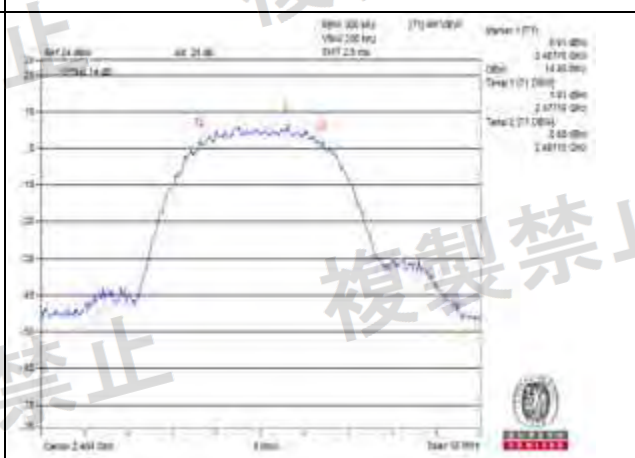
Vnormal



Channel 1



Channel 7



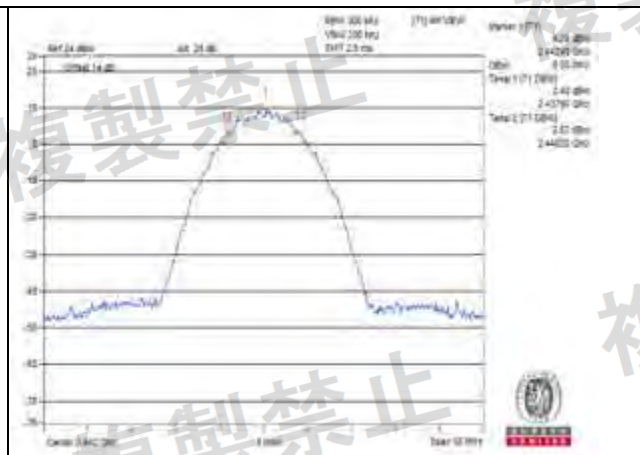
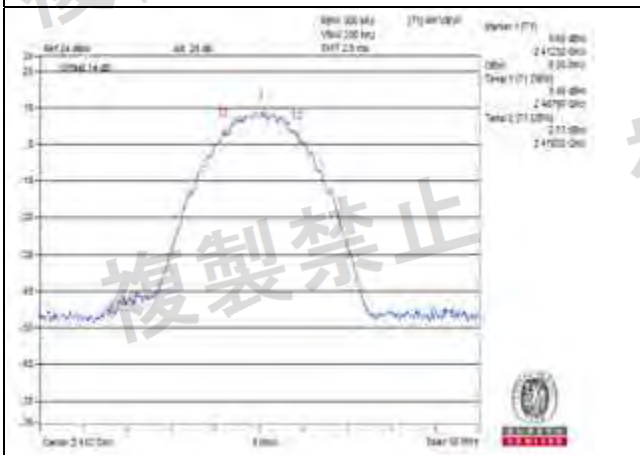
Channel 13

Measurement uncertainty: ± 206.50 Hz

Channel 14

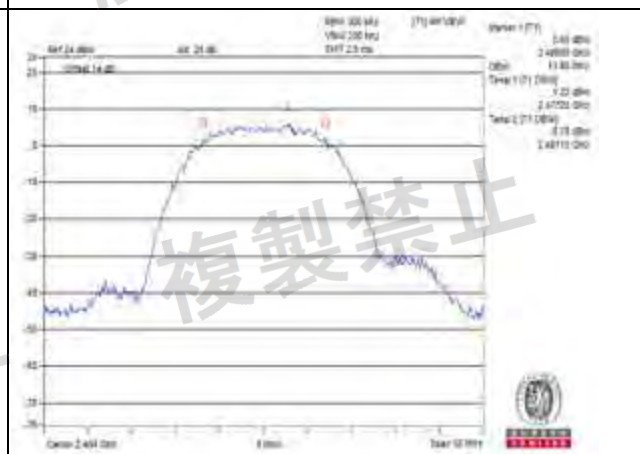
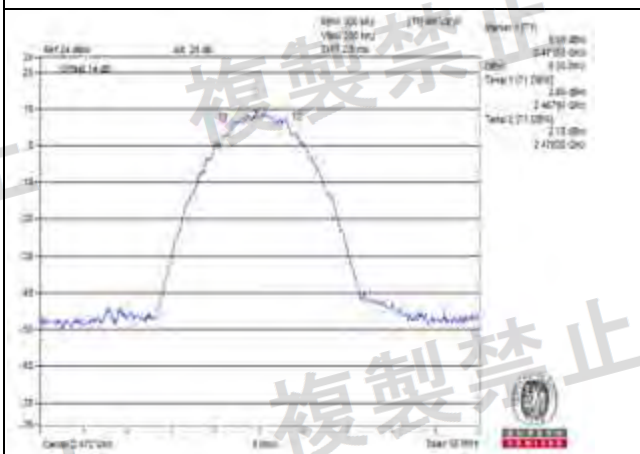


Vmax.



Channel 1

Channel 7



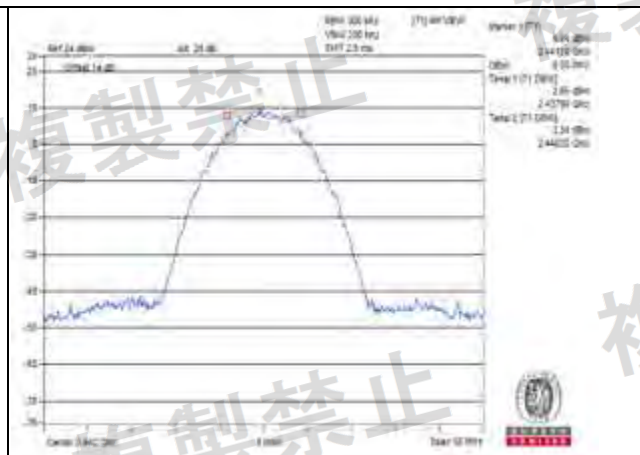
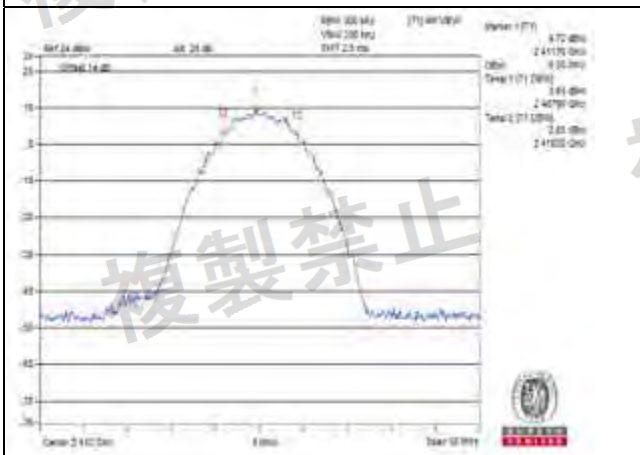
Channel 13

Channel 14

Measurement uncertainty: ± 206.50 Hz

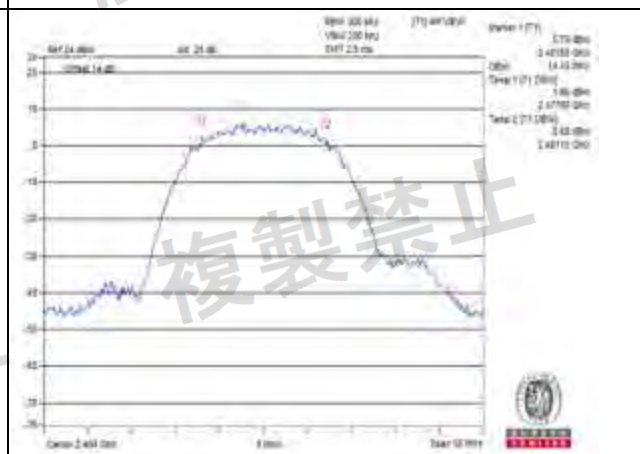
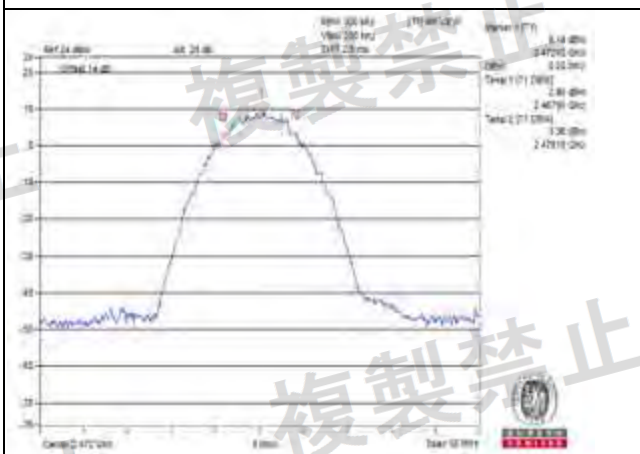


Vmin.



Channel 1

Channel 7



Channel 13

Channel 14

Measurement uncertainty: ± 206.50 Hz



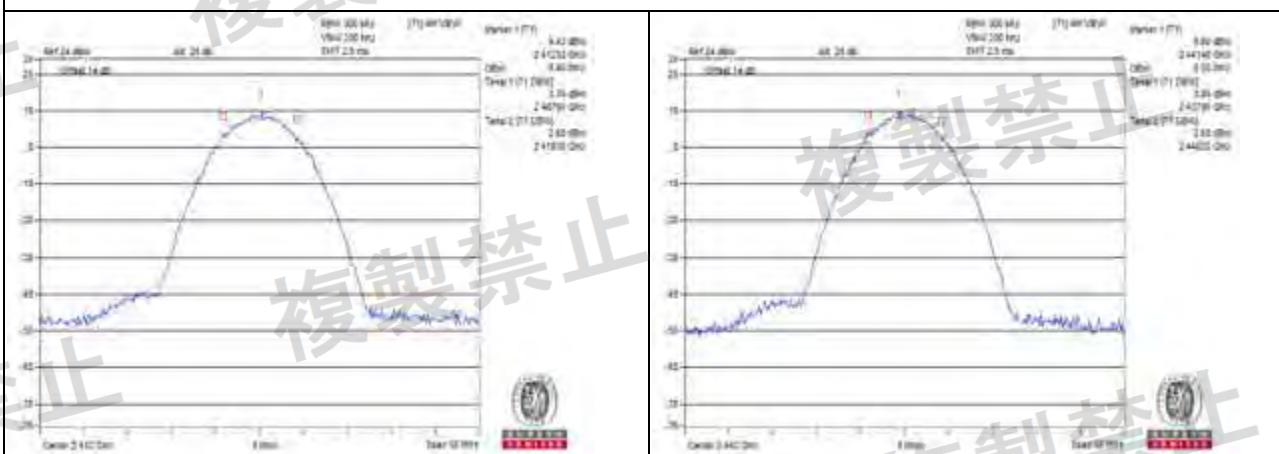
Transmission Rate: 11M

Environmental Conditions		25 deg.C, 60% RH					
Channel	Frequency (MHz)	Vnormal		Vmax.		Vmin.	
		Occupied Bandwidth (MHz)	Spreading Factor	Occupied Bandwidth (MHz)	Spreading Factor	Occupied Bandwidth (MHz)	Spreading Factor
1	2412	8.40	6.10	8.40	6.10	8.30	6.03
7	2442	8.30	6.03	8.30	6.03	8.40	6.10
13	2472	8.20	5.96	8.30	6.03	8.30	6.03
14	2484	14.00	10.18	14.00	10.18	13.90	10.10

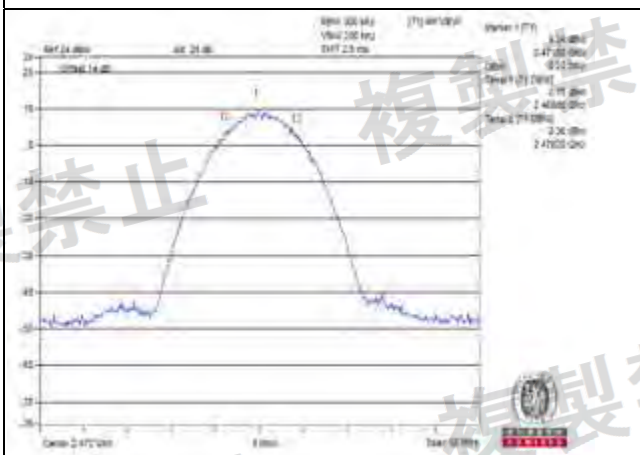
Note: 1. For the test plots please refer to the below pages.

2. Spreading Factor: 90% channel power bandwidth / 1.375.

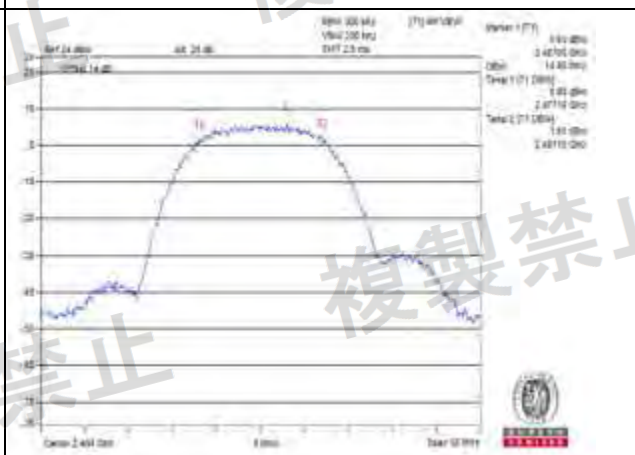
Vnormal



Channel 1



Channel 7



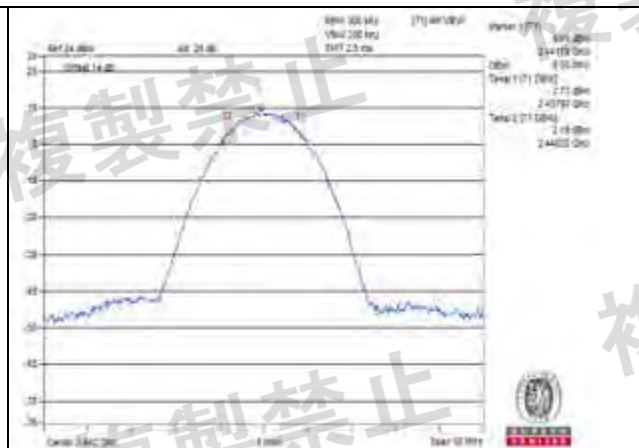
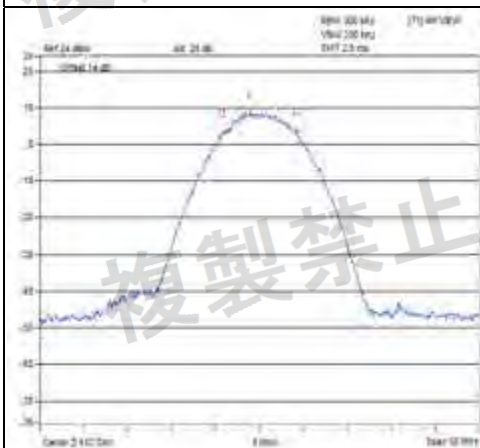
Channel 13

Measurement uncertainty: ± 206.50 Hz

Channel 14

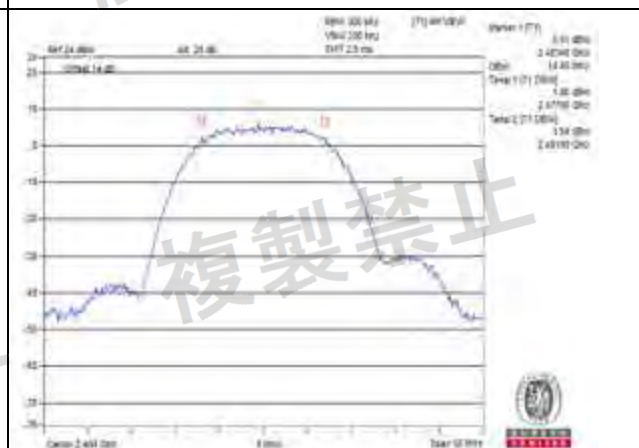
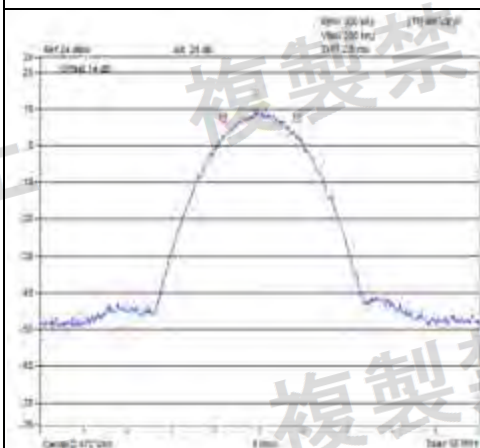


Vmax.



Channel 1

Channel 7



Channel 13

Channel 14

Measurement uncertainty: ± 206.50 Hz



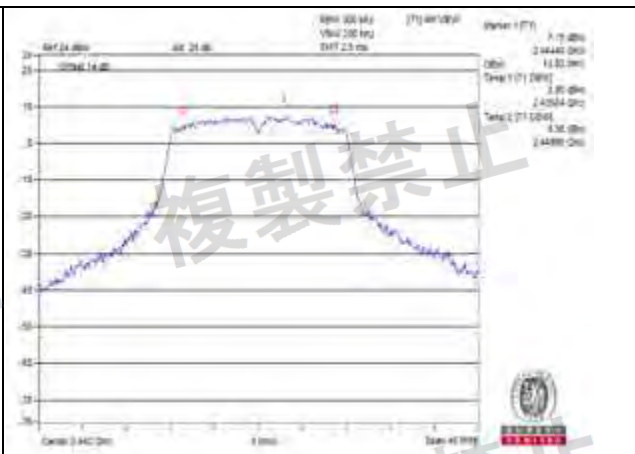
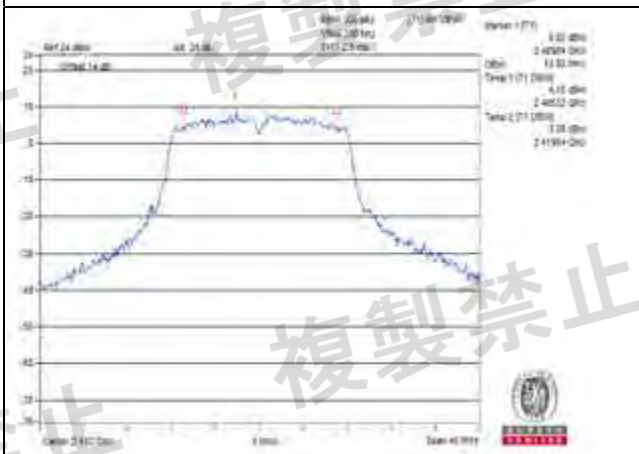
802.11g

Environmental Conditions		25 deg.C, 60% RH					
Channel	Frequency (MHz)	Vnormal		Vmax.		Vmin.	
		Occupied Bandwidth (MHz)	Spreading Factor	Occupied Bandwidth (MHz)	Spreading Factor	Occupied Bandwidth (MHz)	Spreading Factor
1	2412	13.92	9.28	13.84	9.22	13.92	9.28
7	2442	13.92	9.28	13.84	9.22	13.92	9.28
13	2472	13.84	9.22	13.84	9.22	13.84	9.22

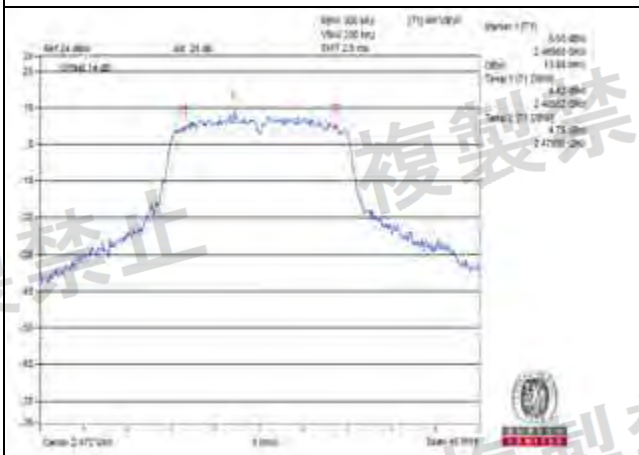
Note: 1. For the test plots please refer to the below pages.

2. Spreading Factor: 90% channel power bandwidth / 1.5.

Vnormal



Channel 1



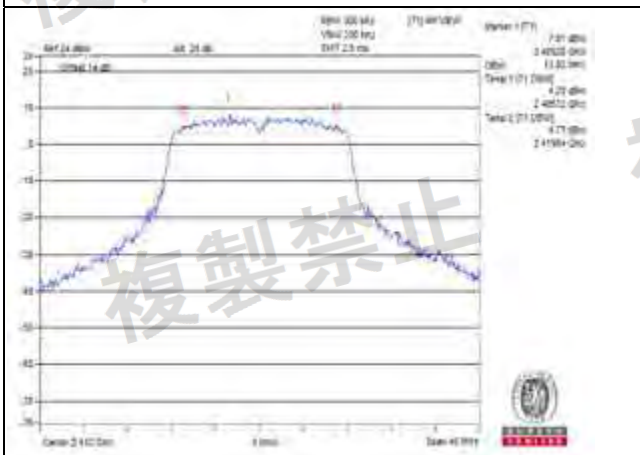
Channel 7

Channel 13

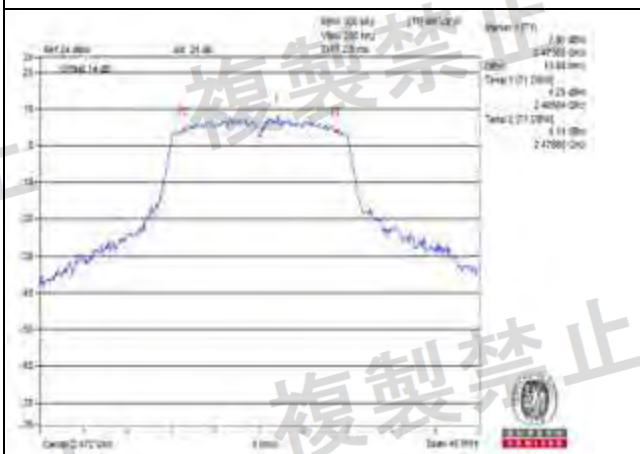
Measurement uncertainty: ± 206.50 Hz



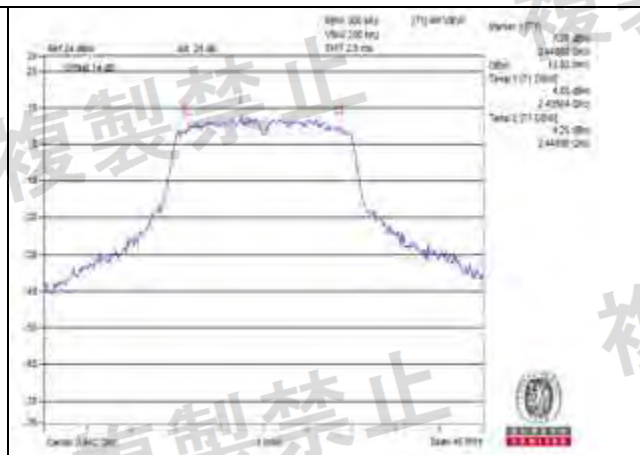
Vmin.



Channel 1



Channel 13



Channel 7

Measurement uncertainty: ± 206.50 Hz

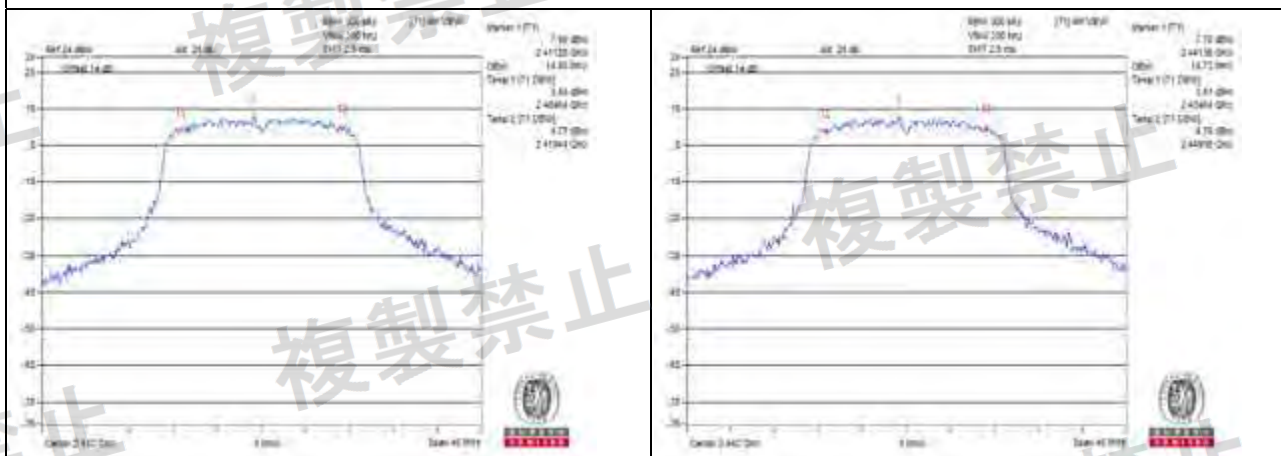


802.11n (HT20)

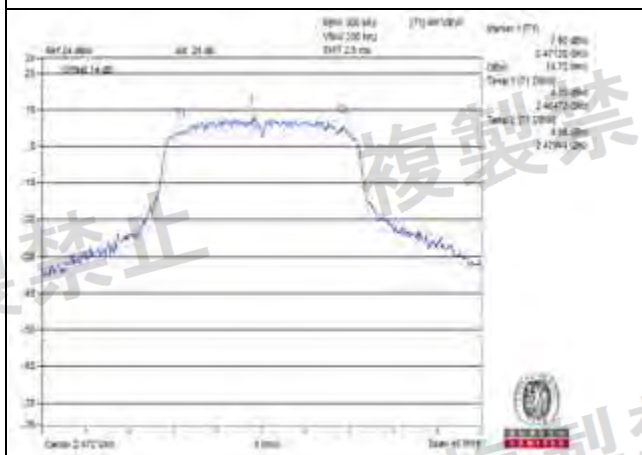
Environmental Conditions		25 deg.C, 60% RH					
Channel	Frequency (MHz)	Vnormal		Vmax.		Vmin.	
		Occupied Bandwidth (MHz)	Spreading Factor	Occupied Bandwidth (MHz)	Spreading Factor	Occupied Bandwidth (MHz)	Spreading Factor
1	2412	14.80	9.86	14.72	9.81	14.72	9.81
7	2442	14.72	9.81	14.72	9.81	14.72	9.81
13	2472	14.72	9.81	14.72	9.81	14.88	9.92

- Note: 1. For the test plots please refer to the below pages.
2. Spreading Factor: 90% channel power bandwidth / 1.5.

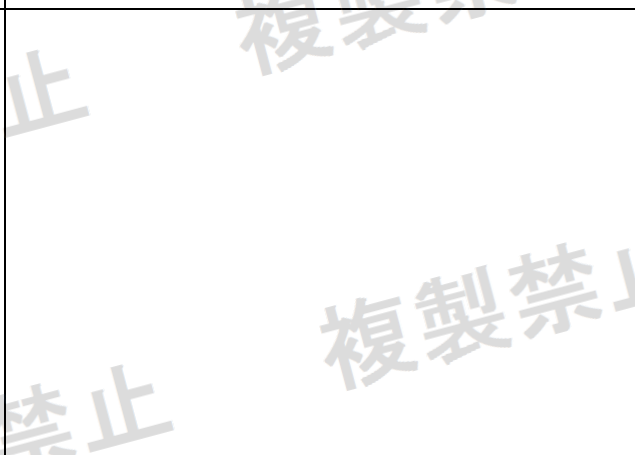
Vnormal



Channel 1



Channel 7

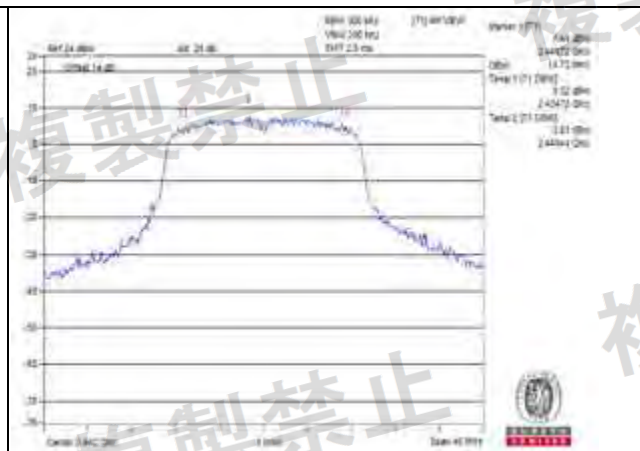
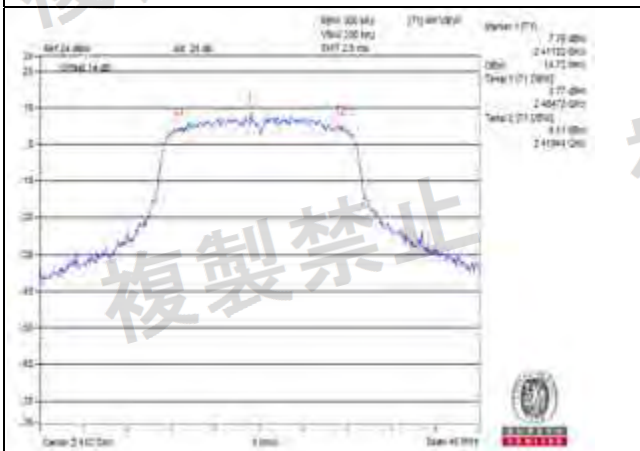


Channel 13

Measurement uncertainty: ± 206.50 Hz

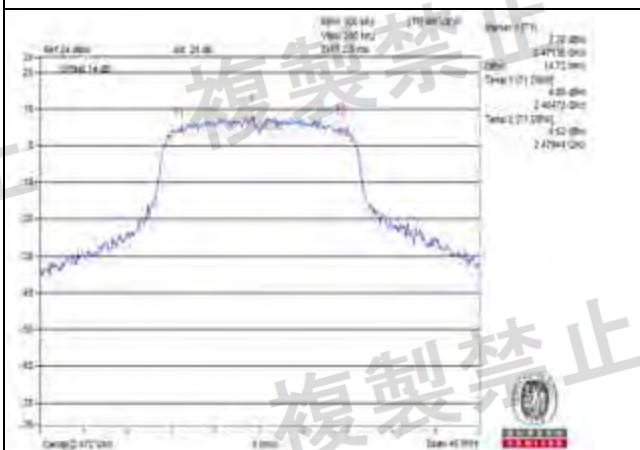


Vmax.



Channel 1

Channel 7

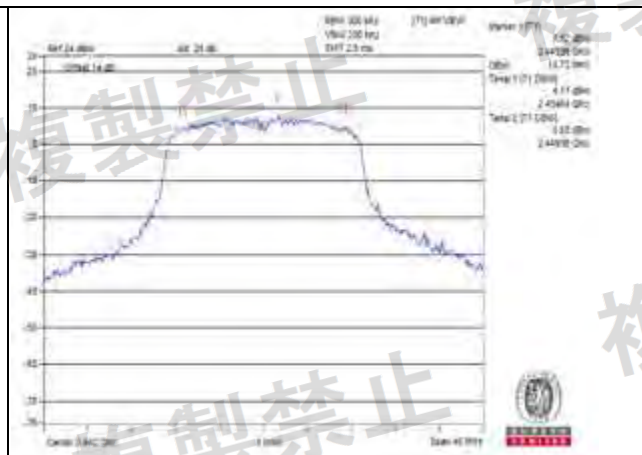
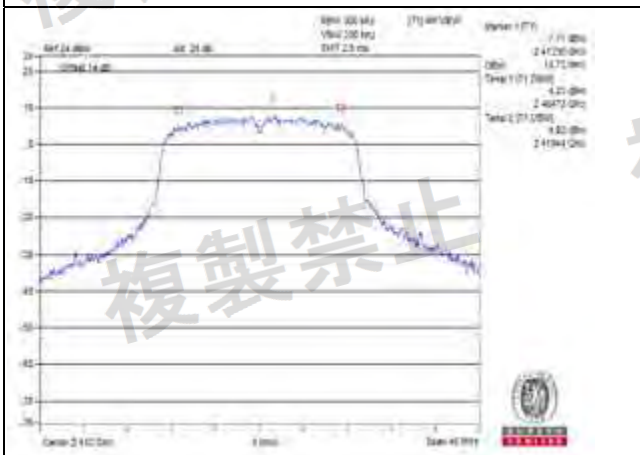


Channel 13

Measurement uncertainty: ± 206.50 Hz

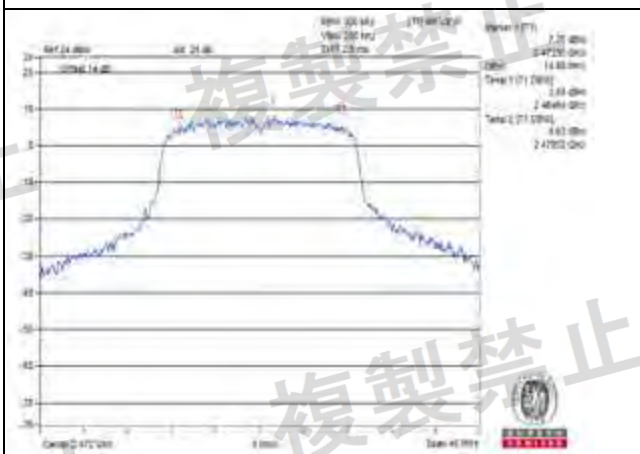


V_{min}.



Channel 1

Channel 7



Channel 13

Measurement uncertainty: ± 206.50 Hz



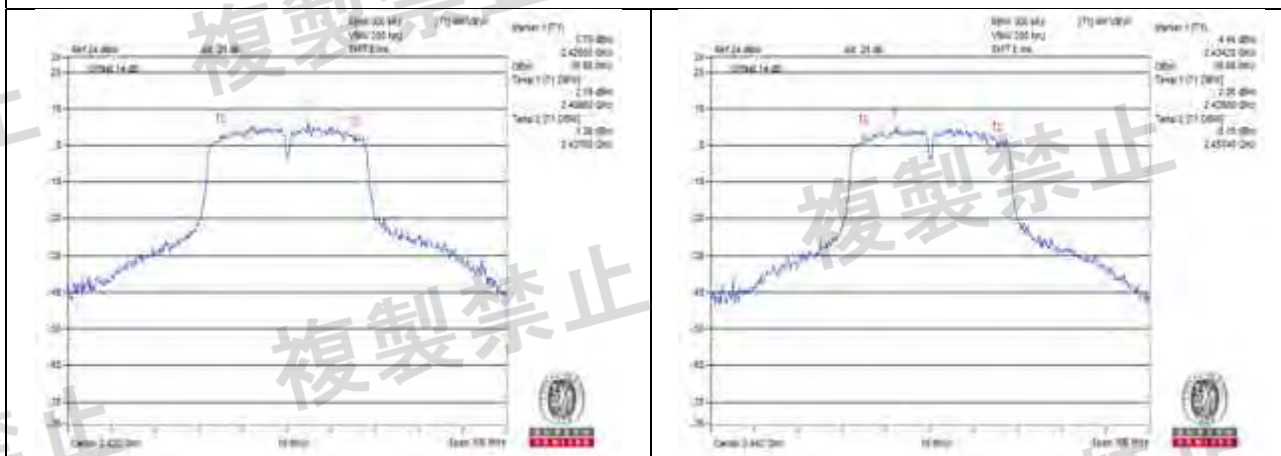
802.11n (HT40)

Environmental Conditions		25 deg.C, 60% RH					
Channel	Frequency (MHz)	Vnormal		Vmax.		Vmin.	
		Occupied Bandwidth (MHz)	Spreading Factor	Occupied Bandwidth (MHz)	Spreading Factor	Occupied Bandwidth (MHz)	Spreading Factor
3	2422	30.80	10.26	30.60	10.20	30.40	10.13
7	2442	30.60	10.20	30.60	10.20	30.60	10.20
11	2462	30.60	10.20	30.60	10.20	30.60	10.20

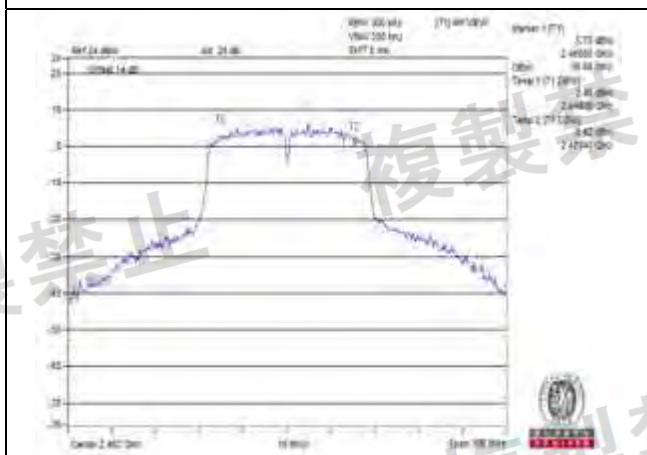
Note: 1. For the test plots please refer to the below pages.

