TEST REPORT

Report number	:	**KR22-SRT0009**
Issue date	:	**2022-02-17**

Applicant	:	Samsung Electronics Co., Ltd. 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea TEL : +82-10-3723-8421
Equipment under test (EUT)	:	Tablet PC
Model name	:	SM-X800
Date of test	:	2022-01-05 ~ 2022-02-16
Test place	:	KCTL Inc. 65 Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, Korea
Test results	:	PASS

The results in this report are applicable only to the equipment tested.
This report shall not be re-produced except in full without the written approval of ***KCTL Inc.***

Tested by; Kwonse Kim

Approved by; Seungyong Kim

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1. Summary of Test

1. Purpose of test

Ordinance on Technical Standards Conformity Certification of Specified Radio Equipment
5GHz Band low power data communication System

2. Standards
Certification Ordinance Article 2 Clause 1 Item19-3

1) Test Methods
Ministry of Internal Affairs and Communications Notification Article 88 Appendix 45

2) Deviation from standards
None

3. List of applied test to the EUT

Article 88 Appendix 45	Classification of EUT	Condition	Result
3	Frequency Tolerance	Conducted	N/T*
4	Occupied Bandwidth	Conducted	PASS**
6	RF Output Power Tolerance	Conducted	PASS
5	Unwanted (Spurious) Emission Strength	Conducted	PASS
7	Adjacent Channel Leakage Power	Conducted	N/T*
7	Out-Band Leakage Power	Conducted	PASS
8	Secondary Emitted Radio Wave Strength	Conducted	N/T*
9	Interference Prevention Function	Conducted	N/T*
10	Burst Length of Transmitted Signals	Conducted	N/T*
12	Carrier Sensing Function	Conducted	N/T*

1) Note
This device can support beamforming function when operating in WLAN 802.11ac/ax MIMO mode. So only items defined as E.I.R.P. were additionally tested by applying the beamforming gain (3 dB) in the beamforming output.
* : Not Tested
** : Only tested W52,W53 802.11ac/ax (BW20)

2) Test set up
Table-Top

3) Modification to the EUT by laboratory
None

1. Test Information

1. Applicant

Samsung Electronics Co., Ltd.
129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea

2. Equipment under test
Tablet PC

3. Model number
SM-X800

4. Serial number
563b88ad

5. Size(mm)
(W) 185.54 x (D) 6.94 x (H) 285.02

6. Terminal limitation
0˚C to 35˚C

7. RF Specification Frequency range
IEEE802.11ac/ax (BW 20MHz) :
5180 - 5240 MHz(W52), 5260 - 5320 MHz(W53), 5500 - 5720 MHz(W56)
IEEE802.11ac/ax (BW 40MHz) :
5190 - 5230 MHz(W52), 5270 - 5310 MHz(W53), 5510 - 5710 MHz(W56)
IEEE802.11ac/ax (BW 80MHz) : 5210 MHz(W52), 5290 MHz(W53), 5530 ~ 5690 MHz(W56)
IEEE802.11ax (BW 160MHz) : 5250 MHz(W52&W53), 5570 MHz(W56)

8. Number of RF Channels
IEEE802.11ac/ax (BW 20MHz) : 4 Channels(W52), 4 Channels(W53), 12 Channels(W56)
IEEE802.11ac/ax (BW 40MHz) : 2 Channels(W52), 2 Channels(W53), 6 Channels(W56)
IEEE802.11ac/ax (BW 80MHz) : 1 Channel(W52), 1 Channel(W53), 3 Channels(W56)
IEEE802.11ax (BW 160MHz) : 1 Channel(W52&W53), 1 Channel(W56)

9. Modulation method
IEEE802.11ac/ax (BW 20,40,80, 160MHz) : OFDM,
OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM)

10. Data rate
IEEE802.11ac(VHT20,40,80 LGI) : 6.5, 13, 19.5, 26, 39, 52, 58.5, 65, 78Mbps
IEEE802.11ac(VHT20,40,80 SGI) : 7.2, 14.4, 21.7, 28.9, 43.3, 57.8, 65, 72.2, 86.7Mbps
IEEE802.11ax(HE20,40,80,160 LGI) :
7.3, 14.6, 21.9, 29.3, 43.9, 58.5, 65.8, 73.1, 87.8, 97.5, 109.7, 121.9Mbps
IEEE802.11ax(HE20,40,80,160 SGI) :
8.6, 17.2, 25.8, 34.4, 51.6, 68.8, 77.4, 86, 103.2, 114.7, 129, 143.4Mbps

10. Variation of the family model(s)
None

2. Configuration of equipment

1. RF output power tolerance, Occupied bandwidth, Unwanted(Spurious) emission strength, Out-Band Leakage Power

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3. Test results (Rated voltage)

S/N : 563b88ad

Environment of test room	Date of test	2022-02-04	2022-02-05	2022-02-06
	Temperature	21 °C	20 °C	21 °C
	Humidity	51 %	51 %	52 %

Peak Antenna Gain	-7.99	dBi
Beamforming Gain	3.00	dB
Peak Antenna Gain + Beamforming Gain	-4.99	dBi
Declaration Output Power	10.00	mW/MHz
	10.00	dBm/MHz
E.I.R.P	**3.17**	mW/MHz
	5.01	**dBm/MHz**
Input Power Voltage	3.86	VDC

Test category		IEEE802.11ac VHT20 / MIMO(2TX)	
Tested Circit Insertion Loss		0.00	dB
Transmission Time	ON TIME (1sec or less)	0.64	ms
	OFF TIME (0.1sec or more)	0.11	ms
	Ratio	0.85	%

Using TDF and offset function in Spectrum Analy:

Measurement of plots are included Loss value.

Offset : EUT cable(0.5dB)

Test category :	5GHz Band Low-Power Data Communication System (802.11ac VHT20 W52/MIMO(2TX))_Beamforming
The reason why the tests are performed only at rated voltage:	The fluctuation of input voltage to the circuit of the radio part of the equipment to be tested is identified as being less than ±1 % when input voltage from an external supply into the equipment fluctuates ±10 %.

Measurement Channel	Ch.	36	40	48		
Measurement Frequency	MHz	5180	5200	5240	Result	Limit
Occupied Bandwidth(Tx1)	MHz	17.68	17.58	17.58	**PASS**	20MHz or below
Occupied Bandwidth(Tx2)	MHz	17.68	17.58	17.58	**PASS**	20MHz or below
RF Output Power(Tx1)	mW/MHz	2.16	2.12	1.90	**PASS**	10mW/MHz or below
RF Output Power(Tx2)	mW/MHz	1.91	1.85	1.93	**PASS**	10mW/MHz or below
RF Output Power (Tx1+2)	mW/MHz	4.08	3.97	3.84	**PASS**	10mW/MHz or below
RF Output Power Tolerance (Tx1+2)	%	-59.24	-60.29	-61.64	**PASS**	+20% to -80%

Measurement Channel		Ch.	36	40	48		
Measurement Frequency		MHz	5180	5200	5240	Result	Limit
Unwanted (Spurious) Emission Strength (Tx1)	30MHz to 5142MHz	uW/MHz	0.10	0.09	0.08	**PASS**	2.5uW/MHz or below
		MHz	4996.50	4981.10	4843.20	----	----
	5266.7MHz to 26GHz	uW/MHz	0.16	0.14	0.18	**PASS**	2.5uW/MHz or below
		MHz	18118.70	18097.70	18118.70	----	----
Unwanted (Spurious) Emission Strength (Tx2)	30MHz to 5142MHz	uW/MHz	0.11	0.09	0.09	**PASS**	2.5uW/MHz or below
		MHz	5037.30	5011.80	5057.70	----	----
	5266.7MHz to 26GHz	uW/MHz	0.16	0.15	0.16	**PASS**	2.5uW/MHz or below
		MHz	18077.70	18077.70	25948.70	----	----
Unwanted (Spurious) Emission Strength (Tx1+2)	30MHz to 5142MHz	uW/MHz	0.21	0.19	0.17	**PASS**	2.5uW/MHz or below
		----	----	----	----	----	----
	5266.7MHz to 26GHz	uW/MHz	0.33	0.29	0.34	**PASS**	2.5uW/MHz or below
		----	----	----	----	----	----

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Measurement Channel		Ch.	36	40	48		
Measurement Frequency		MHz	5180	5200	5240	Result	Limit
Out-Band Leakage Power (Tx1)	5142 to 5150MHz	uW/MHz	0.10	0.10	0.11	**PASS**	15uW/MHz or below
		MHz	5148.93	5148.05	5146.42	----	----
	5250 to 5250.2MHz	uW/MHz	0.09	0.09	51.88	**PASS**	$10^{1-(f-9)}$mW/MHz or below
		MHz	5250.10	5250.15	5250.00	----	----
	Limit	uW/MHz	801.68	707.95	1000.00	----	----
	5250.2 to 5251MHz	uW/MHz	0.11	0.08	33.65	**PASS**	$10^{1-(f-9)}$mW/MHz or below
		MHz	5250.97	5250.40	5250.21	----	----
	Limit	uW/MHz	108.14	397.19	619.44	----	----
	5251 to 5260MHz	uW/MHz	0.09	0.11	6.14	**PASS**	$10^{-1-(8/90)(f-11)}$mW/MHz or below
		MHz	5256.39	5255.92	5251.13	----	----
	Limit	uW/MHz	33.18	36.51	97.37	----	----
	5260 to 5266.7MHz	uW/MHz	0.10	0.10	0.11	**PASS**	$10^{-1.8-(6/50)(f-20)}$mW/MHz or below
		MHz	5265.52	5261.36	5260.15	----	----
	Limit	uW/MHz	3.45	10.90	15.20	----	----
Out-Band Leakage Power (Tx2)	5142 to 5150MHz	uW/MHz	0.10	0.11	0.11	**PASS**	15uW/MHz or below
		MHz	5146.18	5143.07	5146.14	----	----
	5250 to 5250.2MHz	uW/MHz	0.08	0.08	39.99	**PASS**	$10^{1-(f-9)}$mW/MHz or below
		MHz	5250.03	5250.19	5250.04	----	----
	Limit	uW/MHz	941.89	645.65	922.57	----	----
	5250.2 to 5251MHz	uW/MHz	0.08	0.09	25.64	**PASS**	$10^{1-(f-9)}$mW/MHz or below
		MHz	5250.60	5250.37	5250.20	----	----
	Limit	uW/MHz	250.03	427.56	626.61	----	----
	5251 to 5260MHz	uW/MHz	0.11	0.11	5.24	**PASS**	$10^{-1-(8/90)(f-11)}$mW/MHz or below
		MHz	5252.10	5254.70	5251.18	----	----
	Limit	uW/MHz	79.82	46.89	96.48	----	----
	5260 to 5266.7MHz	uW/MHz	0.10	0.10	0.11	**PASS**	$10^{-1.8-(6/50)(f-20)}$mW/MHz or below
		MHz	5260.08	5264.70	5266.23	----	----
	Limit	uW/MHz	15.52	4.32	2.84	----	----
Out-Band Leakage Power (Tx1+2)	5142 to 5150MHz	uW/MHz	0.21	0.20	0.22	**PASS**	15uW/MHz or below
		----	----	----	----	----	----
	5250 to 5250.2MHz	uW/MHz	0.17	0.17	91.87	**PASS**	$10^{1-(f-9)}$mW/MHz or below
		MHz	5250.10	5250.19	5250.04	----	----
	Limit	uW/MHz	801.68	645.65	922.57	----	----
	5250 to 5251MHz	uW/MHz	0.19	0.17	59.30	**PASS**	$10^{1-(f-9)}$mW/MHz or below
		MHz	5250.97	5250.40	5250.21	----	----
	Limit	uW/MHz	108.14	397.19	619.44	----	----
	5251 to 5260MHz	uW/MHz	0.21	0.21	11.37	**PASS**	$10^{-1-(8/90)(f-11)}$mW/MHz or below
		MHz	5256.39	5255.92	5251.18	----	----
	Limit	uW/MHz	33.18	36.51	96.48	----	----
	5260 to 5266.7MHz	uW/MHz	0.21	0.20	0.22	**PASS**	$10^{-1.8-(6/50)(f-20)}$mW/MHz or below
		MHz	5265.52	5264.70	5266.23	----	----
	Limit	uW/MHz	3.45	4.32	2.84	----	----

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4. Measurement equipment list

USE	Equipment	Company	Model No.	Serial No.	Calibrated by	Cal. Method	Cal. Due	Cal. Date
X	Spectrum Analyzer	R&S	FSV30	100807	HCT	(c)	2022.07.27	2021.07.27
X	DC Power Supply	AGILENT	E3632A	MY40017108	HCT	(c)	2022.05.10	2021.05.10
X	Signal Generator	R & S	SMB100A	176206	HCT	(c)	2023.01.19	2022.01.19
X	Attenuator	API Inmet	40AH2W-10	16	HCT	(c)	2022.05.11	2021.05.11

Note1: "X" used equipment.

Note2: The validity of measurement equipment is one year from the first day of the following month of the calibration date.

Note3: Cal.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)～ TELECOM Engineering Center, Intertek Japan K.K., Keysight Technologies, Inc～.

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

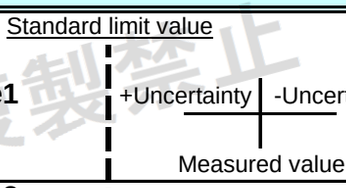
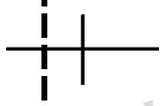
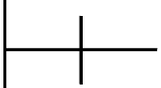
c)：Calibration conducted in foreign countries, which shall be equivalent to the calibration conducted by the NICT or a designated calibration agency under Article 102-18 paragraph (1)～ TELECOM Engineering Center, Intertek Japan K.K., Keysight Technologies, Inc～.

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

5. Uncertainty

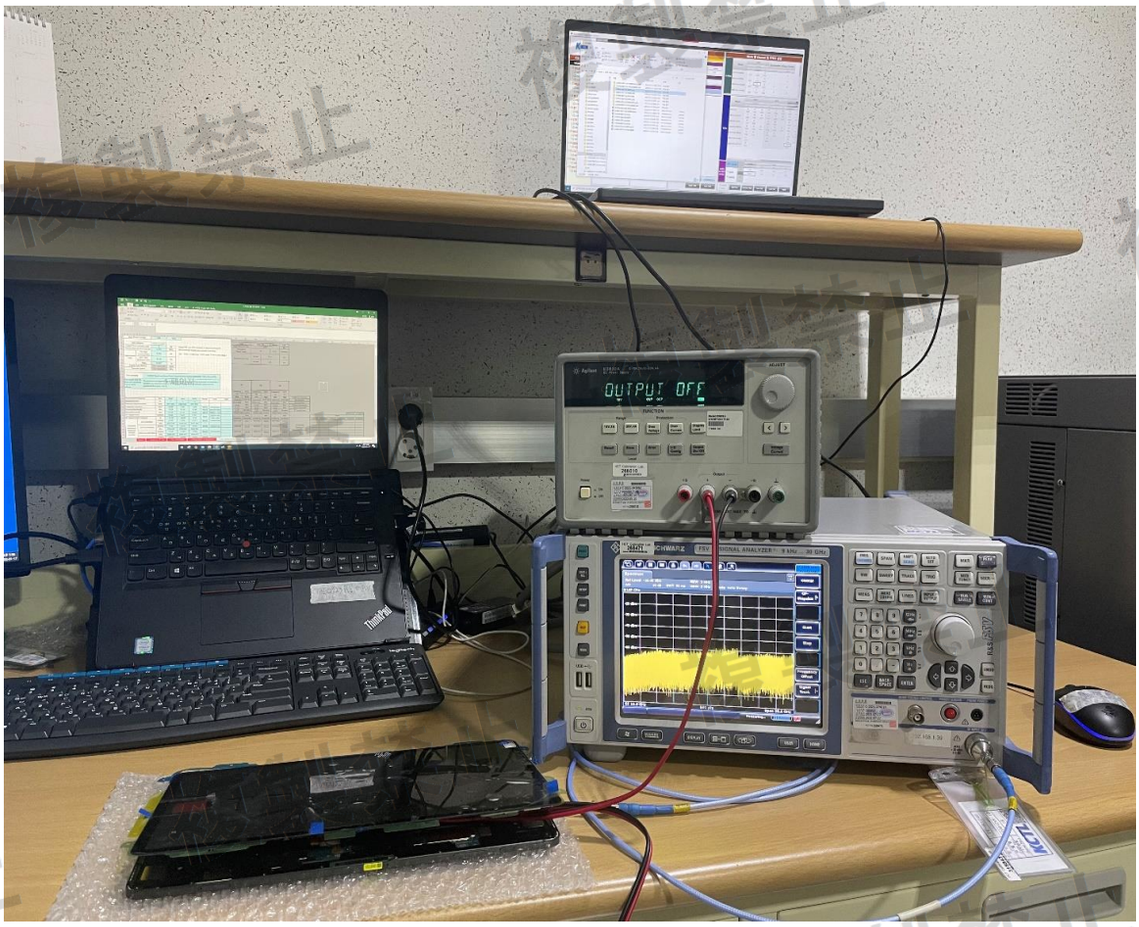
About uncertainty of measured value

Parameter	Uncertainty
Total RF power conducted	±0.9dB
Spurious emissions conducted	±1.6dB
Temperature	±1.0℃
Humidity	±4.8%

Judge	Measured value and standard limit value	
PASS	Case1 	Even if it takes uncertainty into consideration, a standard limit value is fulfilled.
	Case2 	Although measured value is in a standard limit value, a limit value won't be fulfilled if uncertainty is taken into consideration.
FAIL	Case3	Although measured value exceeds a standard limit value, a limit value will be fulfilled if uncertainty is taken into consideration.
	Case4 	Even if it takes uncertainty into consideration, a standard limit value isn't fulfilled.

6. Photographs

Conducted Measurement Photo

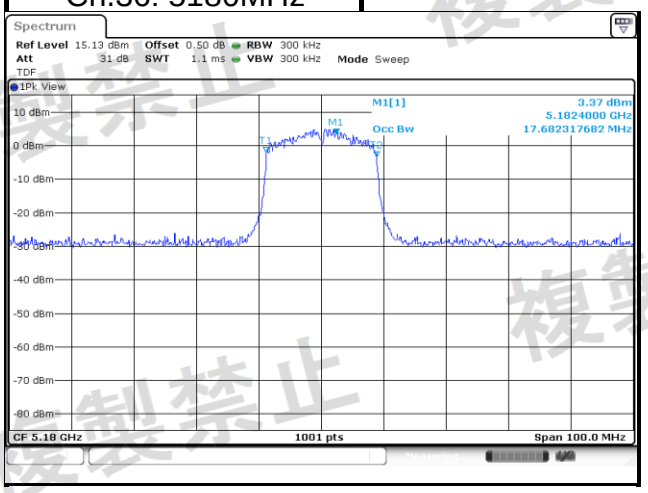


7. Test chart

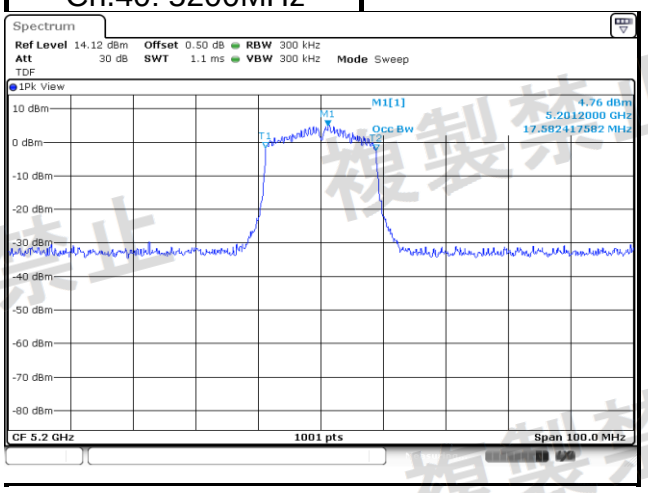
7.2 Occupied bandwidth (Rated voltage)

Tx1

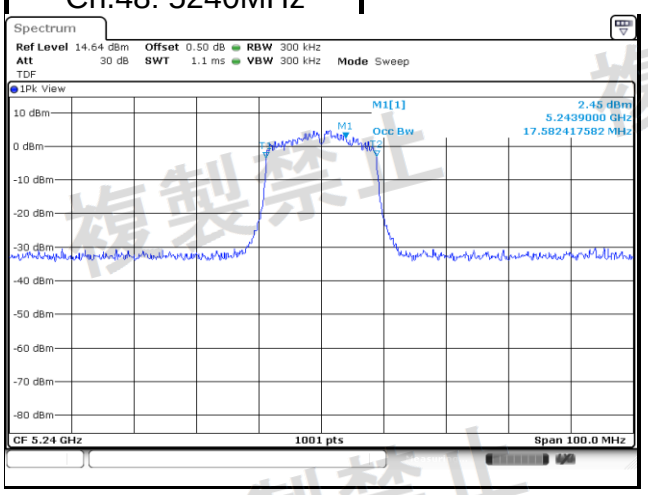
Ch.36: 5180MHz



Ch.40: 5200MHz

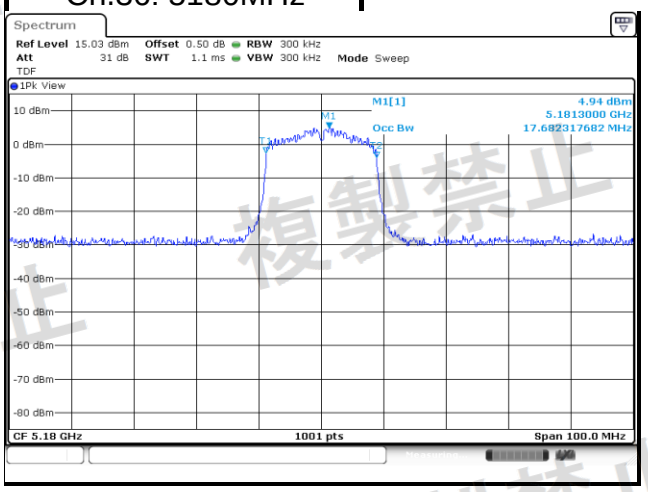


Ch.48: 5240MHz

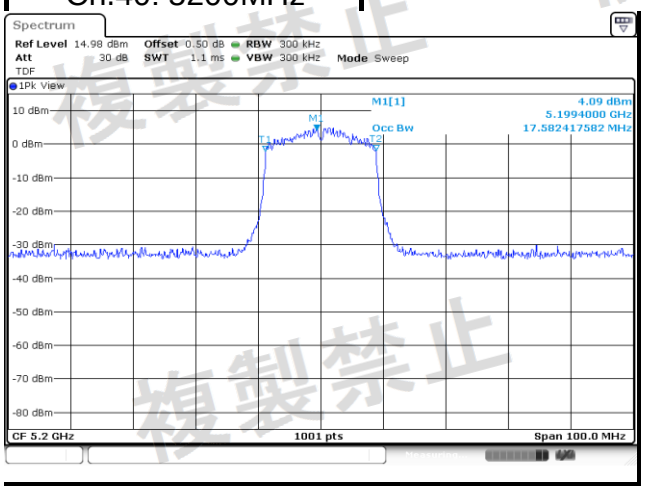


Tx2

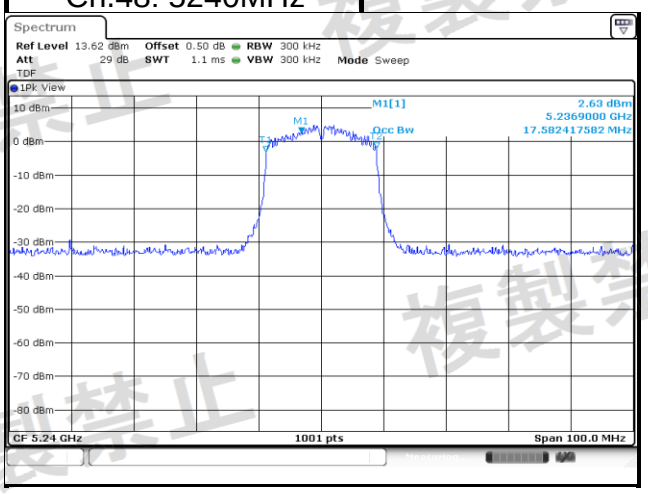
Ch.36: 5180MHz



Ch.40: 5200MHz



Ch.48: 5240MHz

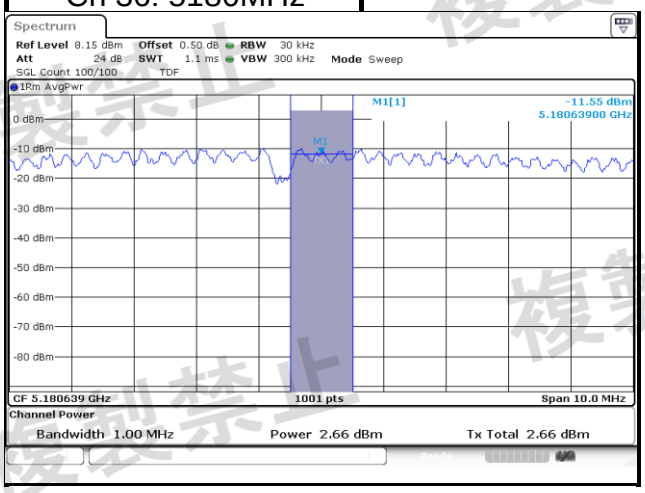


7. Test chart

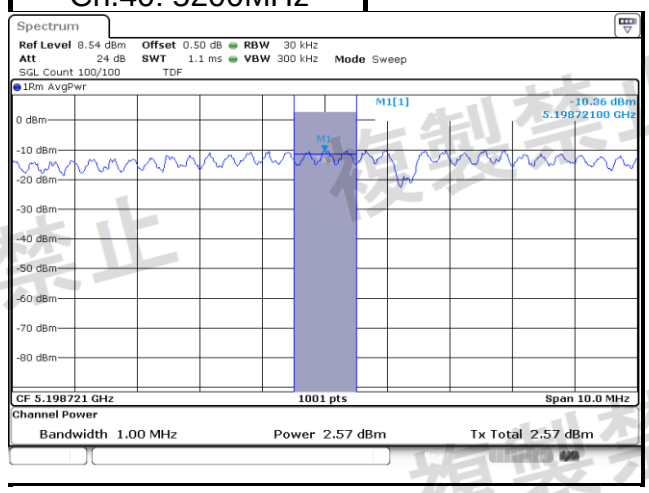
7.4 RF output power tolerance (Rated voltage)

TX1

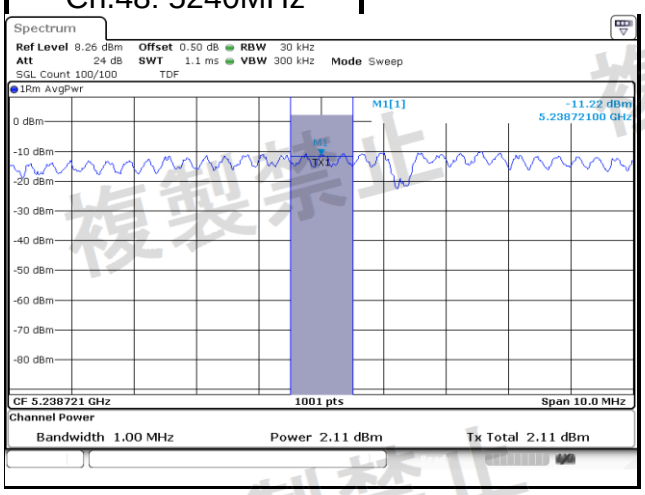
Ch 36: 5180MHz



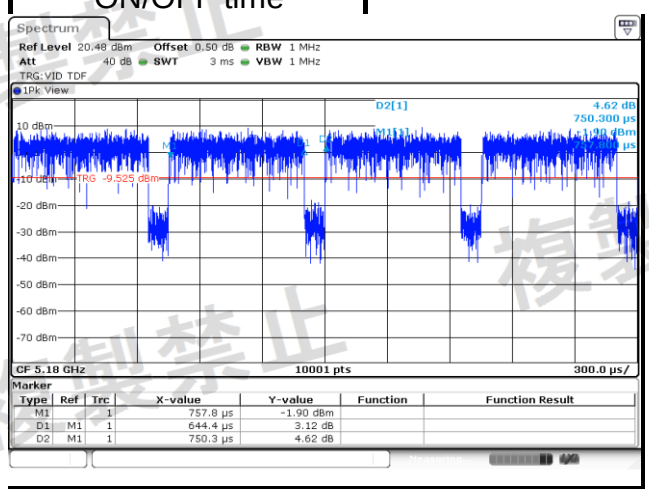
Ch.40: 5200MHz



Ch.48: 5240MHz

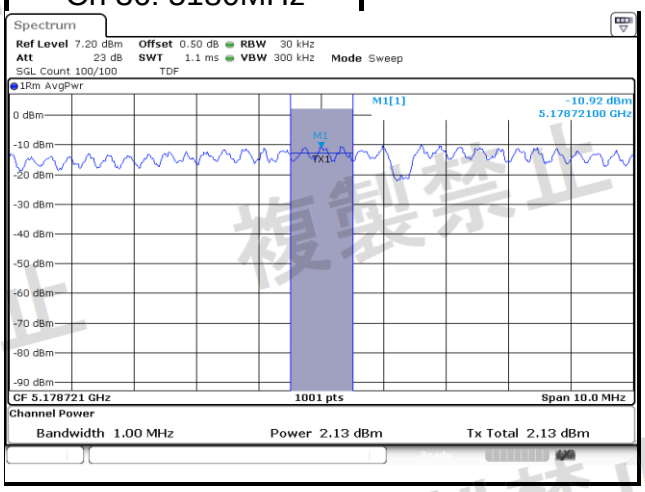


ON/OFF time

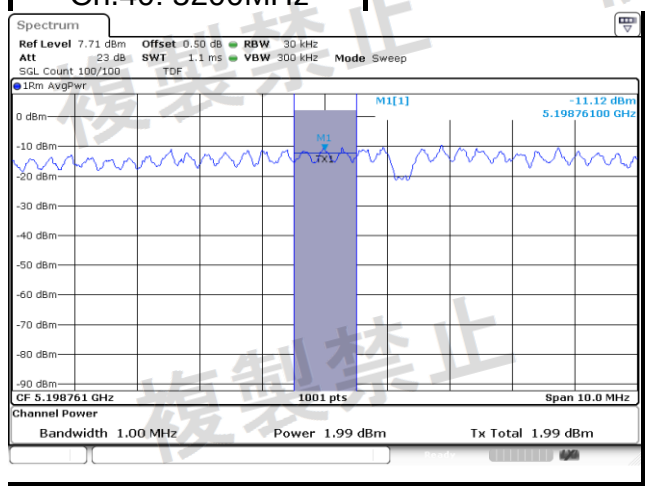


TX2

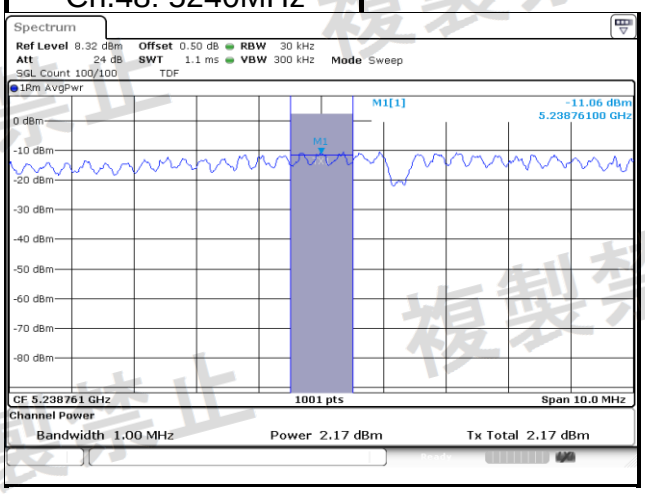
Ch 36: 5180MHz



Ch.40: 5200MHz



Ch.48: 5240MHz



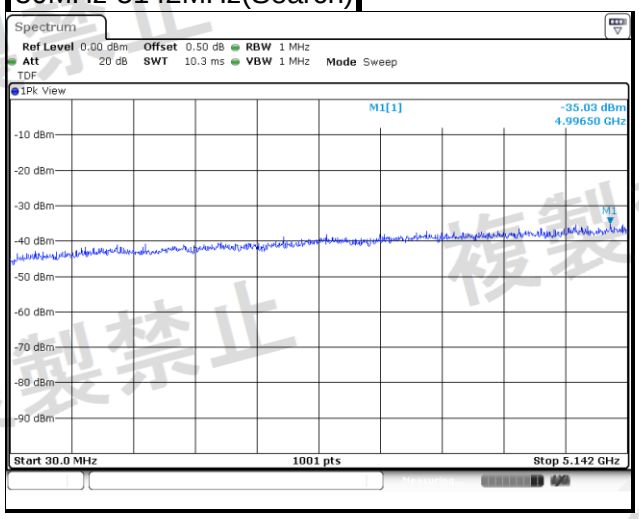
7. Test chart

7.5 Unwanted(Spurious) emission strength (Rated voltage)

Tx1

Ch.36: 5180MHz

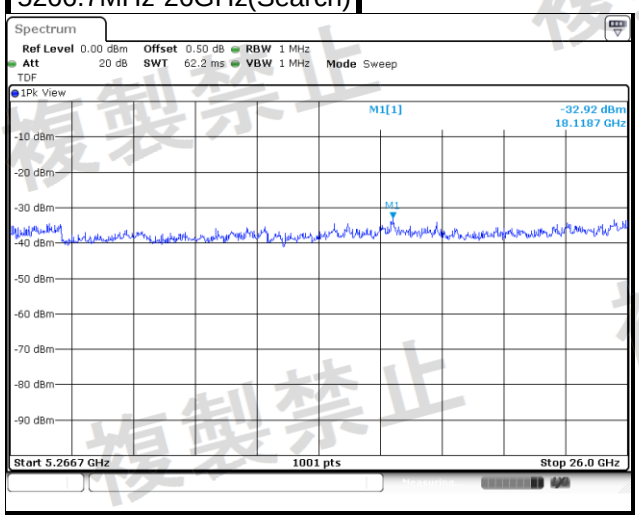
30MHz-5142MHz(Search)



30MHz-5142MHz(Detail)

Blank

5266.7MHz-26GHz(Search)

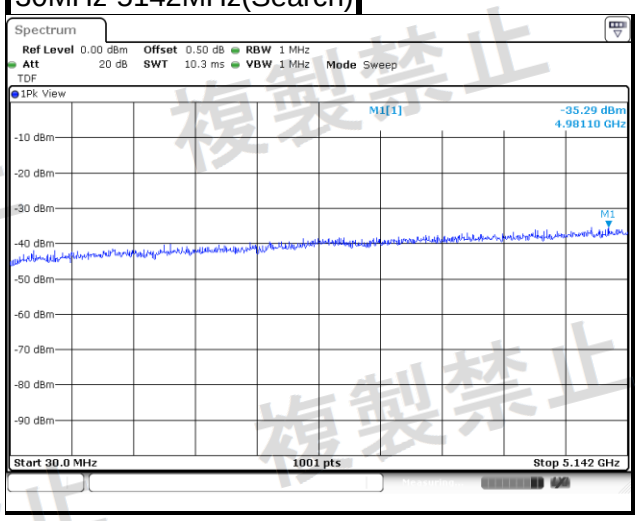


5266.7MHz-26GHz(Detail)

Blank

Ch.40: 5200MHz

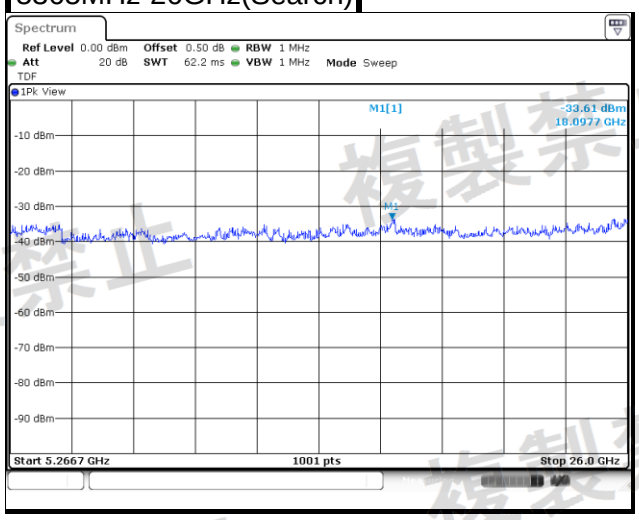
30MHz-5142MHz(Search)



30MHz-5142MHz(Detail)

Blank

5365MHz-26GHz(Search)

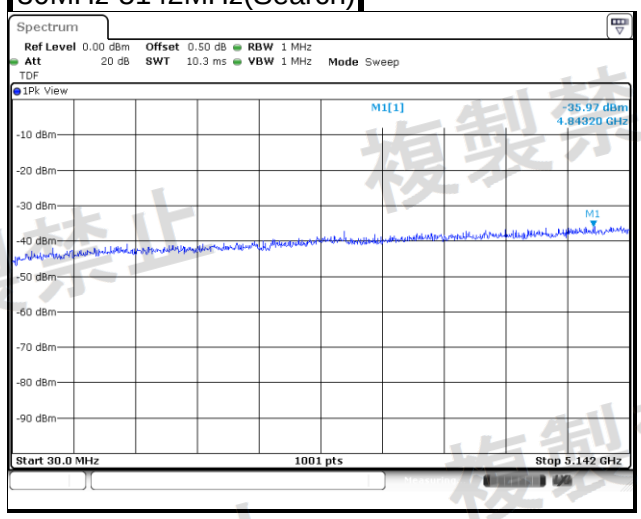


5266.7MHz-26GHz(Detail)

Blank

Ch.48: 5240MHz

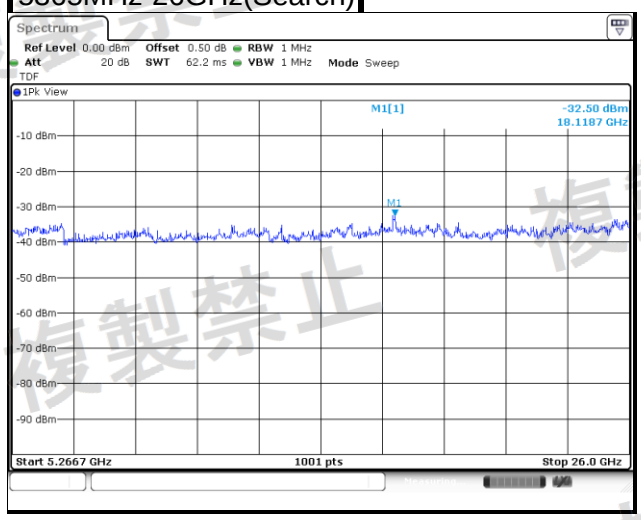
30MHz-5142MHz(Search)



30MHz-5142MHz(Detail)

Blank

5365MHz-26GHz(Search)



5266.7MHz-26GHz(Detail)

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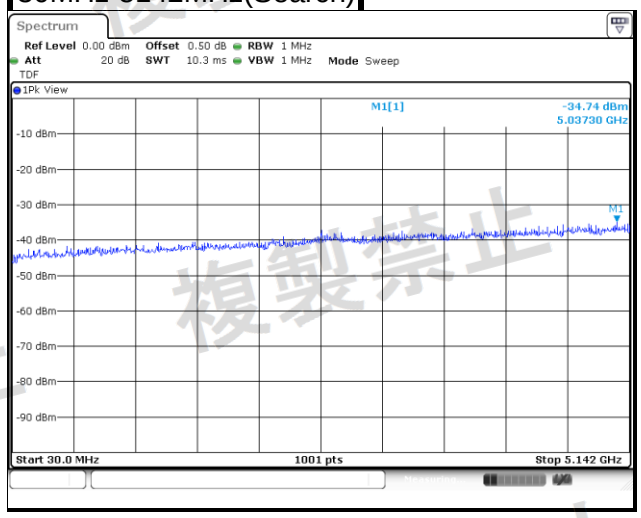
Tx2

Ch.36: 5180MHz

30MHz-5142MHz(Search)



30MHz-5142MHz(Detail)

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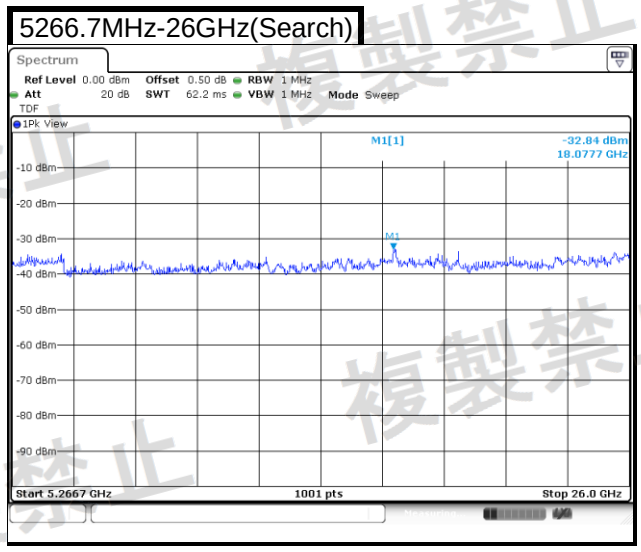
5266.7MHz-26GHz(Search)



5266.7MHz-26GHz(Detail)

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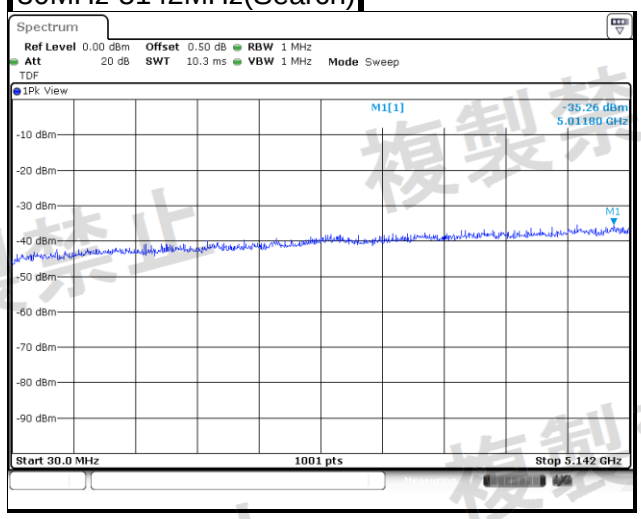
Ch.40: 5200MHz

30MHz-5142MHz(Search)



30MHz-5142MHz(Detail)

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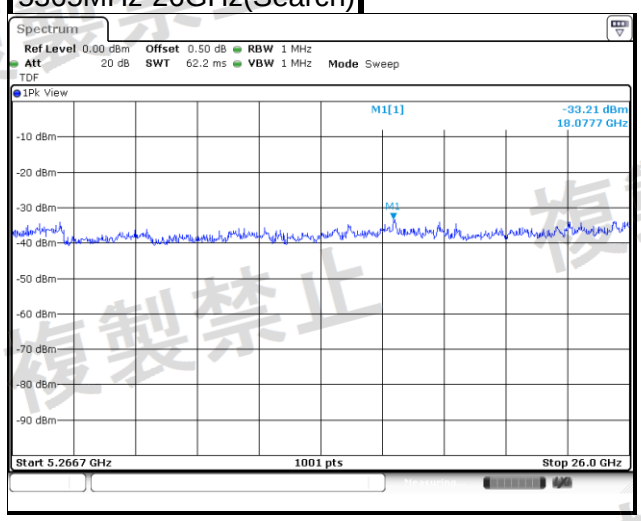
5365MHz-26GHz(Search)



5266.7MHz-26GHz(Detail)

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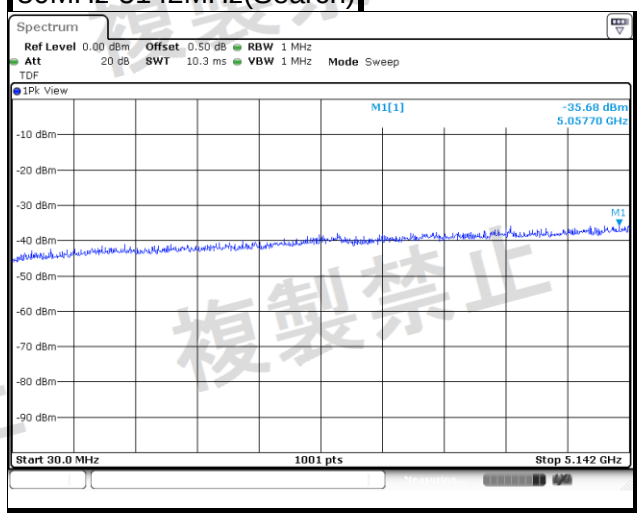
Ch.48: 5240MHz

30MHz-5142MHz(Search)



30MHz-5142MHz(Detail)

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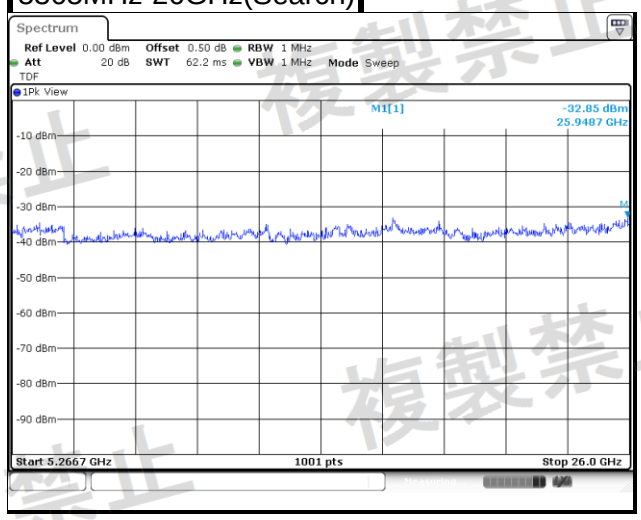
5365MHz-26GHz(Search)



5266.7MHz-26GHz(Detail)

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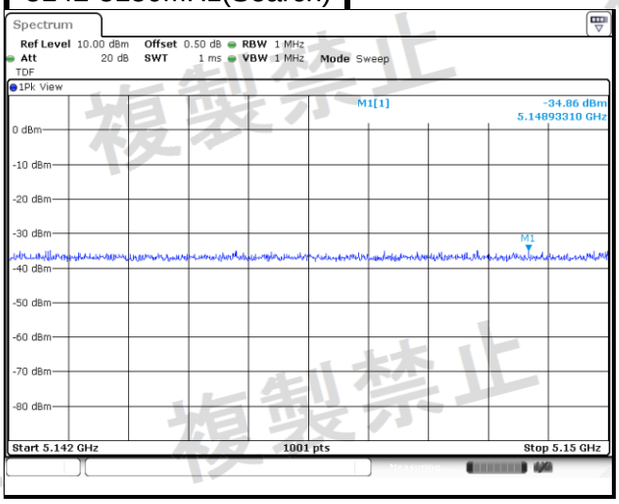
7. Test chart

7.6 Out-Band Leakage Power (Rated voltage)

Tx1

Ch.36: 5180MHz

5142-5150MHz(Search)



5142-5150MHz(Detail)

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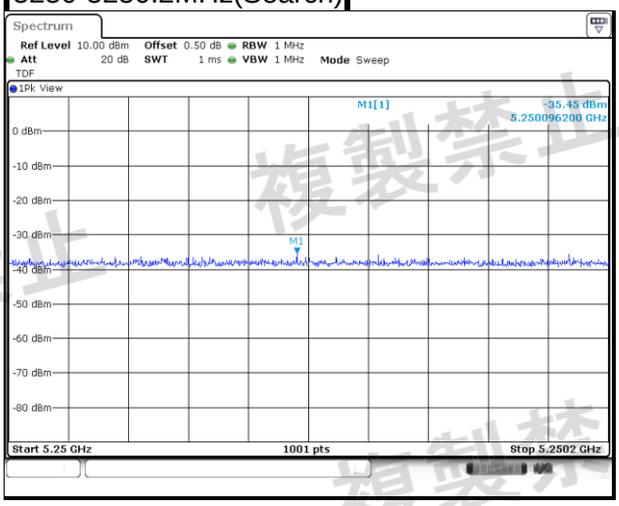
5250-5250.2MHz(Search)



5250-5250.2MHz(Detail)

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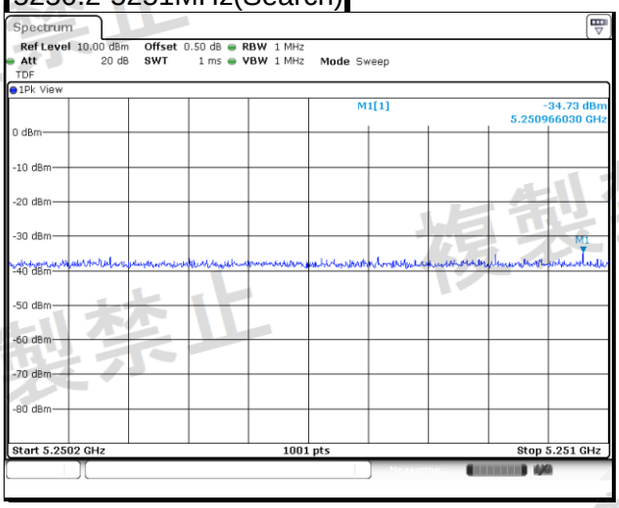
5250.2-5251MHz(Search)



5250.2-5251MHz(Detail)

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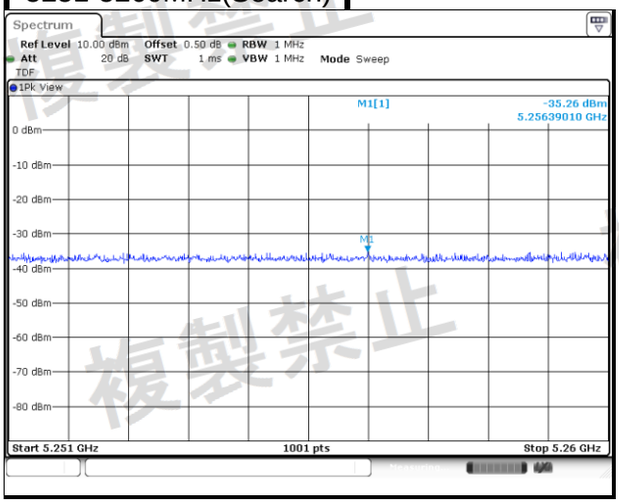
5251-5260MHz(Search)



5251-5260MHz(Detail)

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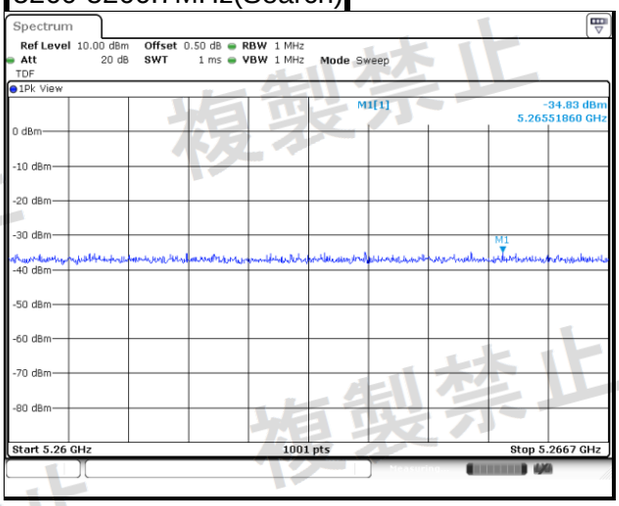
5260-5266.7MHz(Search)



5260-5266.7MHz(Detail)

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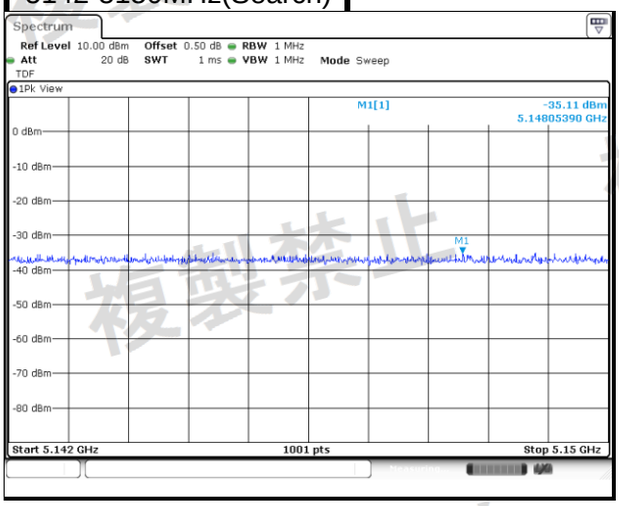
Ch.40: 5200MHz

5142-5150MHz(Search)



5142-5150MHz(Detail)

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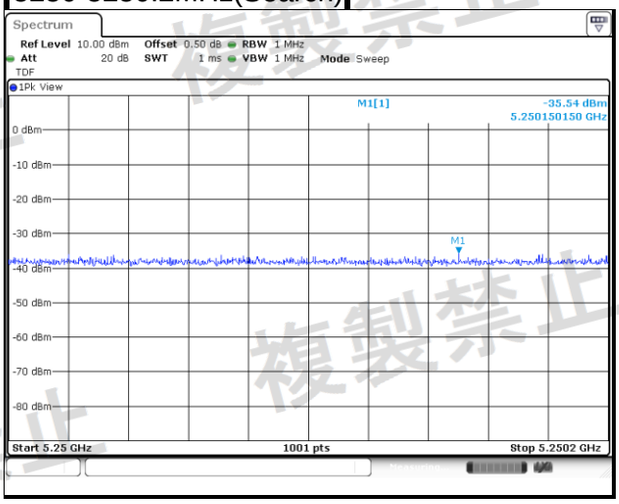
5250-5250.2MHz(Search)



5250-5250.2MHz(Detail)

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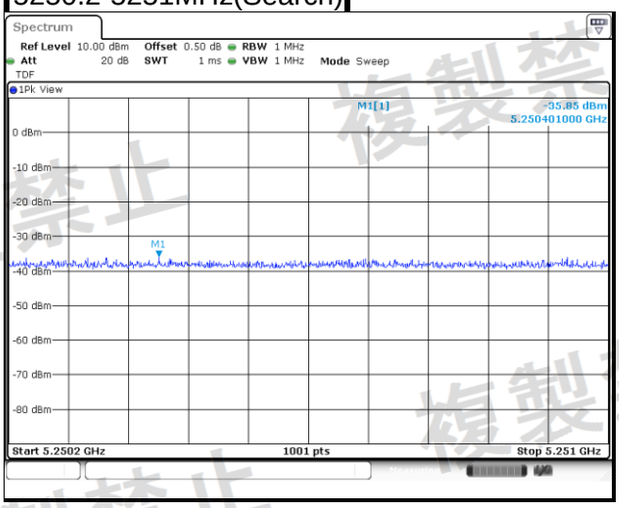
5250.2-5251MHz(Search)



5250.2-5251MHz(Detail)

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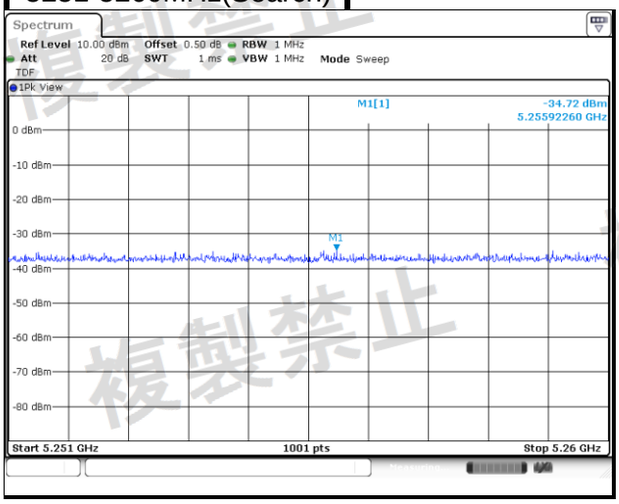
5251-5260MHz(Search)



5251-5260MHz(Detail)

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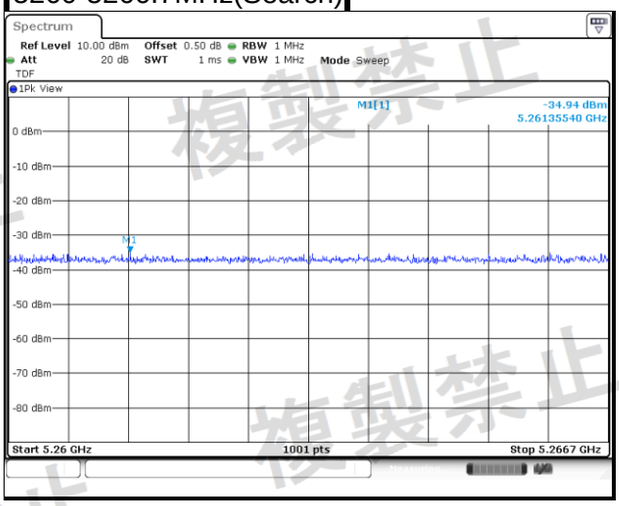
5260-5266.7MHz(Search)



5260-5266.7MHz(Detail)

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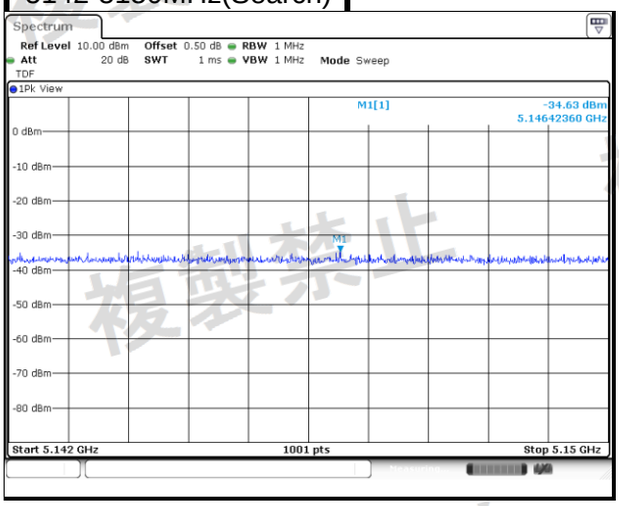
Ch.48: 5240MHz

5142-5150MHz(Search)



5142-5150MHz(Detail)

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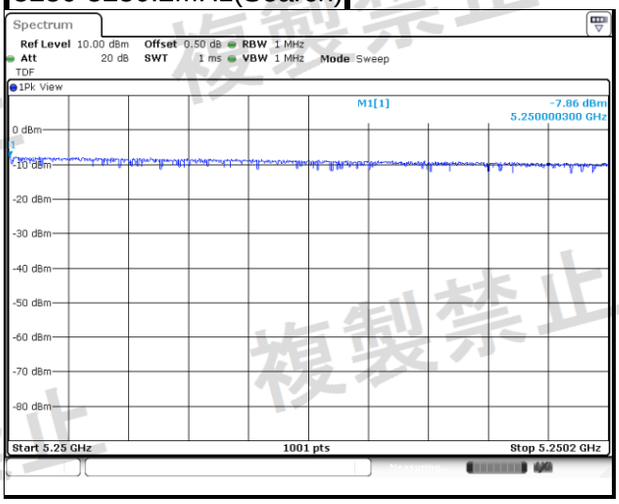
5250-5250.2MHz(Search)



5250-5250.2MHz(Detail)

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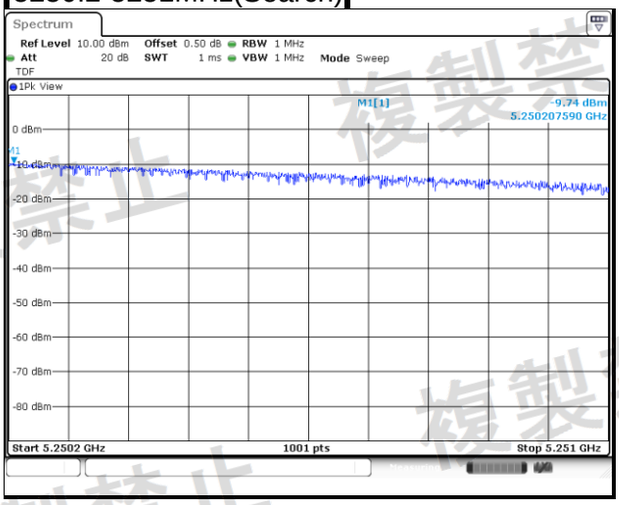
5250.2-5251MHz(Search)



5250.2-5251MHz(Detail)

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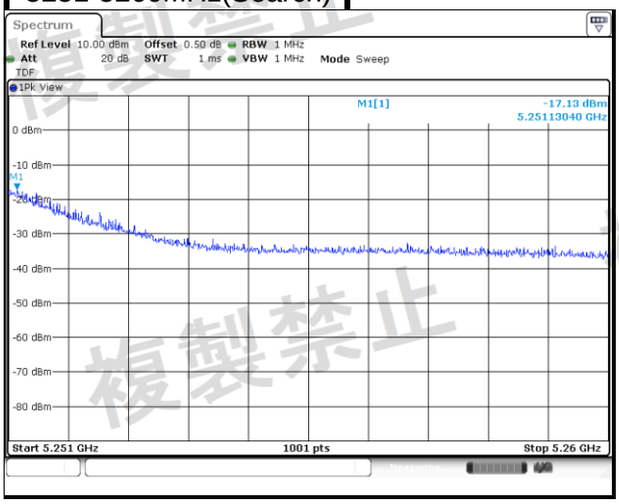
5251-5260MHz(Search)



5251-5260MHz(Detail)

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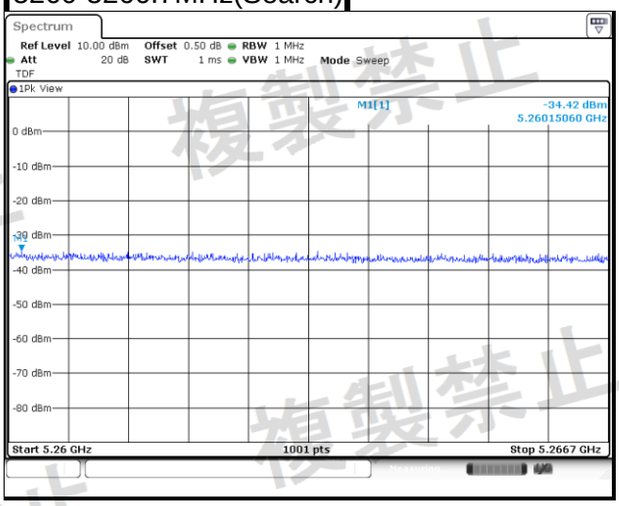
5260-5266.7MHz(Search)



5260-5266.7MHz(Detail)

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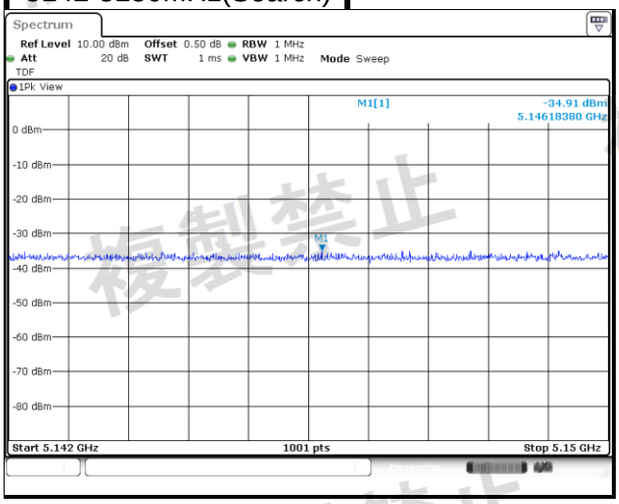
Tx2

Ch.36: 5180MHz

5142-5150MHz(Search)



5142-5150MHz(Detail)

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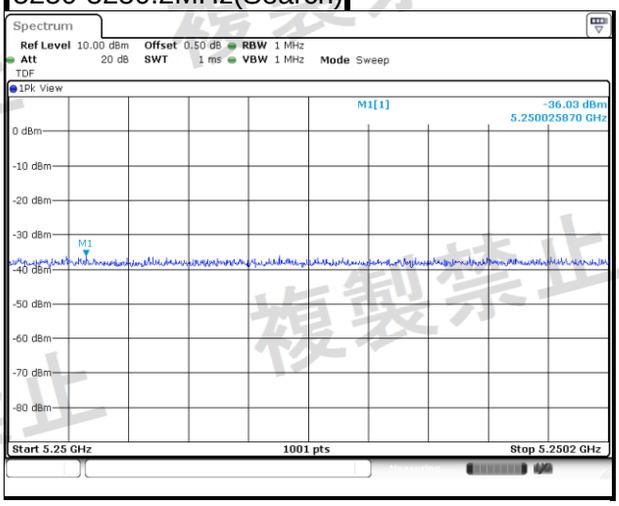
5250-5250.2MHz(Search)



5250-5250.2MHz(Detail)

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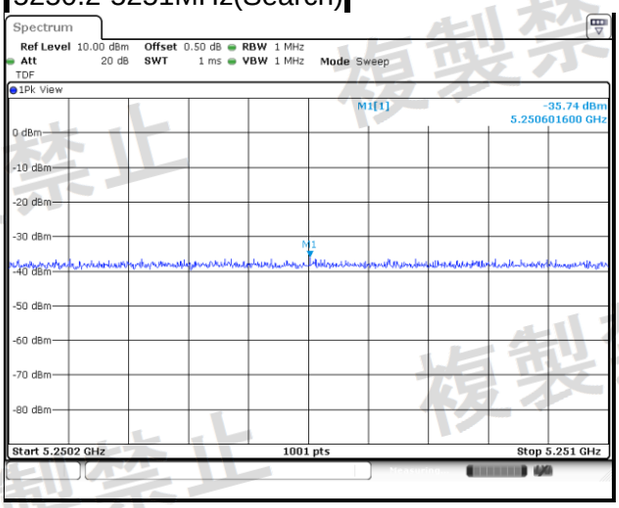
5250.2-5251MHz(Search)



5250.2-5251MHz(Detail)

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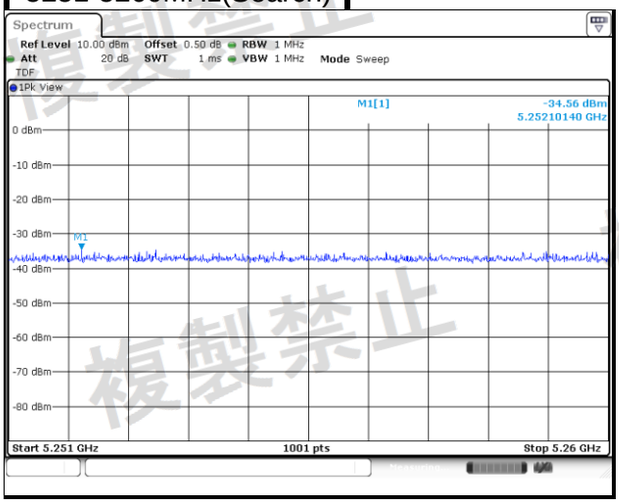
5251-5260MHz(Search)



5251-5260MHz(Detail)

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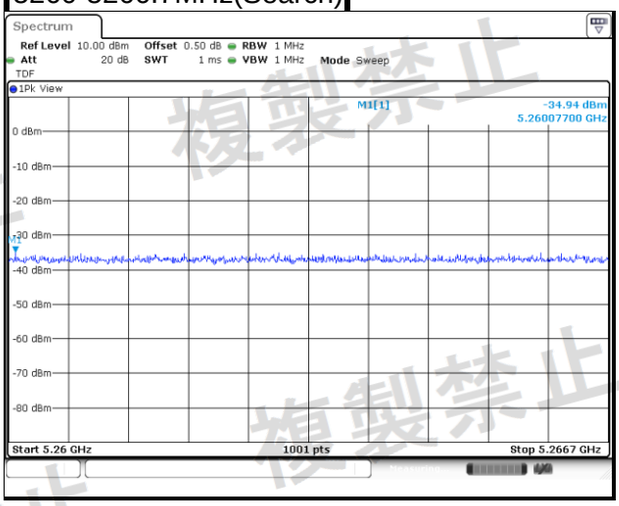
5260-5266.7MHz(Search)



5260-5266.7MHz(Detail)

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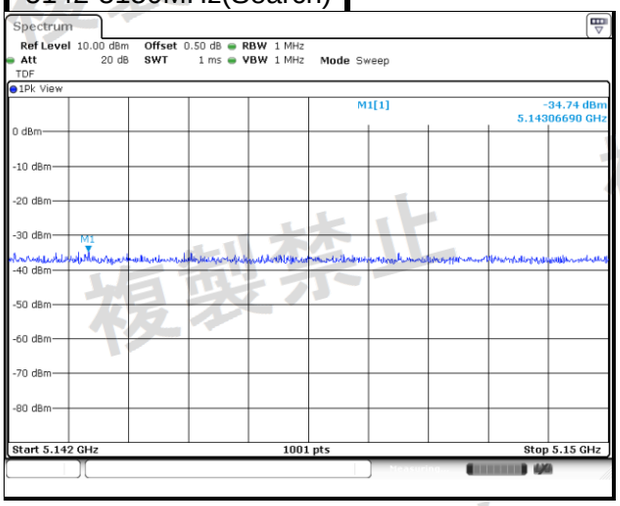
Ch.40: 5200MHz

5142-5150MHz(Search)



5142-5150MHz(Detail)

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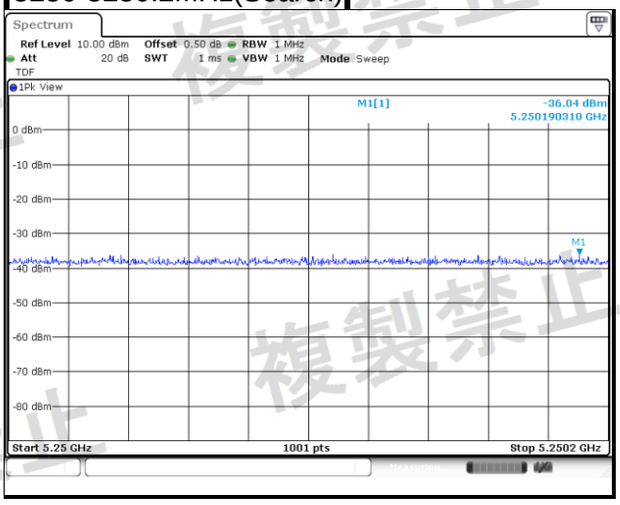
5250-5250.2MHz(Search)



5250-5250.2MHz(Detail)

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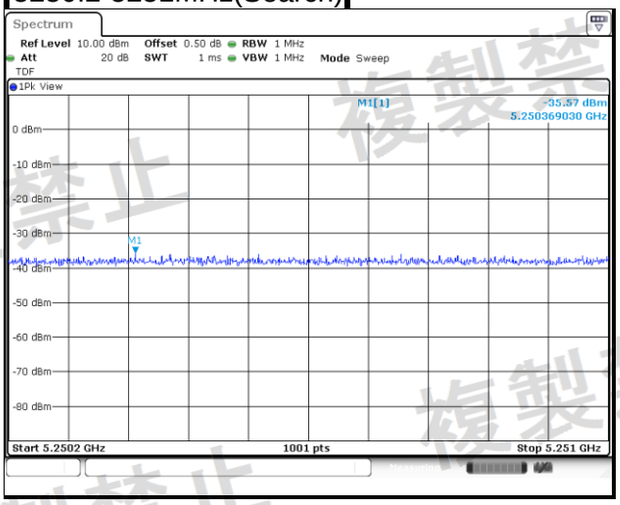
5250.2-5251MHz(Search)



5250.2-5251MHz(Detail)

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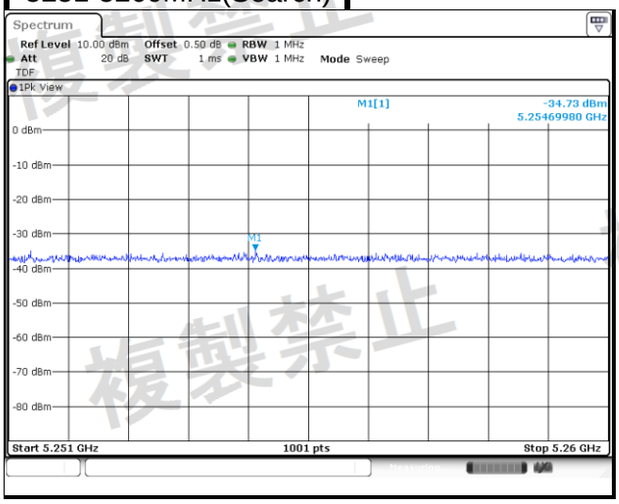
5251-5260MHz(Search)



5251-5260MHz(Detail)

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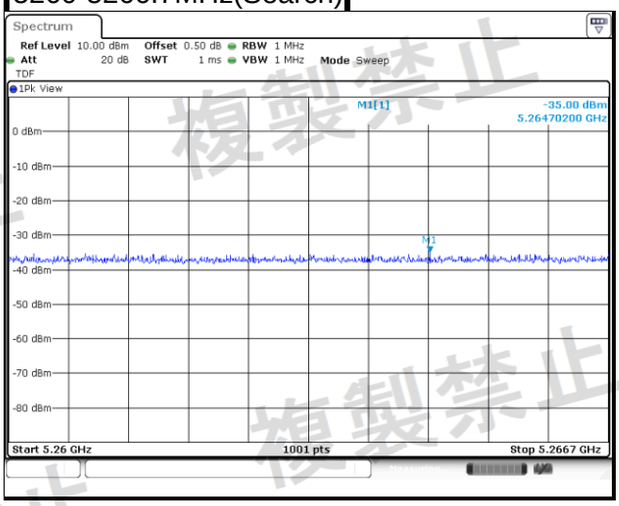
5260-5266.7MHz(Search)



5260-5266.7MHz(Detail)

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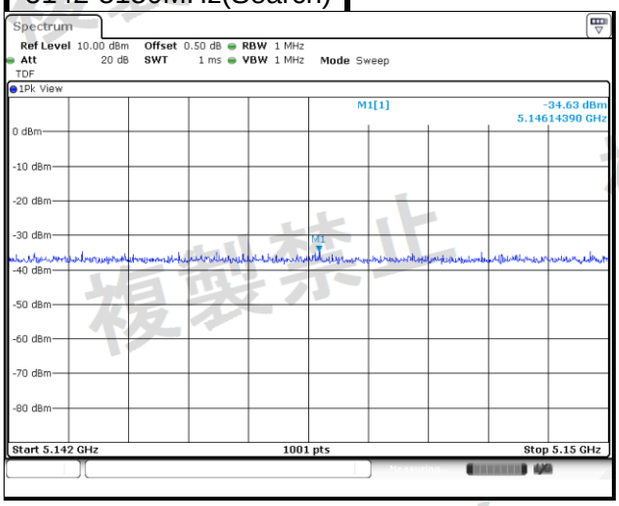
Ch.48: 5240MHz

5142-5150MHz(Search)



5142-5150MHz(Detail)

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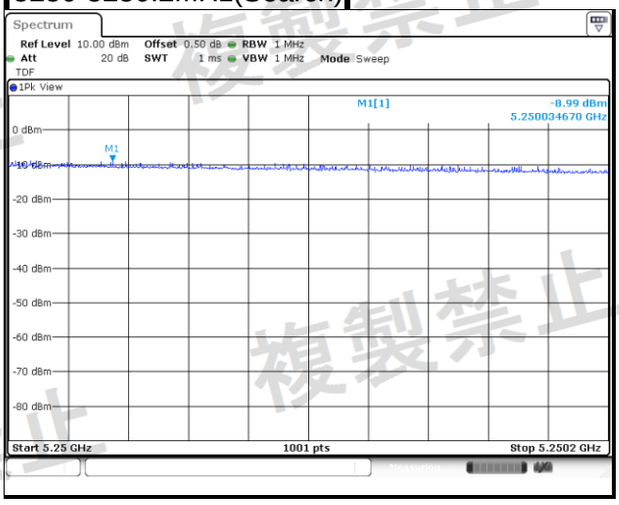
5250-5250.2MHz(Search)



5250-5250.2MHz(Detail)

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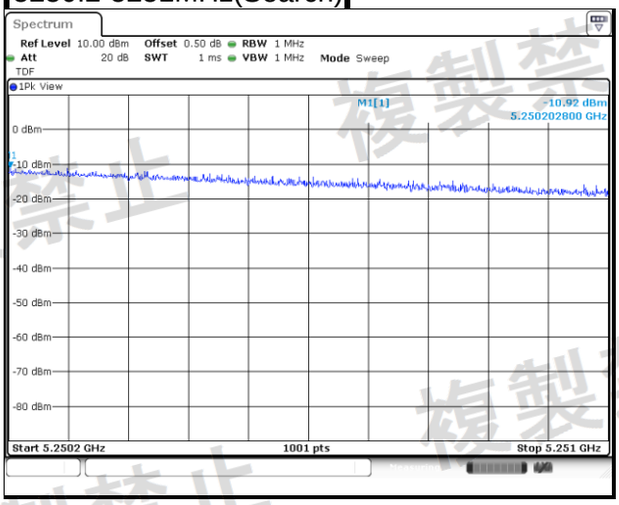
5250.2-5251MHz(Search)



5250.2-5251MHz(Detail)

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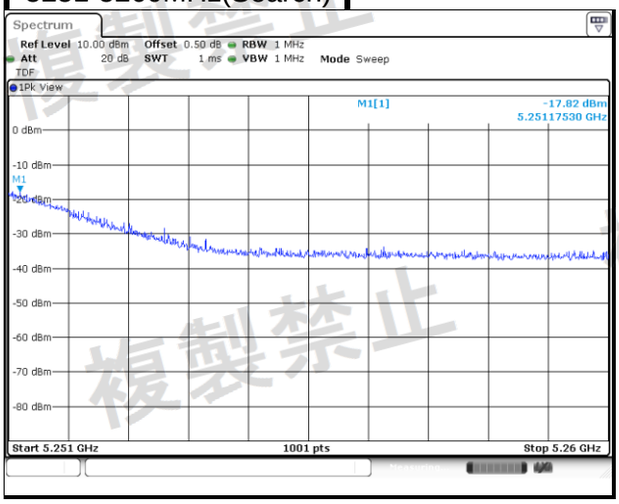
5251-5260MHz(Search)



5251-5260MHz(Detail)

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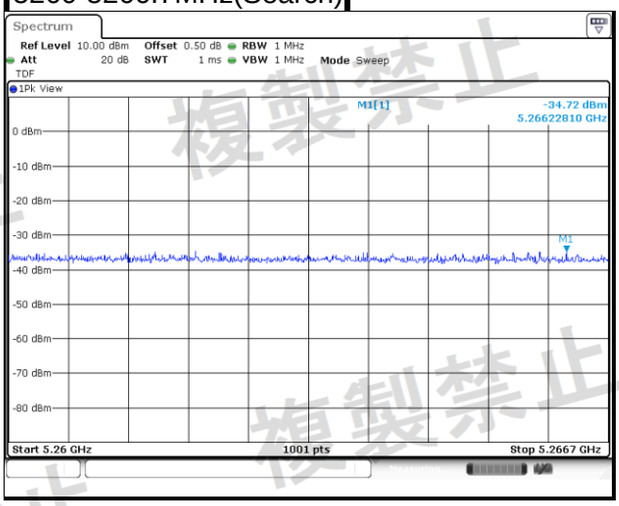
5260-5266.7MHz(Search)



5260-5266.7MHz(Detail)

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3. Test results (Rated voltage)

S/N : 563b88ad

Environment of test room	Date of test	2022-02-04	2022-02-05	2022-02-06	2022-02-16
	Temperature	21 °C	20 °C	21 °C	23 °C
	Humidity	51 %	51 %	52 %	52 %

Peak Antenna Gain	-7.99	dBi
Beamforming Gain	3.00	dB
Peak Antenna Gain + Beamforming Gain	-4.99	dBi
Declaration Output Power	5.00	mW/MHz
	6.99	dBm/MHz
E.I.R.P	**1.58**	mW/MHz
	2.00	**dBm/MHz**
Input Power Voltage	3.86	VDC

Test category		IEEE802.11ac VHT40 / MIMO(2TX)	
Tested Circit Insertion Loss		0.00	dB
Transmission Time	ON TIME (1sec or less)	0.31	ms
	OFF TIME (0.1sec or more)	0.12	ms
	Ratio	0.72	%

Using TDF and offset function in Spectrum Analyz

Measurement of plots are included Loss value.