2. Spreading Factor: 90% channel power bandwidth / 3

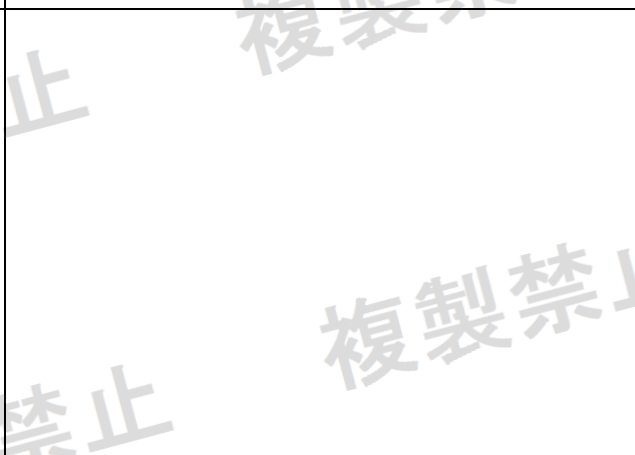
Vnormal



Channel 3



Channel 7

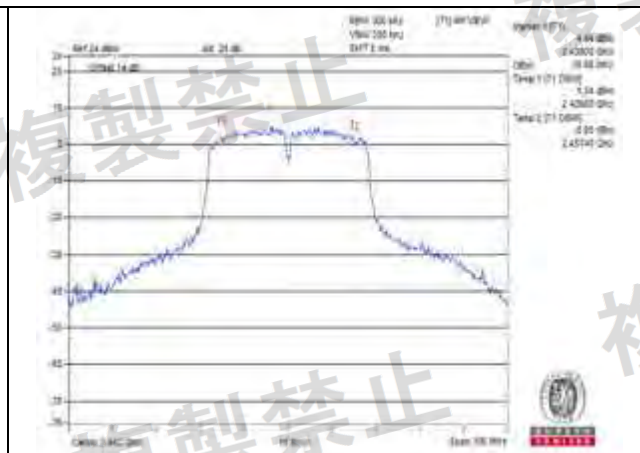
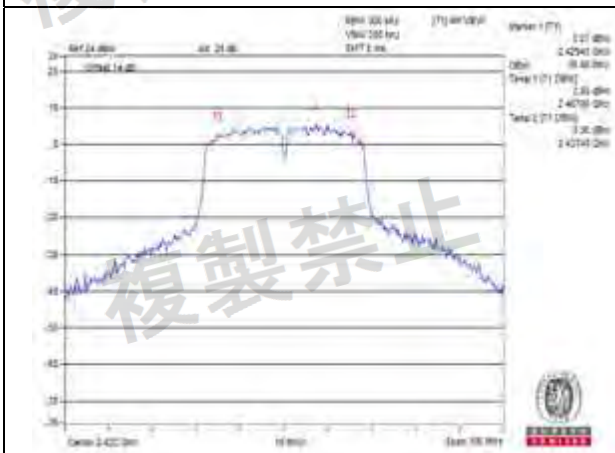


Channel 11

Measurement uncertainty: ± 206.50 Hz

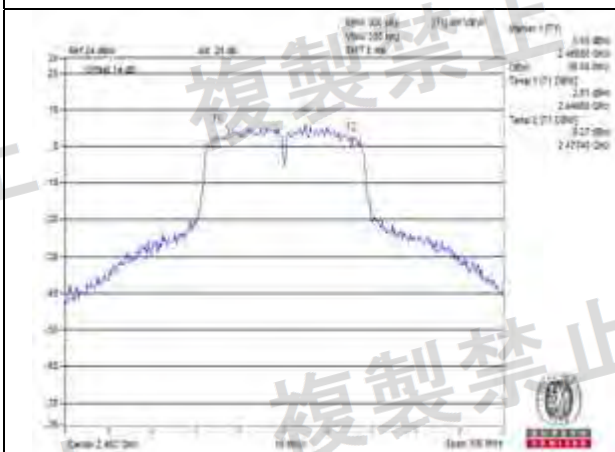


Vmin.



Channel 3

Channel 7



Channel 11

Measurement uncertainty: ± 206.50 Hz



4.4 Spurious Emissions for Transmitter Measurement

4.4.1 Limits of Spurious Emissions

Frequencies (MHz)	Limit
Operating frequency 2400 to 2483.5MHz	
30.0MHz to 1000.0MHz	$\leq 0.25 \text{ uW/100kHz}$
1000.0MHz to 2387MHz	$\leq 2.5 \text{ uW/MHz}$
2387.0MHz to 2400.0MHz	$\leq 25 \text{ uW/MHz}$
2483.5MHz to 2496.5MHz	$\leq 25 \text{ uW/MHz}$
2496.5MHz to 12500.0MHz	$\leq 2.5 \text{ uW/MHz}$

4.4.2 Test Setup





4.4.3 Test Results

802.11b

Environmental Conditions		25 deg.C, 60% RH					
Test Channel		CH1 (2412MHz)		CH7 (2442MHz)		Limit	Result
Test Condition	Frequency Range	Frequency (MHz)	Measured Value	Frequency (MHz)	Measured Value		
Vnormal	30.0MHz to 1000.0MHz	733.730	0.035481uW	906.880	0.048865uW	0.25uW	Pass
	1000.0MHz to 2387MHz	2382.140	0.051404uW	2380.750	0.017579uW	2.5uW	Pass
	2387.0MHz to 2400.0MHz	2399.870	0.870964uW	2398.920	0.047863uW	25uW	Pass
	2483.5MHz to 2496.5MHz	2487.400	0.030761uW	2495.760	0.081283uW	25uW	Pass
	2496.5MHz to 12500.0MHz	3001.670	0.122744uW	7328.190	0.399945uW	2.5uW	Pass
Vmax.	30.0MHz to 1000.0MHz	673.830	0.05902uW	125.540	0.0542uW	0.25uW	Pass
	1000.0MHz to 2387MHz	2381.790	0.100925uW	2386.650	0.023823uW	2.5uW	Pass
	2387.0MHz to 2400.0MHz	2399.990	0.321366uW	2394.140	0.065163uW	25uW	Pass
	2483.5MHz to 2496.5MHz	2492.540	0.028642uW	2483.940	0.072277uW	25uW	Pass
	2496.5MHz to 12500.0MHz	3034.180	0.093541uW	8210.990	0.099541uW	2.5uW	Pass
Vmin.	30.0MHz to 1000.0MHz	673.830	0.050582uW	703.900	0.045709uW	0.25uW	Pass
	1000.0MHz to 2387MHz	2386.650	0.084723uW	2385.610	0.021727uW	2.5uW	Pass
	2387.0MHz to 2400.0MHz	2399.920	0.32434uW	2395.130	0.049204uW	25uW	Pass
	2483.5MHz to 2496.5MHz	2484.680	0.031623uW	2486.690	0.061235uW	25uW	Pass
	2496.5MHz to 12500.0MHz	2999.170	0.097949uW	7323.180	0.167109uW	2.5uW	Pass

Note: The worst value in each frequency range v.s. each channel has been marked by boldface.



Environmental Conditions		25 deg.C, 60% RH			
Test Channel		CH13 (2472MHz)		Limit	Result
Test Condition	Frequency Range	Frequency (MHz)	Measured Value		
Vnormal	30.0MHz to 1000.0MHz	920.700	0.050003uW	0.25uW	Pass
	1000.0MHz to 2387MHz	2228.180	0.017458uW	2.5uW	Pass
	2387.0MHz to 2400.0MHz	2390.600	0.023933uW	25uW	Pass
	2483.5MHz to 2496.5MHz	2483.500	0.234423uW	25uW	Pass
	2496.5MHz to 12500.0MHz	3059.190	0.09528uW	2.5uW	Pass
Vmax.	30.0MHz to 1000.0MHz	856.440	0.039902uW	0.25uW	Pass
	1000.0MHz to 2387MHz	1740.650	0.079068uW	2.5uW	Pass
	2387.0MHz to 2400.0MHz	2396.070	0.032211uW	25uW	Pass
	2483.5MHz to 2496.5MHz	2483.560	0.598412uW	25uW	Pass
	2496.5MHz to 12500.0MHz	3009.170	0.091622uW	2.5uW	Pass
Vmin.	30.0MHz to 1000.0MHz	733.970	0.048529uW	0.25uW	Pass
	1000.0MHz to 2387MHz	2374.510	0.017824uW	2.5uW	Pass
	2387.0MHz to 2400.0MHz	2396.090	0.02729uW	25uW	Pass
	2483.5MHz to 2496.5MHz	2483.530	0.509331uW	25uW	Pass
	2496.5MHz to 12500.0MHz	3039.180	0.114551uW	2.5uW	Pass

Note: The worst value in each frequency range v.s. each channel has been marked by boldface.

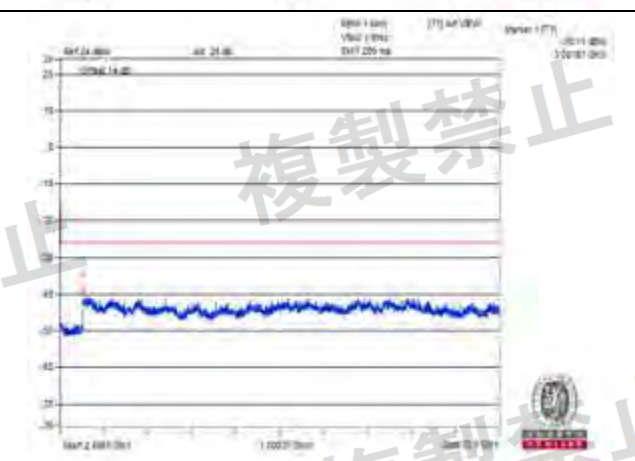
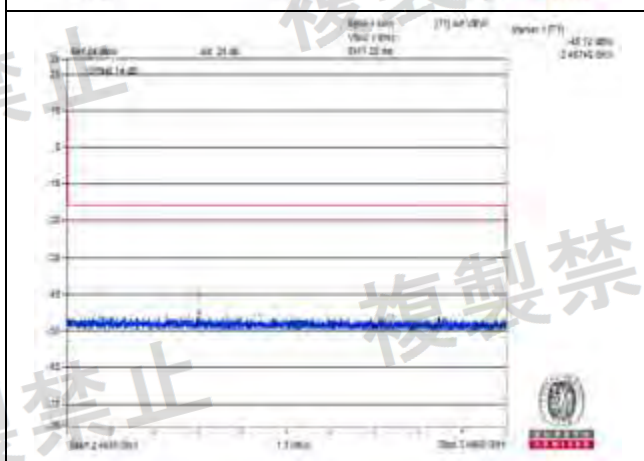
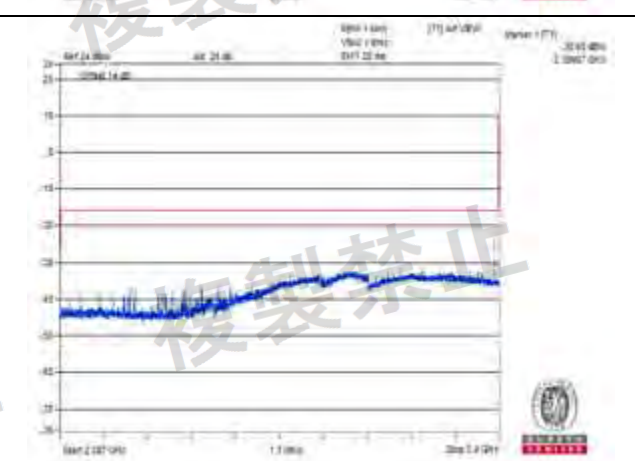
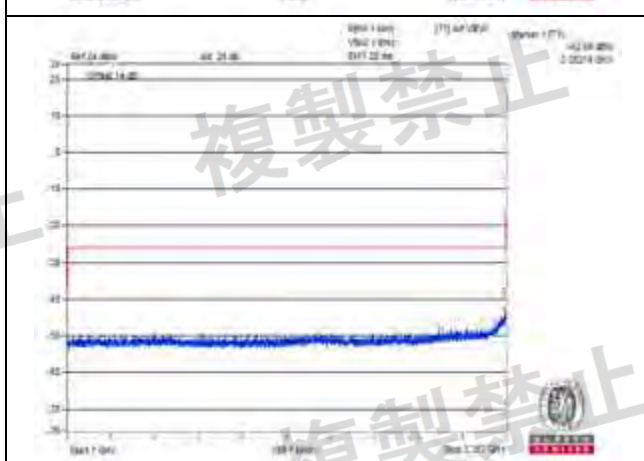
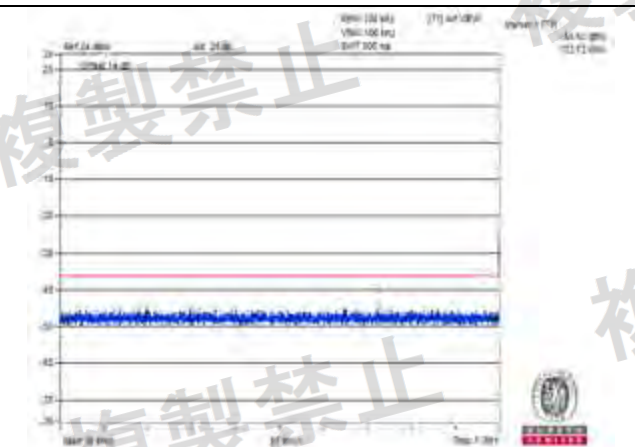
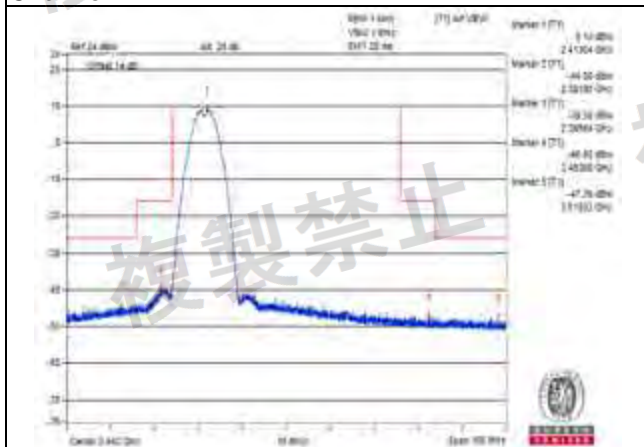


Environmental Conditions		25 deg.C, 60% RH			
Test Channel		CH14 (2484MHz)		Limit	Result
Test Condition	Frequency Range	Frequency (MHz)	Measured Value		
Vnormal	30.0MHz to 1000.0MHz	594.050	0.034834uW	0.25uW	Pass
	1000.0MHz to 2387MHz	2458.000	0.197697uW	2.5uW	Pass
	2387.0MHz to 2400.0MHz	2471.000	11.857687uW	25uW	Pass
	2483.5MHz to 2496.5MHz	2500.430	19.230917uW	25uW	Pass
	2496.5MHz to 12500.0MHz	2512.490	0.208449uW	2.5uW	Pass
Vmax.	30.0MHz to 1000.0MHz	745.860	0.0542uW	0.25uW	Pass
	1000.0MHz to 2387MHz	2455.440	0.149279uW	2.5uW	Pass
	2387.0MHz to 2400.0MHz	2467.370	13.212956uW	25uW	Pass
	2483.5MHz to 2496.5MHz	2500.400	21.827299uW	25uW	Pass
	2496.5MHz to 12500.0MHz	2512.490	0.134896uW	2.5uW	Pass
Vmin.	30.0MHz to 1000.0MHz	745.860	0.086099uW	0.25uW	Pass
	1000.0MHz to 2387MHz	2455.810	0.159956uW	2.5uW	Pass
	2387.0MHz to 2400.0MHz	2467.270	14.028137uW	25uW	Pass
	2483.5MHz to 2496.5MHz	2499.040	20.558906uW	25uW	Pass
	2496.5MHz to 12500.0MHz	2512.490	0.199986uW	2.5uW	Pass

Note: 1. The worst value in each frequency range v.s. each channel has been marked by boldface.
2. The spectrum plots are attached on the following pages.



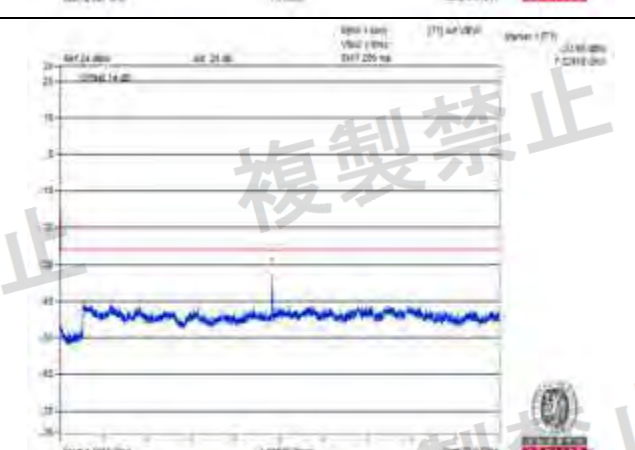
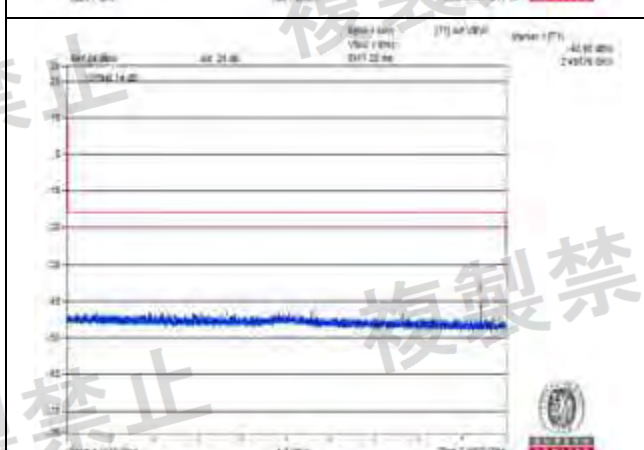
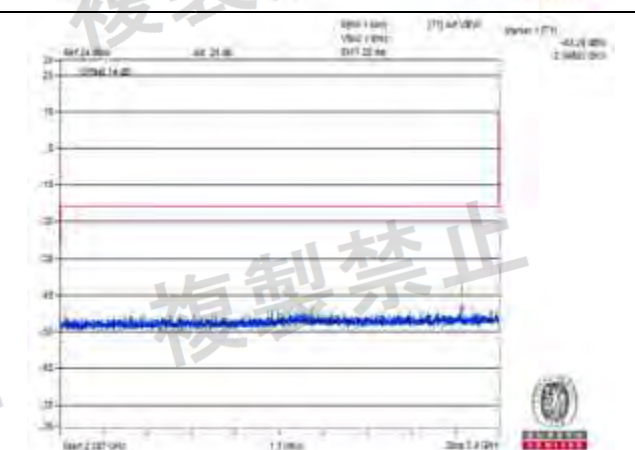
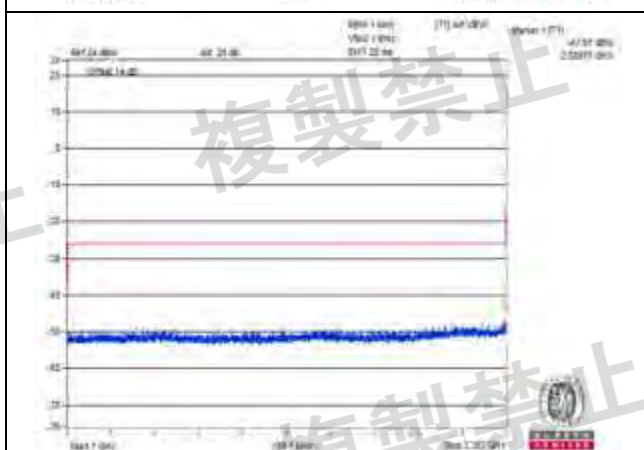
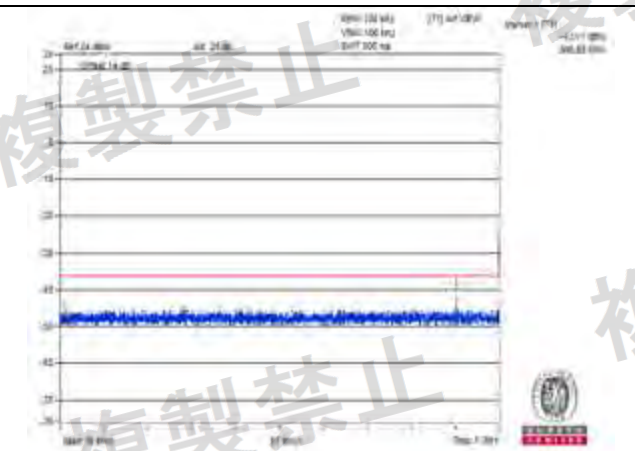
Vnormal
Channel 1



Measurement uncertainty: $\pm 3.93\text{dB}$



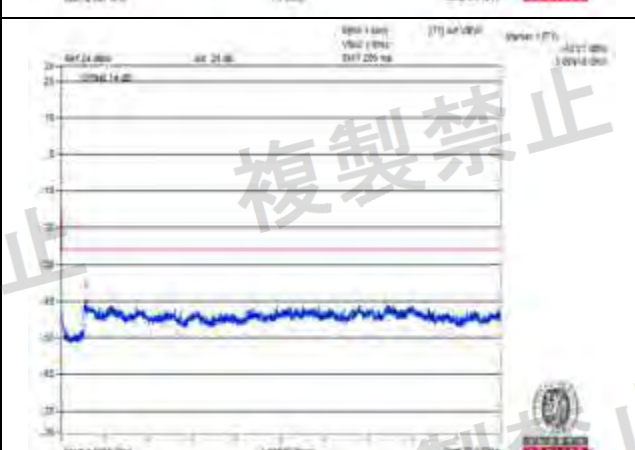
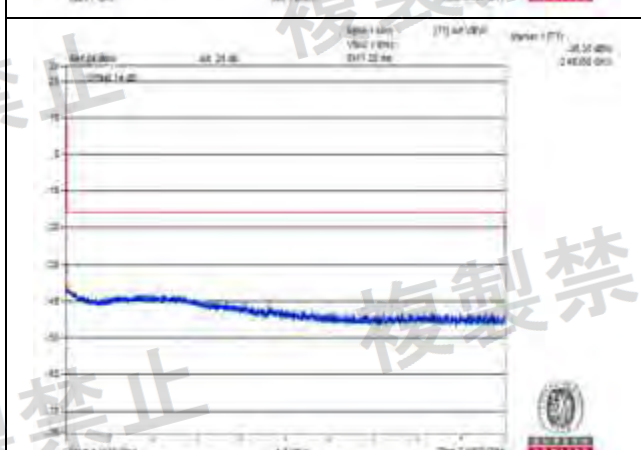
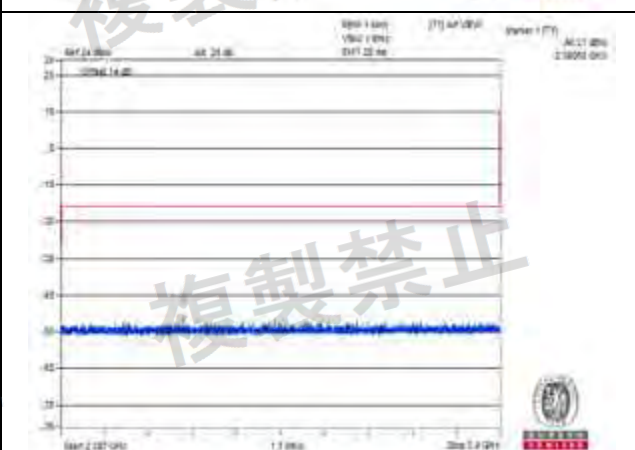
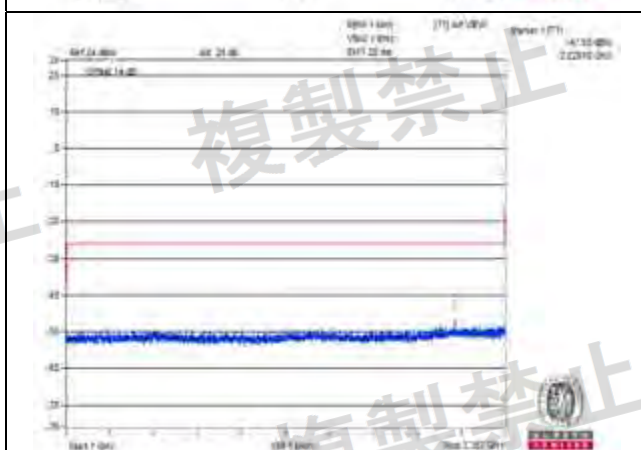
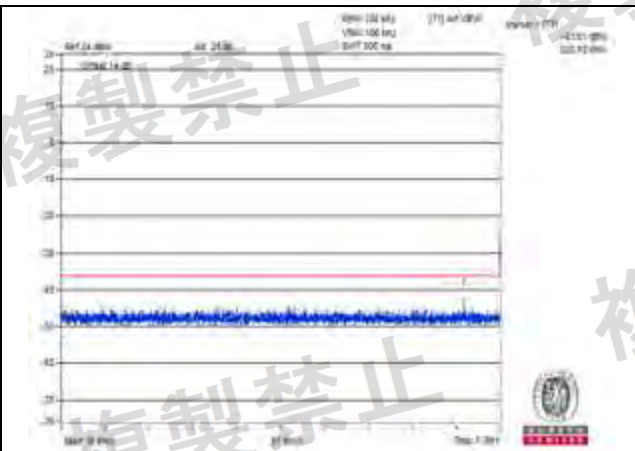
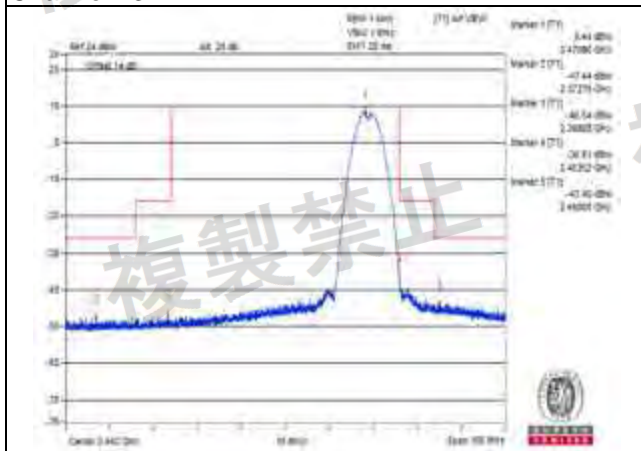
Vnormal
Channel 7



Measurement uncertainty: $\pm 3.93\text{dB}$



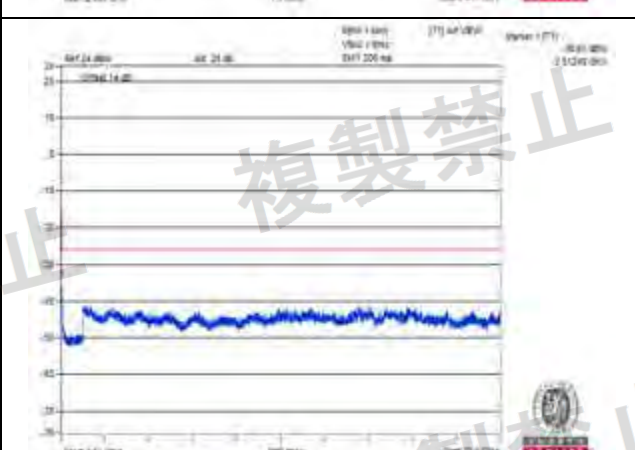
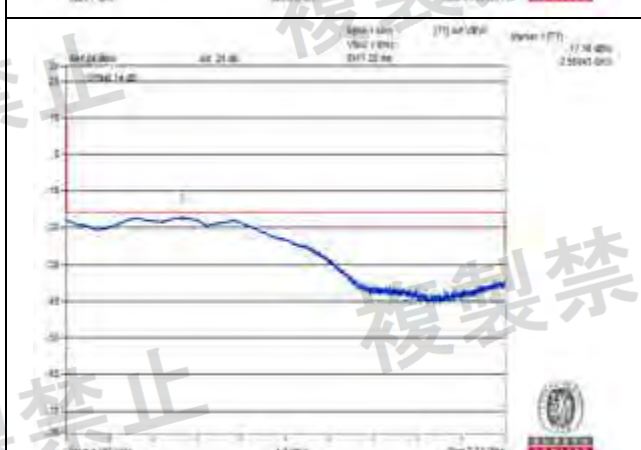
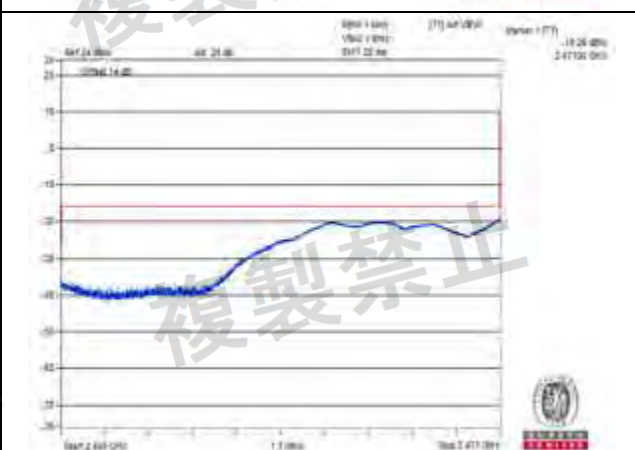
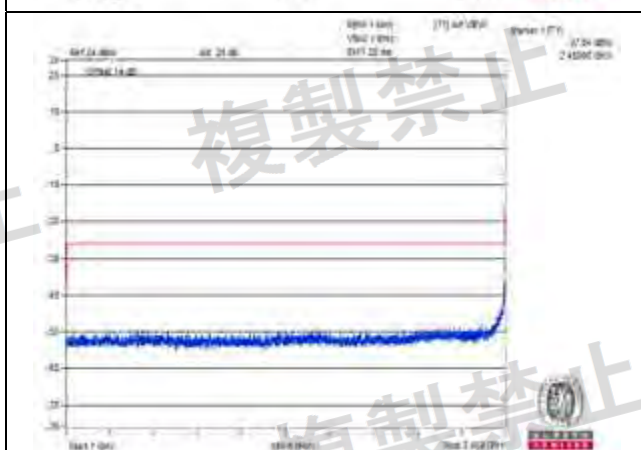
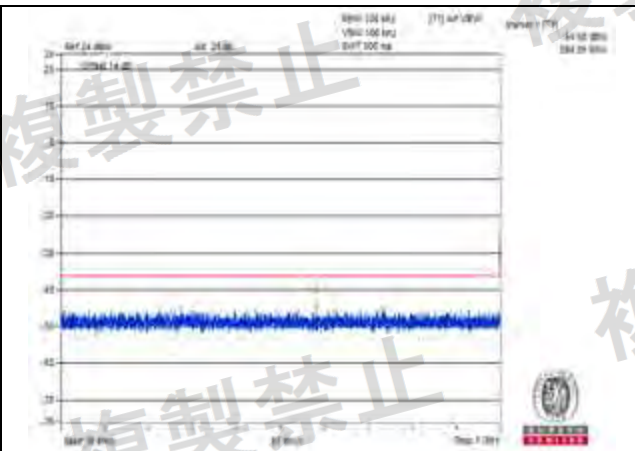
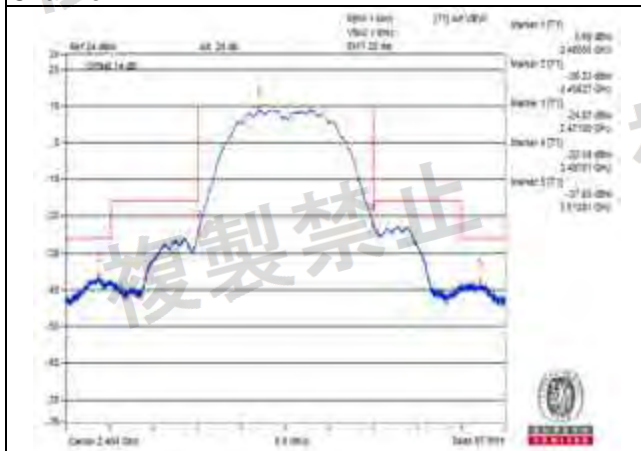
Vnormal
Channel 13



Measurement uncertainty: $\pm 3.93\text{dB}$



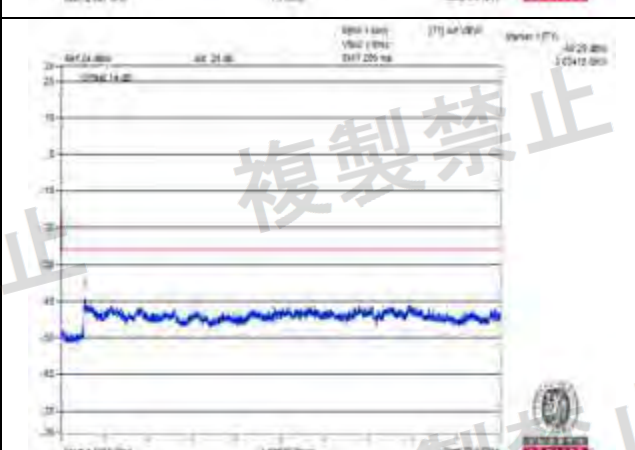
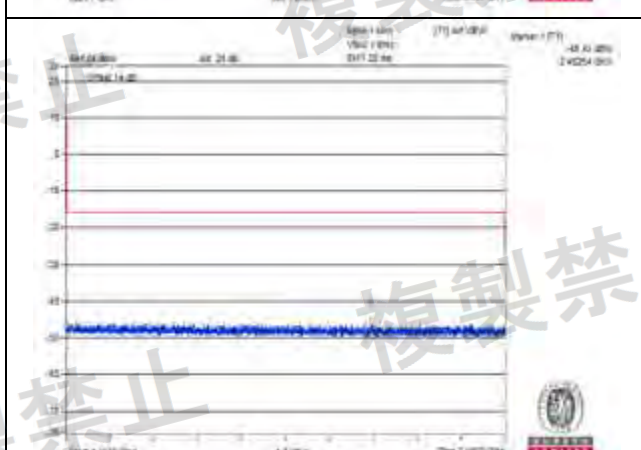
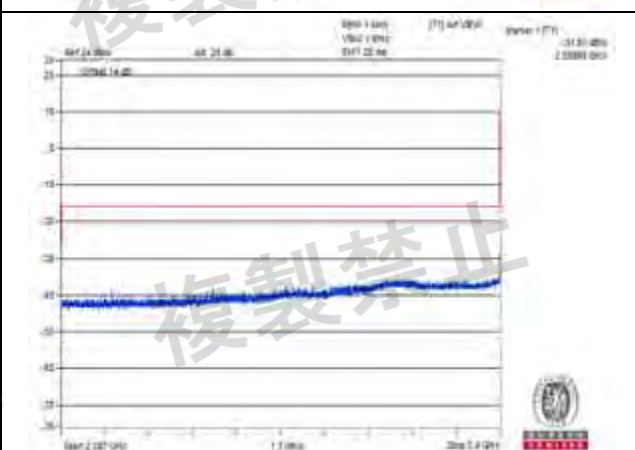
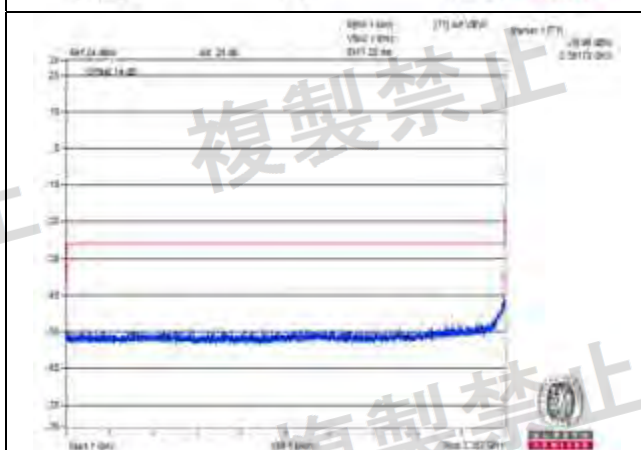
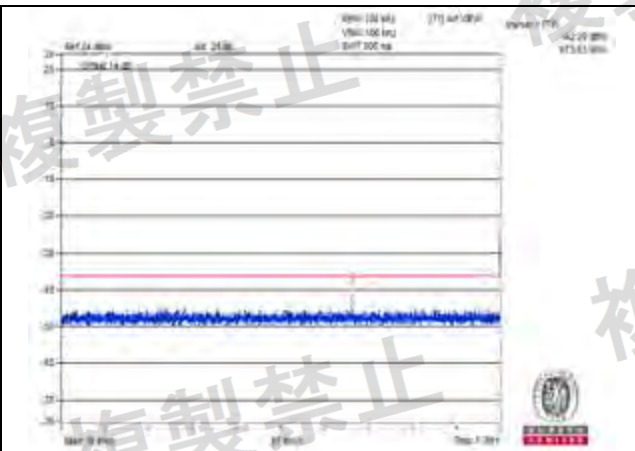
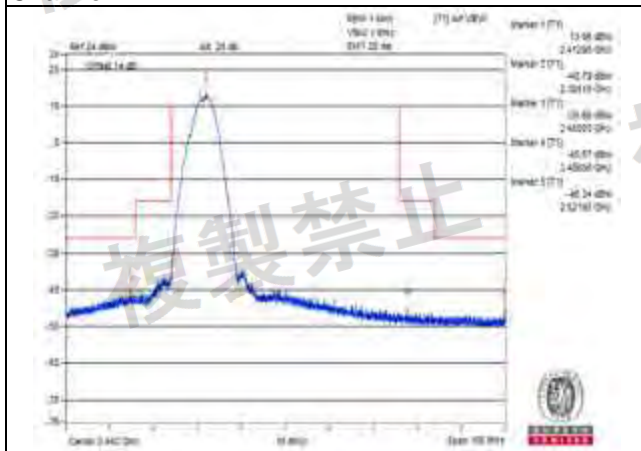
Vnormal
Channel 14



Measurement uncertainty: $\pm 3.93\text{dB}$



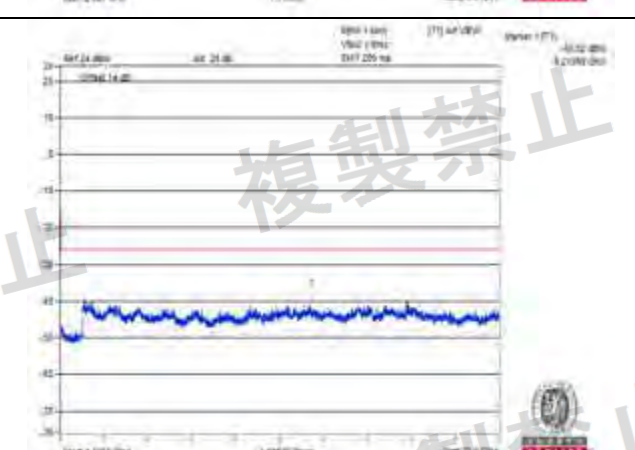
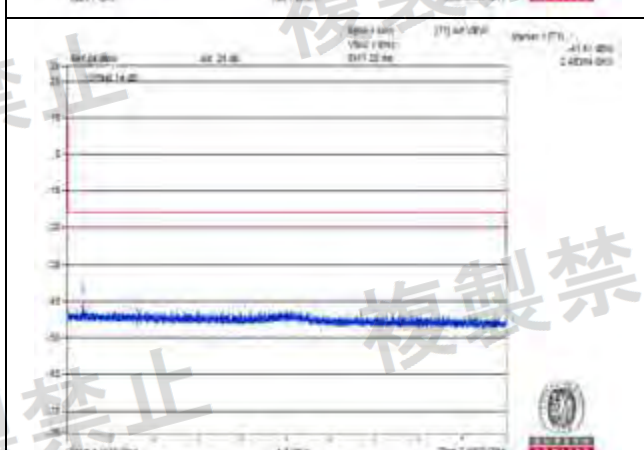
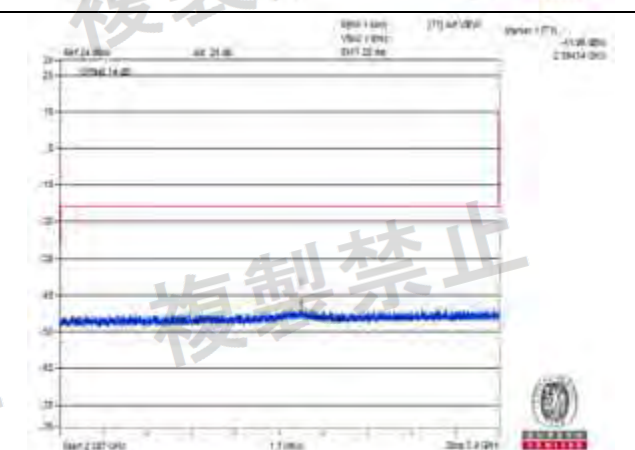
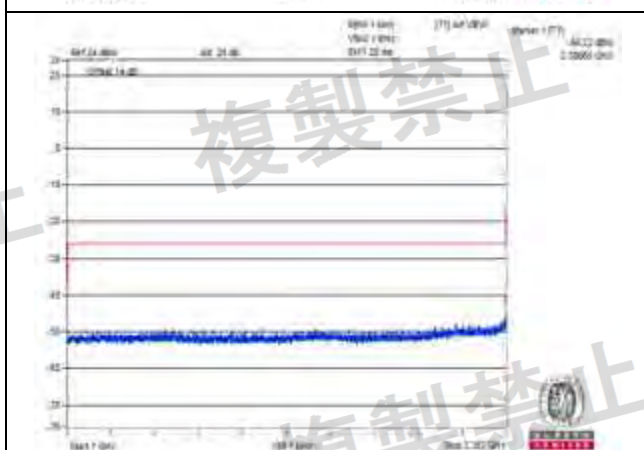
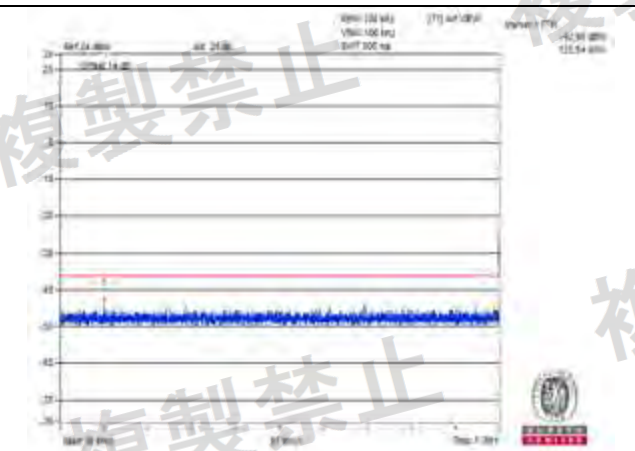
Vmax.
Channel 1



Measurement uncertainty: $\pm 3.93\text{dB}$



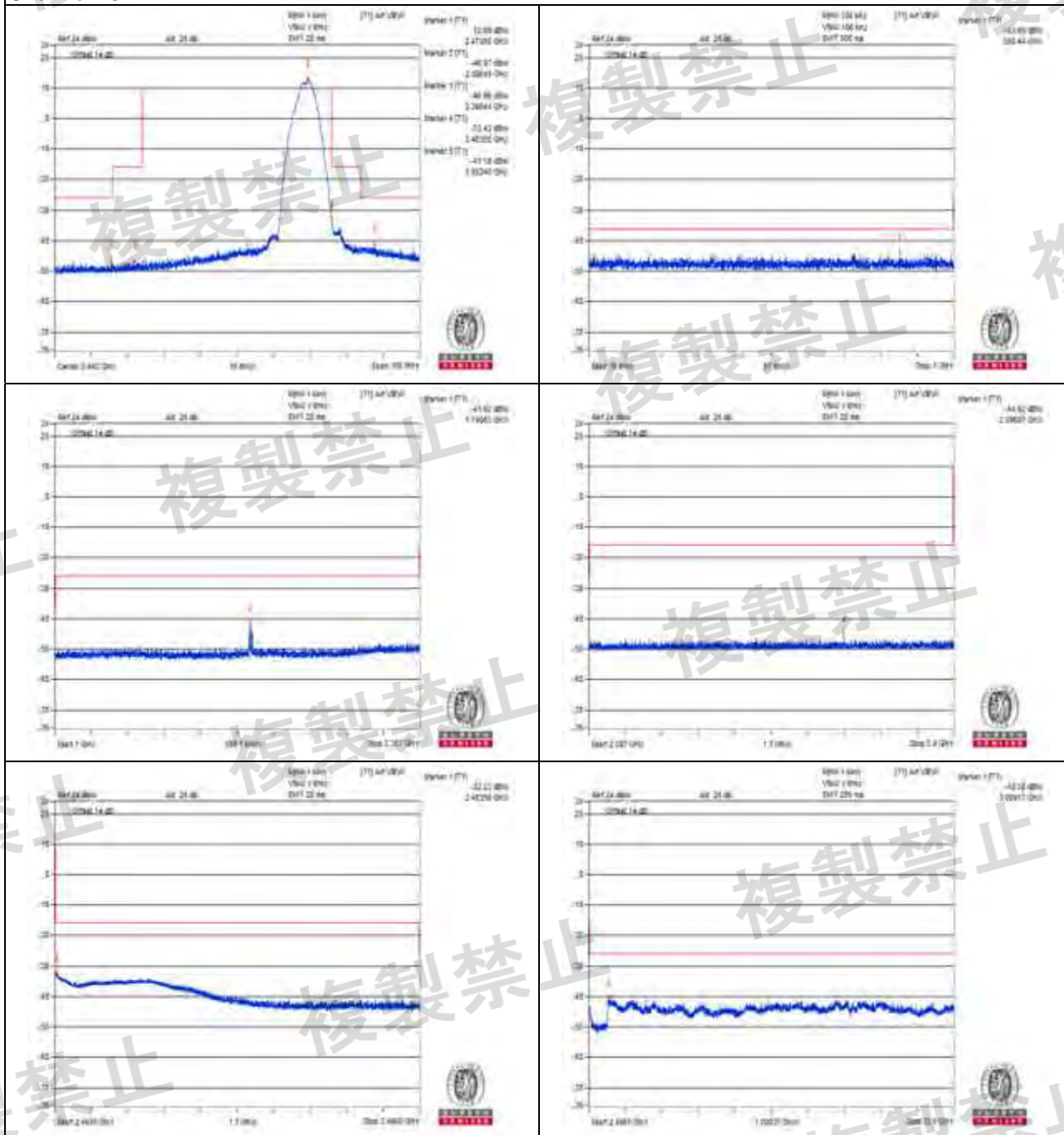
Vmax.
Channel 7



Measurement uncertainty: $\pm 3.93\text{dB}$



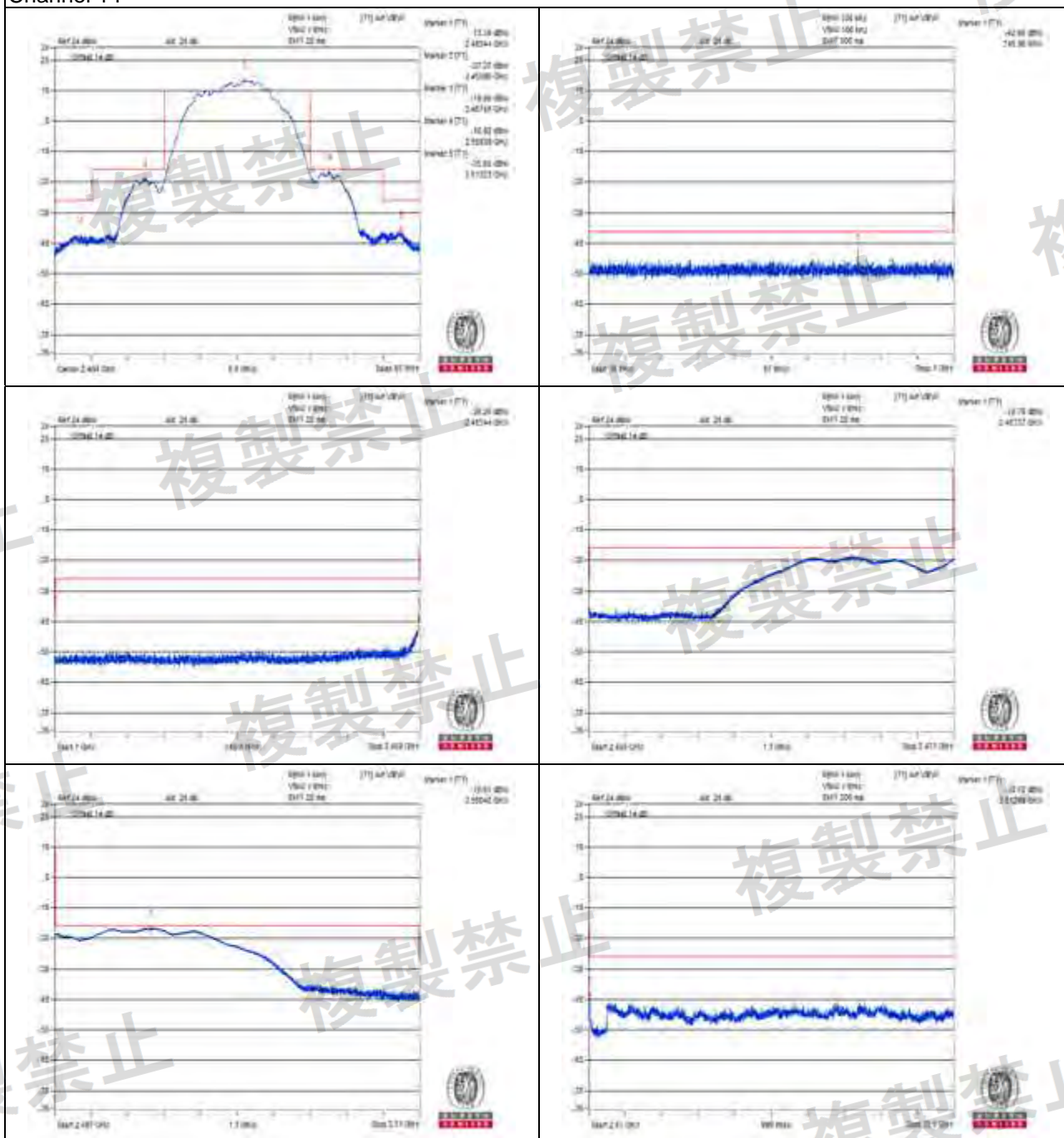
Vmax.
Channel 13



Measurement uncertainty: $\pm 3.93\text{dB}$



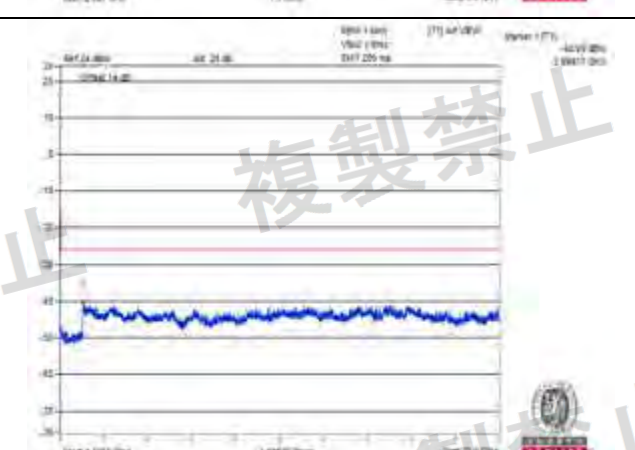
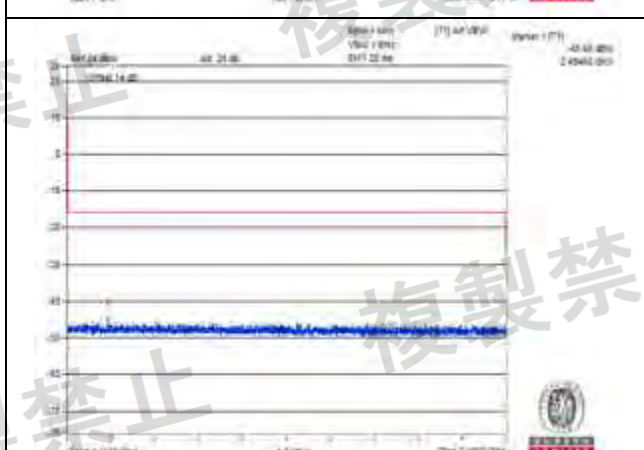
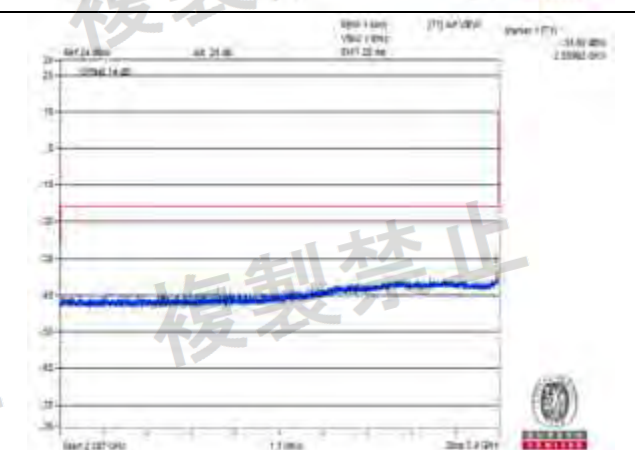
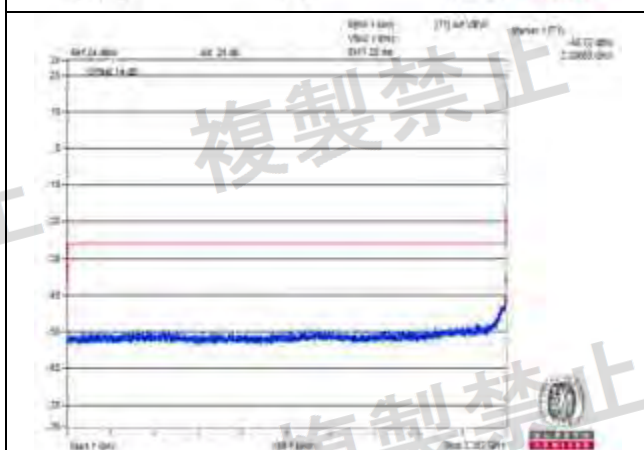
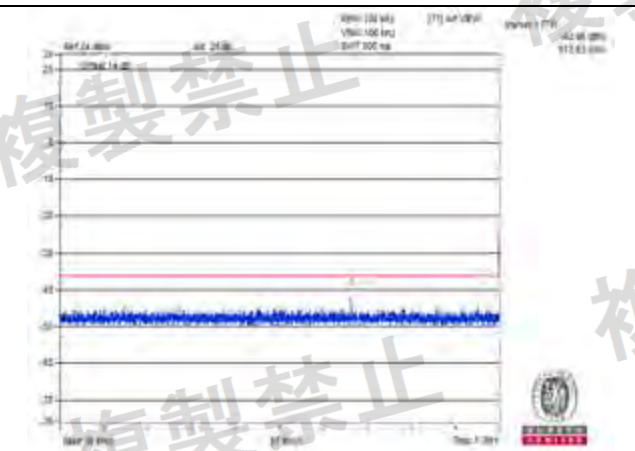
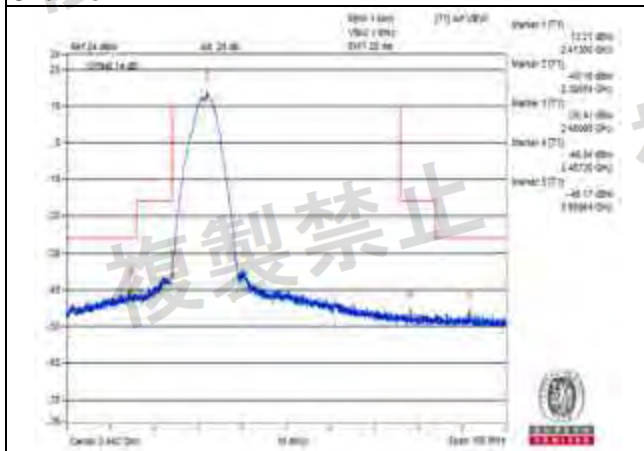
Vmax.
Channel 14



Measurement uncertainty: $\pm 3.93\text{dB}$



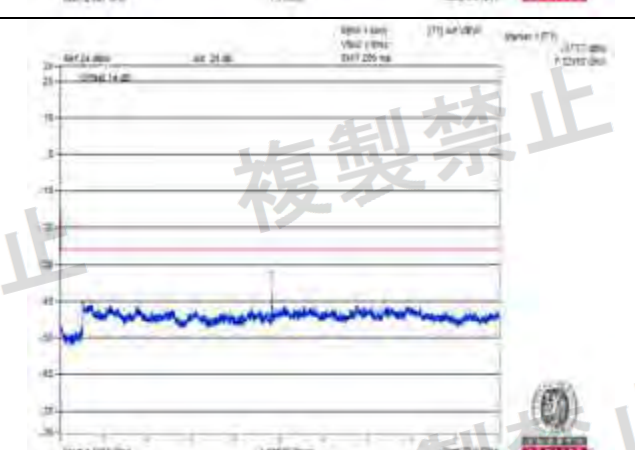
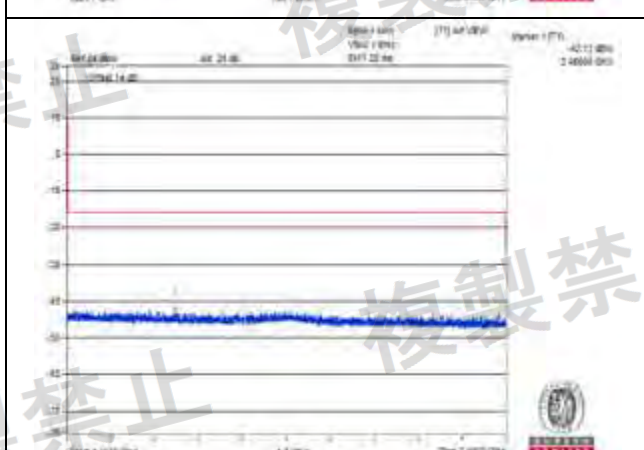
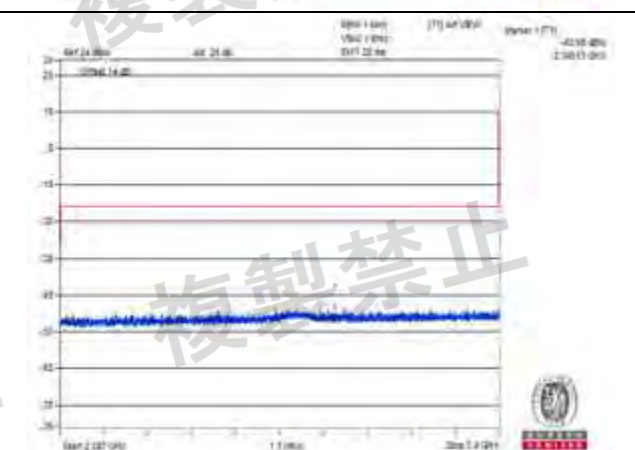
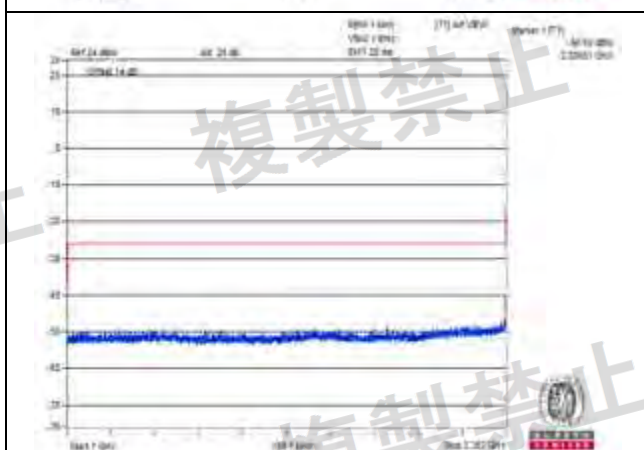
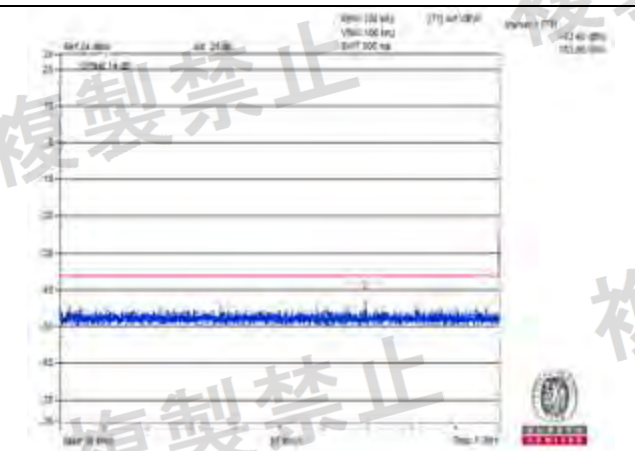
Vmin.
Channel 1



Measurement uncertainty: $\pm 3.93\text{dB}$



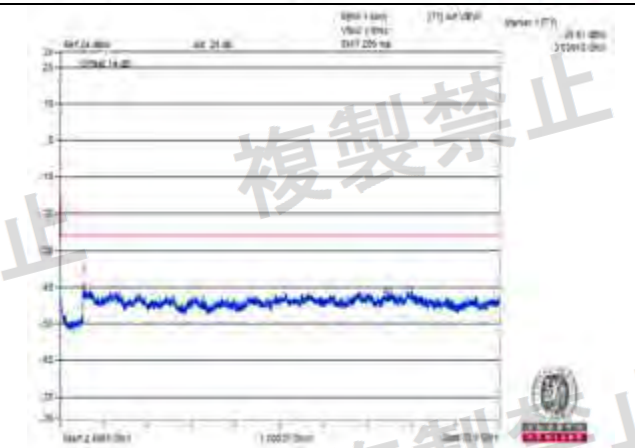
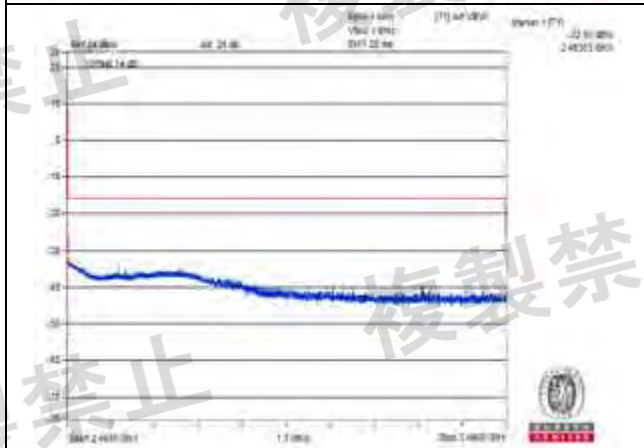
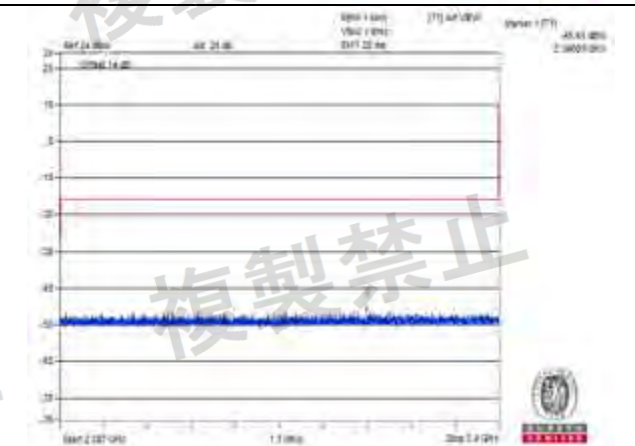
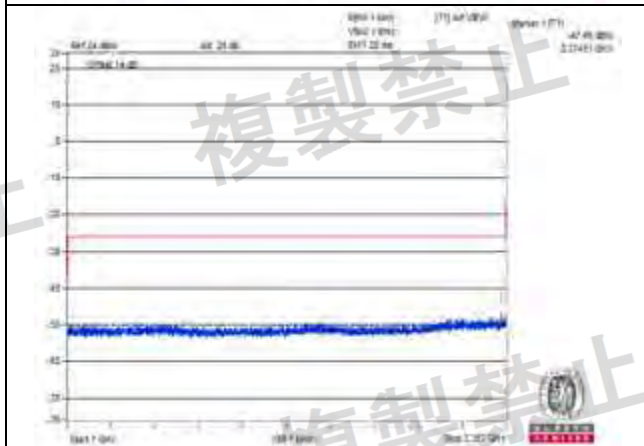
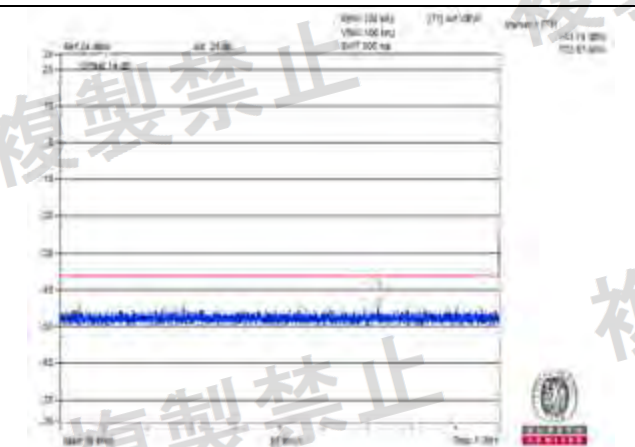
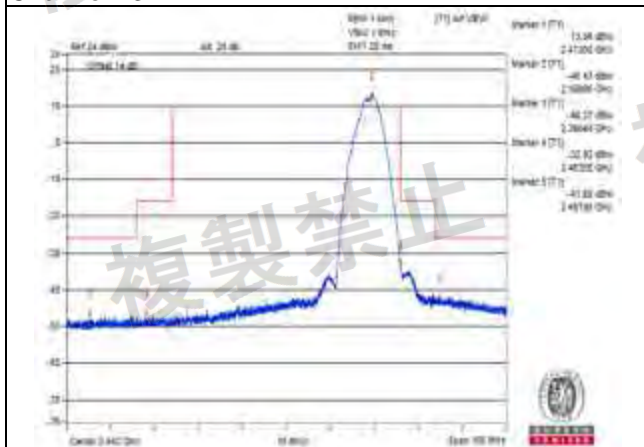
Vmin.
Channel 7



Measurement uncertainty: $\pm 3.93\text{dB}$



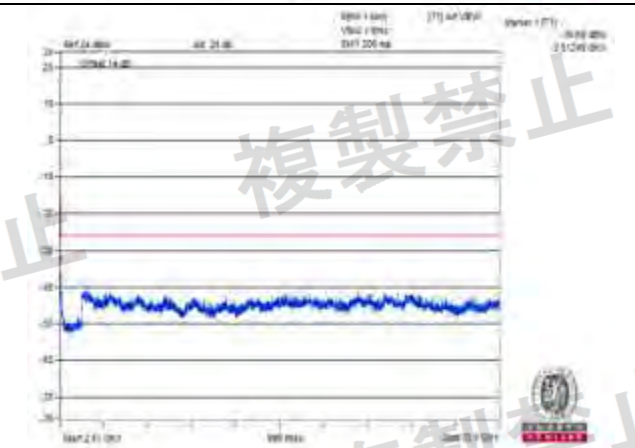
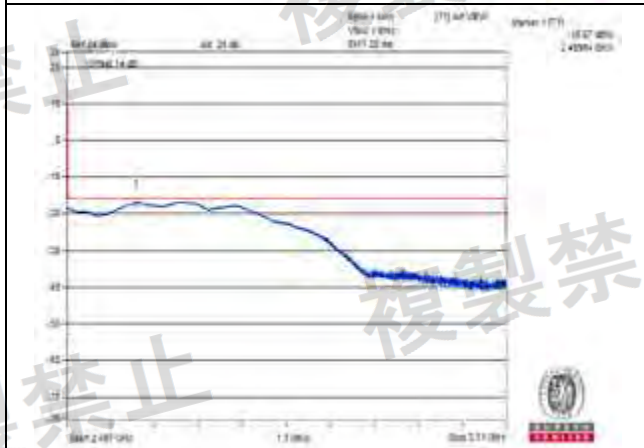
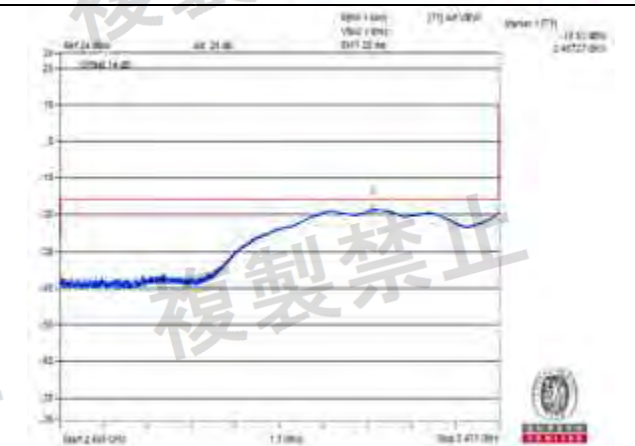
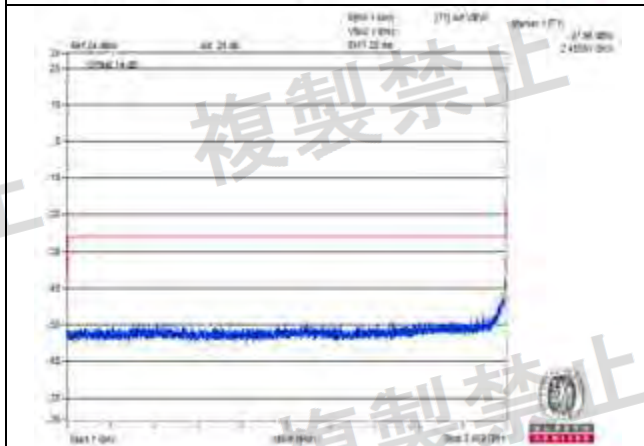
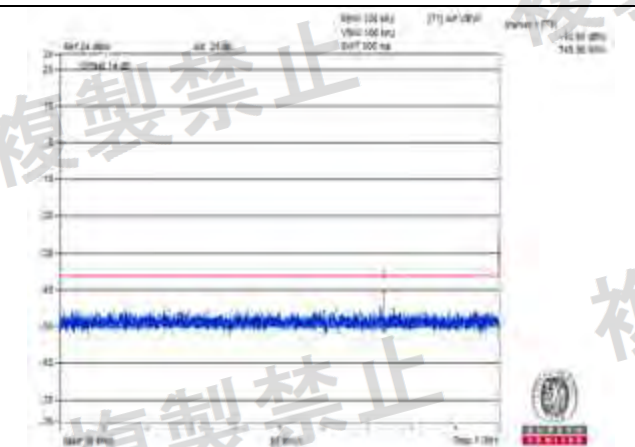
Vmin.
Channel 13



Measurement uncertainty: $\pm 3.93\text{dB}$



Vmin.
Channel 14



Measurement uncertainty: $\pm 3.93\text{dB}$



802.11g

Environmental Conditions		25 deg.C, 60% RH					
Test Channel		CH1 (2412MHz)		CH7 (2442MHz)		Limit	Result
Test Condition	Frequency Range	Frequency (MHz)	Measured Value	Frequency (MHz)	Measured Value		
Vnormal	30.0MHz to 1000.0MHz	255.040	0.040179uW	856.680	0.050699uW	0.25uW	Pass
	1000.0MHz to 2387MHz	2387.000	0.356451uW	2281.580	0.209894uW	2.5uW	Pass
	2387.0MHz to 2400.0MHz	2399.680	NOTE 2	2393.080	0.297852uW	25uW	Pass
	2483.5MHz to 2496.5MHz	2488.200	0.034674uW	2490.300	0.295121uW	25uW	Pass
	2496.5MHz to 12500.0MHz	3114.210	0.093325uW	6968.060	0.663743uW	2.5uW	Pass
Vmax.	30.0MHz to 1000.0MHz	119.720	0.041591uW	967.260	0.040738uW	0.25uW	Pass
	1000.0MHz to 2387MHz	2382.830	0.358096uW	2357.520	0.218776uW	2.5uW	Pass
	2387.0MHz to 2400.0MHz	2399.550	NOTE 2	2393.800	0.310456uW	25uW	Pass
	2483.5MHz to 2496.5MHz	2494.630	0.03767uW	2483.910	0.309742uW	25uW	Pass
	2496.5MHz to 12500.0MHz	3021.680	0.090991uW	4704.770	0.515229uW	2.5uW	Pass
Vmin.	30.0MHz to 1000.0MHz	659.040	0.039902uW	845.520	0.036728uW	0.25uW	Pass
	1000.0MHz to 2387MHz	2387.000	0.403645uW	2386.300	0.236048uW	2.5uW	Pass
	2387.0MHz to 2400.0MHz	2399.600	NOTE 2	2399.660	0.345939uW	25uW	Pass
	2483.5MHz to 2496.5MHz	2484.930	0.031117uW	2490.440	0.340408uW	25uW	Pass
	2496.5MHz to 12500.0MHz	3619.390	0.10666uW	11269.560	0.511682uW	2.5uW	Pass

Note: 1. The worst value in each frequency range v.s. each channel has been marked by boldface.



Environmental Conditions		25 deg.C, 60% RH			
Test Channel		CH13 (2472MHz)		Limit	Result
Test Condition	Frequency Range	Frequency (MHz)	Measured Value		
Vnormal	30.0MHz to 1000.0MHz	905.910	0.039084uW	0.25uW	Pass
	1000.0MHz to 2387MHz	1722.280	0.223357uW	2.5uW	Pass
	2387.0MHz to 2400.0MHz	2396.160	0.272898uW	25uW	Pass
	2483.5MHz to 2496.5MHz	2483.850	NOTE 2	25uW	Pass
	2496.5MHz to 12500.0MHz	2496.500	2.432204uW	2.5uW	Pass
Vmax.	30.0MHz to 1000.0MHz	980.110	0.037497uW	0.25uW	Pass
	1000.0MHz to 2387MHz	2247.600	0.225944uW	2.5uW	Pass
	2387.0MHz to 2400.0MHz	2395.760	0.237684uW	25uW	Pass
	2483.5MHz to 2496.5MHz	2484.370	NOTE 2	25uW	Pass
	2496.5MHz to 12500.0MHz	2496.500	1.603245uW	2.5uW	Pass
Vmin.	30.0MHz to 1000.0MHz	905.660	0.037844uW	0.25uW	Pass
	1000.0MHz to 2387MHz	2284.010	0.225944uW	2.5uW	Pass
	2387.0MHz to 2400.0MHz	2398.020	0.240436uW	25uW	Pass
	2483.5MHz to 2496.5MHz	2484.390	NOTE 2	25uW	Pass
	2496.5MHz to 12500.0MHz	2496.500	1.659587uW	2.5uW	Pass

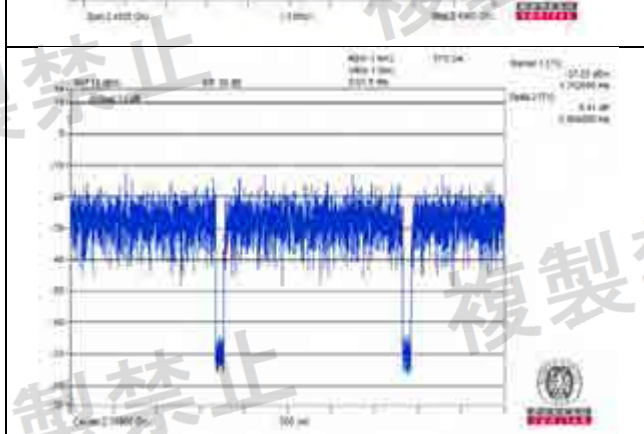
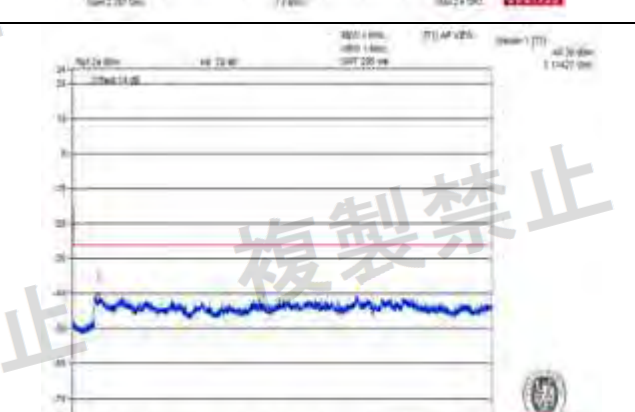
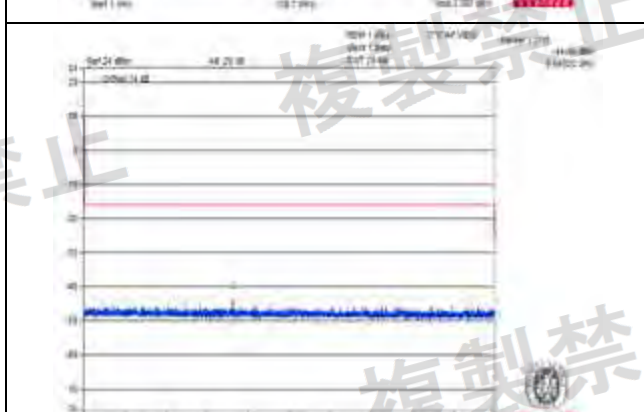
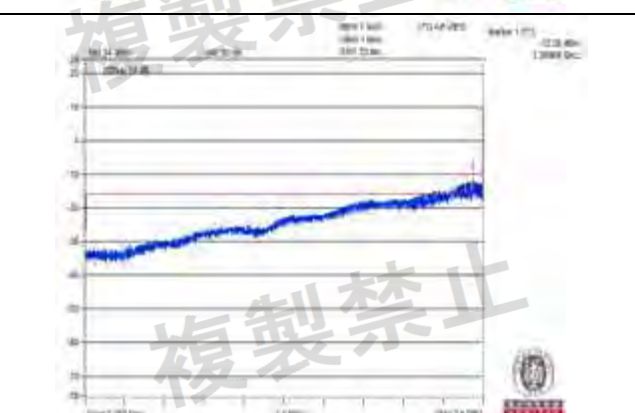
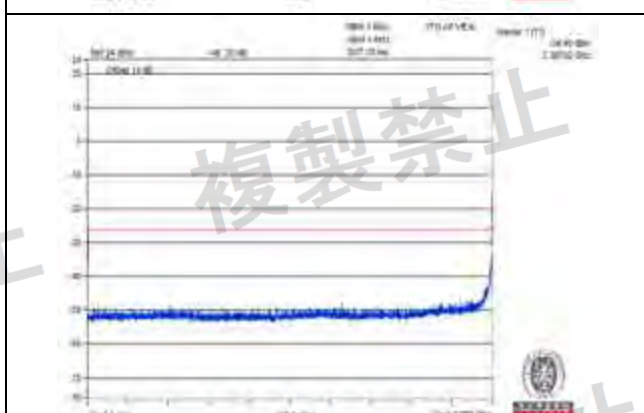
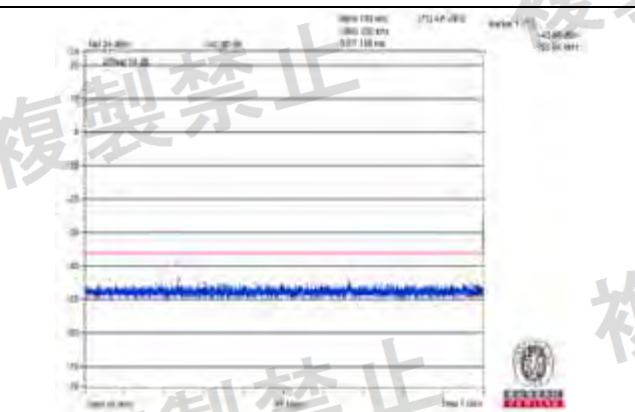
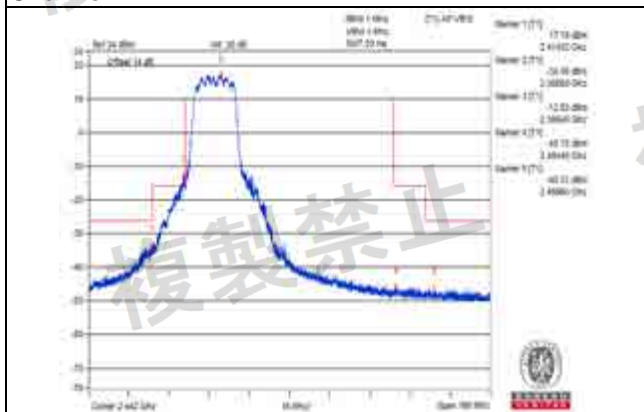
Note: 1. The worst value in each frequency range v.s. each channel has been marked by boldface.