Offset : EUT cable(0.5dB)

Test category :	5GHz Band Low-Power Data Communication System (802.11ac VHT40 W52/MIMO(2TX))_Beamforming
The reason why the tests are performed only at rated voltage:	The fluctuation of input voltage to the circuit of the radio part of the equipment to be tested is identified as being less than ±1 % when input voltage from an external supply into the equipment fluctuates ±10 %.

Measurement Channel	Ch.	38	46		
Measurement Frequency	MHz	5190	5230	Result	Limit
RF Output Power(Tx1)	mW/MHz	0.83	1.48	**PASS**	5mW/MHz or below
RF Output Power(Tx2)	mW/MHz	0.70	0.96	**PASS**	5mW/MHz or below
RF Output Power (Tx1+2)	mW/MHz	1.53	2.44	**PASS**	5mW/MHz or below
RF Output Power Tolerance (Tx1+2)	%	-69.50	-51.29	**PASS**	+20% to -80%

Measurement Channel		Ch.	38	46		
Measurement Frequency		MHz	5190	5230	Result	Limit
Unwanted (Spurious) Emission Strength (Tx1)	30MHz to 5141.6MHz	uW/MHz	0.09	0.10	**PASS**	2.5uW/MHz or below
		MHz	4689.70	5088.00	----	----
	5278.4MHz to 26GHz	uW/MHz	0.16	0.14	**PASS**	2.5uW/MHz or below
		MHz	17771.40	18144.40	----	----
Unwanted (Spurious) Emission Strength (Tx2)	30MHz to 5141.6MHz	uW/MHz	0.08	0.12	**PASS**	2.5uW/MHz or below
		MHz	4985.90	5067.60	----	----
	5278.4MHz to 26GHz	uW/MHz	0.15	0.13	**PASS**	2.5uW/MHz or below
		MHz	25534.40	25596.40	----	----
Unwanted (Spurious) Emission Strength (Tx1+2)	30MHz to 5141.6MHz	uW/MHz	0.17	0.22	**PASS**	2.5uW/MHz or below
		----	----	----	----	----
	5278.4MHz to 26GHz	uW/MHz	0.31	0.28	**PASS**	2.5uW/MHz or below
		----	----	----	----	----

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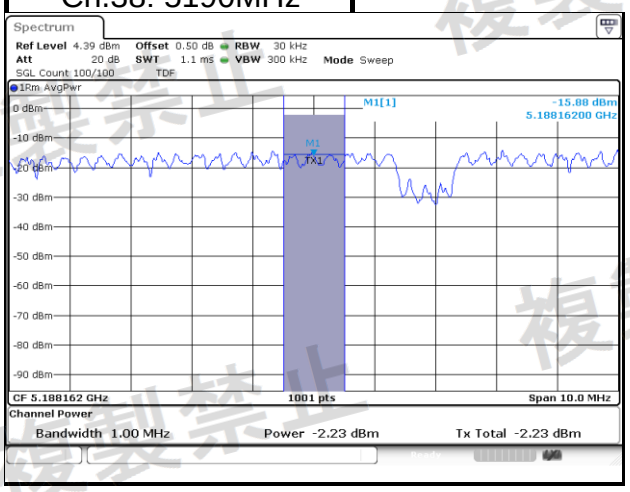
Measurement Channel		Ch.	38	46		
Measurement Frequency		MHz	5190	5230	Result	Limit
Out-band of Leakage Power (Tx1)	5141.6 to 5150MHz	uW/MHz	0.14	0.10	**PASS**	15uW/MHz or below
		MHz	5142.45	5148.83	----	----
	5250 to 5251MHz	uW/MHz	0.09	9.42	**PASS**	$10^{-(f-20)+\log(1/2)}$mW/MHz or below
		MHz	5250.34	5250.03	----	----
	Limit	uW/MHz	230.66	463.41	----	----
	5251 to 5270MHz	uW/MHz	0.10	1.30	**PASS**	$10^{-(8/190)(f-21)-1+\log(1/2)}$mW/MHz or below
		MHz	5262.19	5251.09	----	----
	Limit	uW/MHz	16.90	49.59	----	----
	5270 to 5278.4MHz	uW/MHz	0.10	0.11	**PASS**	$10^{-(3/50)(f-40)-1.8+\log(1/2)}$mW/MHz or below
		MHz	5276.02	5277.73	----	----
	Limit	uW/MHz	3.45	2.73	----	----
Out-band of Leakage Power (Tx2)	5141.6 to 5150MHz	uW/MHz	0.10	0.10	**PASS**	15uW/MHz or below
		MHz	5141.95	5148.92	----	----
	5250 to 5251MHz	uW/MHz	0.09	6.68	**PASS**	$10^{-(f-20)+\log(1/2)}$mW/MHz or below
		MHz	5250.52	5250.02	----	----
	Limit	uW/MHz	151.00	481.91	----	----
	5251 to 5270MHz	uW/MHz	0.10	1.60	**PASS**	$10^{-(8/190)(f-21)-1+\log(1/2)}$mW/MHz or below
		MHz	5257.82	5251.26	----	----
	Limit	uW/MHz	25.80	48.77	----	----
	5270 to 5278.4MHz	uW/MHz	0.10	0.12	**PASS**	$10^{-(3/50)(f-40)-1.8+\log(1/2)}$mW/MHz or below
		MHz	5278.18	5277.52	----	----
	Limit	uW/MHz	2.56	2.80	----	----
Out-band of Leakage Power (Tx1+2)	5141.6 to 5150MHz	uW/MHz	0.24	0.20	**PASS**	15uW/MHz or below
		----	----	----	----	----
	5250 to 5251MHz	uW/MHz	0.17	16.10	**PASS**	$10^{-(f-20)+\log(1/2)}$mW/MHz or below
		MHz	5250.52	5250.03	----	----
	Limit	uW/MHz	151.00	463.41	----	----
	5251 to 5270MHz	uW/MHz	0.20	2.91	**PASS**	$10^{-(8/190)(f-21)-1+\log(1/2)}$mW/MHz or below
		MHz	5262.19	5251.26	----	----
	Limit	uW/MHz	16.90	48.77	----	----
	5270 to 5278.4MHz	uW/MHz	0.20	0.23	**PASS**	$10^{-(3/50)(f-40)-1.8+\log(1/2)}$mW/MHz or below
		MHz	5278.18	5277.73	----	----
	Limit	uW/MHz	2.56	2.73	----	----

7. Test chart

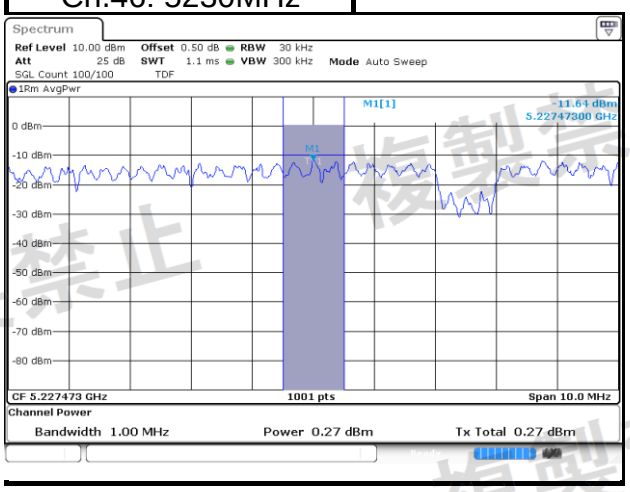
7.4 RF output power tolerance (Rated voltage)

TX1

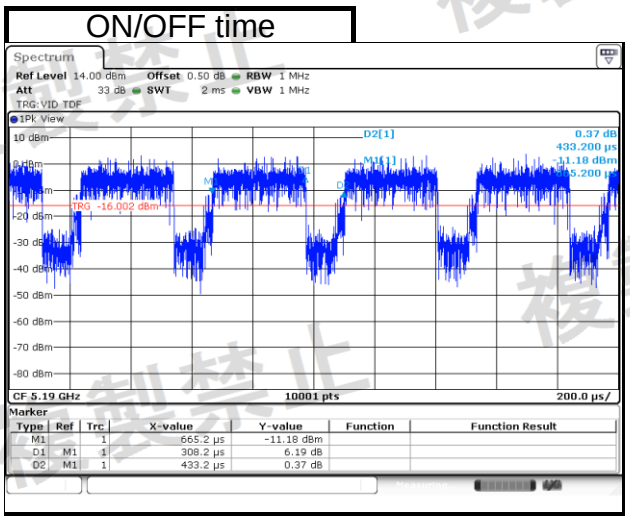
Ch.38: 5190MHz



Ch.46: 5230MHz

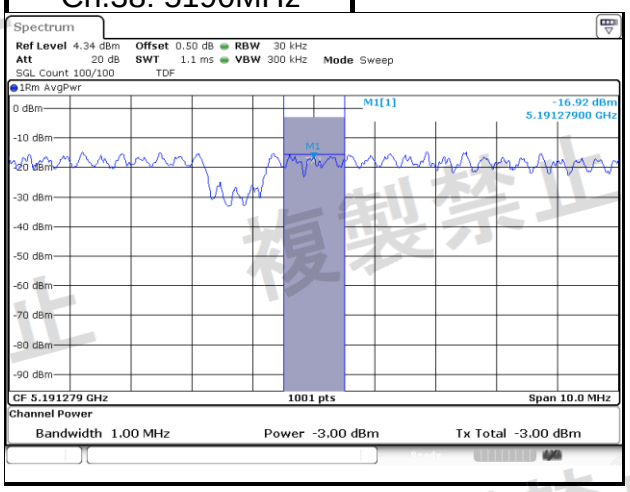


ON/OFF time

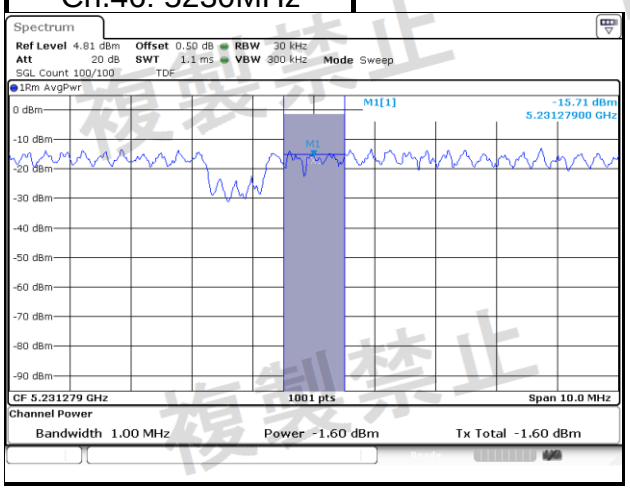


TX2

Ch.38: 5190MHz



Ch.46: 5230MHz



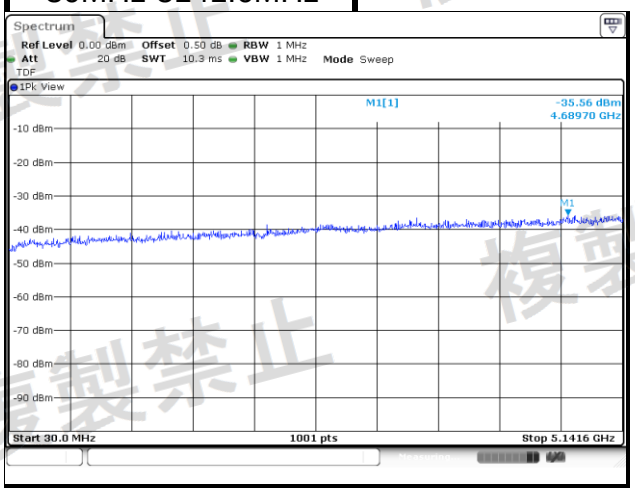
7. Test chart

7.5 Unwanted(Spurious) emission strength (Rated voltage)

Tx1

Ch.38: 5190MHz

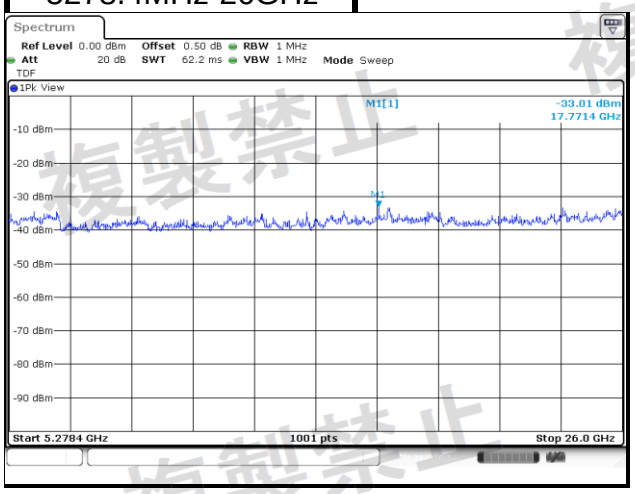
30MHz-5141.6MHz



30MHz-5141.6MHz(Detail)

Blank

5278.4MHz-26GHz

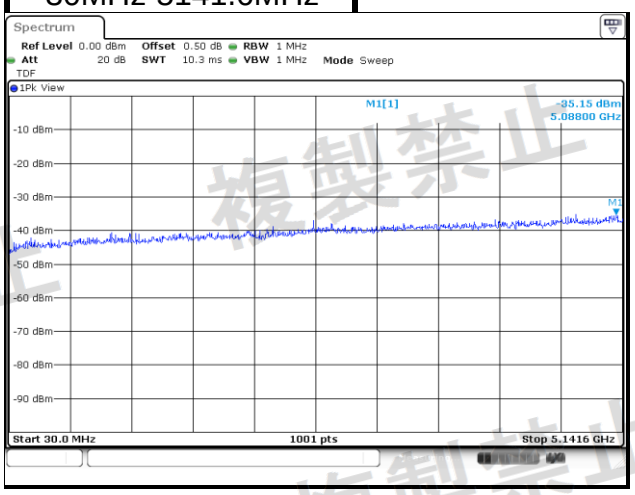


5278.4MHz-26GHz(Detail)

Blank

Ch.46: 5230MHz

30MHz-5141.6MHz



30MHz-5141.6MHz(Detail)

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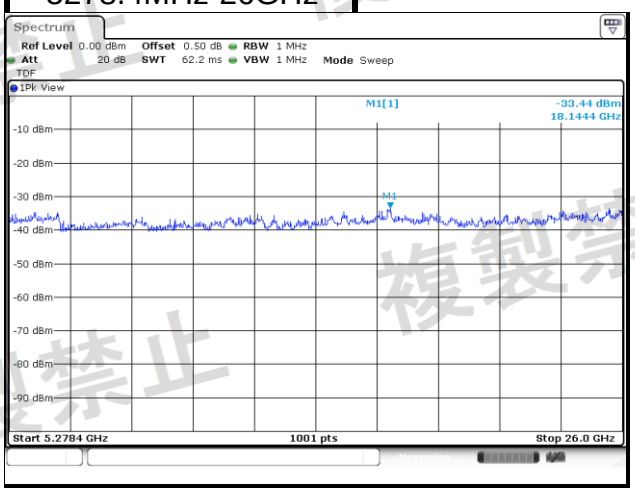
5278.4MHz-26GHz



5278.4MHz-26GHz(Detail)

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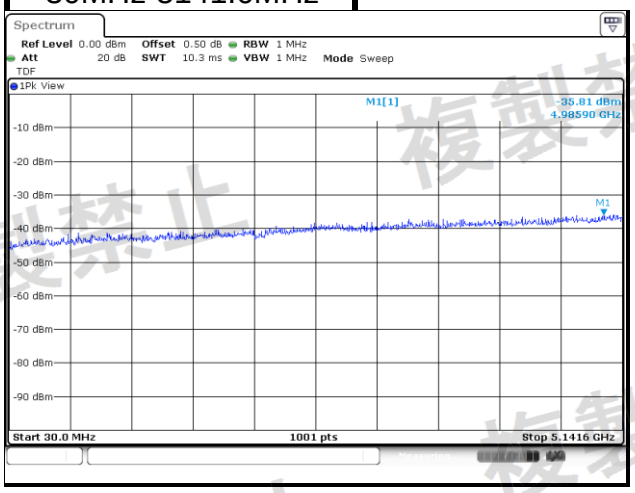
Tx2

Ch.38: 5190MHz

30MHz-5141.6MHz



30MHz-5141.6MHz(Detail)

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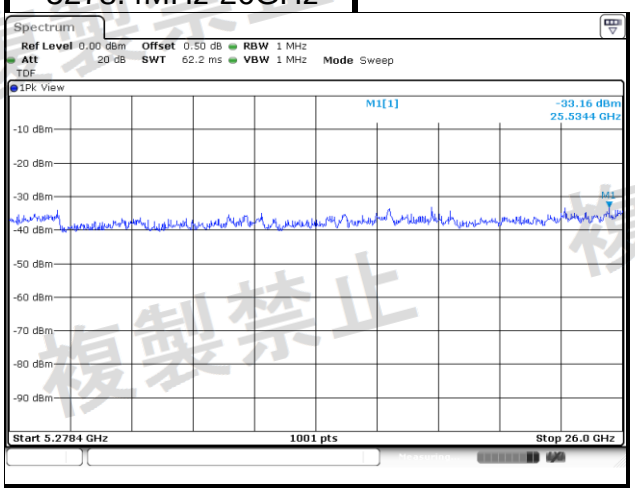
5278.4MHz-26GHz



5278.4MHz-26GHz(Detail)

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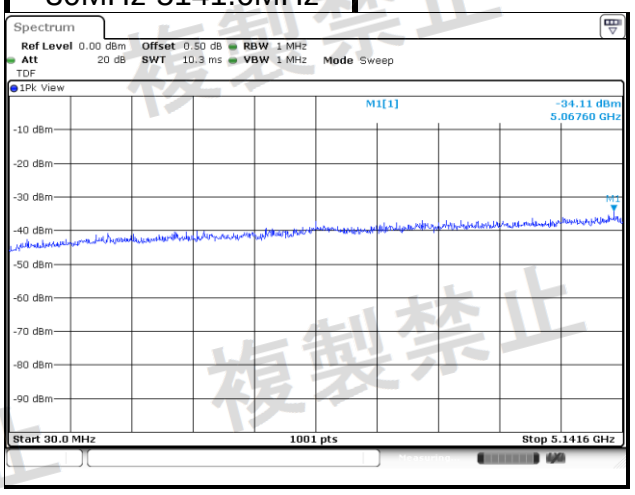
Ch.46: 5230MHz

30MHz-5141.6MHz



30MHz-5141.6MHz(Detail)

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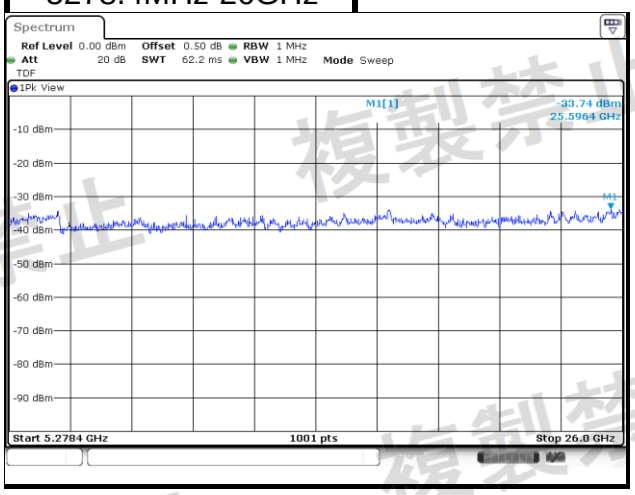
5278.4MHz-26GHz



5278.4MHz-26GHz(Detail)

Blank

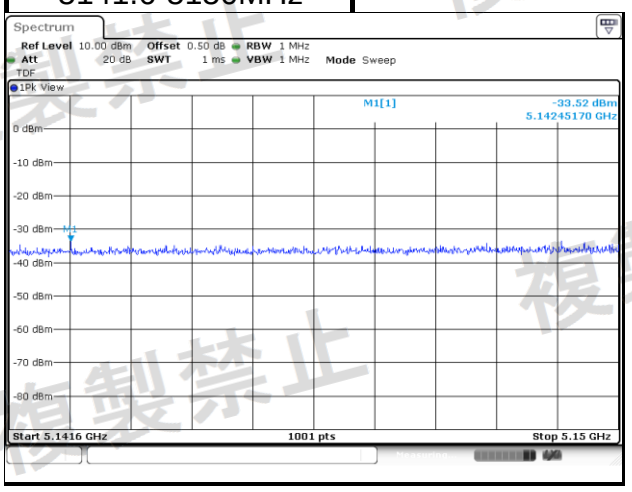
7. Test chart

7.6 Out-Band Leakage Power (Rated voltage)

TX1

Ch.38: 5190MHz

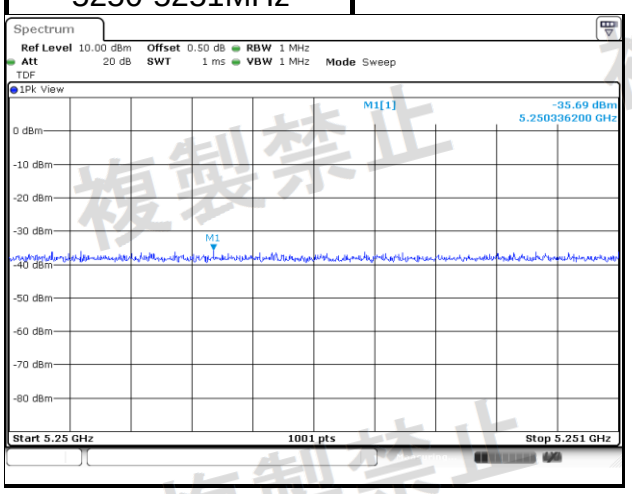
5141.6-5150MHz



5141.6-5150MHz(Detail)

Blank

5250-5251MHz



5250-5251MHz(Detail)

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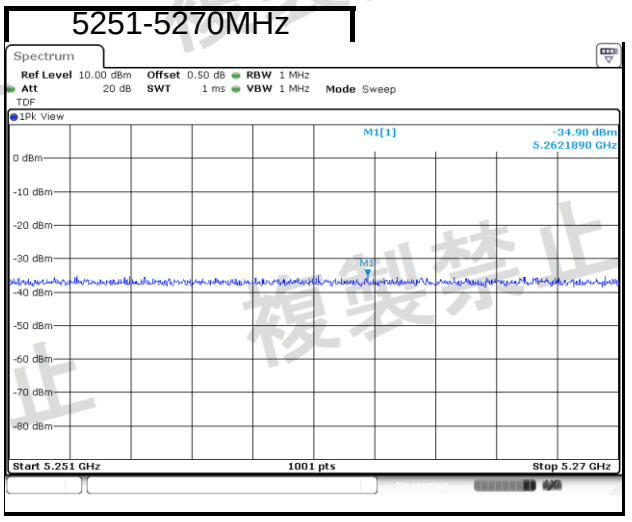
5251-5270MHz



5251-5270MHz(Detail)

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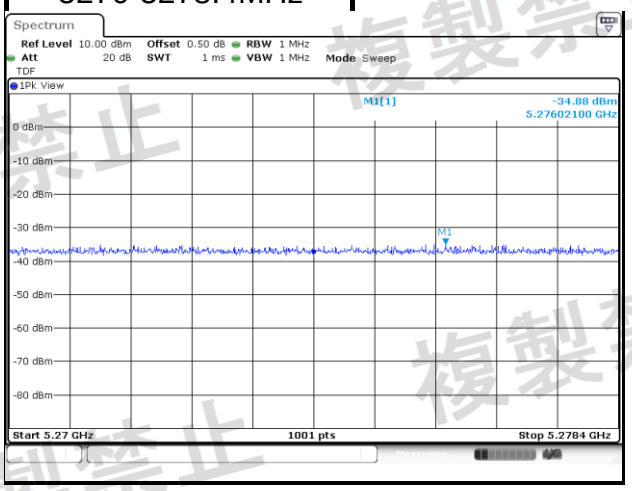
5270-5278.4MHz



5270-5278.4MHz(Detail)

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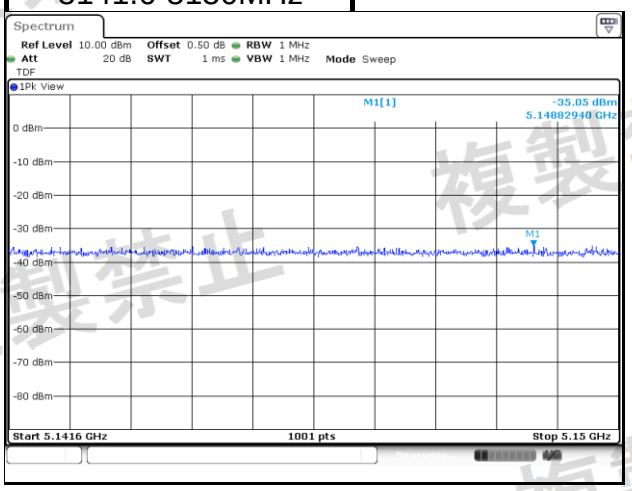
Ch.46: 5230MHz

5141.6-5150MHz



5141.6-5150MHz(Detail)

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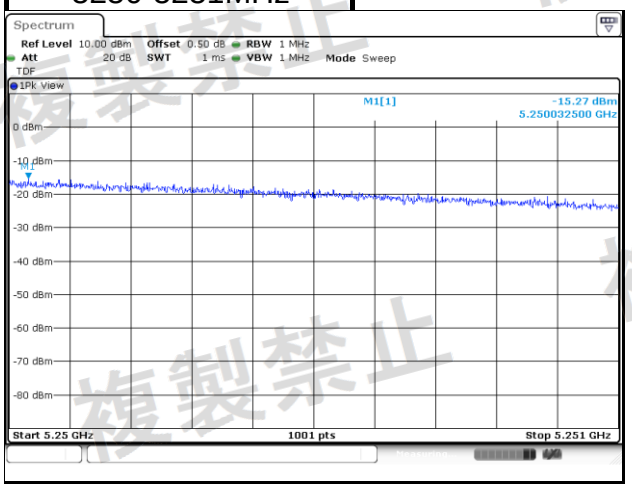
5250-5251MHz



5250-5251MHz(Detail)

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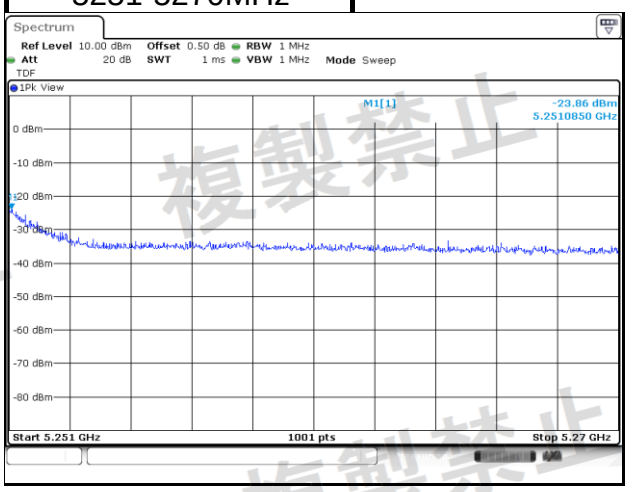
5251-5270MHz



5251-5270MHz(Detail)

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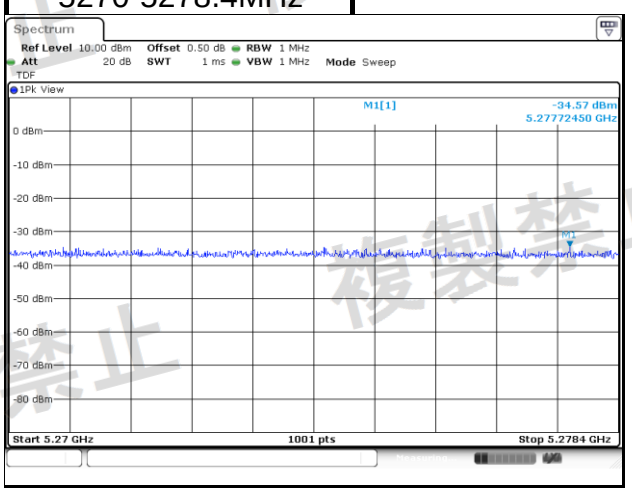
5270-5278.4MHz



5270-5278.4MHz(Detail)

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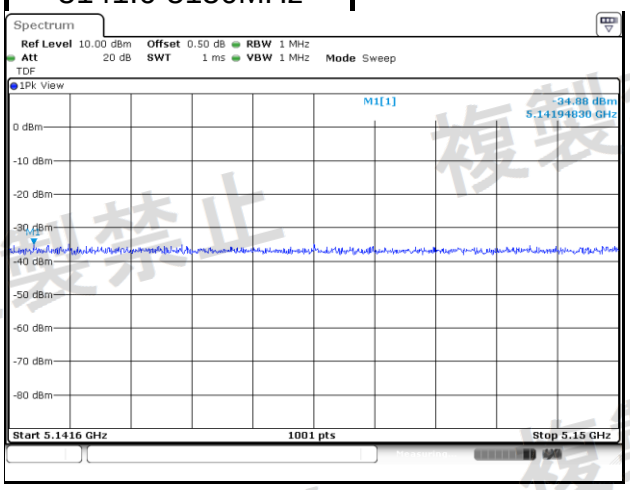
TX2

Ch.38: 5190MHz

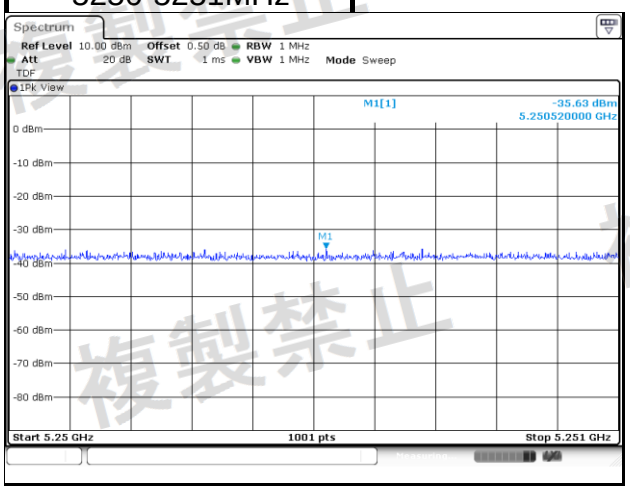
5141.6-5150MHz



5141.6-5150MHz(Detail)

Blank

5250-5251MHz



5250-5251MHz(Detail)

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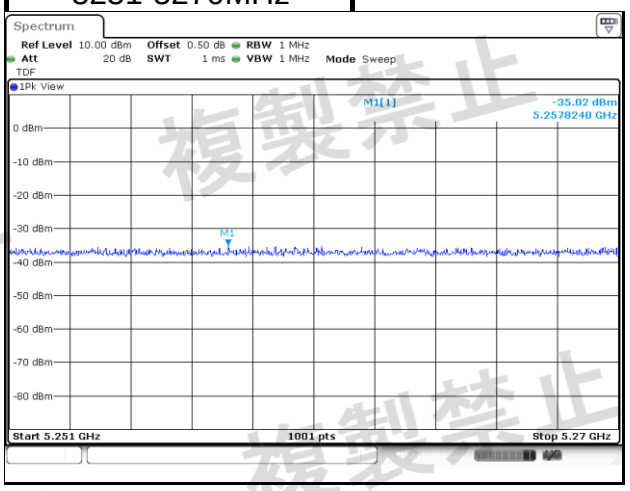
5251-5270MHz



5251-5270MHz(Detail)

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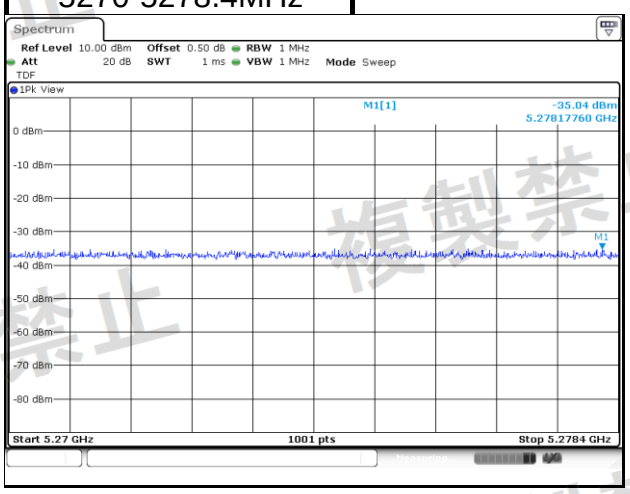
5270-5278.4MHz

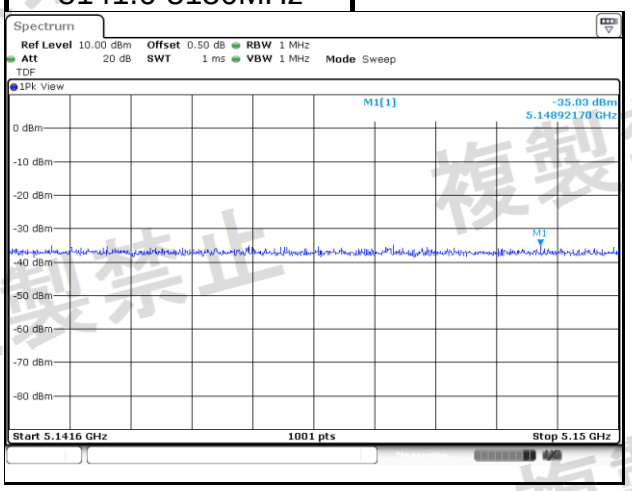


5270-5278.4MHz(Detail)

Blank

Ch.46: 5230MHz

5141.6-5150MHz



5141.6-5150MHz(Detail)

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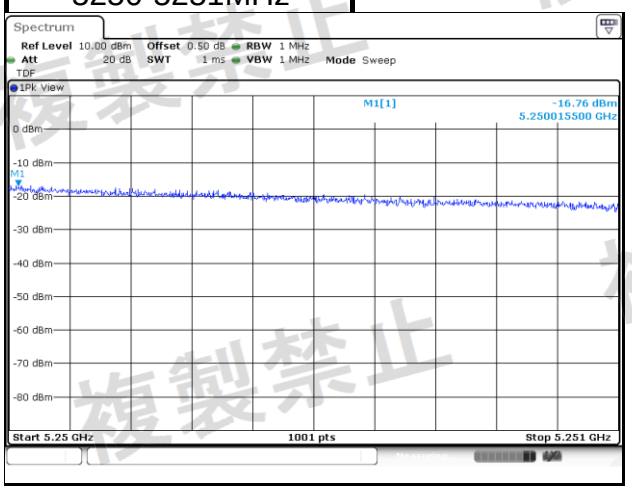
5250-5251MHz



5250-5251MHz(Detail)

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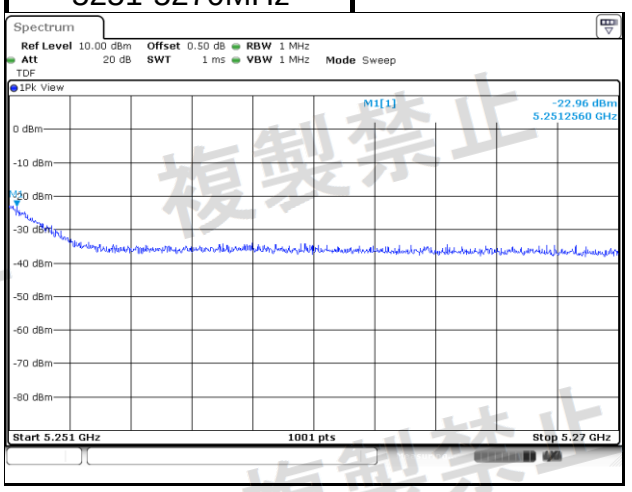
5251-5270MHz



5251-5270MHz(Detail)

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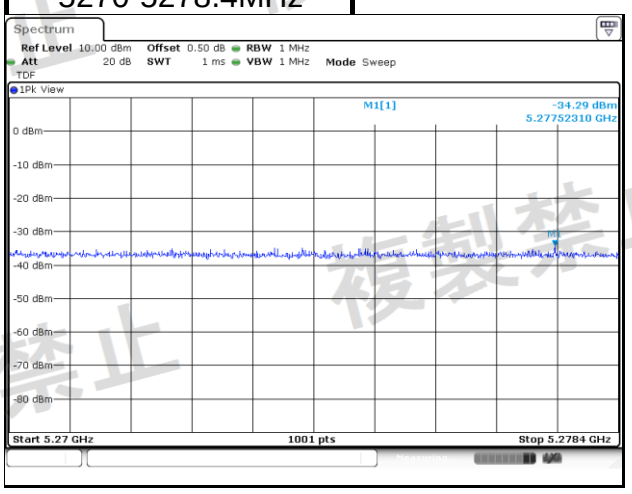
5270-5278.4MHz



5270-5278.4MHz(Detail)

Blank

3. Test results (Rated voltage)

S/N : 563b88ad

Environment of test room	Date of test	2022-02-04	2022-02-05	2022-02-06
	Temperature	21 °C	20 °C	21 °C
	Humidity	51 %	51 %	52 %

Peak Antenna Gain	-7.99	dBi
Beamforming Gain	3.00	dB
Peak Antenna Gain + Beamforming Gain	-4.99	dBi
Declaration Output Power	2.50	mW/MHz
	3.98	dBm/MHz
E.I.R.P	**0.79**	mW/MHz
	-1.01	**dBm/MHz**
Input Power Voltage	3.86	VDC

Test category		IEEE802.11ac VHT80 / MIMO(2TX)	
Tested Circit Insertion Loss		0	dB
Transmission Time	ON TIME (1sec or less)	0.15	ms
	OFF TIME (0.1sec or more)	0.22	ms
	Ratio	0.41	%

Using TDF and offset function in Spectrum Analyzer.

Measurement of plots are included Loss value.

Offset : EUT cable(0.5dB)

Test category :	5GHz Band Low-Power Data Communication System (802.11ac VHT80 W52/MIMO(2TX))_Beamforming
The reason why the tests are performed only at rated voltage :	The fluctuation of input voltage to the circuit of the radio part of the equipment to be tested is identified as being less than ±1 % when input voltage from an external supply into the equipment fluctuates ±10 %.

Measurement Channel	Ch.	42		
Measurement Frequency	MHz	5210	Result	Limit
RF Output Power(Tx1)	mW/MHz	0.55	**PASS**	2.5mW/MHz or below
RF Output Power(Tx2)	mW/MHz	0.46	**PASS**	2.5mW/MHz or below
RF Output Power (Tx1+2)	mW/MHz	1.01	**PASS**	2.5mW/MHz or below
RF Output Power Tolerance (Tx1+2)	%	-59.57	**PASS**	+20% to -80%

Measurement Channel		Ch.	42		
Measurement Frequency		MHz	5210	Result	Limit
Unwanted (Spurious) Emission Strength (Tx1)	30MHz to 5123.2MHz	uW/MHz	0.09	**PASS**	2.5uW/MHz or below
		MHz	4662.70	----	----
	5296.7MHz to 26GHz	uW/MHz	0.16	**PASS**	2.5uW/MHz or below
		MHz	18109.70	----	----
Unwanted (Spurious) Emission Strength (Tx2)	30MHz to 5123.2MHz	uW/MHz	0.08	**PASS**	2.5uW/MHz or below
		MHz	5054.50	----	----
	5296.7MHz to 26GHz	uW/MHz	0.16	**PASS**	2.5uW/MHz or below
		MHz	18109.70	----	----
Unwanted (Spurious) Emission Strength (Tx1+2)	30MHz to 5123.2MHz	uW/MHz	0.17	**PASS**	2.5uW/MHz or below
		----	----	----	----
	5296.7MHz to 26GHz	uW/MHz	0.32	**PASS**	2.5uW/MHz or below
		----	----	----	----

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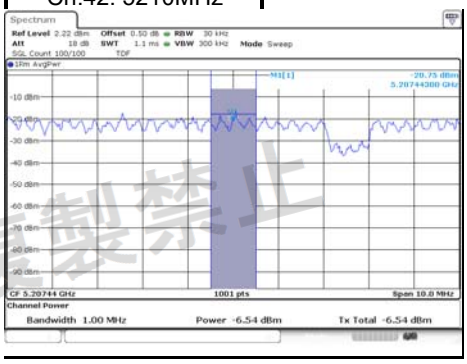
Measurement Channel		Ch.	42		
Measurement Frequency		MHz	5210	Result	Limit
Out-band of Leakage Power (Tx1)	5123.2 to 5150MHz	uW/MHz	0.12	**PASS**	15uW/MHz or below
		MHz	5145.06	----	----
	5250 to 5251MHz	uW/MHz	4.23	**PASS**	$10^{-((f-40)+\log(1/4))}$mW/MHz or below
		MHz	5250.02	----	----
	Limit	uW/MHz	241.51	----	----
	5251 to 5290MHz	uW/MHz	1.32	**PASS**	$10^{-((8/390)(f-41)-1+\log(1/4))}$mW/MHz or below
		MHz	5251.02	----	----
	Limit	uW/MHz	24.98	----	----
	5290 to 5296.7MHz	uW/MHz	0.12	**PASS**	$10^{-((3/100)(f-80)-1.8+\log(1/4))}$mW/MHz or below
		MHz	5291.96	----	----
	Limit	uW/MHz	3.46	----	----
Out-band of Leakage Power (Tx2)	5123.2 to 5150MHz	uW/MHz	0.11	**PASS**	15uW/MHz or below
		MHz	5129.34	----	----
	5250 to 5251MHz	uW/MHz	2.88	**PASS**	$10^{-((f-40)+\log(1/4))}$mW/MHz or below
		MHz	5250.05	----	----
	Limit	uW/MHz	222.81	----	----
	5251 to 5290MHz	uW/MHz	1.02	**PASS**	$10^{-((8/390)(f-41)-1+\log(1/4))}$mW/MHz or below
		MHz	5251.21	----	----
	Limit	uW/MHz	24.75	----	----
	5290 to 5296.7MHz	uW/MHz	0.11	**PASS**	$10^{-((3/100)(f-80)-1.8+\log(1/4))}$mW/MHz or below
		MHz	5294.74	----	----
	Limit	uW/MHz	2.86	----	----
Out-band of Leakage Power (Tx1+2)	5123.2 to 5150MHz	uW/MHz	0.23	**PASS**	15uW/MHz or below
		----	\	----	----
	5250 to 5251MHz	uW/MHz	7.11	**PASS**	$10^{-((f-40)+\log(1/4))}$mW/MHz or below
		MHz	5250.05	----	----
	Limit	uW/MHz	222.81	----	----
	5251 to 5290MHz	uW/MHz	2.34	**PASS**	$10^{-((8/390)(f-41)-1+\log(1/4))}$mW/MHz or below
		MHz	5251.21	----	----
	Limit	uW/MHz	24.75	----	----
	5290 to 5296.7MHz	uW/MHz	0.23	**PASS**	$10^{-((3/100)(f-80)-1.8+\log(1/4))}$mW/MHz or below
		MHz	5294.74	----	----
	Limit	uW/MHz	2.86	----	----

7. Test chart

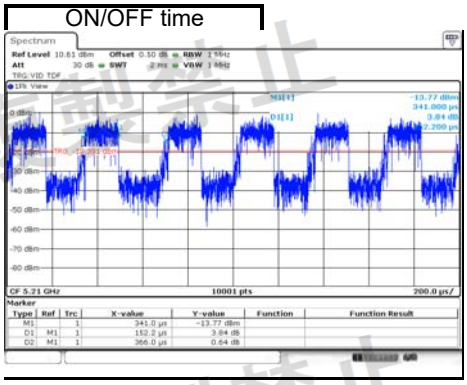
7.4 RF output power tolerance (Rated voltage)

Tx1

Ch.42: 5210MHz

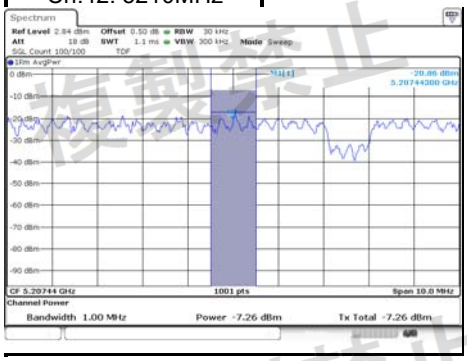


ON/OFF time



Tx2

Ch.42: 5210MHz



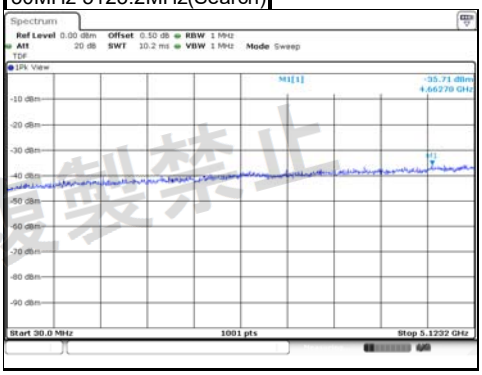
7. Test chart

7.5 Unwanted(Spurious) emission strength (Rated voltage)

Tx1

Ch.42: 5210MHz

30MHz-5123.2MHz(Search)



30MHz-5123.2MHz(Detail)

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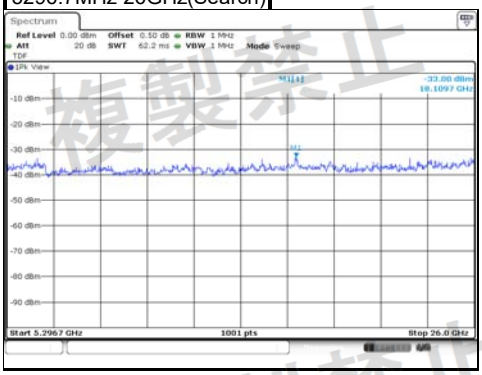
5296.7MHz-26GHz(Search)



5296.7MHz-26GHz(Detail)

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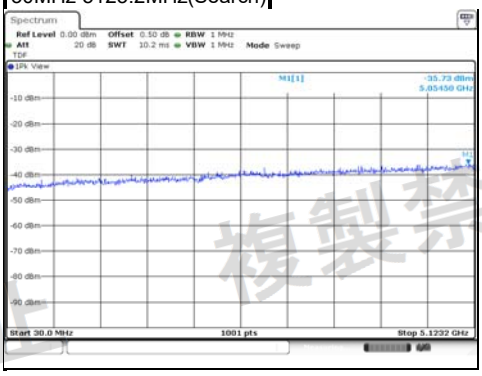
Tx2

Ch.42: 5210MHz

30MHz-5123.2MHz(Search)



30MHz-5123.2MHz(Detail)

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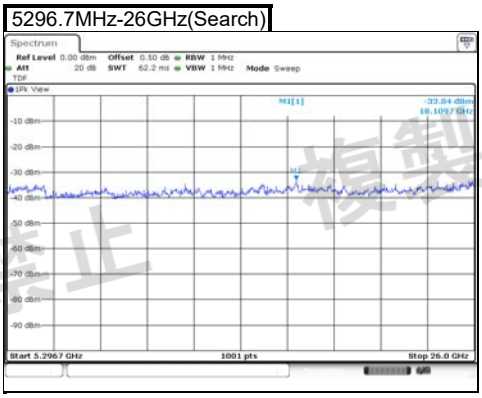
5296.7MHz-26GHz(Search)



5296.7MHz-26GHz(Detail)

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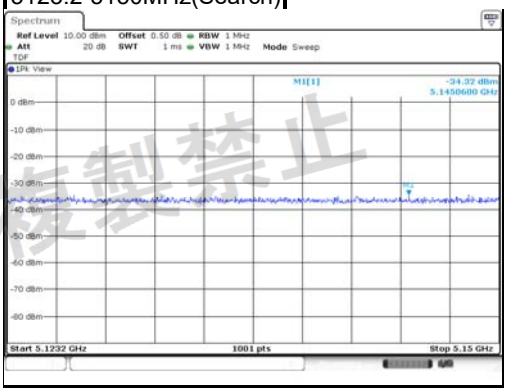
7. Test chart

7.6 Out-Band Leakage Power (Rated voltage)

Tx1

Ch.42: 5210MHz

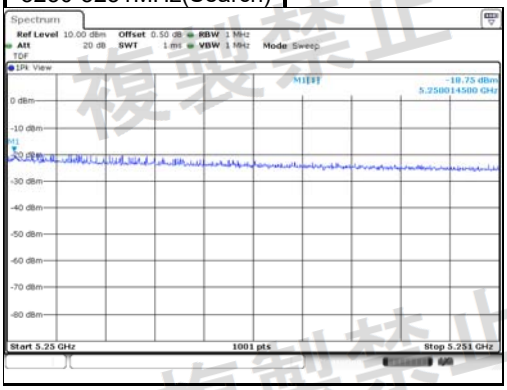
5123.2-5150MHz(Search)



5123.2-5150MHz(Detail)

Blank

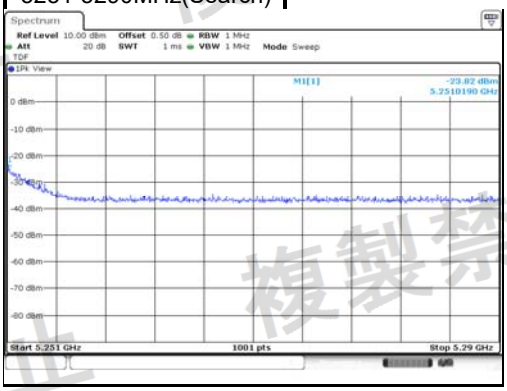
5250-5251MHz(Search)



5250-5251MHz(Detail)

Blank

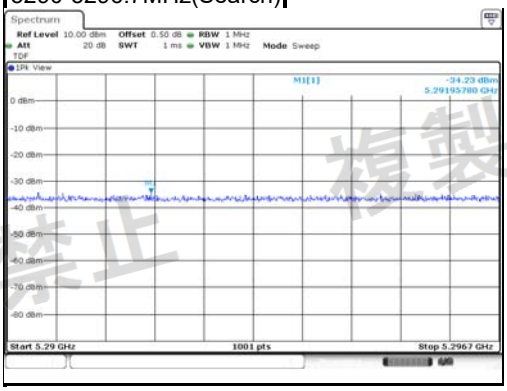
5251-5290MHz(Search)



5251-5290MHz(Detail)

Blank

5290-5296.7MHz(Search)



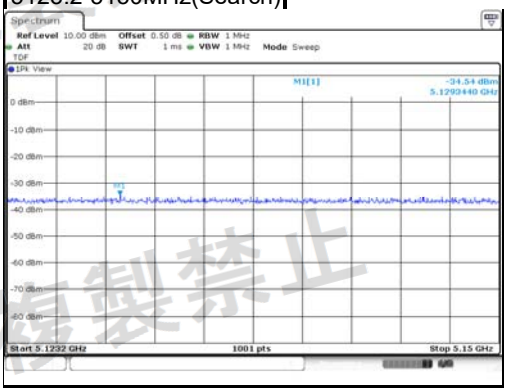
5290-5296.7MHz(Detail)

Blank

Tx2

Ch.42: 5210MHz

5123.2-5150MHz(Search)



5123.2-5150MHz(Detail)

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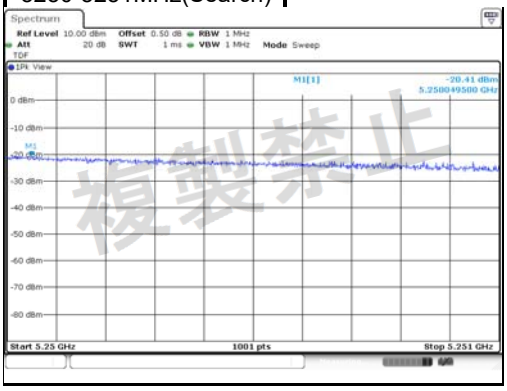
5250-5251MHz(Search)



5250-5251MHz(Detail)

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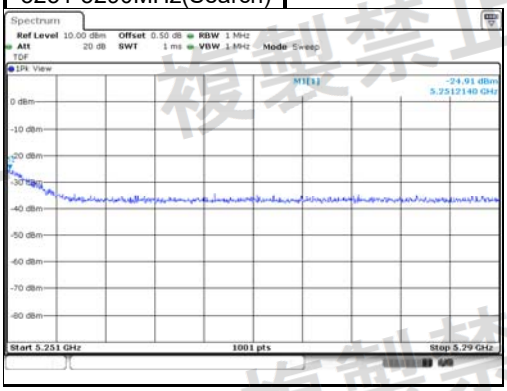
5251-5290MHz(Search)



5251-5290MHz(Detail)

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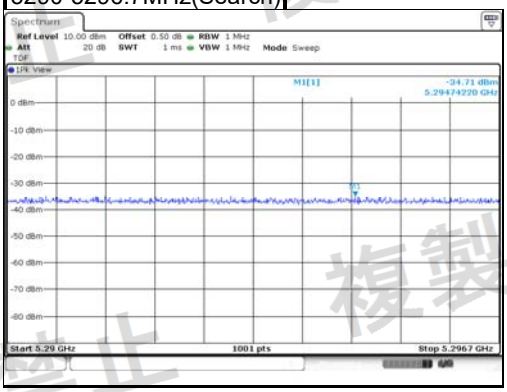
5290-5296.7MHz(Search)



5290-5296.7MHz(Detail)

Blank

3. Test results (Rated voltage)

S/N : 563b88ad

Environment of test room	Date of test	2022-02-04	2022-02-05	2022-02-06
	Temperature	21 °C	20 °C	21 °C
	Humidity	51 %	51 %	52 %

Peak Antenna Gain	-5.99	dBi
Beamforming Gain	3.00	dB
Peak Antenna Gain + Beamforming Gain	-2.99	dBi
Declaration Output Power	10.00	mW/MHz
	10.00	dBm/MHz
E.I.R.P	**5.02**	mW/MHz
	7.01	**dBm/MHz**
Input Power Voltage	3.86	VDC

Test category		IEEE802.11ac VHT20 / MIMO(2TX)	
Tested Circit Insertion Loss		0.00	dB
Transmission Time	ON TIME (1sec or less)	0.65	ms
	OFF TIME (0.1sec or more)	0.10	ms
	Ratio	0.87	%

Using TDF and offset function in Spectrum Anal

Measurement of plots are included Loss value.

Offset : EUT cable(ch52 : 0.5 ch56,64 : 0.51dB)

Test category :	5GHz Band Low-Power Data Communication System (802.11ac VHT20 W53/MIMO(2TX))_Beamforming
The reason why the tests are performed only at rated voltage:	The fluctuation of input voltage to the circuit of the radio part of the equipment to be tested is identified as being less than ±1 % when input voltage from an external supply into the equipment fluctuates ±10 %.