2. Take the value of total data point (501 points) and calculate the total power.
Divides total power by 501 data point to get the average value.

TEST CONDITION	Average power (dBm)	Average power (uW)
CHANNEL 1		
V _{normal}	-25.143204	3.059706
V _{+10%}	-24.858720	3.266841
V _{-10%}	-24.791334	3.317925
CHANNEL 13		
V _{normal}	-16.665787	21.548709
V _{+10%}	-17.432868	18.05981
V _{-10%}	-16.769041	21.042428



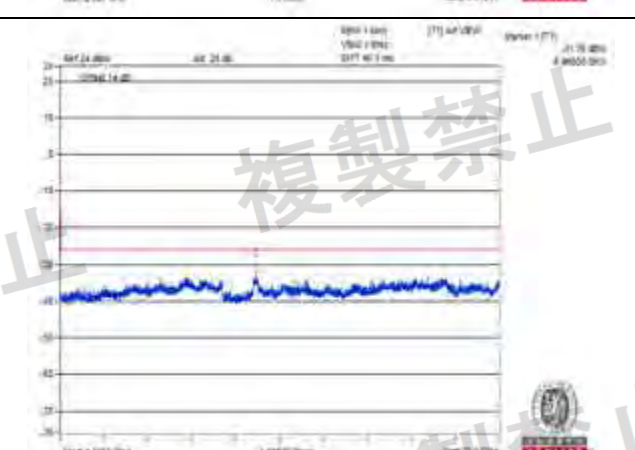
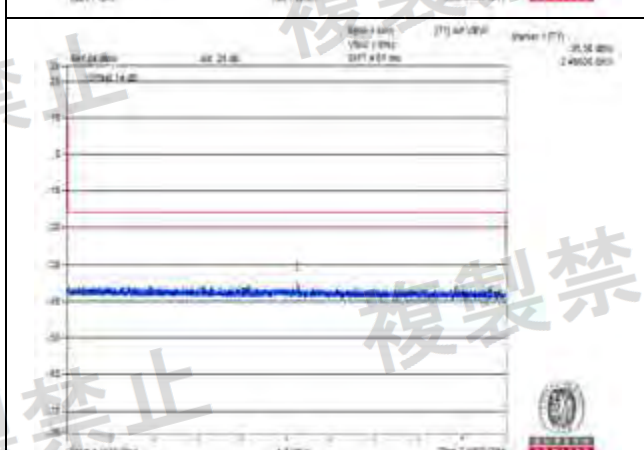
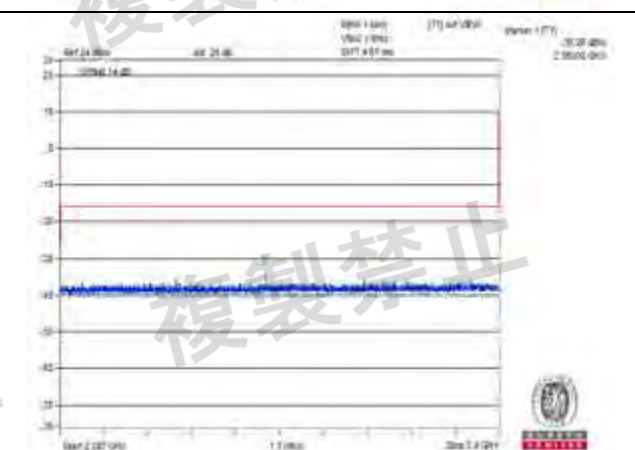
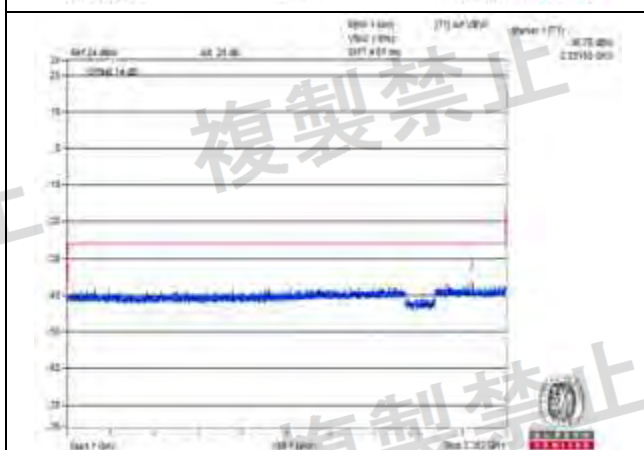
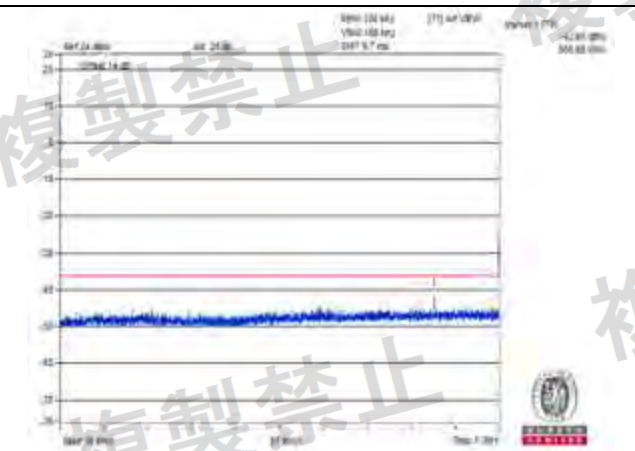
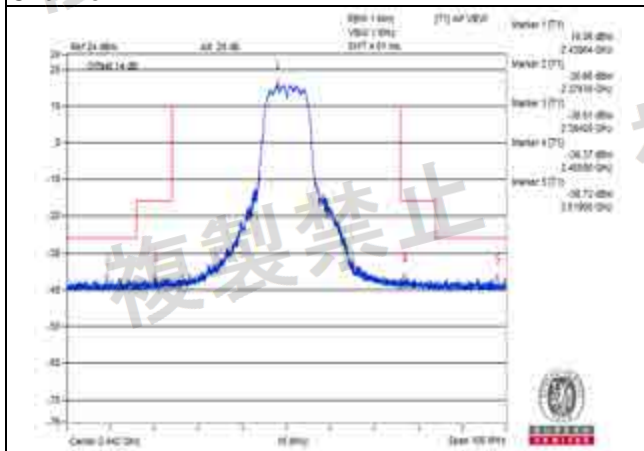
Vnormal
Channel 1



Measurement uncertainty: $\pm 3.93\text{dB}$



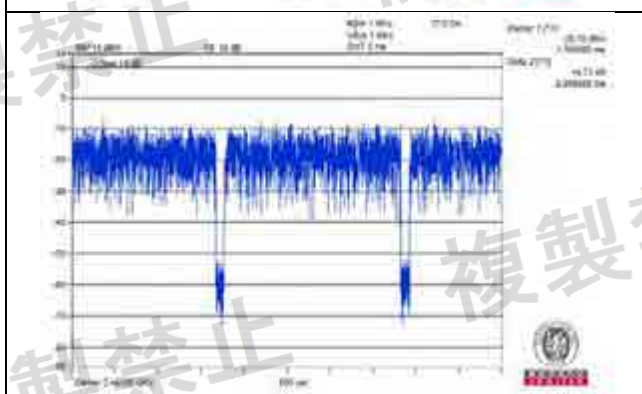
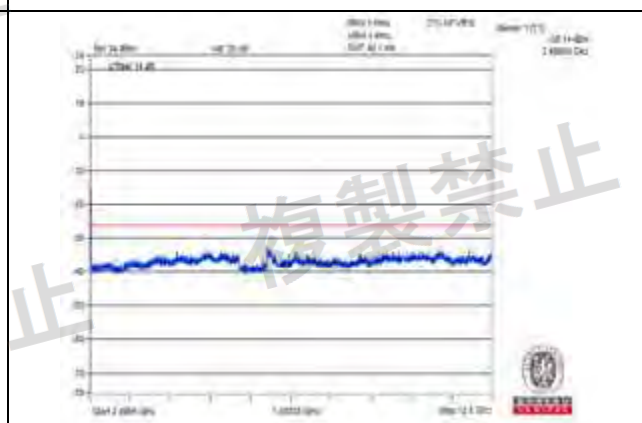
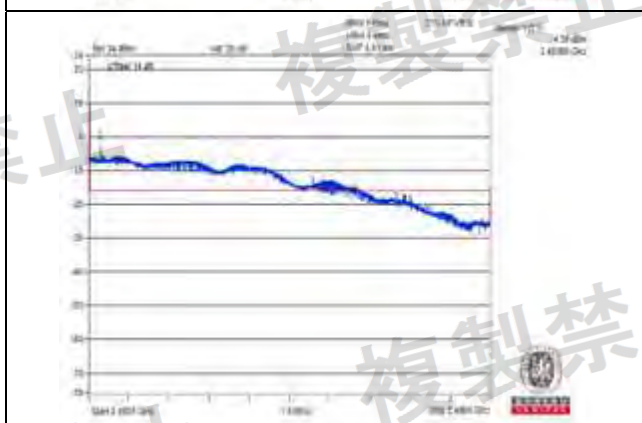
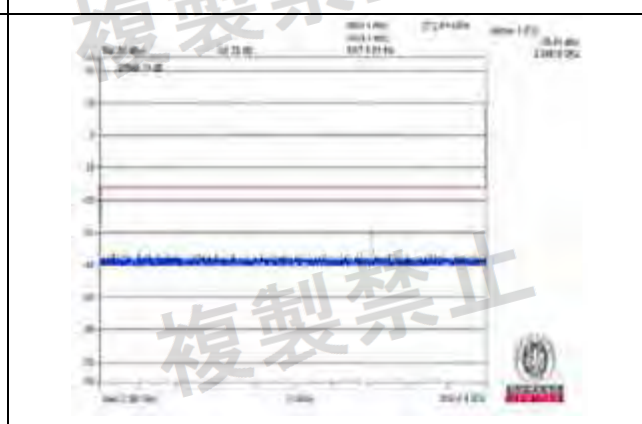
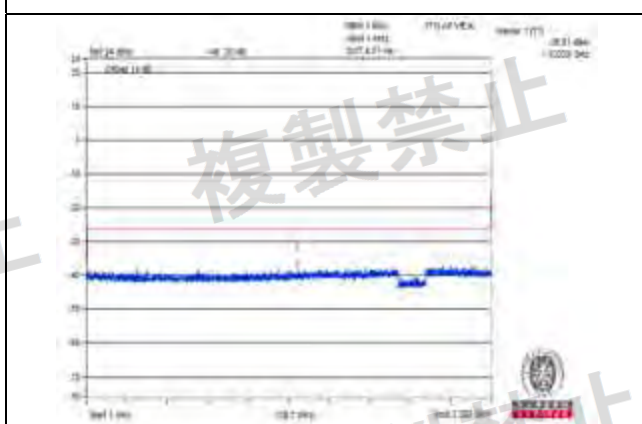
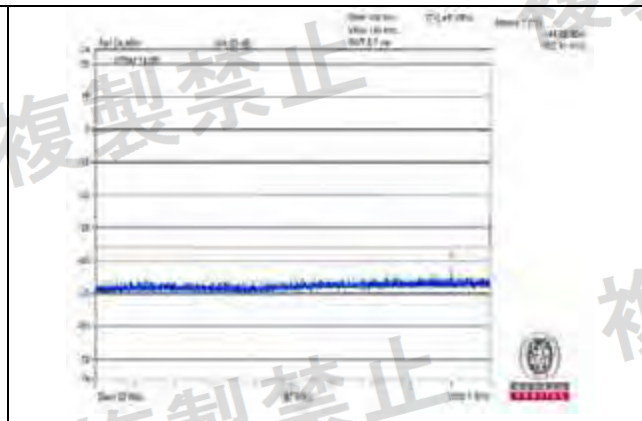
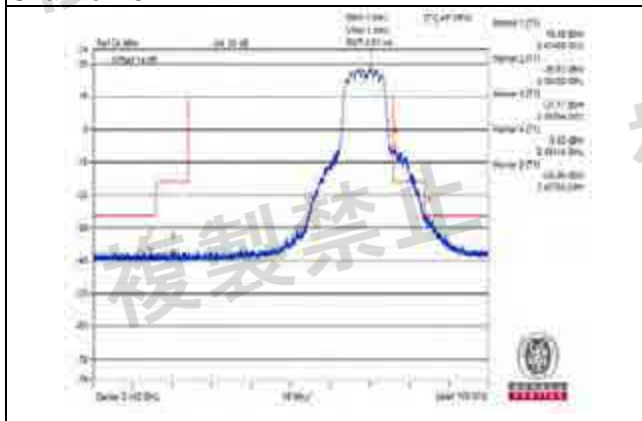
Vnormal
Channel 7



Measurement uncertainty: $\pm 3.93\text{dB}$



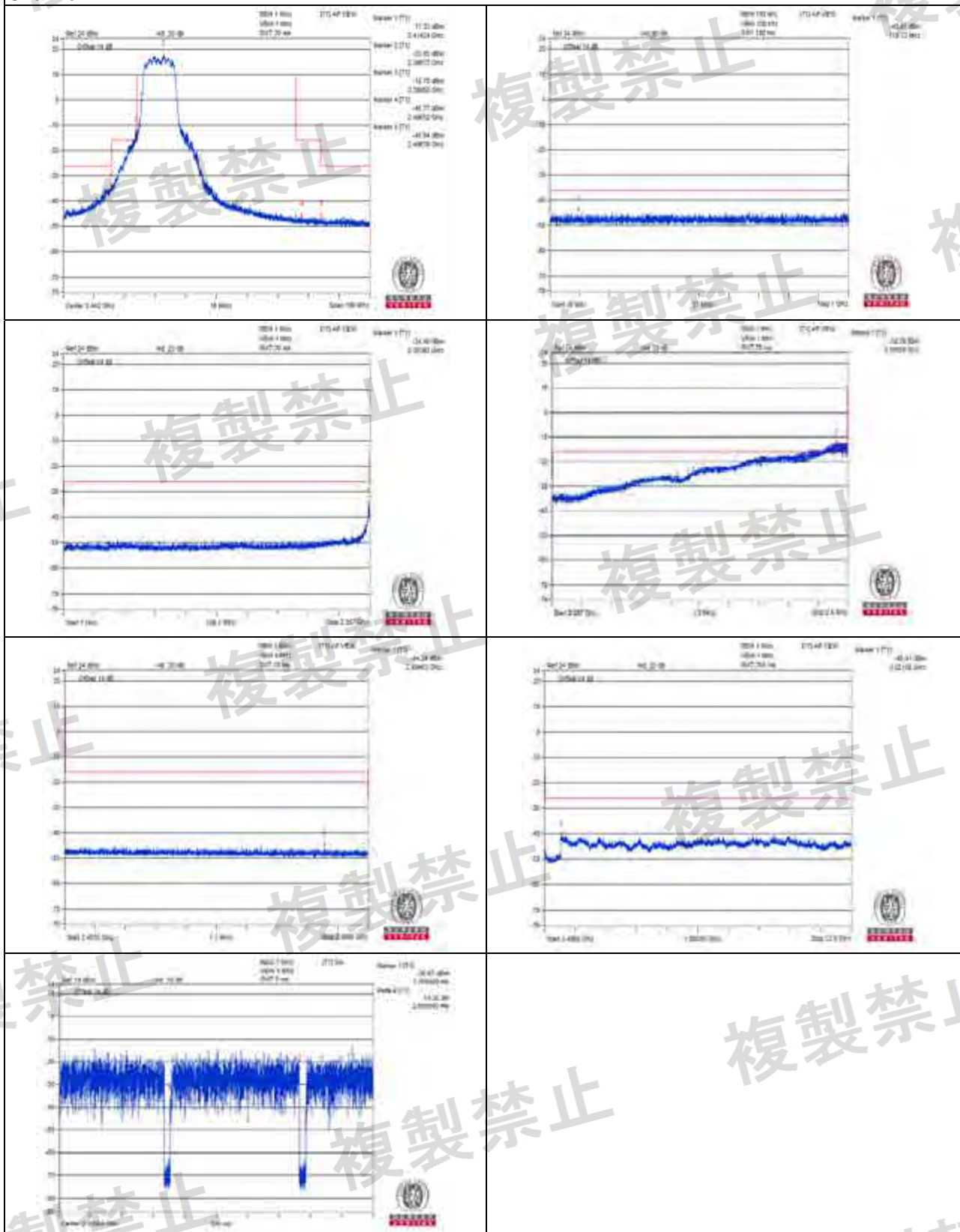
Vnormal
Channel 13



Measurement uncertainty: $\pm 3.93\text{dB}$



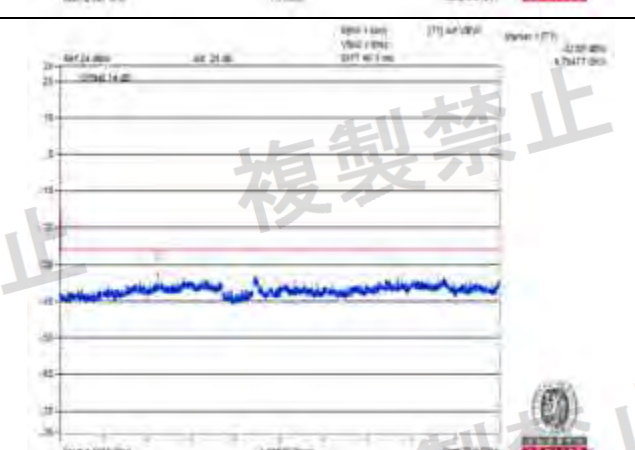
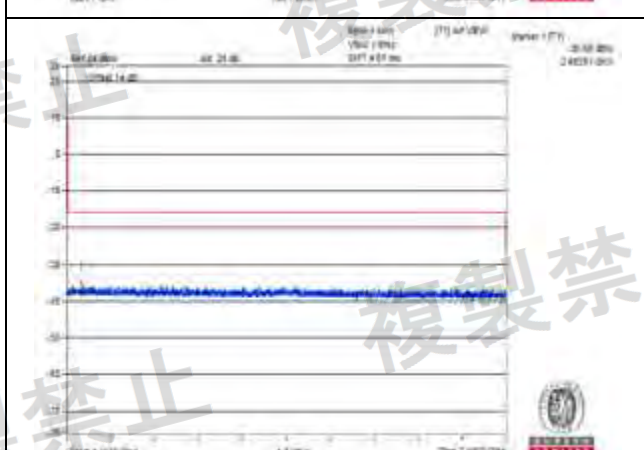
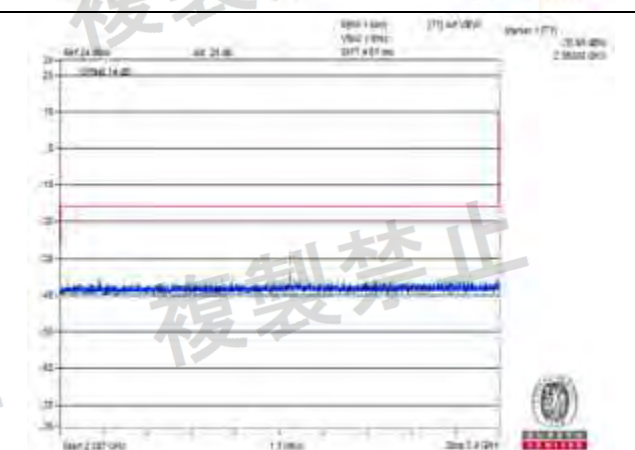
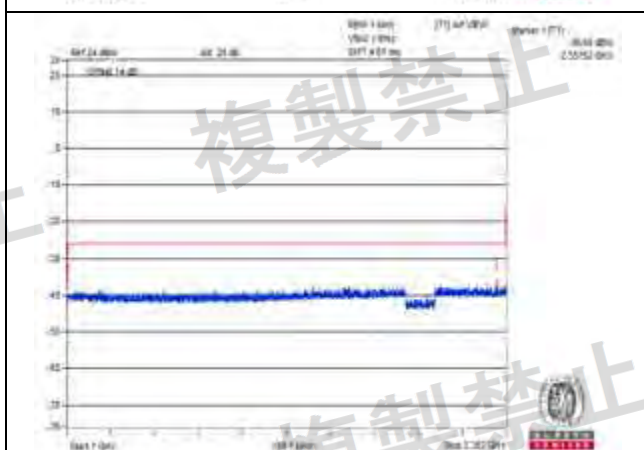
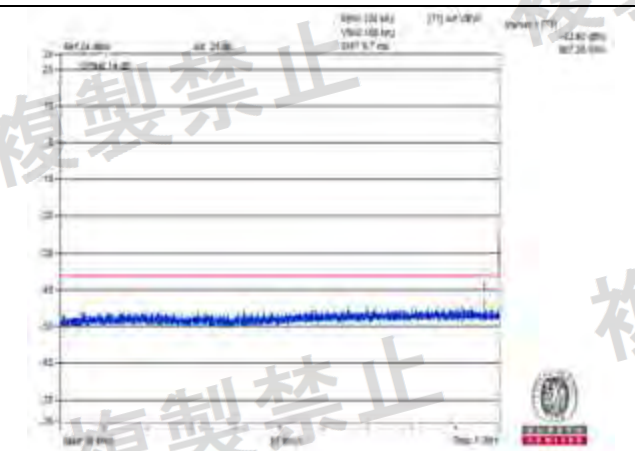
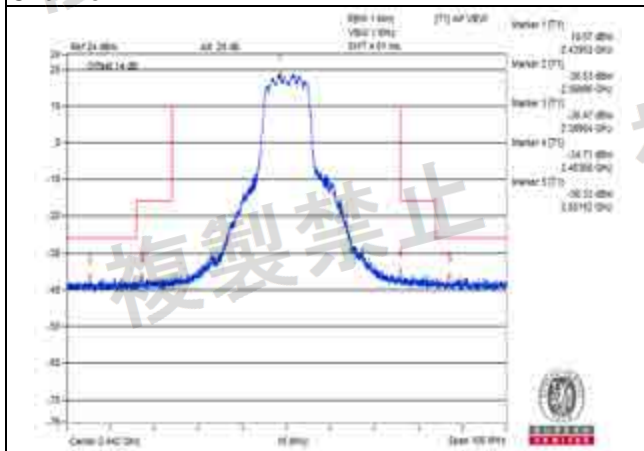
Vmax.
Channel 1



Measurement uncertainty: $\pm 3.93\text{dB}$



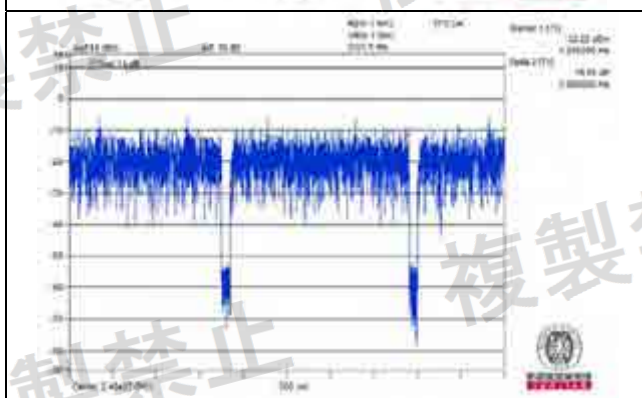
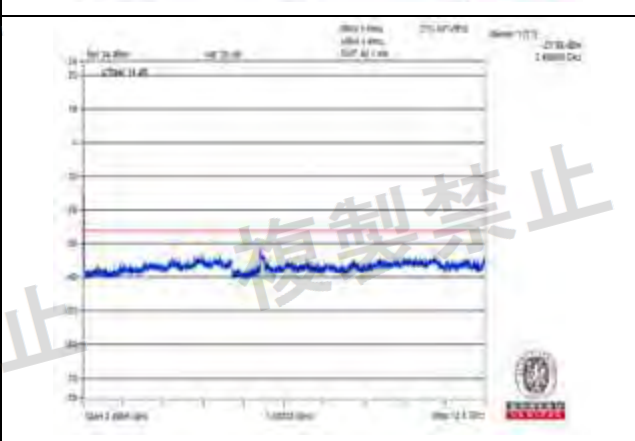
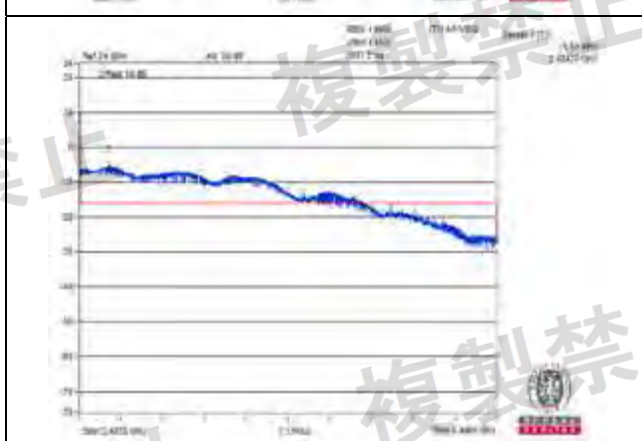
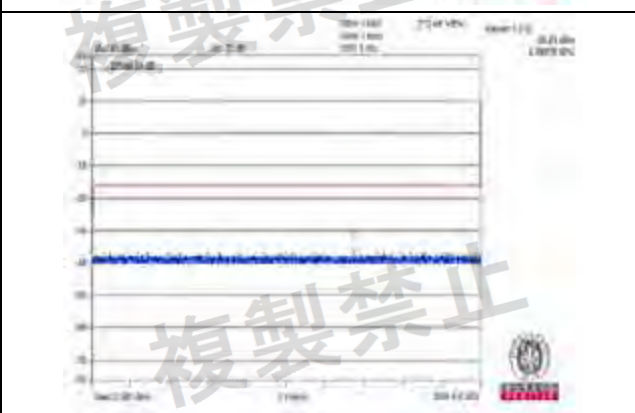
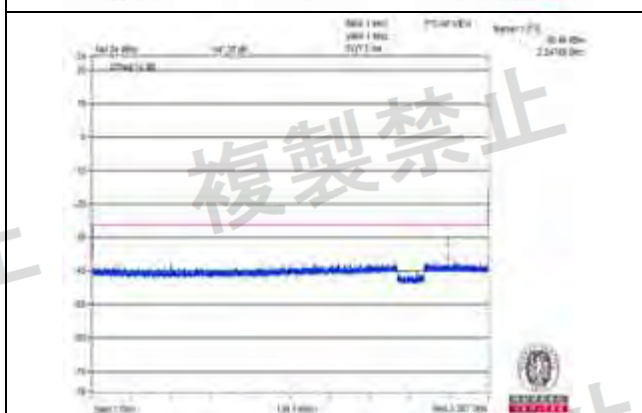
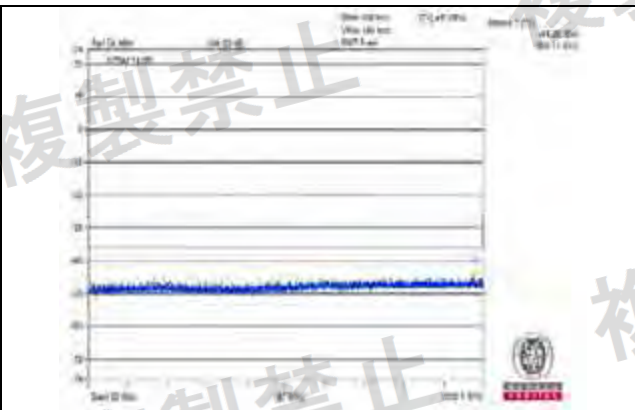
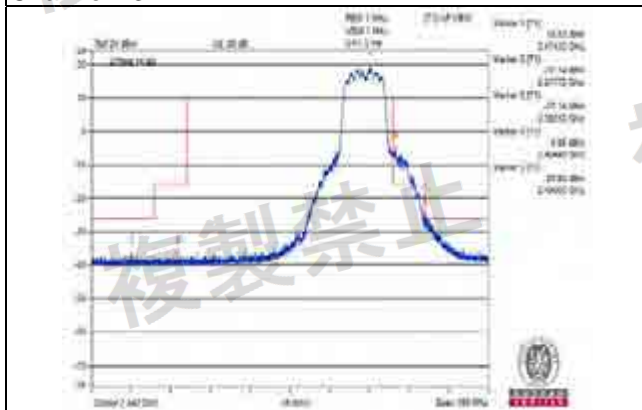
Vmax.
Channel 7



Measurement uncertainty: $\pm 3.93\text{dB}$



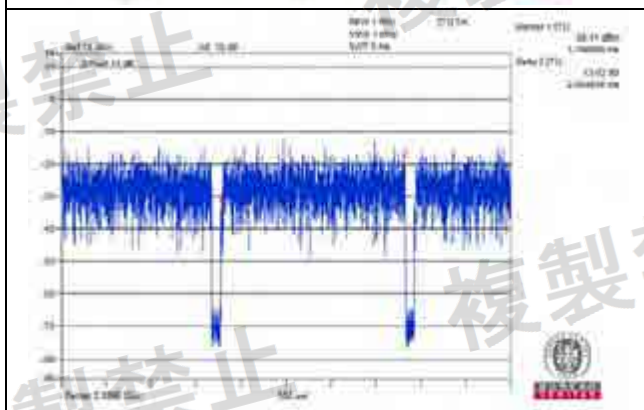
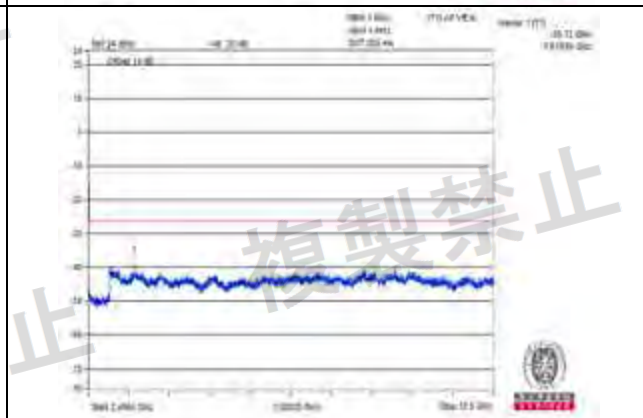
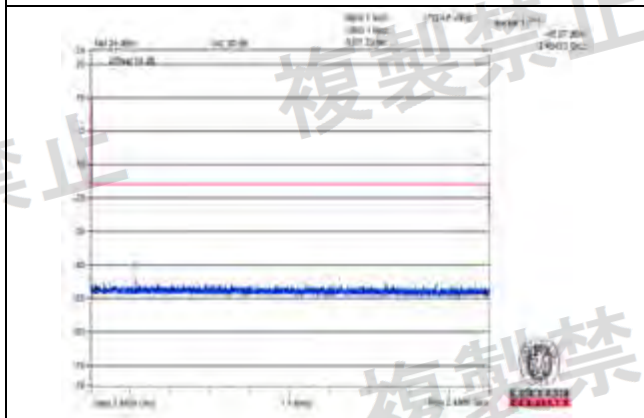
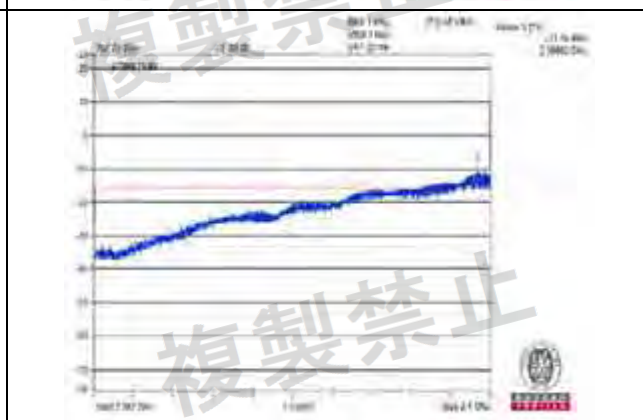
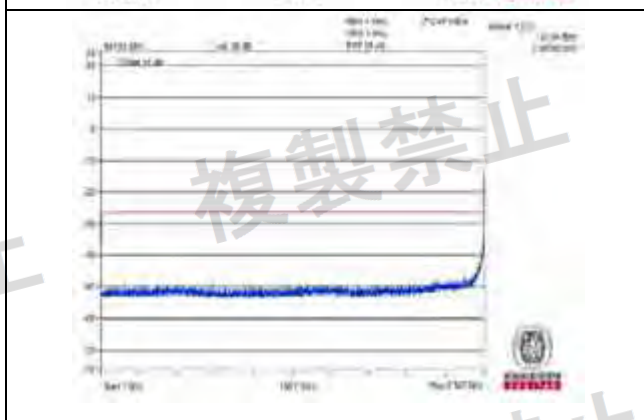
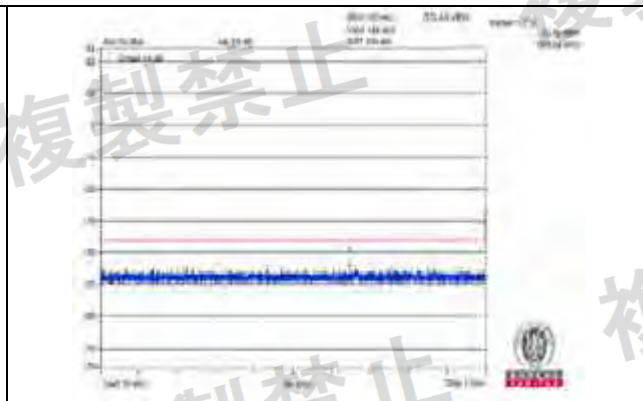
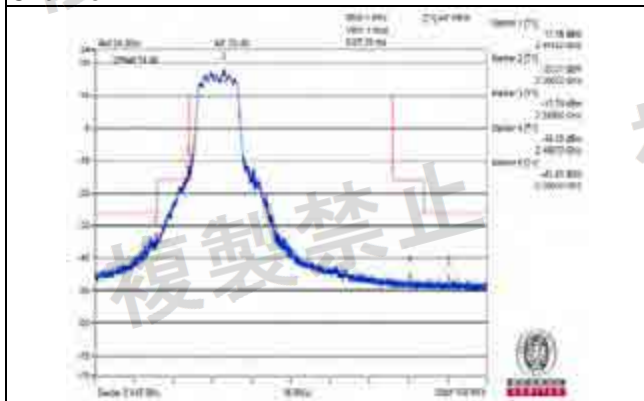
Vmax.
Channel 13



Measurement uncertainty: $\pm 3.93\text{dB}$



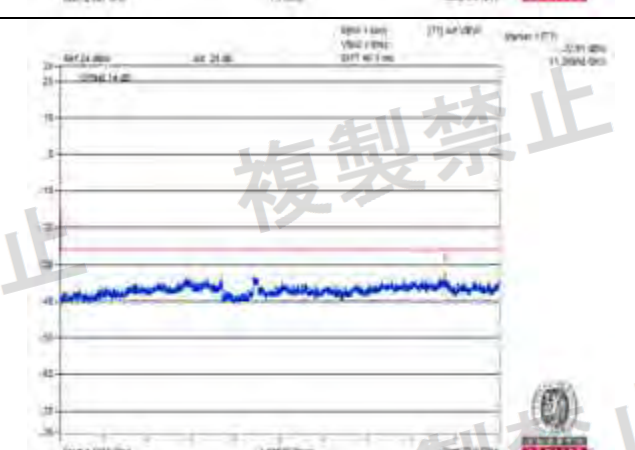
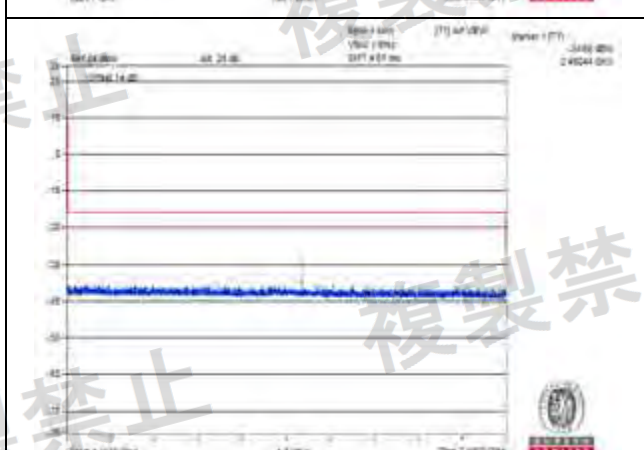
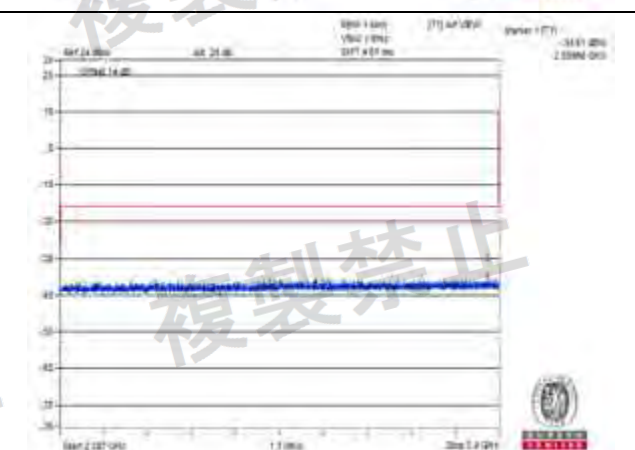
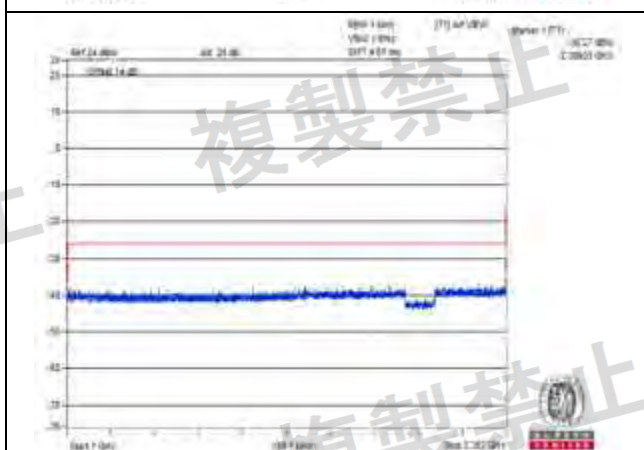
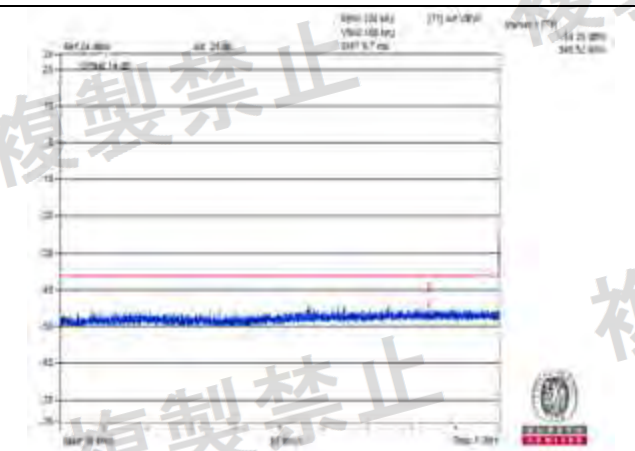
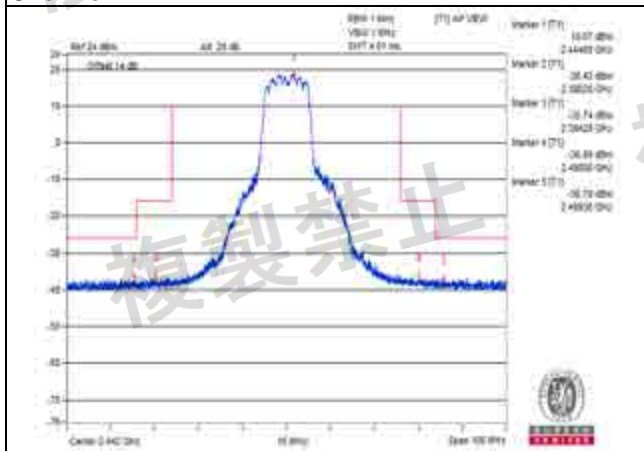
Vmin.
Channel 1



Measurement uncertainty: $\pm 3.93\text{dB}$



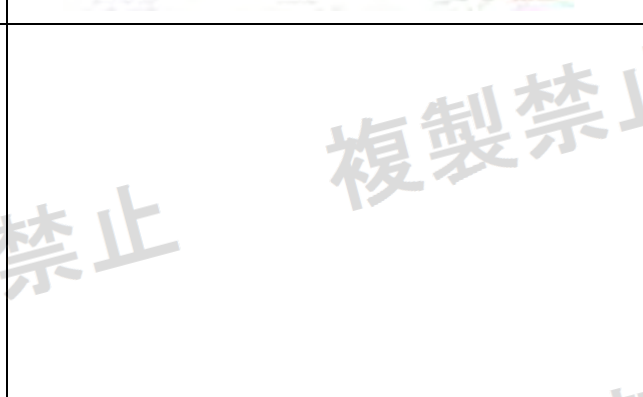
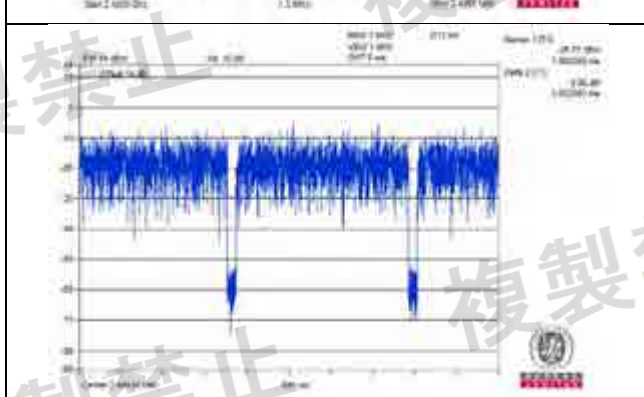
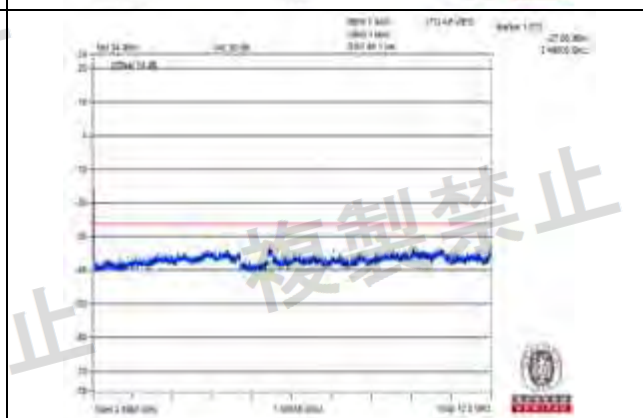
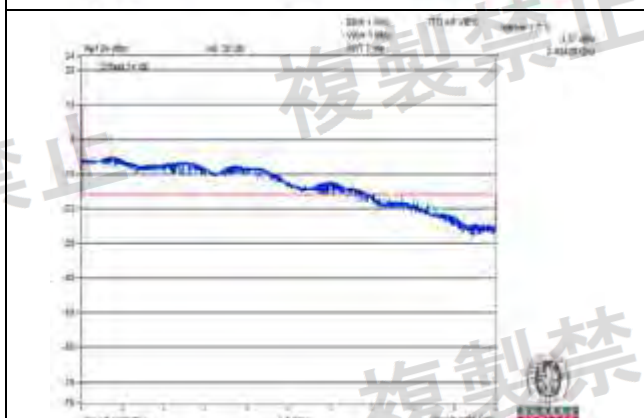
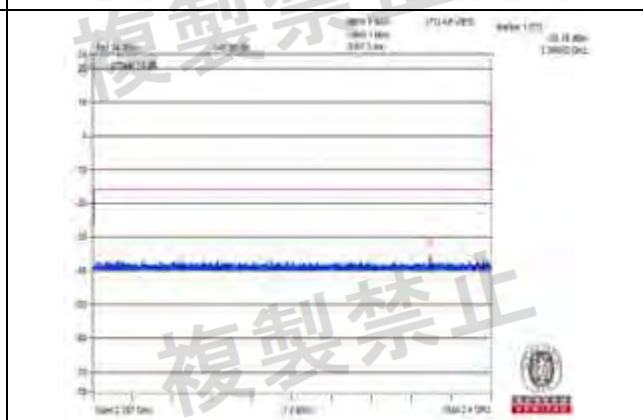
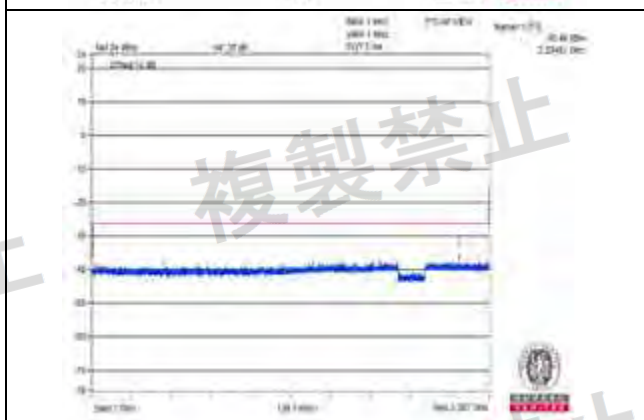
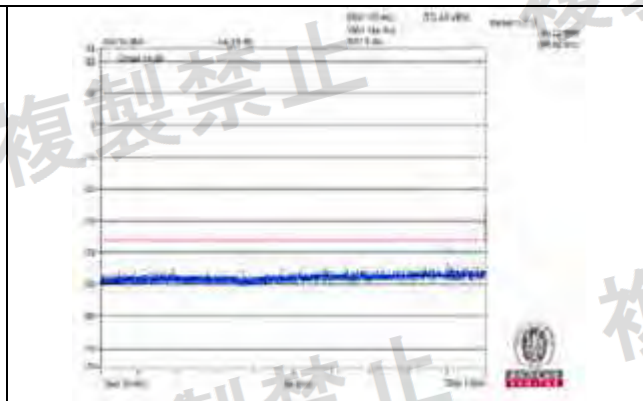
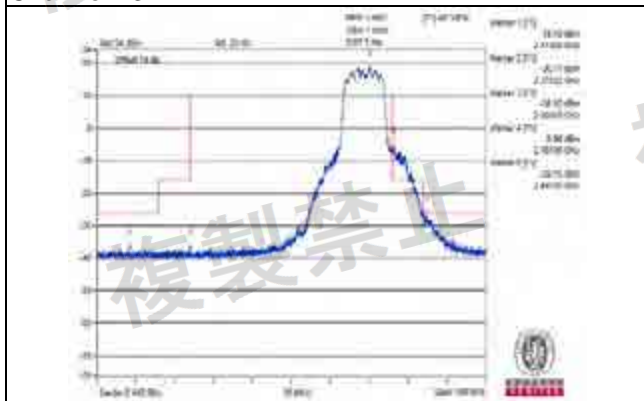
Vmin.
Channel 7



Measurement uncertainty: $\pm 3.93\text{dB}$



Vmin.
Channel 13



Measurement uncertainty: $\pm 3.93\text{dB}$



802.11n (HT20)

Environmental Conditions		25 deg.C, 60% RH					
Test Channel		CH1 (2412MHz)		CH7 (2442MHz)		Limit	Result
Test Condition	Frequency Range	Frequency (MHz)	Measured Value	Frequency (MHz)	Measured Value		
Vnormal	30.0MHz to 1000.0MHz	877.050	0.040926uW	870.500	0.040551uW	0.25uW	Pass
	1000.0MHz to 2387MHz	2387.000	0.72778uW	2261.120	0.2208uW	2.5uW	Pass
	2387.0MHz to 2400.0MHz	2399.860	NOTE 2	2393.380	0.30903uW	25uW	Pass
	2483.5MHz to 2496.5MHz	2484.210	0.247742uW	2485.800	0.313329uW	25uW	Pass
	2496.5MHz to 12500.0MHz	11229.550	0.477529uW	5412.520	0.488652uW	2.5uW	Pass
Vmax.	30.0MHz to 1000.0MHz	865.170	0.039994uW	723.790	0.033651uW	0.25uW	Pass
	1000.0MHz to 2387MHz	2387.000	0.961612uW	1738.230	0.259418uW	2.5uW	Pass
	2387.0MHz to 2400.0MHz	2398.080	NOTE 2	2394.790	0.358096uW	25uW	Pass
	2483.5MHz to 2496.5MHz	2483.750	0.24322uW	2486.850	0.353183uW	25uW	Pass
	2496.5MHz to 12500.0MHz	5750.130	0.544503uW	6988.070	0.503501uW	2.5uW	Pass
Vmin.	30.0MHz to 1000.0MHz	866.380	0.041591uW	842.370	0.035156uW	0.25uW	Pass
	1000.0MHz to 2387MHz	2387.000	0.706318uW	1860.630	0.265461uW	2.5uW	Pass
	2387.0MHz to 2400.0MHz	2399.950	NOTE 2	2399.610	0.322107uW	25uW	Pass
	2483.5MHz to 2496.5MHz	2492.600	0.258226uW	2484.240	0.414954uW	25uW	Pass
	2496.5MHz to 12500.0MHz	6990.570	0.561048uW	5442.530	0.477529uW	2.5uW	Pass

- Note:
1. The worst value in each frequency range v.s. each channel has been marked by boldface.
 2. The spectrum plots are attached on the following pages.



Environmental Conditions		25 deg.C, 60% RH			
Test Channel		CH13 (2472MHz)		Limit	Result
Test Condition	Frequency Range	Frequency (MHz)	Measured Value		
Vnormal	30.0MHz to 1000.0MHz	956.350	0.038107uW	0.25uW	Pass
	1000.0MHz to 2387MHz	2049.260	0.228034uW	2.5uW	Pass
	2387.0MHz to 2400.0MHz	2389.980	0.249459uW	25uW	Pass
	2483.5MHz to 2496.5MHz	2483.530	NOTE 2	25uW	Pass
	2496.5MHz to 12500.0MHz	2496.500	2.249055uW	2.5uW	Pass
Vmax.	30.0MHz to 1000.0MHz	897.180	0.036644uW	0.25uW	Pass
	1000.0MHz to 2387MHz	2271.530	0.209411uW	2.5uW	Pass
	2387.0MHz to 2400.0MHz	2399.320	0.283139uW	25uW	Pass
	2483.5MHz to 2496.5MHz	2483.540	NOTE 2	25uW	Pass
	2496.5MHz to 12500.0MHz	2496.500	2.454709uW	2.5uW	Pass
Vmin.	30.0MHz to 1000.0MHz	801.870	0.036141uW	0.25uW	Pass
	1000.0MHz to 2387MHz	2200.790	0.192309uW	2.5uW	Pass
	2387.0MHz to 2400.0MHz	2398.980	0.251768uW	25uW	Pass
	2483.5MHz to 2496.5MHz	2483.520	NOTE 2	25uW	Pass
	2496.5MHz to 12500.0MHz	2496.500	2.264644uW	2.5uW	Pass

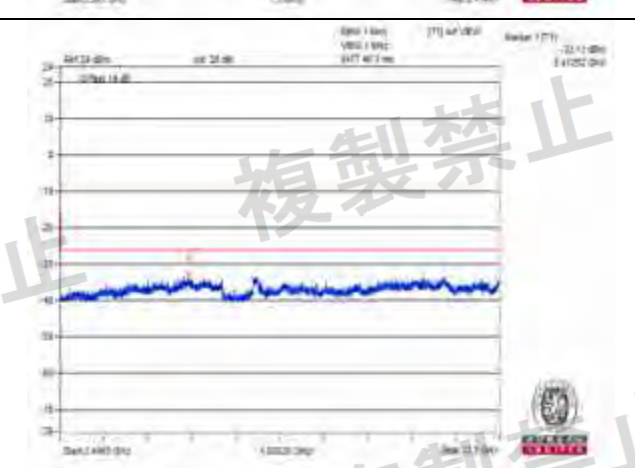
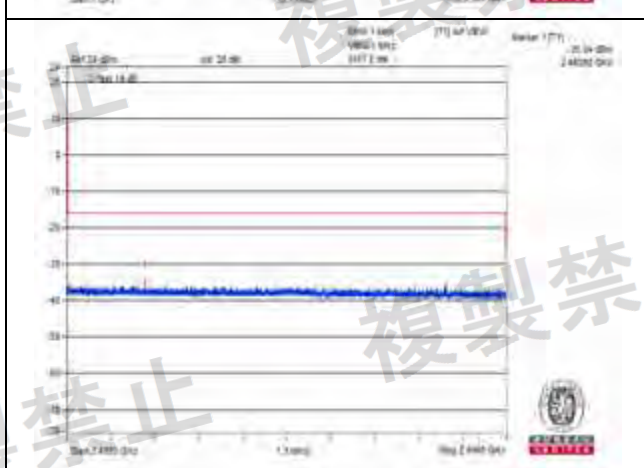
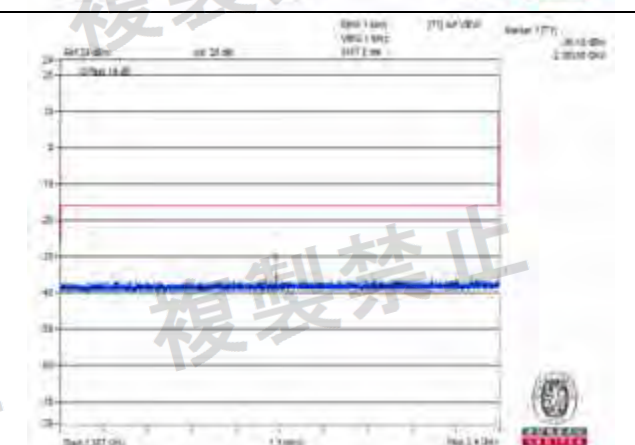
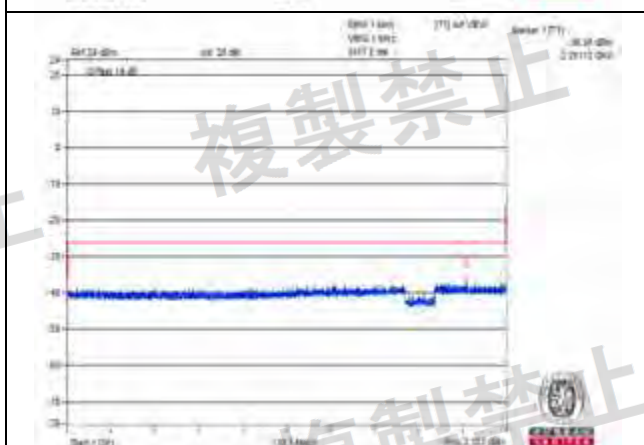
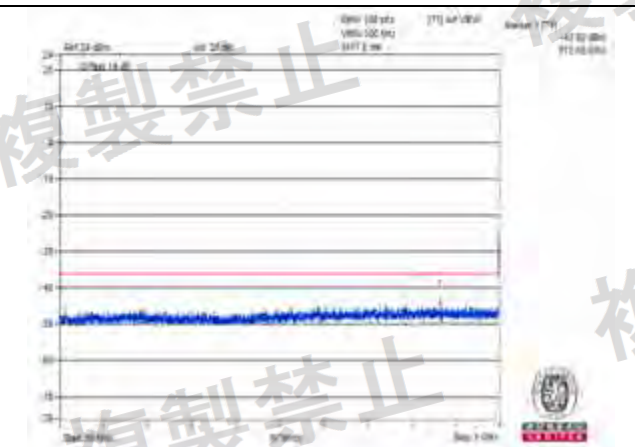
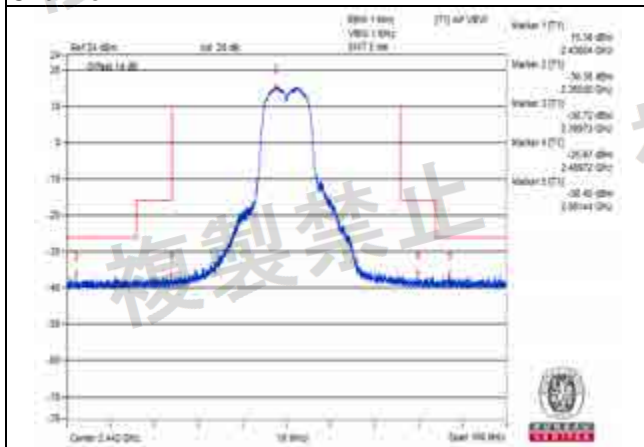
Note: 1. The worst value in each frequency range v.s. each channel has been marked by boldface.

2. Take the value of total data point (501 points) and calculate the total power.
Divides total power by 501 data point to get the average value.

TEST CONDITION	Average power (dBm)	Average power (uW)
CHANNEL 1		
V _{normal}	-22.020485	6.279883
V _{+10%}	-24.961068	3.190753
V _{-10%}	-21.945960	6.388576
CHANNEL 13		
V _{normal}	-18.105498	15.468571
V _{+10%}	-18.158635	15.280462
V _{-10%}	-18.156854	15.286732



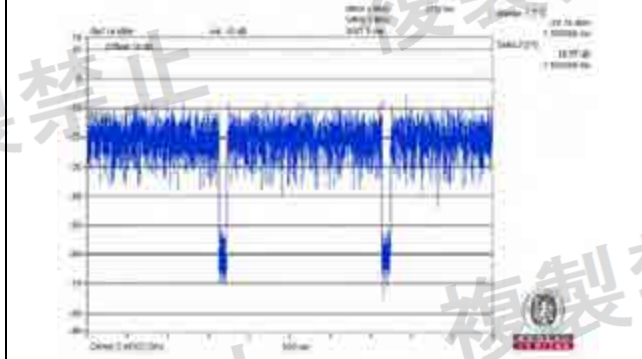
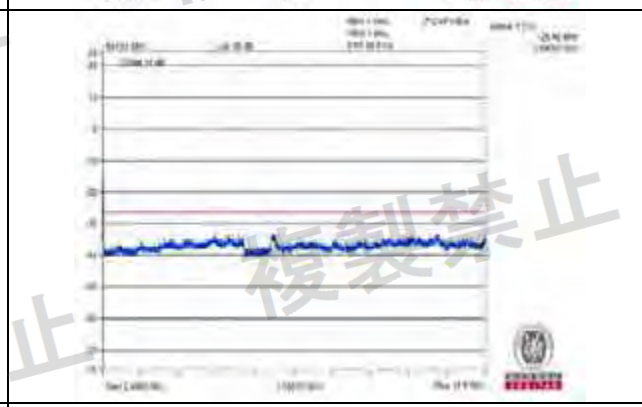
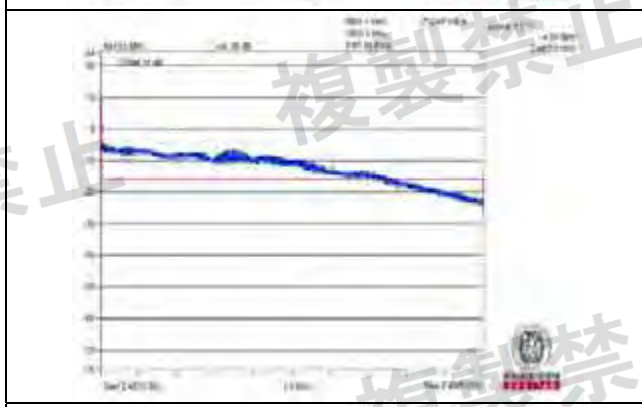
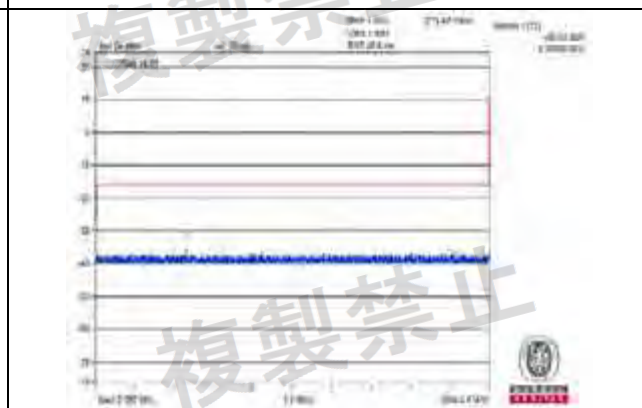
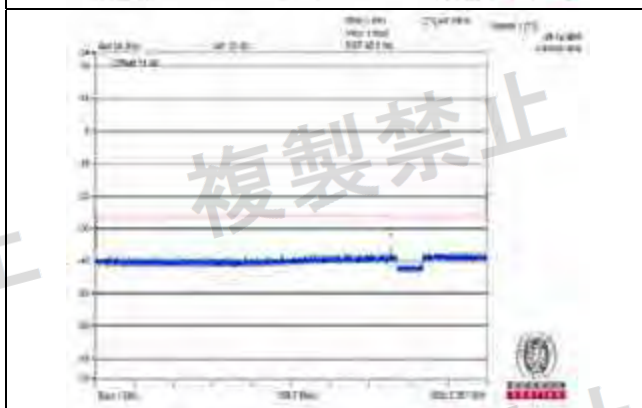
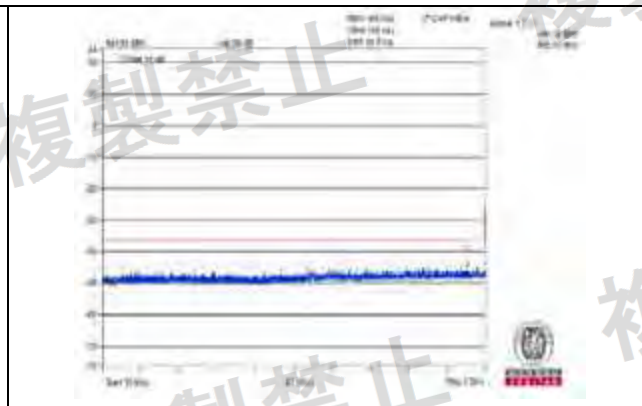
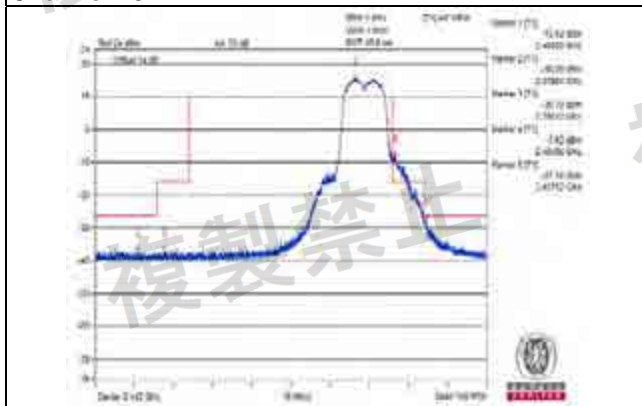
Vnormal
Channel 7



Measurement uncertainty: $\pm 3.93\text{dB}$



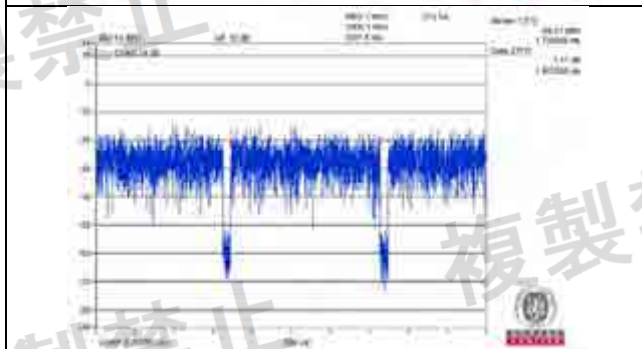
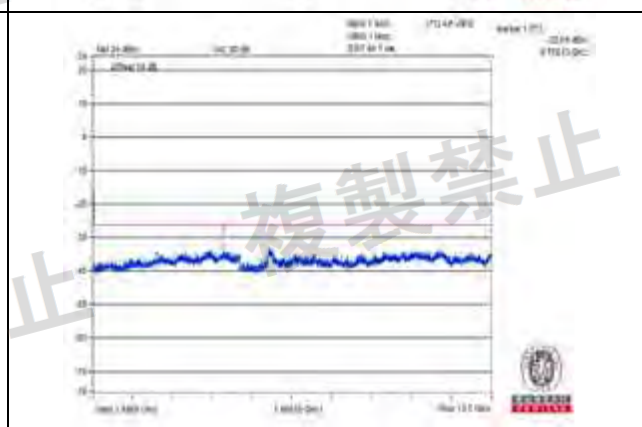
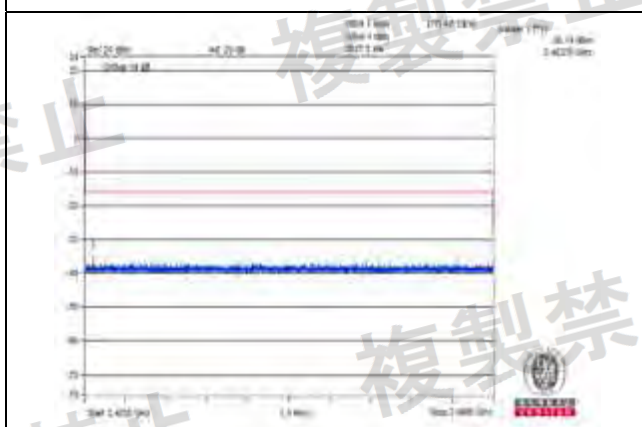
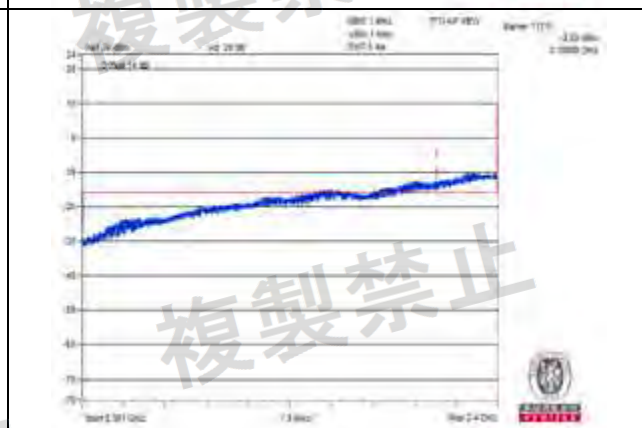
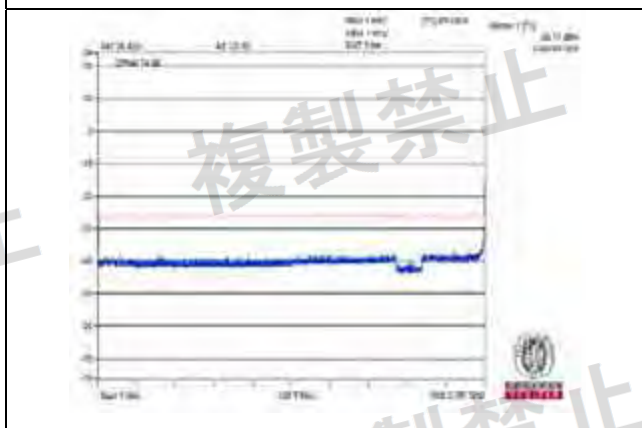
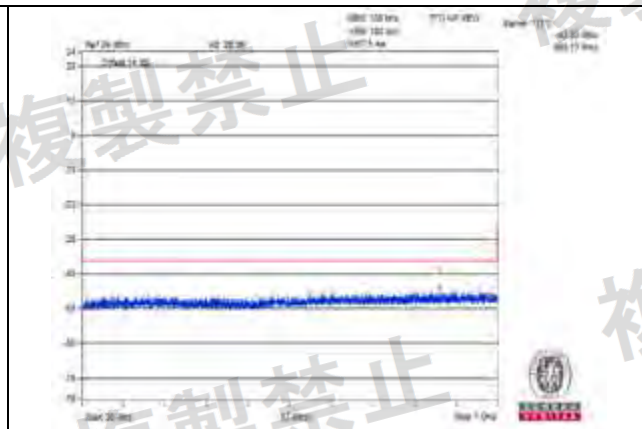
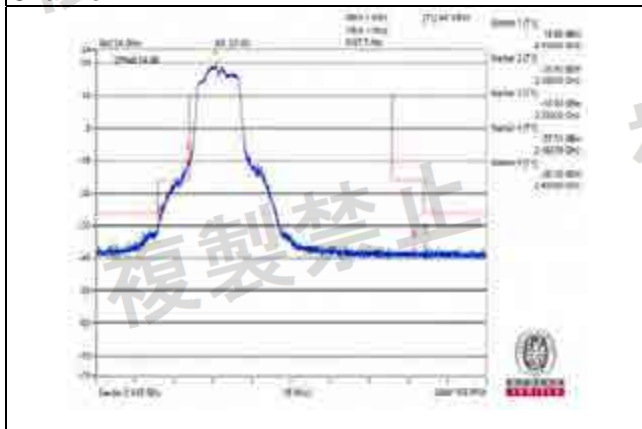
Vnormal
Channel 13



Measurement uncertainty: $\pm 3.93\text{dB}$



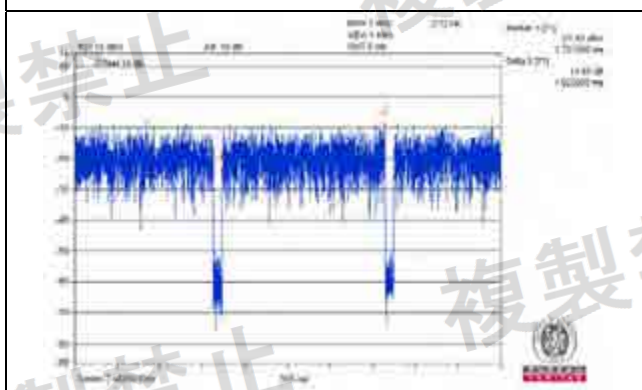
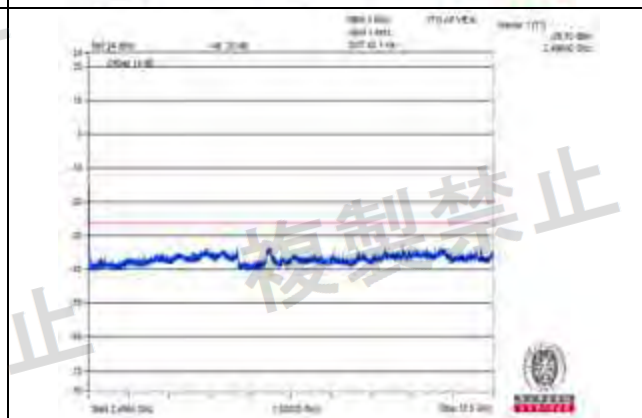
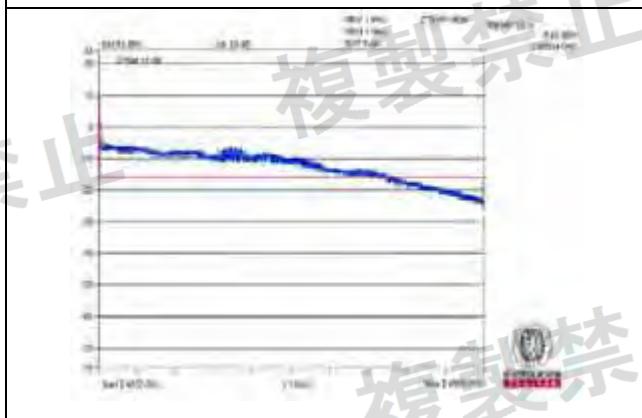
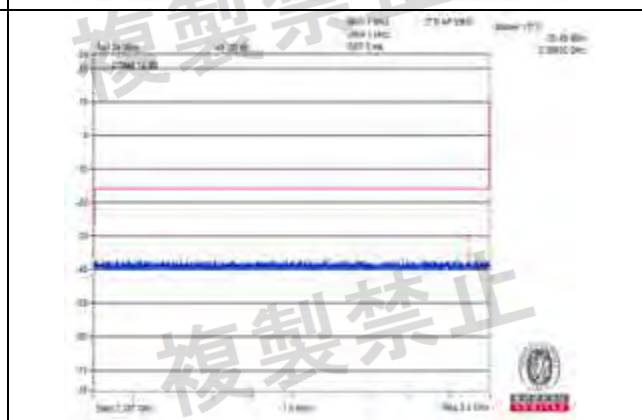
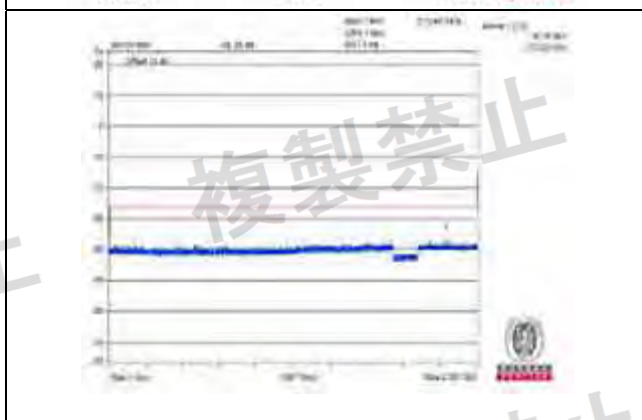
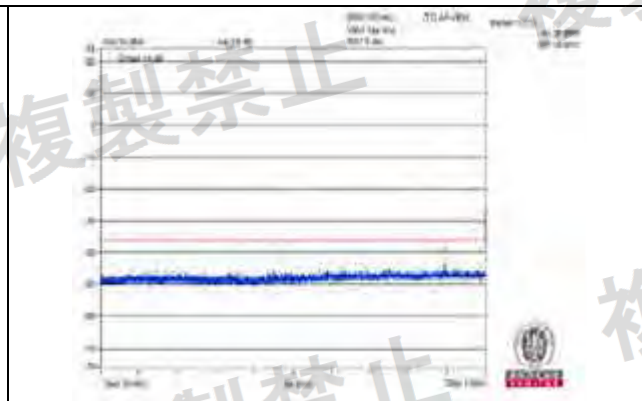
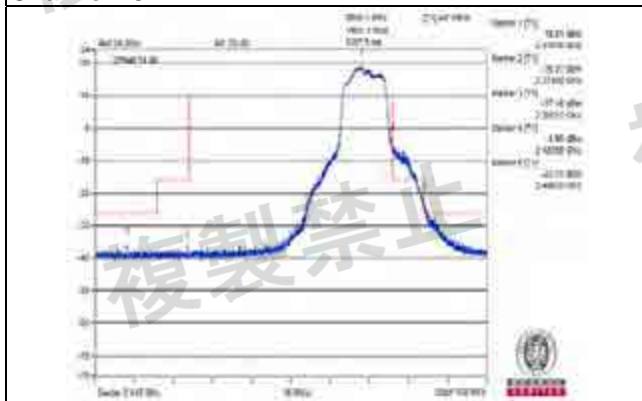
Vmax.
Channel 1