Measurement Channel	Ch.	52	56	64		
Measurement Frequency	MHz	5260	5280	5320	Result	Limit
Occupied Bandwidth(Tx1)	MHz	17.58	17.58	17.58	**PASS**	20MHz or below
Occupied Bandwidth(Tx2)	MHz	17.58	17.58	17.58	**PASS**	20MHz or below
RF Output Power(Tx1)	mW/MHz	2.00	1.96	2.12	**PASS**	10mW/MHz or below
RF Output Power(Tx2)	mW/MHz	1.64	1.73	1.79	**PASS**	10mW/MHz or below
RF Output Power (Tx1+2)	mW/MHz	3.64	3.69	3.91	**PASS**	10mW/MHz or below
RF Output Power Tolerance (Tx1+2)	%	-63.63	-63.06	-60.89	**PASS**	+20% to -80%

Measurement Channel		Ch.	52	56	64		
Measurement Frequency		MHz	5260	5280	5320	Result	Limit
Unwanted (Spurious) Emission Strength(Tx1)	30MHz to 5233.3MHz	uW/MHz	0.14	0.16	0.14	**PASS**	2.5uW/MHz or below
		MHz	5038.40	4991.60	4996.80	----	----
	5350MHz to 26GHz	uW/MHz	0.30	0.25	0.34	**PASS**	2.5uW/MHz or below
		MHz	18089.00	18068.00	18109.00	----	----
Unwanted (Spurious) Emission Strength(Tx2)	30MHz to 5233.3MHz	uW/MHz	0.16	0.15	0.13	**PASS**	2.5uW/MHz or below
		MHz	5199.50	4882.40	5012.40	----	----
	5350MHz to 26GHz	uW/MHz	0.31	0.24	0.26	**PASS**	2.5uW/MHz or below
		MHz	25845.00	18109.00	18089.00	----	----
Unwanted (Spurious) Emission Strength (Tx1+2)	30MHz to 5233.3MHz	uW/MHz	0.30	0.32	0.27	**PASS**	2.5uW/MHz or below
		----	----	----	----	----	----
	5350MHz to 26GHz	uW/MHz	0.61	0.49	0.59	**PASS**	2.5uW/MHz or below
		----	----	----	----	----	----

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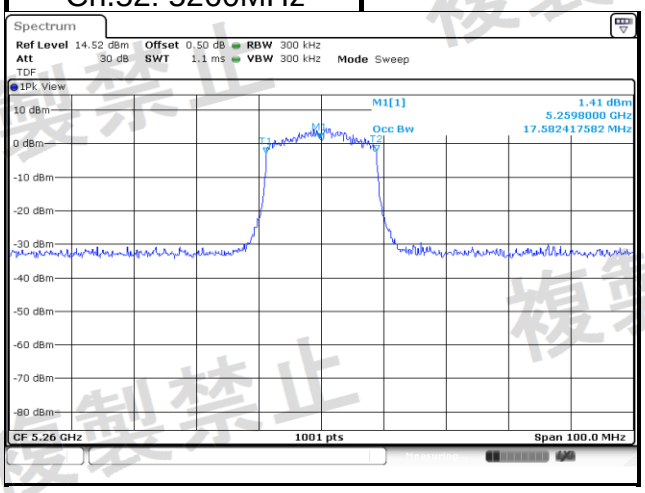
Measurement Channel		Ch.	52	56	64		
Measurement Frequency		MHz	5260	5280	5320	Result	Limit
Out-Band Leakage Power (Tx1)	5233.3 to 5240MHz	uW/MHz	0.18	0.17	0.17	**PASS**	$10^{-1.8-(6/50)(f-20)}$mW/MHz or below
		MHz	5238.36	5239.06	5238.06	----	----
	Limit	uW/MHz	10.07	12.22	9.26	----	----
	5240 to 5249MHz	uW/MHz	8.87	0.19	0.16	**PASS**	$10^{-1-(8/90)(f-11)}$mW/MHz or below
		MHz	5248.94	5248.98	5243.25	----	----
	Limit	uW/MHz	98.82	99.55	30.82	----	----
	5249 to 5249.8MHz	uW/MHz	48.53	0.12	0.12	**PASS**	$10^{1-(f-9)}$mW/MHz or below
		MHz	5249.75	5249.30	5249.26	----	----
	Limit	uW/MHz	558.47	200.91	182.81	----	----
	5249.8 to 5250MHz	uW/MHz	80.54	0.14	0.14	**PASS**	$10^{1-(f-9)}$mW/MHz or below
		MHz	5249.95	5249.94	5249.97	----	----
	Limit	uW/MHz	885.12	860.99	935.41	----	----
Out-Band Leakage Power (Tx2)	5233.3 to 5240MHz	uW/MHz	0.16	0.16	0.15	**PASS**	$10^{-1.8-(6/50)(f-20)}$mW/MHz or below
		MHz	5238.25	5239.03	5237.26	----	----
	Limit	uW/MHz	9.77	12.11	7.43	----	----
	5240 to 5249MHz	uW/MHz	7.71	0.17	0.18	**PASS**	$10^{-1-(8/90)(f-11)}$mW/MHz or below
		MHz	5249.00	5242.22	5247.86	----	----
	Limit	uW/MHz	99.92	24.94	79.24	----	----
	5249 to 5249.8MHz	uW/MHz	33.34	0.13	0.15	**PASS**	$10^{1-(f-9)}$mW/MHz or below
		MHz	5249.79	5249.50	5249.49	----	----
	Limit	uW/MHz	620.87	317.69	311.89	----	----
	5249.8 to 5250MHz	uW/MHz	56.23	0.13	0.13	**PASS**	$10^{1-(f-9)}$mW/MHz or below
		MHz	5250.00	5249.96	5249.86	----	----
	Limit	uW/MHz	995.41	914.11	731.14	----	----
Out-Band Leakage Power (Tx1+2)	5233.3 to 5240MHz	uW/MHz	0.34	0.33	0.32	**PASS**	$10^{-1.8-(6/50)(f-20)}$mW/MHz or below
		MHz	5238.36	5239.06	5238.06	----	----
	Limit	uW/MHz	10.07	12.22	9.26	----	----
	5240 to 5249MHz	uW/MHz	16.58	0.36	0.34	**PASS**	$10^{-1-(8/90)(f-11)}$mW/MHz or below
		MHz	5249.00	5248.98	5247.86	----	----
	Limit	uW/MHz	99.92	99.55	79.24	----	----
	5249 to 5249.8MHz	uW/MHz	81.87	0.25	0.27	**PASS**	$10^{1-(f-9)}$mW/MHz or below
		MHz	5249.79	5249.50	5249.49	----	----
	Limit	uW/MHz	620.87	317.69	311.89	----	----
	5249.8 to 5250MHz	uW/MHz	136.77	0.27	0.26	**PASS**	$10^{1-(f-9)}$mW/MHz or below
		MHz	5250.00	5249.96	5249.97	----	----
	Limit	uW/MHz	995.41	914.11	935.41	----	----

7. Test chart

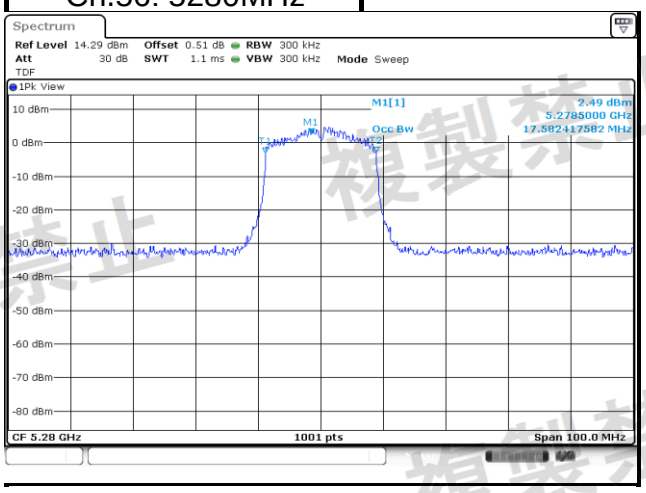
7.2 Occupied bandwidth (Rated voltage)

Tx1

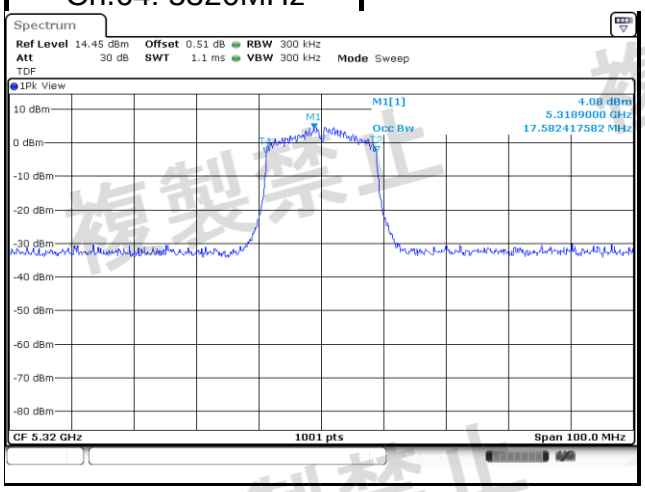
Ch.52: 5260MHz



Ch.56: 5280MHz

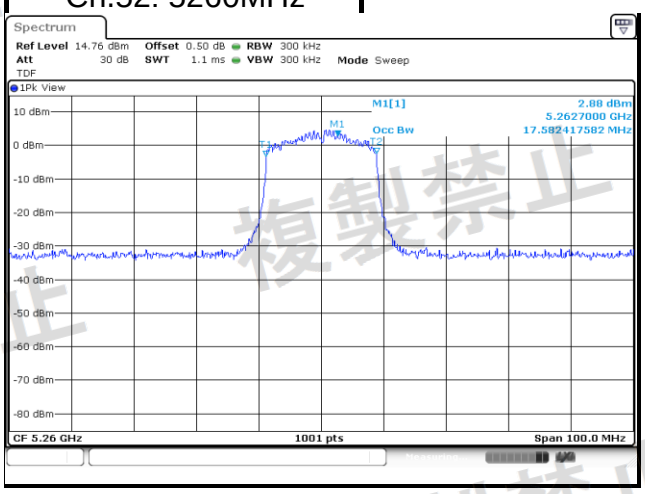


Ch.64: 5320MHz

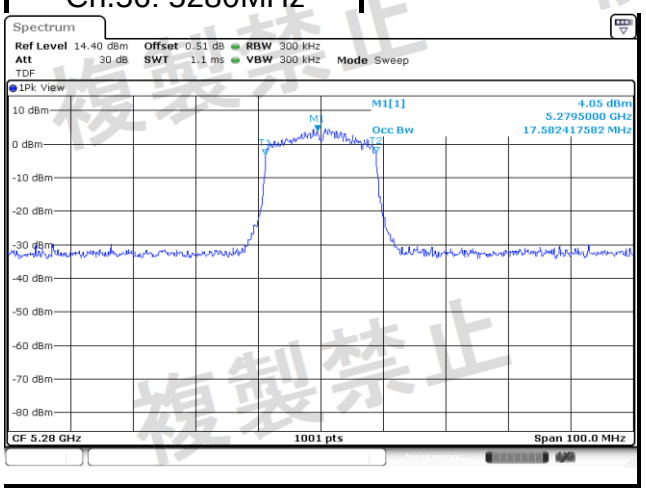


Tx2

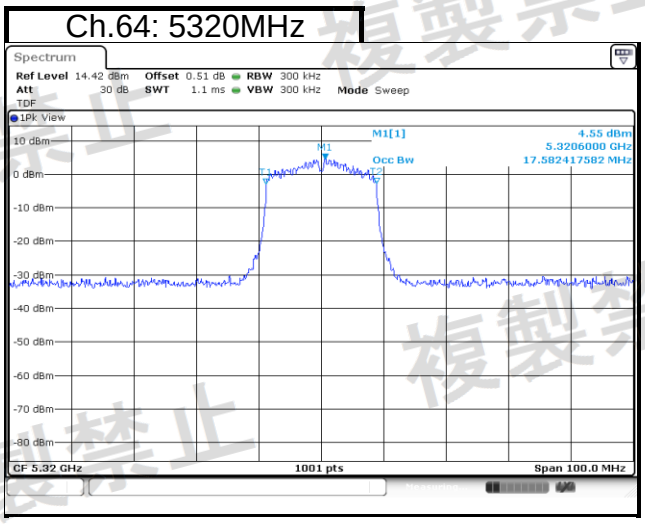
Ch.52: 5260MHz



Ch.56: 5280MHz



Ch.64: 5320MHz

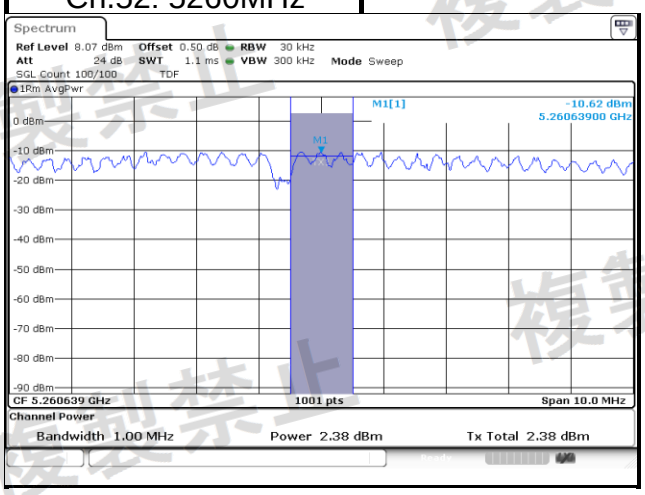


7. Test chart

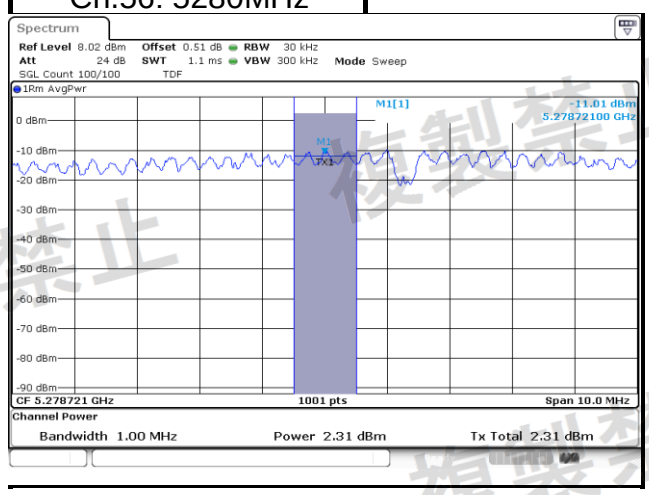
7.4 RF output power tolerance (Rated voltage)

Tx1

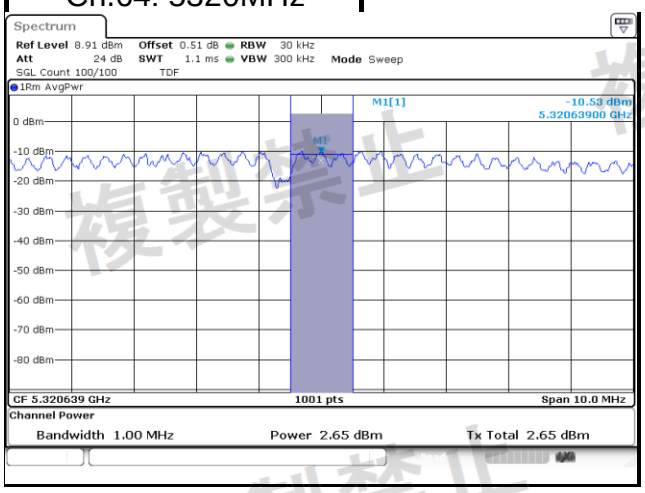
Ch.52: 5260MHz



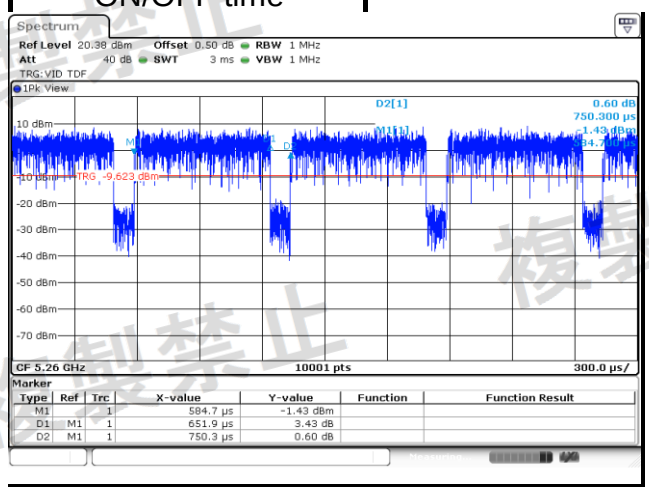
Ch.56: 5280MHz



Ch.64: 5320MHz

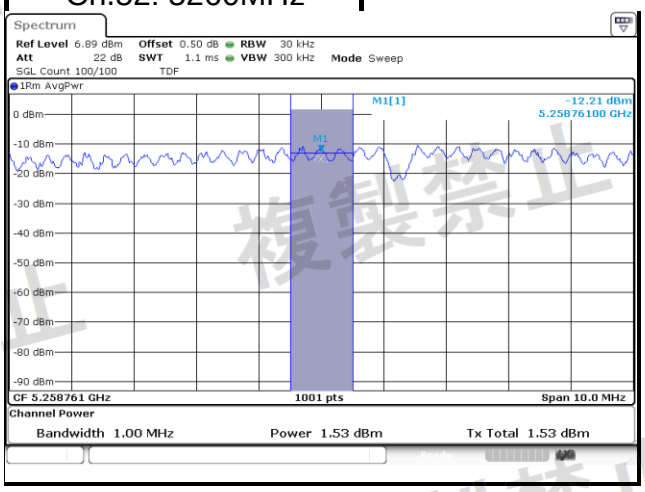


ON/OFF time

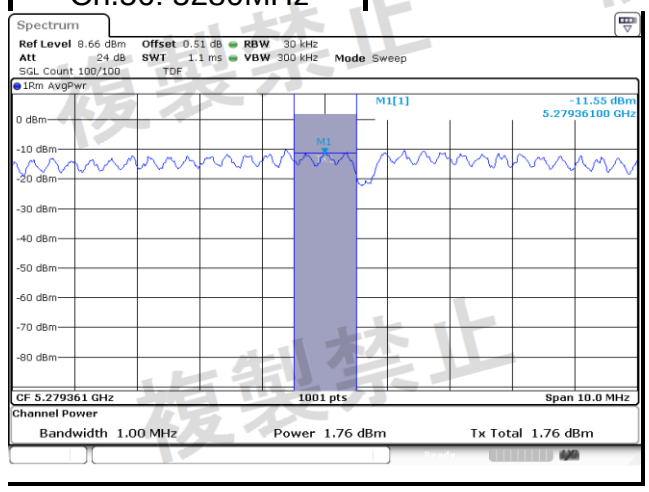


Tx2

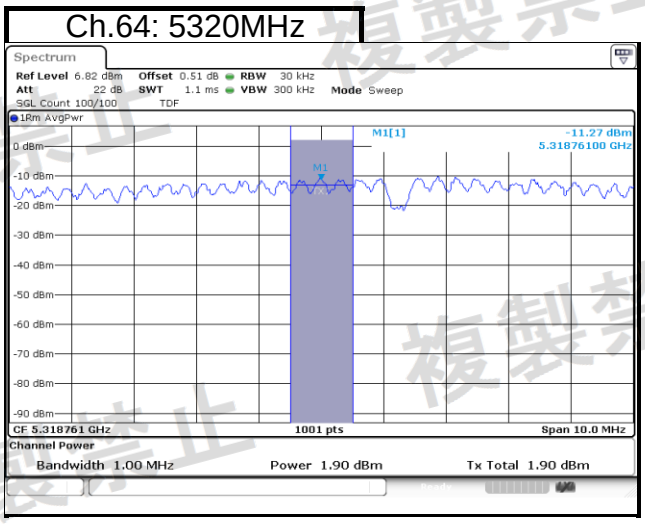
Ch.52: 5260MHz



Ch.56: 5280MHz



Ch.64: 5320MHz



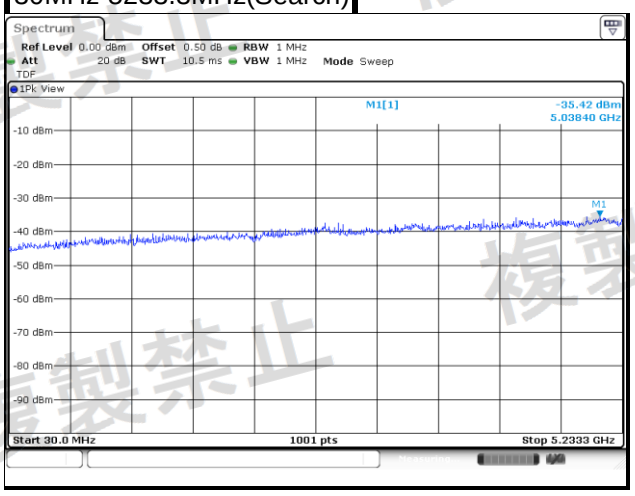
7. Test chart

7.5 Unwanted(Spurious) emission strength (Rated voltage)

Tx1

Ch.52: 5260MHz

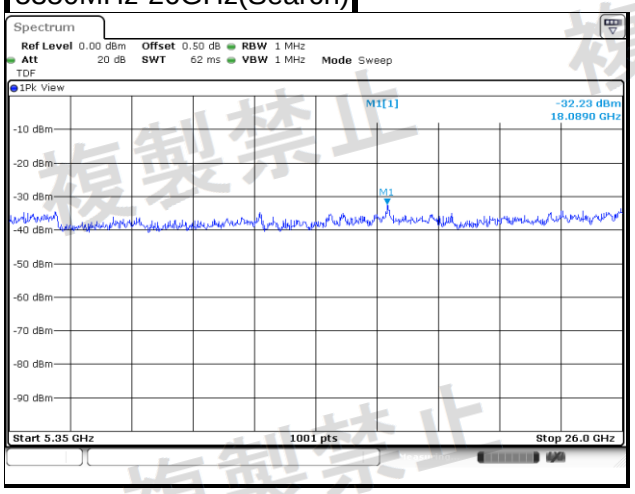
30MHz-5233.3MHz(Search)



30MHz-5233.3MHz(Detail)

Blank

5350MHz-26GHz(Search)

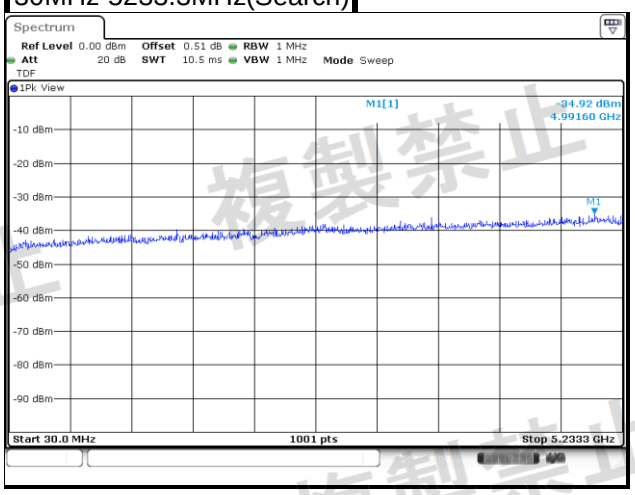


5350MHz-26GHz(Detail)

Blank

Ch.56: 5280MHz

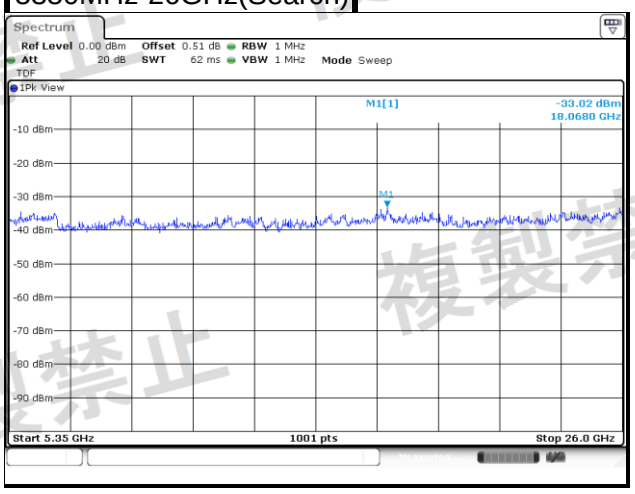
30MHz-5233.3MHz(Search)



30MHz-5233.3MHz(Detail)

Blank

5350MHz-26GHz(Search)

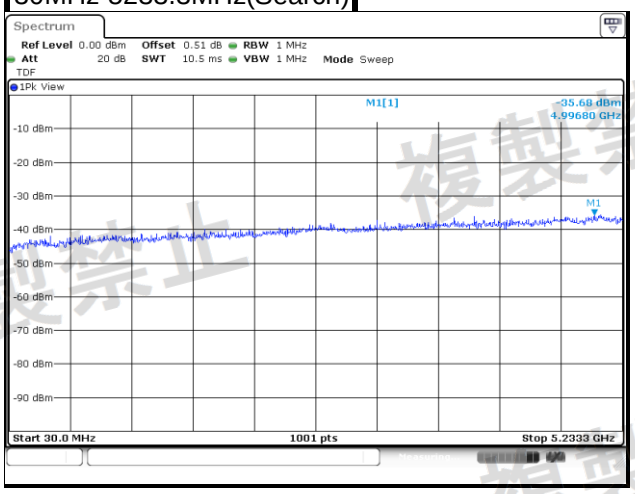


5350MHz-26GHz(Detail)

Blank

Ch.64: 5320MHz

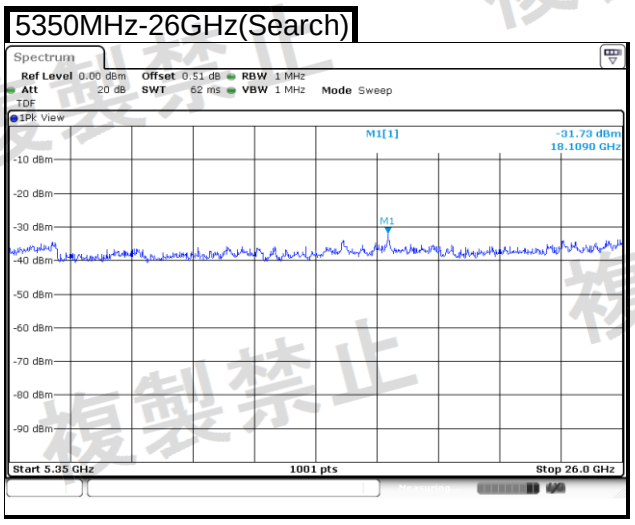
30MHz-5233.3MHz(Search)



30MHz-5233.3MHz(Detail)

Blank

5350MHz-26GHz(Search)



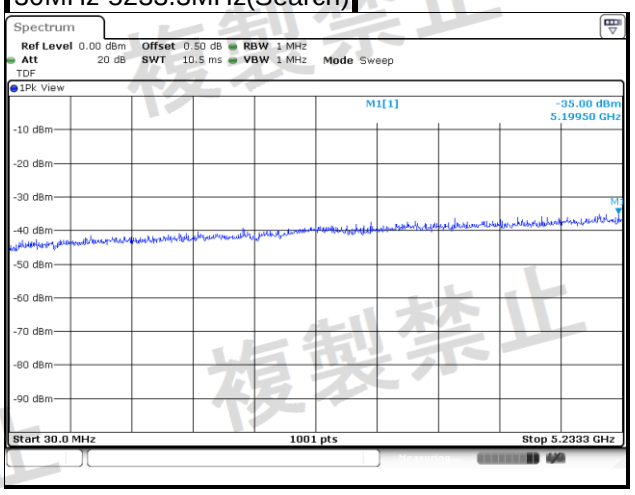
5350MHz-26GHz(Detail)

Blank

Tx2

Ch.52: 5260MHz

30MHz-5233.3MHz(Search)



30MHz-5233.3MHz(Detail)

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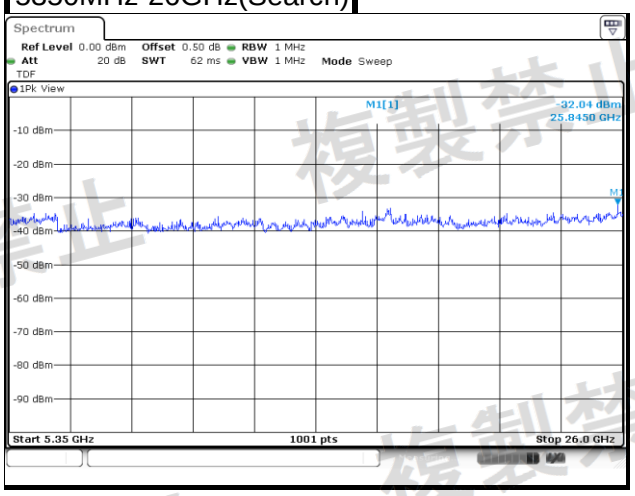
5350MHz-26GHz(Search)

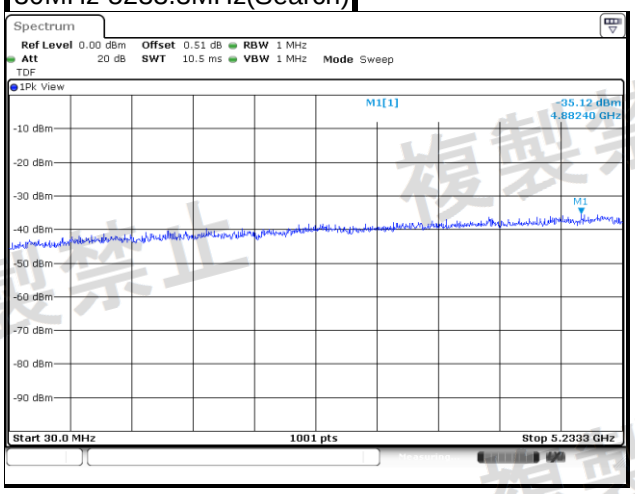


5350MHz-26GHz(Detail)

Blank

Ch.56: 5280MHz

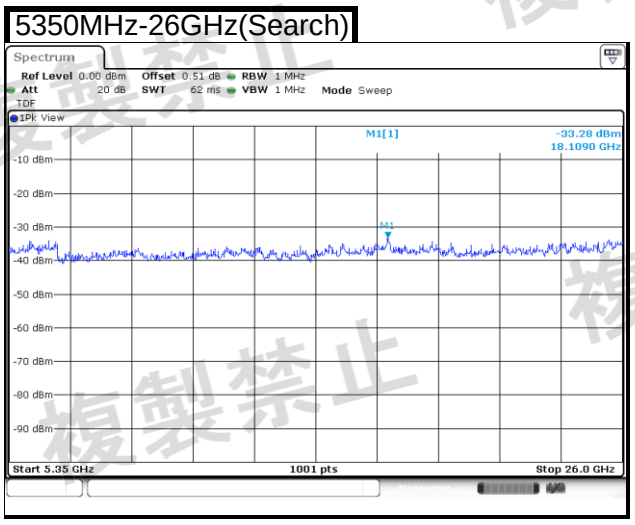
30MHz-5233.3MHz(Search)



30MHz-5233.3MHz(Detail)

Blank

5350MHz-26GHz(Search)

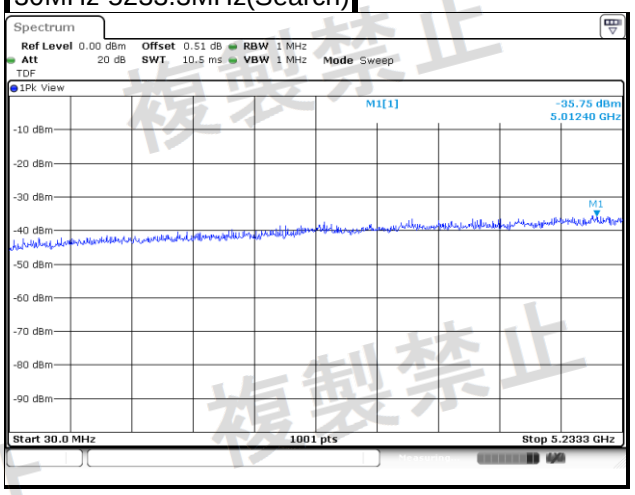


5350MHz-26GHz(Detail)

Blank

Ch.64: 5320MHz

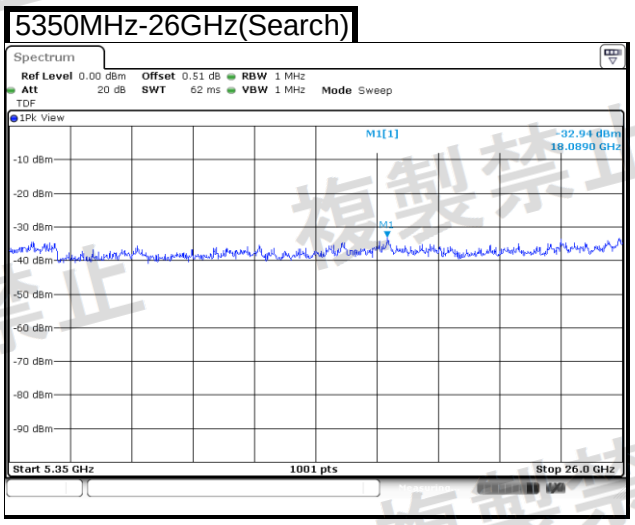
30MHz-5233.3MHz(Search)



30MHz-5233.3MHz(Detail)

Blank

5350MHz-26GHz(Search)



5350MHz-26GHz(Detail)

Blank

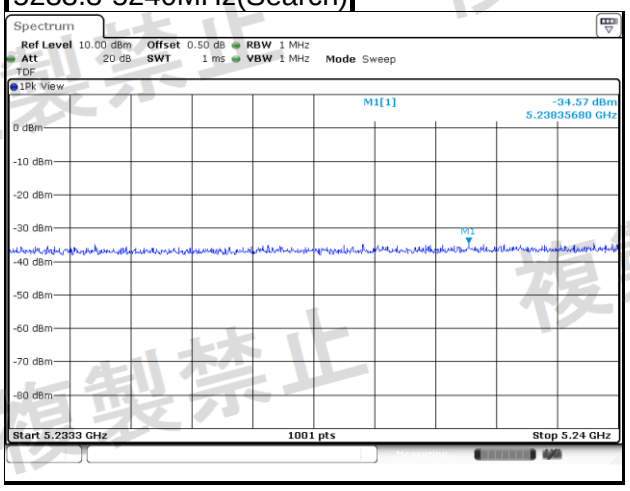
7. Test chart

7.6 Out-Band Leakage Power (Rated voltage)

Tx1

Ch.52: 5260MHz

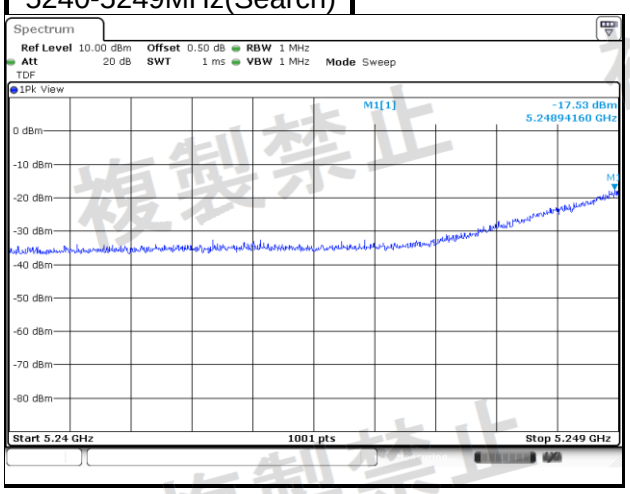
5233.3-5240MHz(Search)



5233.3-5240MHz(Detail)

Blank

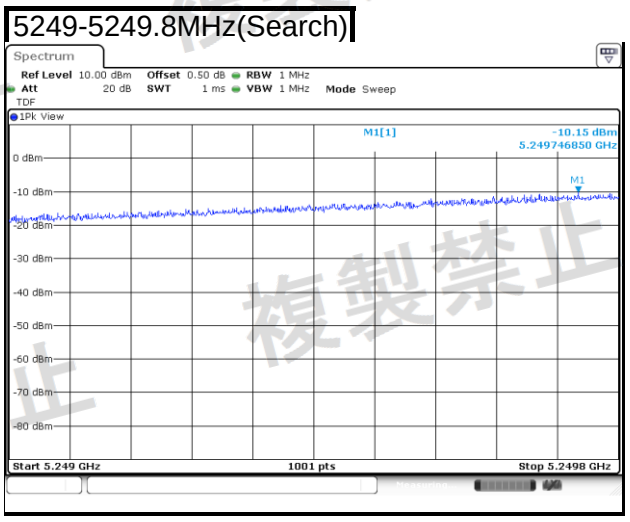
5240-5249MHz(Search)



5240-5249MHz(Detail)

Blank

5249-5249.8MHz(Search)



5249-5249.8MHz(Detail)

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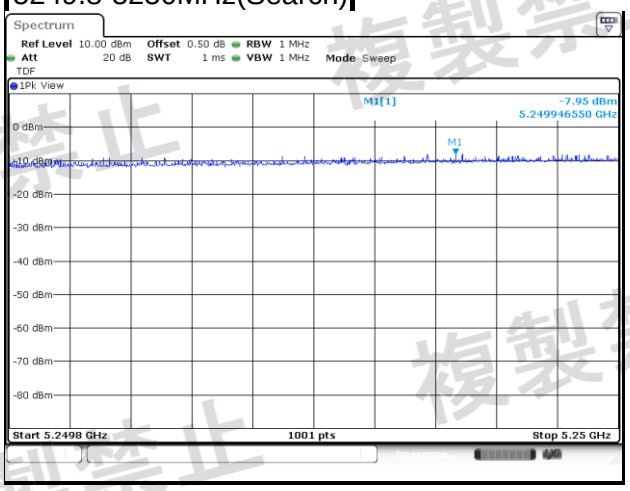
5249.8-5250MHz(Search)



5249.8-5250MHz(Detail)

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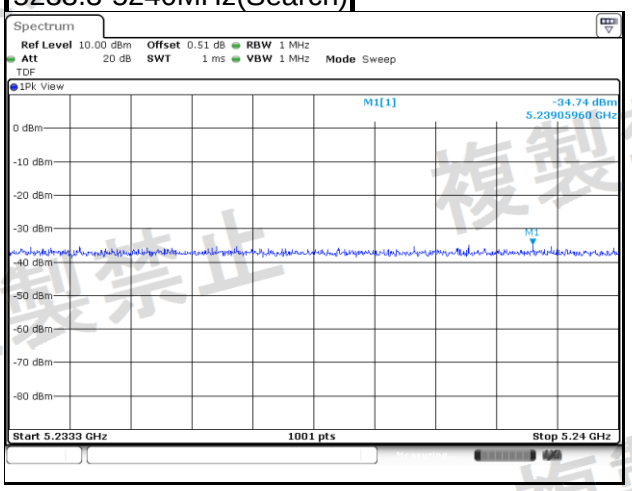
Ch.56: 5280MHz

5233.3-5240MHz(Search)



5233.3-5240MHz(Detail)

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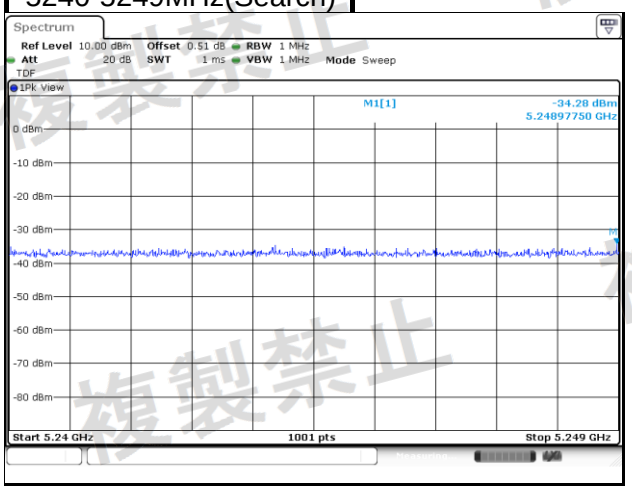
5240-5249MHz(Search)



5240-5249MHz(Detail)

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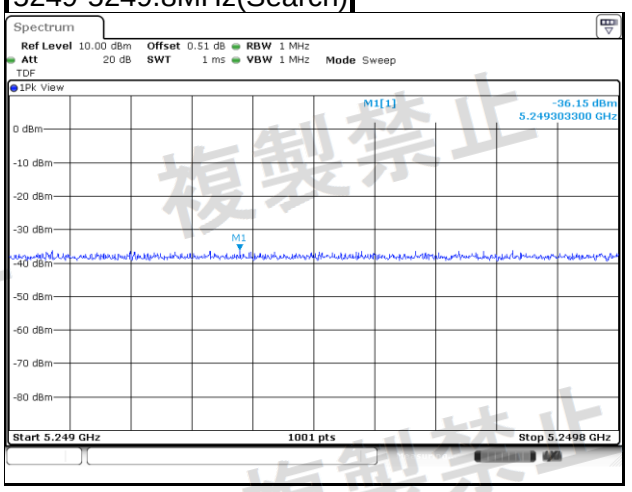
5249-5249.8MHz(Search)



5249-5249.8MHz(Detail)

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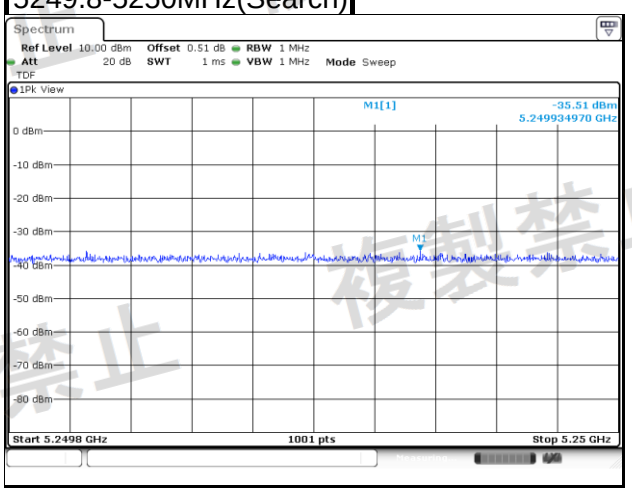
5249.8-5250MHz(Search)



5249.8-5250MHz(Detail)

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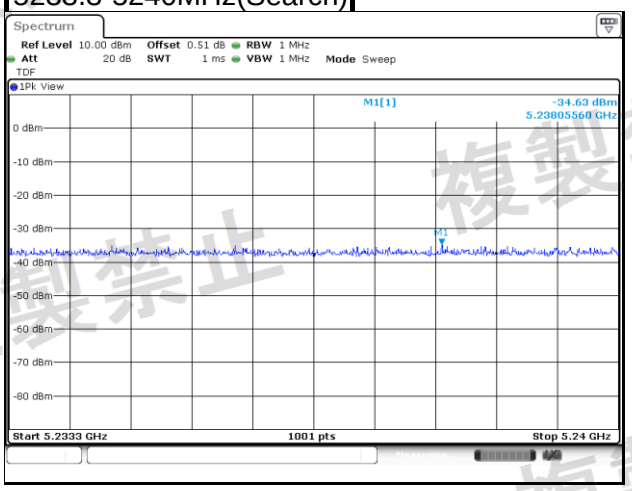
Ch.64: 5320MHz

5233.3-5240MHz(Search)



5233.3-5240MHz(Detail)

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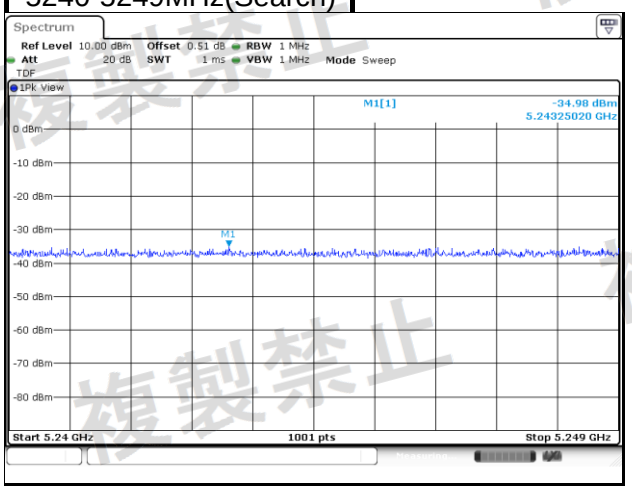
5240-5249MHz(Search)



5240-5249MHz(Detail)

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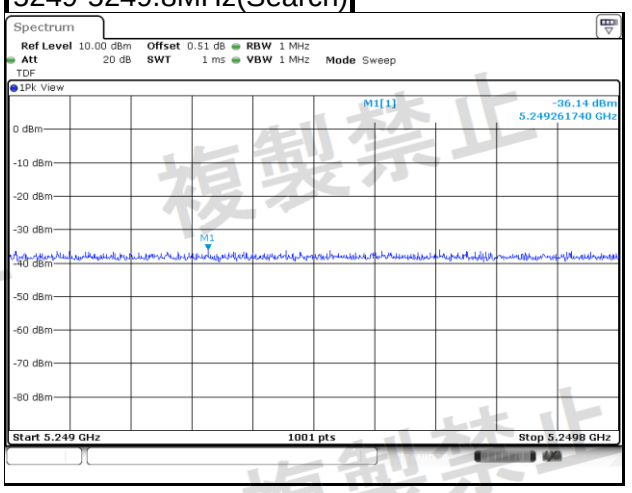
5249-5249.8MHz(Search)



5249-5249.8MHz(Detail)

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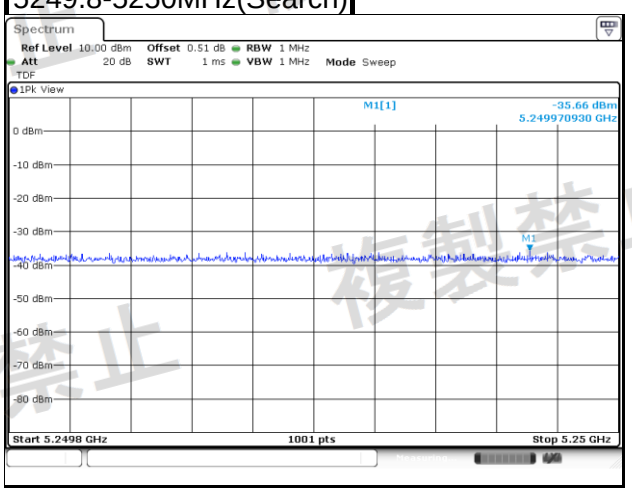
5249.8-5250MHz(Search)



5249.8-5250MHz(Detail)

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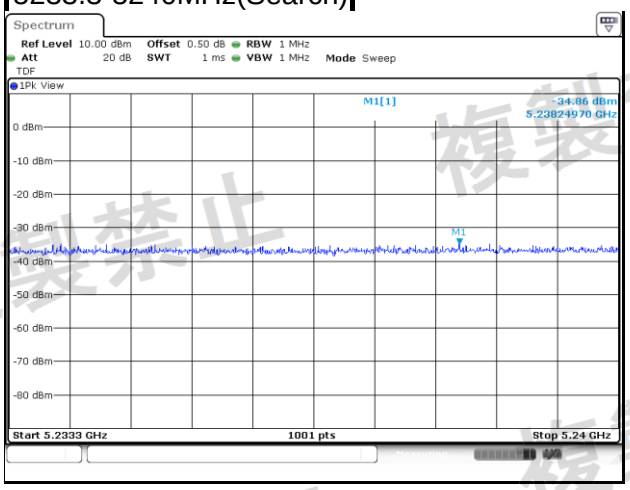
Tx2

Ch.52: 5260MHz

5233.3-5240MHz(Search)



5233.3-5240MHz(Detail)

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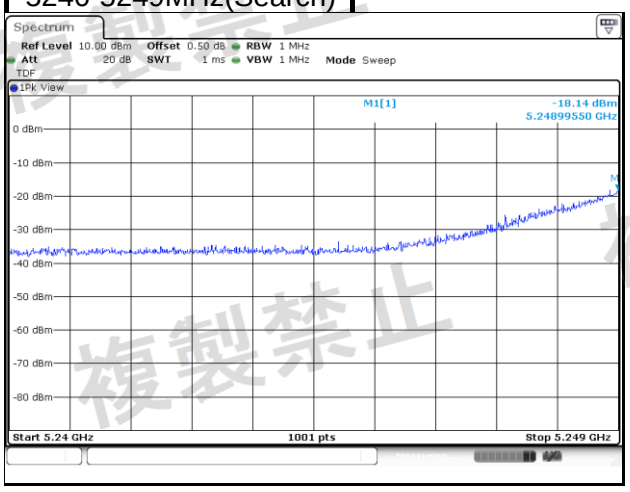
5240-5249MHz(Search)



5240-5249MHz(Detail)

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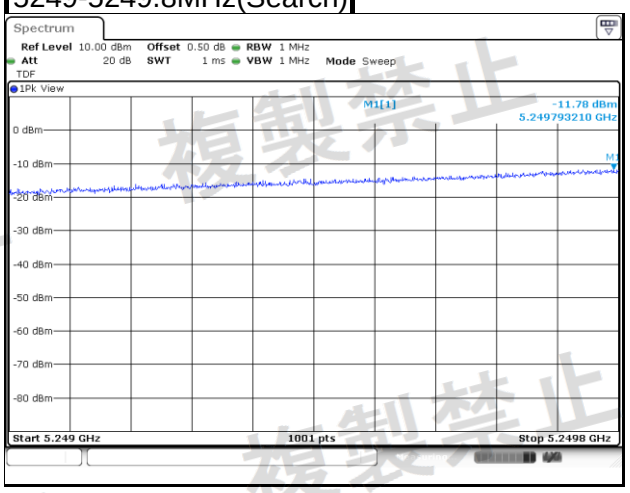
5249-5249.8MHz(Search)



5249-5249.8MHz(Detail)

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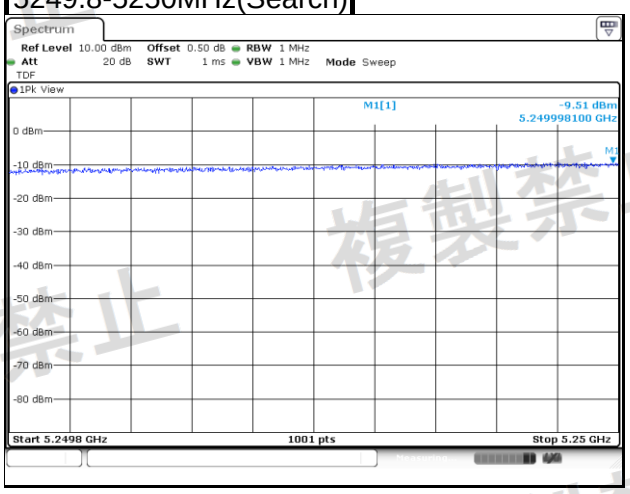
5249.8-5250MHz(Search)



5249.8-5250MHz(Detail)

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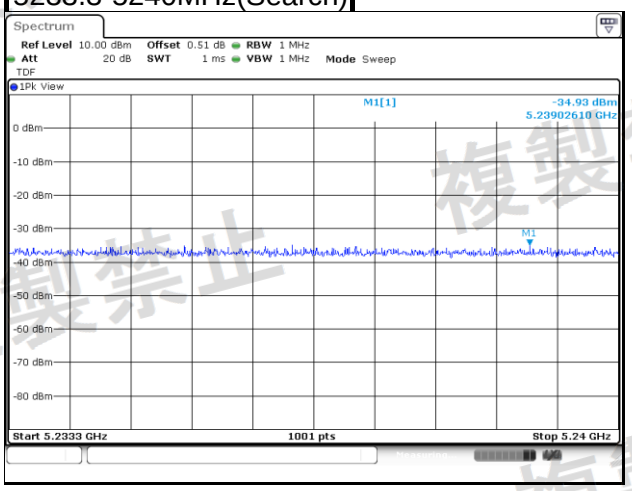
Ch.56: 5280MHz

5233.3-5240MHz(Search)



5233.3-5240MHz(Detail)

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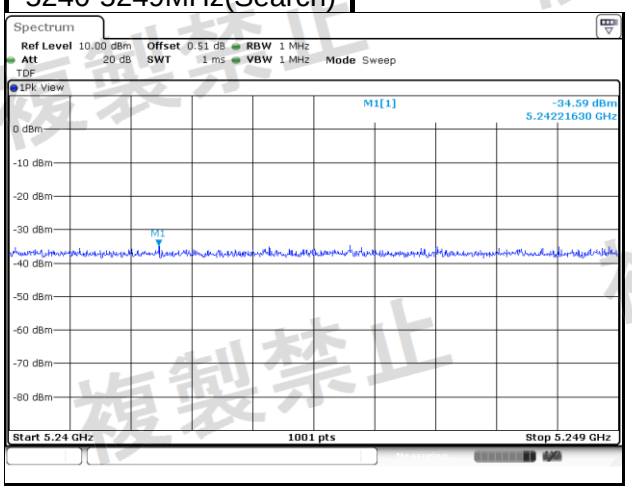
5240-5249MHz(Search)



5240-5249MHz(Detail)

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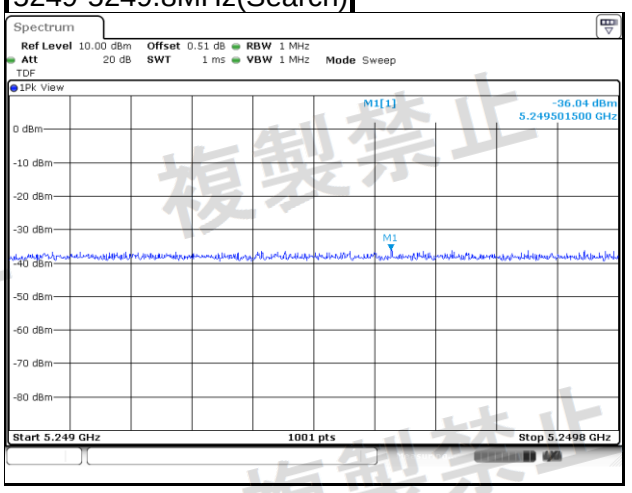
5249-5249.8MHz(Search)



5249-5249.8MHz(Detail)

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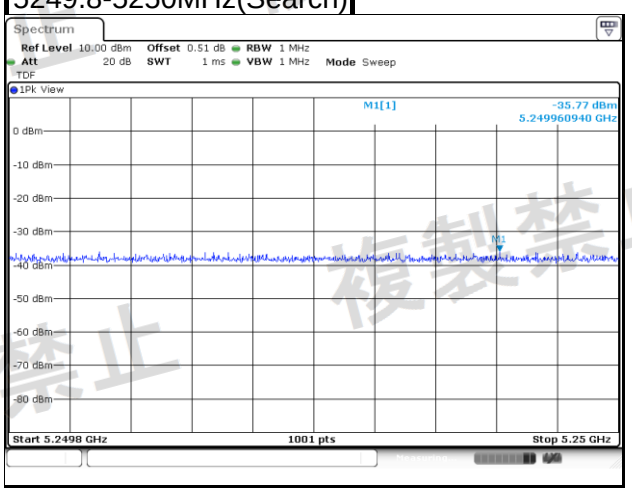
5249.8-5250MHz(Search)



5249.8-5250MHz(Detail)

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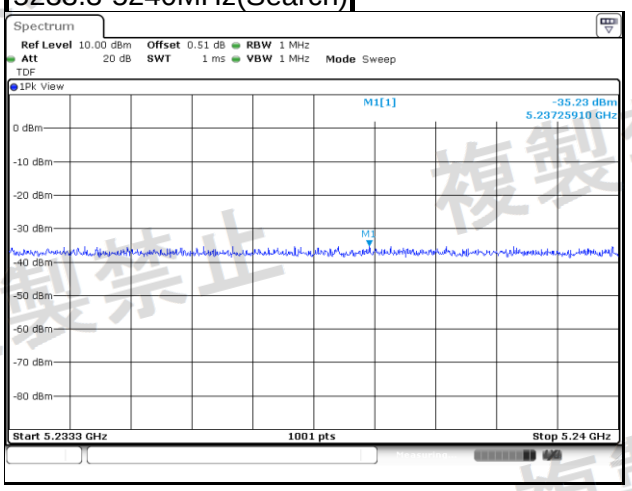
Ch.64: 5320MHz

5233.3-5240MHz(Search)



5233.3-5240MHz(Detail)

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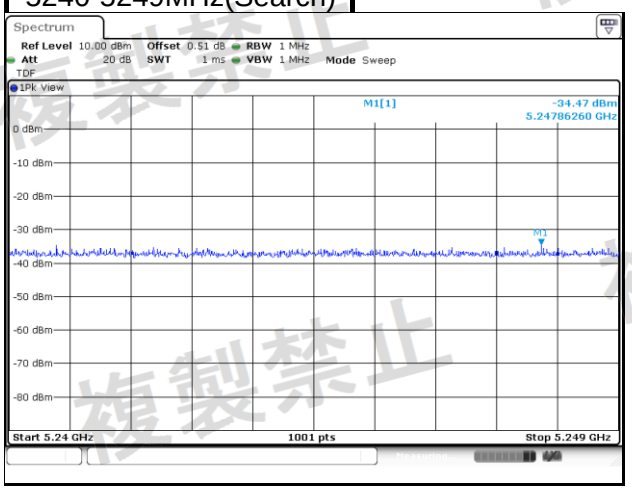
5240-5249MHz(Search)



5240-5249MHz(Detail)

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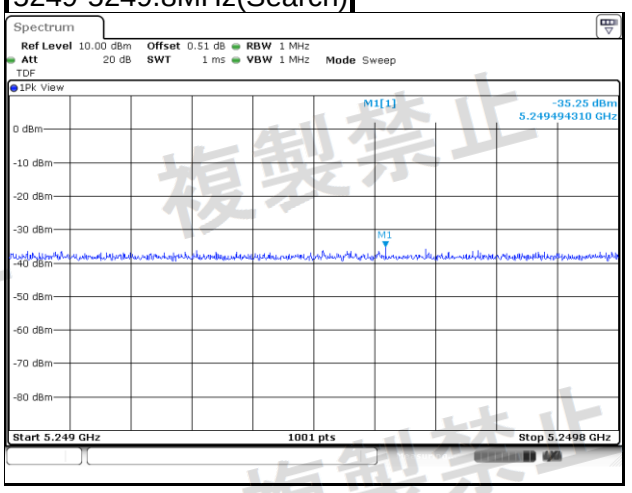
5249-5249.8MHz(Search)



5249-5249.8MHz(Detail)

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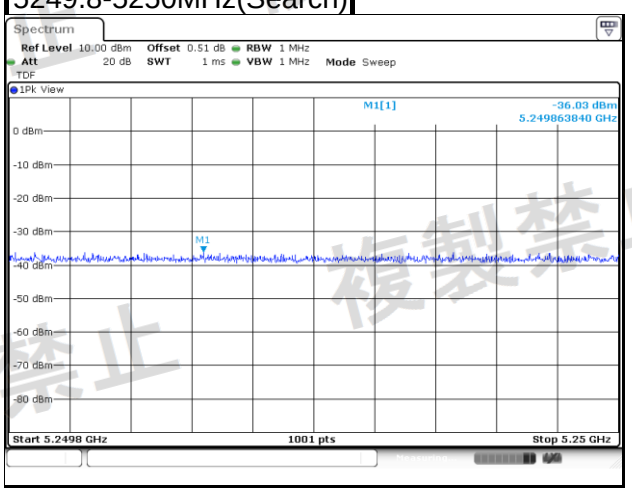
5249.8-5250MHz(Search)



5249.8-5250MHz(Detail)

Blank

3. Test results (Rated voltage)

S/N : 563b88ad

Environment of test room	Date of test	2022-02-04	2022-02-05	2022-02-06
	Temperature	21 °C	20 °C	21 °C
	Humidity	51 %	51 %	52 %

Peak Antenna Gain	-5.99	dBi
Beamforming Gain	3.00	dB
Peak Antenna Gain + Beamforming Gain	-2.99	dBi
Declaration Output Power	5.00	mW/MHz
	6.99	dBm/MHz
E.I.R.P	**2.51**	mW/MHz
	4.00	**dBm/MHz**
Input Power Voltage	3.86	VDC

Test category		IEEE802.11ac VHT40 / MIMO(2TX)	
Tested Circit Insertion Loss		0	dB
Transmission Time	ON TIME (1sec or less)	0.32	ms
	OFF TIME (0.1sec or more)	0.11	ms
	Ratio	0.74	%

Using TDF and offset function in Spectrum Analyzer.

Measurement of plots are included Loss value.

Offset : EUT cable(ch54: 0.5, ch62: 0.51dB)

Test category :	5GHz Band Low-Power Data Communication System (802.11ac VHT40 W53/MIMO(2TX))_Beamforming
The reason why the tests are performed only at rated voltage:	The fluctuation of input voltage to the circuit of the radio part of the equipment to be tested is identified as being less than ±1 % when input voltage from an external supply into the equipment fluctuates ±10 %.

Measurement Channel	Ch.	54	62		
Measurement Frequency	MHz	5270	5310	Result	Limit
RF Output Power(Tx1)	mW/MHz	1.03	0.72	**PASS**	5mW/MHz or below
RF Output Power(Tx2)	mW/MHz	1.01	0.62	**PASS**	5mW/MHz or below
RF Output Power (Tx1+2)	mW/MHz	2.04	1.34	**PASS**	5mW/MHz or below
RF Output Power Tolerance (Tx1+2)	%	-59.18	-73.18	**PASS**	+20% to -80%

Measurement Channel		Ch.	54	62		
Measurement Frequency		MHz	5270	5310	Result	Limit
Unwanted (Spurious) Emission Strength (Tx1)	30MHz to 5221.6MHz	uW/MHz	0.16	0.18	**PASS**	2.5uW/MHz or below
		MHz	5120.50	5001.20	----	----
	5358.4MHz to 26GHz	uW/MHz	0.23	0.27	**PASS**	2.5uW/MHz or below
		MHz	18112.40	18153.40	----	----
Unwanted (Spurious) Emission Strength (Tx2)	30MHz to 5221.6MHz	uW/MHz	0.15	0.15	**PASS**	2.5uW/MHz or below
		MHz	5058.20	5027.10	----	----
	5358.4MHz to 26GHz	uW/MHz	0.21	0.29	**PASS**	2.5uW/MHz or below
		MHz	18133.40	18071.40	----	----
Unwanted (Spurious) Emission Strength (Tx1+2)	30MHz to 5221.6MHz	uW/MHz	0.30	0.33	**PASS**	2.5uW/MHz or below
		----	----	----	----	----
	5358.4MHz to 26GHz	uW/MHz	0.44	0.56	**PASS**	2.5uW/MHz or below
		----	----	----	----	----

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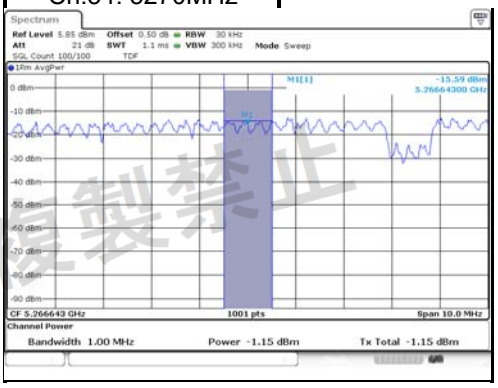
Measurement Channel		Ch.	54	62		
Measurement Frequency		MHz	5270	5310	Result	Limit
Out-band of Leakage Power (Tx1)	5221.6 to 5230MHz	uW/MHz	0.19	0.15	**PASS**	$10^{-(3/50)(f-40)-1.8+\log(1/2)}$mW/MHz or below
		MHz	5227.60	5223.65	----	----
	Limit	uW/MHz	5.69	3.30	----	----
	5230 to 5249MHz	uW/MHz	2.06	0.15	**PASS**	$10^{-(8/190)(f-21)-1+\log(1/2)}$mW/MHz or below
		MHz	5248.99	5246.62	----	----
	Limit	uW/MHz	49.96	39.69	----	----
	5249 to 5250MHz	uW/MHz	14.59	0.14	**PASS**	$10^{-(f-20)+\log(1/2)}$mW/MHz or below
		MHz	5249.96	5249.51	----	----
	Limit	uW/MHz	457.06	159.94	----	----
	5350 to 5358.4MHz	uW/MHz	0.18	0.21	**PASS**	15uW/MHz or below
		MHz	5355.57	5355.81	----	----
Out-band of Leakage Power (Tx2)	5221.6 to 5230MHz	uW/MHz	0.18	0.15	**PASS**	$10^{-(3/50)(f-40)-1.8+\log(1/2)}$mW/MHz or below
		MHz	5224.17	5228.58	----	----
	Limit	uW/MHz	3.54	6.51	----	----
	5230 to 5249MHz	uW/MHz	1.94	0.15	**PASS**	$10^{-(8/190)(f-21)-1+\log(1/2)}$mW/MHz or below
		MHz	5248.99	5240.39	----	----
	Limit	uW/MHz	49.96	21.70	----	----
	5249 to 5250MHz	uW/MHz	9.35	0.14	**PASS**	$10^{-(f-20)+\log(1/2)}$mW/MHz or below
		MHz	5249.99	5249.75	----	----
	Limit	uW/MHz	486.37	279.24	----	----
	5350 to 5358.4MHz	uW/MHz	0.19	0.19	**PASS**	15uW/MHz or below
		MHz	5350.03	5353.95	----	----
Out-band of Leakage Power (Tx1+2)	5221.6 to 5230MHz	uW/MHz	0.36	0.30	**PASS**	$10^{-(3/50)(f-40)-1.8+\log(1/2)}$mW/MHz or below
		MHz	5227.60	5228.58	----	----
	Limit	uW/MHz	5.69	6.51	----	----
	5230 to 5249MHz	uW/MHz	4.00	0.31	**PASS**	$10^{-(8/190)(f-21)-1+\log(1/2)}$mW/MHz or below
		MHz	5248.99	5246.62	----	----
	Limit	uW/MHz	49.96	39.69	----	----
	5249 to 5250MHz	uW/MHz	23.94	0.28	**PASS**	$10^{-(f-20)+\log(1/2)}$mW/MHz or below
		MHz	5249.99	5249.75	----	----
	Limit	uW/MHz	486.37	279.24	----	----
	5350 to 5358.4MHz	uW/MHz	0.38	0.41	**PASS**	15uW/MHz or below
		----	----	----	----	----

7. Test chart

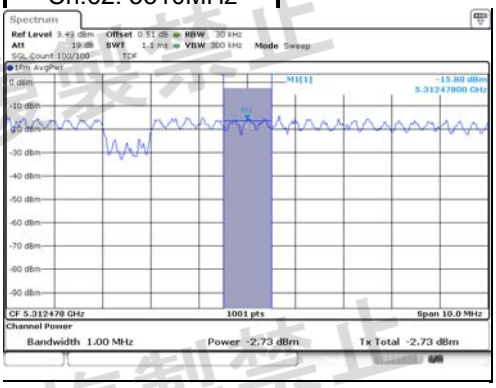
7.4 RF output power tolerance (Rated voltage)

Tx1

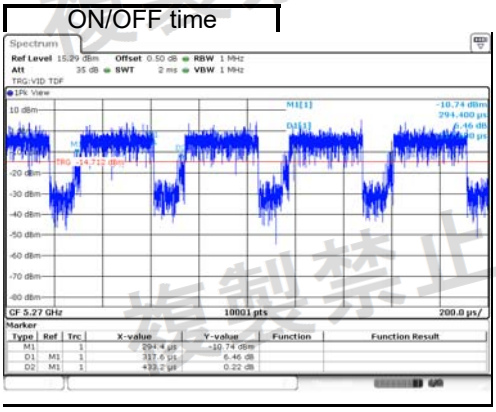
Ch.54: 5270MHz



Ch.62: 5310MHz

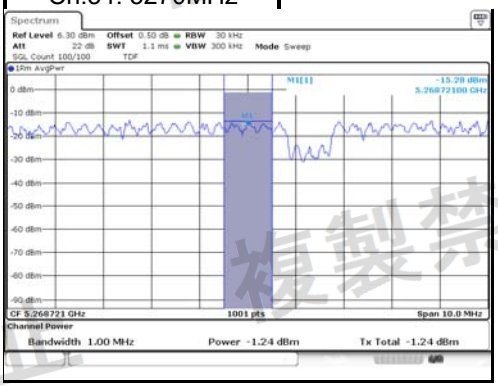


ON/OFF time

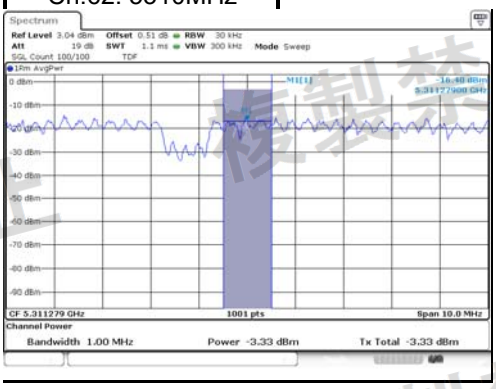


Tx2

Ch.54: 5270MHz



Ch.62: 5310MHz



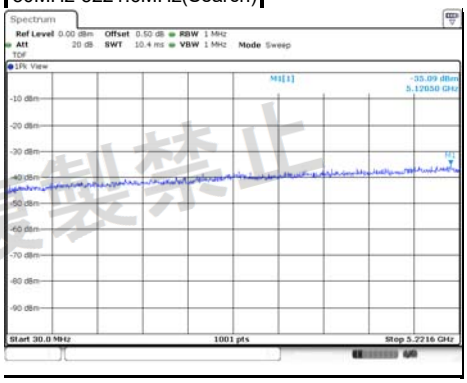
7. Test chart

7.5 Unwanted(Spurious) emission strength (Rated voltage)

Tx1

Ch.54: 5270MHz

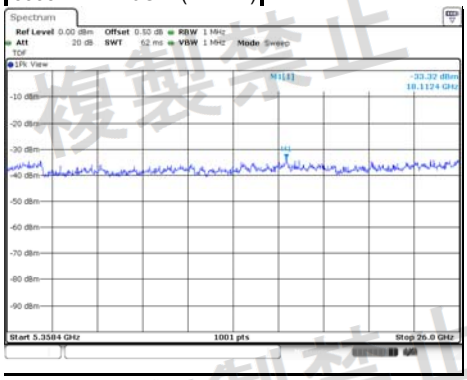
30MHz-5221.6MHz(Search)



30MHz-5221.6MHz(Detail)

Blank

5358.4MHz-26GHz(Search)



5358.4MHz-26GHz(Detail)

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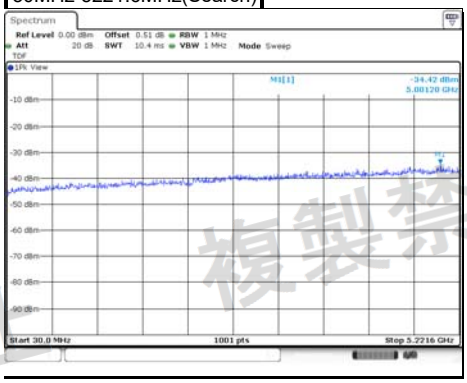
Ch.62: 5310MHz

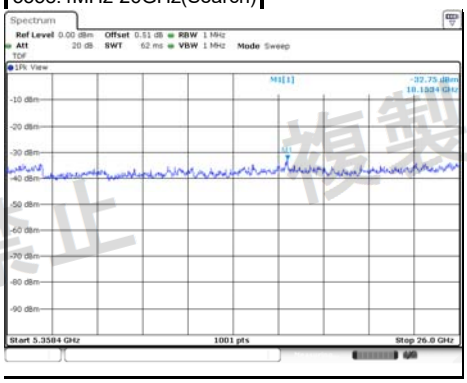
30MHz-5221.6MHz(Search)



30MHz-5221.6MHz(Detail)

Blank

5358.4MHz-26GHz(Search)



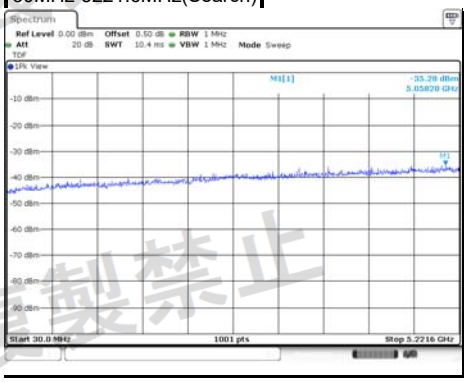
5358.4MHz-26GHz(Detail)

Blank

Tx2

Ch.54: 5270MHz

30MHz-5221.6MHz(Search)



30MHz-5221.6MHz(Detail)

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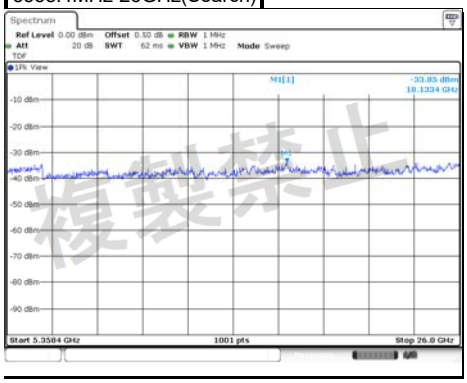
5358.4MHz-26GHz(Search)

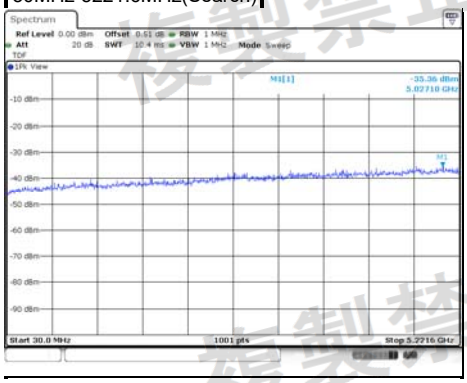


5358.4MHz-26GHz(Detail)

Blank

Ch.62: 5310MHz

30MHz-5221.6MHz(Search)



30MHz-5221.6MHz(Detail)

Blank

5358.4MHz-26GHz(Search)

5358.4MHz-26GHz(Detail)

Blank

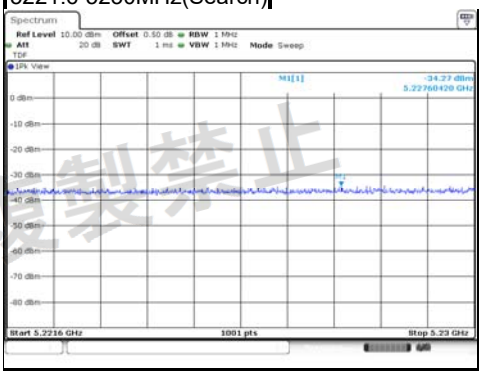
7. Test chart

7.6 Out-Band Leakage Power (Rated voltage)

Tx1

Ch.54: 5270MHz

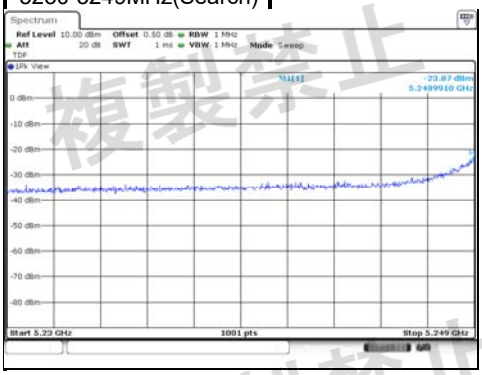
5221.6-5230MHz(Search)



5221.6-5230MHz(Detail)

Blank

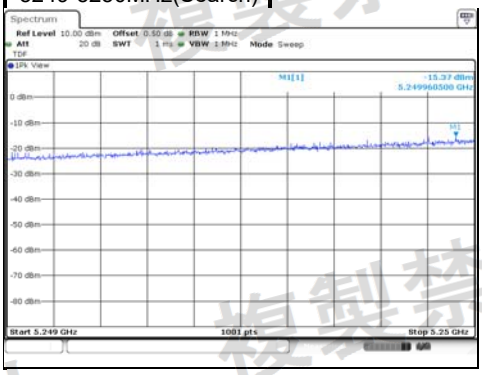
5230-5249MHz(Search)



5230-5249MHz(Detail)

Blank

5249-5250MHz(Search)



5249-5250MHz(Detail)

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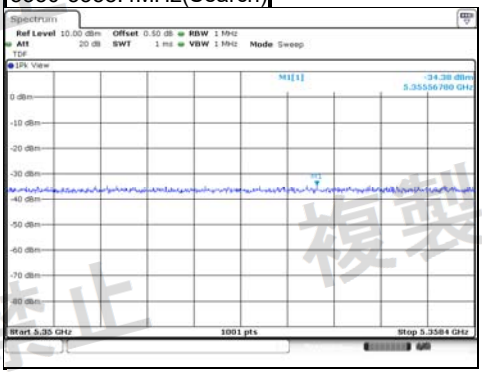
5350-5358.4MHz(Search)



5350-5358.4MHz(Detail)

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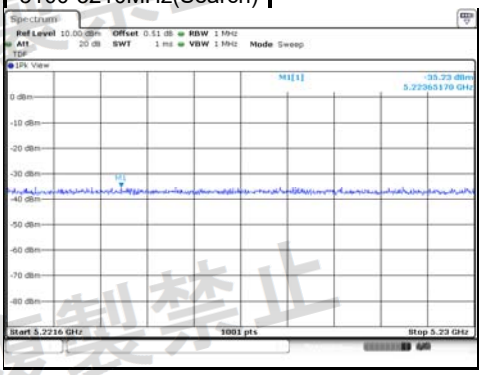
Ch.62: 5310MHz

5100-5210MHz(Search)



5100-5210MHz(Detail)

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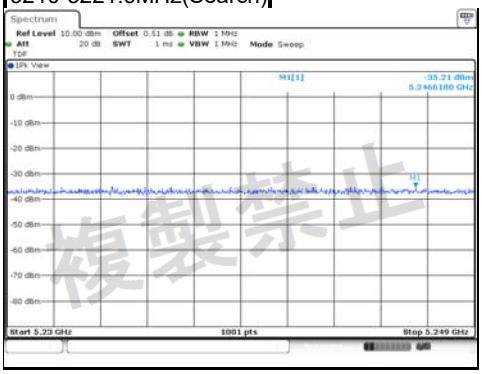
5210-5221.6MHz(Search)



5210-5221.6MHz(Detail)

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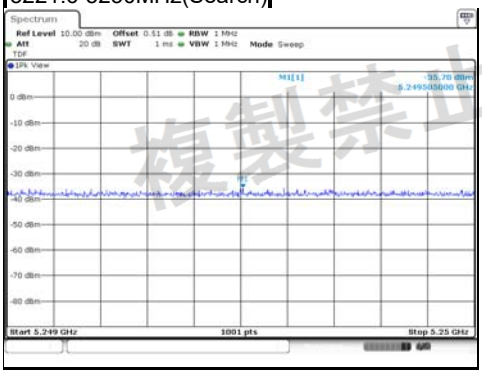
5221.6-5230MHz(Search)



5221.6-5230MHz(Detail)

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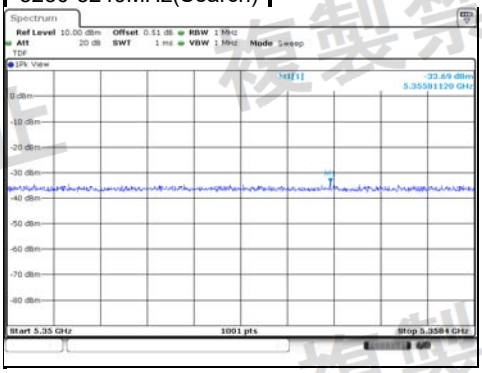
5230-5249MHz(Search)



5230-5249MHz(Detail)

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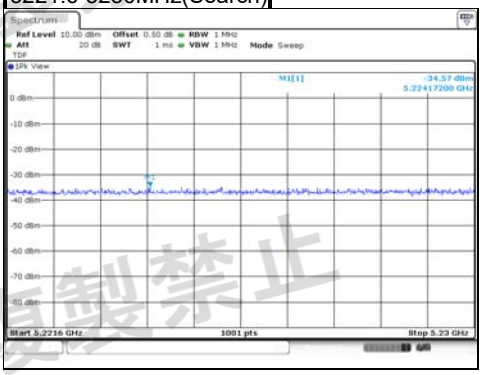
Tx2

Ch.54: 5270MHz

5221.6-5230MHz(Search)



5221.6-5230MHz(Detail)

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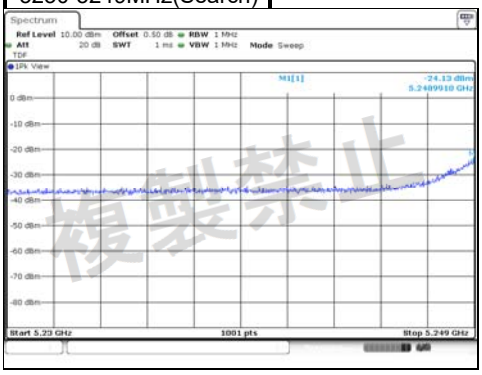
5230-5249MHz(Search)



5230-5249MHz(Detail)

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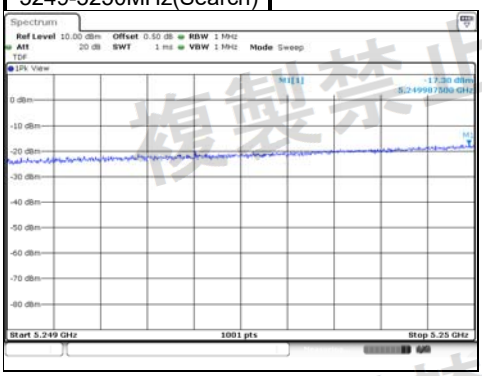
5249-5250MHz(Search)



5249-5250MHz(Detail)

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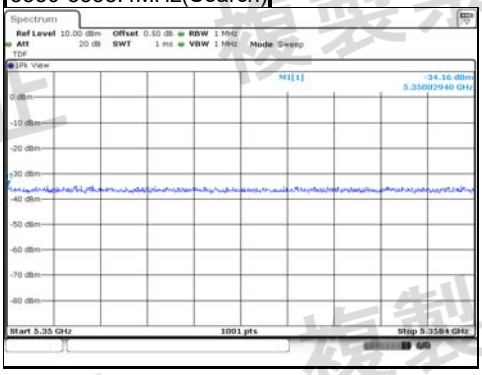
5350-5358.4MHz(Search)



5350-5358.4MHz(Detail)

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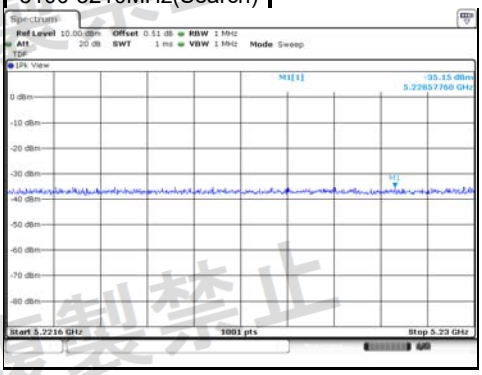
Ch.62: 5310MHz

5100-5210MHz(Search)



5100-5210MHz(Detail)

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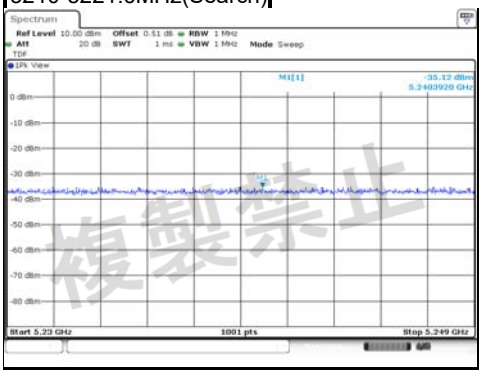
5210-5221.6MHz(Search)



5210-5221.6MHz(Detail)

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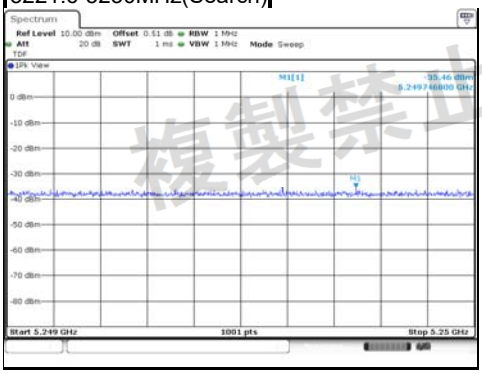
5221.6-5230MHz(Search)



5221.6-5230MHz(Detail)

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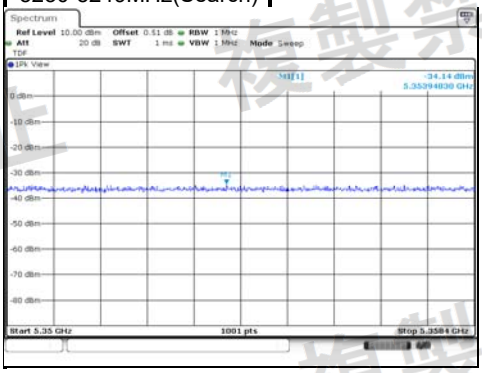
5230-5249MHz(Search)



5230-5249MHz(Detail)

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3. Test results (Rated voltage)

S/N : 563b88ad

Environment of test room	Date of test	2022-02-04	2022-02-05	2022-02-06
	Temperature	21 °C	20 °C	21 °C
	Humidity	51 %	51 %	52 %

Peak Antenna Gain	-5.99	dBi
Beamforming Gain	3.00	dB
Peak Antenna Gain + Beamforming Gain	-2.99	dBi
Declaration Output Power	2.50	mW/MHz
	3.98	dBm/MHz
E.I.R.P	**1.26**	mW/MHz
	0.99	**dBm/MHz**
Input Power Voltage	3.86	VDC

Test category		IEEE802.11ac VHT80 / MIMO(2TX)	
Tested Circit Insertion Loss		0.00	dB
Transmission Time	ON TIME (1sec or less)	0.15	ms
	OFF TIME (0.1sec or more)	0.18	ms
	Ratio	0.45	%

Using TDF and offset function in Spectrum Analyz

Measurement of plots are included Loss value.

Offset : EUT cable(0.51dB)

Test category :	5GHz Band Low-Power Data Communication System (802.11ac VHT80 W53/MIMO(2TX))_Beamforming
The reason why the tests are performed only at rated voltage :	The fluctuation of input voltage to the circuit of the radio part of the equipment to be tested is identified as being less than ±1 % when input voltage from an external supply into the equipment fluctuates ±10 %.

Measurement Channel	Ch.	58		
Measurement Frequency	MHz	5290	Result	Limit
RF Output Power(Tx1)	mW/MHz	0.38	**PASS**	2.5mW/MHz or below
RF Output Power(Tx2)	mW/MHz	0.31	**PASS**	2.5mW/MHz or below
RF Output Power (Tx1+2)	mW/MHz	0.70	**PASS**	2.5mW/MHz or below
RF Output Power Tolerance (Tx1+2)	%	-72.08	**PASS**	+20% to -80%

Measurement Channel		Ch.	58		
Measurement Frequency		MHz	5290	Result	Limit
Unwanted (Spurious) Emission Strength (Tx1)	30MHz to 5203.3MHz	uW/MHz	0.14	**PASS**	2.5uW/MHz or below
		MHz	5071.50	----	----
	5376.8MHz to 26GHz	uW/MHz	0.24	**PASS**	2.5uW/MHz or below
		MHz	18098.80	----	----
Unwanted (Spurious) Emission Strength (Tx2)	30MHz to 5203.3MHz	uW/MHz	0.14	**PASS**	2.5uW/MHz or below
		MHz	4792.40	----	----
	5376.8MHz to 26GHz	uW/MHz	0.25	**PASS**	2.5uW/MHz or below
		MHz	18078.80	----	----
Unwanted (Spurious) Emission Strength (Tx1+2)	30MHz to 5203.3MHz	uW/MHz	0.28	**PASS**	2.5uW/MHz or below
		----	----	----	----
	5376.8MHz to 26GHz	uW/MHz	0.48	**PASS**	2.5uW/MHz or below
		----	----	----	----

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Measurement Channel		Ch.	58		
Measurement Frequency		MHz	5290	Result	Limit
Out-band of Leakage Power (Tx1)	5203.3 to 5210MHz	uW/MHz	0.16	**PASS**	$10^{-(3/100)(f-80)-1.8+\log(1/4)}$mW/MHz or below
		MHz	5207.29	----	----
	Limit	uW/MHz	3.28	----	----
	5210 to 5249MHz	uW/MHz	1.49	**PASS**	$10^{-(8/390)(f-41)-1+\log(1/4)}$mW/MHz or below
		MHz	5248.98	----	----
	Limit	uW/MHz	24.98	----	----
	5249 to 5250MHz	uW/MHz	5.52	**PASS**	$10^{-(f-40)+\log(1/4)}$mW/MHz or below
		MHz	5249.92	----	----
	Limit	uW/MHz	206.03	----	----
	5350 to 5376.8MHz	uW/MHz	0.20	**PASS**	15uW/MHz or below
		MHz	5353.90	----	----
Out-band of Leakage Power (Tx2)	5203.3 to 5210MHz	uW/MHz	0.20	**PASS**	$10^{-(3/100)(f-80)-1.8+\log(1/4)}$mW/MHz or below
		MHz	5204.26	----	----
	Limit	uW/MHz	2.67	----	----
	5210 to 5249MHz	uW/MHz	1.50	**PASS**	$10^{-(8/390)(f-41)-1+\log(1/4)}$mW/MHz or below
		MHz	5248.83	----	----
	Limit	uW/MHz	24.79	----	----
	5249 to 5250MHz	uW/MHz	3.73	**PASS**	$10^{-(f-40)+\log(1/4)}$mW/MHz or below
		MHz	5249.99	----	----
	Limit	uW/MHz	243.19	----	----
	5350 to 5376.8MHz	uW/MHz	0.17	**PASS**	15uW/MHz or below
		MHz	5368.59	----	----
Out-band of Leakage Power (Tx1+2)	5203.3 to 5210MHz	uW/MHz	0.36	**PASS**	$10^{-(3/100)(f-80)-1.8+\log(1/4)}$mW/MHz or below
		MHz	5207.29	----	----
	Limit	uW/MHz	3.28	----	----
	5210 to 5249MHz	uW/MHz	2.99	**PASS**	$10^{-(8/390)(f-41)-1+\log(1/4)}$mW/MHz or below
		MHz	5248.98	----	----
	Limit	uW/MHz	24.98	----	----
	5249 to 5250MHz	uW/MHz	9.25	**PASS**	$10^{-(f-40)+\log(1/4)}$mW/MHz or below
		MHz	5249.99	----	----
	Limit	uW/MHz	243.19	----	----
	5350 to 5376.8MHz	uW/MHz	0.37	**PASS**	15uW/MHz or below
		----	----	----	----

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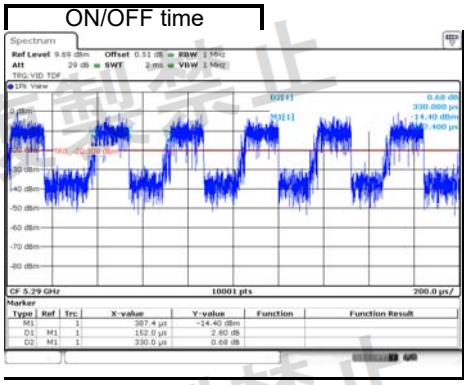
7. Test chart

7.4 RF output power tolerance (Rated voltage)

Tx1

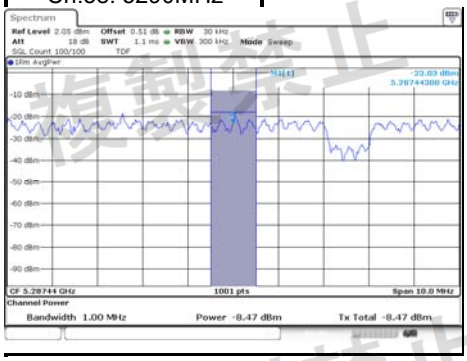
Ch.58: 5290MHz

ON/OFF time



Tx2

Ch.58: 5290MHz



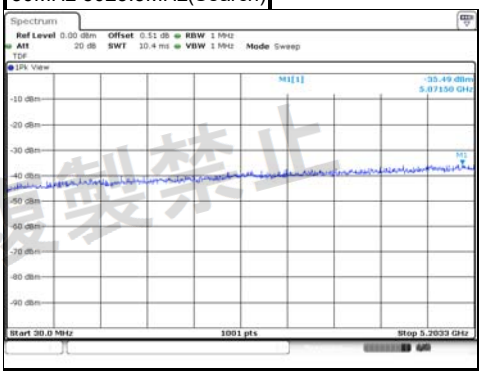
7. Test chart

7.5 Unwanted(Spurious) emission strength (Rated voltage)

Tx1

Ch.58: 5290MHz

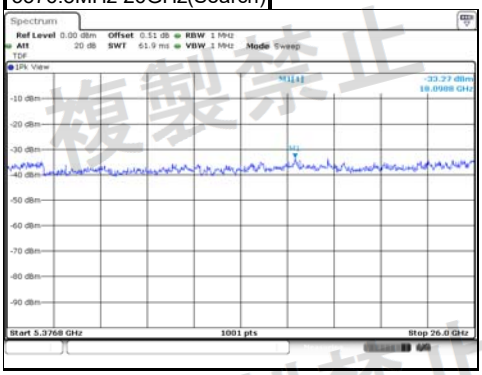
30MHz-5023.3MHz(Search)



30MHz-5203.3MHz(Detail)

Blank

5376.8MHz-26GHz(Search)



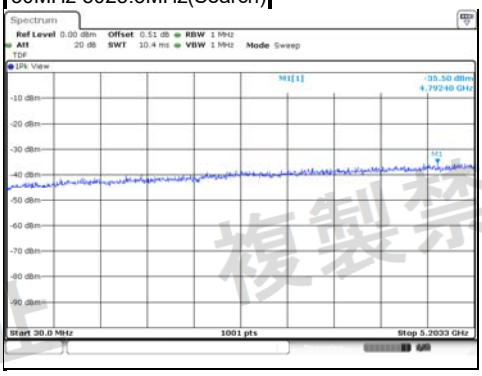
5376.8MHz-26GHz(Detail)

Blank

Tx2

Ch.58: 5290MHz

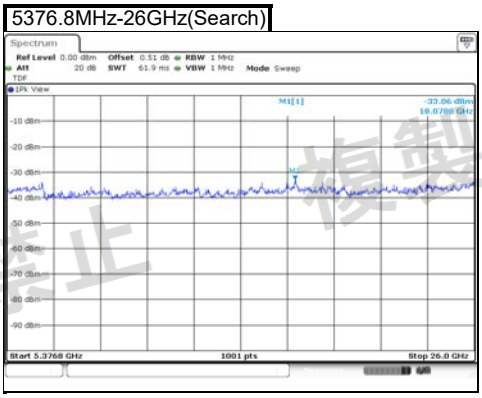
30MHz-5023.3MHz(Search)



30MHz-5203.3MHz(Detail)

Blank

5376.8MHz-26GHz(Search)



5376.8MHz-26GHz(Detail)

Blank

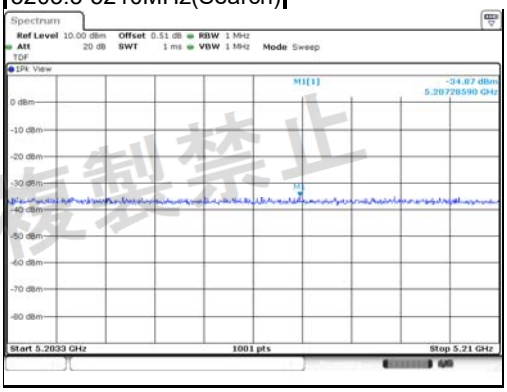
7. Test chart

7.6 Out-Band Leakage Power (Rated voltage)

Tx1

Ch.58: 5290MHz

5203.3-5210MHz(Search)



5203.3-5210MHz(Detail)

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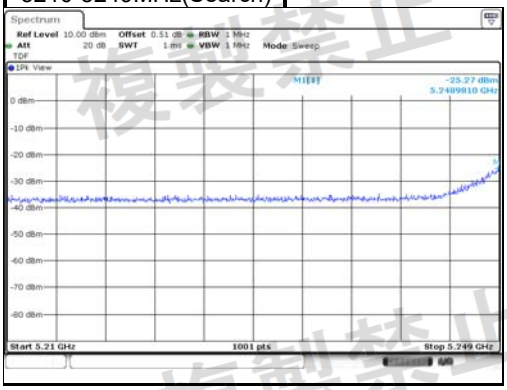
5210-5249MHz(Search)



5210-5249MHz(Detail)

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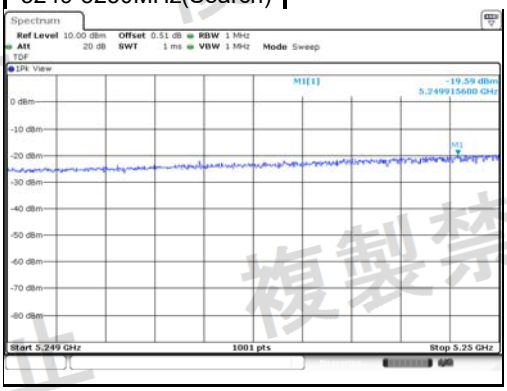
5249-5250MHz(Search)



5249-5250MHz(Detail)

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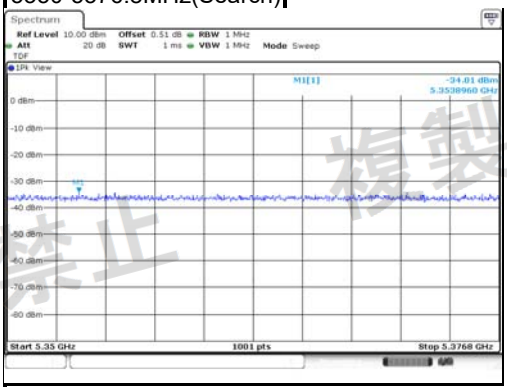
5350-5376.8MHz(Search)



5350-5376.8MHz(Detail)

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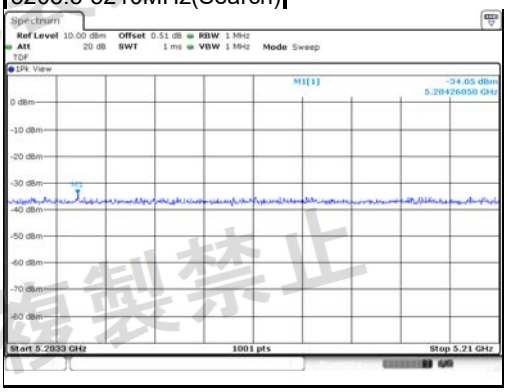
Tx2

Ch.58: 5290MHz

5203.3-5210MHz(Search)



5203.3-5210MHz(Detail)

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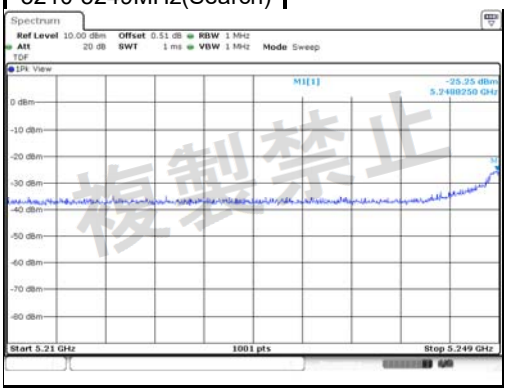
5210-5249MHz(Search)



5210-5249MHz(Detail)

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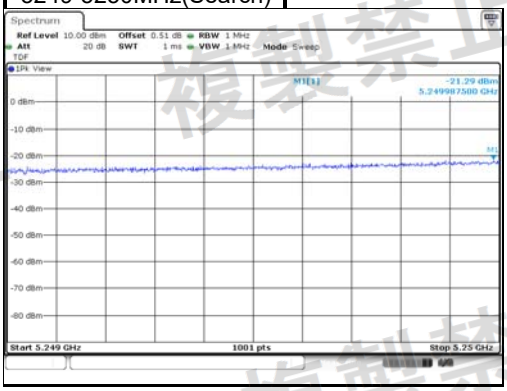
5249-5250MHz(Search)



5249-5250MHz(Detail)

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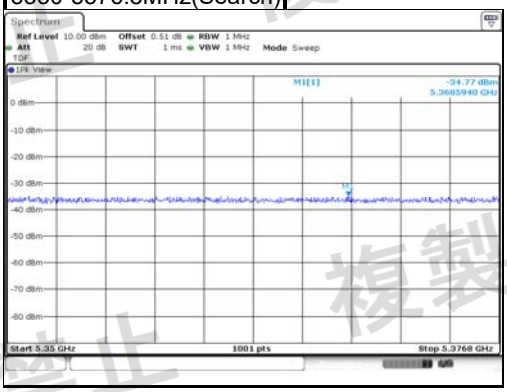
5350-5376.8MHz(Search)



5350-5376.8MHz(Detail)

Blank

3. Test results (Rated voltage)

S/N : 563b88ad

Environment of test room	Date of test	2022-02-04	2022-02-05	2022-02-06
	Temperature	21 °C	20 °C	21 °C
	Humidity	51 %	51 %	52 %

Peak Antenna Gain	-5.75	dBi
Beamforming Gain	3.00	dB
Peak Antenna Gain + Beamforming Gain	-2.75	dBi
Declaration Output Power	3.50	mW/MHz
	5.44	dBm/MHz
E.I.R.P	**1.86**	mW/MHz
	2.69	**dBm/MHz**
Input Power Voltage	3.86	VDC

Test category		IEEE802.11ac VHT20 / MIMO(2TX)	
Tested Circit Insertion Loss		0	dB
Transmission Time	ON TIME (1sec or less)	0.64	ms
	OFF TIME (0.1sec or more)	0.11	ms
	Ratio	0.85	%

Using TDF and offset function in Spectrum Analyzer.

Measurement of plots are included Loss value.

Offset : EUT cable
(ch100: 0.51, ch120: 0.54, ch144: 0.58dB)

Test category :	5GHz Band Low-Power Data Communication System (802.11ac VHT20 W56/MIMO(2TX))_Beamforming
The reason why the tests are performed only at rated voltage:	The fluctuation of input voltage to the circuit of the radio part of the equipment to be tested is identified as being less than ±1 % when input voltage from an external supply into the equipment fluctuates ±10 %.

Measurement Channel	Ch.	100	120	144		
Measurement Frequency	MHz	5500	5600	5720	Result	Limit
RF Output Power(Tx1)	mW/MHz	2.34	2.54	1.77	**PASS**	10mW/MHz or below
RF Output Power(Tx2)	mW/MHz	1.82	1.92	1.39	**PASS**	10mW/MHz or below
RF Output Power (Tx1+2)	mW/MHz	4.17	4.46	3.16	**PASS**	10mW/MHz or below
RF Output Power Tolerance (Tx1+2)	%	19.06	27.51	-9.76	**PASS**	+50% to -50%

Measurement Channel		Ch.	100	120	144		
Measurement Frequency		MHz	5500	5600	5720	Result	Limit
Unwanted (Spurious) Emission Strength(Tx1)	30MHz to 5460MHz	uW/MHz	0.18	0.18	0.17	**PASS**	2.5uW/MHz or below
		MHz	5196.90	5148.10	5392.20	----	----
	5765MHz to 26GHz	uW/MHz	0.27	0.33	0.26	**PASS**	2.5uW/MHz or below
		MHz	18086.00	18106.00	18126.00	----	----
Unwanted (Spurious) Emission Strength(Tx2)	30MHz to 5460MHz	uW/MHz	0.20	0.16	0.15	**PASS**	2.5uW/MHz or below
		MHz	5375.90	5457.30	4730.40	----	----
	5765MHz to 26GHz	uW/MHz	0.30	0.25	0.27	**PASS**	2.5uW/MHz or below
		MHz	18106.00	25565.00	18086.00	----	----
Unwanted (Spurious) Emission Strength (Tx1+2)	30MHz to 5460MHz	uW/MHz	0.38	0.34	0.32	**PASS**	2.5uW/MHz or below
		----	----	----	----	----	----
	5765MHz to 26GHz	uW/MHz	0.57	0.58	0.53	**PASS**	2.5uW/MHz or below
		----	----	----	----	----	----

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Measurement Channel		Ch.	100	120	144		
Measurement Frequency		MHz	5500	5600	5720	Result	Limit
Out-band of Leakage Power (Tx1)	5460 to 5470MHz	uW/MHz	0.19	0.18	0.18	**PASS**	12.5uW/MHz or below
		MHz	5461.62	5465.58	5467.93	----	----
	5745 to 5765MHz	uW/MHz	0.22	0.22	0.27	**PASS**	12.5uW/MHz or below
		MHz	5754.46	5747.99	5762.23	----	----
Out-band of Leakage Power (Tx2)	5460 to 5470MHz	uW/MHz	0.23	0.18	0.20	**PASS**	12.5uW/MHz or below
		MHz	5465.51	5466.77	5466.09	----	----
	5745 to 5765MHz	uW/MHz	0.20	0.22	0.22	**PASS**	12.5uW/MHz or below
		MHz	5754.08	5745.19	5754.32	----	----
Out-band of Leakage Power (Tx1+2)	5460 to 5470MHz	uW/MHz	0.42	0.36	0.39	**PASS**	12.5uW/MHz or below
		----	----	----	----	----	----
	5745 to 5765MHz	uW/MHz	0.42	0.44	0.49	**PASS**	12.5uW/MHz or below
		----	----	----	----	----	----

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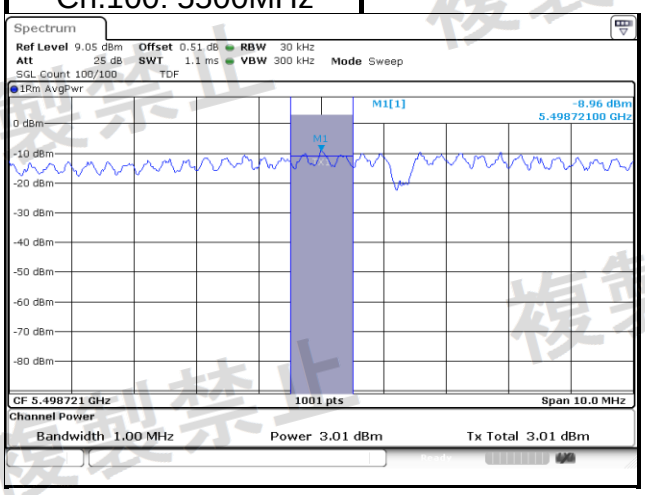
7. Test chart

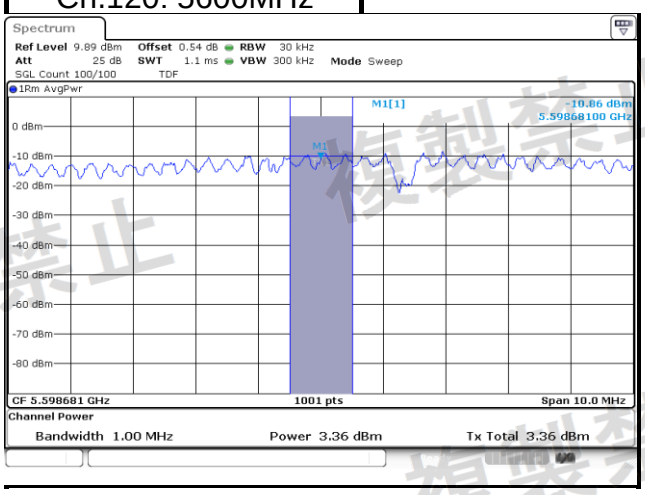
7.4 RF output power tolerance (Rated voltage)

Tx1

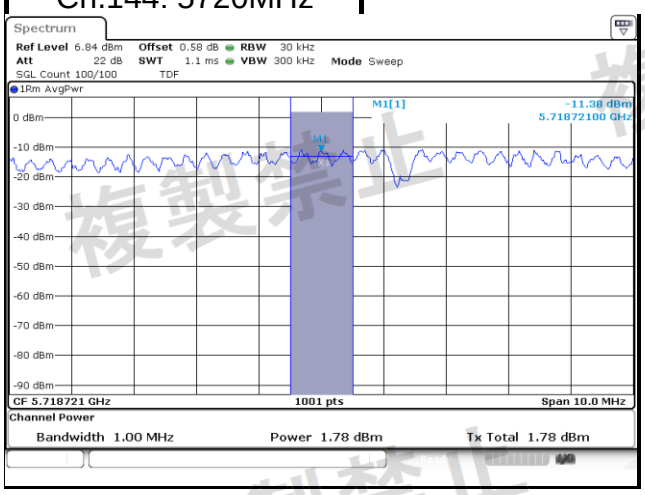
Ch.100: 5500MHz



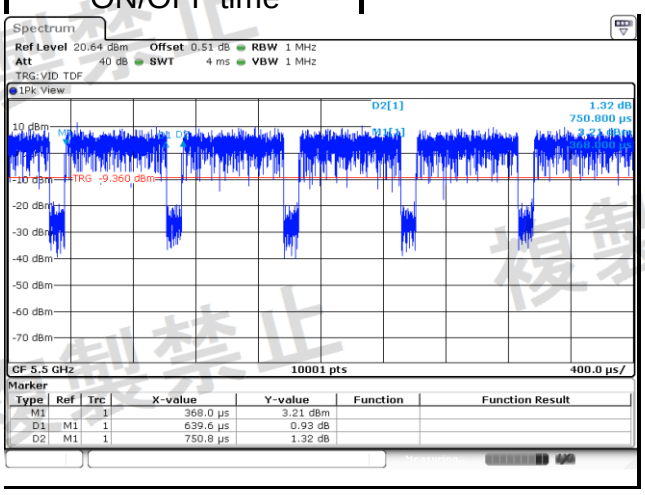
Ch.120: 5600MHz



Ch.144: 5720MHz

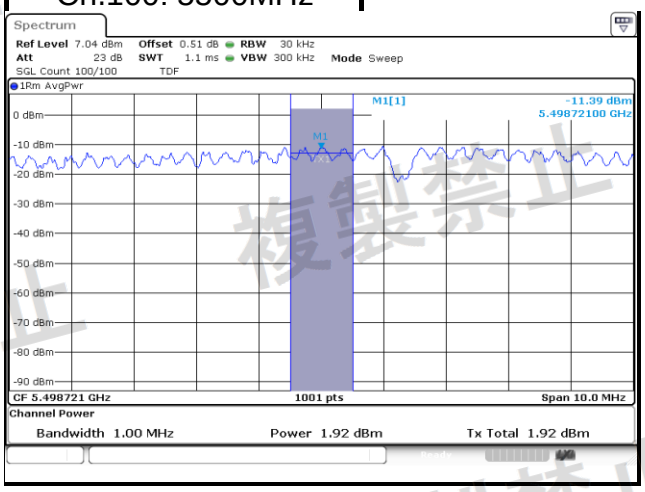


ON/OFF time

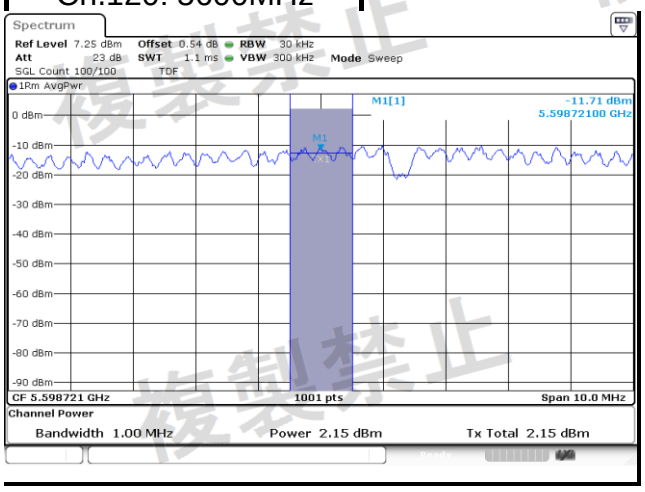


Tx2

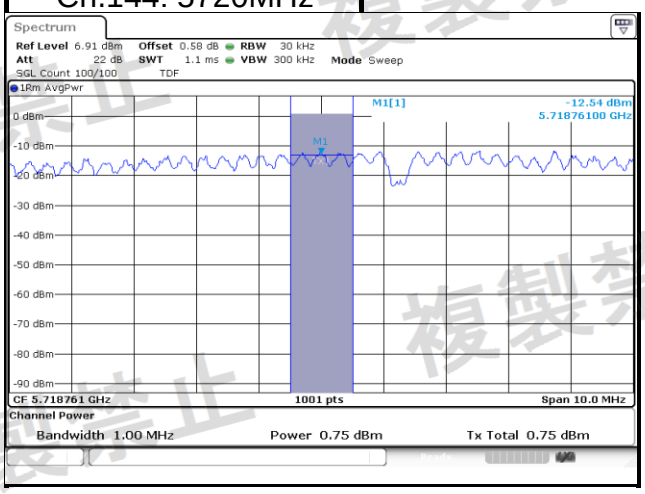
Ch.100: 5500MHz



Ch.120: 5600MHz



Ch.144: 5720MHz



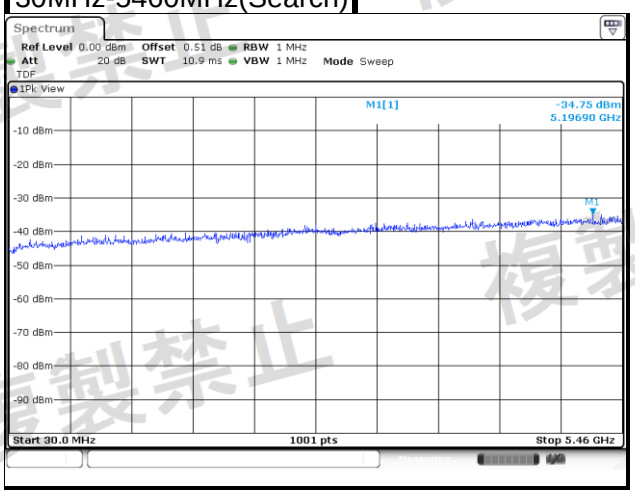
7. Test chart

7.5 Unwanted(Spurious) emission strength (Rated voltage)

Tx1

Ch.100: 5500MHz

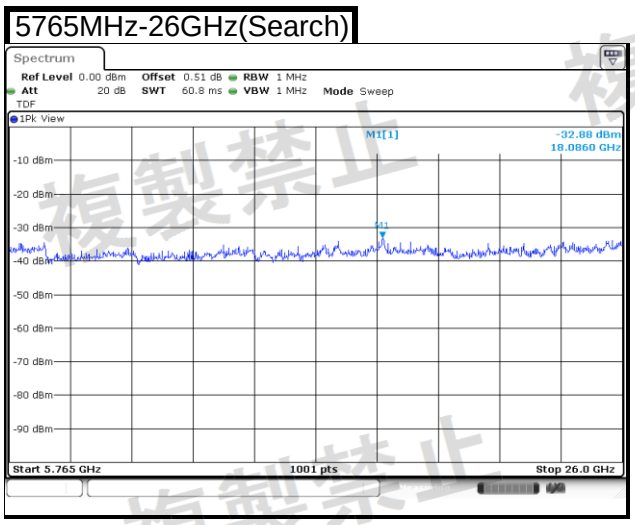
30MHz-5460MHz(Search)



30MHz-5460MHz(Detail)

Blank

5765MHz-26GHz(Search)

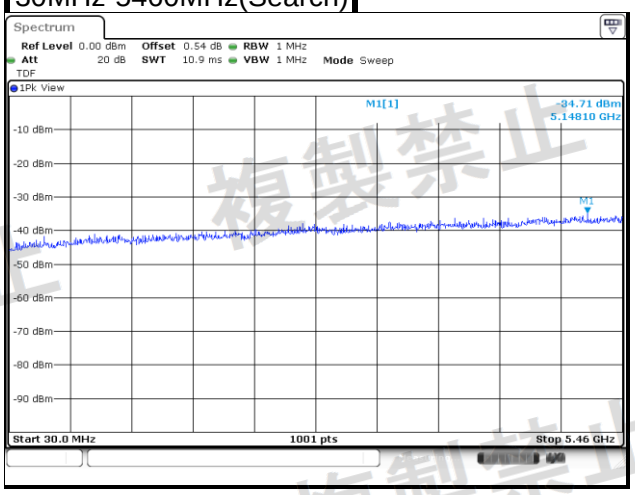


5765MHz-26GHz(Detail)

Blank

Ch.120: 5600MHz

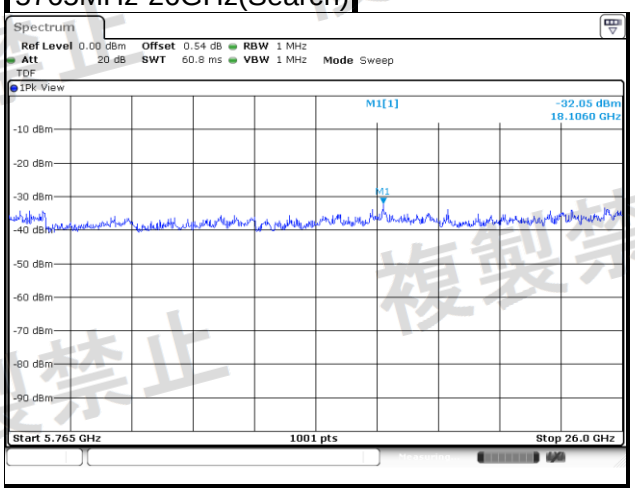
30MHz-5460MHz(Search)



30MHz-5460MHz(Detail)

Blank

5765MHz-26GHz(Search)

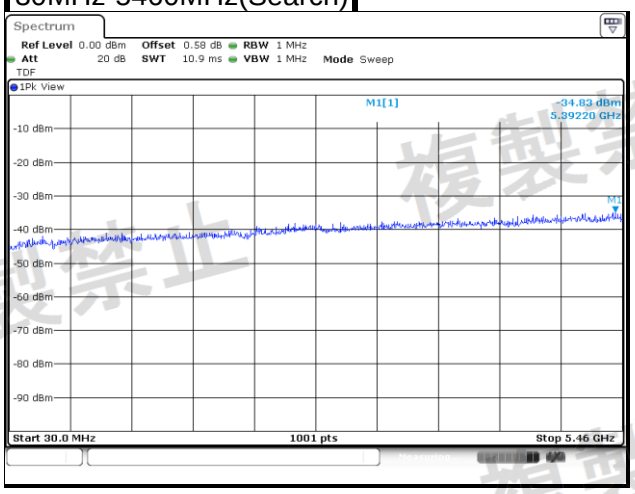


5765MHz-26GHz(Detail)

Blank

Ch.144: 5720MHz

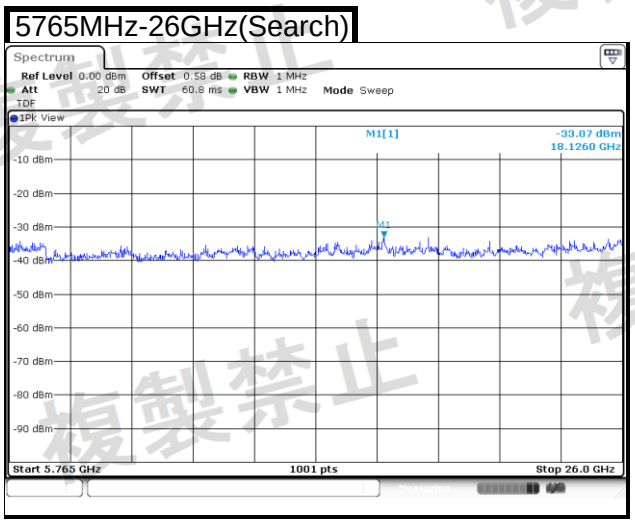
30MHz-5460MHz(Search)



30MHz-5460MHz(Detail)

Blank

5765MHz-26GHz(Search)



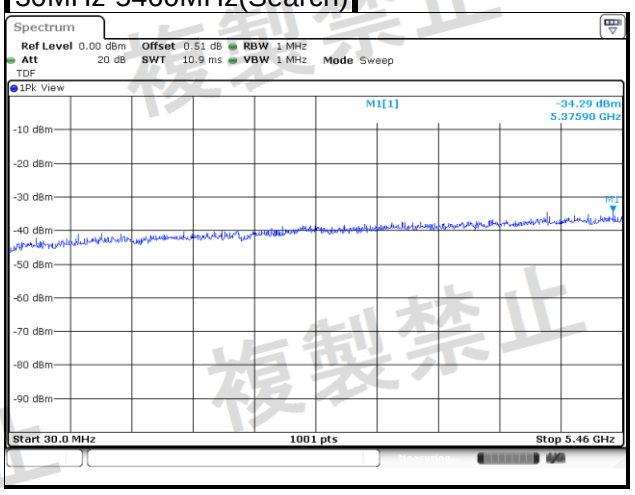
5765MHz-26GHz(Detail)

Blank

Tx2

Ch.100: 5500MHz

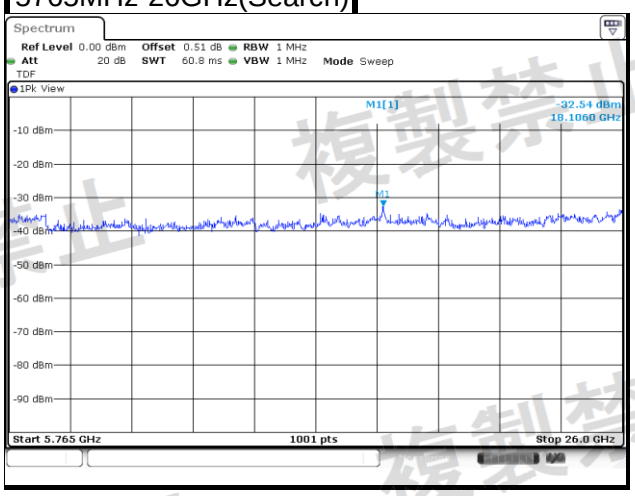
30MHz-5460MHz(Search)



30MHz-5460MHz(Detail)

Blank

5765MHz-26GHz(Search)

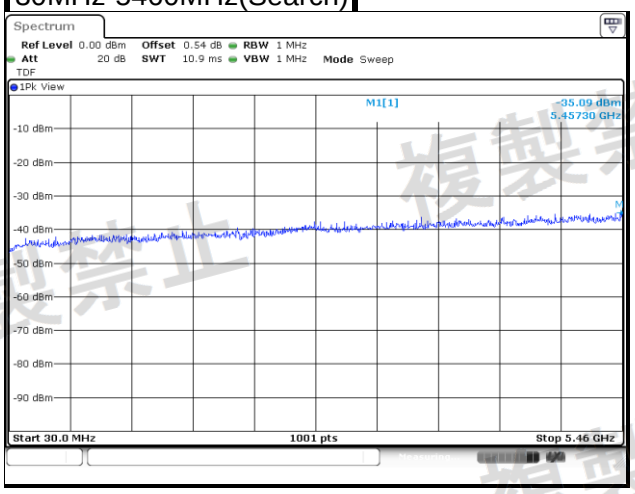


5765MHz-26GHz(Detail)

Blank

Ch.120: 5600MHz

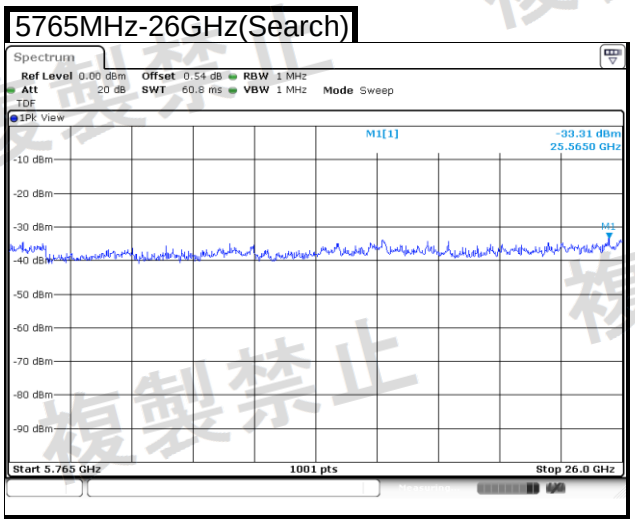
30MHz-5460MHz(Search)



30MHz-5460MHz(Detail)

Blank

5765MHz-26GHz(Search)

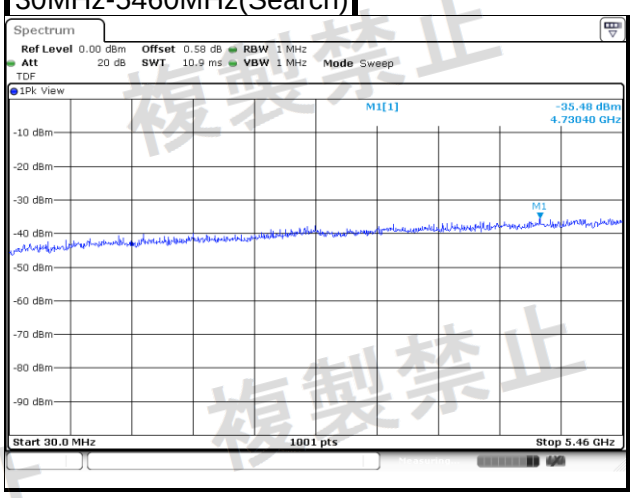


5765MHz-26GHz(Detail)

Blank

Ch.144: 5720MHz

30MHz-5460MHz(Search)



30MHz-5460MHz(Detail)

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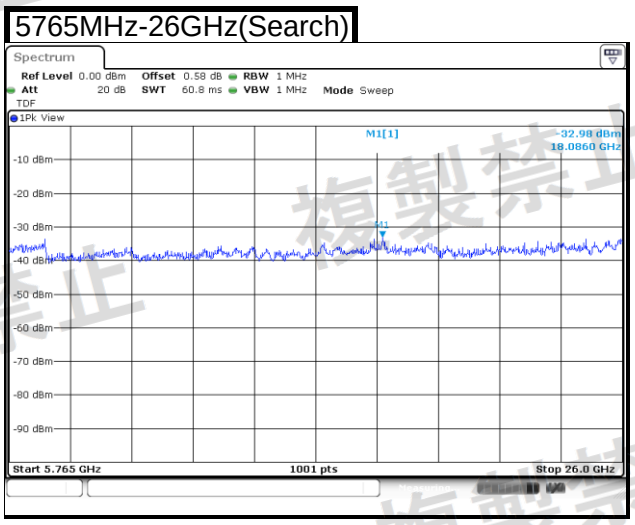
5765MHz-26GHz(Search)



5765MHz-26GHz(Detail)

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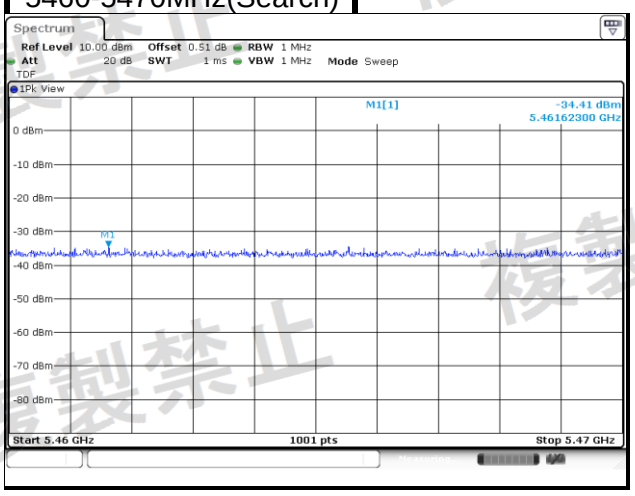
7. Test chart

7.6 Out-Band Leakage Power (Rated voltage)

Tx1

Ch.100: 5500MHz

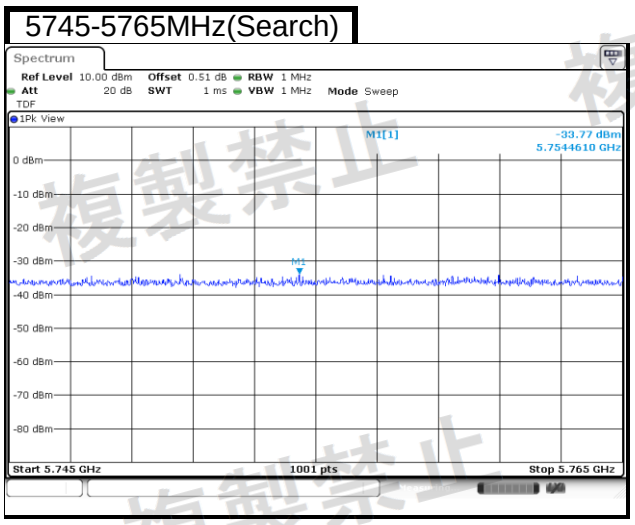
5460-5470MHz(Search)



5460-5470MHz(Detail)

Blank

5745-5765MHz(Search)

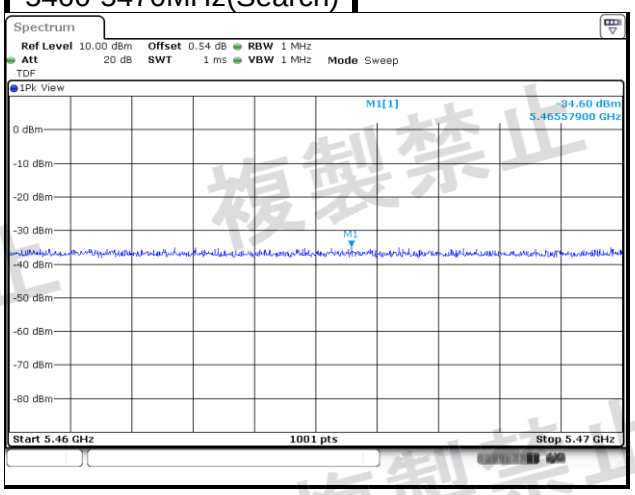


5745-5765MHz(Detail)

Blank

Ch.120: 5600MHz

5460-5470MHz(Search)



5460-5470MHz(Detail)

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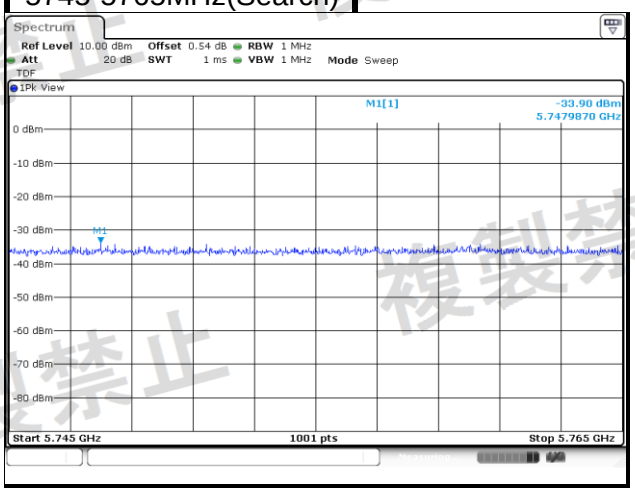
5745-5765MHz(Search)

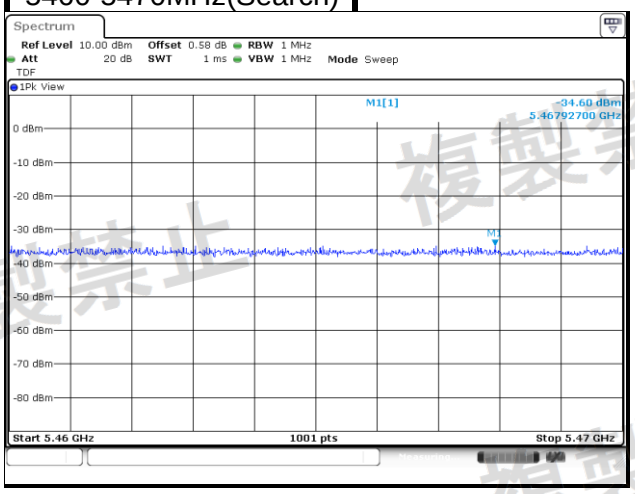


5745-5765MHz(Detail)

Blank

Ch.144: 5720MHz

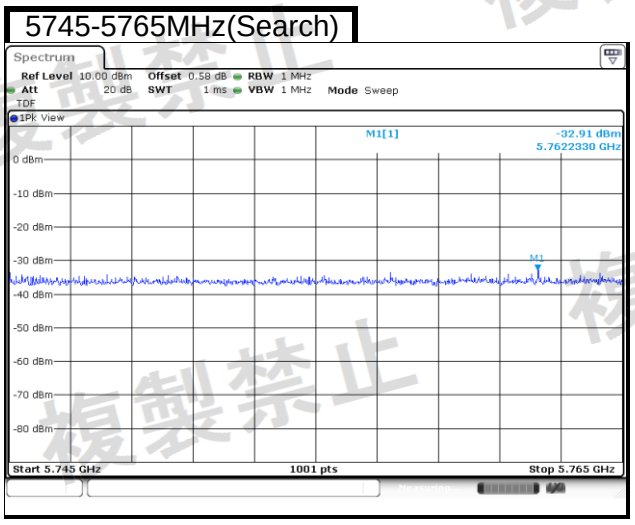
5460-5470MHz(Search)



5460-5470MHz(Detail)

Blank

5745-5765MHz(Search)



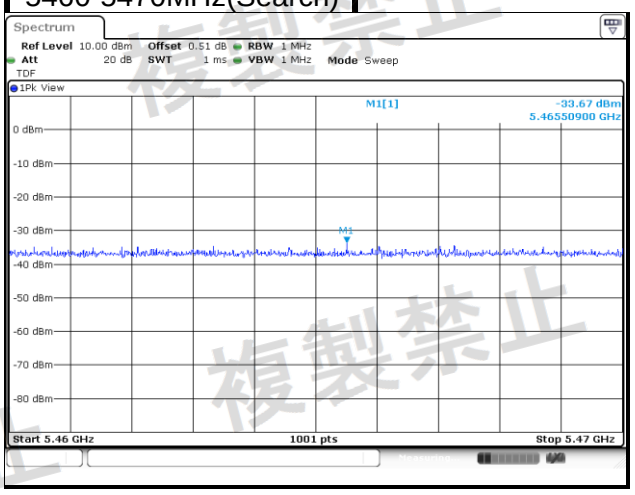
5745-5765MHz(Detail)

Blank

Tx2

Ch.100: 5500MHz

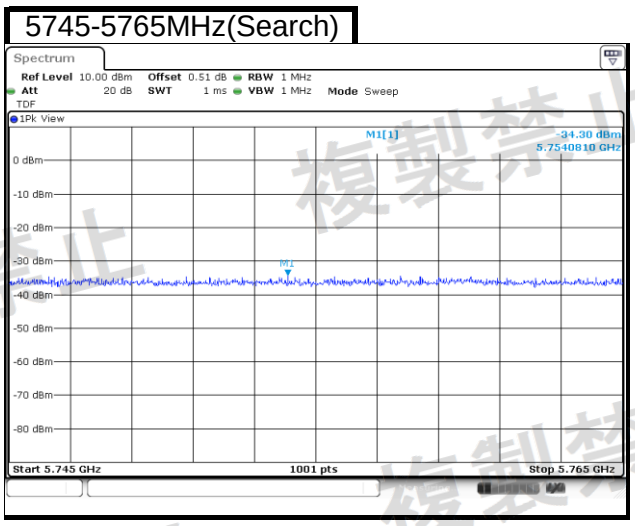
5460-5470MHz(Search)



5460-5470MHz(Detail)

Blank

5745-5765MHz(Search)

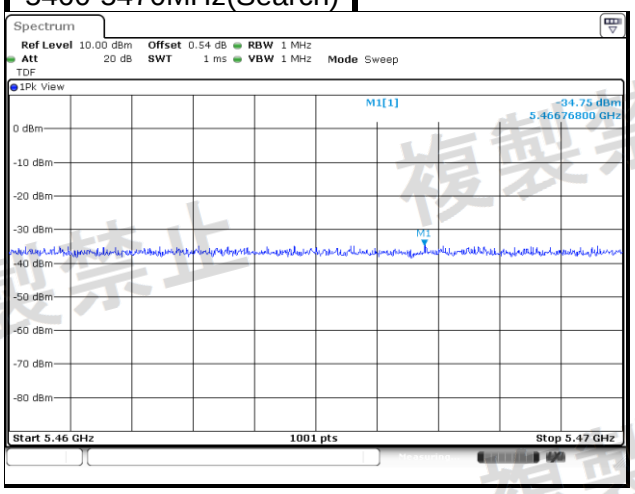


5745-5765MHz(Detail)

Blank

Ch.120: 5600MHz

5460-5470MHz(Search)



5460-5470MHz(Detail)

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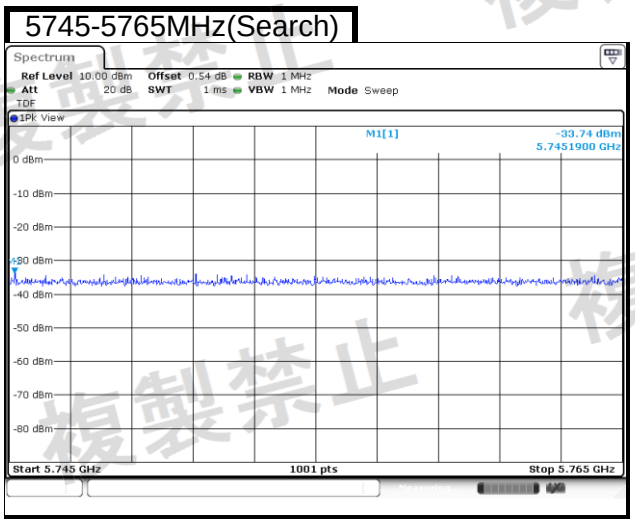
5745-5765MHz(Search)

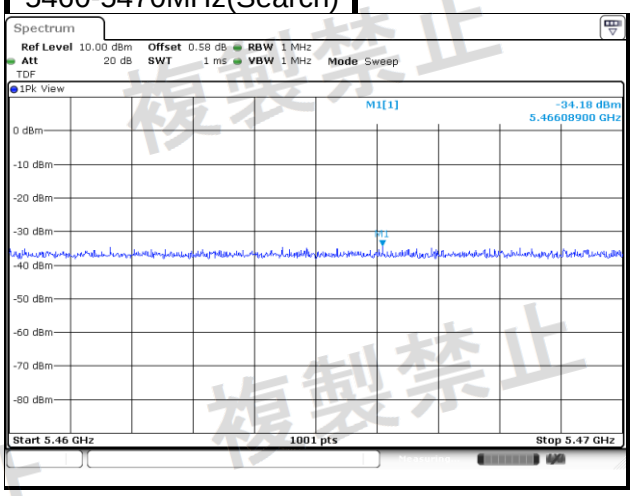


5745-5765MHz(Detail)

Blank

Ch.144: 5720MHz

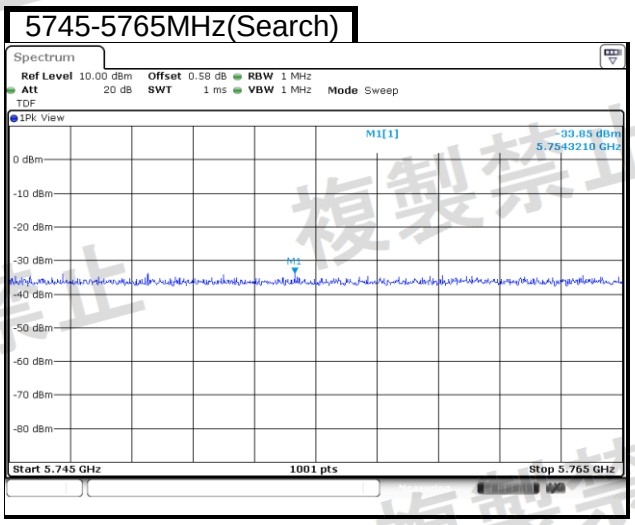
5460-5470MHz(Search)



5460-5470MHz(Detail)

Blank

5745-5765MHz(Search)



5745-5765MHz(Detail)

Blank

3. Test results (Rated voltage)

S/N : 563b88ad

Environment of test room	Date of test	2022-02-04	2022-02-05	2022-02-06
	Temperature	21 °C	20 °C	21 °C
	Humidity	51 %	51 %	52 %

Peak Antenna Gain	-5.75	dBi
Beamforming Gain	3.00	dB
Peak Antenna Gain + Beamforming Gain	-2.75	dBi
Declaration Output Power	2.50	mW/MHz
	3.98	dBm/MHz
E.I.R.P	**1.33**	mW/MHz
	1.23	**dBm/MHz**
Input Power Voltage	3.86	VDC

Test category		IEEE802.11ac VHT40 / MIMO(2TX)	
Tested Circit Insertion Loss		0.00	dB
Transmission Time	ON TIME (1sec or less)	0.32	ms
	OFF TIME (0.1sec or more)	0.13	ms
	Ratio	0.71	%

Using TDF and offset function in Spectrum Analyzer.

Measurement of plots are included Loss value.

Offset : EUT cable
(ch102: 0.51, ch118:0.54, ch142:0.58dB)

Test category :	5GHz Band Low-Power Data Communication System (802.11ac VHT40 W56/MIMO(2TX))_Beamforming
The reason why the tests are performed only at rated voltage:	The fluctuation of input voltage to the circuit of the radio part of the equipment to be tested is identified as being less than ±1 % when input voltage from an external supply into the equipment fluctuates ±10 %.