Measurement uncertainty: $\pm 3.93\text{dB}$



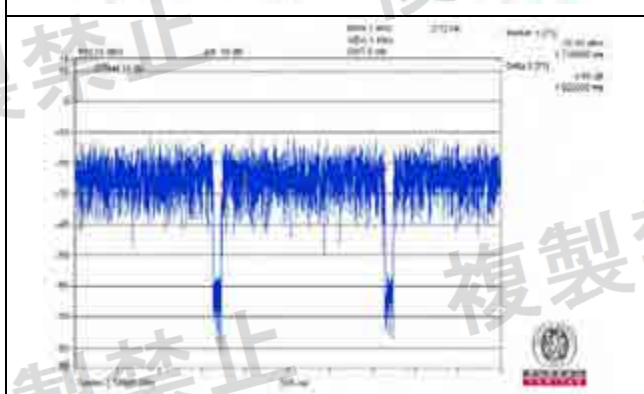
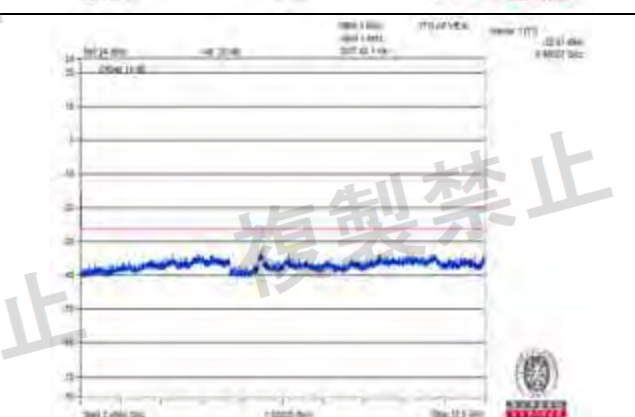
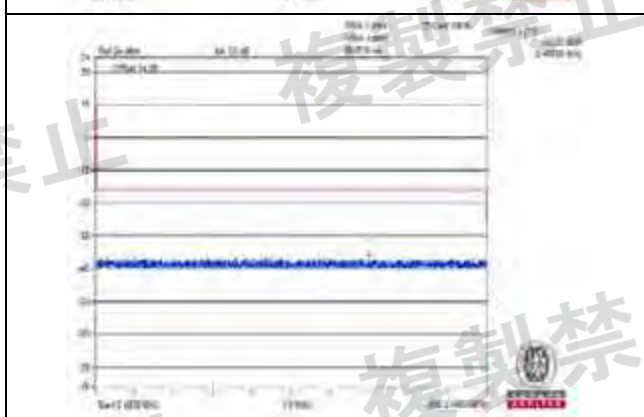
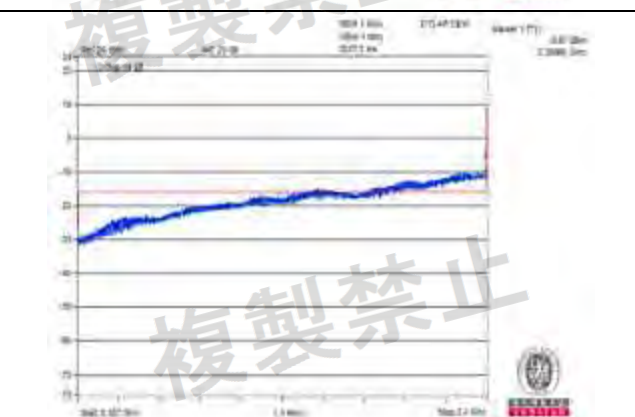
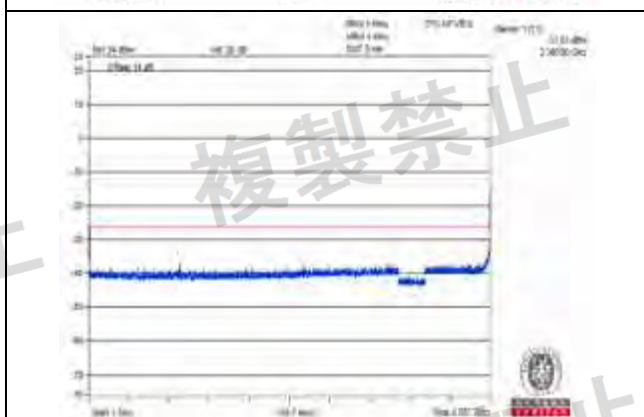
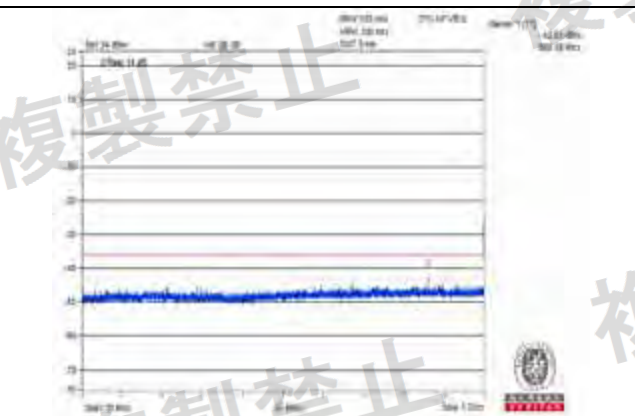
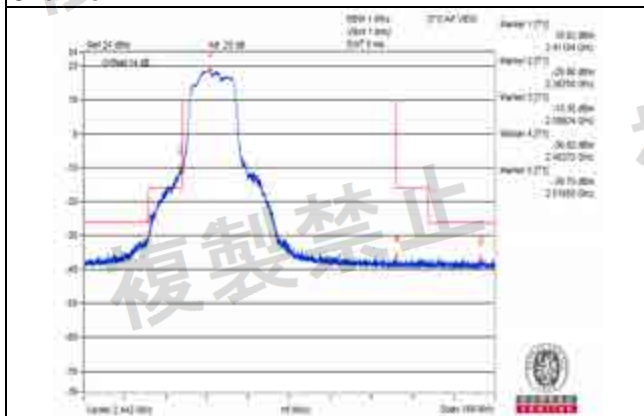
Vmax.
Channel 13



Measurement uncertainty: $\pm 3.93\text{dB}$



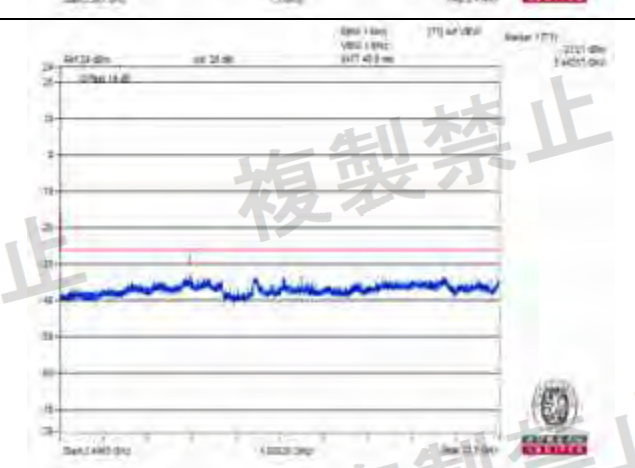
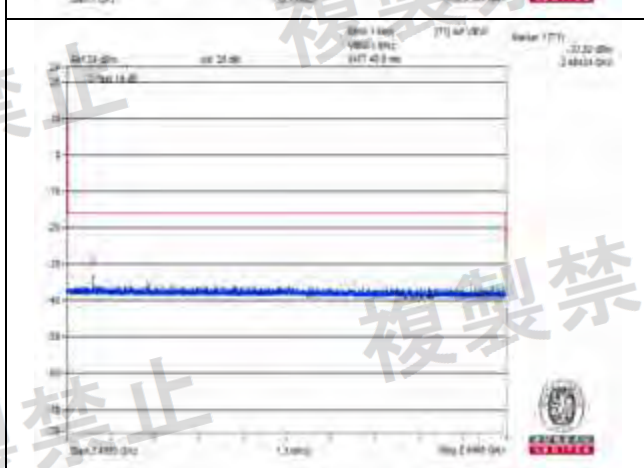
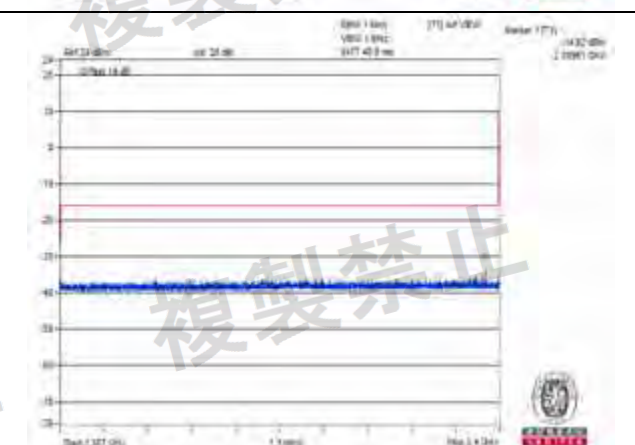
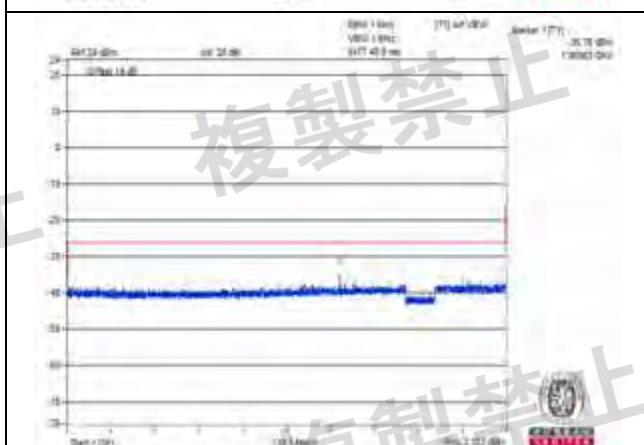
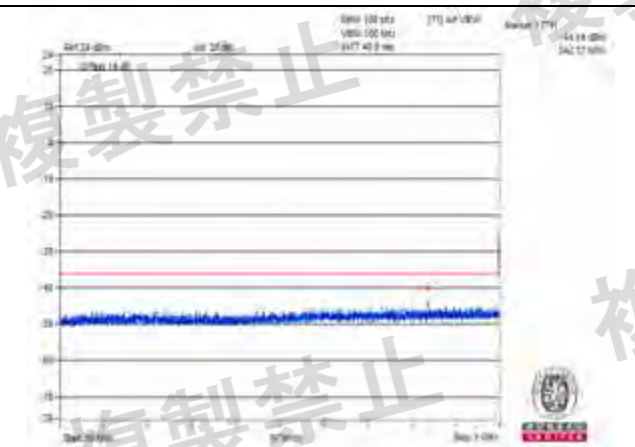
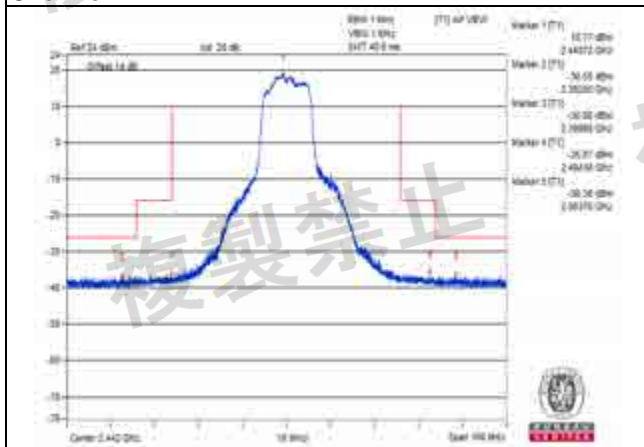
Vmin.
Channel 1



Measurement uncertainty: $\pm 3.93\text{dB}$



Vmin.
Channel 7



Measurement uncertainty: $\pm 3.93\text{dB}$

禁製

禁止



802.11n (HT40)

Environmental Conditions		25 deg.C, 60% RH					
Test Channel		CH3 (2422MHz)		CH7 (2442MHz)		Limit	Result
Test Condition	Frequency Range	Frequency (MHz)	Measured Value	Frequency (MHz)	Measured Value		
Vnormal	30.0MHz to 1000.0MHz	743.430	0.04529uW	898.390	0.040738uW	0.25uW	Pass
	1000.0MHz to 2387MHz	2386.650	NOTE 2	2350.930	1.798871uW	2.5uW	Pass
	2387.0MHz to 2400.0MHz	2399.660	NOTE 2	2396.610	8.090959uW	25uW	Pass
	2483.5MHz to 2496.5MHz	2484.430	2.382319uW	2486.650	10.939564uW	25uW	Pass
	2496.5MHz to 12500.0MHz	11244.560	0.517607uW	2496.500	0.76913uW	2.5uW	Pass
Vmax.	30.0MHz to 1000.0MHz	869.770	0.038815uW	873.650	0.038107uW	0.25uW	Pass
	1000.0MHz to 2387MHz	2386.300	NOTE 2	2383.180	1.749847uW	2.5uW	Pass
	2387.0MHz to 2400.0MHz	2398.810	NOTE 2	2391.160	6.223003uW	25uW	Pass
	2483.5MHz to 2496.5MHz	2485.990	2.511886uW	2487.560	11.24605uW	25uW	Pass
	2496.5MHz to 12500.0MHz	5420.020	0.49545uW	6905.540	0.561048uW	2.5uW	Pass
Vmin.	30.0MHz to 1000.0MHz	980.350	0.040644uW	541.910	0.036224uW	0.25uW	Pass
	1000.0MHz to 2387MHz	2386.300	NOTE 2	2374.860	2.123244uW	2.5uW	Pass
	2387.0MHz to 2400.0MHz	2398.100	NOTE 2	2396.220	5.929253uW	25uW	Pass
	2483.5MHz to 2496.5MHz	2483.880	2.333458uW	2487.240	11.350108uW	25uW	Pass
	2496.5MHz to 12500.0MHz	11239.550	0.517607uW	2529.010	0.714496uW	2.5uW	Pass

- Note:
1. The worst value in each frequency range v.s. each channel has been marked by boldface.
 2. The spectrum plots are attached on the following pages.



Environmental Conditions		25 deg.C, 60% RH			
Test Channel		CH11 (2462MHz)		Limit	Result
Test Condition	Frequency Range	Frequency (MHz)	Measured Value		
Vnormal	30.0MHz to 1000.0MHz	984.720	0.041591uW	0.25uW	Pass
	1000.0MHz to 2387MHz	2347.470	1.786488uW	2.5uW	Pass
	2387.0MHz to 2400.0MHz	2398.650	3.564511uW	25uW	Pass
	2483.5MHz to 2496.5MHz	2484.410	NOTE 2	25uW	Pass
	2496.5MHz to 12500.0MHz	2496.500	NOTE 2	2.5uW	Pass
Vmax.	30.0MHz to 1000.0MHz	942.770	0.033266uW	0.25uW	Pass
	1000.0MHz to 2387MHz	2342.260	1.285287uW	2.5uW	Pass
	2387.0MHz to 2400.0MHz	2398.800	3.572728uW	25uW	Pass
	2483.5MHz to 2496.5MHz	2484.140	NOTE 2	25uW	Pass
	2496.5MHz to 12500.0MHz	2496.500	NOTE 2	2.5uW	Pass
Vmin.	30.0MHz to 1000.0MHz	877.050	0.034674uW	0.25uW	Pass
	1000.0MHz to 2387MHz	2356.830	1.056818uW	2.5uW	Pass
	2387.0MHz to 2400.0MHz	2399.560	3.758374uW	25uW	Pass
	2483.5MHz to 2496.5MHz	2489.800	NOTE 2	25uW	Pass
	2496.5MHz to 12500.0MHz	2496.500	NOTE 2	2.5uW	Pass

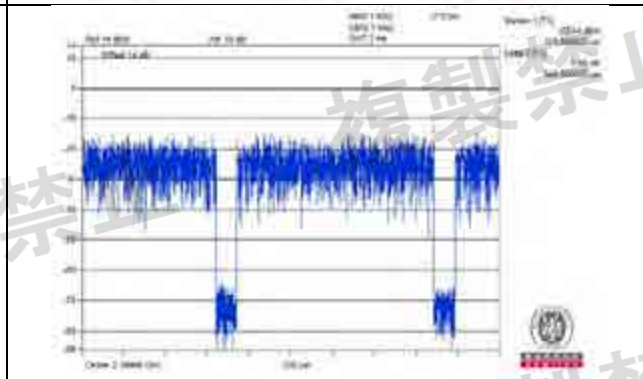
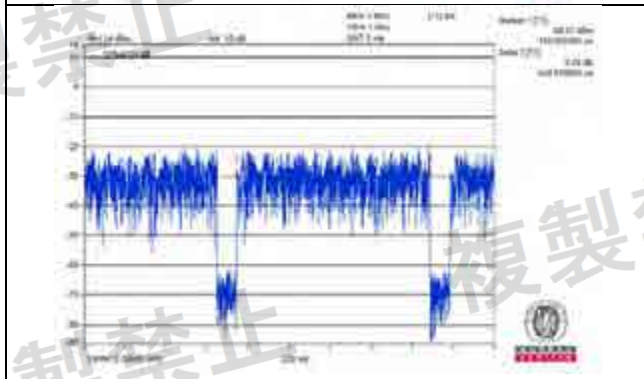
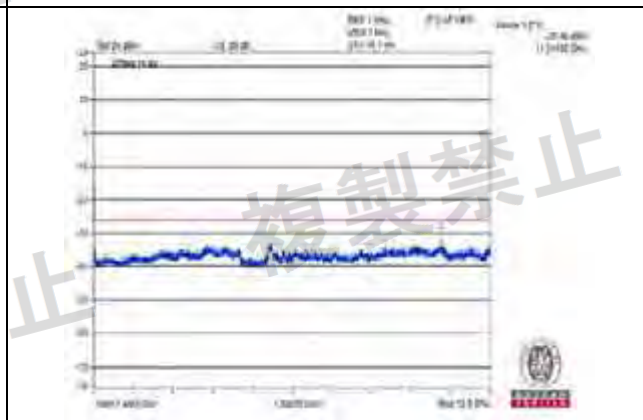
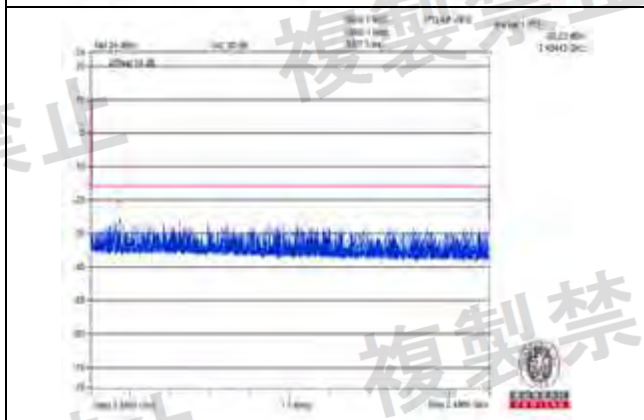
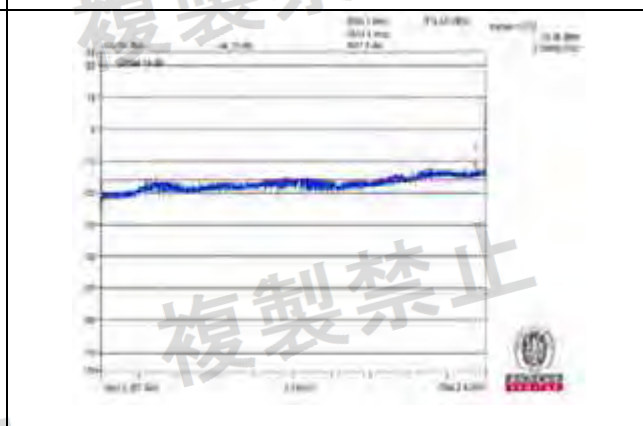
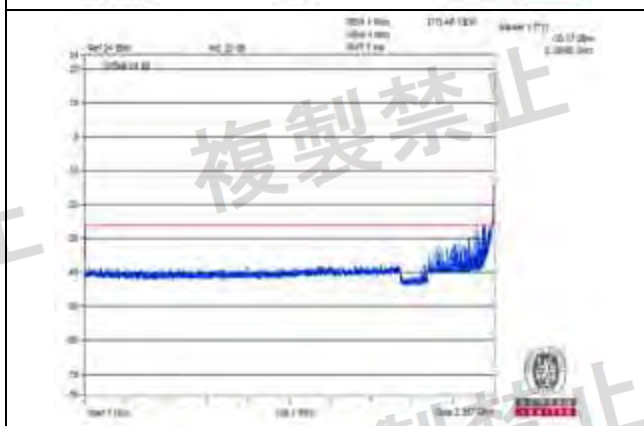
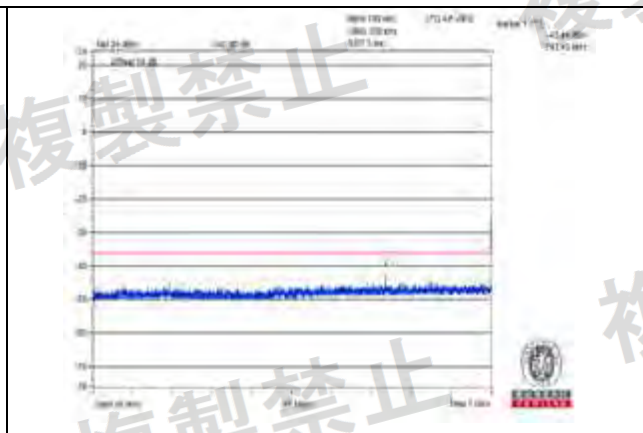
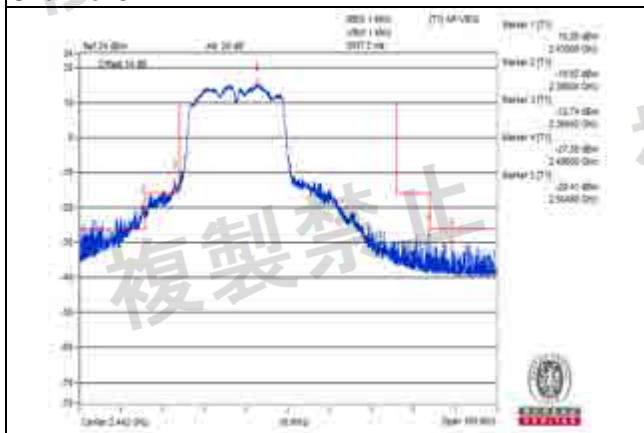


- Note: 1. The worst value in each frequency range v.s. each channel has been marked by boldface.
2. Take the value of total data point (501 points) and calculate the total power.
Divides total power by 501 data point to get the average value.

TEST CONDITION	Average power (dBm)	Average power (uW)
CHANNEL 3		
V_{normal}	-29.361264	1.15844
	-23.395115	4.576026
V_{+10%}	-27.824160	1.65038
	-24.369683	3.656215
V_{-10%}	-27.476624	1.787877
	-22.796453	5.252362
CHANNEL 11		
V_{normal}	-22.907096	5.120241
	-26.804635	2.087068
V_{+10%}	-23.918665	4.056332
	-28.371831	1.454845
V_{-10%}	-23.378108	4.593981
	-28.271666	1.48879



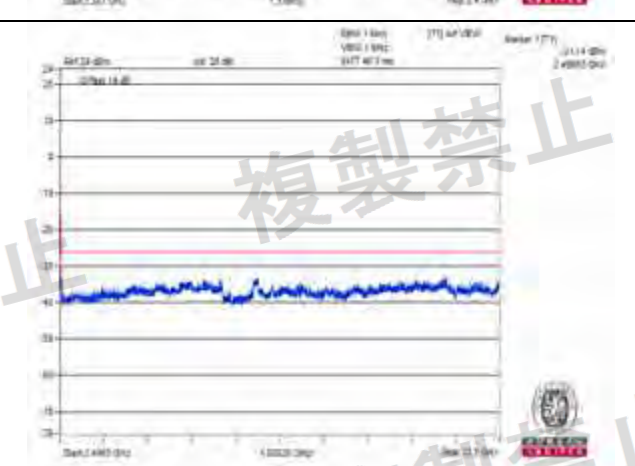
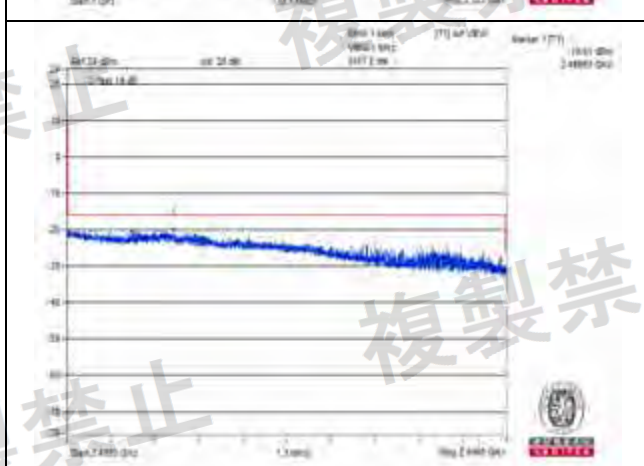
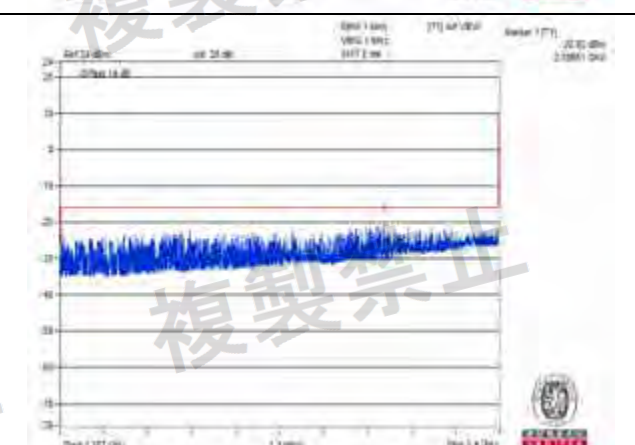
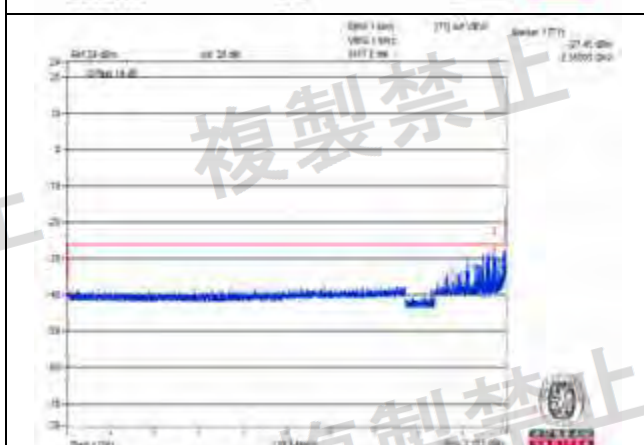
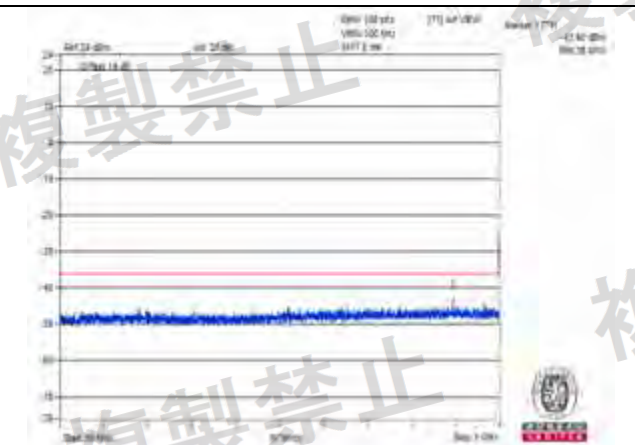
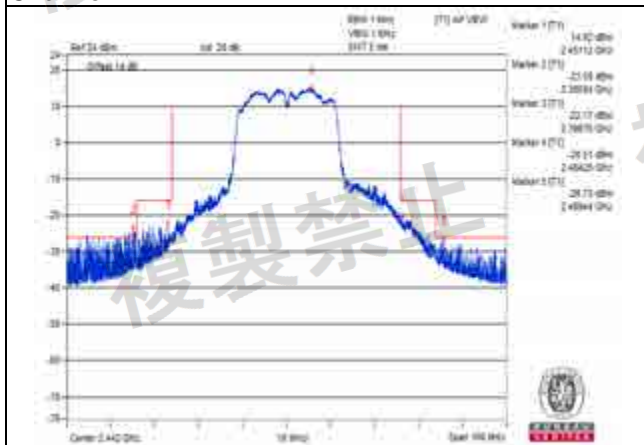
Vnormal
Channel 3



Measurement uncertainty: $\pm 3.93\text{dB}$



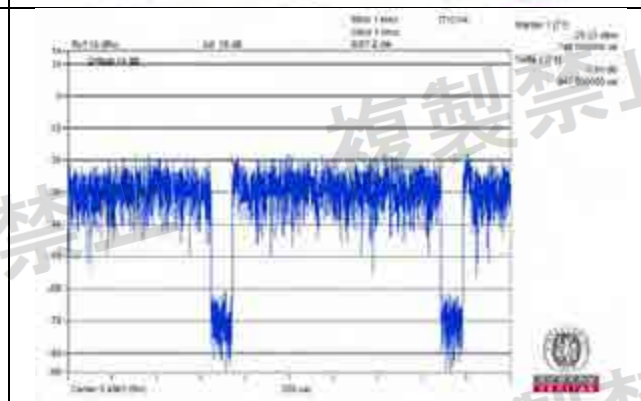
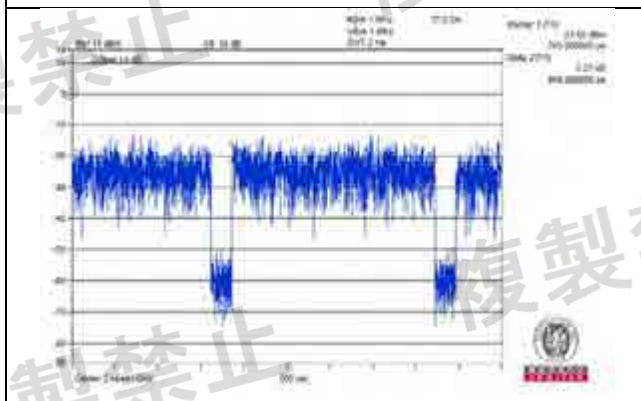
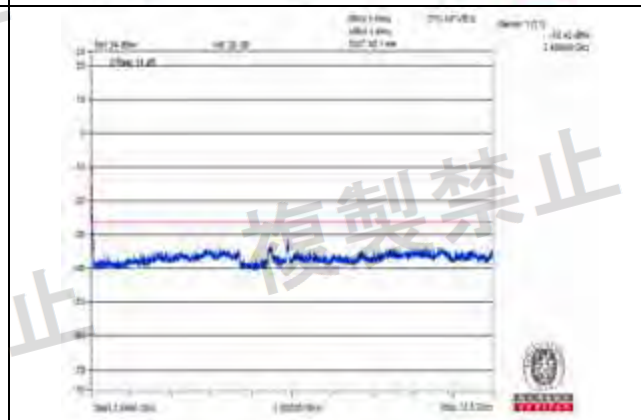
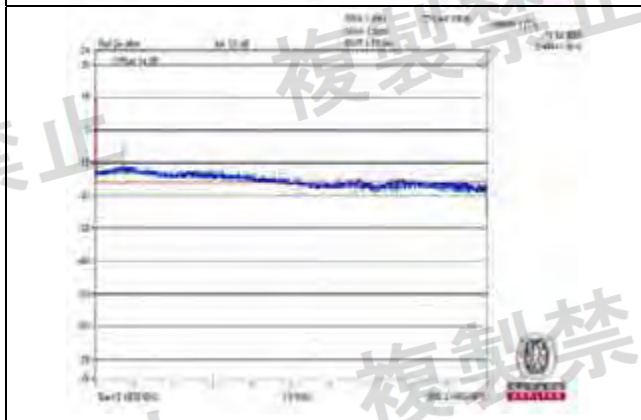
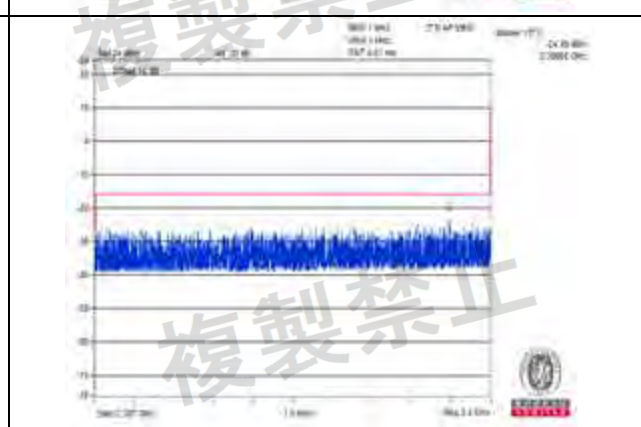
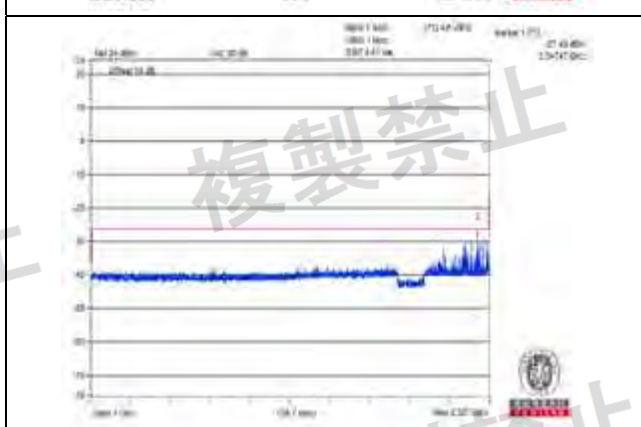
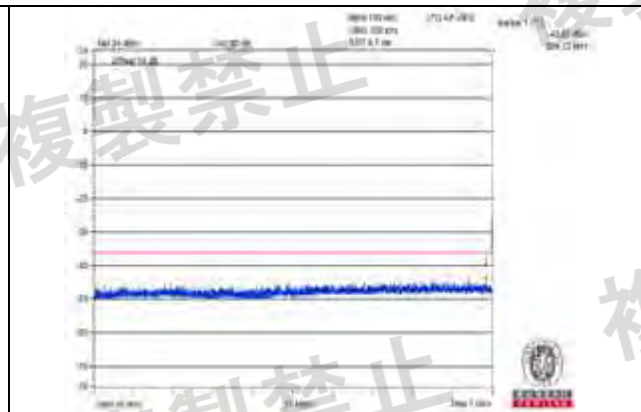
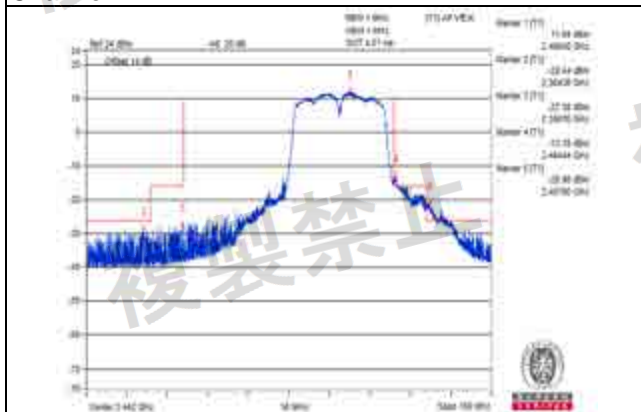
Vnormal
Channel 7