Measurement Channel	Ch.	102	118	142		
Measurement Frequency	MHz	5510	5590	5710	Result	Limit
RF Output Power(Tx1)	mW/MHz	0.71	1.25	1.25	**PASS**	5mW/MHz or below
RF Output Power(Tx2)	mW/MHz	0.58	0.93	1.01	**PASS**	5mW/MHz or below
RF Output Power (Tx1+2)	mW/MHz	1.30	2.18	2.26	**PASS**	5mW/MHz or below
RF Output Power Tolerance (Tx1+2)	%	-48.09	-12.79	-9.63	**PASS**	+50% to -50%

Measurement Channel		Ch.	102	118	142		
Measurement Frequency		MHz	5510	5590	5710	Result	Limit
Unwanted (Spurious) Emission Strength(Tx1)	30MHz to 5460MHz	uW/MHz	0.18	0.16	0.17	**PASS**	12.5uW/MHz or below
		MHz	5457.30	5305.40	5424.70	----	----
	5770MHz to 26GHz	uW/MHz	0.28	0.25	0.26	**PASS**	12.5uW/MHz or below
		MHz	18128.00	18088.00	18088.00	----	----
Unwanted (Spurious) Emission Strength(Tx2)	30MHz to 5460MHz	uW/MHz	0.19	0.17	0.17	**PASS**	12.5uW/MHz or below
		MHz	5039.60	5441.00	5039.60	----	----
	5770MHz to 26GHz	uW/MHz	0.26	0.24	0.28	**PASS**	12.5uW/MHz or below
		MHz	18108.00	25949.00	18088.00	----	----
Unwanted (Spurious) Emission Strength (Tx1+2)	30MHz to 5460MHz	uW/MHz	0.37	0.34	0.34	**PASS**	12.5uW/MHz or below
		----	----	----	----	----	----
	5770MHz to 26GHz	uW/MHz	0.54	0.49	0.54	**PASS**	12.5uW/MHz or below
		----	----	----	----	----	----

複製禁止

Measurement Channel		Ch.	102	118	142		
Measurement Frequency		MHz	5510	5590	5710	Result	Limit
Out-band of Leakage Power (Tx1)	5460 to 5470MHz	uW/MHz	0.20	0.18	0.18	**PASS**	50uW/MHz or below
		MHz	5468.78	5461.34	5463.61	----	----
Out-band of Leakage Power (Tx2)	5460 to 5470MHz	uW/MHz	0.18	0.21	0.21	**PASS**	50uW/MHz or below
		MHz	5469.88	5460.64	5469.26	----	----
Out-band of Leakage Power (Tx1+2)	5460 to 5470MHz	uW/MHz	0.38	0.39	0.39	**PASS**	50uW/MHz or below
		----	----	----	----	----	----

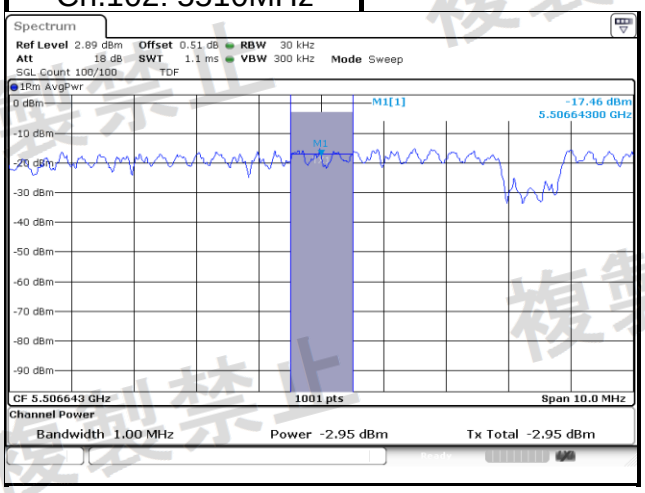
複製禁止

7. Test chart

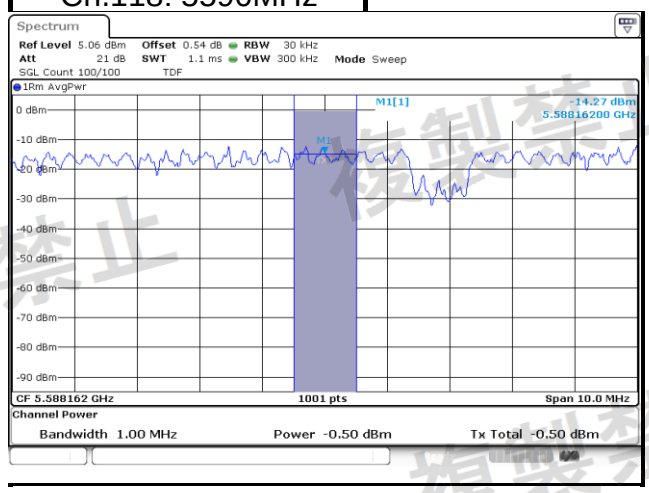
7.4 RF output power tolerance (Rated voltage)

Tx1

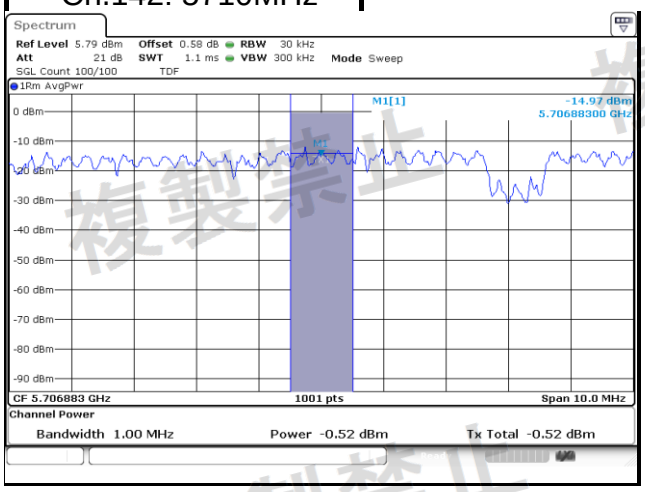
Ch.102: 5510MHz



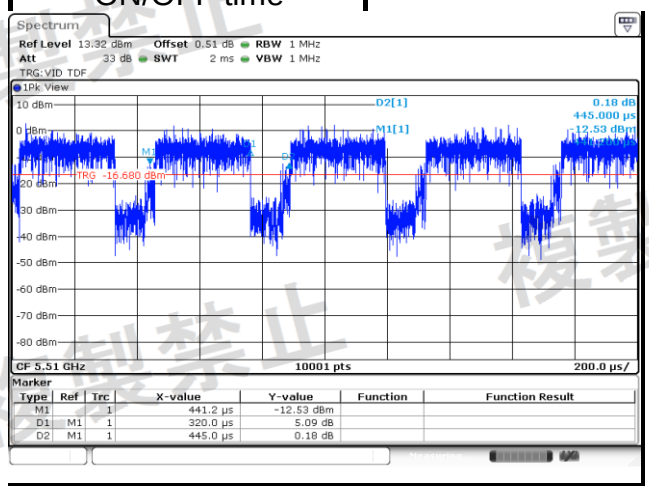
Ch.118: 5590MHz



Ch.142: 5710MHz

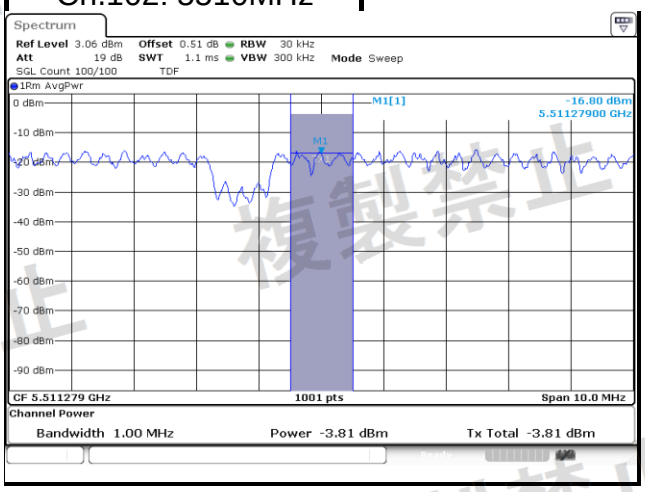


ON/OFF time

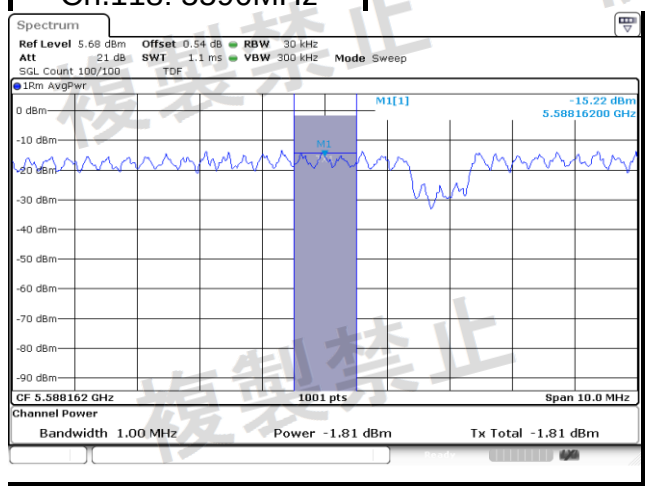


Tx2

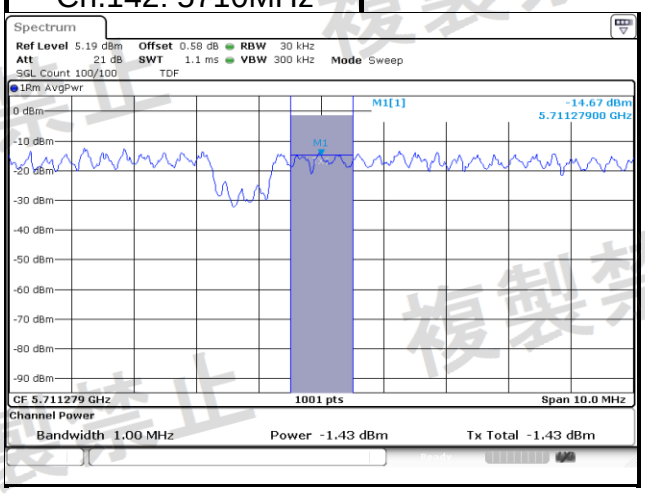
Ch.102: 5510MHz



Ch.118: 5590MHz



Ch.142: 5710MHz



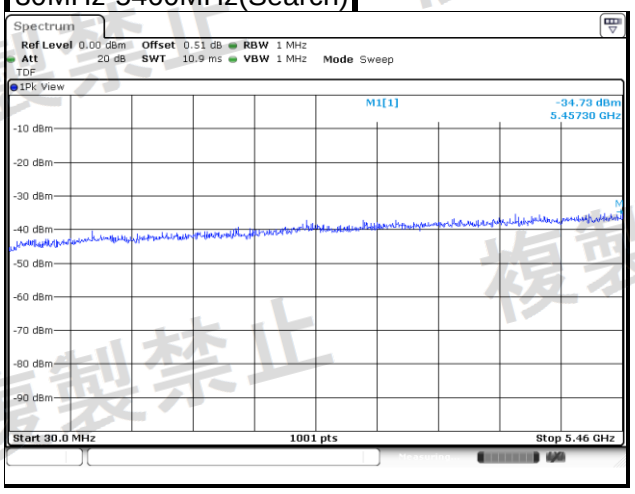
7. Test chart

7.5 Unwanted(Spurious) emission strength (Rated voltage)

Tx1

Ch.102: 5510MHz

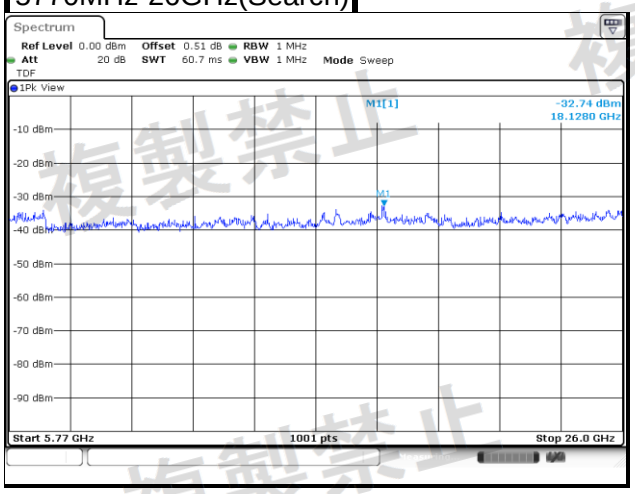
30MHz-5460MHz(Search)



30MHz-5460MHz(Detail)

Blank

5770MHz-26GHz(Search)



5770MHz-26GHz(Detail)

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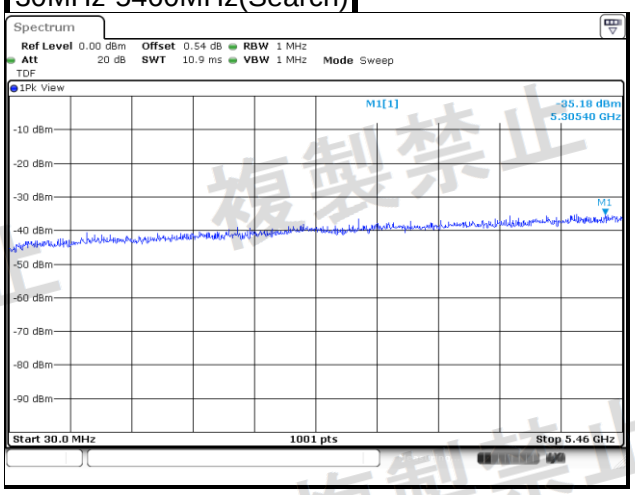
Ch.118: 5590MHz

30MHz-5460MHz(Search)



30MHz-5460MHz(Detail)

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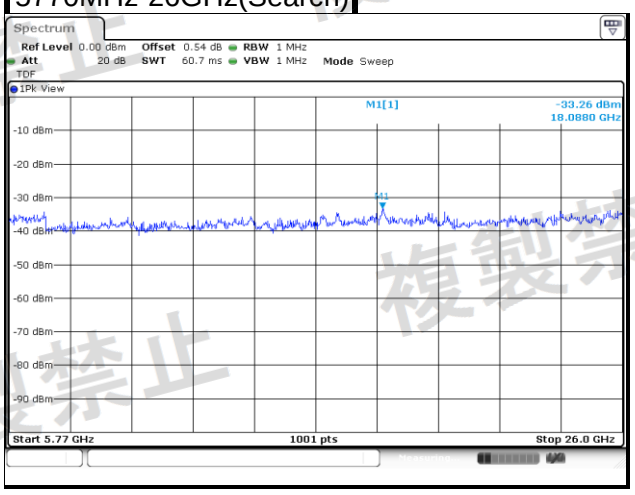
5770MHz-26GHz(Search)

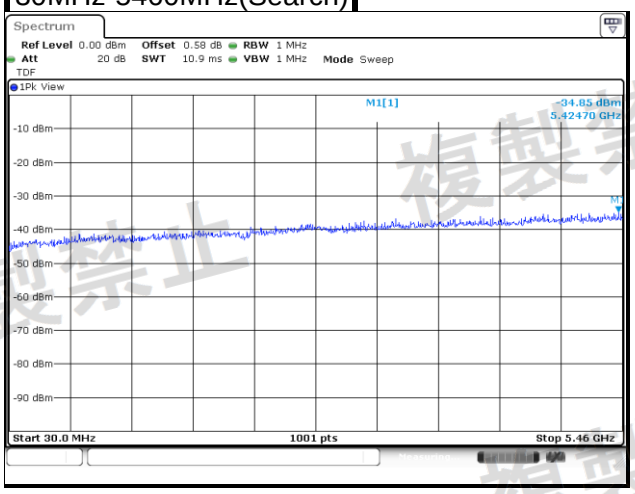


5770MHz-26GHz(Detail)

Blank

Ch.142: 5710MHz

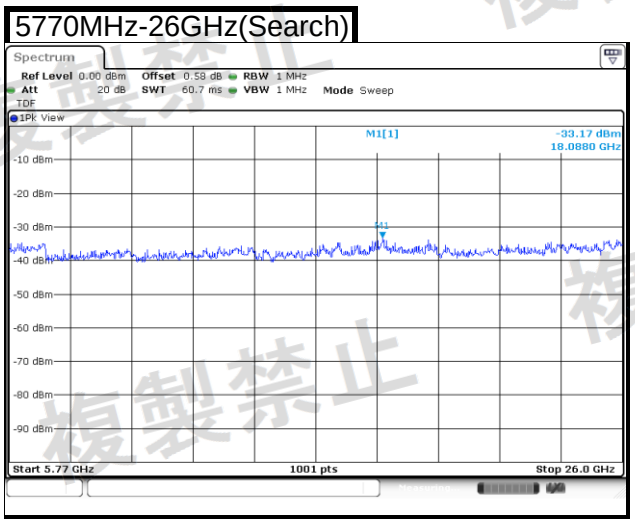
30MHz-5460MHz(Search)



30MHz-5460MHz(Detail)

Blank

5770MHz-26GHz(Search)



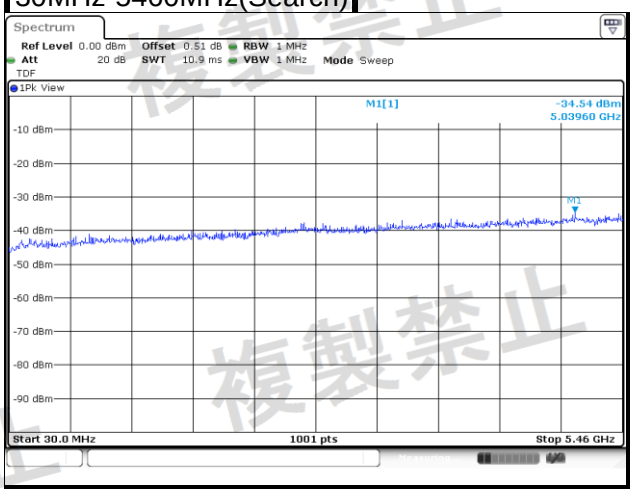
5770MHz-26GHz(Detail)

Blank

Tx2

Ch.102: 5510MHz

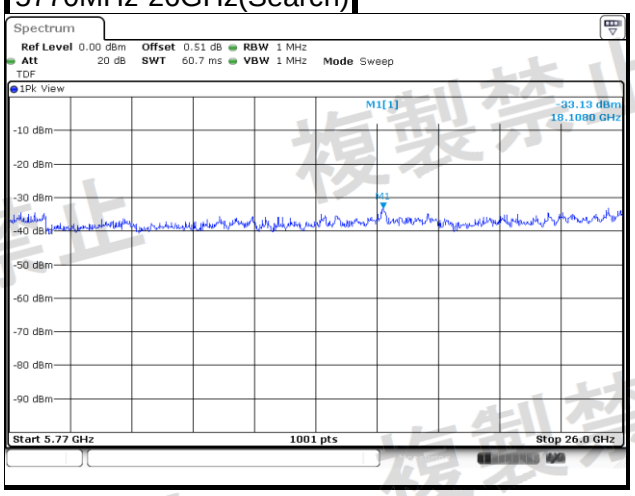
30MHz-5460MHz(Search)



30MHz-5460MHz(Detail)

Blank

5770MHz-26GHz(Search)

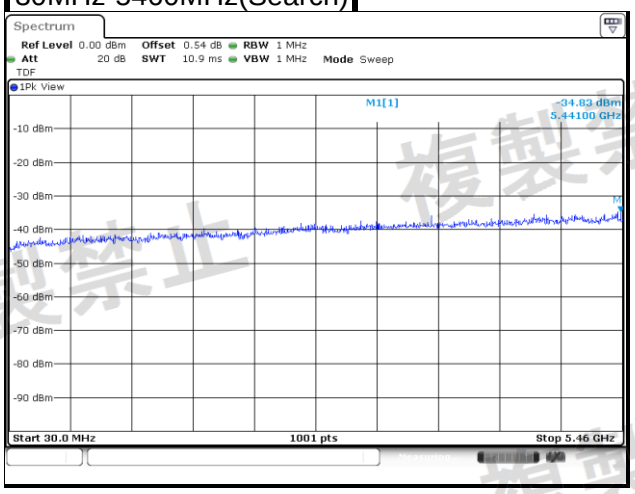


5770MHz-26GHz(Detail)

Blank

Ch.118: 5590MHz

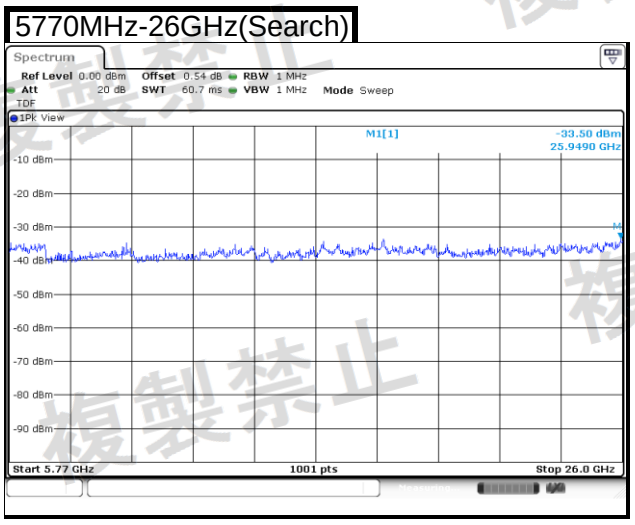
30MHz-5460MHz(Search)



30MHz-5460MHz(Detail)

Blank

5770MHz-26GHz(Search)

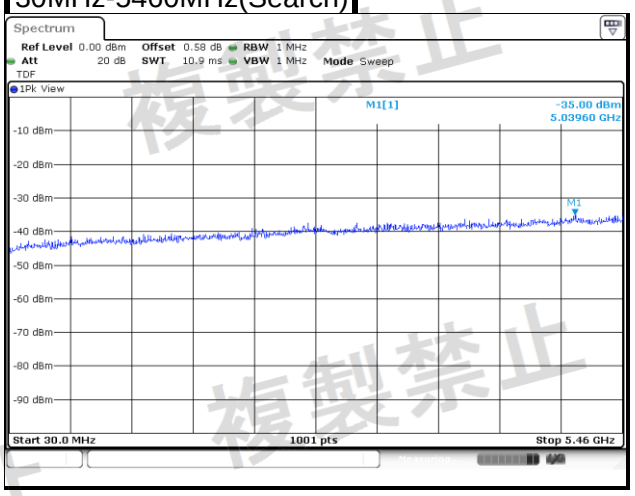


5770MHz-26GHz(Detail)

Blank

Ch.142: 5710MHz

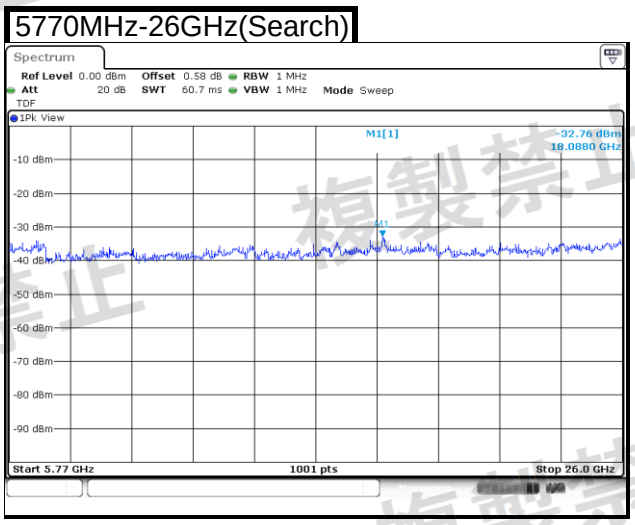
30MHz-5460MHz(Search)



30MHz-5460MHz(Detail)

Blank

5770MHz-26GHz(Search)



5770MHz-26GHz(Detail)

Blank

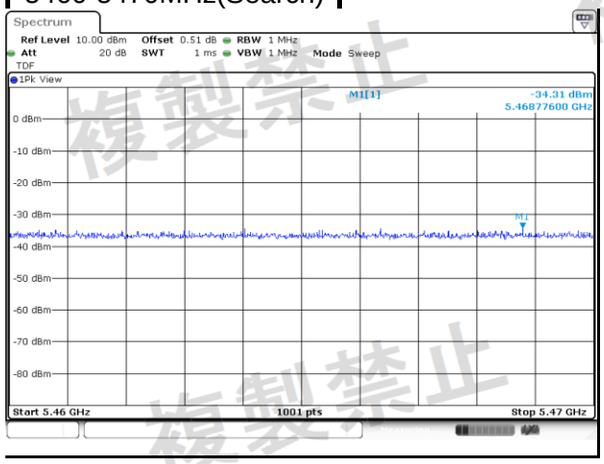
7. Test chart

7.6 Out-Band Leakage Power (Rated voltage)

Tx1

Ch.102: 5510MHz

5460-5470MHz(Search)

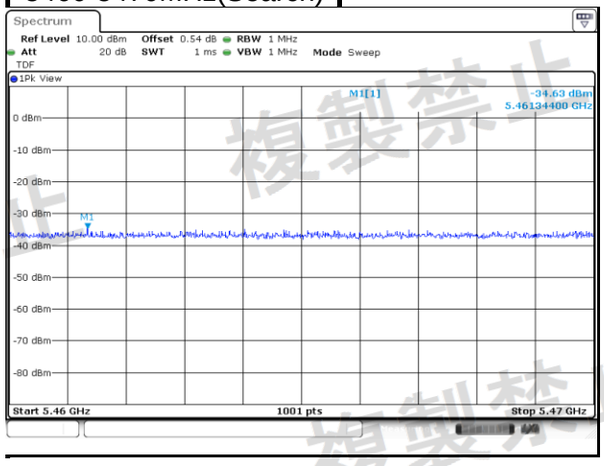


5460-5470MHz(Detail)

Blank

Ch.118: 5590MHz

5460-5470MHz(Search)

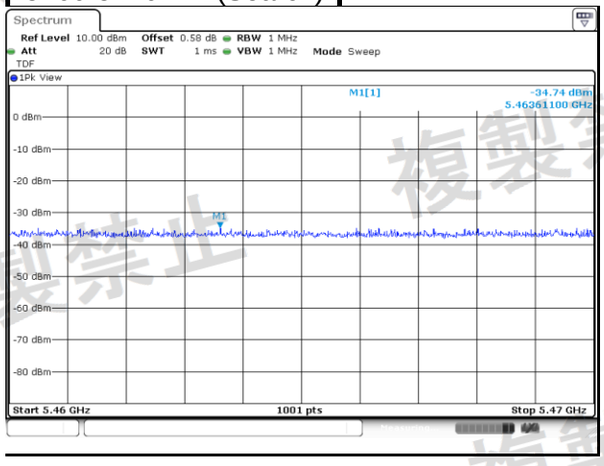


5460-5470MHz(Detail)

Blank

Ch.142: 5710MHz

5460-5470MHz(Search)



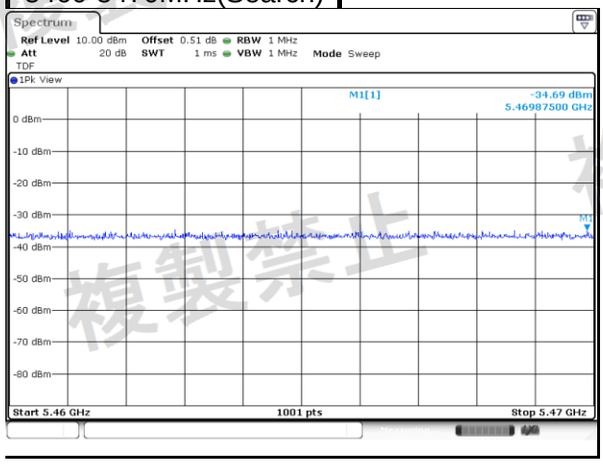
5460-5470MHz(Detail)

Blank

1x2

Ch.102: 5510MHz

5460-5470MHz(Search)

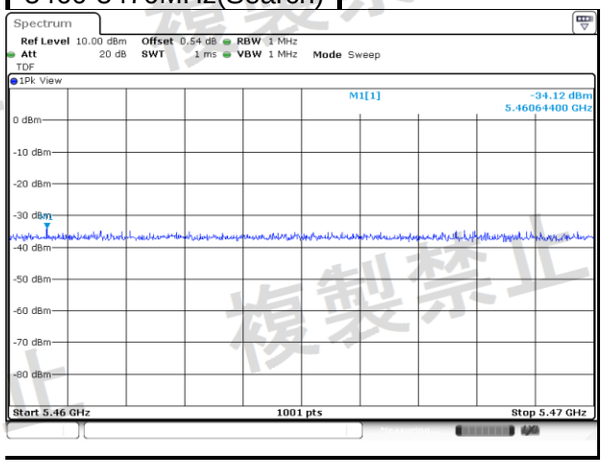


5460-5470MHz(Detail)

Blank

Ch.118: 5590MHz

5460-5470MHz(Search)

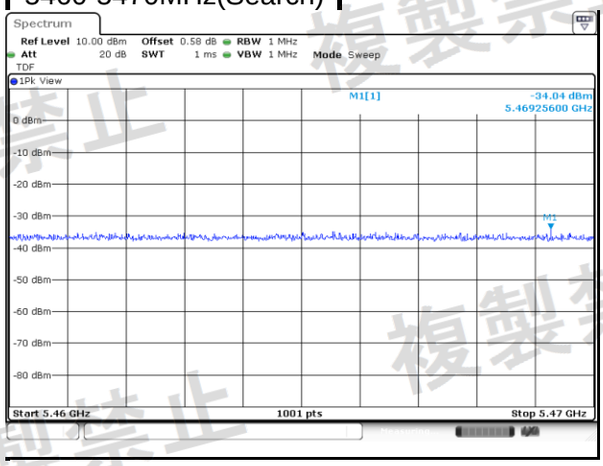


5460-5470MHz(Detail)

Blank

Ch.142: 5710MHz

5460-5470MHz(Search)



5460-5470MHz(Detail)

Blank

3. Test results (Rated voltage)

S/N : 563b88ad

Environment of test room	Date of test	2022-02-04	2022-02-05	2022-02-06
	Temperature	21 °C	20 °C	21 °C
	Humidity	51 %	51 %	52 %

Peak Antenna Gain	-5.75	dBi
Beamforming Gain	3.00	dB
Peak Antenna Gain + Beamforming Gain	-2.75	dBi
Declaration Output Power	1.00	mW/MHz
	0.00	dBm/MHz
E.I.R.P	**0.53**	mW/MHz
	-2.75	**dBm/MHz**
Input Power Voltage	3.86	VDC

Test category		IEEE802.11ac VHT80 / MIMO(2TX)	
Tested Circit Insertion Loss		0.00	dB
Transmission Time	ON TIME (1sec or less)	0.33	ms
	OFF TIME (0.1sec or more)	0.18	ms
	Ratio	0.65	%

Using TDF and offset function in Spectrum Analyzer.

Measurement of plots are included Loss value.

Offset : EUT cable
(ch106: 0.52, ch122: 0.54, ch138: 0.58dB)

Test category :	5GHz Band Low-Power Data Communication System (802.11ac VHT80 W56/MIMO(2TX))_Beamforming
The reason why the tests are performed only at rated voltage :	The fluctuation of input voltage to the circuit of the radio part of the equipment to be tested is identified as being less than ±1 % when input voltage from an external supply into the equipment fluctuates ±10 %.

Measurement Channel	Ch.	106	122	138		
Measurement Frequency	MHz	5530	5610	5690	Result	Limit
RF Output Power(Tx1)	mW/MHz	0.37	0.53	0.48	**PASS**	2.5mW/MHz or below
RF Output Power(Tx2)	mW/MHz	0.32	0.42	0.42	**PASS**	2.5mW/MHz or below
RF Output Power (Tx1+2)	mW/MHz	0.69	0.95	0.90	**PASS**	2.5mW/MHz or below
RF Output Power Tolerance (Tx1+2)	%	-31.18	-5.26	-9.88	**PASS**	+50% to -50%

Measurement Channel		Ch.	106	122	138		
Measurement Frequency		MHz	5530	5610	5690	Result	Limit
Unwanted (Spurious) Emission Strength(Tx1)	30MHz to 5460MHz	uW/MHz	0.15	0.16	0.17	**PASS**	12.5uW/MHz or below
		MHz	5072.10	5370.50	5446.40	----	----
	5770MHz to 26GHz	uW/MHz	0.30	0.26	0.25	**PASS**	12.5uW/MHz or below
		MHz	18088.00	25909.00	24798.00	----	----
Unwanted (Spurious) Emission Strength(Tx2)	30MHz to 5460MHz	uW/MHz	0.17	0.17	0.21	**PASS**	12.5uW/MHz or below
		MHz	5224.00	5419.30	4719.50	----	----
	5770MHz to 26GHz	uW/MHz	0.25	0.30	0.27	**PASS**	12.5uW/MHz or below
		MHz	18108.00	18128.00	25505.00	----	----
Unwanted (Spurious) Emission Strength (Tx1+2)	30MHz to 5460MHz	uW/MHz	0.32	0.33	0.38	**PASS**	12.5uW/MHz or below
		----	----	----	----	----	----
	5770MHz to 26GHz	uW/MHz	0.55	0.56	0.52	**PASS**	12.5uW/MHz or below
		----	----	----	----	----	----

複製禁止

Measurement Channel		Ch.	106	122	138		
Measurement Frequency		MHz	5530	5610	5690	Result	Limit
Out-Band Leakage Power (Tx1)	5460 to 5469.5MHz	uW/MHz	0.23	0.24	0.19	**PASS**	50uW/MHz or below
		MHz	5466.60	5461.20	5467.74	----	----
	5469.5 to 5470MHz	uW/MHz	0.16	0.16	0.14	**PASS**	51.2uW/MHz or below
		MHz	5469.77	5469.81	5469.66	----	----
Out-Band Leakage Power (Tx2)	5460 to 5469.5MHz	uW/MHz	0.20	0.18	0.19	**PASS**	50uW/MHz or below
		MHz	5469.09	5461.00	5461.28	----	----
	5469.5 to 5470MHz	uW/MHz	0.14	0.14	0.15	**PASS**	51.2uW/MHz or below
		MHz	5469.91	5469.68	5469.62	----	----
Out-Band Leakage Power (Tx1+2)	5460 to 5469.5MHz	uW/MHz	0.44	0.43	0.38	**PASS**	50uW/MHz or below
		----	----	----	----	----	----
	5469.5 to 5470MHz	uW/MHz	0.30	0.30	0.29	**PASS**	51.2uW/MHz or below
		----	----	----	----	----	----

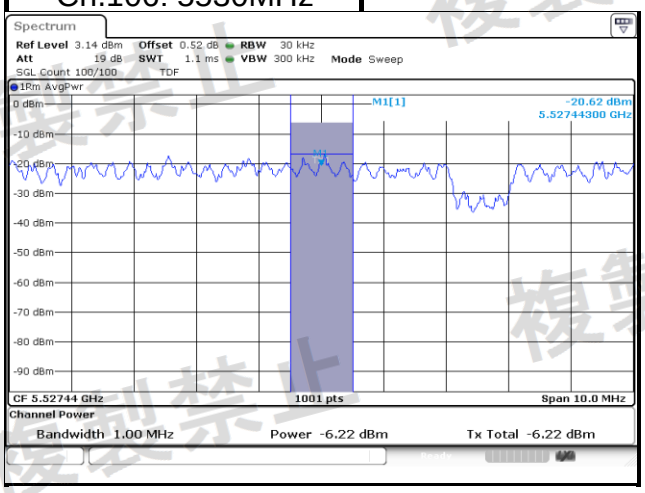
複製禁止

7. Test chart

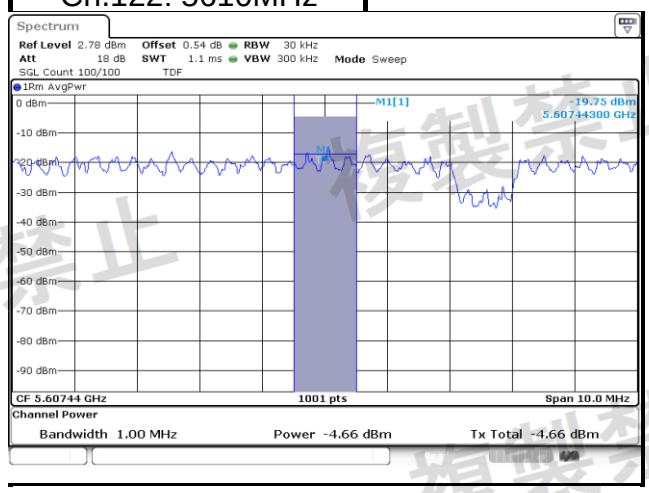
7.4 RF output power tolerance (Rated voltage)

Tx1

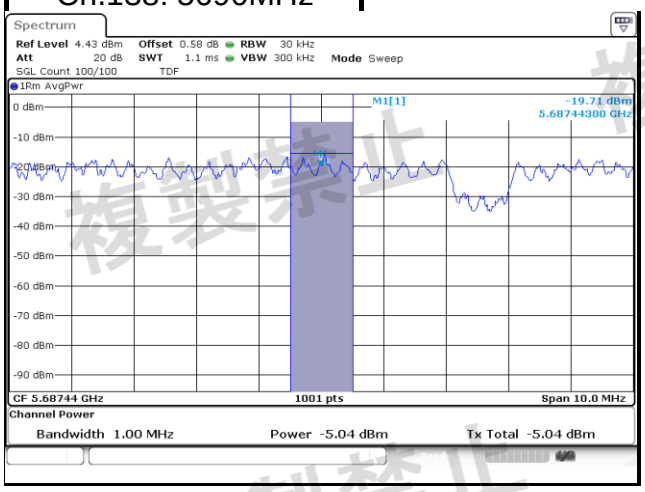
Ch.106: 5530MHz



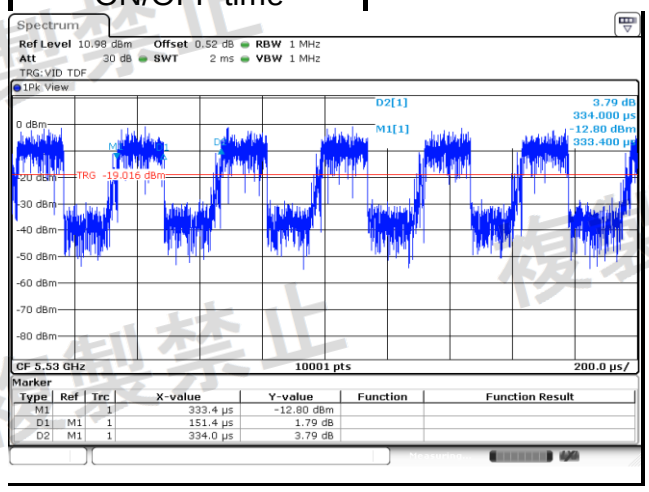
Ch.122: 5610MHz



Ch.138: 5690MHz

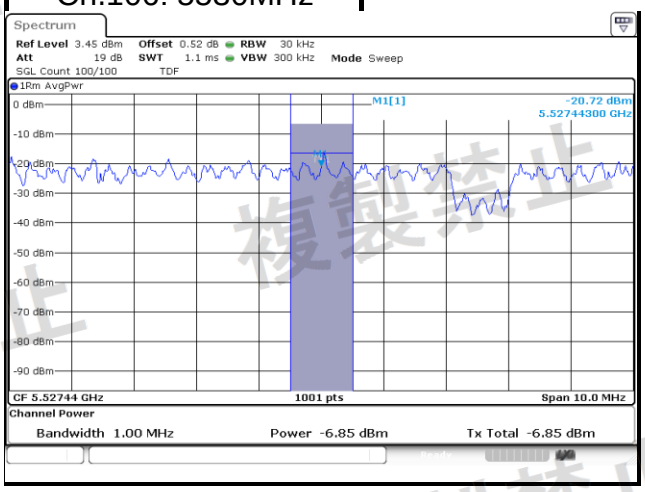


ON/OFF time

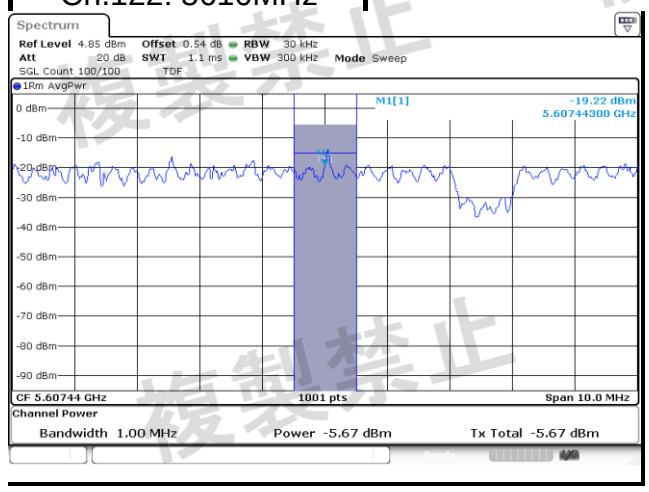


Tx2

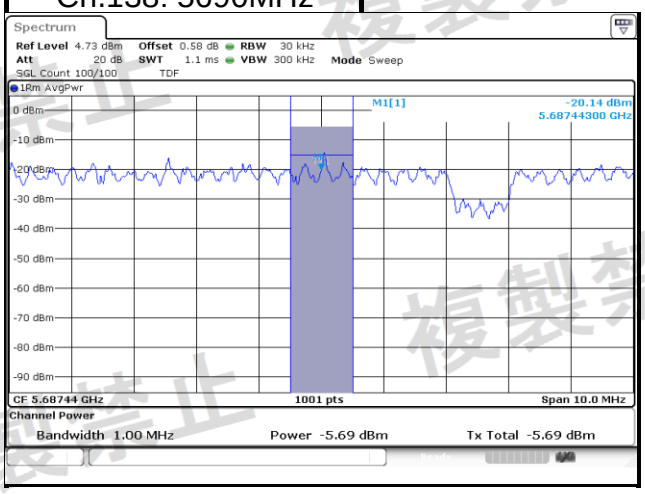
Ch.106: 5530MHz



Ch.122: 5610MHz



Ch.138: 5690MHz



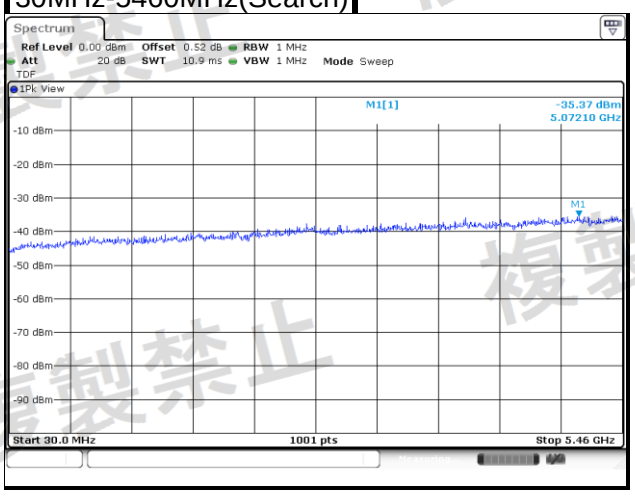
7. Test chart

7.5 Unwanted(Spurious) emission strength (Rated voltage)

Tx1

Ch.106: 5530MHz

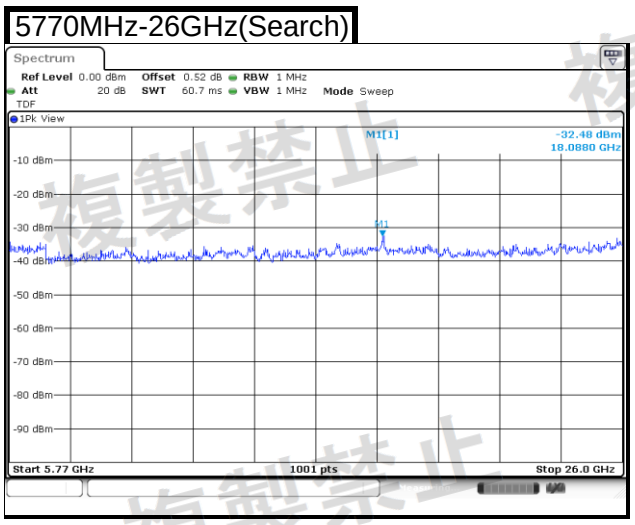
30MHz-5460MHz(Search)



30MHz-5460MHz(Detail)

Blank

5770MHz-26GHz(Search)

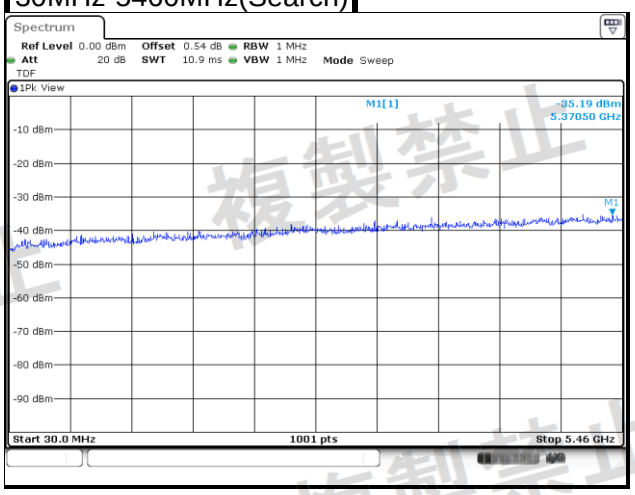


5770MHz-26GHz(Detail)

Blank

Ch.122: 5610MHz

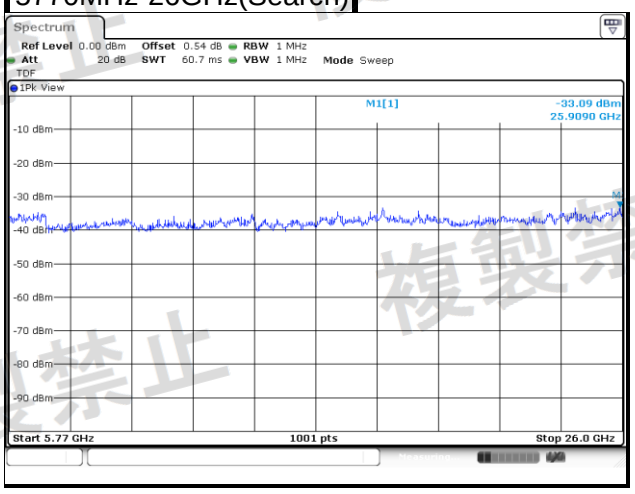
30MHz-5460MHz(Search)



30MHz-5460MHz(Detail)

Blank

5770MHz-26GHz(Search)

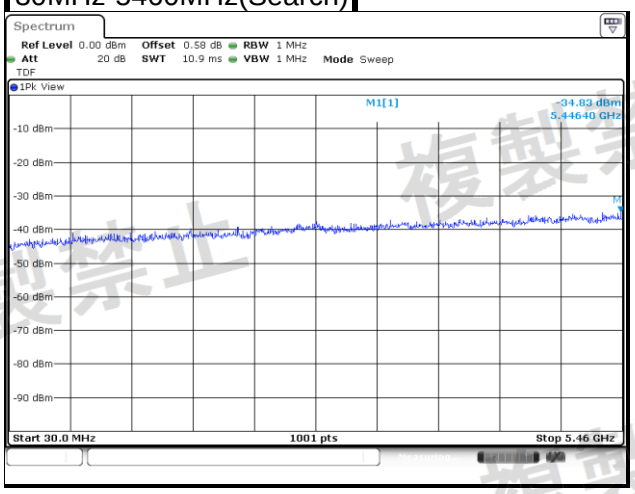


5770MHz-26GHz(Detail)

Blank

Ch.138: 5690MHz

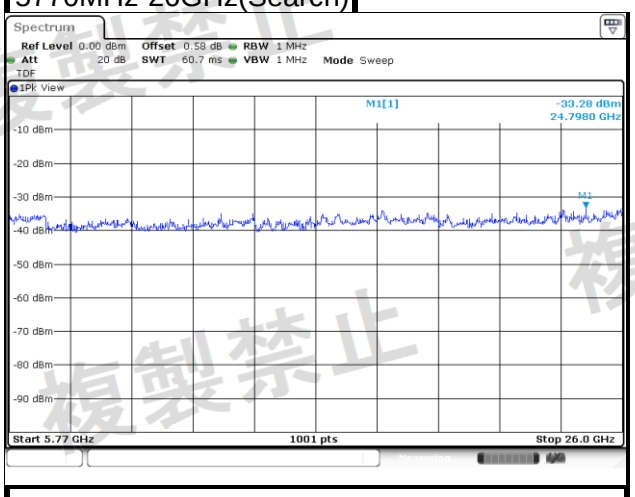
30MHz-5460MHz(Search)



30MHz-5460MHz(Detail)

Blank

5770MHz-26GHz(Search)



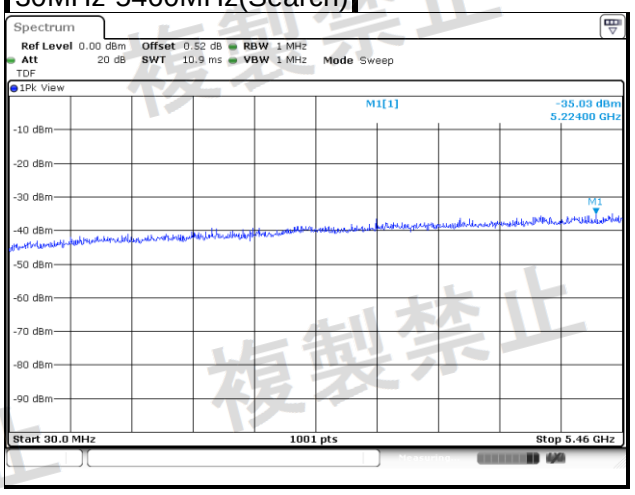
5770MHz-26GHz(Detail)

Blank

Tx2

Ch.106: 5530MHz

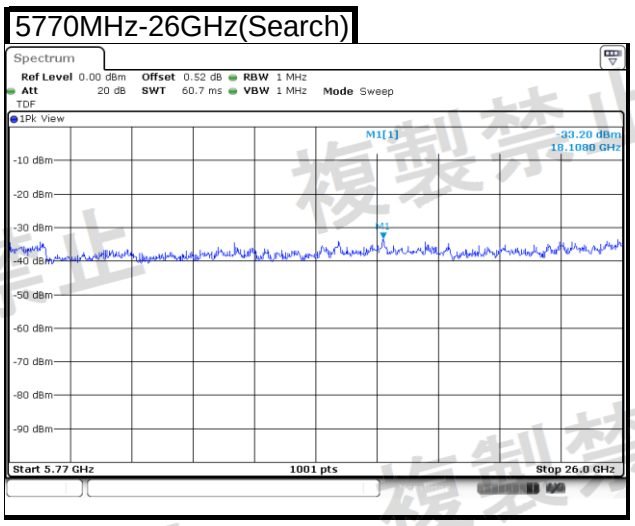
30MHz-5460MHz(Search)



30MHz-5460MHz(Detail)

Blank

5770MHz-26GHz(Search)

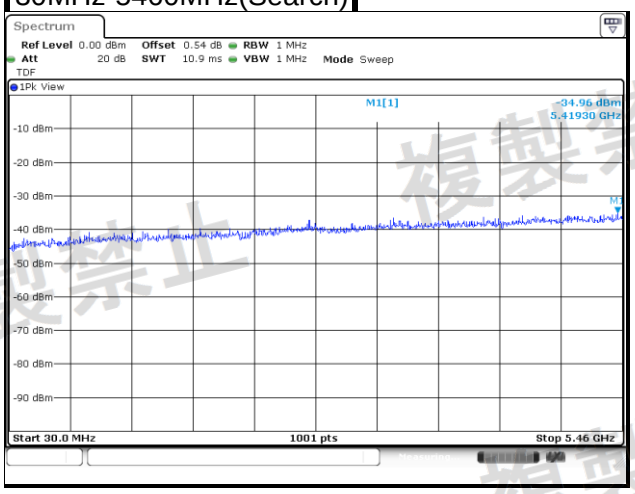


5770MHz-26GHz(Detail)

Blank

Ch.122: 5610MHz

30MHz-5460MHz(Search)



30MHz-5460MHz(Detail)

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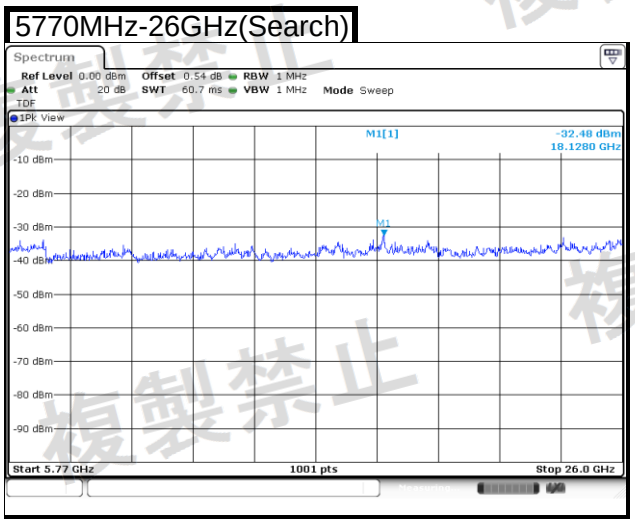
5770MHz-26GHz(Search)



5770MHz-26GHz(Detail)

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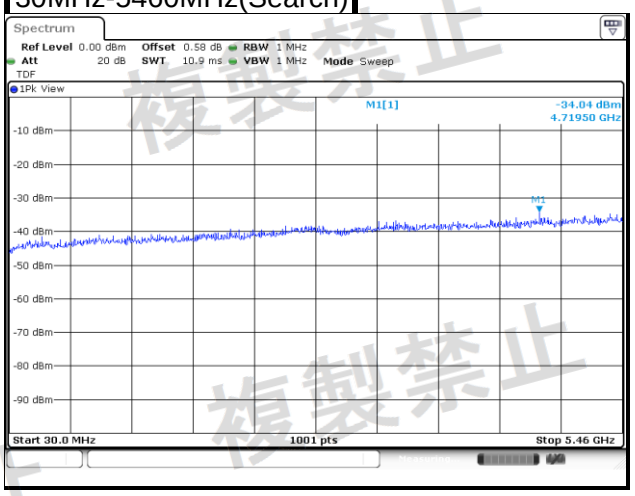
Ch.138: 5690MHz

30MHz-5460MHz(Search)



30MHz-5460MHz(Detail)

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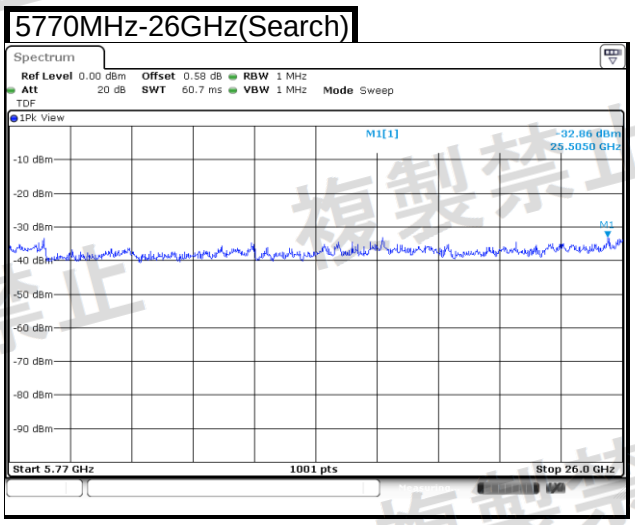
5770MHz-26GHz(Search)



5770MHz-26GHz(Detail)

Blank

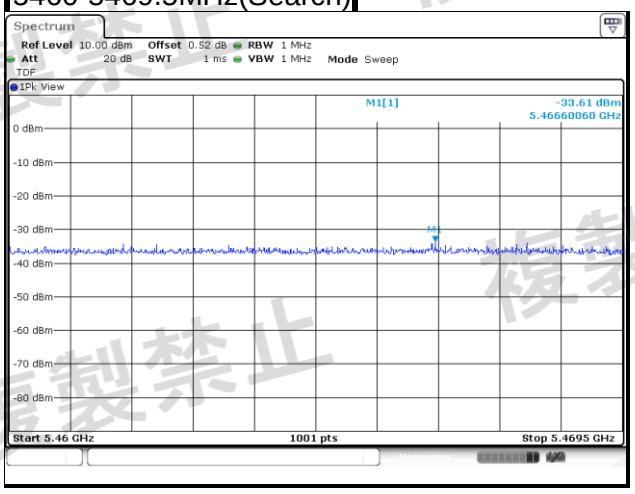
7. Test chart

7.6 Out-Band Leakage Power (Rated voltage)

Tx1

Ch.106: 5530MHz

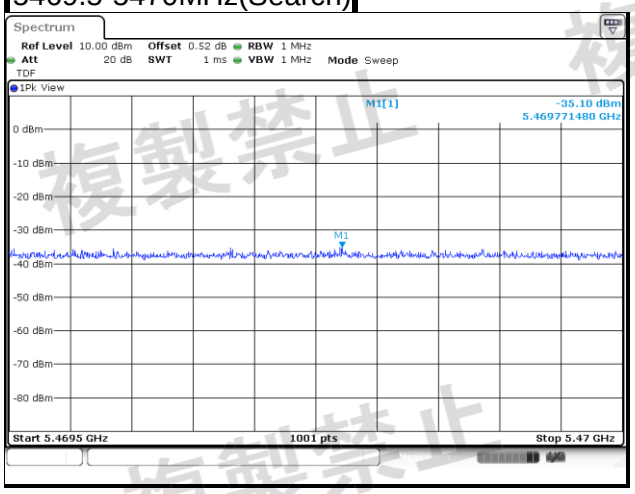
5460-5469.5MHz(Search)



5460-5469.5MHz(Detail)

Blank

5469.5-5470MHz(Search)

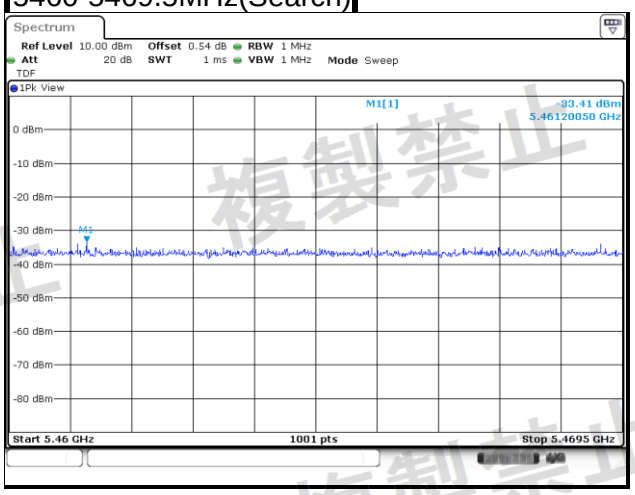


5469.5-5470MHz(Detail)

Blank

Ch.122: 5610MHz

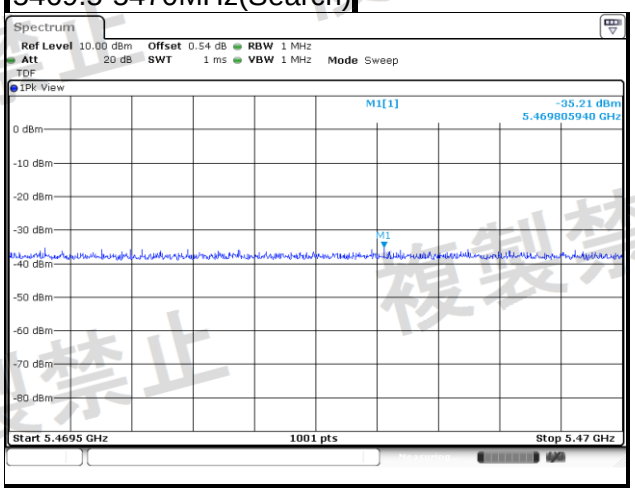
5460-5469.5MHz(Search)



5460-5469.5MHz(Detail)

Blank

5469.5-5470MHz(Search)

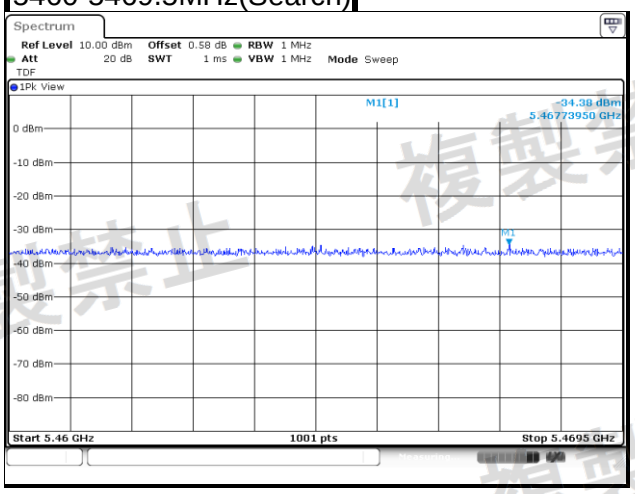


5469.5-5470MHz(Detail)

Blank

Ch.138: 5690MHz

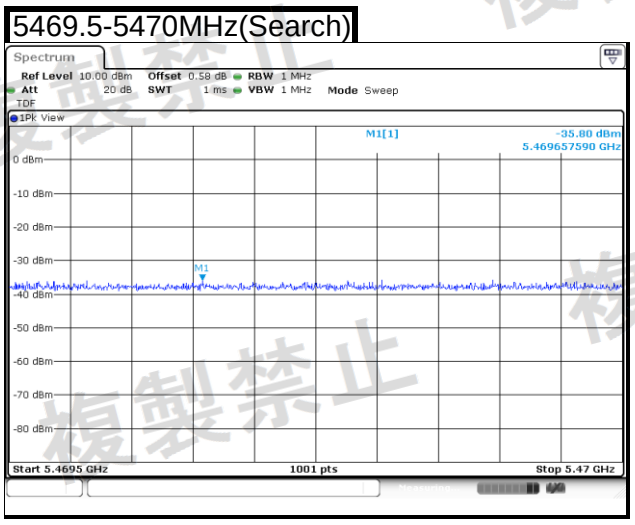
5460-5469.5MHz(Search)



5460-5469.5MHz(Detail)

Blank

5469.5-5470MHz(Search)



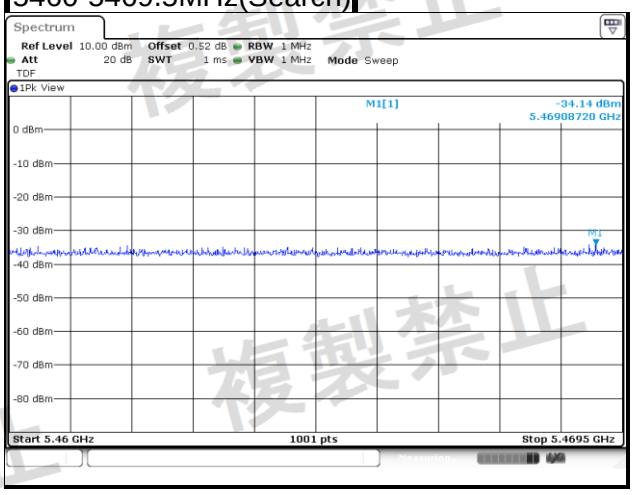
5469.5-5470MHz(Detail)

Blank

Tx2

Ch.106: 5530MHz

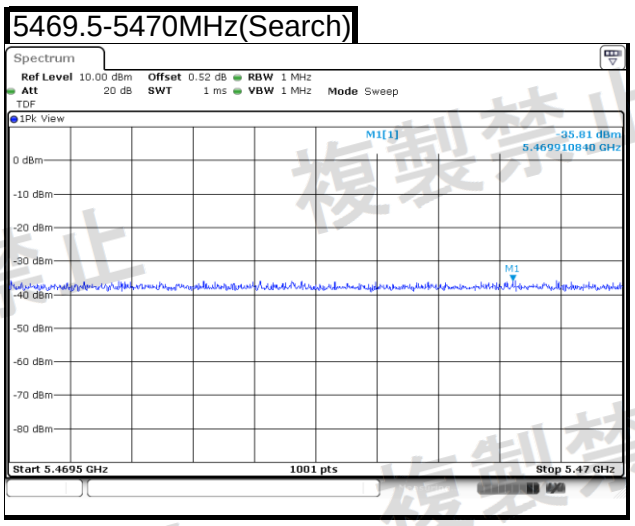
5460-5469.5MHz(Search)



5460-5469.5MHz(Detail)

Blank

5469.5-5470MHz(Search)



5469.5-5470MHz(Detail)

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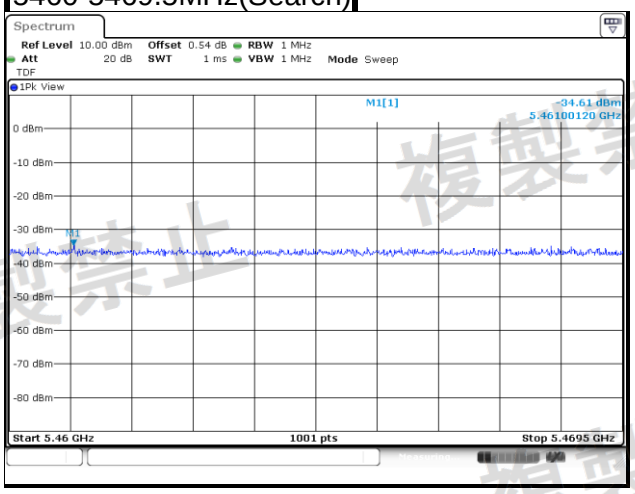
Ch.122: 5610MHz

5460-5469.5MHz(Search)



5460-5469.5MHz(Detail)

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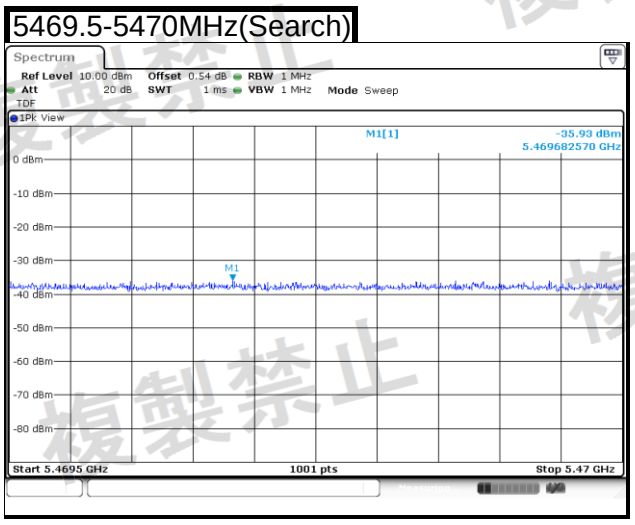
5469.5-5470MHz(Search)

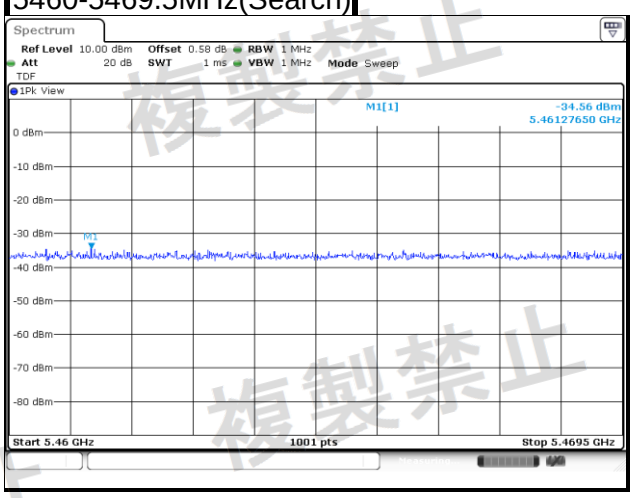


5469.5-5470MHz(Detail)

Blank

Ch.138: 5690MHz

5460-5469.5MHz(Search)



5460-5469.5MHz(Detail)

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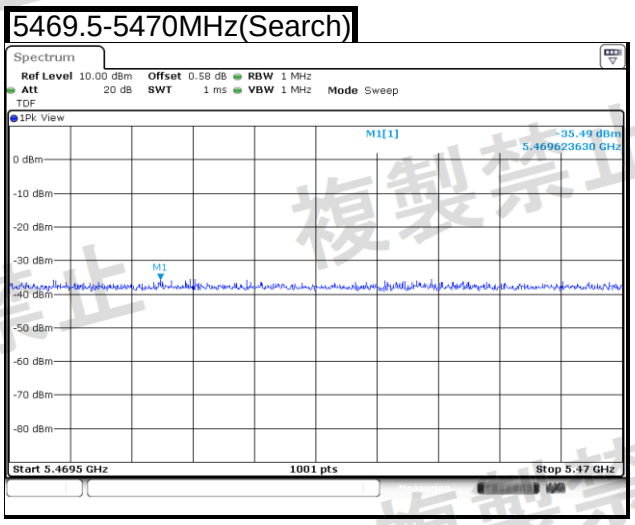
5469.5-5470MHz(Search)



5469.5-5470MHz(Detail)

Blank

3. Test results (Rated voltage)

S/N : 563b88ad

Environment of test room	Date of test	2022-02-04	2022-02-05	2022-02-06	2022-02-16
	Temperature	21 °C	20 °C	21 °C	23 °C
	Humidity	51 %	51 %	52 %	52 %

Peak Antenna Gain	-7.99	dBi
Beamforming Gain	3.00	dB
Peak Antenna Gain + Beamforming Gain	-4.99	dBi
Declaration Output Power	10.00	mW/MHz
	10.00	dBm/MHz
E.I.R.P	**3.17**	mW/MHz
	5.01	**dBm/MHz**
Input Power Voltage	3.86	VDC

Test category		IEEE802.11ax HE20 / MIMO(2TX)	
Tested Circit Insertion Loss		0.00	dB
Transmission Time	ON TIME (1sec or less)	5.43	ms
	OFF TIME (0.1sec or more)	0.04	ms
	Ratio	0.99	%

Using TDF and offset function in Spectrum Analyz

Measurement of plots are included Loss value.

Offset : EUT cable(0.5dB)

Test category :	5GHz Band Low-Power Data Communication System (802.11ax HE20 W52/MIMO(2TX))_Beamforming
The reason why the tests are performed only at rated voltage :	The fluctuation of input voltage to the circuit of the radio part of the equipment to be tested is identified as being less than ±1 % when input voltage from an external supply into the equipment fluctuates ±10 %.

Measurement Channel	Ch.	36	40	48		
Measurement Frequency	MHz	5180	5200	5240	Result	Limit
Occupied Bandwidth(Tx1)	MHz	19.08	18.98	18.88	**PASS**	20MHz or below
Occupied Bandwidth(Tx2)	MHz	18.98	18.98	18.88	**PASS**	20MHz or below
RF Output Power(Tx1)	mW/MHz	1.87	1.88	1.96	**PASS**	10mW/MHz or below
RF Output Power(Tx2)	mW/MHz	1.68	1.70	1.70	**PASS**	10mW/MHz or below
RF Output Power (Tx1+2)	mW/MHz	3.55	3.58	3.65	**PASS**	10mW/MHz or below
RF Output Power Tolerance (Tx1+2)	%	-64.53	-64.21	-63.46	**PASS**	+20% to -80%

Measurement Channel		Ch.	36	40	48		
Measurement Frequency		MHz	5180	5200	5240	Result	Limit
Unwanted (Spurious) Emission Strength (Tx1)	30MHz to 5142MHz	uW/MHz	0.08	0.09	0.08	**PASS**	2.5uW/MHz or below
		MHz	5062.80	4705.40	5027.10	----	----
	5266.7MHz to 26GHz	uW/MHz	0.15	0.15	0.15	**PASS**	2.5uW/MHz or below
		MHz	25492.70	18139.70	18097.70	----	----
Unwanted (Spurious) Emission Strength (Tx2)	30MHz to 5142MHz	uW/MHz	0.09	0.09	0.08	**PASS**	2.5uW/MHz or below
		MHz	5032.20	4996.50	5057.70	----	----
	5266.7MHz to 26GHz	uW/MHz	0.13	0.16	0.13	**PASS**	2.5uW/MHz or below
		MHz	18035.70	18077.70	18118.70	----	----
Unwanted (Spurious) Emission Strength (Tx1+2)	30MHz to 5142MHz	uW/MHz	0.17	0.17	0.17	**PASS**	2.5uW/MHz or below
		----	----	----	----	----	----
	5266.7MHz to 26GHz	uW/MHz	0.28	0.31	0.28	**PASS**	2.5uW/MHz or below
		----	----	----	----	----	----

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Measurement Channel		Ch.	36	40	48		
Measurement Frequency		MHz	5180	5200	5240	Result	Limit
Out-Band Leakage Power (Tx1)	5142 to 5150MHz	uW/MHz	0.10	0.10	0.11	**PASS**	15uW/MHz or below
		MHz	5148.94	5145.03	5143.73	----	----
	5250 to 5250.2MHz	uW/MHz	0.08	0.08	243.78	**PASS**	$10^{1-(8/3)(f-9.75)}$mW/MHz or below
		MHz	5250.10	5250.15	5250.01	----	----
	Limit	uW/MHz	1158.78	852.45	2051.16	----	----
	5250.2 to 5251MHz	uW/MHz	0.09	0.09	135.83	**PASS**	$10^{1-(f-9)}$mW/MHz or below
		MHz	5250.90	5250.40	5250.29	----	----
	Limit	uW/MHz	126.47	399.94	512.86	----	----
	5251 to 5260MHz	uW/MHz	0.10	0.10	13.49	**PASS**	$10^{-1-(8/90)(f-11)}$mW/MHz or below
		MHz	5259.50	5256.00	5251.02	----	----
	Limit	uW/MHz	17.55	35.97	99.53	----	----
	5260 to 5266.7MHz	uW/MHz	0.09	0.10	0.11	**PASS**	$10^{-1.8-(6/50)(f-20)}$mW/MHz or below
		MHz	5264.81	5260.36	5261.78	----	----
	Limit	uW/MHz	4.20	14.36	9.70	----	----
Out-Band Leakage Power (Tx2)	5142 to 5150MHz	uW/MHz	0.09	0.09	0.10	**PASS**	15uW/MHz or below
		MHz	5147.48	5144.04	5144.77	----	----
	5250 to 5250.2MHz	uW/MHz	0.08	0.08	264.24	**PASS**	$10^{1-(8/3)(f-9.75)}$mW/MHz or below
		MHz	5250.09	5250.18	5250.00	----	----
	Limit	uW/MHz	1209.67	717.79	2154.43	----	----
	5250.2 to 5251MHz	uW/MHz	0.07	0.08	125.31	**PASS**	$10^{1-(f-9)}$mW/MHz or below
		MHz	5250.74	5250.52	5250.21	----	----
	Limit	uW/MHz	181.13	302.69	615.18	----	----
	5251 to 5260MHz	uW/MHz	0.10	0.10	12.25	**PASS**	$10^{-1-(8/90)(f-11)}$mW/MHz or below
		MHz	5254.93	5255.64	5251.01	----	----
	Limit	uW/MHz	44.70	38.65	99.71	----	----
	5260 to 5266.7MHz	uW/MHz	0.10	0.11	0.11	**PASS**	$10^{-1.8-(6/50)(f-20)}$mW/MHz or below
		MHz	5260.93	5260.78	5265.18	----	----
	Limit	uW/MHz	12.24	12.78	3.78	----	----
Out-Band Leakage Power (Tx1+2)	5142 to 5150MHz	uW/MHz	0.20	0.19	0.21	**PASS**	15uW/MHz or below
		----	----	----	----	----	----
	5250 to 5250.2MHz	uW/MHz	0.16	0.16	508.02	**PASS**	$10^{1-(8/3)(f-9.75)}$mW/MHz or below
		MHz	5250.10	5250.18	5250.01	----	----
	Limit	uW/MHz	1158.78	717.79	2051.16	----	----
	5250 to 5251MHz	uW/MHz	0.16	0.17	261.15	**PASS**	$10^{1-(f-9)}$mW/MHz or below
		MHz	5250.90	5250.52	5250.29	----	----
	Limit	uW/MHz	126.47	302.69	512.86	----	----
	5251 to 5260MHz	uW/MHz	0.20	0.20	25.74	**PASS**	$10^{-1-(8/90)(f-11)}$mW/MHz or below
		MHz	5259.50	5256.00	5251.02	----	----
	Limit	uW/MHz	17.55	35.97	99.53	----	----
	5260 to 5266.7MHz	uW/MHz	0.19	0.21	0.22	**PASS**	$10^{-1.8-(6/50)(f-20)}$mW/MHz or below
		MHz	5264.81	5260.78	5265.18	----	----
	Limit	uW/MHz	4.20	12.78	3.78	----	----

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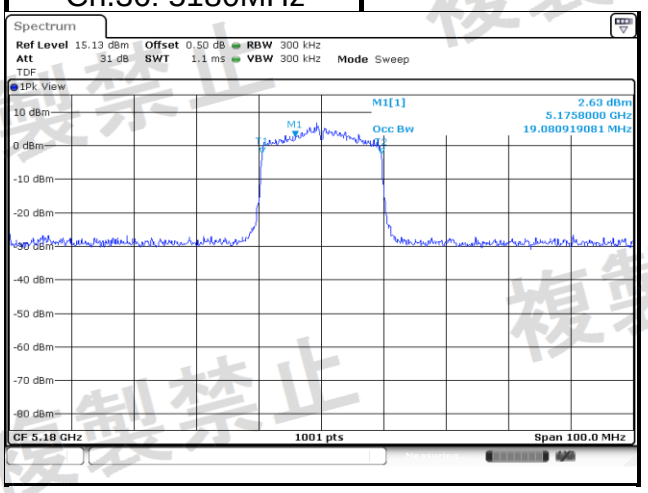
7. Test chart

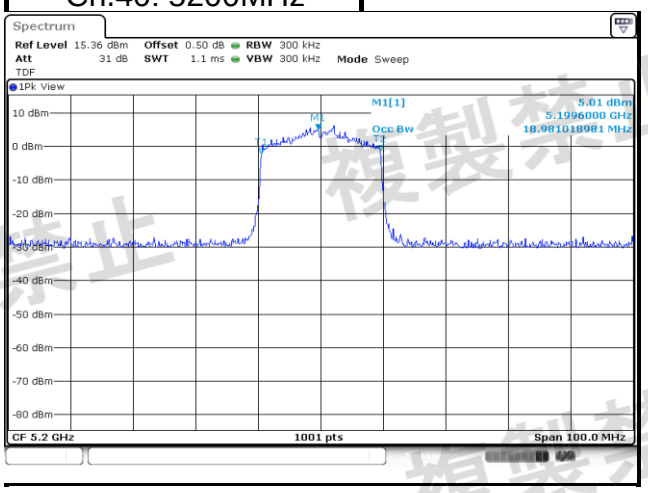
7.2 Occupied bandwidth (Rated voltage)

Tx1

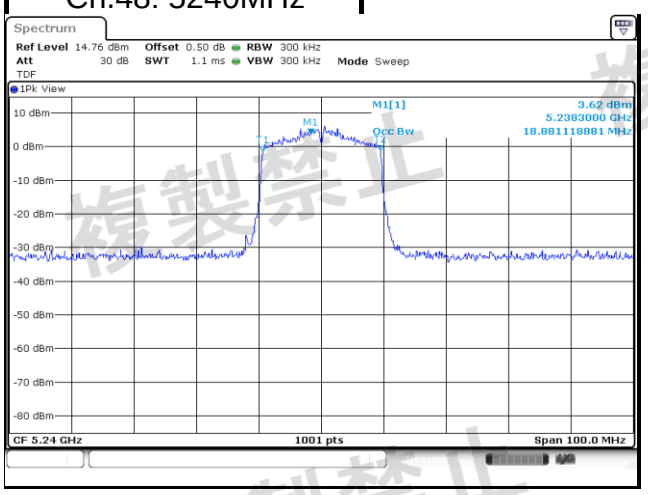
Ch.36: 5180MHz



Ch.40: 5200MHz

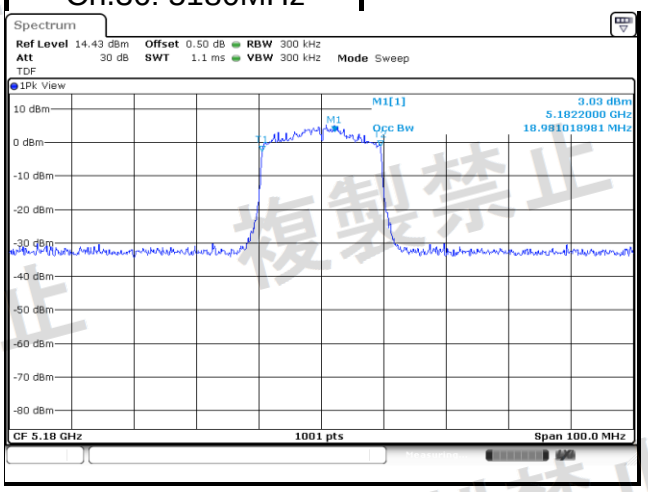


Ch.48: 5240MHz

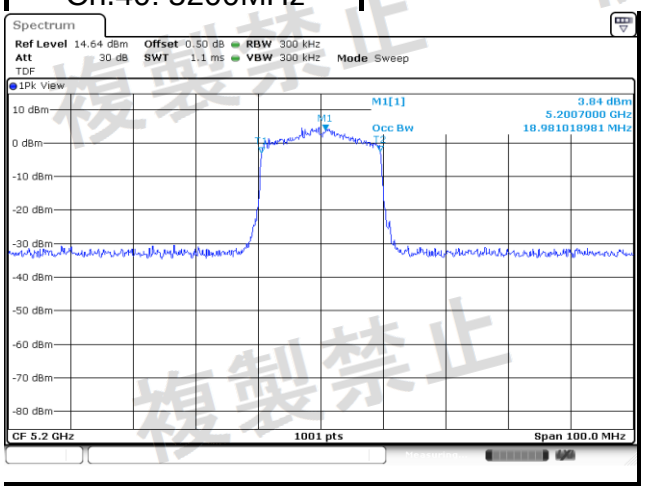


Tx2

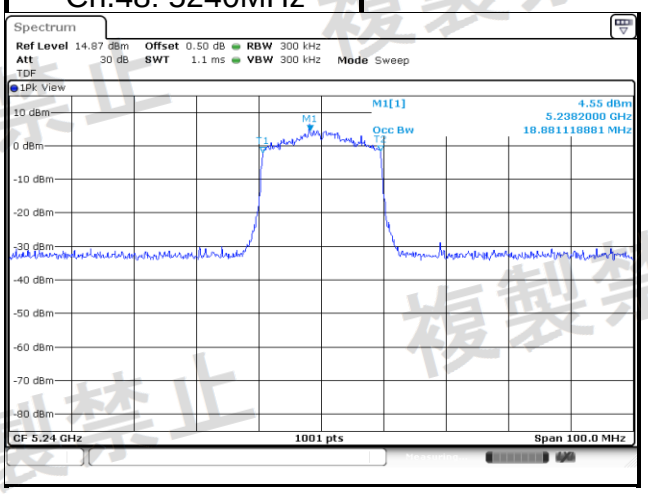
Ch.36: 5180MHz



Ch.40: 5200MHz



Ch.48: 5240MHz

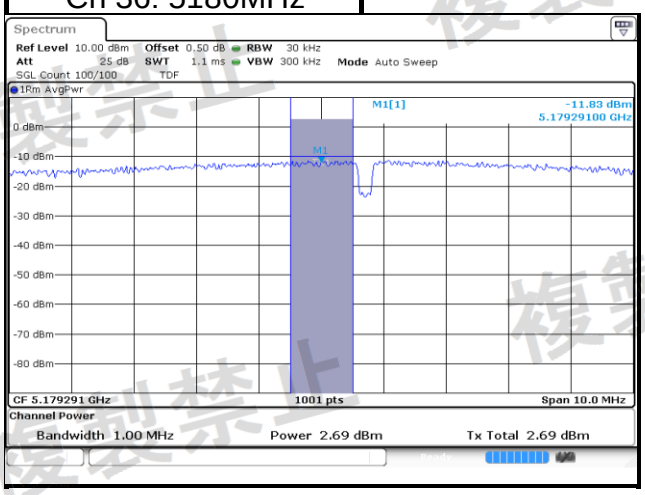


7. Test chart

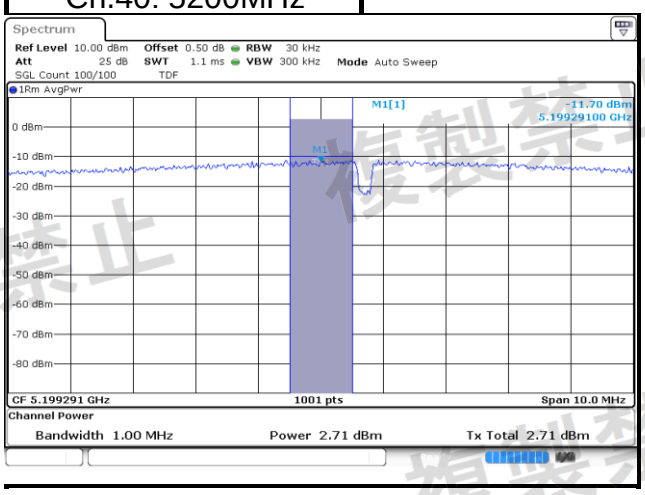
7.4 RF output power tolerance (Rated voltage)

TX1

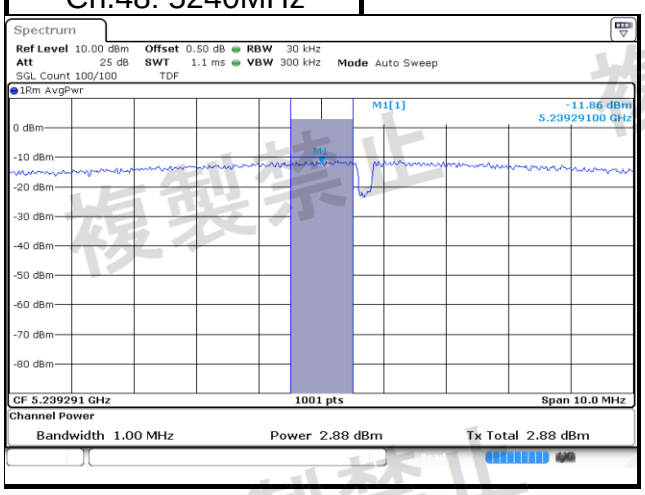
Ch 36: 5180MHz



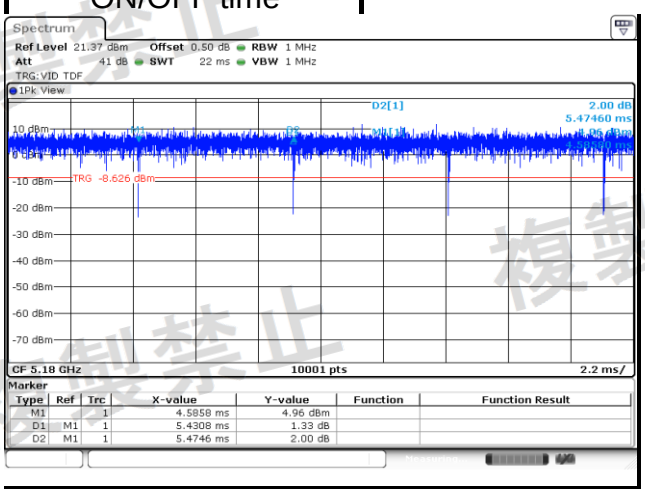
Ch.40: 5200MHz



Ch.48: 5240MHz

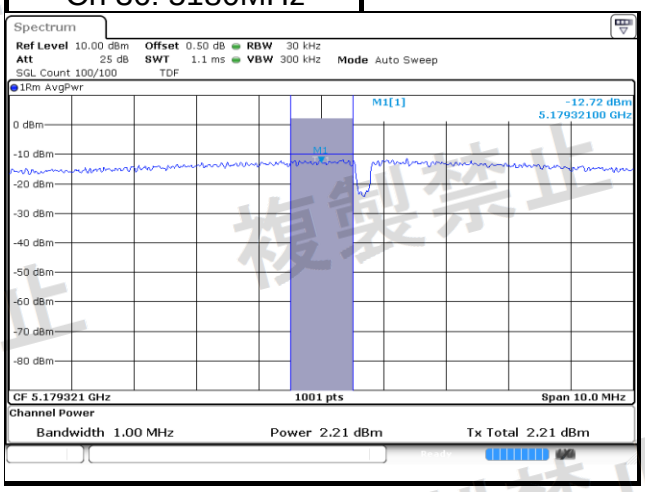


ON/OFF time

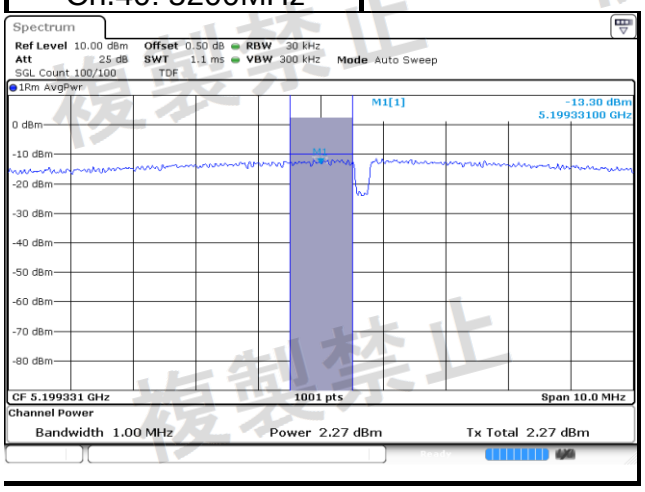


TX2

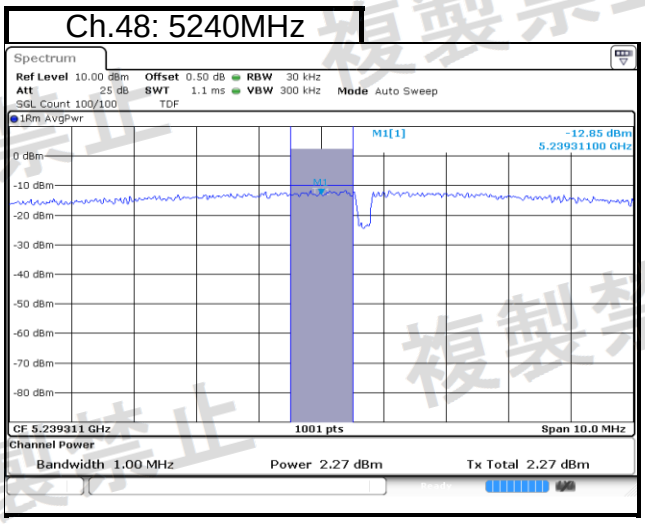
Ch 36: 5180MHz



Ch.40: 5200MHz



Ch.48: 5240MHz



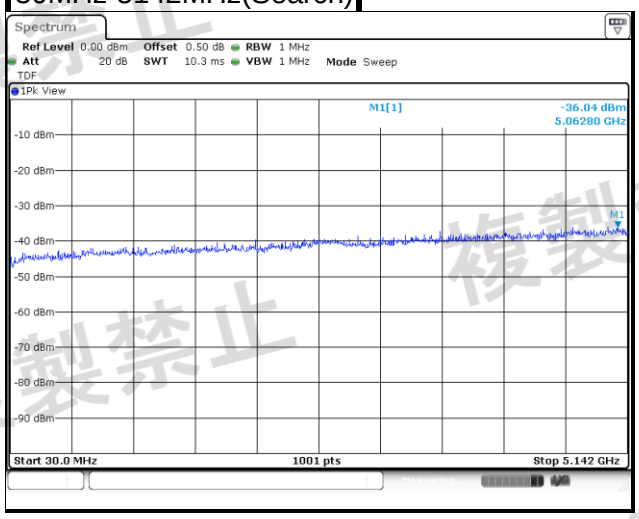
7. Test chart

7.5 Unwanted(Spurious) emission strength (Rated voltage)

Tx1

Ch.36: 5180MHz

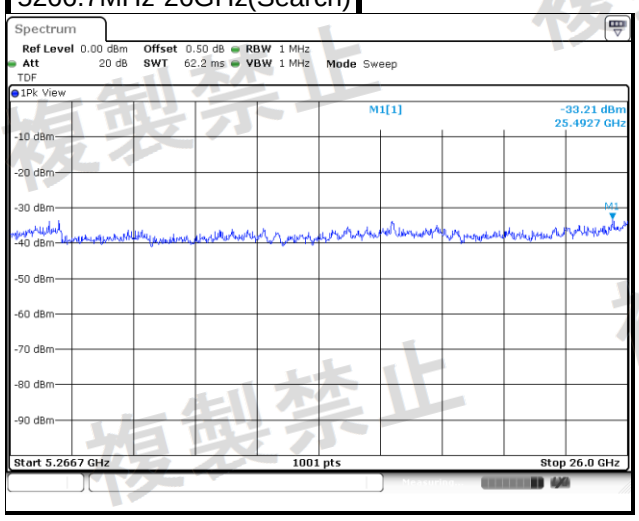
30MHz-5142MHz(Search)



30MHz-5142MHz(Detail)

Blank

5266.7MHz-26GHz(Search)

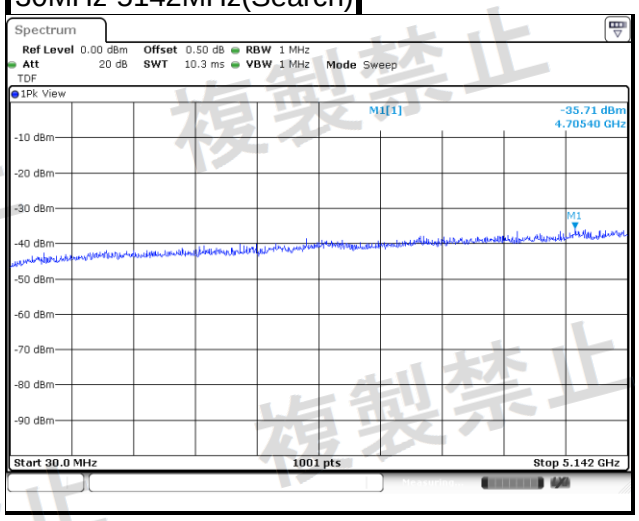


5266.7MHz-26GHz(Detail)

Blank

Ch.40: 5200MHz

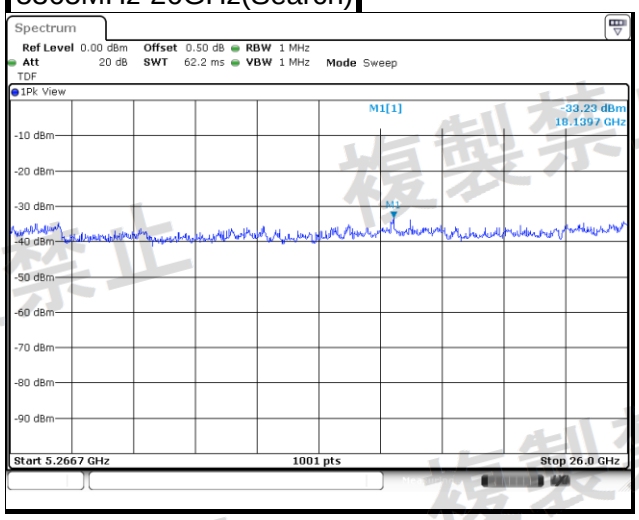
30MHz-5142MHz(Search)



30MHz-5142MHz(Detail)

Blank

5365MHz-26GHz(Search)



5266.7MHz-26GHz(Detail)

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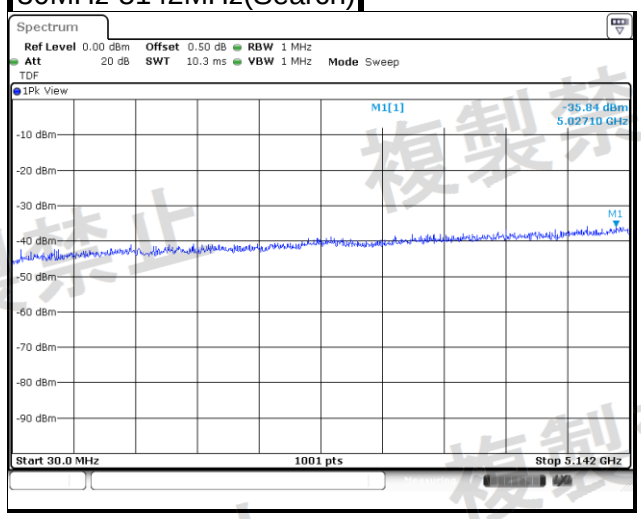
Ch.48: 5240MHz

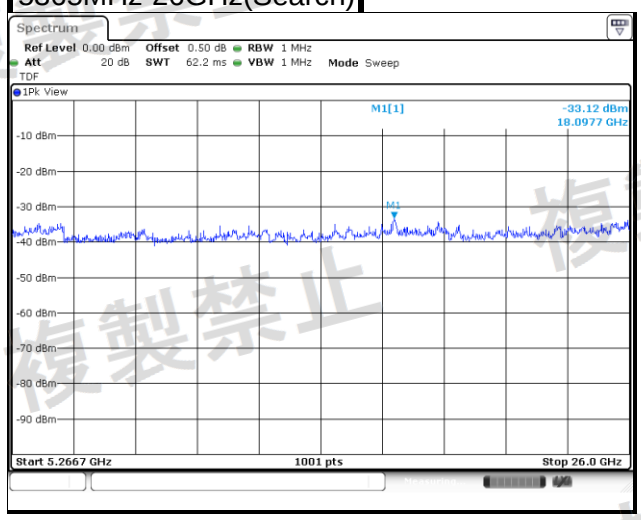
30MHz-5142MHz(Search)



30MHz-5142MHz(Detail)

Blank

5365MHz-26GHz(Search)



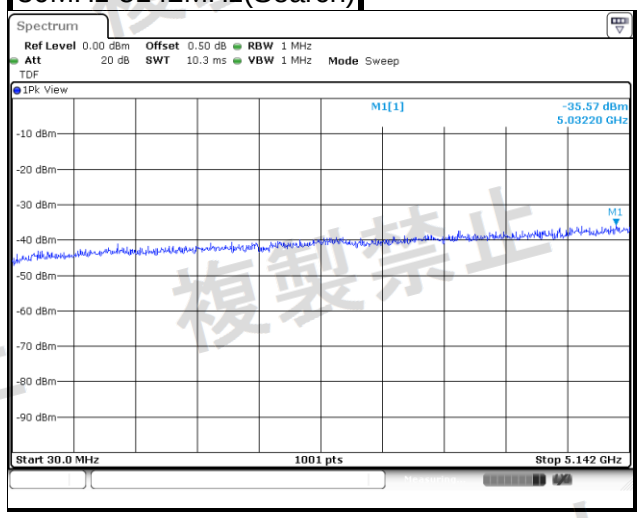
5266.7MHz-26GHz(Detail)

Blank

Tx2

Ch.36: 5180MHz

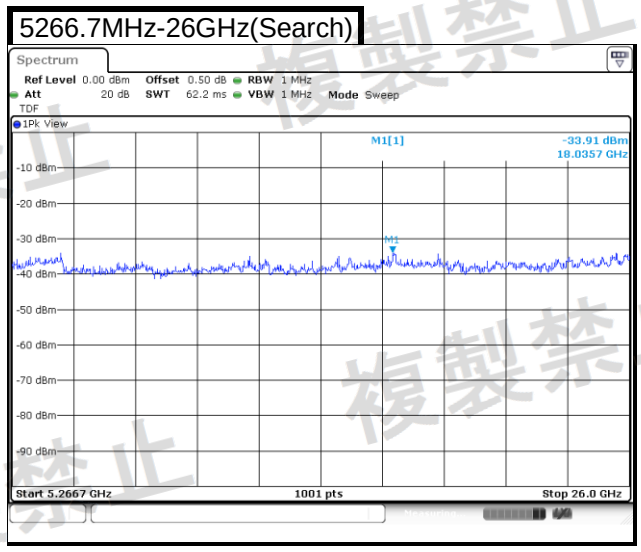
30MHz-5142MHz(Search)



30MHz-5142MHz(Detail)

Blank

5266.7MHz-26GHz(Search)

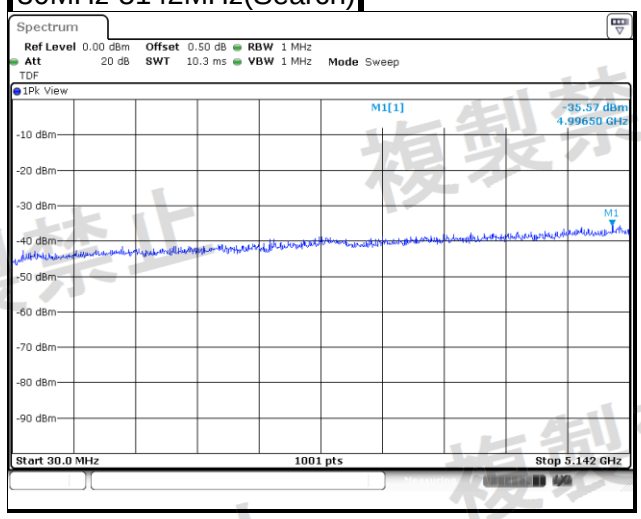


5266.7MHz-26GHz(Detail)

Blank

Ch.40: 5200MHz

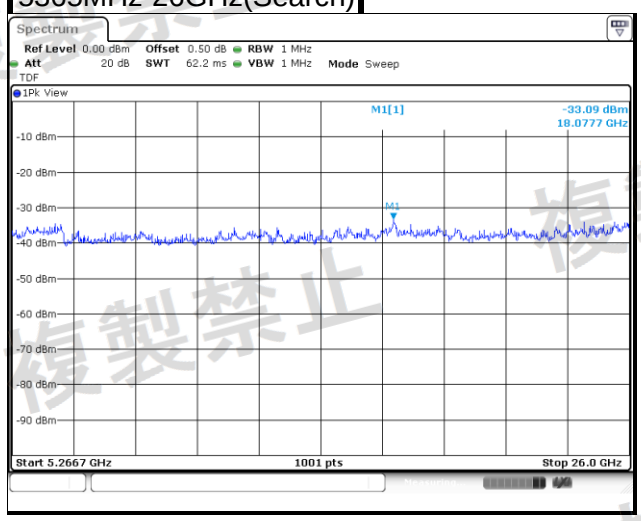
30MHz-5142MHz(Search)



30MHz-5142MHz(Detail)

Blank

5365MHz-26GHz(Search)

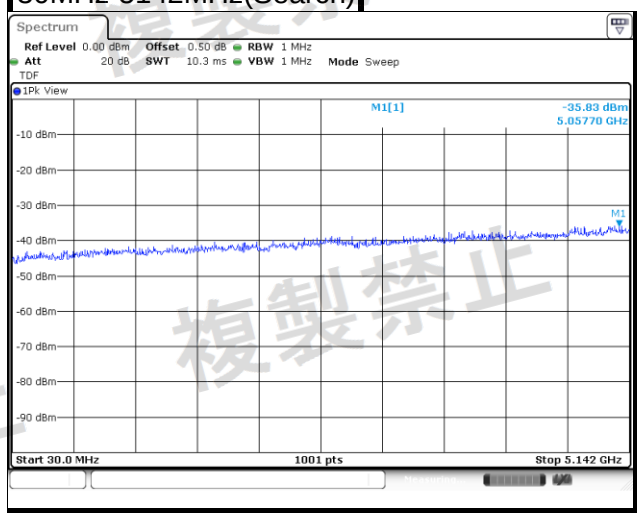


5266.7MHz-26GHz(Detail)

Blank

Ch.48: 5240MHz

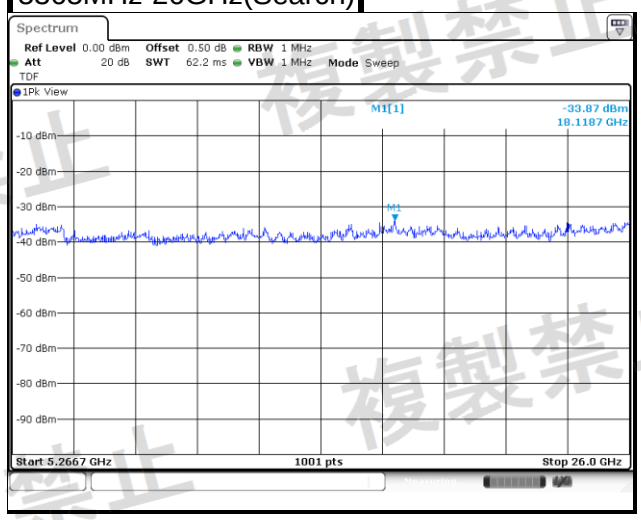
30MHz-5142MHz(Search)



30MHz-5142MHz(Detail)

Blank

5365MHz-26GHz(Search)



5266.7MHz-26GHz(Detail)

Blank

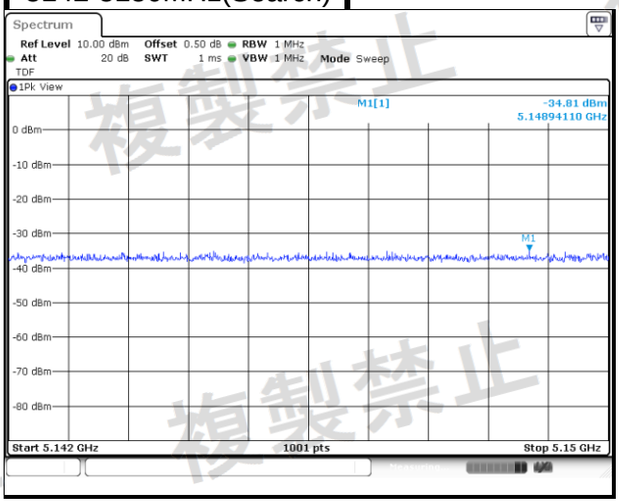
7. Test chart

7.6 Out-Band Leakage Power (Rated voltage)

Tx1

Ch.36: 5180MHz

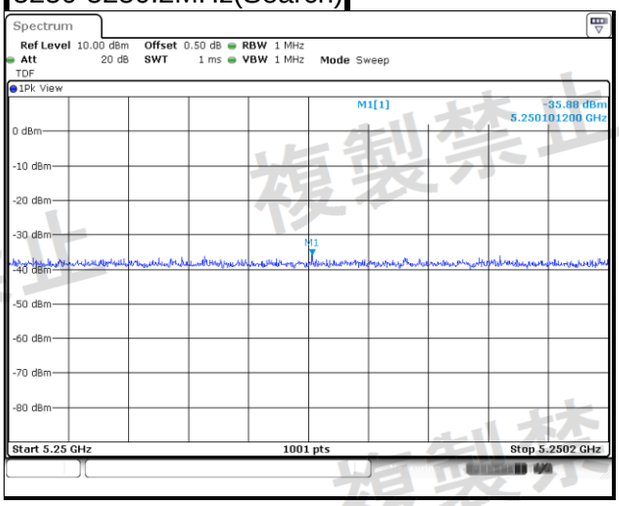
5142-5150MHz(Search)



5142-5150MHz(Detail)

Blank

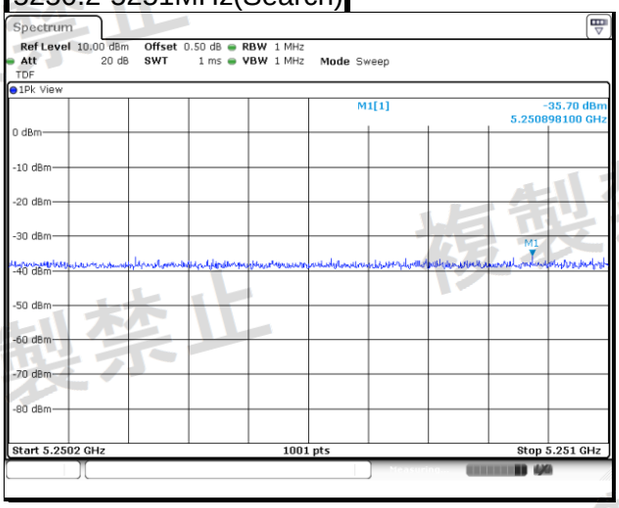
5250-5250.2MHz(Search)



5250-5250.2MHz(Detail)

Blank

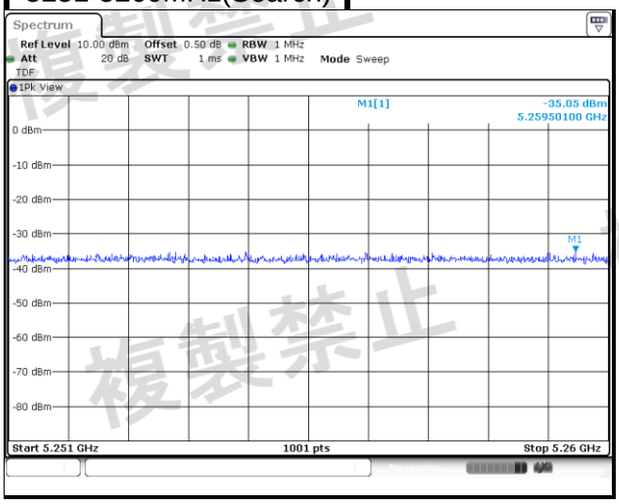
5250.2-5251MHz(Search)



5250.2-5251MHz(Detail)

Blank

5251-5260MHz(Search)



5251-5260MHz(Detail)

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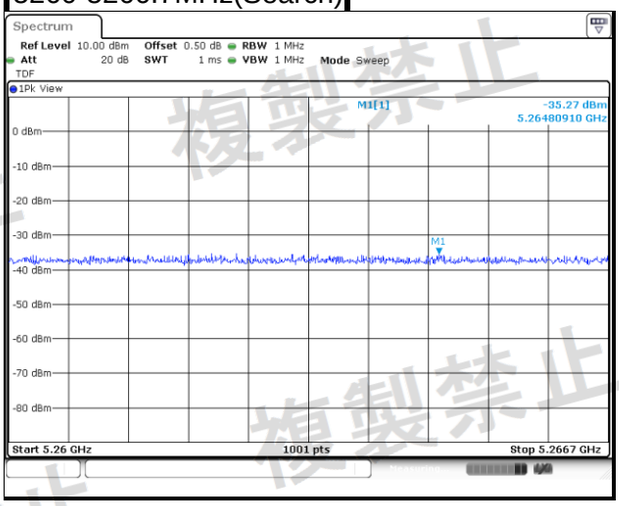
5260-5266.7MHz(Search)



5260-5266.7MHz(Detail)

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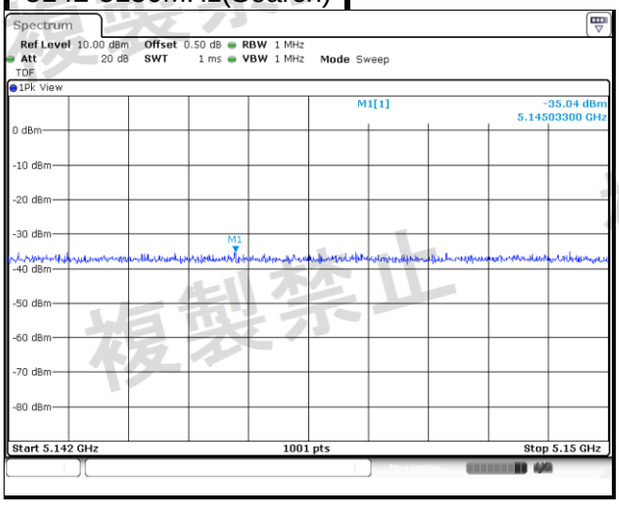
Ch.40: 5200MHz

5142-5150MHz(Search)



5142-5150MHz(Detail)

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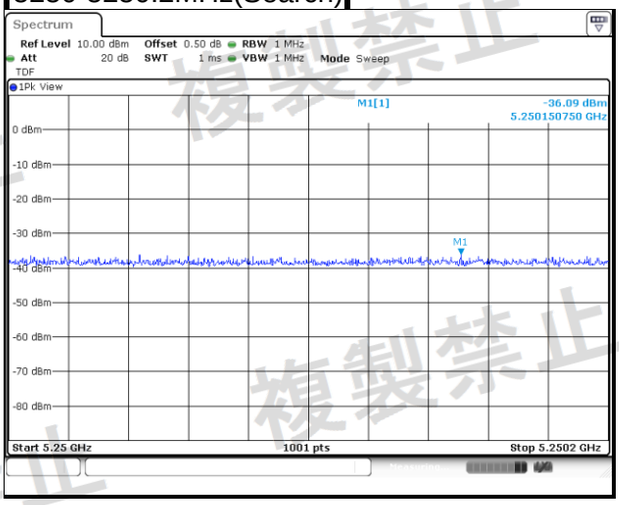
5250-5250.2MHz(Search)



5250-5250.2MHz(Detail)

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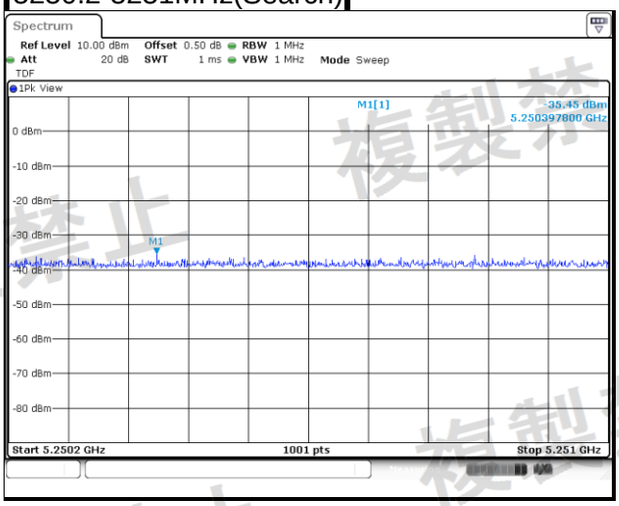
5250.2-5251MHz(Search)



5250.2-5251MHz(Detail)

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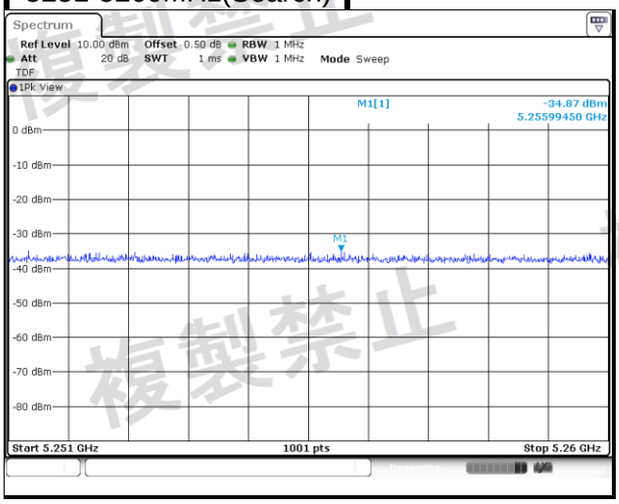
5251-5260MHz(Search)



5251-5260MHz(Detail)

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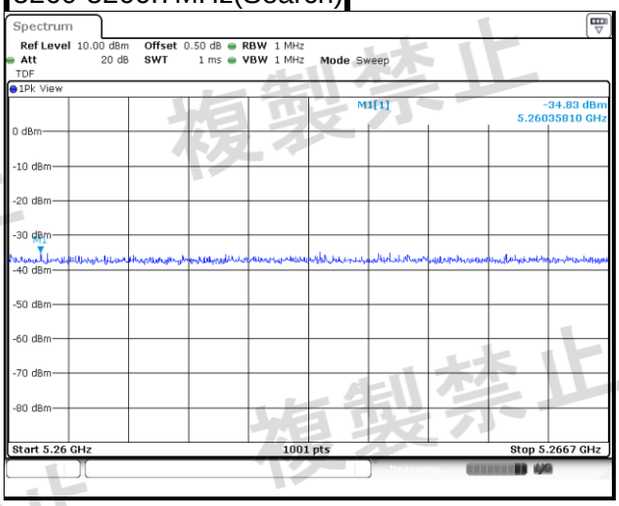
5260-5266.7MHz(Search)



5260-5266.7MHz(Detail)

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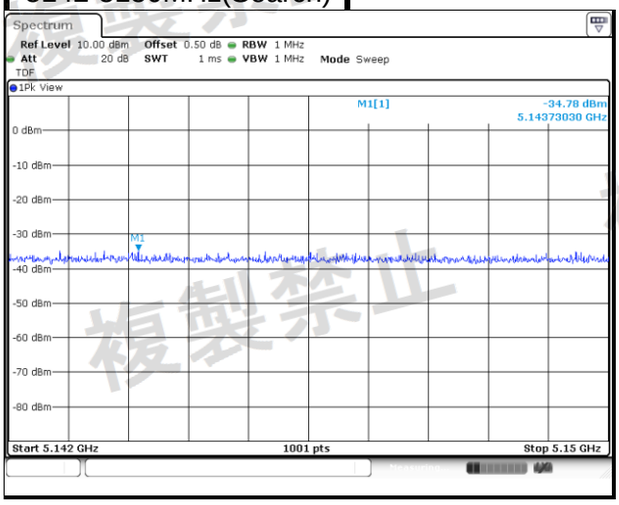
Ch.48: 5240MHz

5142-5150MHz(Search)



5142-5150MHz(Detail)

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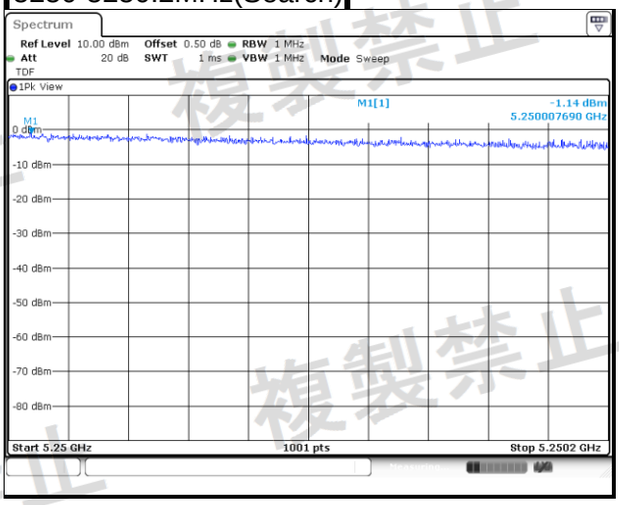
5250-5250.2MHz(Search)



5250-5250.2MHz(Detail)

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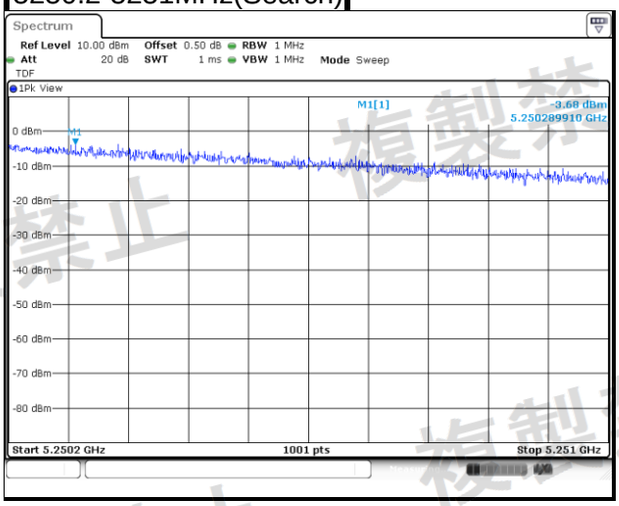
5250.2-5251MHz(Search)



5250.2-5251MHz(Detail)

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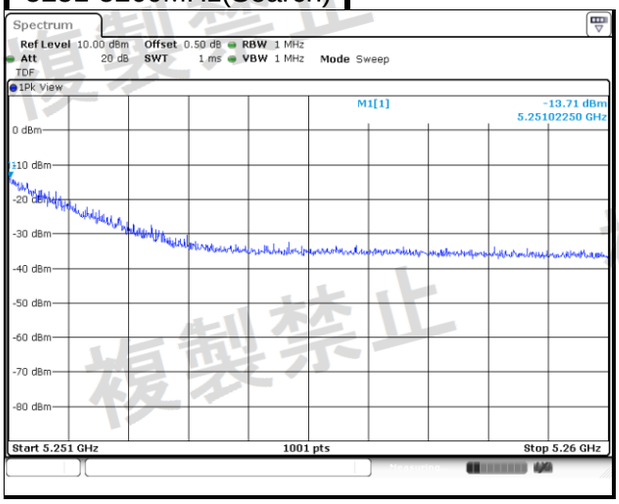
5251-5260MHz(Search)



5251-5260MHz(Detail)

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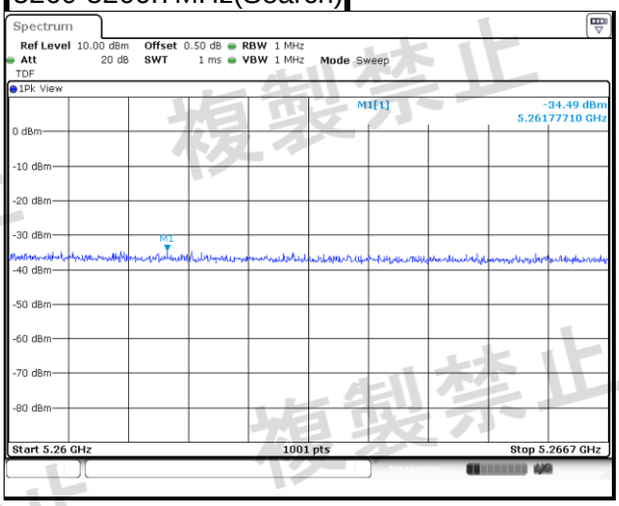
5260-5266.7MHz(Search)



5260-5266.7MHz(Detail)

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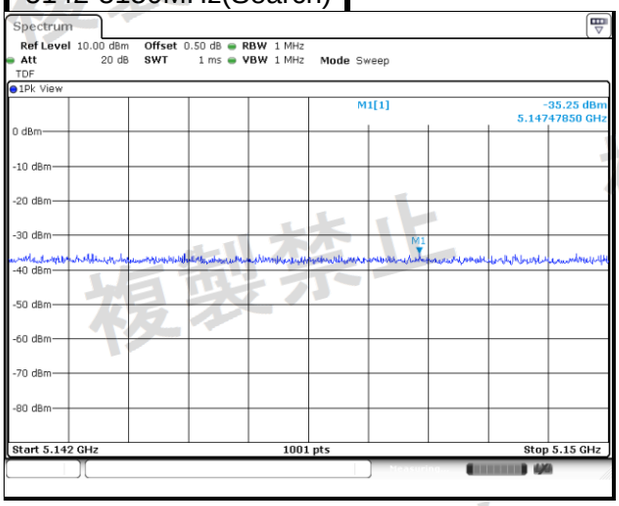
Tx2

Ch.36: 5180MHz

5142-5150MHz(Search)



5142-5150MHz(Detail)

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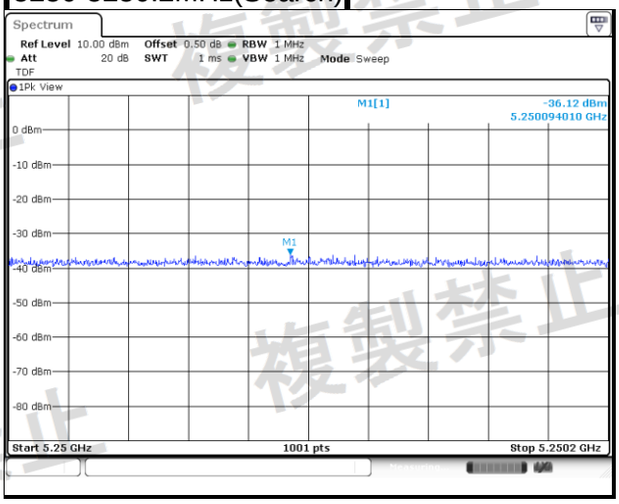
5250-5250.2MHz(Search)



5250-5250.2MHz(Detail)

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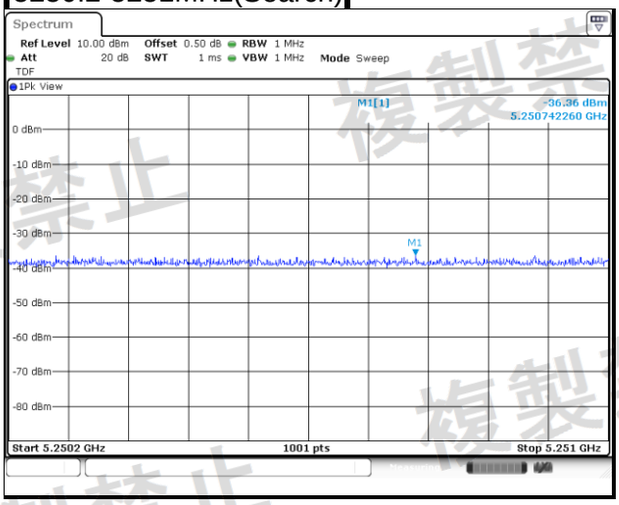
5250.2-5251MHz(Search)



5250.2-5251MHz(Detail)

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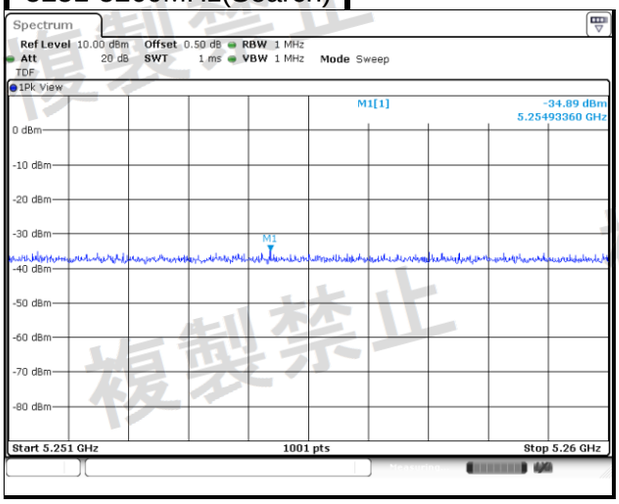
5251-5260MHz(Search)



5251-5260MHz(Detail)

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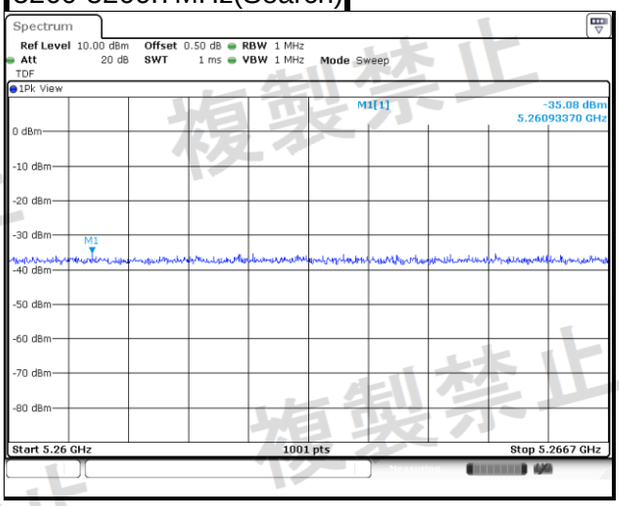
5260-5266.7MHz(Search)



5260-5266.7MHz(Detail)

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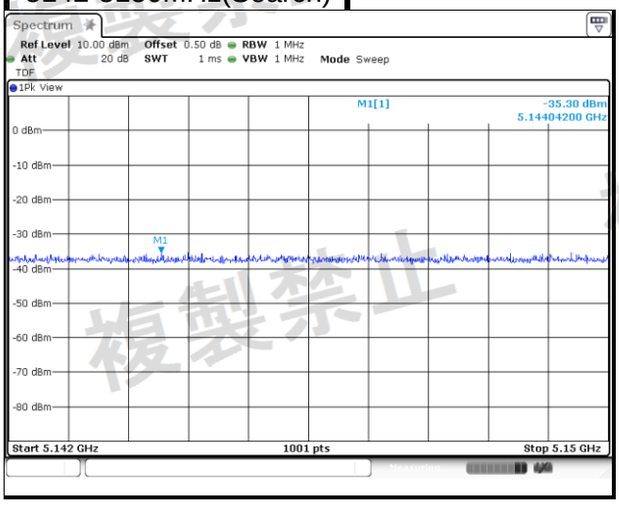
Ch.40: 5200MHz

5142-5150MHz(Search)



5142-5150MHz(Detail)

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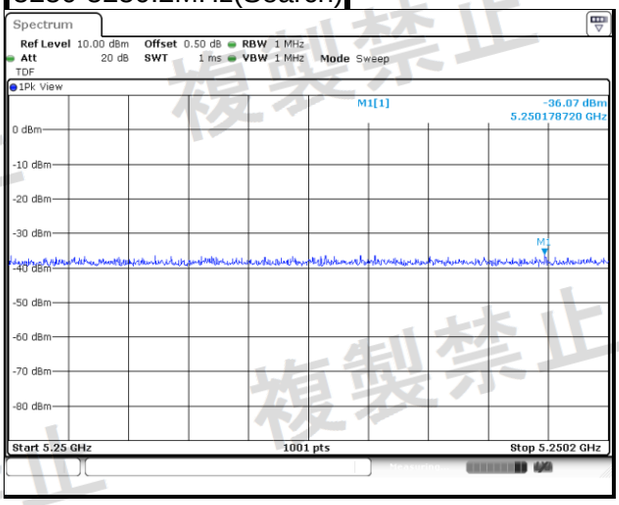
5250-5250.2MHz(Search)



5250-5250.2MHz(Detail)

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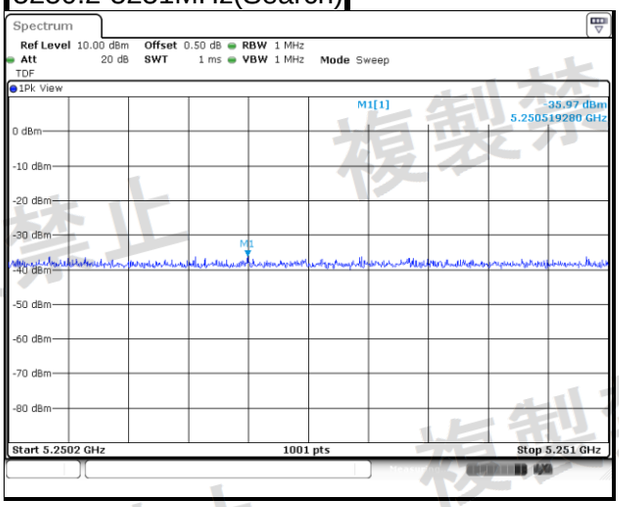
5250.2-5251MHz(Search)



5250.2-5251MHz(Detail)

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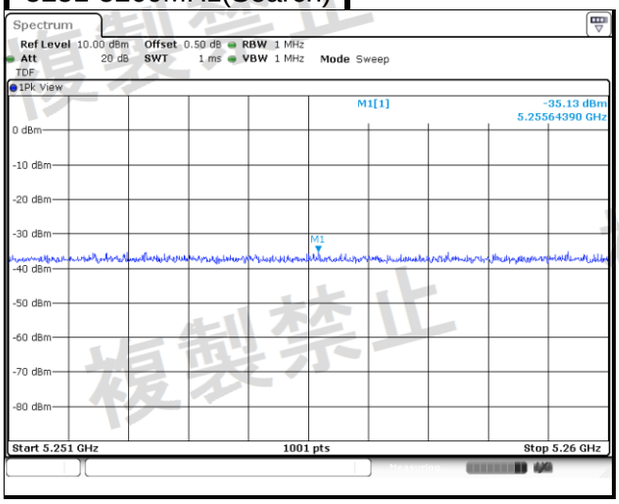
5251-5260MHz(Search)



5251-5260MHz(Detail)

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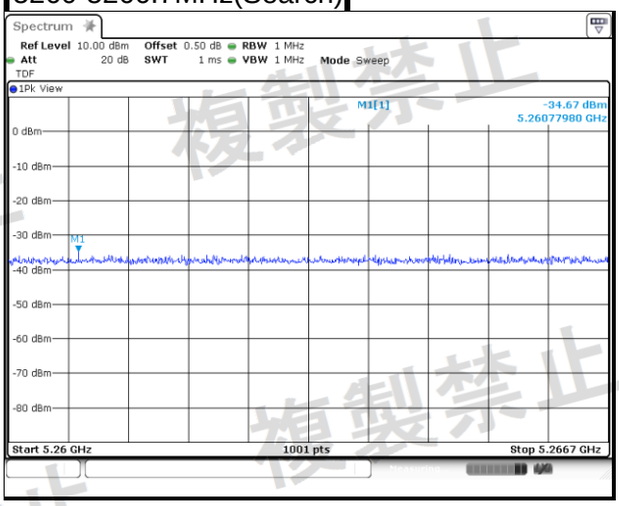
5260-5266.7MHz(Search)



5260-5266.7MHz(Detail)

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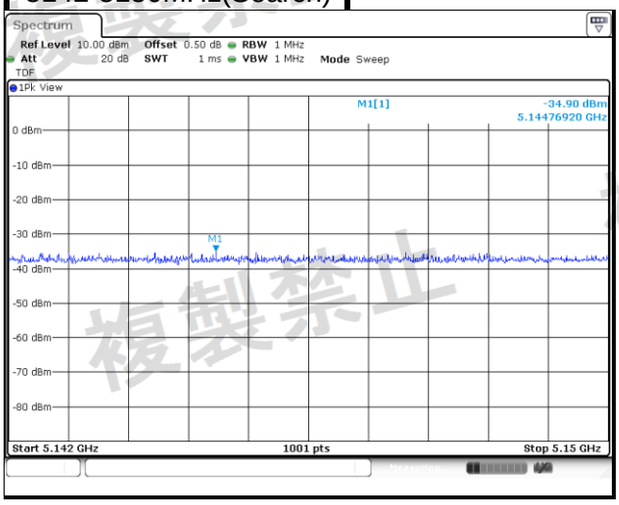
Ch.48: 5240MHz

5142-5150MHz(Search)



5142-5150MHz(Detail)

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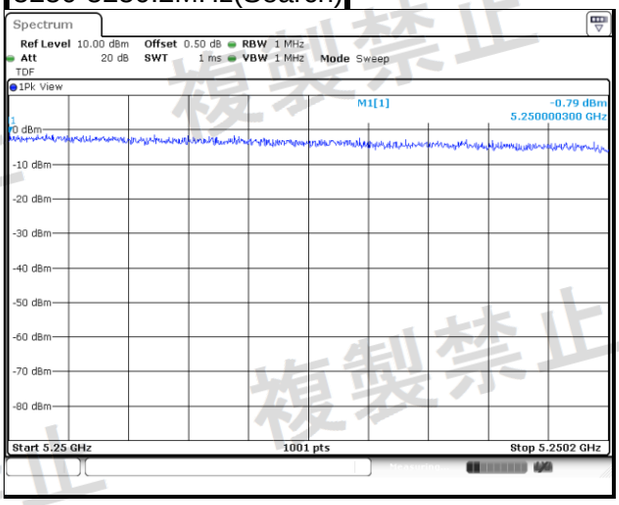
5250-5250.2MHz(Search)



5250-5250.2MHz(Detail)

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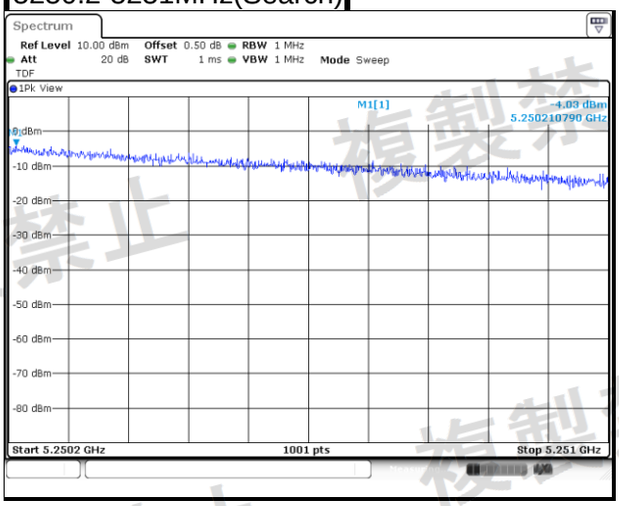
5250.2-5251MHz(Search)



5250.2-5251MHz(Detail)

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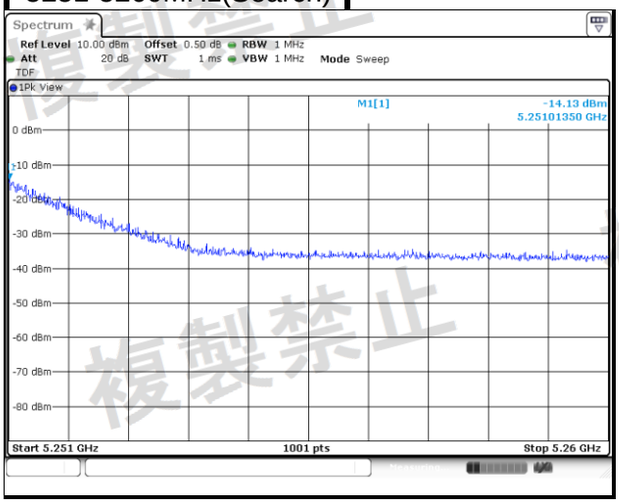
5251-5260MHz(Search)



5251-5260MHz(Detail)

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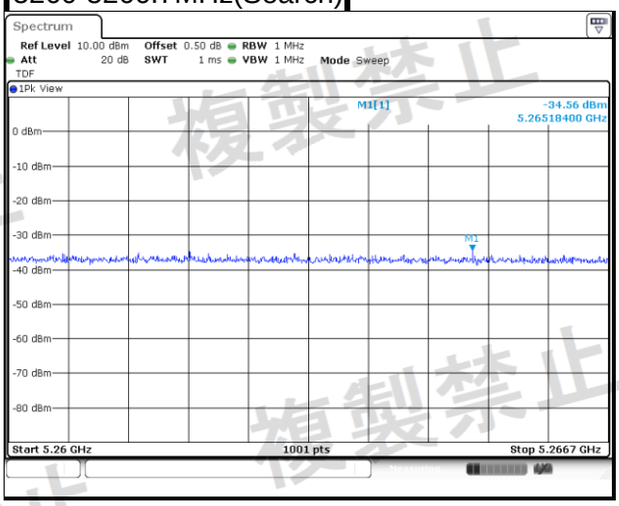
5260-5266.7MHz(Search)



5260-5266.7MHz(Detail)

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3. Test results (Rated voltage)

S/N : 563b88ad

Environment of test room	Date of test	2022-02-04	2022-02-05	2022-02-06	2022-02-16
	Temperature	21 °C	20 °C	21 °C	23 °C
	Humidity	51 %	51 %	52 %	52 %

Peak Antenna Gain	-7.99	dBi
Beamforming Gain	3.00	dB
Peak Antenna Gain + Beamforming Gain	-4.99	dBi
Declaration Output Power	5.00	mW/MHz
	6.99	dBm/MHz
E.I.R.P	**1.58**	mW/MHz
	2.00	**dBm/MHz**
Input Power Voltage	3.86	VDC

Test category		IEEE802.11ax HE40 / MIMO(2TX)	
Tested Circit Insertion Loss		0.00	dB
Transmission Time	ON TIME (1sec or less)	5.38	ms
	OFF TIME (0.1sec or more)	0.09	ms
	Ratio	0.98	%

Using TDF and offset function in Spectrum Analyz

Measurement of plots are included Loss value.

Offset : EUT cable(0.5dB)

Test category :	5GHz Band Low-Power Data Communication System (802.11ax HE40 W52/MIMO(2TX))_Beamforming
The reason why the tests are performed only at rated voltage:	The fluctuation of input voltage to the circuit of the radio part of the equipment to be tested is identified as being less than ±1 % when input voltage from an external supply into the equipment fluctuates ±10 %.