Measurement uncertainty: $\pm 3.93\text{dB}$



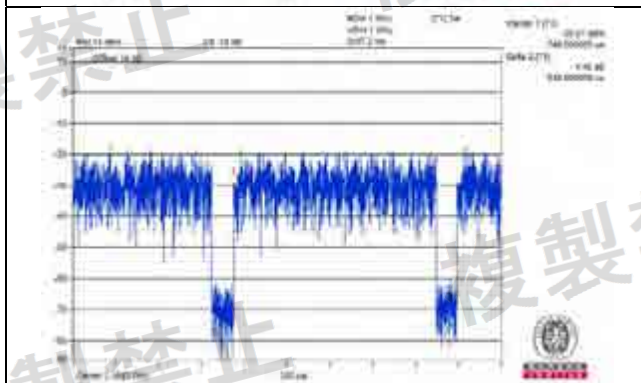
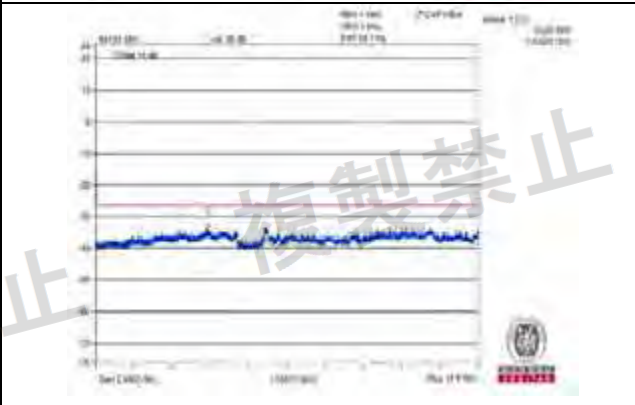
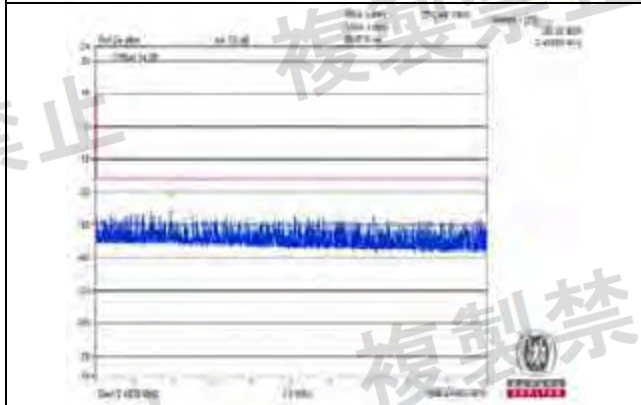
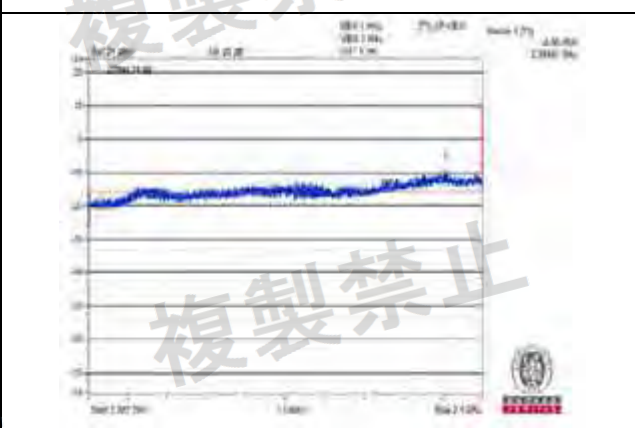
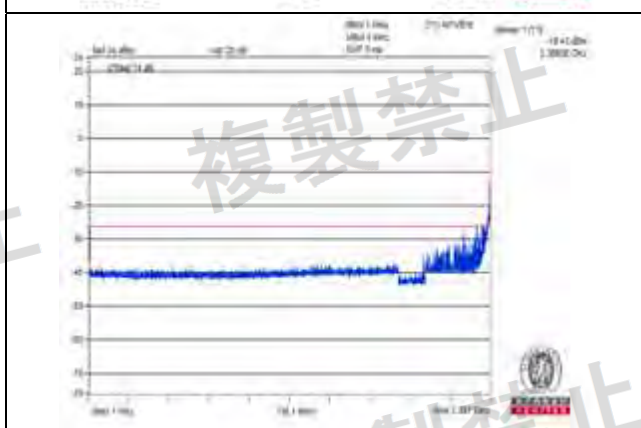
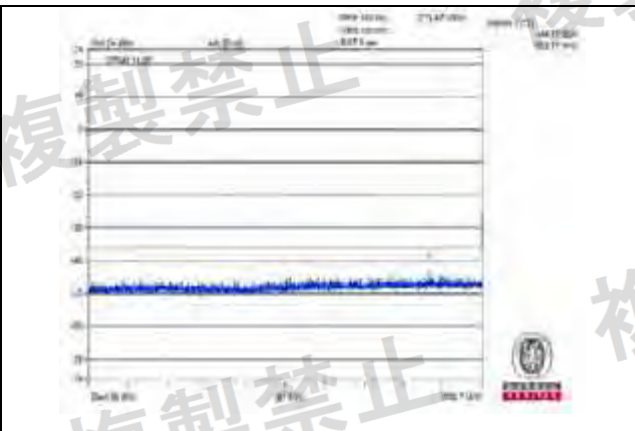
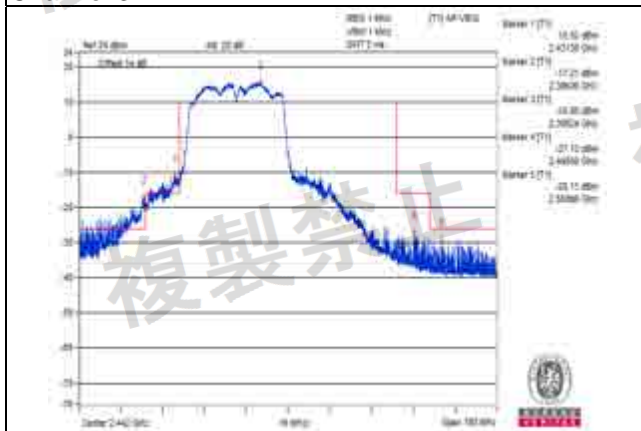
Vnormal
Channel 11



Measurement uncertainty: $\pm 3.93\text{dB}$



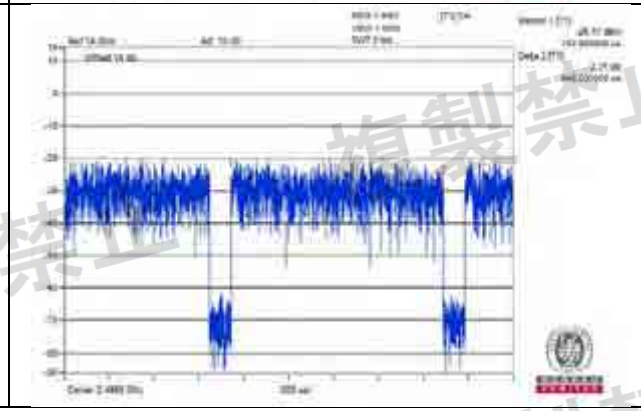
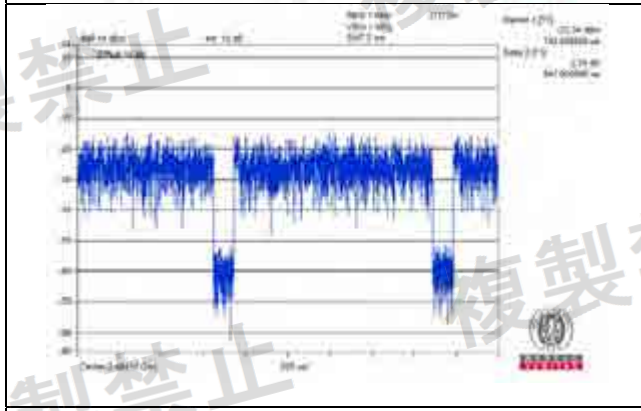
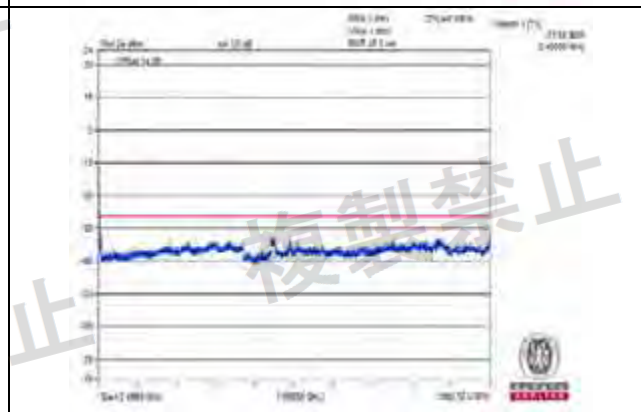
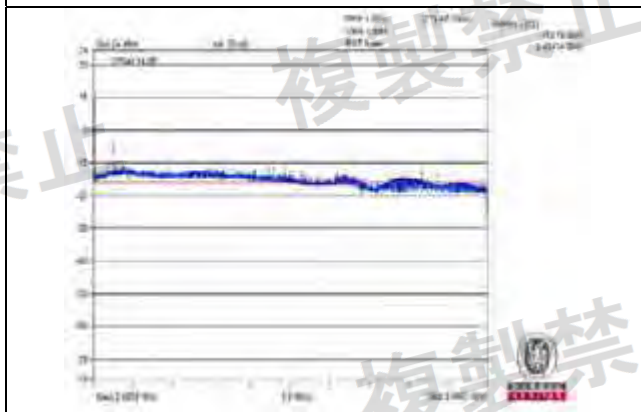
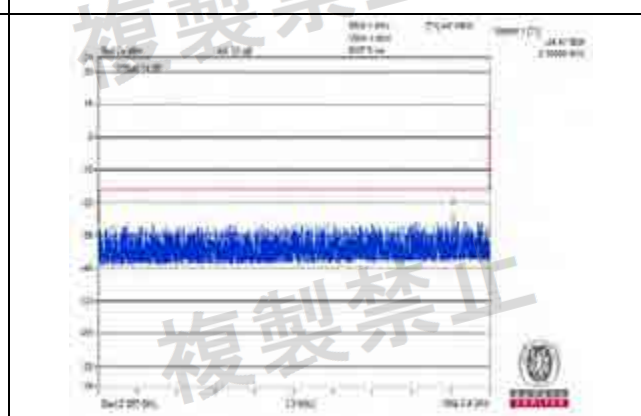
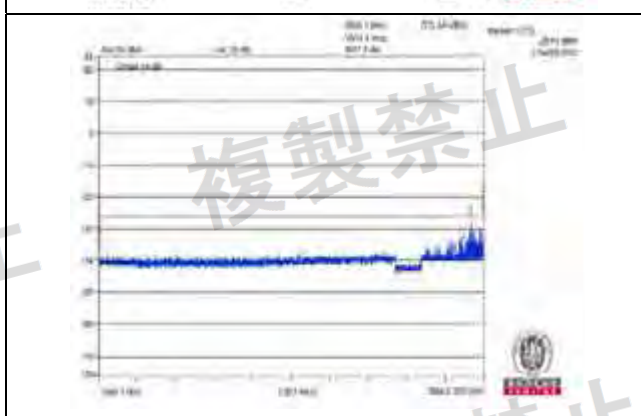
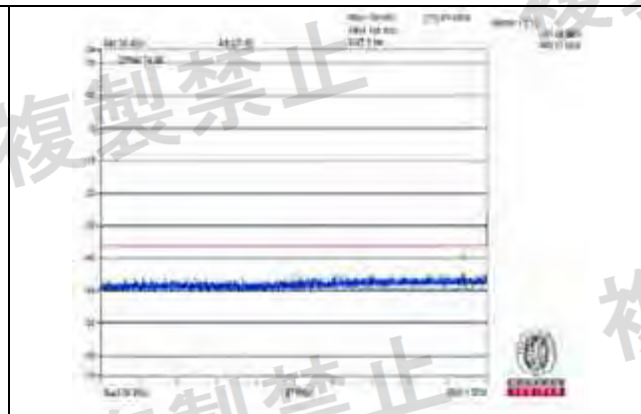
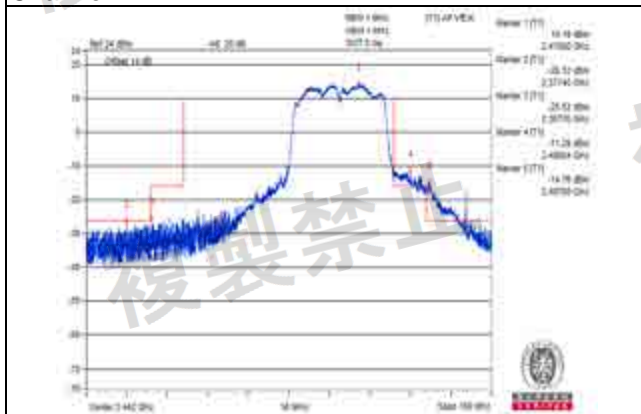
Vmax.
Channel 3



Measurement uncertainty: $\pm 3.93\text{dB}$



Vmax.
Channel 11



Measurement uncertainty: $\pm 3.93\text{dB}$

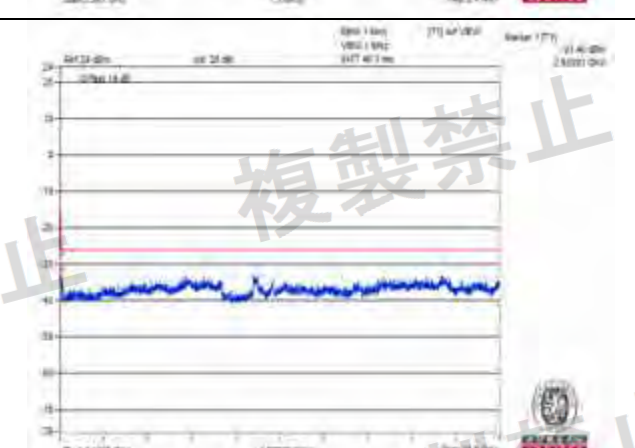
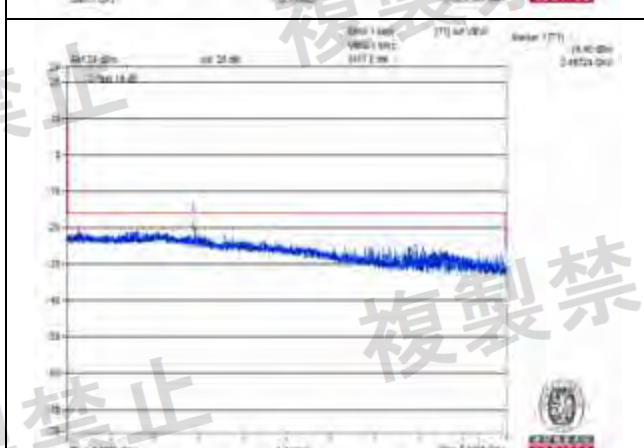
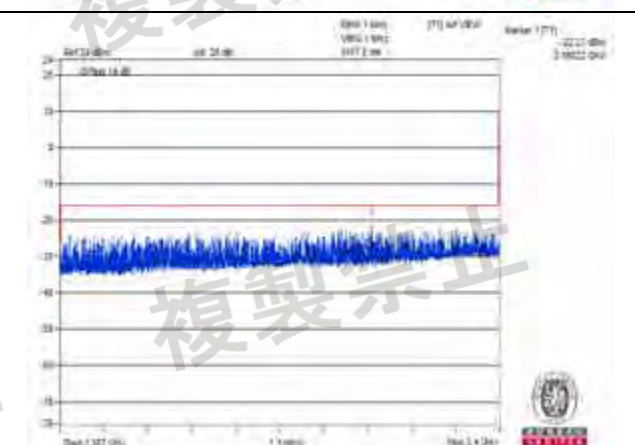
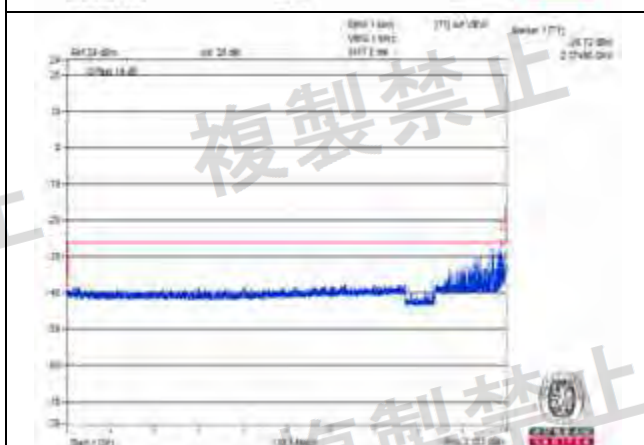
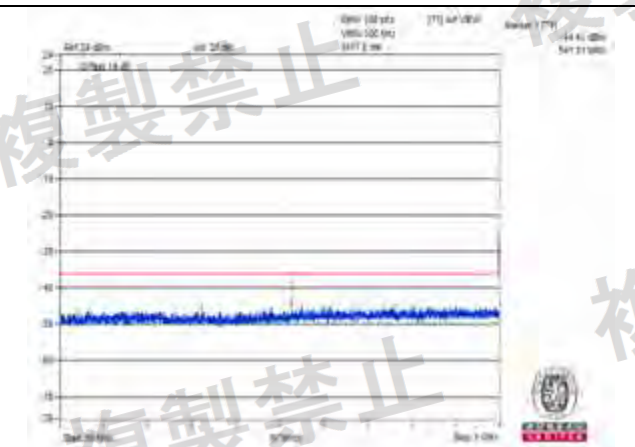
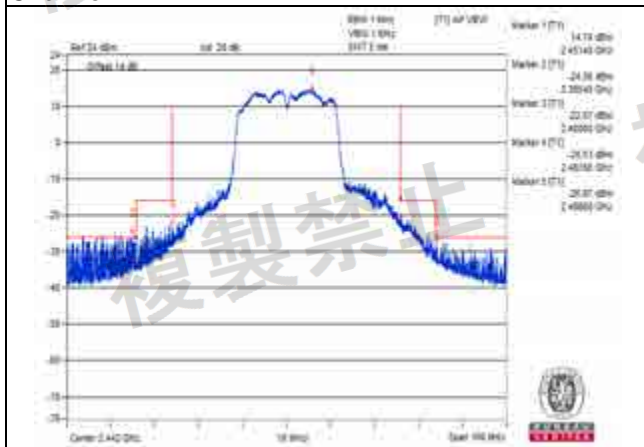
禁製



複製禁止



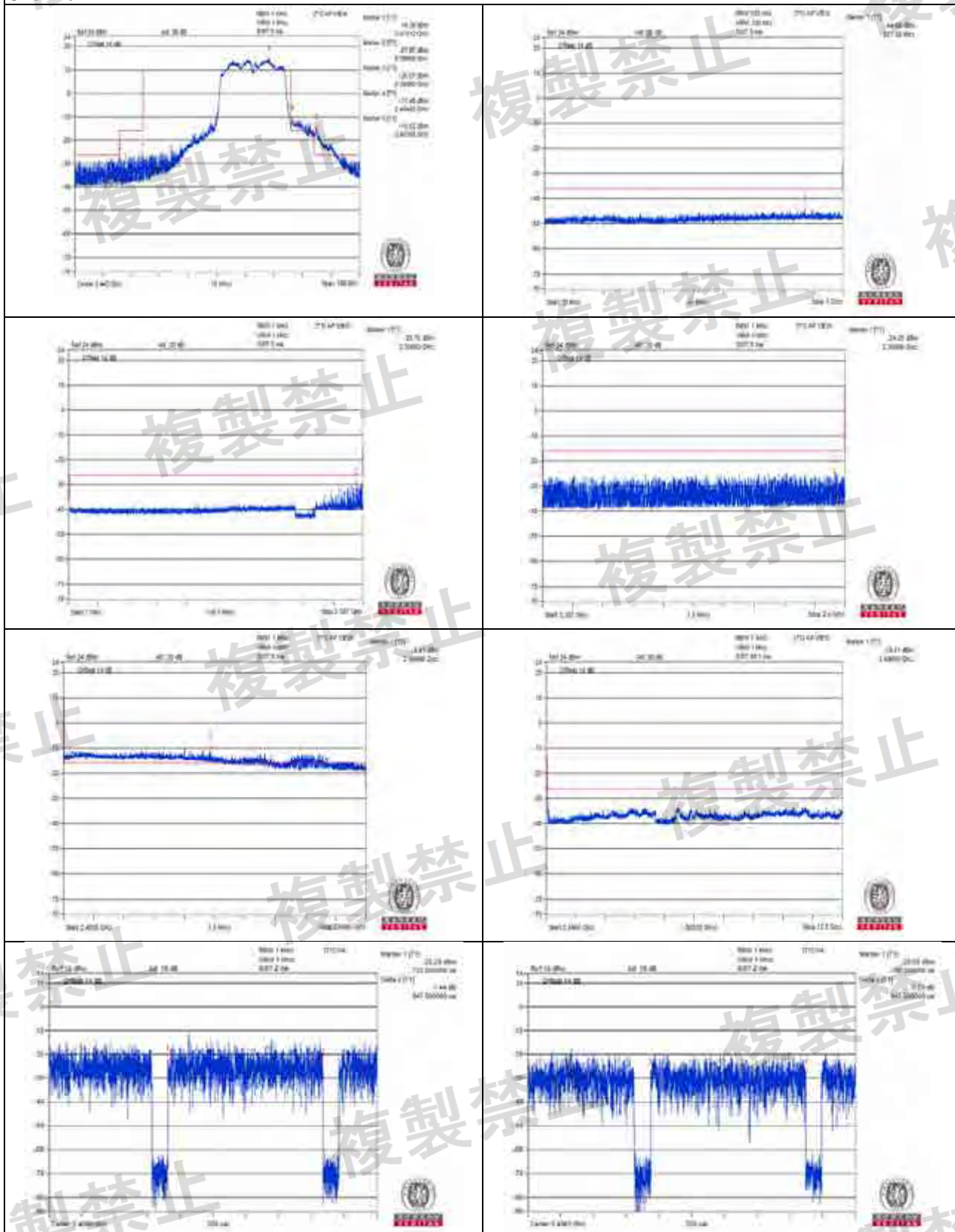
Vmin.
Channel 7



Measurement uncertainty: $\pm 3.93\text{dB}$



Vmin.
Channel 11



Measurement uncertainty: $\pm 3.93\text{dB}$



4.5 Antenna Power Measurement

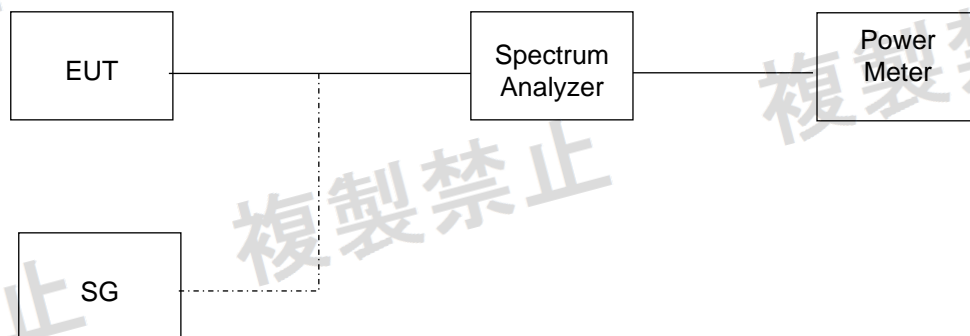
4.5.1 Limits of Antenna Power

Modulation System	Frequency Band Used	Antenna Power (Max.)	EIRP (Max.)	
			Omni-Directional Case	Directional Case
DS	2400 – 2483.5 MHz	10mW/MHz	12.14 dBm/MHz (16.368 mW/MHz)	22.14 dBm/MHz (163.68 mW/MHz)
OFDM (Note 1)	2400 – 2483.5 MHz	10mW/MHz	12.14 dBm/MHz (16.368 mW/MHz)	22.14 dBm/MHz (163.68 mW/MHz)
OFDM (Note 2)	2400 – 2483.5 MHz	5mW/MHz	9.14dBm/MHz (8.20mW/MHz)	19.14dBm/MHz (82.04mW/MHz)

Note:

1. Occupied bandwidth is less than 26MHz
2. Occupied bandwidth is more that 26MHz and less than 38MHz
3. The half-power beam width for directional antenna shall be $360/A$ degrees or less, where A is a ratio which causes the EIRP concerned to exceed the omnidirectional EIRP upper limit.
4. Tolerance of antenna power shall be +20% (upper value) and –80% (lower value).

4.5.2 Test Setup





4.5.3 Test Results

802.11b

Environmental Conditions		25 deg.C, 68% RH			
Channel Number	Frequency (MHz)	Conducted RF Output Power Density (mW/MHz)			
		Normal Voltage	Max. Voltage	Min. Voltage	Max. Limit (mW/MHz)
		24Vdc	26.4Vdc	21.6Vdc	
1	2412	8.243	8.262	8.300	10
7	2442	8.494	8.339	8.712	10
13	2472	8.224	8.416	8.474	10
14	2484	8.281	7.945	8.224	10
Rated power		9.00mW/MHz			
Tolerance of antenna power		1.8mW/MHz ~ 10.8mW/MHz			
Measurement uncertainty		$\pm 1.11\text{dB}$			

Monopole antenna with 2.57dBi gain

Environmental Conditions		25 deg.C, 68% RH			
Channel Number	Frequency (MHz)	Radiated RF Output Power Density (mW/MHz)			
		Normal Voltage	Max. Voltage	Min. Voltage	Max. Limit (mW/MHz)
		24Vdc	26.4Vdc	21.6Vdc	
1	2412	14.897	14.931	15.000	16.368
7	2442	15.350	15.070	15.744	16.368
13	2472	14.862	15.209	15.314	16.368
14	2484	14.965	14.358	14.862	16.368
Measurement uncertainty		$\pm 1.11\text{dB}$			

Note: The value of radiated RF output densities are "calculated" values.



802.11g

Environmental Conditions		25 deg.C, 68% RH			
Channel Number	Frequency (MHz)	Conducted RF Output Power Density (mW/MHz)			
		Normal Voltage	Max. Voltage	Min. Voltage	Max. Limit (mW/MHz)
		24Vdc	26.4Vdc	21.6Vdc	
1	2412	8.186	8.416	8.093	10
7	2442	8.205	8.494	7.872	10
13	2472	8.262	8.168	8.281	10
Rated power		9.00mW/MHz			
Tolerance of antenna power		1.8mW/MHz ~ 10.8mW/MHz			
Measurement uncertainty		± 1.11dB			

Monopole antenna with 2.57dBi gain

Environmental Conditions		25 deg.C, 68% RH			
Channel Number	Frequency (MHz)	Radiated RF Output Power Density (mW/MHz)			
		Normal Voltage	Max. Voltage	Min. Voltage	Max. Limit (mW/MHz)
		24Vdc	26.4Vdc	21.6Vdc	
1	2412	14.794	15.209	14.625	16.368
7	2442	14.828	15.350	14.226	16.368
13	2472	14.931	14.761	14.965	16.368
Measurement uncertainty		± 1.11dB			

Note: The value of radiated RF output densities are "calculated" values.



802.11n (HT20)

Environmental Conditions		25 deg.C, 68% RH			
Channel Number	Frequency (MHz)	Conducted RF Output Power Density (mW/MHz)			
		Normal Voltage	Max. Voltage	Min. Voltage	Max. Limit (mW/MHz)
		24Vdc	26.4Vdc	21.6Vdc	
1	2412	8.093	7.764	8.168	10
7	2442	8.632	8.474	8.732	10
13	2472	8.672	8.494	8.494	10
Rated power		9.00mW/MHz			
Tolerance of antenna power		1.8mW/MHz ~ 10.8mW/MHz			
Measurement uncertainty		± 1.11dB			

Monopole antenna with 2.57dBi gain

Environmental Conditions		25 deg.C, 68% RH			
Channel Number	Frequency (MHz)	Radiated RF Output Power Density (mW/MHz)			
		Normal Voltage	Max. Voltage	Min. Voltage	Max. Limit (mW/MHz)
		24Vdc	26.4Vdc	21.6Vdc	
1	2412	14.625	14.031	14.761	16.368
7	2442	15.600	15.314	15.780	16.368
13	2472	15.672	15.350	15.350	16.368
Measurement uncertainty		± 1.11dB			

Note: The value of radiated RF output densities are "calculated" values.



802.11n (HT40)

Environmental Conditions		25 deg.C, 68% RH			
Channel Number	Frequency (MHz)	Conducted RF Output Power Density (mW/MHz)			
		Normal Voltage	Max. Voltage	Min. Voltage	Max. Limit (mW/MHz)
		24Vdc	26.4Vdc	21.6Vdc	
3	2422	4.228	4.356	4.267	5
7	2442	3.909	4.056	3.811	5
11	2462	3.381	3.533	3.304	5
Rated power		4.4mW/MHz			
Tolerance of antenna power		0.88mW/MHz ~ 5.28mW/MHz			
Measurement uncertainty		± 1.11dB			

Monopole antenna with 2.57dBi gain

Environmental Conditions		25 deg.C, 68% RH			
Channel Number	Frequency (MHz)	Radiated RF Output Power Density (mW/MHz)			
		Normal Voltage	Max. Voltage	Min. Voltage	Max. Limit (mW/MHz)
		24Vdc	26.4Vdc	21.6Vdc	
3	2422	7.641	7.872	7.711	8.20
7	2442	7.064	7.330	6.887	8.20
11	2462	6.110	6.385	5.971	8.20
Measurement uncertainty		± 1.11dB			

Note: The value of radiated RF output densities are "calculated" values.



4.6 Spurious Emissions for Receiver

4.6.1 Limits of Spurious Emissions for Receiver

Frequencies (MHz)	Limit
Below 1GHz	$\leq 4\text{nW}$ (-54dBm)
Above 1GHz	$\leq 20\text{nW}$ (-47dBm)

4.6.2 Test Setup





4.6.3 Test Result

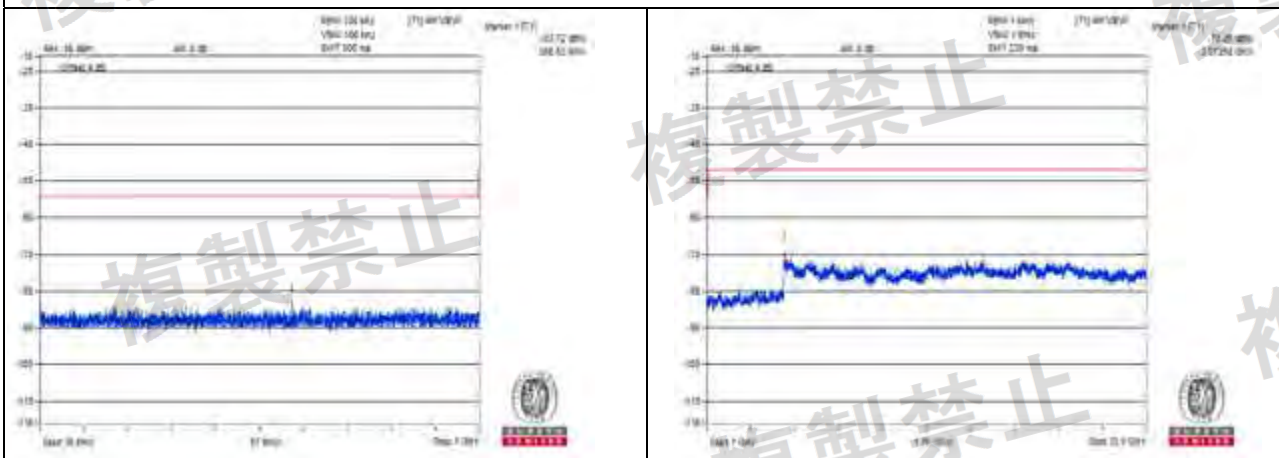
802.11b / 802.11g and 802.11n (HT20)

Environmental Conditions		24 deg.C, 70% RH					
Test Channel		Channel 1 (2412MHz)		Channel 7 (2442MHz)		Limit	Result
Test Condition	Frequency Range	Frequency (MHz)	Measured Value	Frequency (MHz)	Measured Value		
V_{normal}	Below 1GHz	586.530	0.004246nW	626.790	0.004198nW	4nW	PASS
	Above 1GHz	3012.500	0.094406nW	3164.870	0.102094nW	20nW	PASS
$V_{+10\%}$	Below 1GHz	386.230	0.004178nW	747.800	0.004624nW	4nW	PASS
	Above 1GHz	9271.370	0.09594nW	9300.120	0.0877nW	20nW	PASS
$V_{-10\%}$	Below 1GHz	755.310	0.004426nW	765.740	0.005383nW	4nW	PASS
	Above 1GHz	10455.870	0.093756nW	9553.120	0.097051nW	20nW	PASS
Test Channel		CH 13 (2472MHz)		CH 14 (2484MHz)		Limit	Result
Test Condition	Frequency Range	Frequency (MHz)	Measured Value	Frequency (MHz)	Measured Value		
V_{normal}	Below 1GHz	175.740	0.004603nW	633.820	0.003724nW	4nW	PASS
	Above 1GHz	3156.250	0.080724nW	8020.750	0.073282nW	20nW	PASS
$V_{+10\%}$	Below 1GHz	394.720	0.004083nW	233.450	0.004732nW	4nW	PASS
	Above 1GHz	3006.750	0.109144nW	1710.120	0.087096nW	20nW	PASS
$V_{-10\%}$	Below 1GHz	603.270	0.004842nW	744.160	0.004571nW	4nW	PASS
	Above 1GHz	3001.000	0.084528nW	9587.620	0.077625nW	20nW	PASS

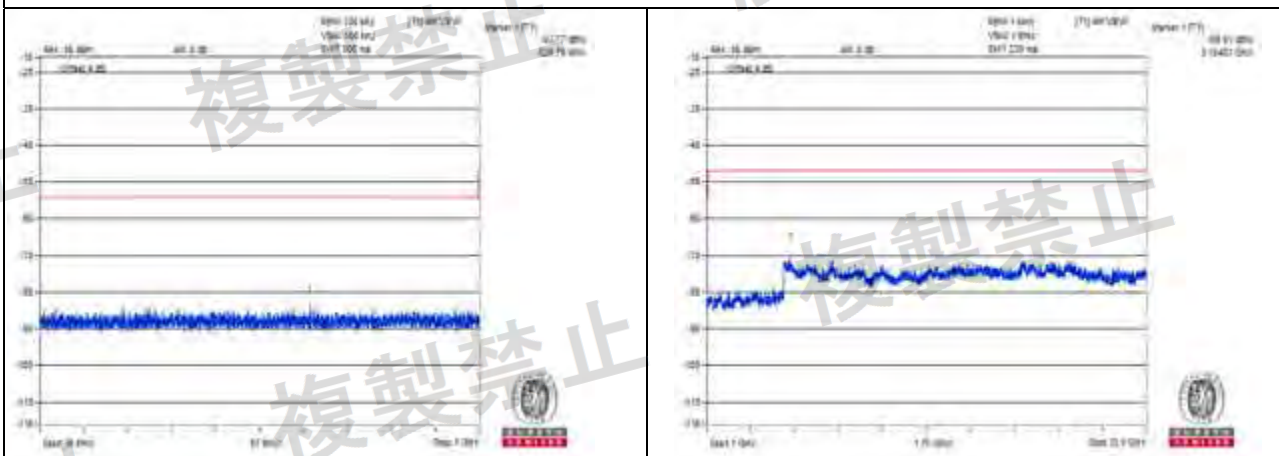
- Note: 1. The worst value in each frequency range v.s. each channel has been marked by boldface.
2. The spectrum plots are attached on the following pages.