Measurement Channel	Ch.	38	46		
Measurement Frequency	MHz	5190	5230	Result	Limit
RF Output Power(Tx1)	mW/MHz	1.05	1.05	**PASS**	5mW/MHz or below
RF Output Power(Tx2)	mW/MHz	0.89	0.90	**PASS**	5mW/MHz or below
RF Output Power (Tx1+2)	mW/MHz	1.94	1.95	**PASS**	5mW/MHz or below
RF Output Power Tolerance (Tx1+2)	%	-61.29	-60.97	**PASS**	+20% to -80%

Measurement Channel		Ch.	38	46		
Measurement Frequency		MHz	5190	5230	Result	Limit
Unwanted (Spurious) Emission Strength (Tx1)	30MHz to 5141.6MHz	uW/MHz	0.12	0.08	**PASS**	2.5uW/MHz or below
		MHz	4991.00	4939.90	----	----
	5278.4MHz to 26GHz	uW/MHz	0.16	0.15	**PASS**	2.5uW/MHz or below
		MHz	6903.40	25844.40	----	----
Unwanted (Spurious) Emission Strength (Tx2)	30MHz to 5141.6MHz	uW/MHz	0.09	0.08	**PASS**	2.5uW/MHz or below
		MHz	5082.90	5088.00	----	----
	5278.4MHz to 26GHz	uW/MHz	0.15	0.14	**PASS**	2.5uW/MHz or below
		MHz	18061.40	25927.40	----	----
Unwanted (Spurious) Emission Strength (Tx1+2)	30MHz to 5141.6MHz	uW/MHz	0.20	0.17	**PASS**	2.5uW/MHz or below
		----	----	----	----	----
	5278.4MHz to 26GHz	uW/MHz	0.32	0.29	**PASS**	2.5uW/MHz or below
		----	----	----	----	----

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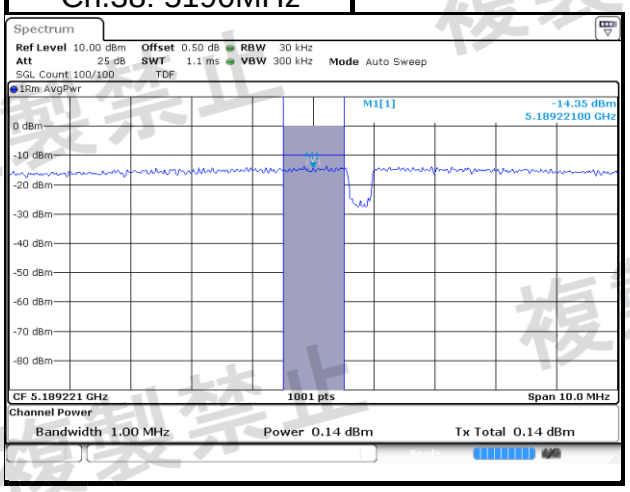
Measurement Channel		Ch.	38	46		
Measurement Frequency		MHz	5190	5230	Result	Limit
Out-band of Leakage Power (Tx1)	5141.6 to 5150MHz	uW/MHz	0.12	0.10	**PASS**	15uW/MHz or below
		MHz	5149.19	5142.49	----	----
	5250 to 5251MHz	uW/MHz	0.07	47.64	**PASS**	$10^{-(f-20)+\log(1/2)}$mW/MHz or below
		MHz	5250.57	5250.01	----	----
	Limit	uW/MHz	133.65	494.28	----	----
	5251 to 5270MHz	uW/MHz	0.10	2.81	**PASS**	$10^{-(8/190)(f-21)-1+\log(1/2)}$mW/MHz or below
		MHz	5255.79	5251.01	----	----
	Limit	uW/MHz	31.42	49.96	----	----
	5270 to 5278.4MHz	uW/MHz	0.10	0.10	**PASS**	$10^{-(3/50)(f-40)-1.8+\log(1/2)}$mW/MHz or below
		MHz	5273.85	5270.36	----	----
	Limit	uW/MHz	4.66	7.54	----	----
Out-band of Leakage Power (Tx2)	5141.6 to 5150MHz	uW/MHz	0.10	0.10	**PASS**	15uW/MHz or below
		MHz	5147.71	5144.87	----	----
	5250 to 5251MHz	uW/MHz	0.09	32.81	**PASS**	$10^{-(f-20)+\log(1/2)}$mW/MHz or below
		MHz	5250.15	5250.01	----	----
	Limit	uW/MHz	351.54	487.49	----	----
	5251 to 5270MHz	uW/MHz	0.10	2.21	**PASS**	$10^{-(8/190)(f-21)-1+\log(1/2)}$mW/MHz or below
		MHz	5251.37	5251.01	----	----
	Limit	uW/MHz	48.24	49.96	----	----
	5270 to 5278.4MHz	uW/MHz	0.10	0.12	**PASS**	$10^{-(3/50)(f-40)-1.8+\log(1/2)}$mW/MHz or below
		MHz	5270.54	5272.82	----	----
	Limit	uW/MHz	7.35	5.36	----	----
Out-band of Leakage Power (Tx1+2)	5141.6 to 5150MHz	uW/MHz	0.22	0.20	**PASS**	15uW/MHz or below
		----	----	----	----	----
	5250 to 5251MHz	uW/MHz	0.17	80.45	**PASS**	$10^{-(f-20)+\log(1/2)}$mW/MHz or below
		MHz	5250.57	5250.01	----	----
	Limit	uW/MHz	133.65	487.49	----	----
	5251 to 5270MHz	uW/MHz	0.20	5.02	**PASS**	$10^{-(8/190)(f-21)-1+\log(1/2)}$mW/MHz or below
		MHz	5255.79	5251.01	----	----
	Limit	uW/MHz	31.42	49.96	----	----
	5270 to 5278.4MHz	uW/MHz	0.20	0.22	**PASS**	$10^{-(3/50)(f-40)-1.8+\log(1/2)}$mW/MHz or below
		MHz	5273.85	5272.82	----	----
	Limit	uW/MHz	4.66	5.36	----	----

7. Test chart

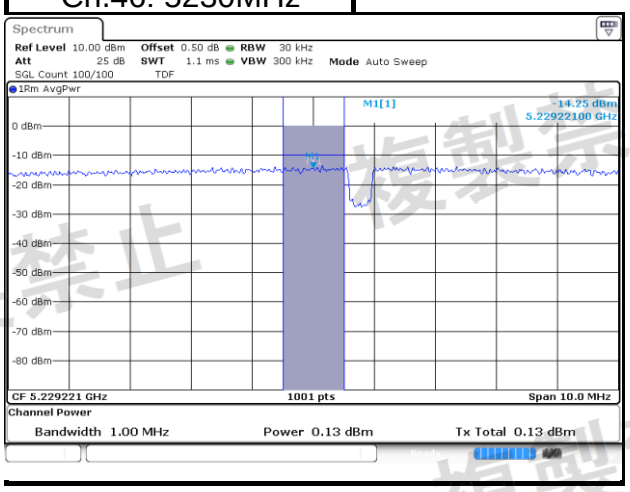
7.4 RF output power tolerance (Rated voltage)

TX1

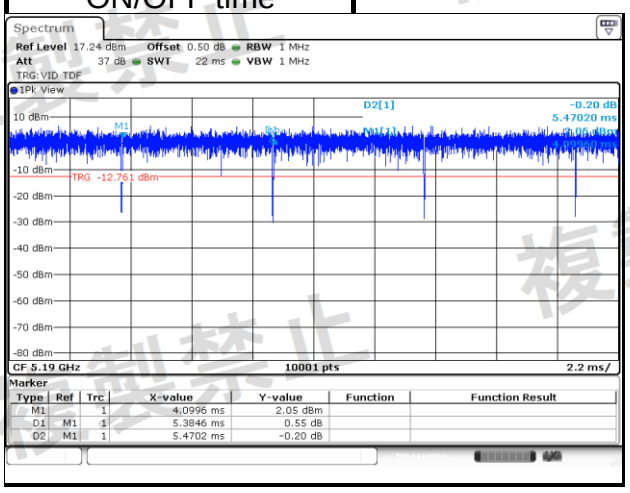
Ch.38: 5190MHz



Ch.46: 5230MHz

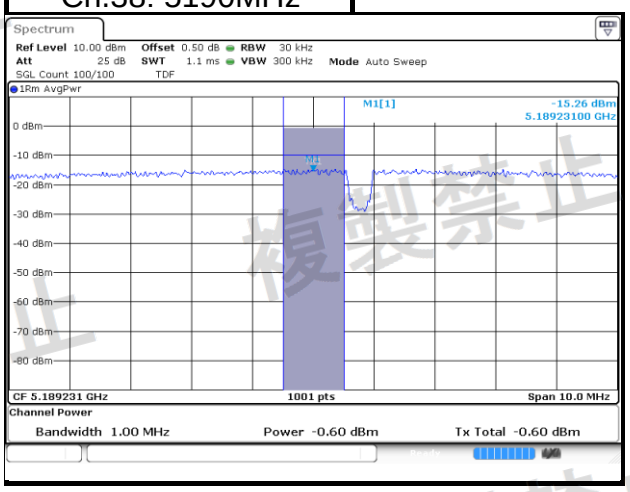


ON/OFF time

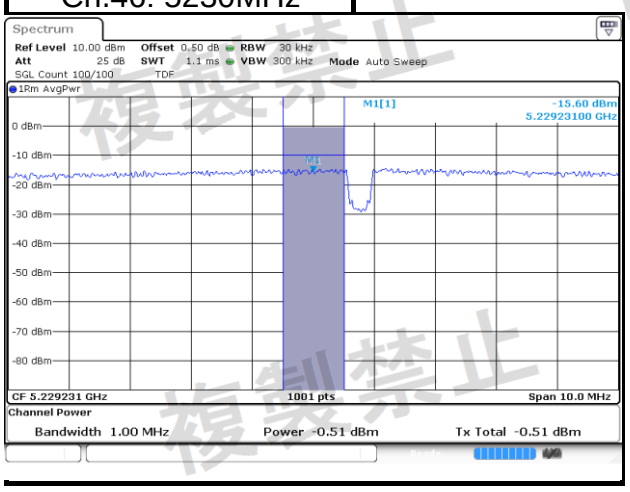


TX2

Ch.38: 5190MHz



Ch.46: 5230MHz



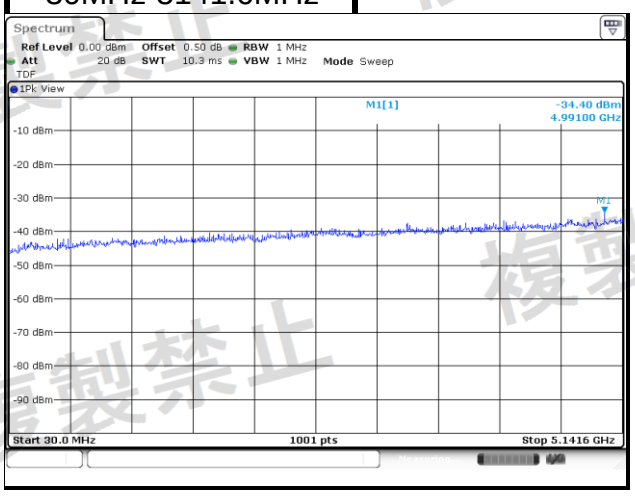
7. Test chart

7.5 Unwanted(Spurious) emission strength (Rated voltage)

Tx1

Ch.38: 5190MHz

30MHz-5141.6MHz



30MHz-5141.6MHz(Detail)

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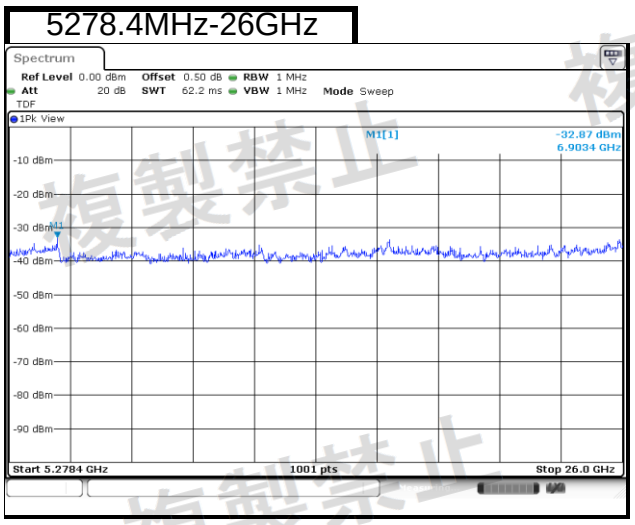
5278.4MHz-26GHz



5278.4MHz-26GHz(Detail)

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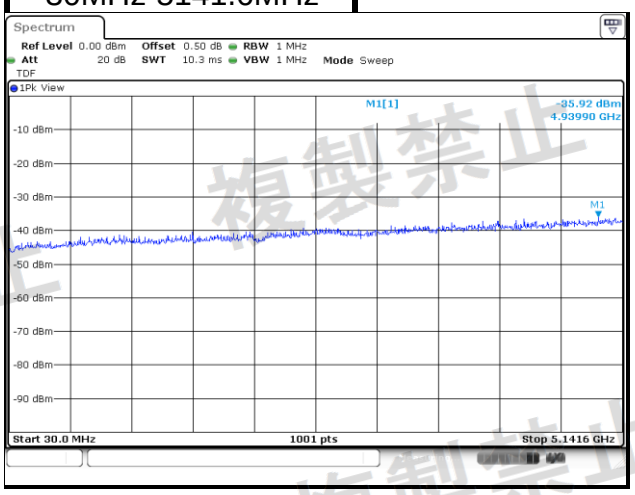
Ch.46: 5230MHz

30MHz-5141.6MHz



30MHz-5141.6MHz(Detail)

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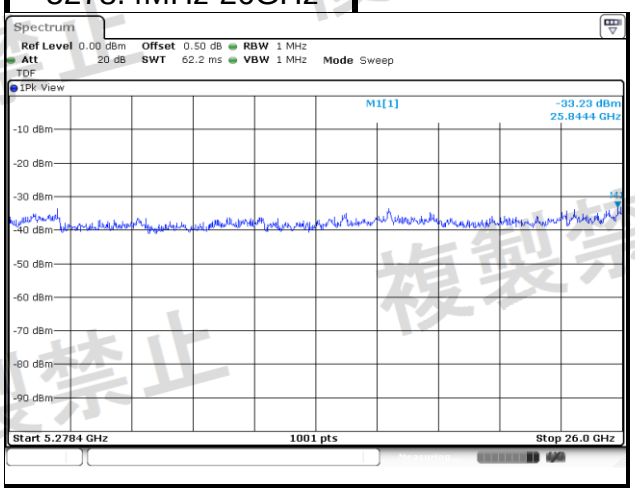
5278.4MHz-26GHz



5278.4MHz-26GHz(Detail)

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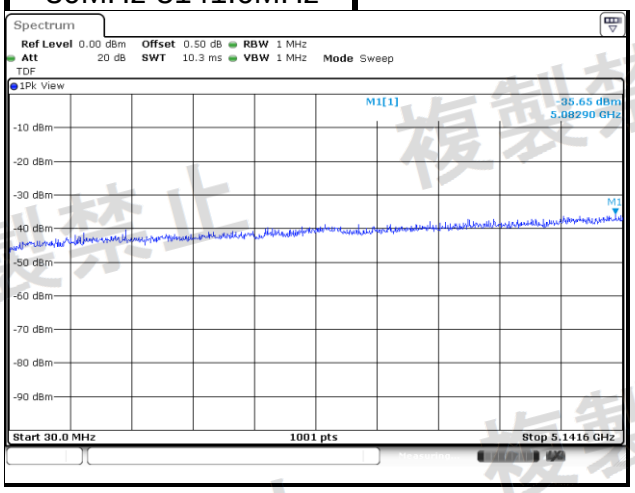
Tx2

Ch.38: 5190MHz

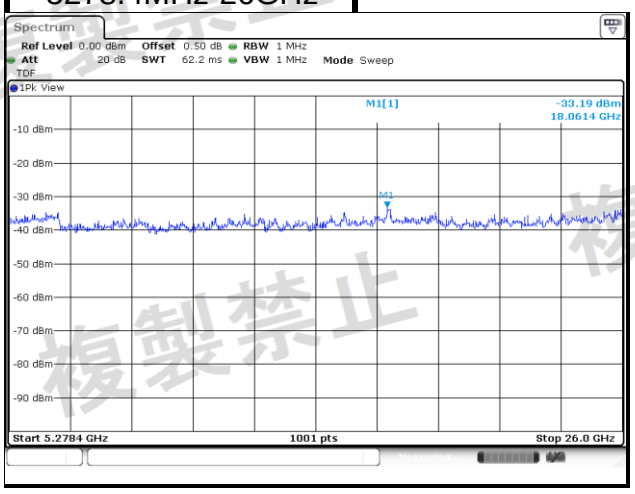
30MHz-5141.6MHz



30MHz-5141.6MHz(Detail)

Blank

5278.4MHz-26GHz



5278.4MHz-26GHz(Detail)

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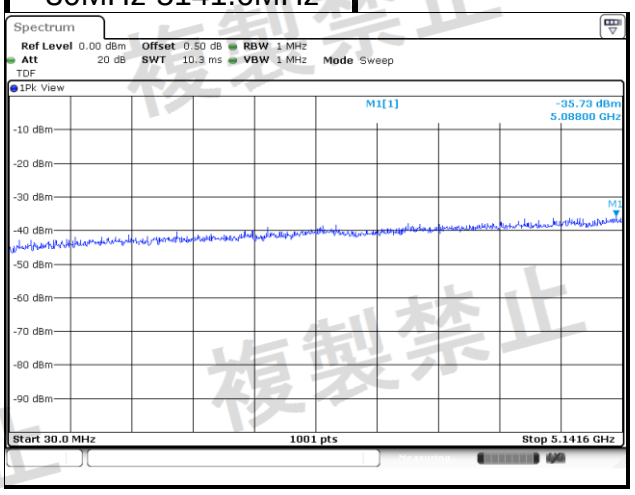
Ch.46: 5230MHz

30MHz-5141.6MHz



30MHz-5141.6MHz(Detail)

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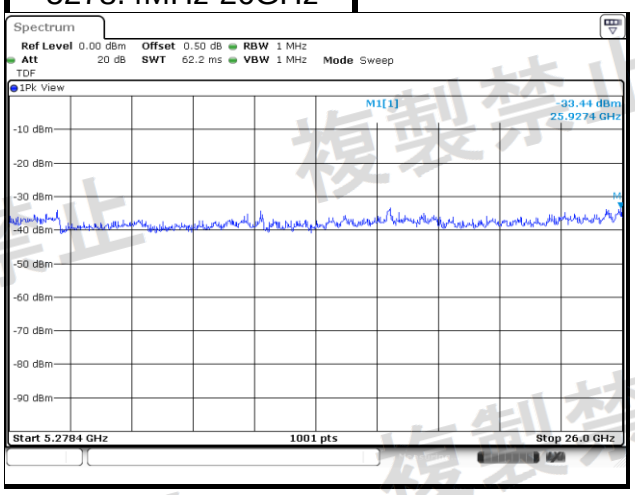
5278.4MHz-26GHz



5278.4MHz-26GHz(Detail)

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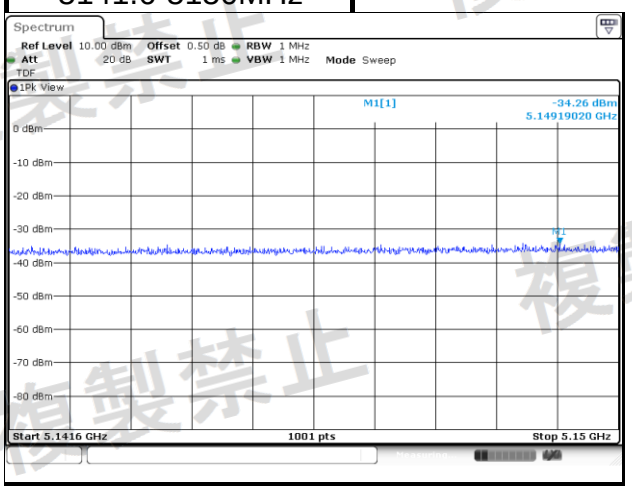
7. Test chart

7.6 Out-Band Leakage Power (Rated voltage)

TX1

Ch.38: 5190MHz

5141.6-5150MHz



5141.6-5150MHz(Detail)

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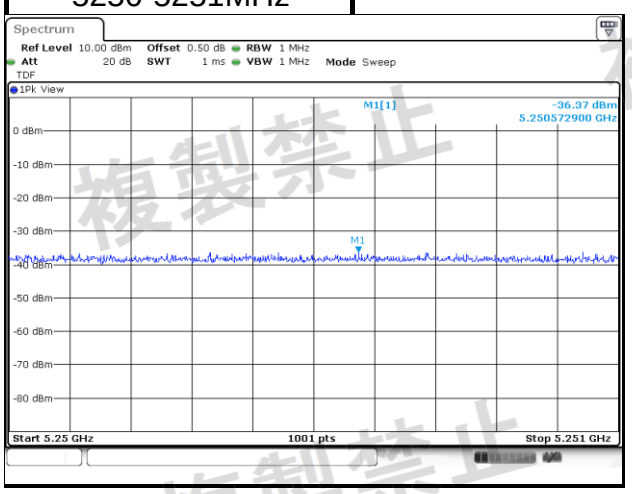
5250-5251MHz



5250-5251MHz(Detail)

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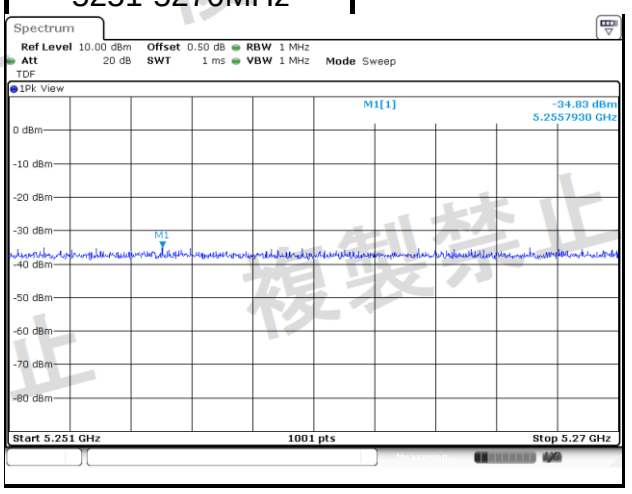
5251-5270MHz



5251-5270MHz(Detail)

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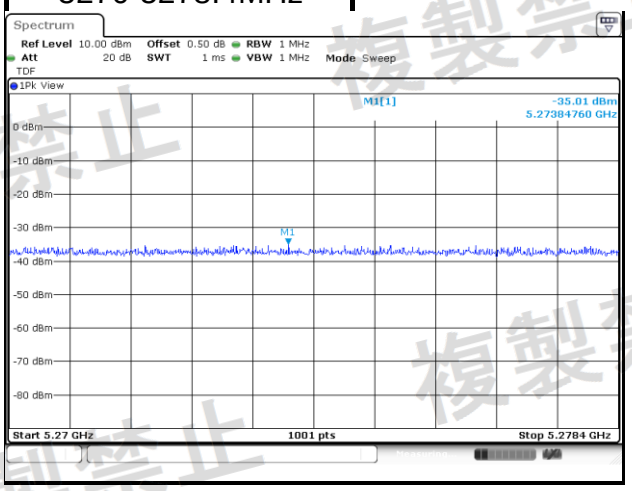
5270-5278.4MHz



5270-5278.4MHz(Detail)

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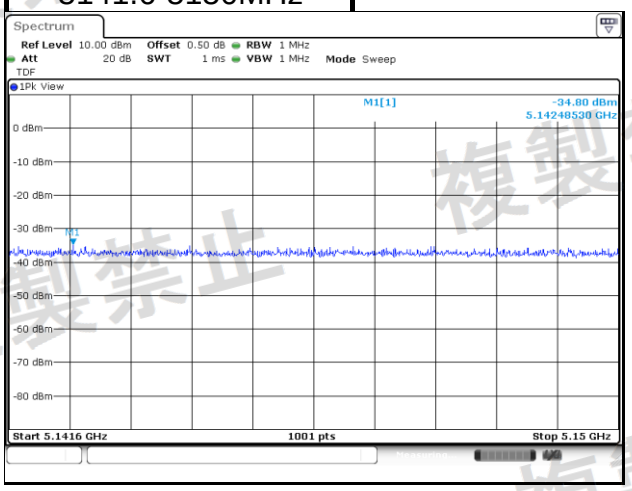
Ch.46: 5230MHz

5141.6-5150MHz



5141.6-5150MHz(Detail)

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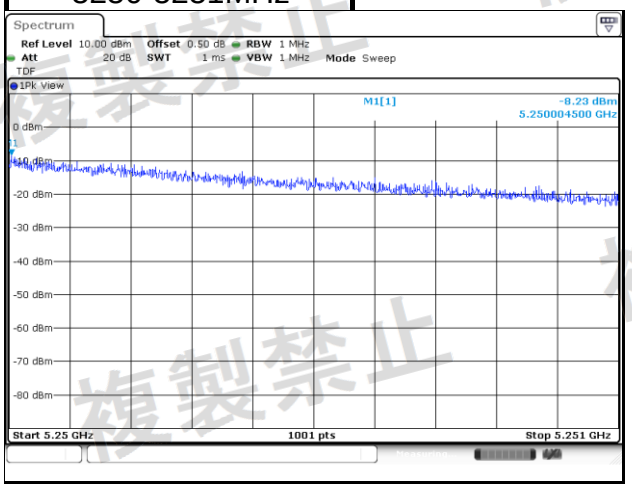
5250-5251MHz



5250-5251MHz(Detail)

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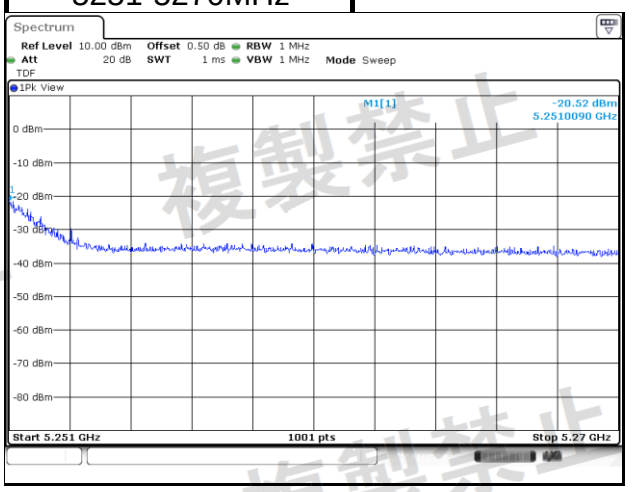
5251-5270MHz



5251-5270MHz(Detail)

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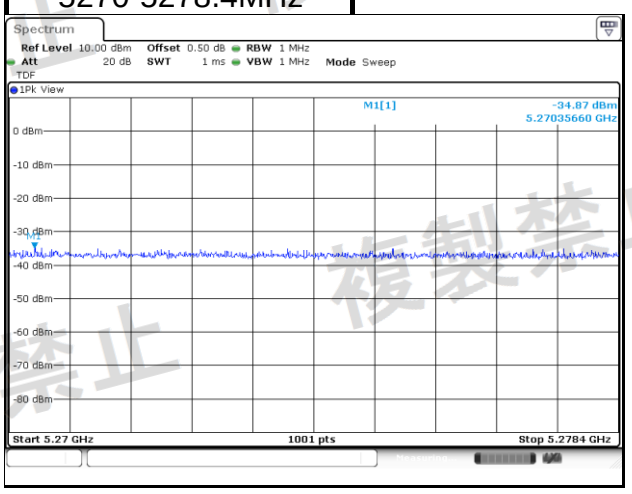
5270-5278.4MHz



5270-5278.4MHz(Detail)

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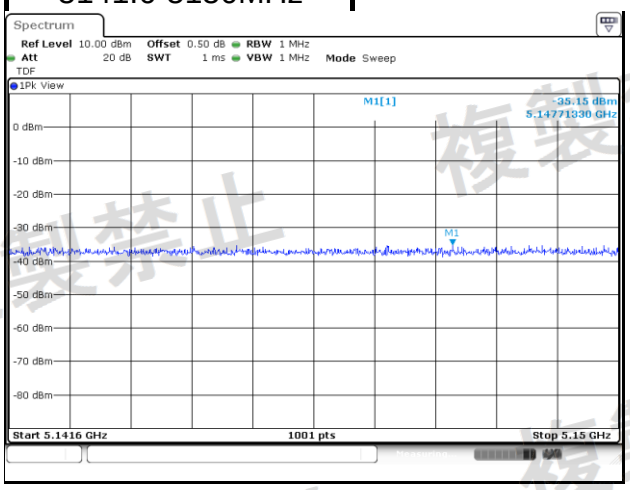
TxZ

Ch.38: 5190MHz

5141.6-5150MHz



5141.6-5150MHz(Detail)

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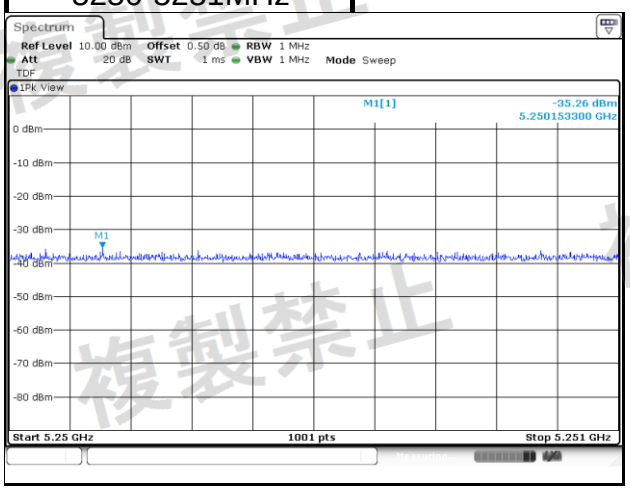
5250-5251MHz



5250-5251MHz(Detail)

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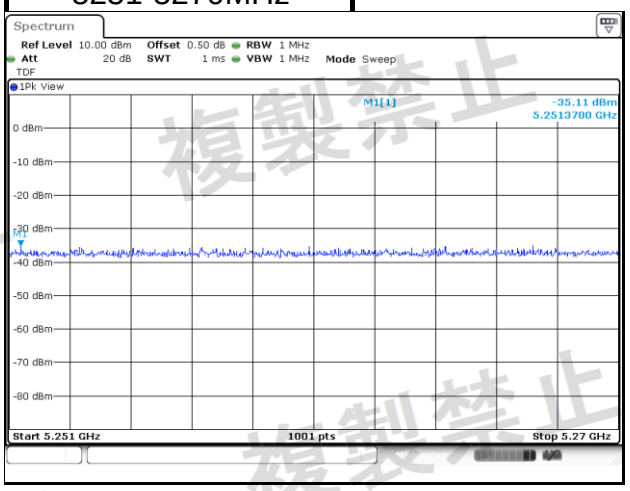
5251-5270MHz



5251-5270MHz(Detail)

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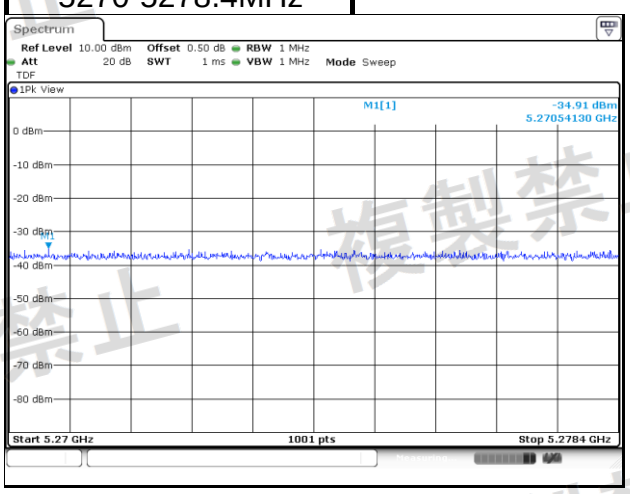
5270-5278.4MHz

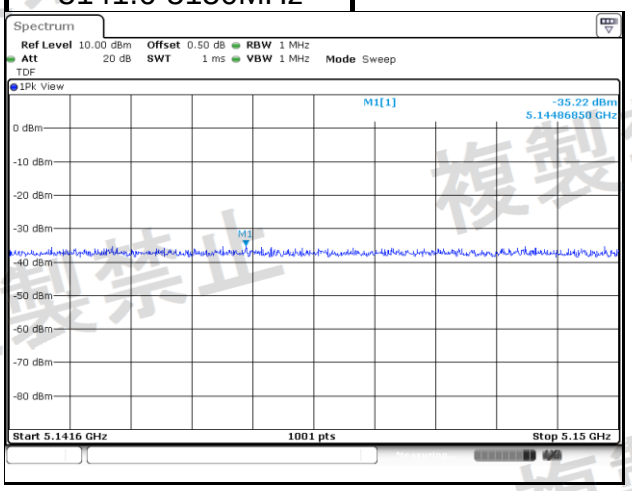


5270-5278.4MHz(Detail)

Blank

Ch.46: 5230MHz

5141.6-5150MHz



5141.6-5150MHz(Detail)

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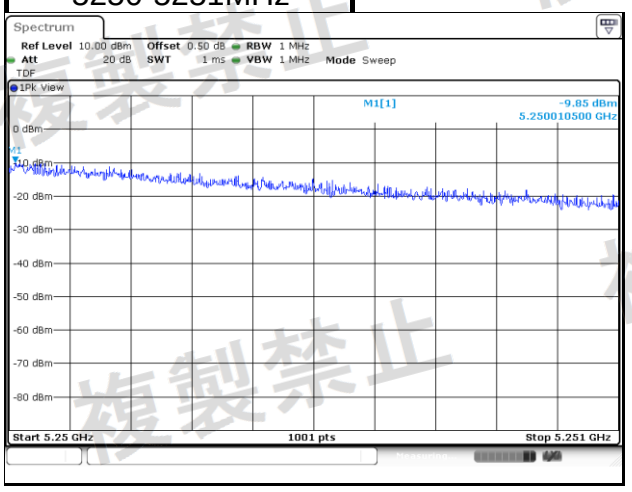
5250-5251MHz



5250-5251MHz(Detail)

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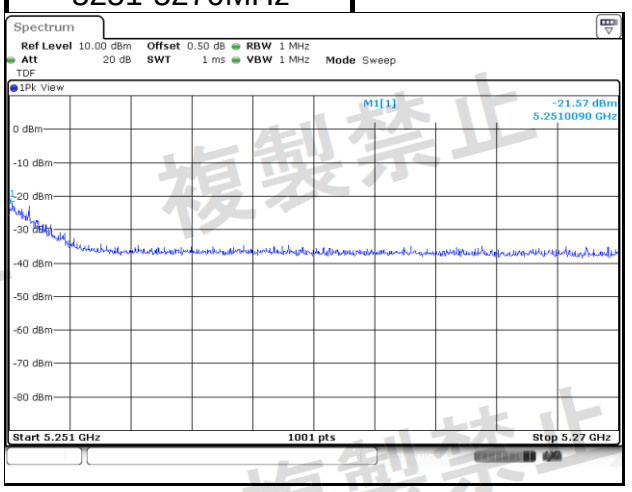
5251-5270MHz



5251-5270MHz(Detail)

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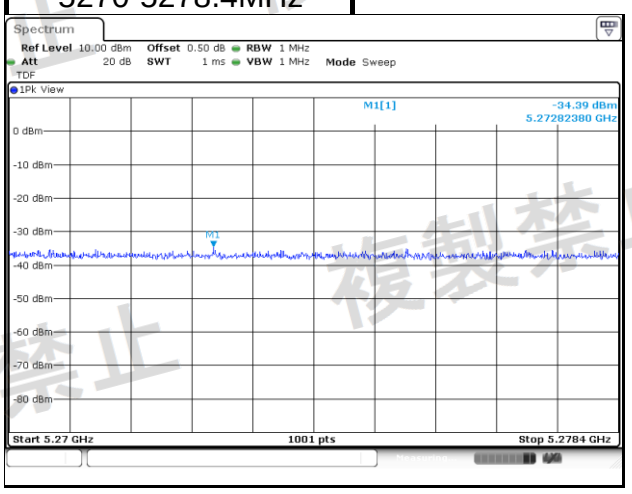
5270-5278.4MHz



5270-5278.4MHz(Detail)

Blank

3. Test results (Rated voltage)

S/N : 563b88ad

Environment of test room	Date of test	2022-02-04	2022-02-05	2022-02-06
	Temperature	21 °C	20 °C	21 °C
	Humidity	51 %	51 %	52 %

Peak Antenna Gain	-7.99	dBi
Beamforming Gain	3.00	dB
Peak Antenna Gain + Beamforming Gain	-4.99	dBi
Declaration Output Power	2.50	mW/MHz
	3.98	dBm/MHz
E.I.R.P	**0.79**	mW/MHz
	-1.01	**dBm/MHz**
Input Power Voltage	3.86	VDC

Test category		IEEE802.11ax HE80 / MIMO(2TX)	
Tested Circit Insertion Loss		0.00	dB
Transmission Time	ON TIME (1sec or less)	5.37	ms
	OFF TIME (0.1sec or more)	0.10	ms
	Ratio	0.98	%

Using TDF and offset function in Spectrum Analyzer.

Measurement of plots are included Loss value.

Offset : EUT cable(0.5dB)

Test category :	5GHz Band Low-Power Data Communication System (802.11ax HE80 W52/MIMO(2TX))_Beamforming
The reason why the tests are performed only at rated voltage:	The fluctuation of input voltage to the circuit of the radio part of the equipment to be tested is identified as being less than ±1 % when input voltage from an external supply into the equipment fluctuates ±10 %.

Measurement Channel	Ch.	42		
Measurement Frequency	MHz	5210	Result	Limit
RF Output Power(Tx1)	mW/MHz	0.40	**PASS**	2.5mW/MHz or below
RF Output Power(Tx2)	mW/MHz	0.36	**PASS**	2.5mW/MHz or below
RF Output Power (Tx1+2)	mW/MHz	0.76	**PASS**	2.5mW/MHz or below
RF Output Power Tolerance (Tx1+2)	%	-69.75	**PASS**	+20% to -80%

Measurement Channel		Ch.	42		
Measurement Frequency		MHz	5210	Result	Limit
Unwanted (Spurious) Emission Strength (Tx1)	30MHz to 5123.2MHz	uW/MHz	0.08	**PASS**	2.5uW/MHz or below
		MHz	4734.00	----	----
	5296.7MHz to 26GHz	uW/MHz	0.16	**PASS**	2.5uW/MHz or below
		MHz	25927.70	----	----
Unwanted (Spurious) Emission Strength (Tx2)	30MHz to 5123.2MHz	uW/MHz	0.09	**PASS**	2.5uW/MHz or below
		MHz	4993.50	----	----
	5296.7MHz to 26GHz	uW/MHz	0.14	**PASS**	2.5uW/MHz or below
		MHz	18109.70	----	----
Unwanted (Spurious) Emission Strength (Tx1+2)	30MHz to 5123.2MHz	uW/MHz	0.16	**PASS**	2.5uW/MHz or below
		----	----	----	----
	5296.7MHz to 26GHz	uW/MHz	0.30	**PASS**	2.5uW/MHz or below
		----	----	----	----

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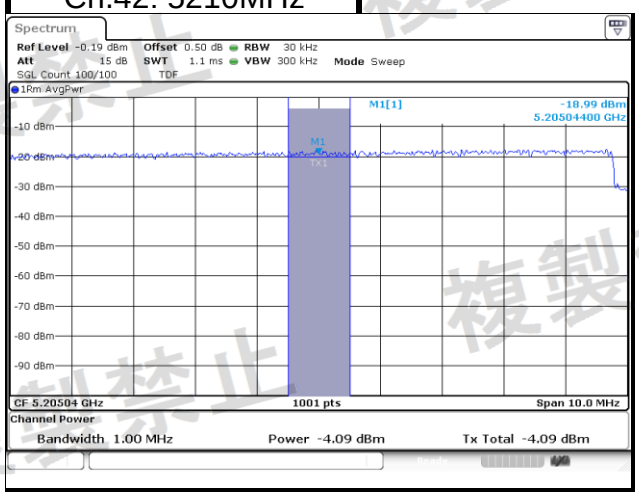
Measurement Channel		Ch.	42		
Measurement Frequency		MHz	5210	Result	Limit
Out-band of Leakage Power (Tx1)	5123.2 to 5150MHz	uW/MHz	0.13	**PASS**	15uW/MHz or below
		MHz	5132.13	----	----
	5250 to 5251MHz	uW/MHz	21.88	**PASS**	$10^{-(f-40)+\log(1/4)}$mW/MHz or below
		MHz	5250.02	----	----
	Limit	uW/MHz	236.56	----	----
	5251 to 5290MHz	uW/MHz	2.42	**PASS**	$10^{-(8/390)(f-41)-1+\log(1/4)}$mW/MHz or below
		MHz	5251.02	----	----
	Limit	uW/MHz	24.98	----	----
	5290 to 5296.7MHz	uW/MHz	0.11	**PASS**	$10^{-(3/100)(f-80)-1.8+\log(1/4)}$mW/MHz or below
		MHz	5290.75	----	----
	Limit	uW/MHz	3.76	----	----
Out-band of Leakage Power (Tx2)	5123.2 to 5150MHz	uW/MHz	0.11	**PASS**	15uW/MHz or below
		MHz	5135.50	----	----
	5250 to 5251MHz	uW/MHz	20.61	**PASS**	$10^{-(f-40)+\log(1/4)}$mW/MHz or below
		MHz	5250.02	----	----
	Limit	uW/MHz	236.56	----	----
	5251 to 5290MHz	uW/MHz	1.64	**PASS**	$10^{-(8/390)(f-41)-1+\log(1/4)}$mW/MHz or below
		MHz	5251.10	----	----
	Limit	uW/MHz	24.89	----	----
	5290 to 5296.7MHz	uW/MHz	0.11	**PASS**	$10^{-(3/100)(f-80)-1.8+\log(1/4)}$mW/MHz or below
		MHz	5292.68	----	----
	Limit	uW/MHz	3.29	----	----
Out-band of Leakage Power (Tx1+2)	5123.2 to 5150MHz	uW/MHz	0.23	**PASS**	15uW/MHz or below
		----	----	----	----
	5250 to 5251MHz	uW/MHz	42.48	**PASS**	$10^{-(f-40)+\log(1/4)}$mW/MHz or below
		MHz	5250.02	----	----
	Limit	uW/MHz	236.56	----	----
	5251 to 5290MHz	uW/MHz	4.06	**PASS**	$10^{-(8/390)(f-41)-1+\log(1/4)}$mW/MHz or below
		MHz	5251.10	----	----
	Limit	uW/MHz	24.89	----	----
	5290 to 5296.7MHz	uW/MHz	0.22	**PASS**	$10^{-(3/100)(f-80)-1.8+\log(1/4)}$mW/MHz or below
		MHz	5292.68	----	----
	Limit	uW/MHz	3.29	----	----

7. Test chart

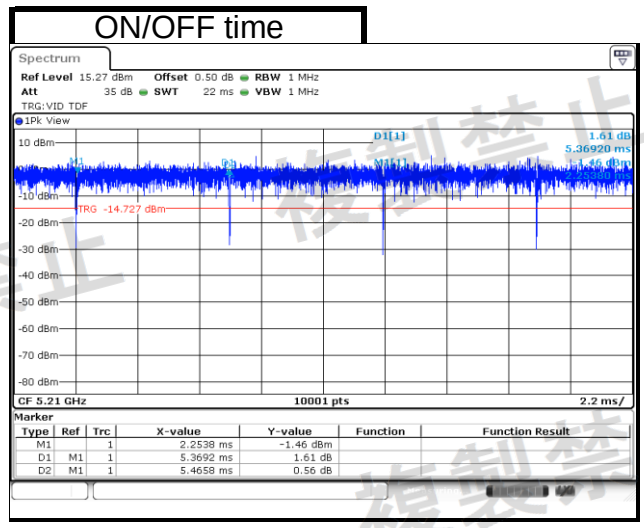
7.4 RF output power tolerance (Rated voltage)

Tx1

Ch.42: 5210MHz



ON/OFF time



Tx2

Ch.42: 5210MHz

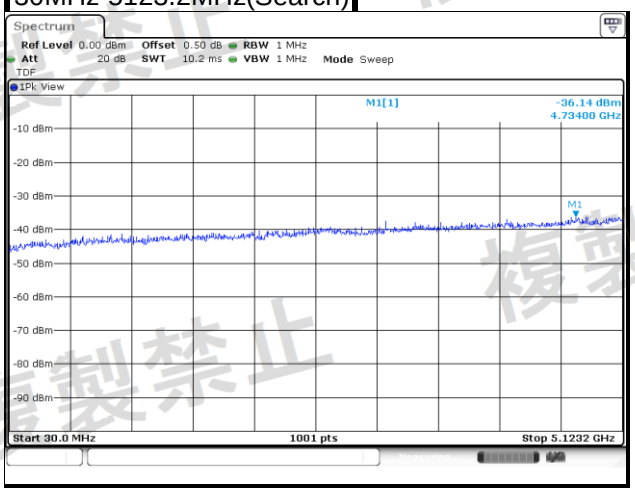
7. Test chart

7.5 Unwanted(Spurious) emission strength (Rated voltage)

Tx1

Ch.42: 5210MHz

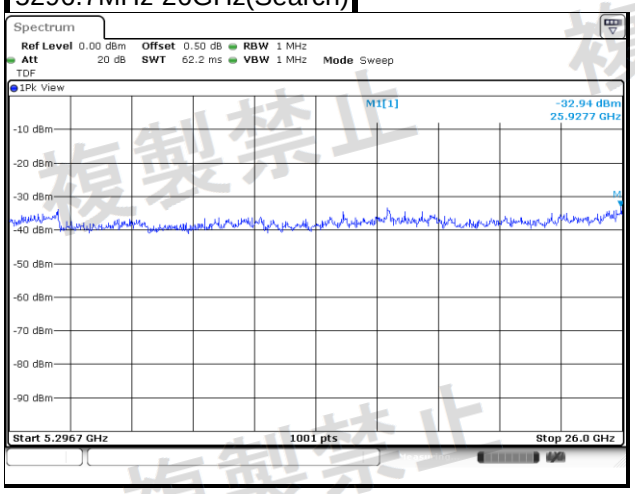
30MHz-5123.2MHz(Search)



30MHz-5123.2MHz(Detail)

Blank

5296.7MHz-26GHz(Search)



5296.7MHz-26GHz(Detail)

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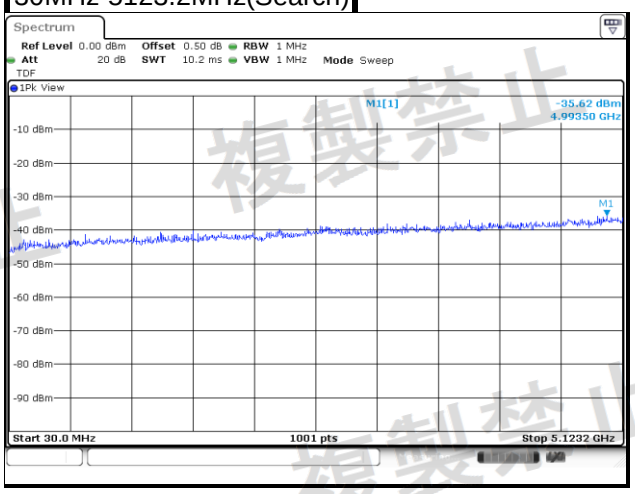
Tx2

Ch.42: 5210MHz

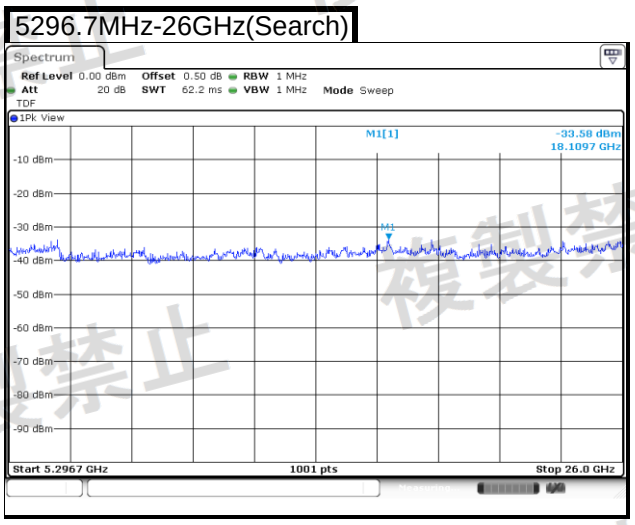
30MHz-5123.2MHz(Search)



30MHz-5123.2MHz(Detail)

Blank

5296.7MHz-26GHz(Search)



5296.7MHz-26GHz(Detail)

Blank

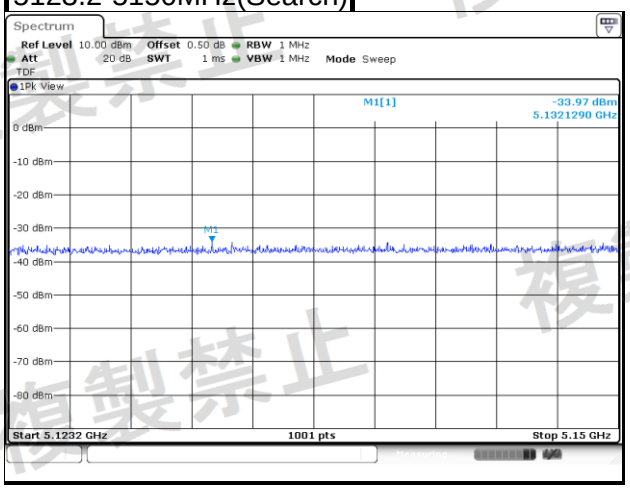
7. Test chart

7.6 Out-Band Leakage Power (Rated voltage)

Tx1

Ch.42: 5210MHz

5123.2-5150MHz(Search)



5123.2-5150MHz(Detail)

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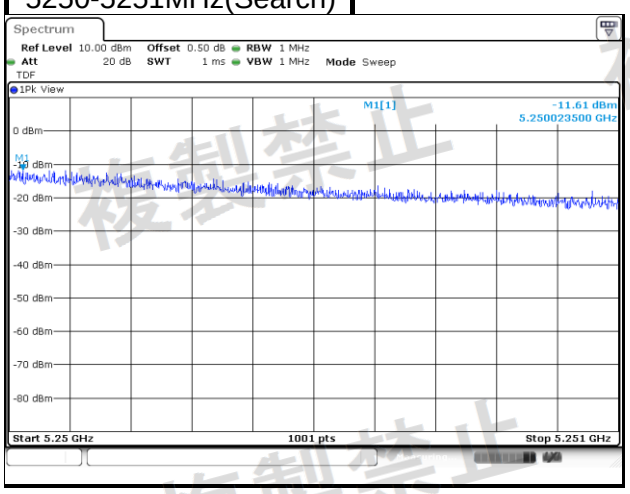
5250-5251MHz(Search)



5250-5251MHz(Detail)

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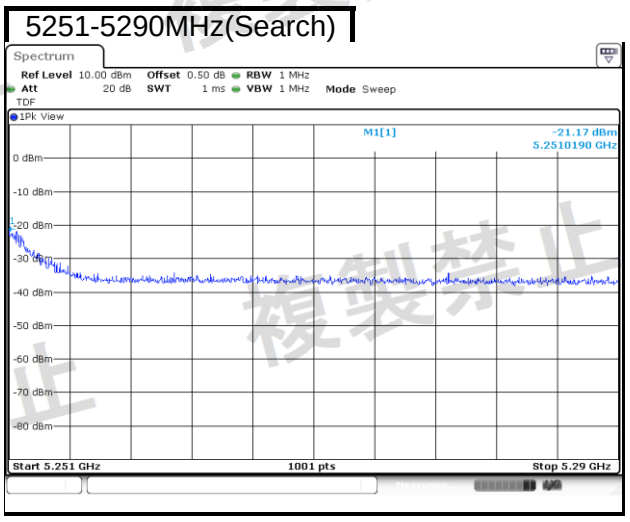
5251-5290MHz(Search)



5251-5290MHz(Detail)

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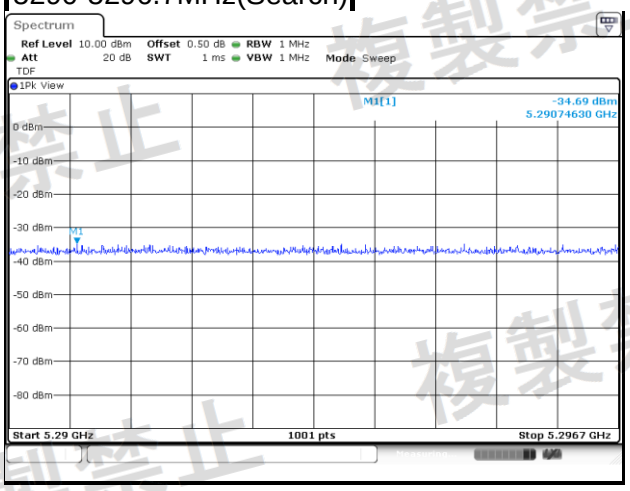
5290-5296.7MHz(Search)



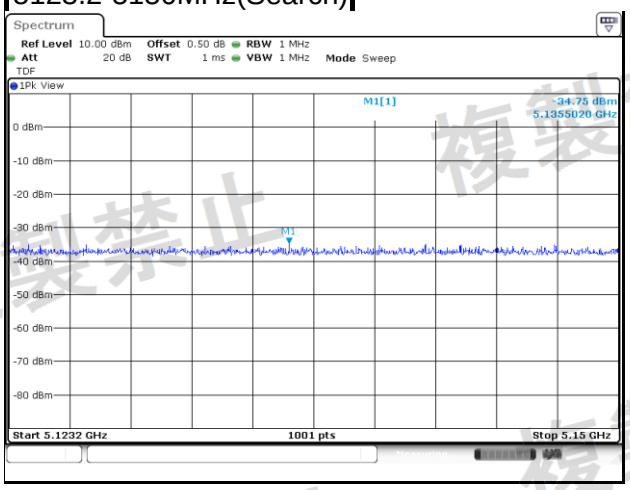
5290-5296.7MHz(Detail)

Blank

Tx2

Ch.42: 5210MHz

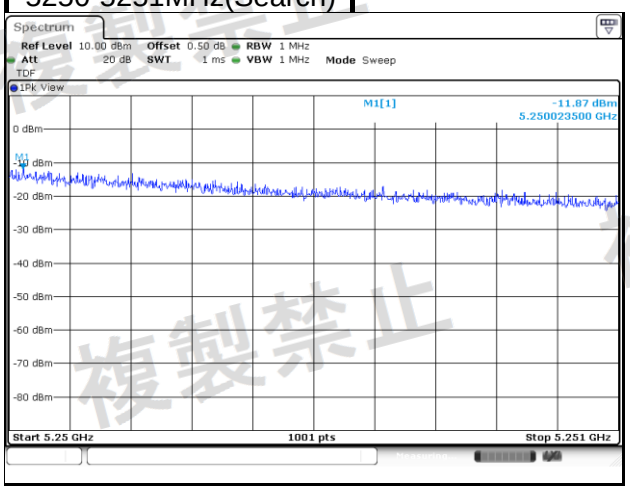
5123.2-5150MHz(Search)



5123.2-5150MHz(Detail)

Blank

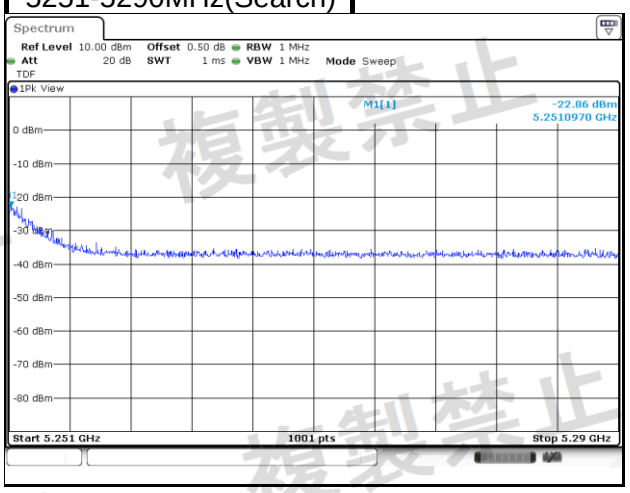
5250-5251MHz(Search)



5250-5251MHz(Detail)

Blank

5251-5290MHz(Search)



5251-5290MHz(Detail)

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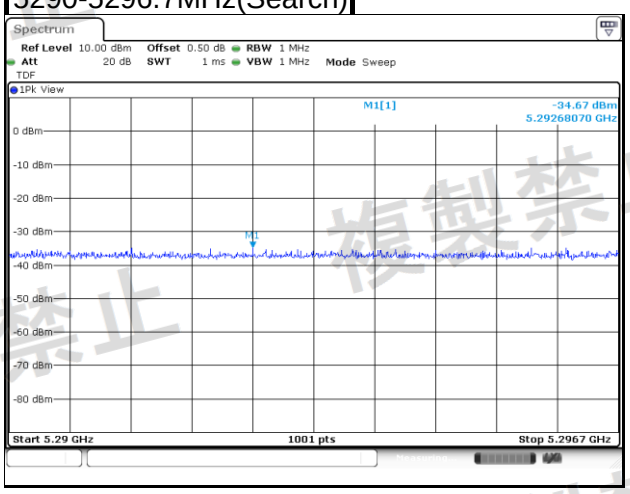
5290-5296.7MHz(Search)



5290-5296.7MHz(Detail)

Blank

3. Test results (Rated voltage)

S/N : 563b88ad

Environment of test room	Date of test	2022-02-04	2022-02-05	2022-02-06
	Temperature	21 °C	20 °C	21 °C
	Humidity	51 %	51 %	52 %

Peak Antenna Gain	-5.99	dBi
Beamforming Gain	3.00	dB
Peak Antenna Gain + Beamforming Gain	-2.99	dBi
Declaration Output Power	0.625	mW/MHz
	-2.04	dBm/MHz
E.I.R.P	**0.31**	mW/MHz
	-5.03	**dBm/MHz**
Input Power Voltage	3.86	VDC

Test category		IEEE802.11ax HE160 / MIMO(2TX)	
Tested Circit Insertion Loss		0.00	dB
Transmission Time	ON TIME (1sec or less)	5.43	ms
	OFF TIME (0.1sec or more)	0.07	ms
	Ratio	0.99	%

Using TDF and offset function in Spectrum Analyzer.

Measurement of plots are included Loss value.

Offset : EUT cable(0.5dB)

Test category :	5GHz Band Low-Power Data Communication System (802.11ax HE160 W52+W53/MIMO(2TX))_Beamforming
The reason why the tests are performed only at rated voltage:	The fluctuation of input voltage to the circuit of the radio part of the equipment to be tested is identified as being less than ±1 % when input voltage from an external supply into the equipment fluctuates ±10 %.

Measurement Channel	Ch.	52		
Measurement Frequency	MHz	5250	Result	Limit
RF Output Power(Tx1)	mW/MHz	0.18	**PASS**	1.25mW/MHz or below
RF Output Power(Tx2)	mW/MHz	0.13	**PASS**	1.25mW/MHz or below
RF Output Power (Tx1+2)	mW/MHz	0.31	**PASS**	1.25mW/MHz or below
RF Output Power Tolerance (Tx1+2)	%	-50.88	**PASS**	+20% to -80%

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Measurement Channel		Ch.	52		
Measurement Frequency		MHz	5250	Result	Limit
Unwanted (Spurious) Emission Strength (Tx1)	30MHz to 5099.6MHz	uW/MHz	0.14	**PASS**	2.5uW/MHz or below
		MHz	4975.50	----	----
	5400.4MHz to 26GHz	uW/MHz	0.23	**PASS**	2.5uW/MHz or below
		MHz	18066.40	----	----
Unwanted (Spurious) Emission Strength (Tx2)	30MHz to 5099.6MHz	uW/MHz	0.15	**PASS**	2.5uW/MHz or below
		MHz	4975.50	----	----
	5400.4MHz to 26GHz	uW/MHz	0.22	**PASS**	2.5uW/MHz or below
		MHz	25886.40	----	----
Unwanted (Spurious) Emission Strength (Tx1+2)	30MHz to 5099.6MHz	uW/MHz	0.29	**PASS**	2.5uW/MHz or below
		----	----	----	----
	5400.4MHz to 26GHz	uW/MHz	0.45	**PASS**	2.5uW/MHz or below
		----	----	----	----

Measurement Channel		Ch.	52		
Measurement Frequency		MHz	5250	Result	Limit
Out-Band Leakage Power (Tx1)	5099.6 to 5150MHz	uW/MHz	0.19	**PASS**	15uW/MHz or below
		MHz	5122.23	----	----
	5350 to 5400.4MHz	uW/MHz	0.18	**PASS**	15uW/MHz or below
		MHz	5376.46	----	----
Out-Band Leakage Power (Tx2)	5099.6 to 5150MHz	uW/MHz	0.18	**PASS**	15uW/MHz or below
		MHz	5128.32	----	----
	5350 to 5400.4MHz	uW/MHz	0.20	**PASS**	15uW/MHz or below
		MHz	5383.96	----	----
Out-Band Leakage Power (Tx1+2)	5099.6 to 5150MHz	uW/MHz	0.37	**PASS**	15uW/MHz or below
		----	----	----	----
	5350 to 5400.4MHz	uW/MHz	0.38	**PASS**	15uW/MHz or below
		----	----	----	----

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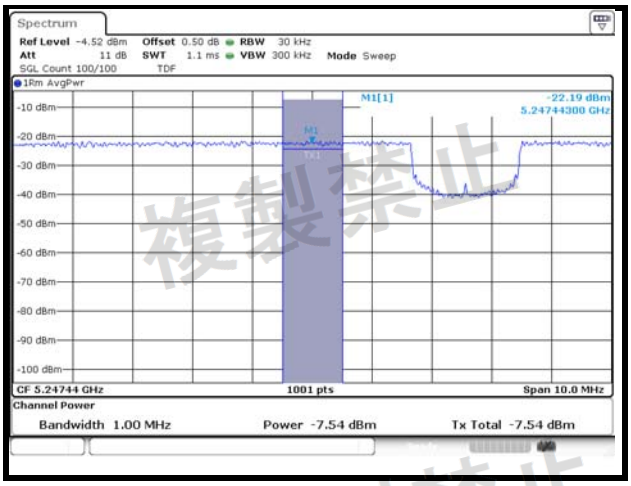
7. Test chart

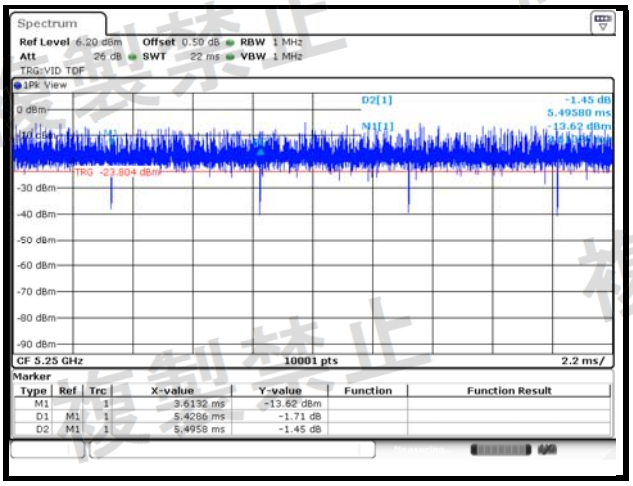
7.4 RF output power tolerance (Rated voltage)

Tx1

Ch.52: 5250MHz



ON/OFF time



Tx2

Ch.52: 5250MHz

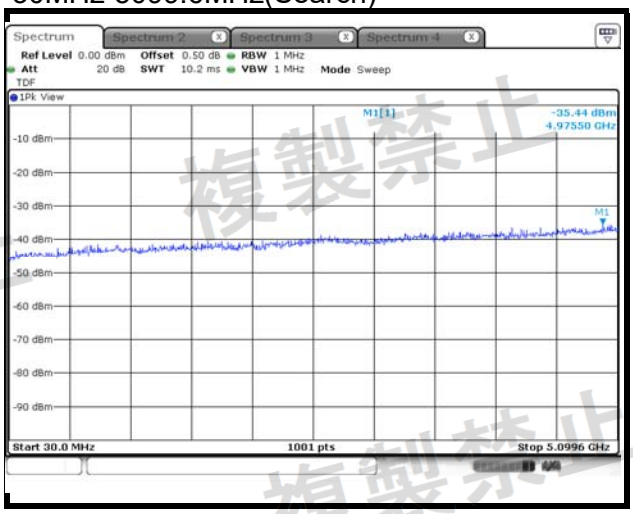
7. Test chart

7.5 Unwanted(Spurious) emission strength (Rated voltage)

Tx1

Ch.52: 5250MHz

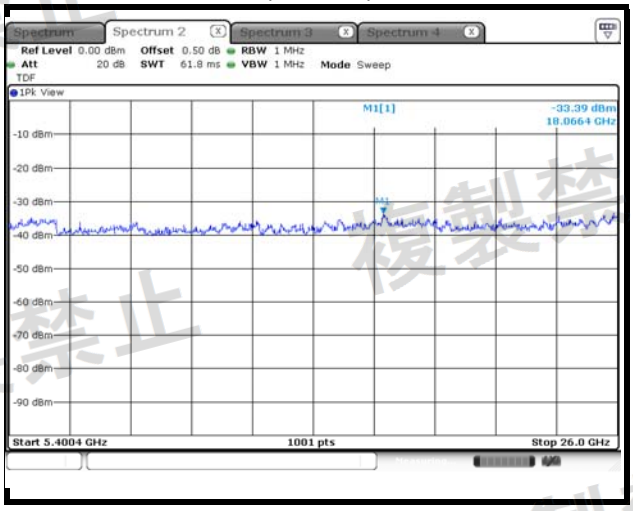
30MHz-5099.6MHz(Search)



30MHz-5099.6MHz(Detail)

Blank

5400.4MHz-26GHz(Search)

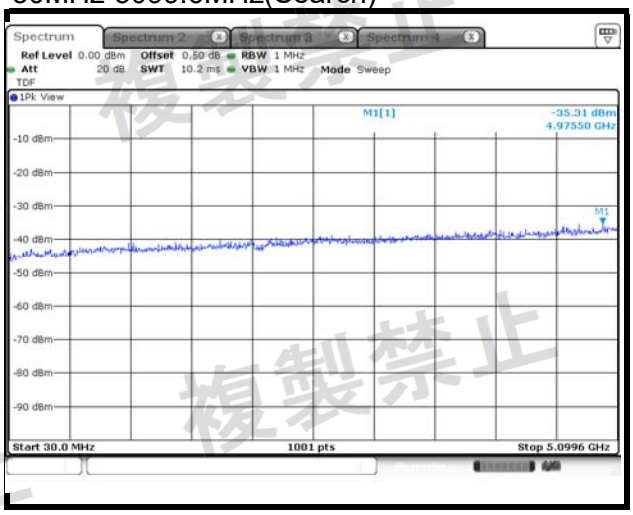


5400.4MHz-26GHz(Detail)

Blank

Tx2
Ch.52: 5250MHz

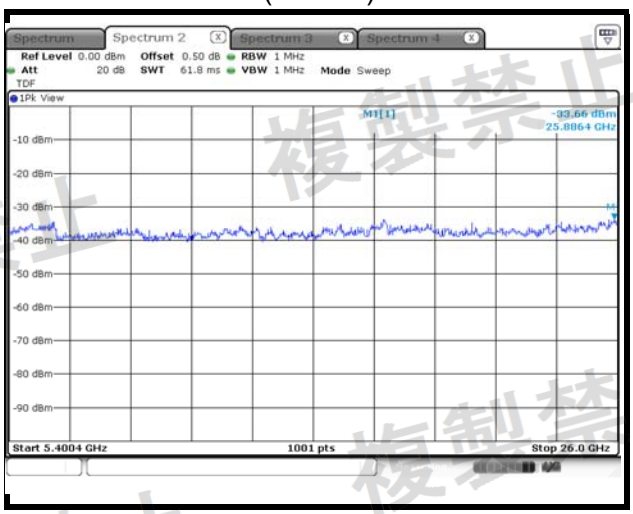
30MHz-5099.6MHz(Search)



30MHz-5099.6MHz(Detail)

Blank

5400.4MHz-26GHz(Search)



5400.4MHz-26GHz(Detail)

Blank

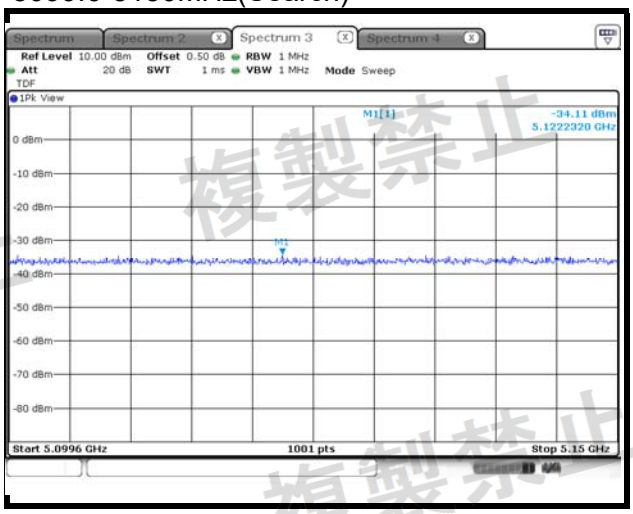
7. Test chart

7.6 Out-Band Leakage Power (Rated voltage)

Tx1

Ch.52: 5250MHz

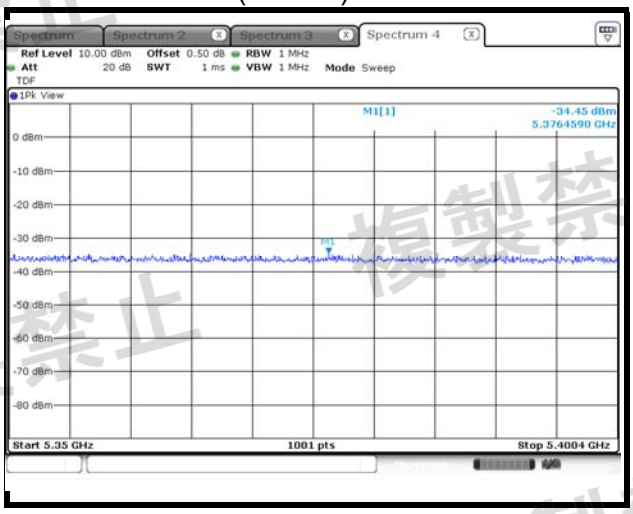
5099.6-5150MHz(Search)



5099.6-5150MHz(Detail)

Blank

5350-5400.4MHz(Search)



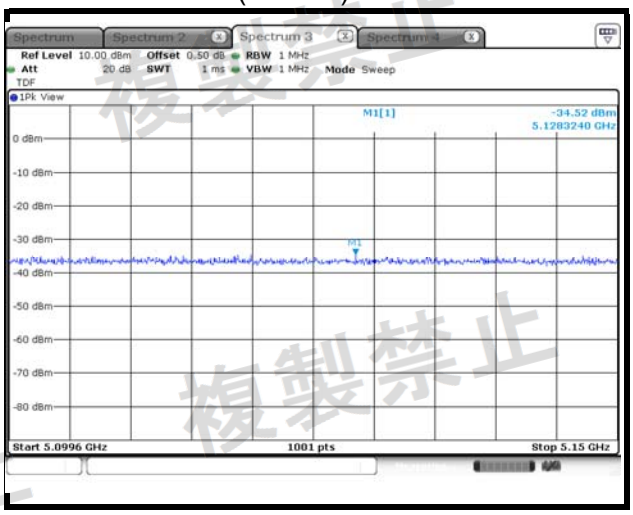
5350-5400.4MHz(Detail)

Blank

Tx2

Ch.52: 5250MHz

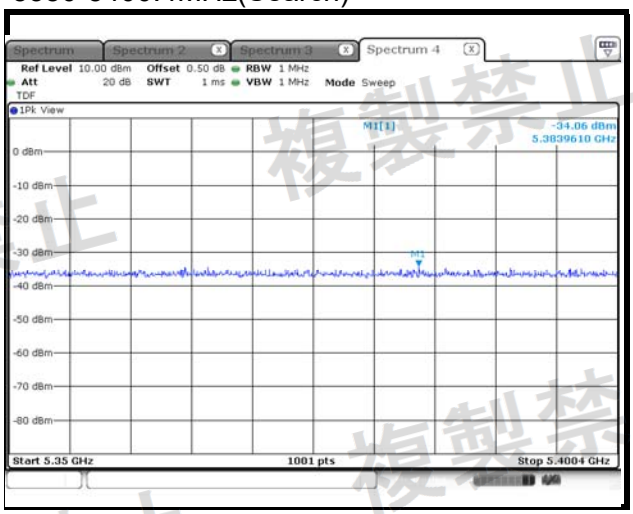
5099.6-5150MHz(Search)



5099.6-5150MHz(Detail)

Blank

5350-5400.4MHz(Search)



5350-5400.4MHz(Detail)

Blank

3. Test results (Rated voltage)

S/N : 563b88ad

Environment of test room	Date of test	2022-02-04	2022-02-05	2022-02-06	2022-02-16
	Temperature	21 °C	20 °C	21 °C	23 °C
	Humidity	51 %	51 %	52 %	52 %

Peak Antenna Gain	-5.99	dBi
Beamforming Gain	3.00	dB
Peak Antenna Gain + Beamforming Gain	-2.99	dBi
Declaration Output Power	10.00	mW/MHz
	10.00	dBm/MHz
E.I.R.P	**5.02**	mW/MHz
	7.01	**dBm/MHz**
Input Power Voltage	3.86	VDC

Test category		IEEE802.11ax HE20 / MIMO(2TX)	
Tested Circit Insertion Loss		0.00	dB
Transmission Time	ON TIME (1sec or less)	5.41	ms
	OFF TIME (0.1sec or more)	0.06	ms
	Ratio	0.99	%

Using TDF and offset function in Spectrum Analy

Measurement of plots are included Loss value.