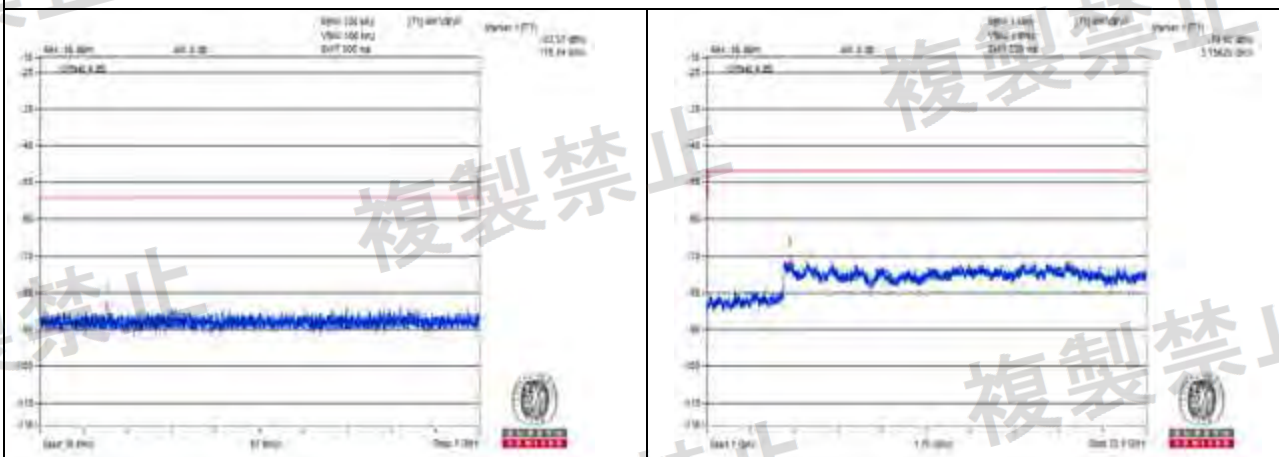
Vnormal



Channel 1



Channel 7

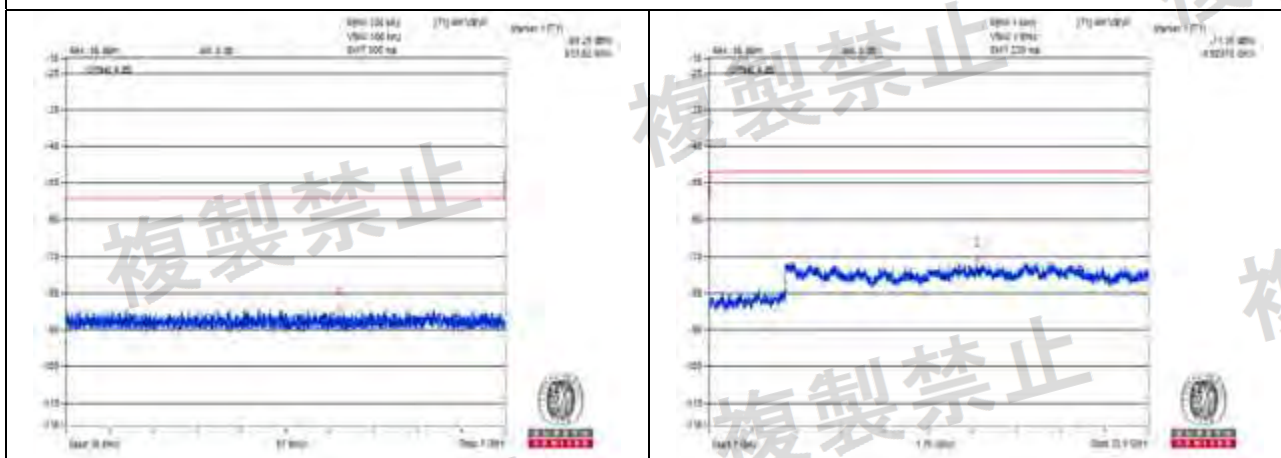


Channel 13

Measurement uncertainty: $\pm 3.93\text{dB}$



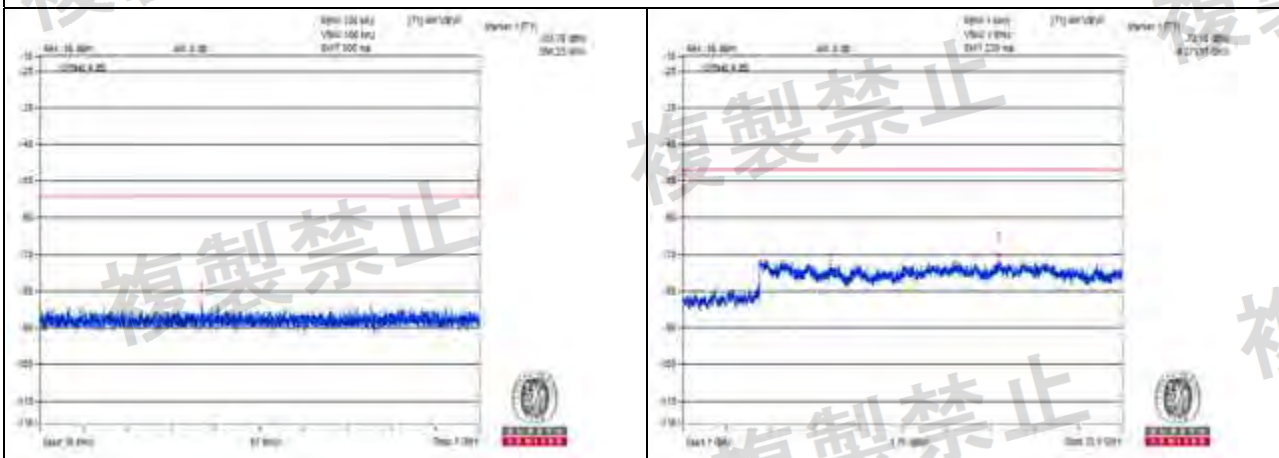
Vnormal



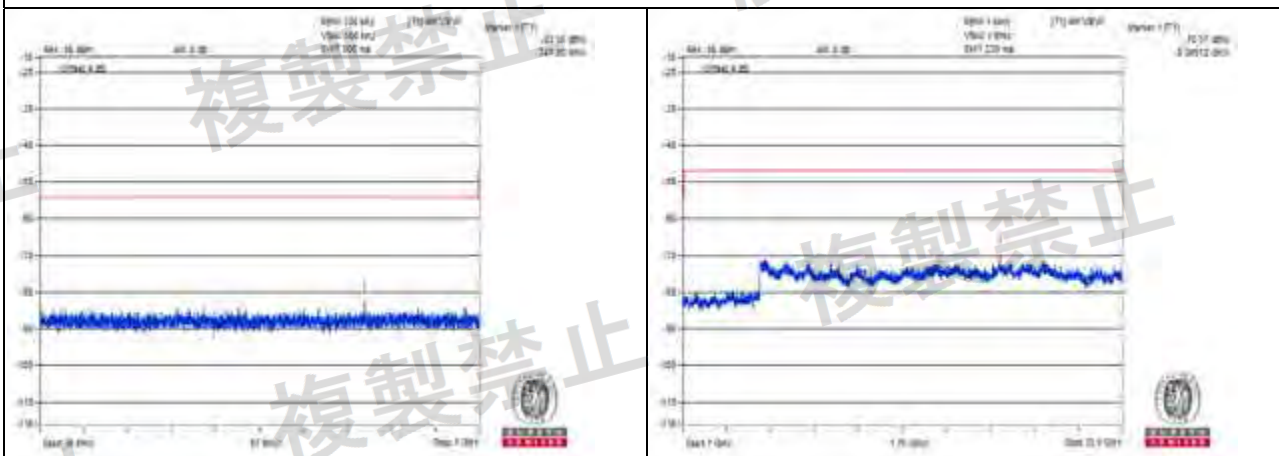
Channel 14



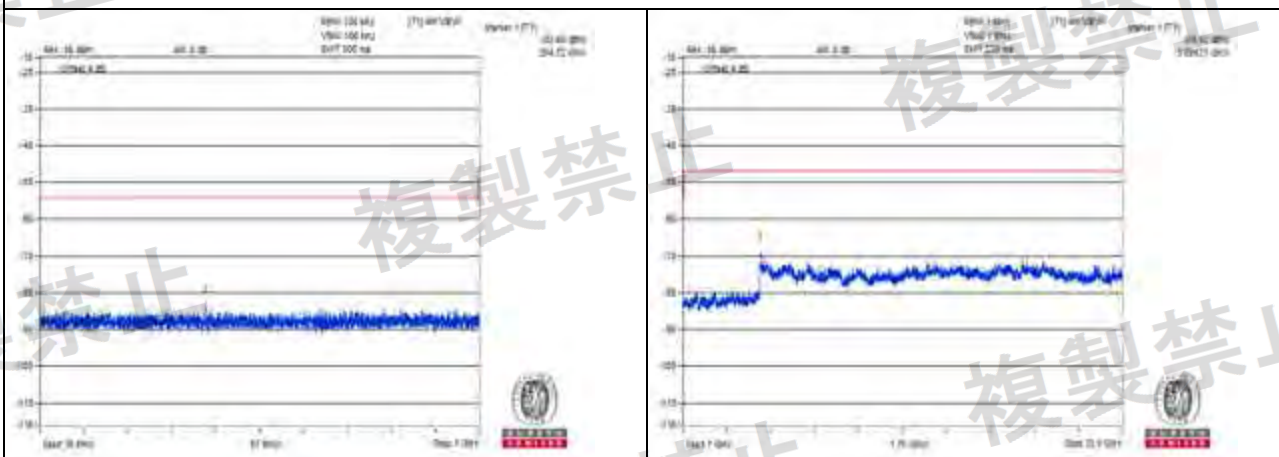
Vmax.



Channel 1



Channel 17

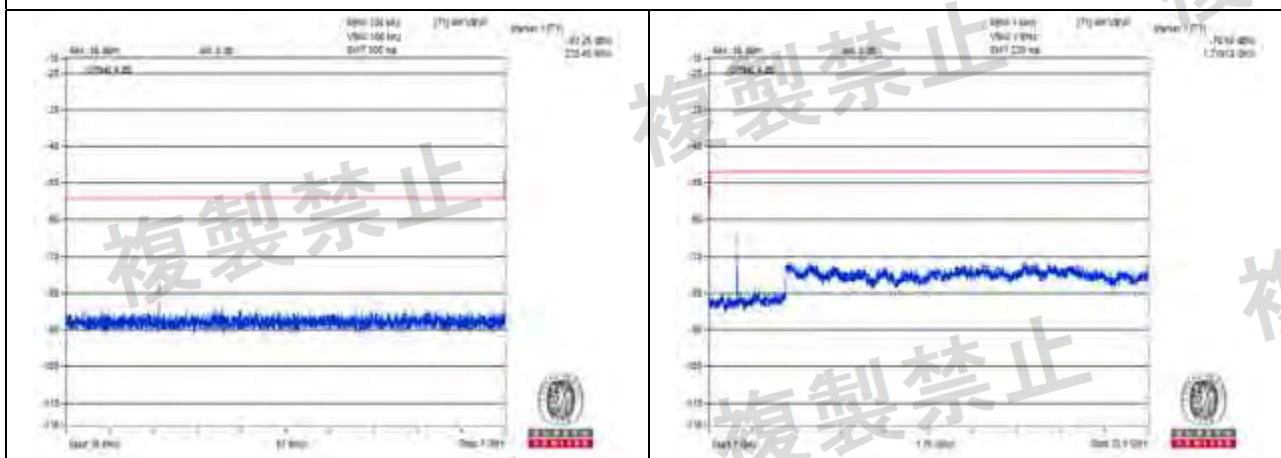


Channel 13

Measurement uncertainty: $\pm 3.93\text{dB}$



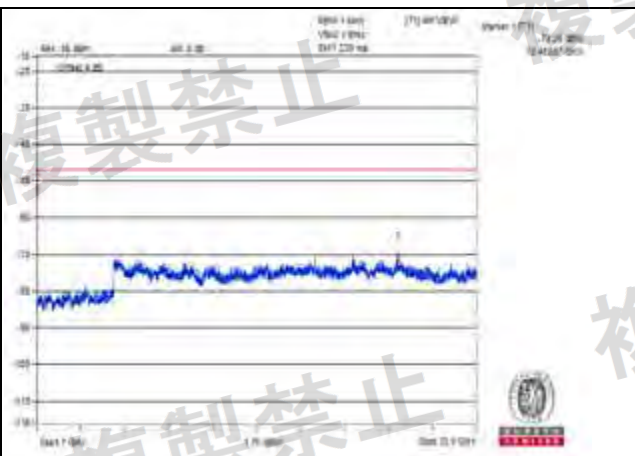
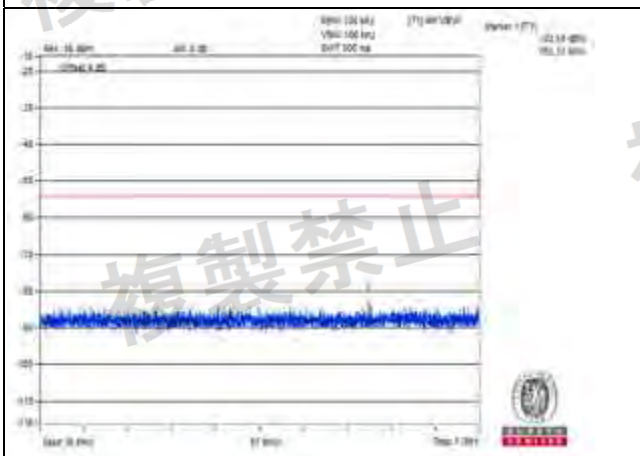
Vmax.



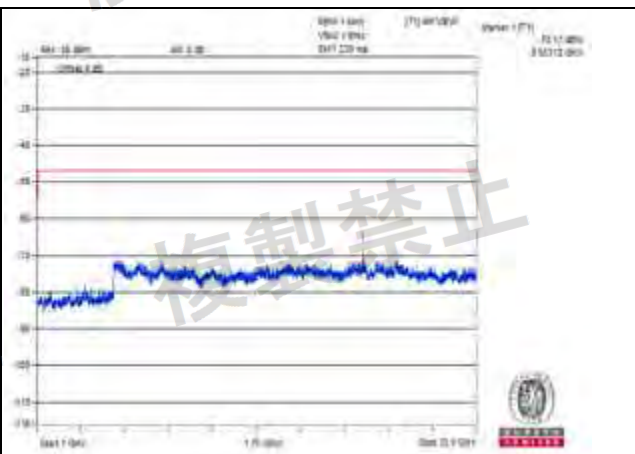
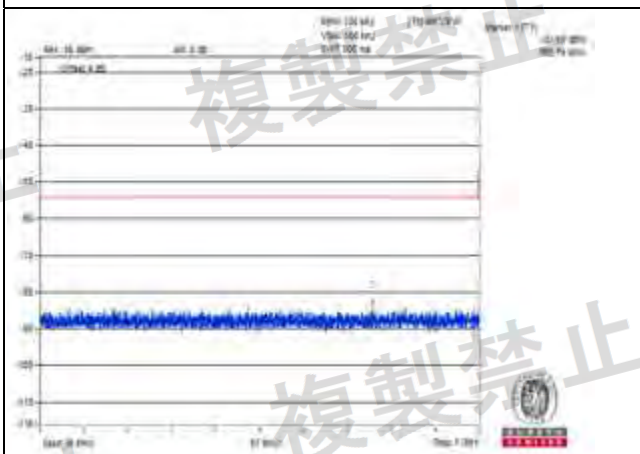
Channel 14



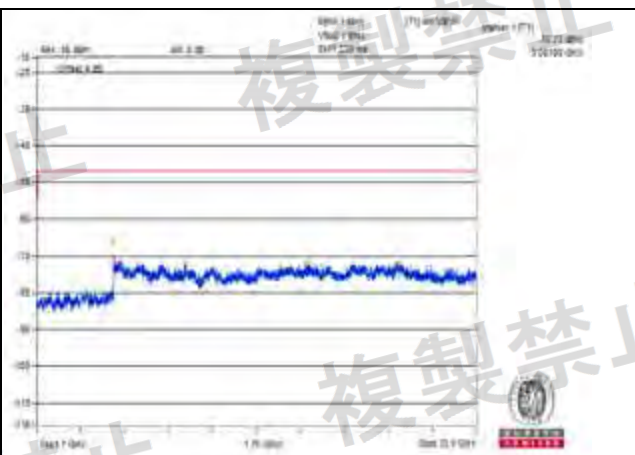
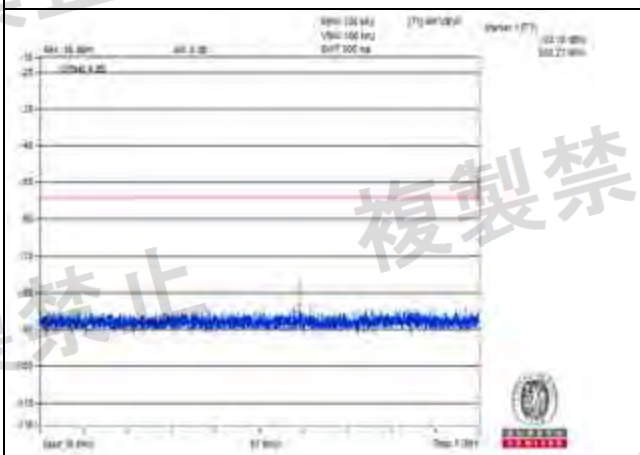
Vmin.



Channel 1



Channel 7

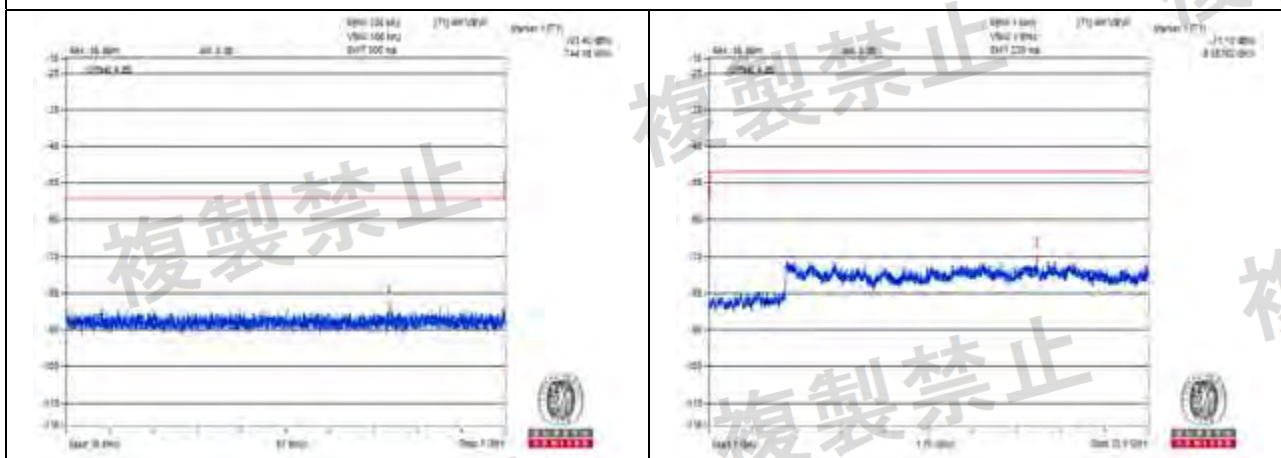


Channel 13

Measurement uncertainty: $\pm 3.93\text{dB}$



Vmin.



Channel 14



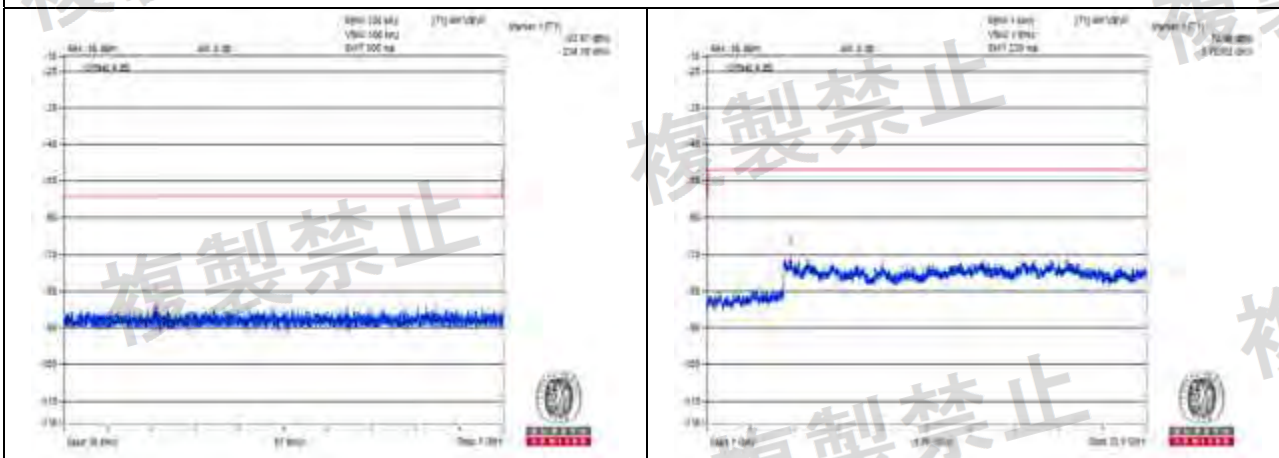
802.11n (HT40)

Environmental Conditions		25 deg.C, 60% RH					
Test Channel		Channel 3 (2422MHz)		Channel 7 (2442MHz)		Limit	Result
Test Condition	Frequency Range	Frequency (MHz)	Measured Value	Frequency (MHz)	Measured Value		
Vnormal	Below 1GHz	234.180	0.004009nW	538.030	0.00542nW	4nW	Pass
	Above 1GHz	3193.620	0.082035nW	10418.500	0.097724nW	20nW	Pass
Vmax.	Below 1GHz	480.560	0.004634nW	897.660	0.004955nW	4nW	Pass
	Above 1GHz	3630.620	0.097499nW	9277.120	0.107647nW	20nW	Pass
Vmin.	Below 1GHz	298.930	0.004581nW	741.250	0.004345nW	4nW	Pass
	Above 1GHz	9303.000	0.081283nW	3141.870	0.085704nW	20nW	Pass
Test Channel		Channel 11 (2462MHz)				Limit	Result
Test Condition	Frequency Range	Frequency (MHz)		Measured Value			
Vnormal	Below 1GHz	830.490		0.004688nW		4nW	Pass
	Above 1GHz	3739.870		0.091201nW		20nW	Pass
Vmax.	Below 1GHz	836.550		0.049091nW		4nW	Pass
	Above 1GHz	3118.870		0.08356nW		20nW	Pass
Vmin.	Below 1GHz	958.770		0.004365nW		4nW	Pass
	Above 1GHz	3009.620		0.086099nW		20nW	Pass

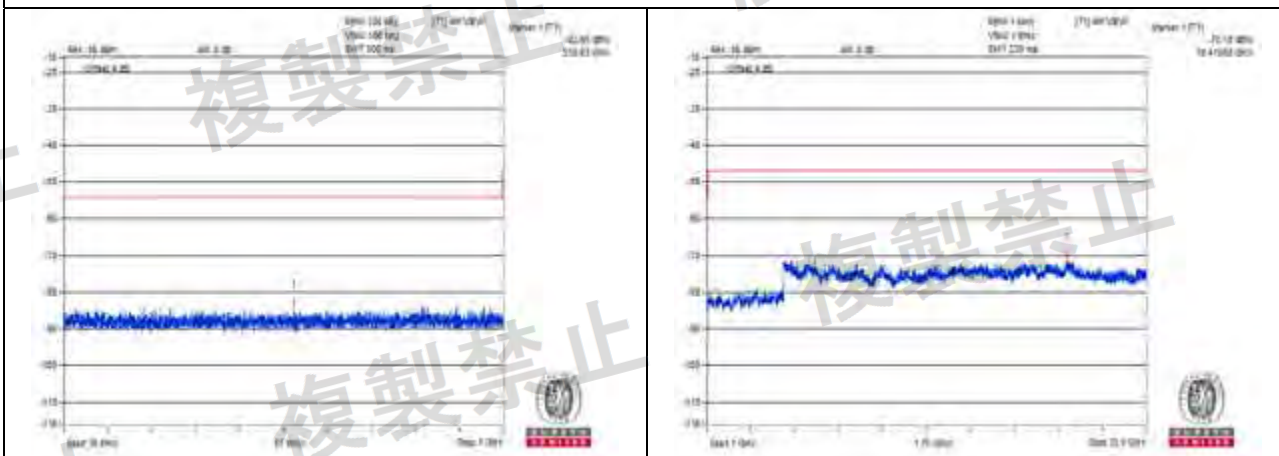
- Note:
1. The worst value in each frequency range v.s. each channel has been marked by boldface.
 2. The spectrum plots are attached on the following pages.



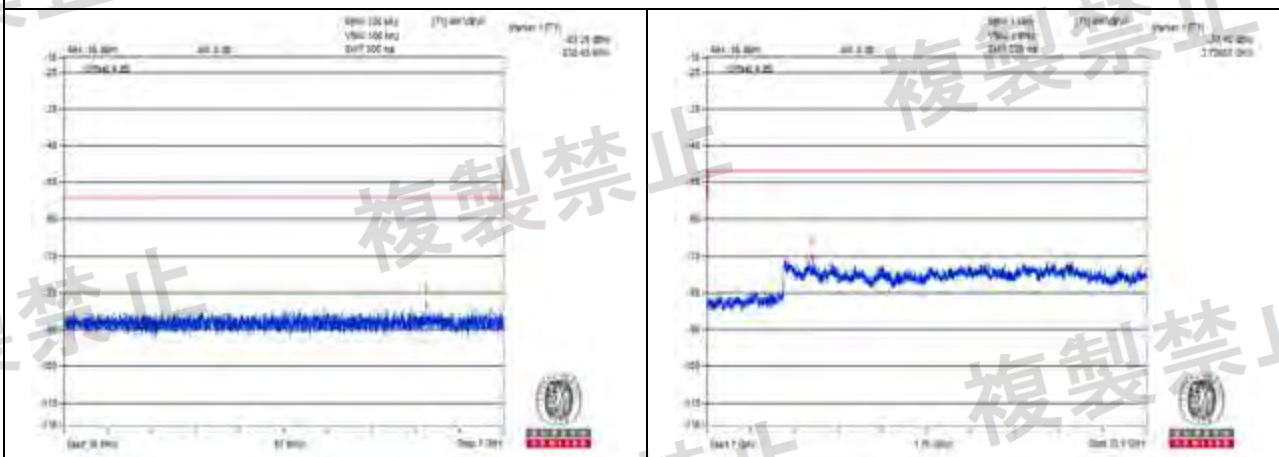
Vnormal



Channel 3



Channel 7

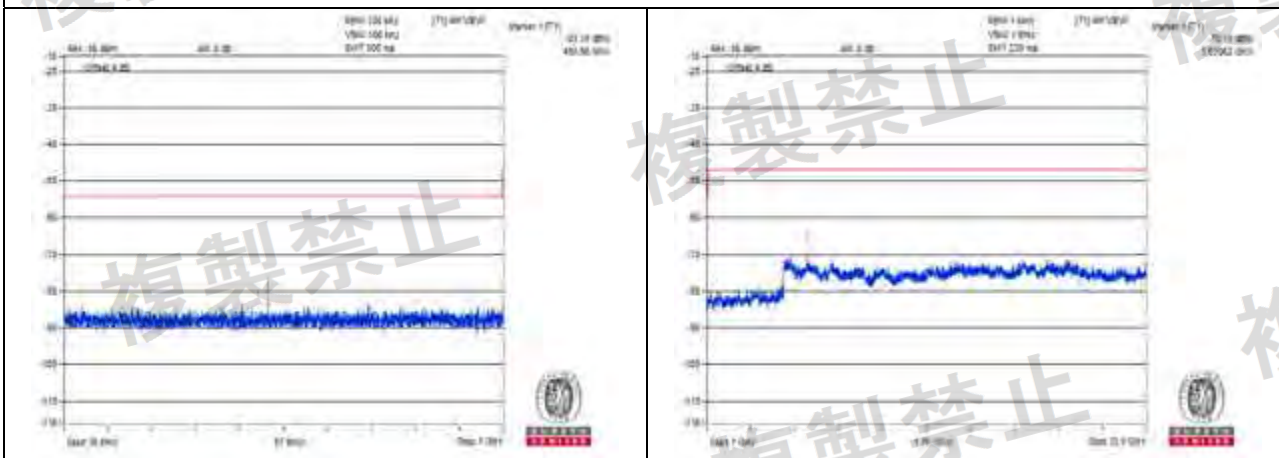


Channel 11

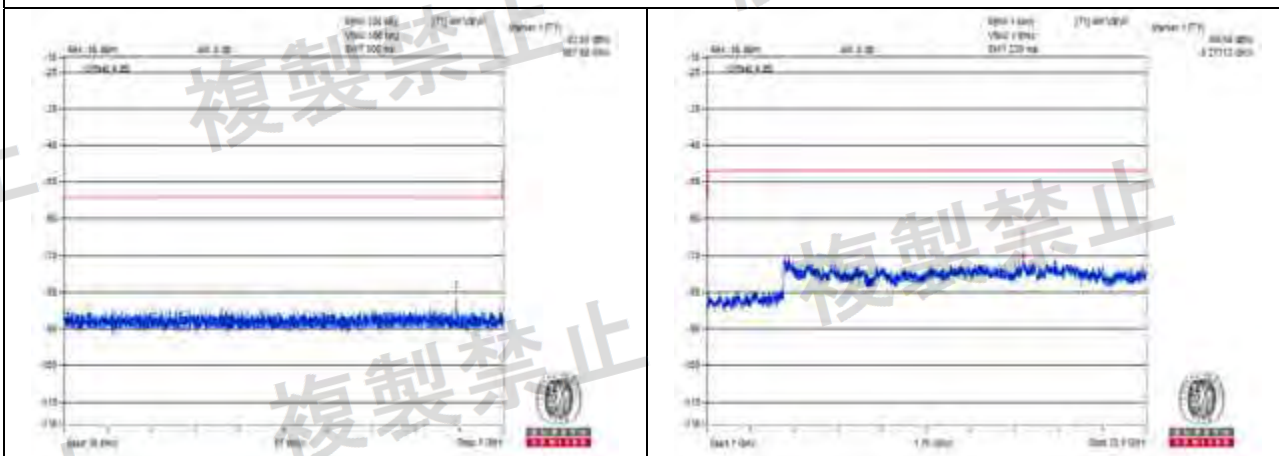
Measurement uncertainty: $\pm 3.93\text{dB}$



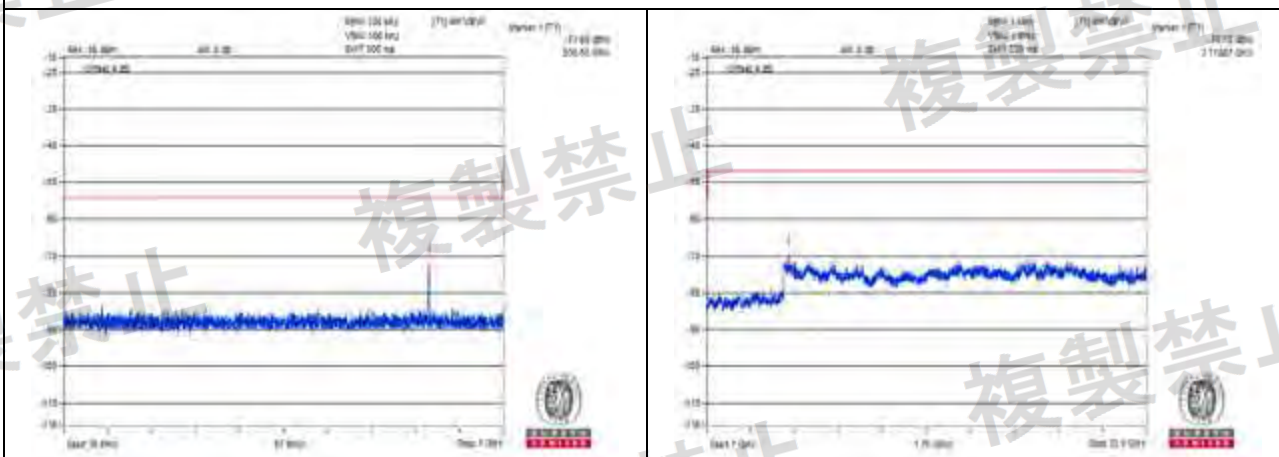
Vmax.



Channel 3



Channel 7

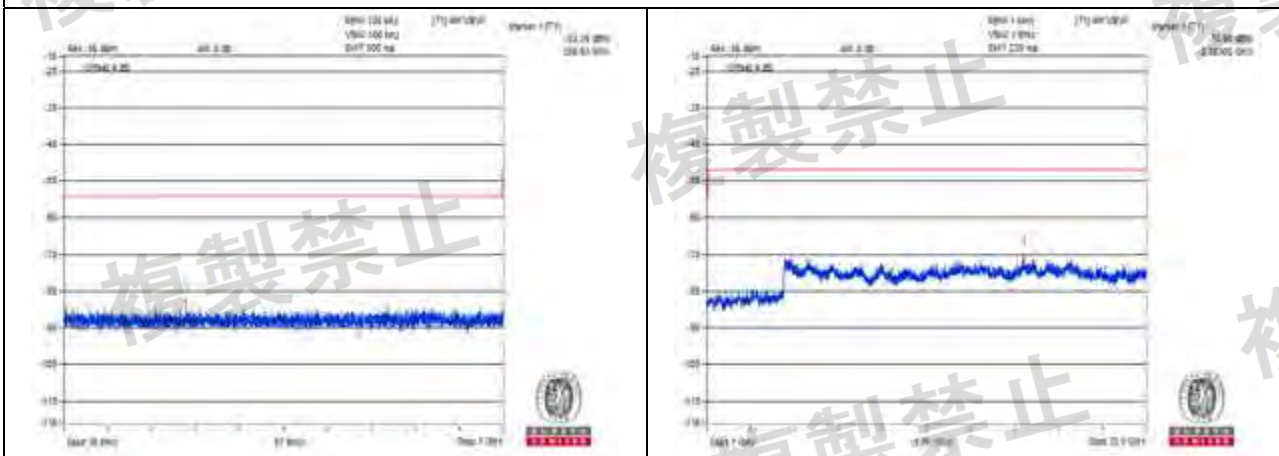


Channel 11

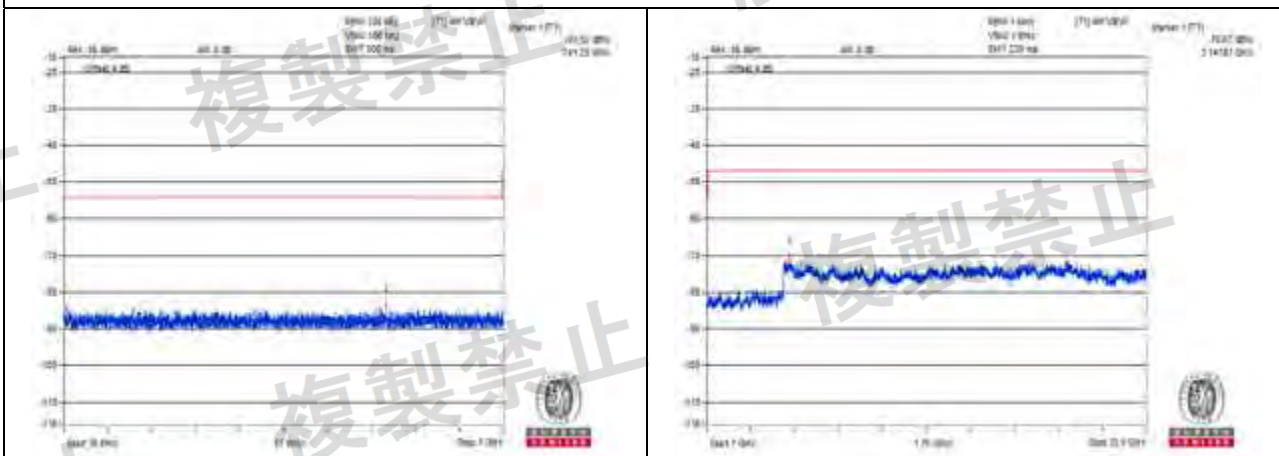
Measurement uncertainty: $\pm 3.93\text{dB}$



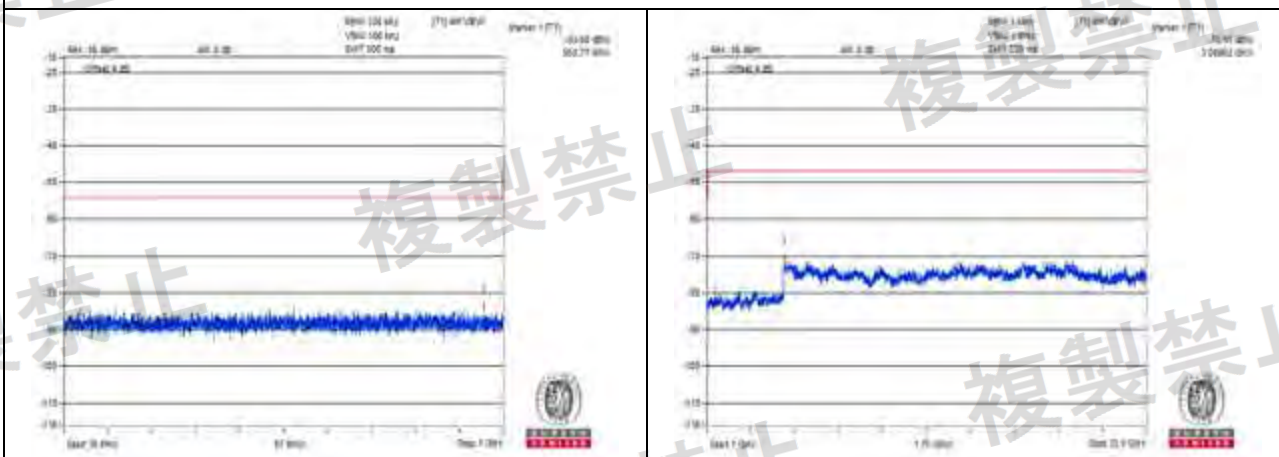
Vmin.



Channel 3



Channel 7



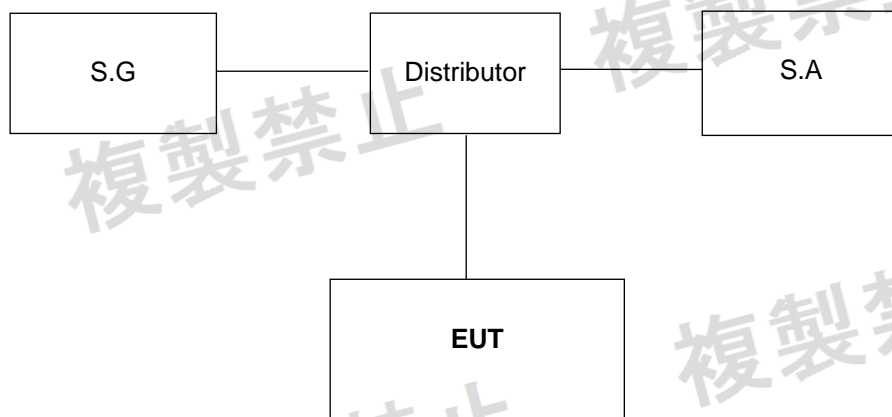
Channel 11

Measurement uncertainty: $\pm 3.93\text{dB}$



4.7 Carrier Sense Capability

4.7.1 Measuring System Block Diagram



4.7.2 Measuring Operation Procedures

- Turn the standard signal generator output OFF. Leave the equipment under test to be ready for transmission and verify the transmission with the spectrum analyzer.
- Set the equipment under test to the receiving state.
- Turn the standard signal generator ON and leave the equipment under test to be ready for transmission and verify with the spectrum analyzer that no transmission is being made.

4.7.3 Level of the Ambient Carrier

802.11b

Frequency (MHz)	Pcs (dBm)	C.F (dB)	S.G Level
2484	-45.11	10.24	-34.87

Note:

$Pcs (dBm) = 22.79 + Gr - 20\log(F)$.

Gr: Antenna gain (2.4GHz: 0.82dBi).

F: Transmission frequency (MHz).

C.F = Distributor loss + cable loss.

802.11n (HT40)

Frequency (MHz)	Pcs (dBm)	C.F (dB)	S.G Level
2422	-44.07	10.22	-33.85
2442	-44.14	10.23	-33.91
2462	-44.22	10.24	-33.98

Note:

$Pcs (dBm) = 22.79 + Gr - 20\log(F)$.

Gr: Antenna gain (2.4GHz: 0.82dBi).

F: Transmission frequency (MHz).

C.F = Distributor loss + cable loss.

4.7.4 Test Result

Pass

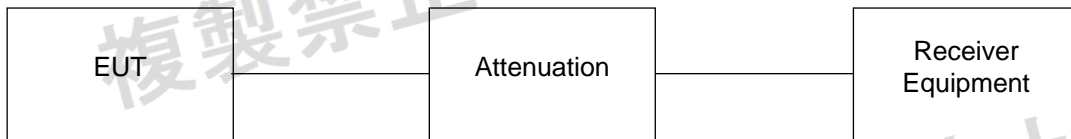


4.8 Interference Prevention Function

4.8.1 Limits of Interference Prevention Function

Radio equipment used mainly on the same premises and automatically transmits or receives identification code.

4.8.2 Test Setup



4.8.3 Test Results

Environmental Conditions	25 deg.C, 60% RH
Link Mode	Test Result
WiFi	Pass



4.9 Number of Carriers within 1 MHz Bandwidth in OFDM

4.9.1 Limit of Number of Carriers

For each 1MHz bandwidth in OFDM, there should be at least 1 carrier.

4.9.2 Test Setup



4.9.3 Test Result

About OFDM Technical, one OFDM Channel will have 52 sub-carriers. At present, we observe this product via the spectrum, and we know that there are 3 carriers in 1 MHz bandwidth in OFDM.



5 Photographs of the Test Configuration





Appendix - Information on the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

The address and road map of all our labs can be found in our web site also.

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