Offset : EUT cable(ch52 : 0.5 ch56,64 : 0.51dB)

Test category :	5GHz Band Low-Power Data Communication System (802.11ax HE20 W53/MIMO(2TX))_Beamforming
The reason why the tests are performed only at rated voltage :	The fluctuation of input voltage to the circuit of the radio part of the equipment to be tested is identified as being less than ±1 % when input voltage from an external supply into the equipment fluctuates ±10 %.

Measurement Channel	Ch.	52	56	64		
Measurement Frequency	MHz	5260	5280	5320	Result	Limit
Occupied Bandwidth(Tx1)	MHz	18.88	18.98	18.88	**PASS**	20MHz or below
Occupied Bandwidth(Tx2)	MHz	18.88	18.88	19.08	**PASS**	20MHz or below
RF Output Power(Tx1)	mW/MHz	1.75	1.67	1.82	**PASS**	10mW/MHz or below
RF Output Power(Tx2)	mW/MHz	1.50	1.46	1.44	**PASS**	10mW/MHz or below
RF Output Power (Tx1+2)	mW/MHz	3.25	3.13	3.27	**PASS**	10mW/MHz or below
RF Output Power Tolerance (Tx1+2)	%	-67.49	-68.69	-67.32	**PASS**	+20% to -80%

Measurement Channel		Ch.	52	56	64		
Measurement Frequency		MHz	5260	5280	5320	Result	Limit
Unwanted (Spurious) Emission Strength(Tx1)	30MHz to 5233.3MHz	uW/MHz	0.18	0.15	0.15	**PASS**	2.5uW/MHz or below
		MHz	5080.00	4658.90	5017.60	----	----
	5350MHz to 26GHz	uW/MHz	0.21	0.23	0.25	**PASS**	2.5uW/MHz or below
		MHz	25845.00	18068.00	18109.00	----	----
Unwanted (Spurious) Emission Strength(Tx2)	30MHz to 5233.3MHz	uW/MHz	0.13	0.13	0.15	**PASS**	2.5uW/MHz or below
		MHz	4866.80	4617.30	5002.00	----	----
	5350MHz to 26GHz	uW/MHz	0.25	0.23	0.22	**PASS**	2.5uW/MHz or below
		MHz	25907.00	18109.00	25866.00	----	----
Unwanted (Spurious) Emission Strength (Tx1-2)	30MHz to 5233.3MHz	uW/MHz	0.31	0.28	0.30	**PASS**	2.5uW/MHz or below
		----	----	----	----	----	----
	5350MHz to 26GHz	uW/MHz	0.46	0.47	0.47	**PASS**	2.5uW/MHz or below
		----	----	----	----	----	----

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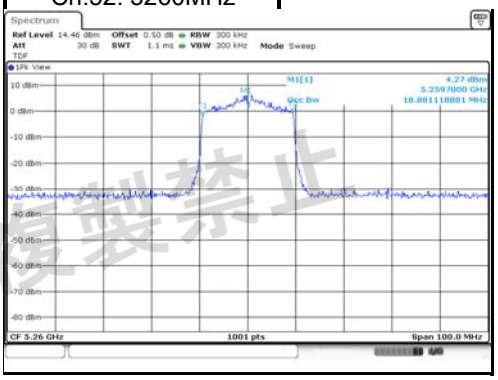
Measurement Channel		Ch.	52	56	64		
Measurement Frequency		MHz	5260	5280	5320	Result	Limit
Out-Band Leakage Power (Tx1)	5233.3 to 5240MHz	uW/MHz	0.18	0.16	0.18	**PASS**	$10^{-1.8-(6/50)(f-20)}$mW/MHz or below
		MHz	5234.41	5235.40	5234.54	----	----
		Limit	uW/MHz	3.39	4.44	3.51	----	----
	5240 to 5249MHz	uW/MHz	25.70	0.19	0.16	**PASS**	$10^{-1-(8/90)(f-11)}$mW/MHz or below
		MHz	5248.99	5247.58	5244.95	----	----
		Limit	uW/MHz	99.73	74.70	43.65	----	----
	5249 to 5249.8MHz	uW/MHz	214.29	0.14	0.12	**PASS**	$10^{1-(f-9)}$mW/MHz or below
		MHz	5249.79	5249.00	5249.36	----	----
		Limit	uW/MHz	615.18	100.93	227.51	----	----
	5249.8 to 5250MHz	uW/MHz	369.83	0.13	0.13	**PASS**	$10^{1-(8/3)(f-9.75)}$mW/MHz or below
		MHz	5250.00	5249.81	5249.96	----	----
		Limit	uW/MHz	2115.11	650.63	1706.08	----	----
Out-Band Leakage Power (Tx2)	5233.3 to 5240MHz	uW/MHz	0.15	0.15	0.18	**PASS**	$10^{-1.8-(6/50)(f-20)}$mW/MHz or below
		MHz	5238.60	5236.77	5235.17	----	----
		Limit	uW/MHz	10.78	6.49	4.17	----	----
	5240 to 5249MHz	uW/MHz	17.26	0.16	0.15	**PASS**	$10^{-1-(8/90)(f-11)}$mW/MHz or below
		MHz	5248.87	5247.64	5247.90	----	----
		Limit	uW/MHz	97.37	75.67	79.82	----	----
	5249 to 5249.8MHz	uW/MHz	170.22	0.13	0.14	**PASS**	$10^{1-(f-9)}$mW/MHz or below
		MHz	5249.79	5249.07	5249.59	----	----
		Limit	uW/MHz	613.76	116.41	392.64	----	----
	5249.8 to 5250MHz	uW/MHz	363.92	0.12	0.12	**PASS**	$10^{1-(8/3)(f-9.75)}$mW/MHz or below
		MHz	5249.99	5249.83	5249.90	----	----
		Limit	uW/MHz	2038.61	777.44	1130.66	----	----
Out-Band Leakage Power (Tx1+2)	5233.3 to 5240MHz	uW/MHz	0.33	0.31	0.36	**PASS**	$10^{-1.8-(6/50)(f-20)}$mW/MHz or below
		MHz	5238.60	5236.77	5235.17	----	----
		Limit	uW/MHz	10.78	6.49	4.17	----	----
	5240 to 5249MHz	uW/MHz	42.96	0.35	0.32	**PASS**	$10^{-1-(8/90)(f-11)}$mW/MHz or below
		MHz	5248.99	5247.64	5247.90	----	----
		Limit	uW/MHz	99.73	75.67	79.82	----	----
	5249 to 5249.8MHz	uW/MHz	384.50	0.27	0.26	**PASS**	$10^{1-(f-9)}$mW/MHz or below
		MHz	5249.79	5249.07	5249.59	----	----
		Limit	uW/MHz	615.18	116.41	392.64	----	----
	5249.8 to 5250MHz	uW/MHz	733.74	0.25	0.25	**PASS**	$10^{1-(8/3)(f-9.75)}$mW/MHz or below
		MHz	5250.00	5249.83	5249.96	----	----
		Limit	uW/MHz	2115.11	777.44	1706.08	----	----

7. Test chart

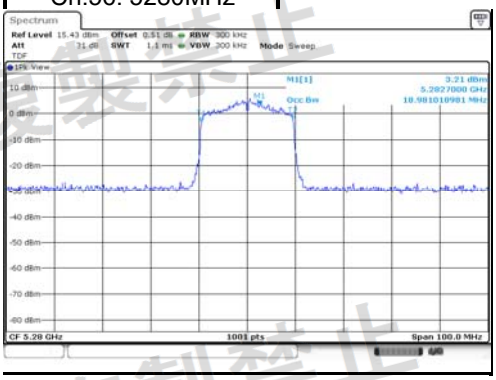
7.2 Occupied bandwidth (Rated voltage)

Tx1

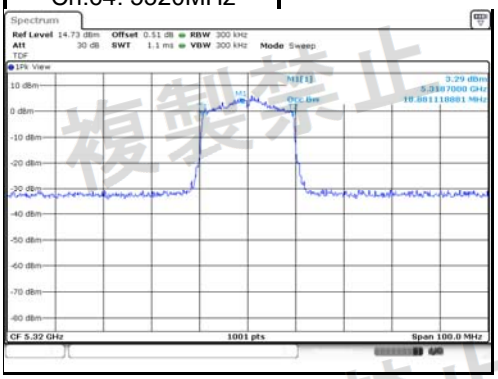
Ch.52: 5260MHz



Ch.56: 5280MHz

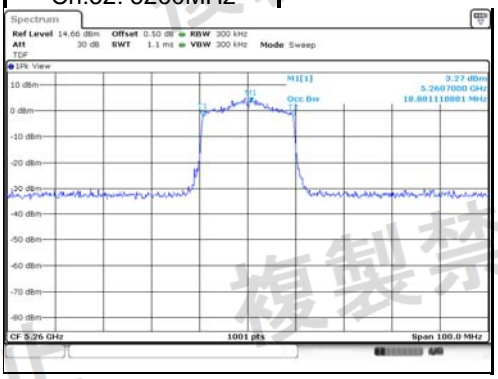


Ch.64: 5320MHz

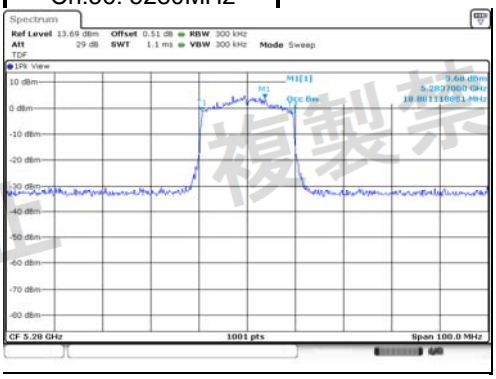


Tx2

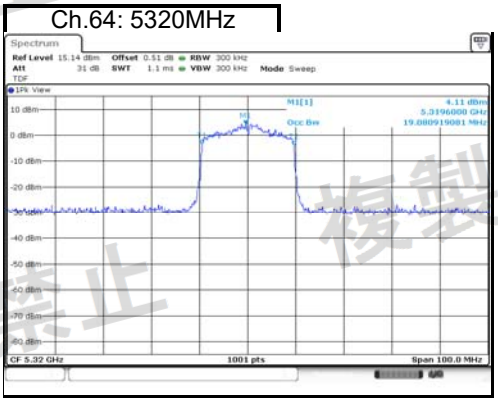
Ch.52: 5260MHz



Ch.56: 5280MHz



Ch.64: 5320MHz

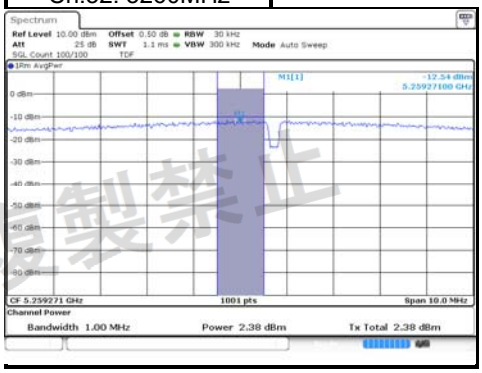


7. Test chart

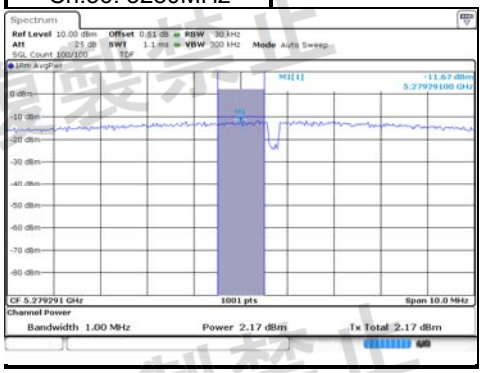
7.4 RF output power tolerance (Rated voltage)

Tx1

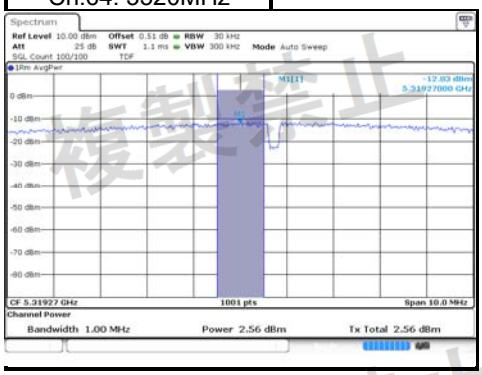
Ch.52: 5260MHz



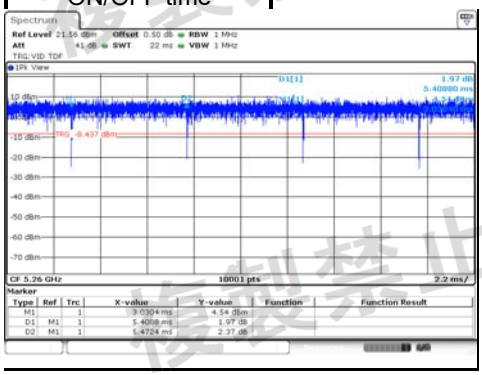
Ch.56: 5280MHz



Ch.64: 5320MHz

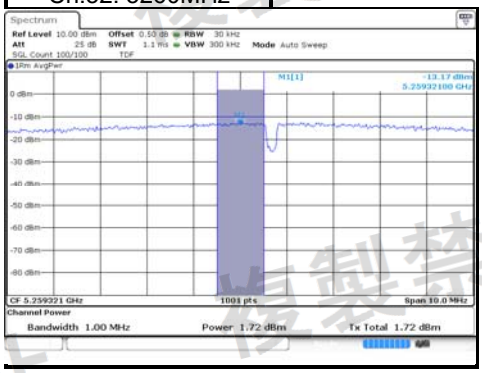


ON/OFF time

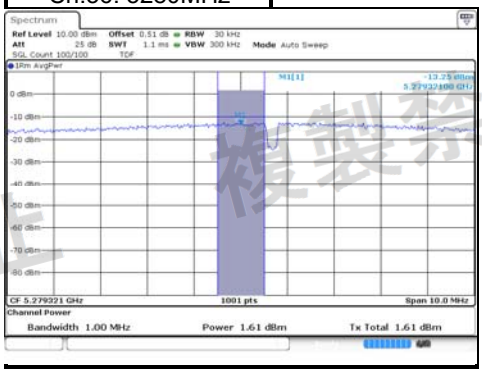


Tx2

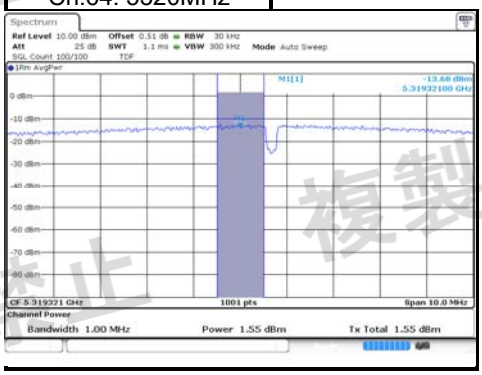
Ch.52: 5260MHz



Ch.56: 5280MHz



Ch.64: 5320MHz



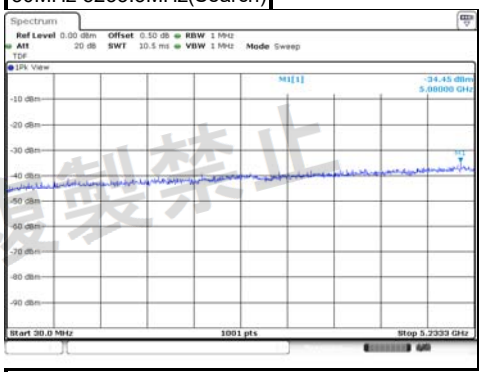
7. Test chart

7.5 Unwanted(Spurious) emission strength (Rated voltage)

Tx1

Ch.52: 5260MHz

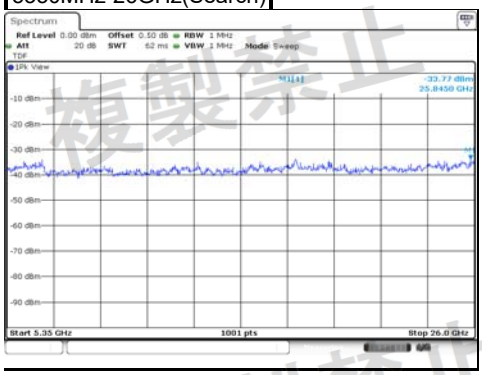
30MHz-5233.3MHz(Search)



30MHz-5233.3MHz(Detail)

Blank

5350MHz-26GHz(Search)

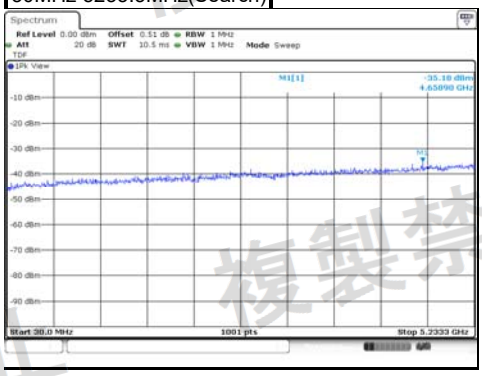


5350MHz-26GHz(Detail)

Blank

Ch.56: 5280MHz

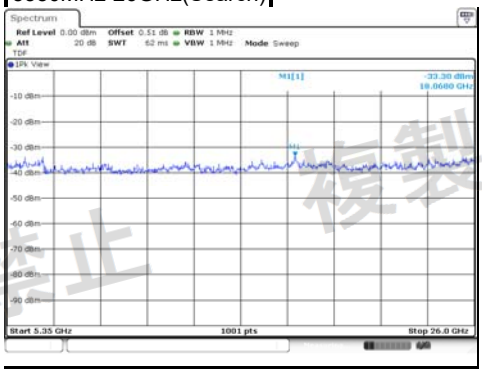
30MHz-5233.3MHz(Search)



30MHz-5233.3MHz(Detail)

Blank

5350MHz-26GHz(Search)

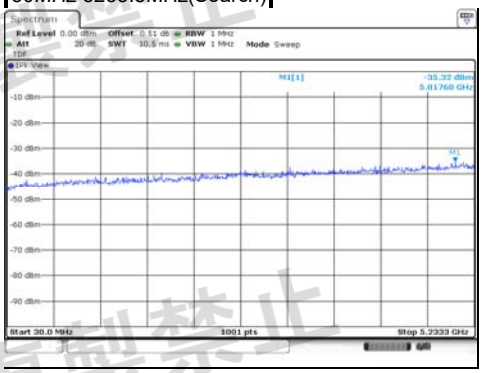


5350MHz-26GHz(Detail)

Blank

Ch.64: 5320MHz

30MHz-5233.3MHz(Search)



30MHz-5233.3MHz(Detail)

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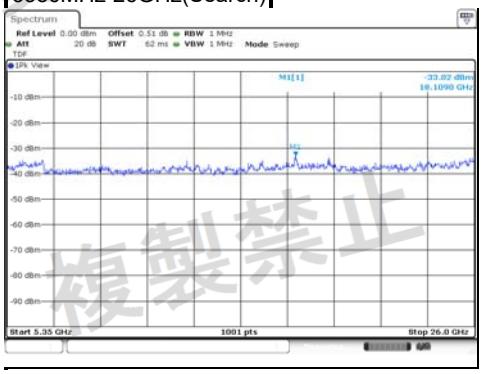
5350MHz-26GHz(Search)



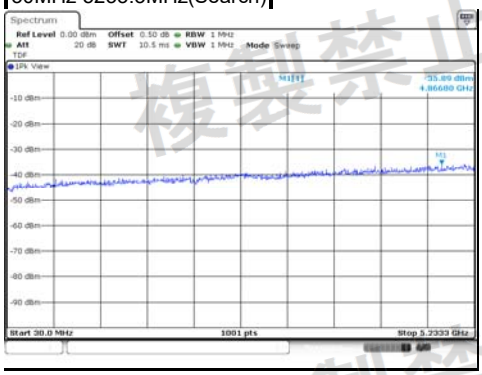
5350MHz-26GHz(Detail)

Blank

Tx2

Ch.52: 5260MHz

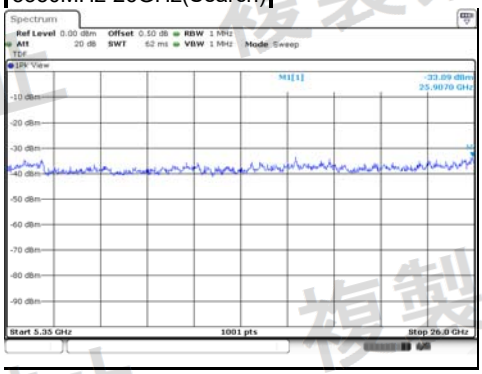
30MHz-5233.3MHz(Search)



30MHz-5233.3MHz(Detail)

Blank

5350MHz-26GHz(Search)

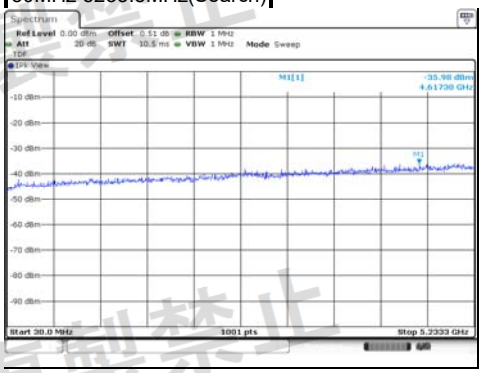


5350MHz-26GHz(Detail)

Blank

Ch.56: 5280MHz

30MHz-5233.3MHz(Search)



30MHz-5233.3MHz(Detail)

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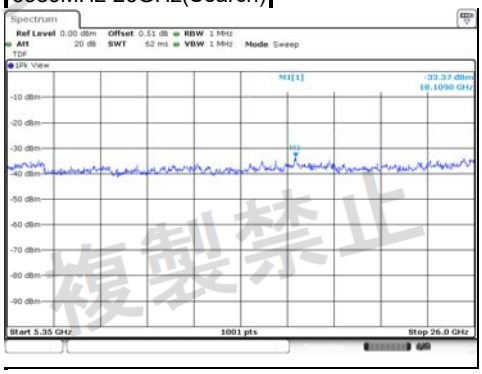
5350MHz-26GHz(Search)

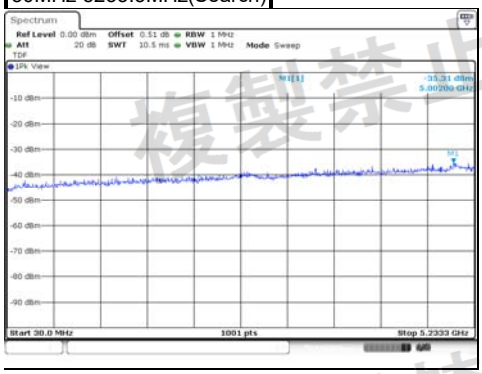


5350MHz-26GHz(Detail)

Blank

Ch.64: 5320MHz

30MHz-5233.3MHz(Search)



30MHz-5233.3MHz(Detail)

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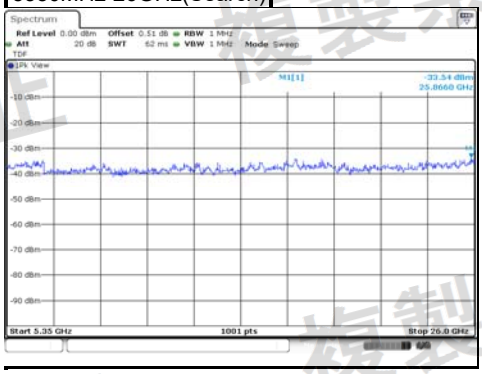
5350MHz-26GHz(Search)



5350MHz-26GHz(Detail)

Blank

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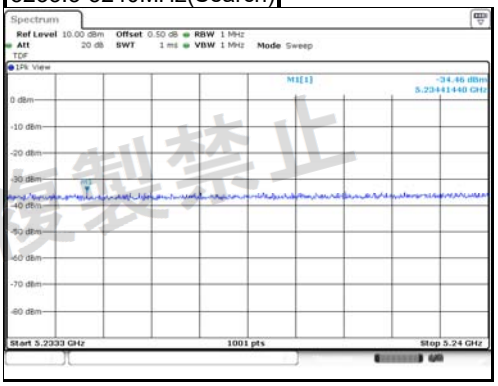
7. Test chart

7.6 Out-Band Leakage Power (Rated voltage)

Tx1

Ch.52: 5260MHz

5233.3-5240MHz(Search)



5233.3-5240MHz(Detail)

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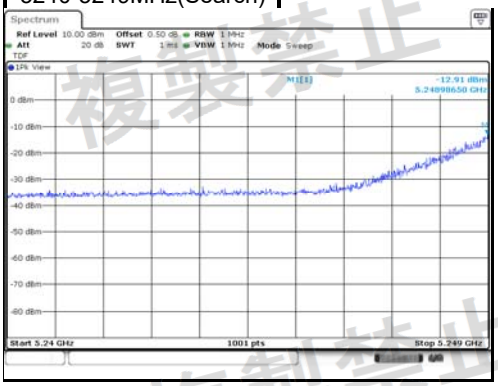
5240-5249MHz(Search)



5240-5249MHz(Detail)

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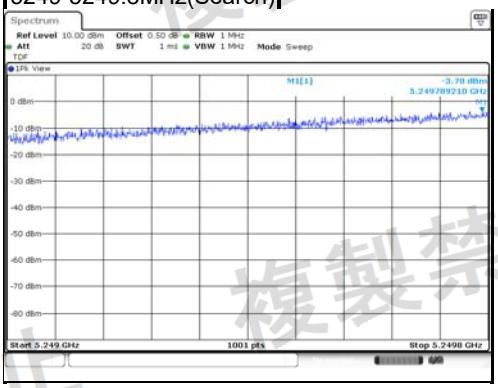
5249-5249.8MHz(Search)



5249-5249.8MHz(Detail)

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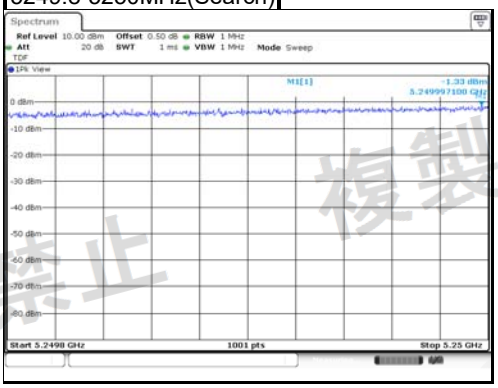
5249.8-5250MHz(Search)



5249.8-5250MHz(Detail)

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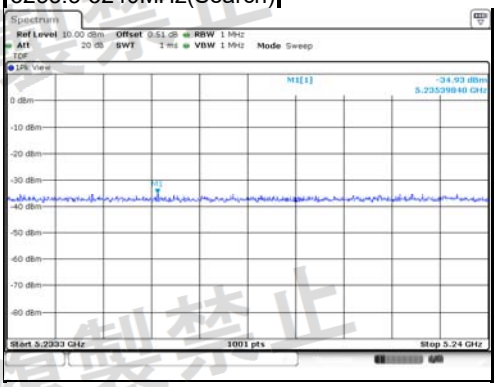
Ch.56: 5280MHz

5233.3-5240MHz(Search)



5233.3-5240MHz(Detail)

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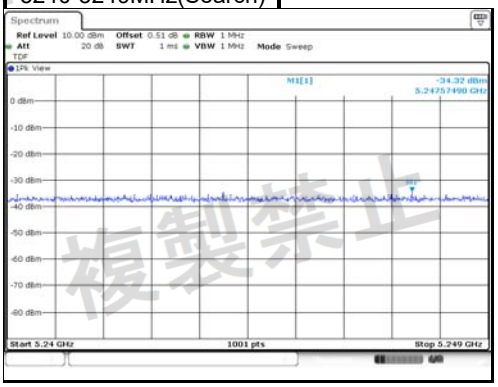
5240-5249MHz(Search)



5240-5249MHz(Detail)

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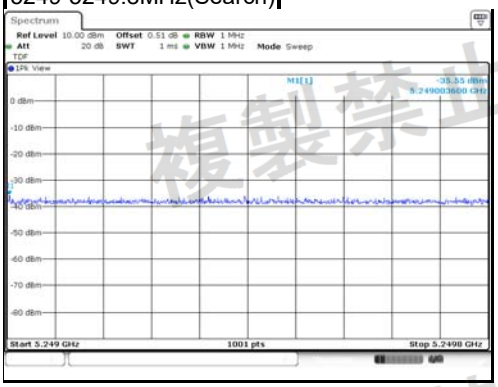
5249-5249.8MHz(Search)



5249-5249.8MHz(Detail)

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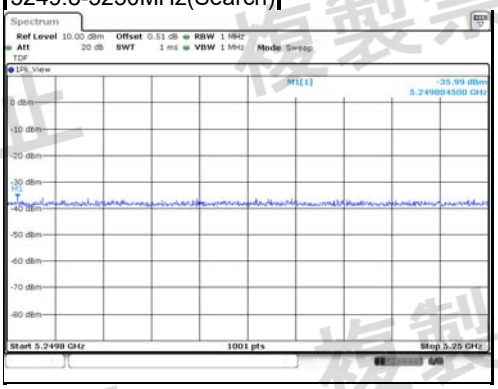
5249.8-5250MHz(Search)



5249.8-5250MHz(Detail)

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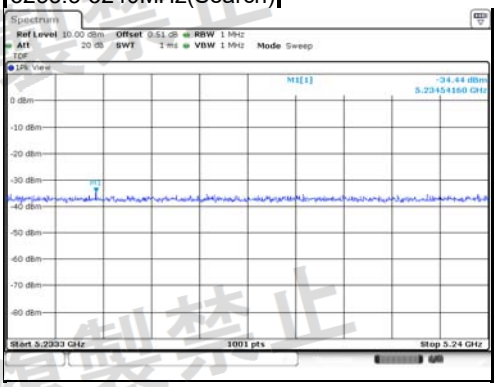
Ch.64: 5320MHz

5233.3-5240MHz(Search)



5233.3-5240MHz(Detail)

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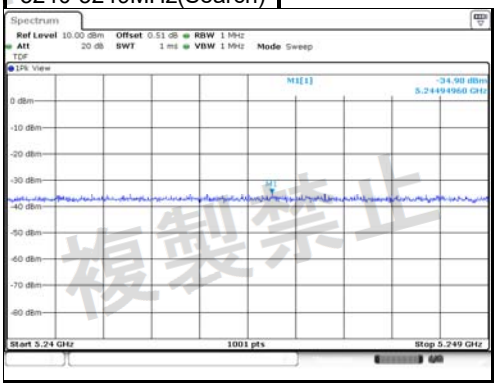
5240-5249MHz(Search)



5240-5249MHz(Detail)

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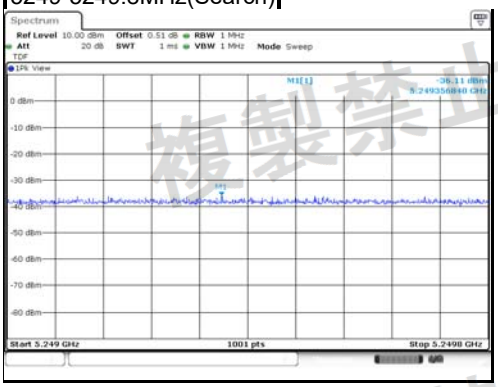
5249-5249.8MHz(Search)



5249-5249.8MHz(Detail)

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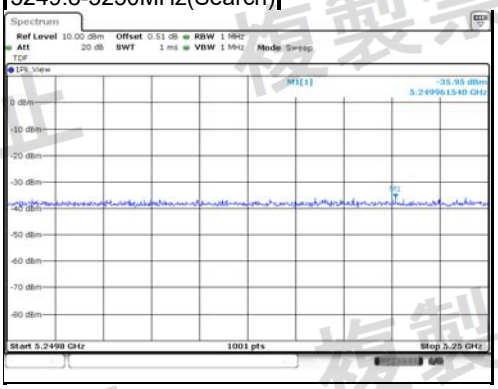
5249.8-5250MHz(Search)



5249.8-5250MHz(Detail)

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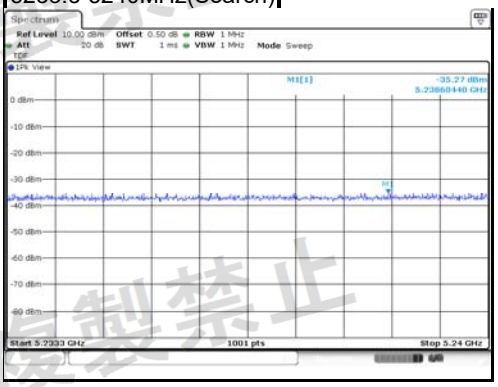
Tx2

Ch.52: 5260MHz

5233.3-5240MHz(Search)



5233.3-5240MHz(Detail)

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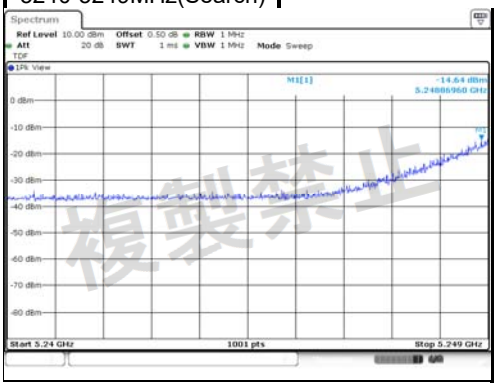
5240-5249MHz(Search)



5240-5249MHz(Detail)

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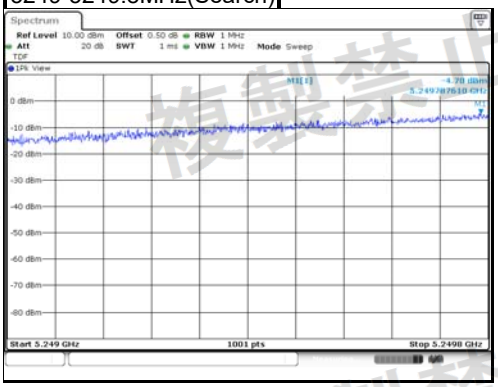
5249-5249.8MHz(Search)



5249-5249.8MHz(Detail)

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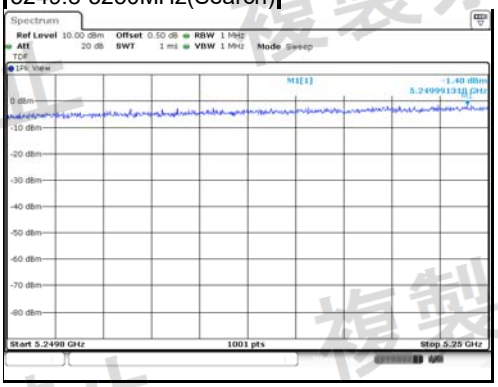
5249.8-5250MHz(Search)



5249.8-5250MHz(Detail)

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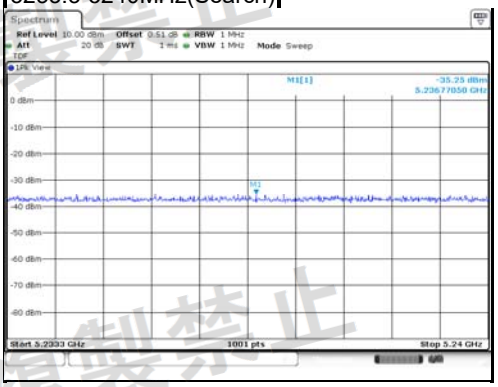
Ch.56: 5280MHz

5233.3-5240MHz(Search)



5233.3-5240MHz(Detail)

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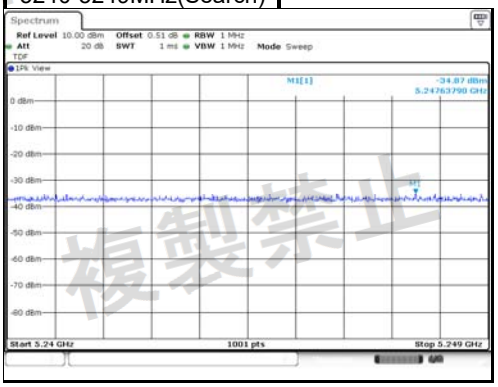
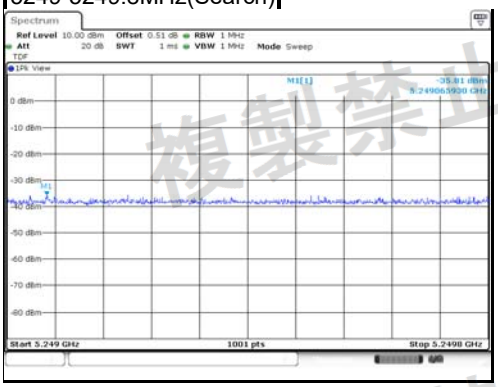
5240-5249MHz(Search)



5240-5249MHz(Detail)

Blank

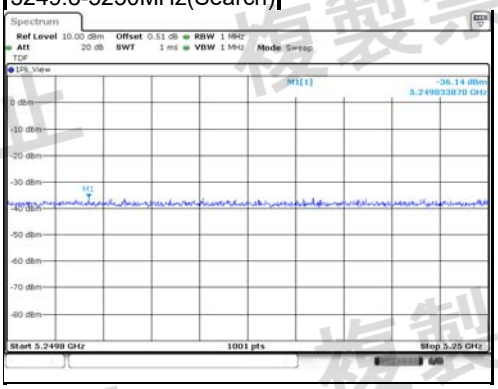
5249-5249.8MHz(Search)



5249-5249.8MHz(Detail)

Blank

5249.8-5250MHz(Search)



5249.8-5250MHz(Detail)

Blank

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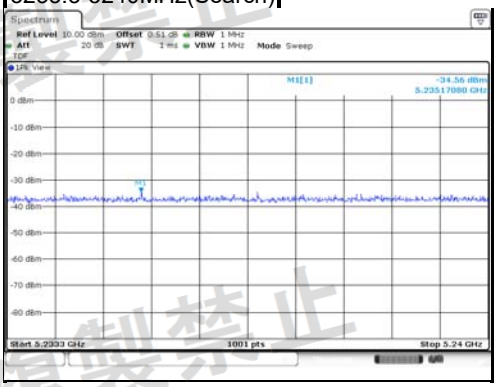
Ch.64: 5320MHz

5233.3-5240MHz(Search)



5233.3-5240MHz(Detail)

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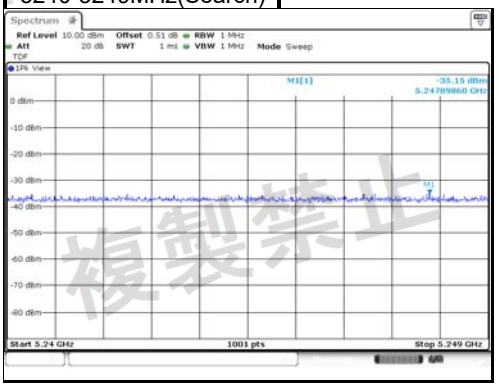
5240-5249MHz(Search)



5240-5249MHz(Detail)

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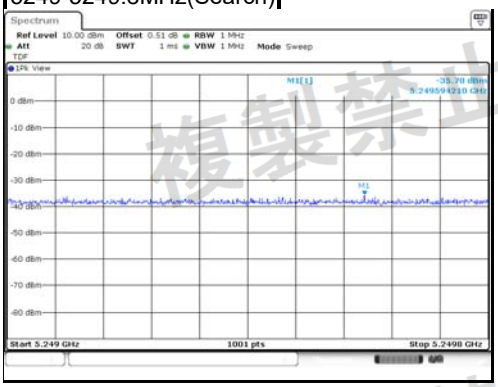
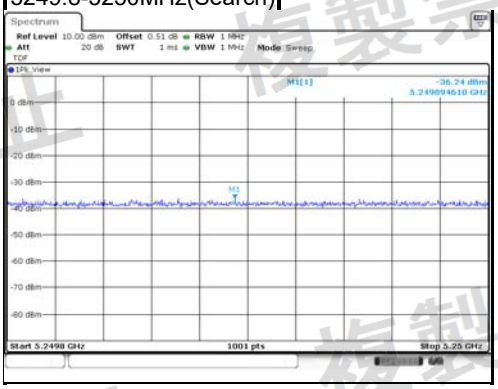
5249-5249.8MHz(Search)



5249-5249.8MHz(Detail)

Blank

5249.8-5250MHz(Search)



5249.8-5250MHz(Detail)

Blank

3. Test results (Rated voltage)

S/N : 563b88ad

Environment of test room	Date of test	2022-02-04	2022-02-05	2022-02-06	2022-02-16
	Temperature	21 °C	20 °C	21 °C	23 °C
	Humidity	51 %	51 %	52 %	52 %

Peak Antenna Gain	-5.99	dBi
Beamforming Gain	3.00	dB
Peak Antenna Gain + Beamforming Gain	-2.99	dBi
Declaration Output Power	5.00	mW/MHz
	6.99	dBm/MHz
E.I.R.P	**2.51**	mW/MHz
	4.00	**dBm/MHz**
Input Power Voltage	3.86	VDC

Test category		IEEE802.11ax HE40 / MIMO(2TX)	
Tested Circit Insertion Loss		0.00	dB
Transmission Time	ON TIME (1sec or less)	5.40	ms
	OFF TIME (0.1sec or more)	0.07	ms
	Ratio	0.99	%

Using TDF and offset function in Spectrum Analyzer.

Measurement of plots are included Loss value.

Offset : EUT cable(ch54: 0.5, ch62: 0.51dB)

Test category :	5GHz Band Low-Power Data Communication System (802.11ax HE40 W53/MIMO(2TX))_Beamforming
The reason why the tests are performed only at rated voltage:	The fluctuation of input voltage to the circuit of the radio part of the equipment to be tested is identified as being less than ±1 % when input voltage from an external supply into the equipment fluctuates ±10 %.

Measurement Channel	Ch.	54	62		
Measurement Frequency	MHz	5270	5310	Result	Limit
RF Output Power(Tx1)	mW/MHz	1.04	1.11	**PASS**	5mW/MHz or below
RF Output Power(Tx2)	mW/MHz	0.88	0.87	**PASS**	5mW/MHz or below
RF Output Power (Tx1+2)	mW/MHz	1.92	1.97	**PASS**	5mW/MHz or below
RF Output Power Tolerance (Tx1+2)	%	-61.62	-60.57	**PASS**	+20% to -80%

Measurement Channel		Ch.	54	62		
Measurement Frequency		MHz	5270	5310	Result	Limit
Unwanted (Spurious) Emission Strength (Tx1)	30MHz to 5221.6MHz	uW/MHz	0.15	0.14	**PASS**	2.5uW/MHz or below
		MHz	5115.30	5110.10	----	----
	5358.4MHz to 26GHz	uW/MHz	0.26	0.23	**PASS**	2.5uW/MHz or below
		MHz	18071.40	18133.40	----	----
Unwanted (Spurious) Emission Strength (Tx2)	30MHz to 5221.6MHz	uW/MHz	0.14	0.15	**PASS**	2.5uW/MHz or below
		MHz	5011.60	5136.00	----	----
	5358.4MHz to 26GHz	uW/MHz	0.22	0.19	**PASS**	2.5uW/MHz or below
		MHz	18071.40	25927.40	----	----
Unwanted (Spurious) Emission Strength (Tx1+2)	30MHz to 5221.6MHz	uW/MHz	0.29	0.29	**PASS**	2.5uW/MHz or below
		----	----	----	----	----
	5358.4MHz to 26GHz	uW/MHz	0.48	0.42	**PASS**	2.5uW/MHz or below
		----	----	----	----	----

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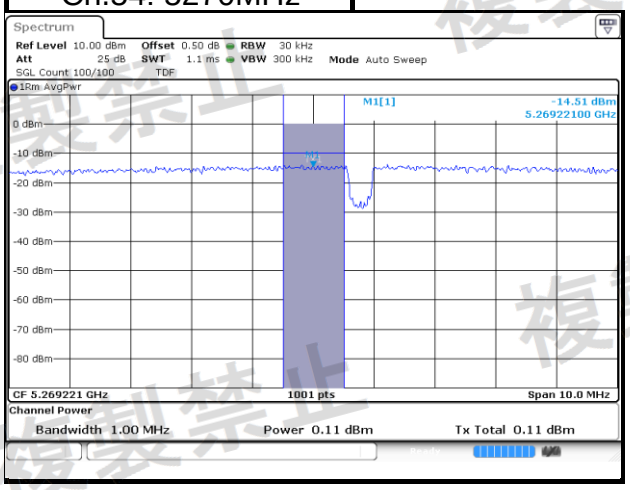
Measurement Channel		Ch.	54	62		
Measurement Frequency		MHz	5270	5310	Result	Limit
Out-band of Leakage Power (Tx1)	5221.6 to 5230MHz	uW/MHz	0.17	0.16	**PASS**	$10^{-(3/50)(f-40)-1.8+\log(1/2)}$mW/MHz or below
		MHz	5227.67	5226.74	----	----
	Limit	uW/MHz	5.74	5.05	----	----
	5230 to 5249MHz	uW/MHz	4.45	0.16	**PASS**	$10^{-(8/190)(f-21)-1+\log(1/2)}$mW/MHz or below
		MHz	5248.95	5242.77	----	----
	Limit	uW/MHz	49.77	27.32	----	----
	5249 to 5250MHz	uW/MHz	74.30	0.13	**PASS**	$10^{-(f-20)+\log(1/2)}$mW/MHz or below
		MHz	5249.97	5249.91	----	----
	Limit	uW/MHz	463.41	409.23	----	----
	5350 to 5358.4MHz	uW/MHz	0.18	0.19	**PASS**	15uW/MHz or below
		MHz	5356.65	5354.87	----	----
Out-band of Leakage Power (Tx2)	5221.6 to 5230MHz	uW/MHz	0.16	0.15	**PASS**	$10^{-(3/50)(f-40)-1.8+\log(1/2)}$mW/MHz or below
		MHz	5227.33	5224.99	----	----
	Limit	uW/MHz	5.48	3.96	----	----
	5230 to 5249MHz	uW/MHz	4.39	0.16	**PASS**	$10^{-(8/190)(f-21)-1+\log(1/2)}$mW/MHz or below
		MHz	5248.97	5230.10	----	----
	Limit	uW/MHz	49.86	8.00	----	----
	5249 to 5250MHz	uW/MHz	66.99	0.13	**PASS**	$10^{-(f-20)+\log(1/2)}$mW/MHz or below
		MHz	5250.00	5249.15	----	----
	Limit	uW/MHz	497.70	70.63	----	----
	5350 to 5358.4MHz	uW/MHz	0.20	0.17	**PASS**	15uW/MHz or below
		MHz	5353.92	5358.30	----	----
Out-band of Leakage Power (Tx1+2)	5221.6 to 5230MHz	uW/MHz	0.33	0.31	**PASS**	$10^{-(3/50)(f-40)-1.8+\log(1/2)}$mW/MHz or below
		MHz	5227.67	5226.74	----	----
	Limit	uW/MHz	5.74	5.05	----	----
	5230 to 5249MHz	uW/MHz	8.83	0.31	**PASS**	$10^{-(8/190)(f-21)-1+\log(1/2)}$mW/MHz or below
		MHz	5248.97	5242.77	----	----
	Limit	uW/MHz	49.86	27.32	----	----
	5249 to 5250MHz	uW/MHz	141.29	0.26	**PASS**	$10^{-(f-20)+\log(1/2)}$mW/MHz or below
		MHz	5250.00	5249.91	----	----
	Limit	uW/MHz	497.70	409.23	----	----
	5350 to 5358.4MHz	uW/MHz	0.37	0.36	**PASS**	15uW/MHz or below
		----	----	----	----	----

7. Test chart

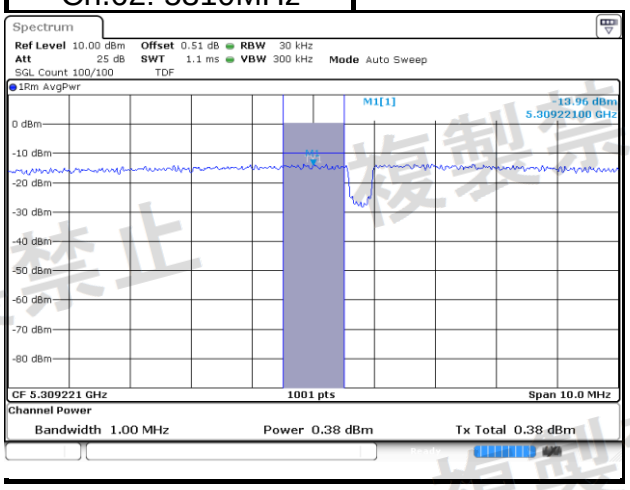
7.4 RF output power tolerance (Rated voltage)

Tx1

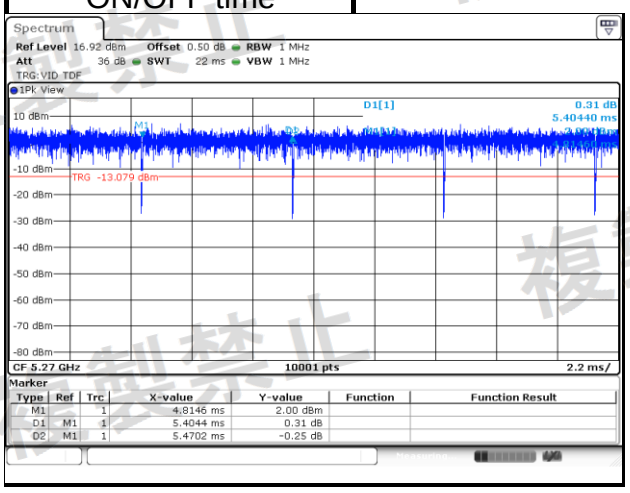
Ch.54: 5270MHz



Ch.62: 5310MHz

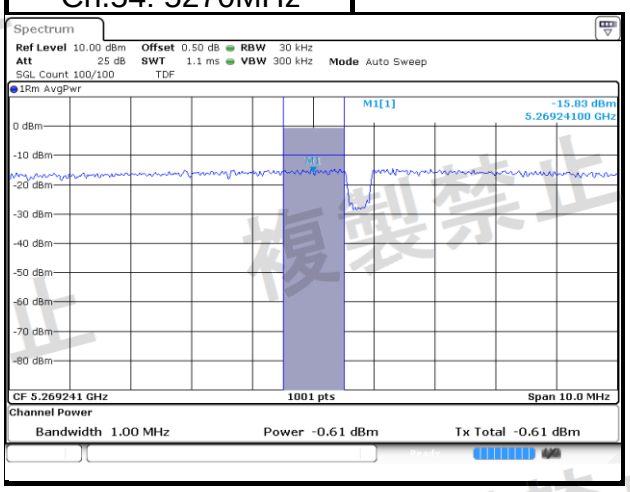


ON/OFF time

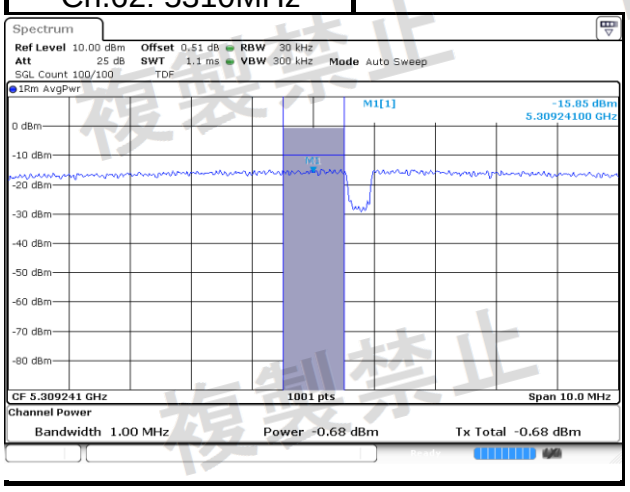


Tx2

Ch.54: 5270MHz



Ch.62: 5310MHz



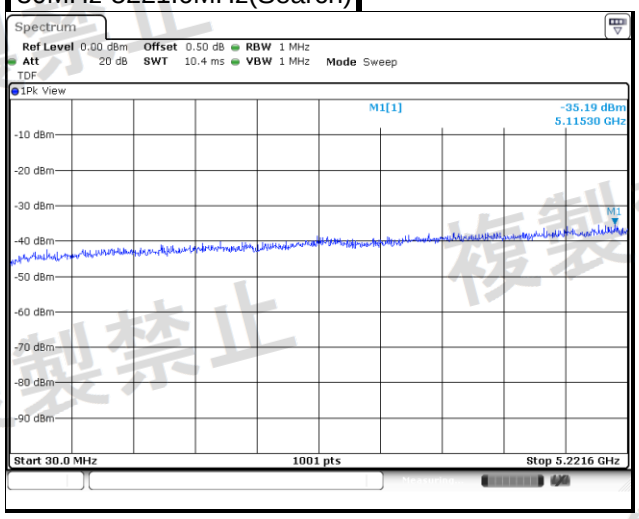
7. Test chart

7.5 Unwanted(Spurious) emission strength (Rated voltage)

Tx1

Ch.54: 5270MHz

30MHz-5221.6MHz(Search)



30MHz-5221.6MHz(Detail)

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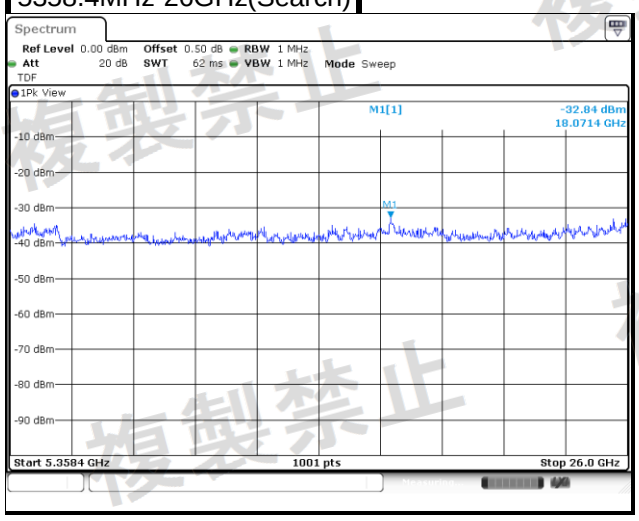
5358.4MHz-26GHz(Search)

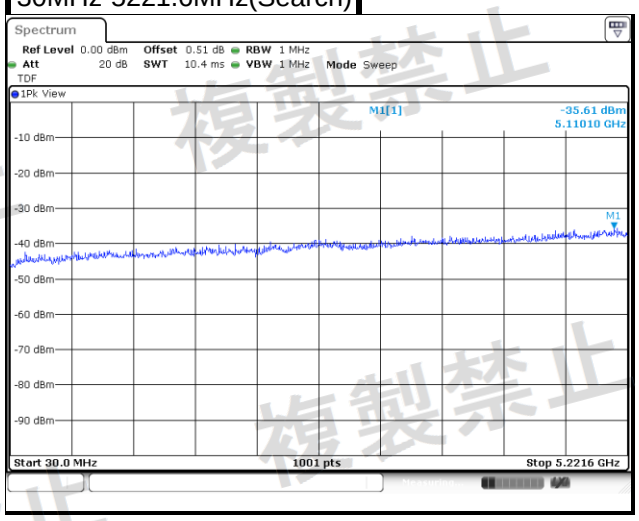


5358.4MHz-26GHz(Detail)

Blank

Ch.62: 5310MHz

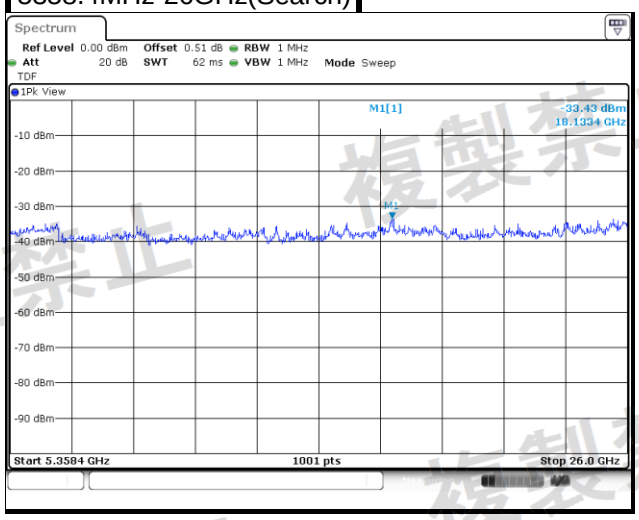
30MHz-5221.6MHz(Search)



30MHz-5221.6MHz(Detail)

Blank

5358.4MHz-26GHz(Search)



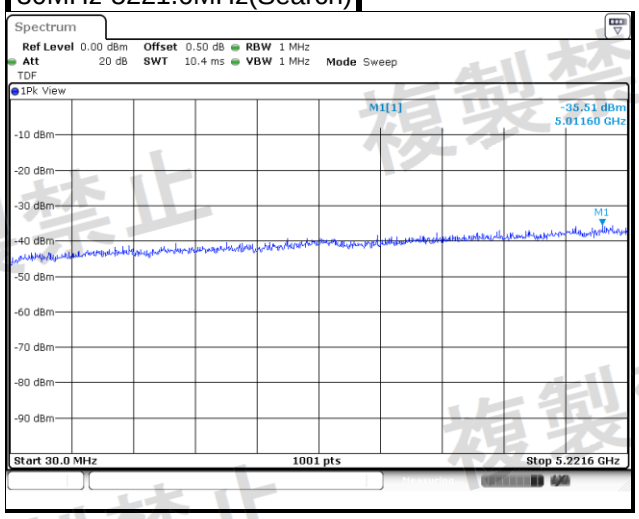
5358.4MHz-26GHz(Detail)

Blank

Tx2

Ch.54: 5270MHz

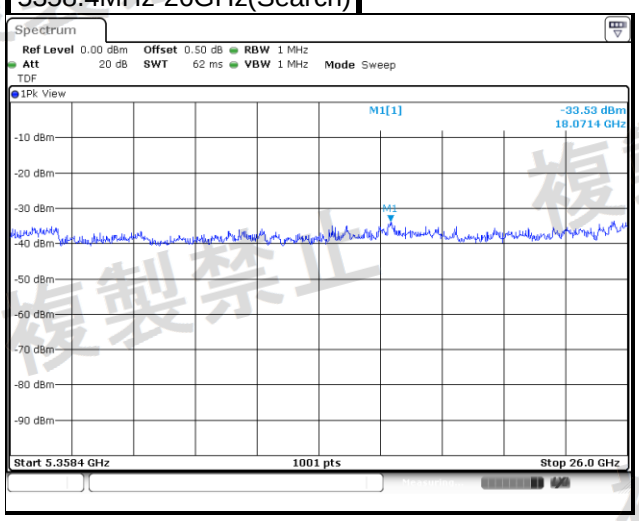
30MHz-5221.6MHz(Search)



30MHz-5221.6MHz(Detail)

Blank

5358.4MHz-26GHz(Search)



5358.4MHz-26GHz(Detail)

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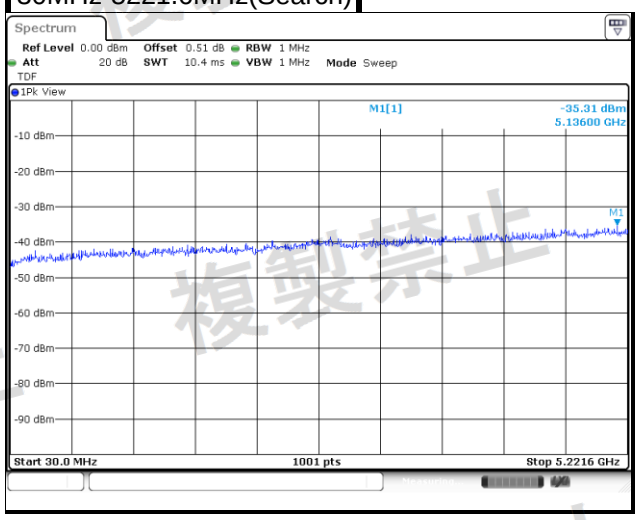
Ch.62: 5310MHz

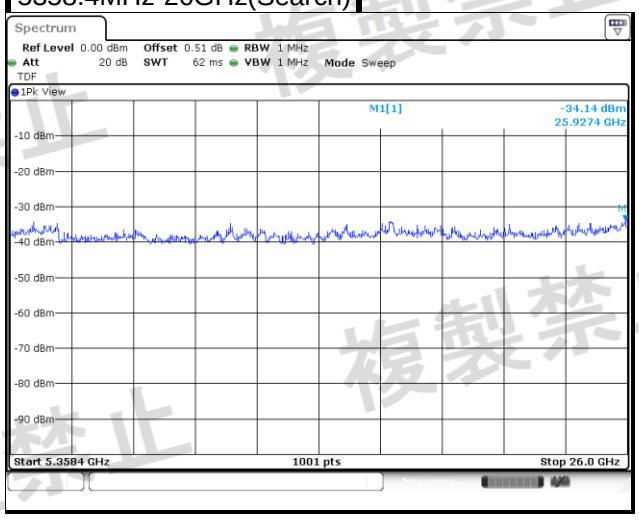
30MHz-5221.6MHz(Search)



30MHz-5221.6MHz(Detail)

Blank

5358.4MHz-26GHz(Search)



5358.4MHz-26GHz(Detail)

Blank

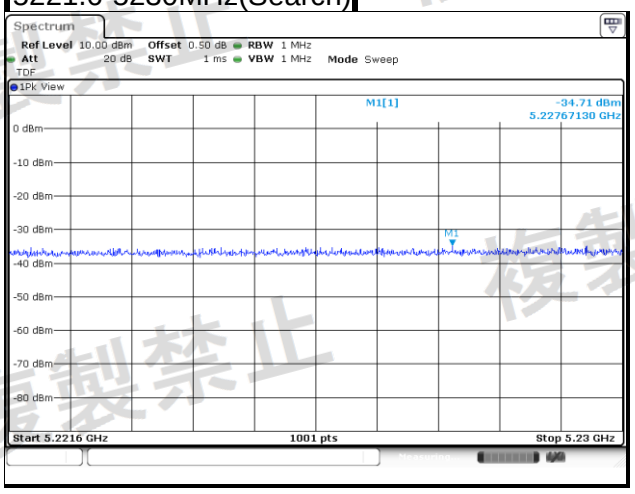
7. Test chart

7.6 Out-Band Leakage Power (Rated voltage)

Tx1

Ch.54: 5270MHz

5221.6-5230MHz(Search)



5221.6-5230MHz(Detail)

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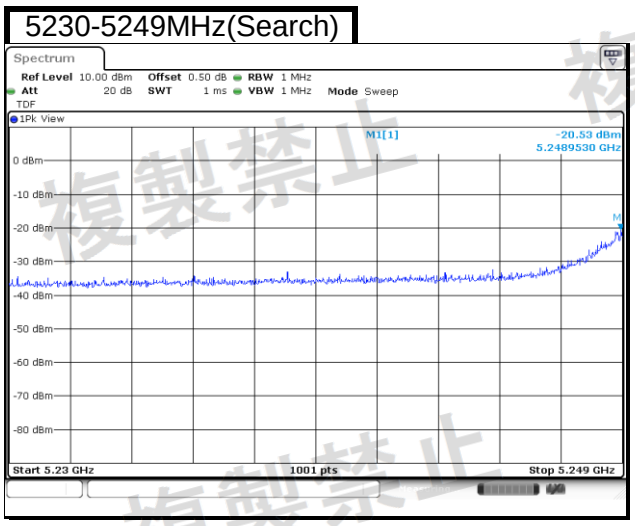
5230-5249MHz(Search)



5230-5249MHz(Detail)

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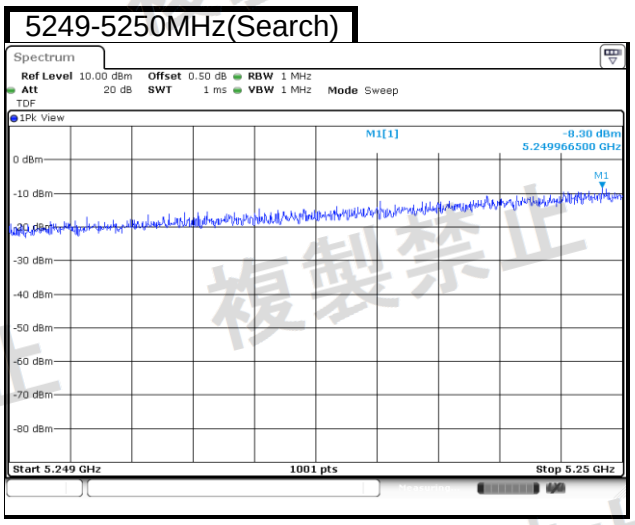
5249-5250MHz(Search)



5249-5250MHz(Detail)

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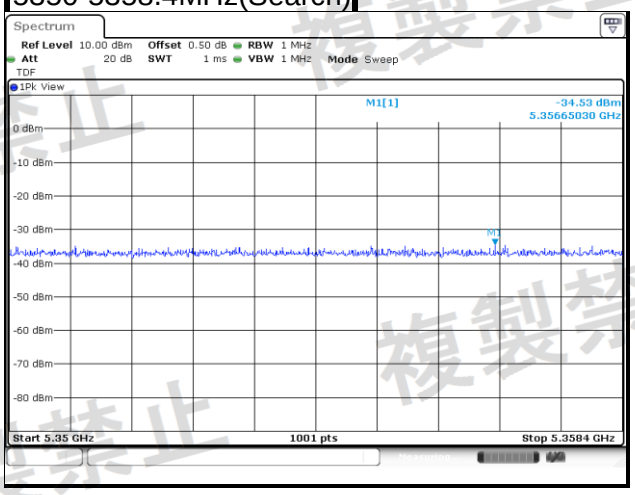
5350-5358.4MHz(Search)

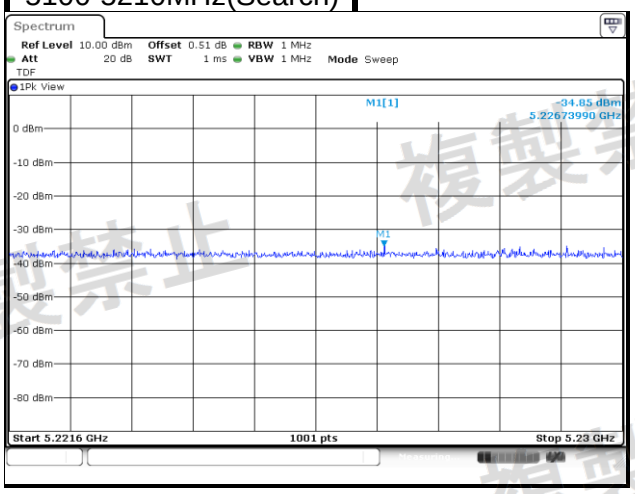


5350-5358.4MHz(Detail)

Blank

Ch.62: 5310MHz

5100-5210MHz(Search)



5100-5210MHz(Detail)

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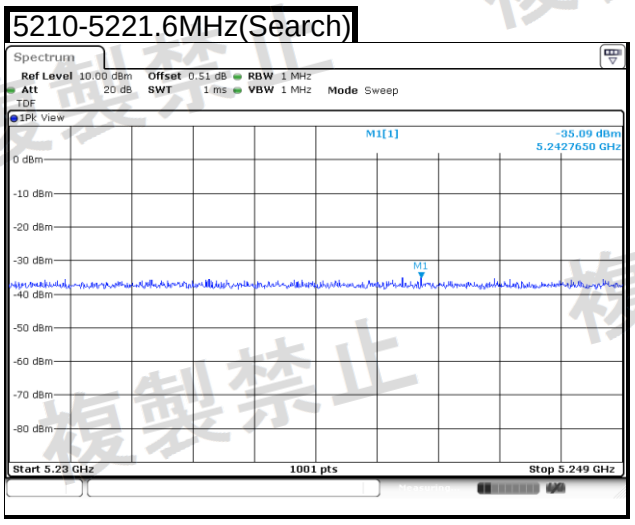
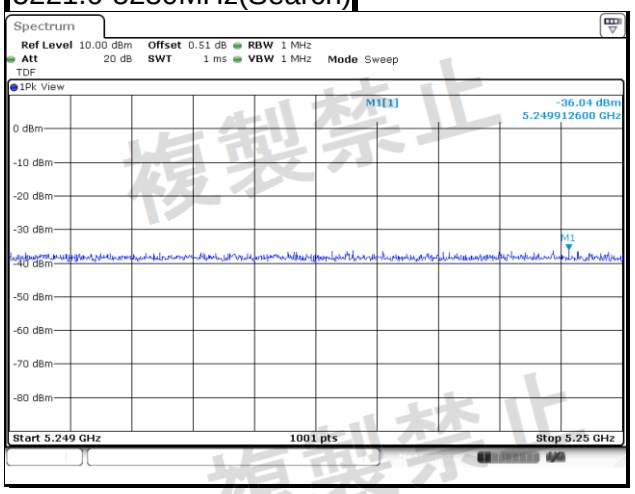
5210-5221.6MHz(Search)



5210-5221.6MHz(Detail)

Blank

5221.6-5230MHz(Search)



5221.6-5230MHz(Detail)

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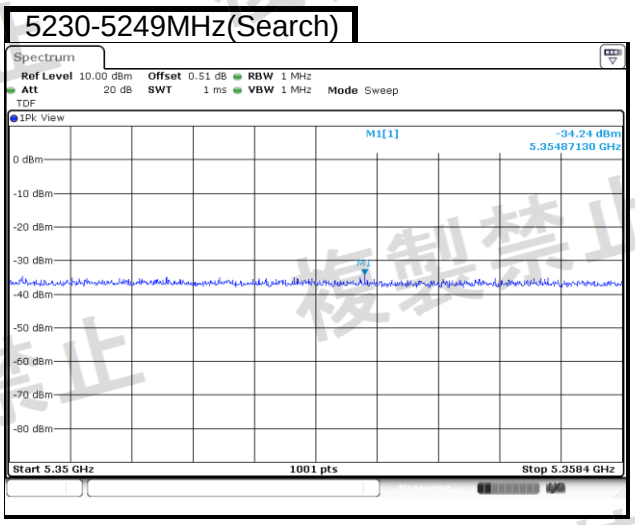
5230-5249MHz(Search)



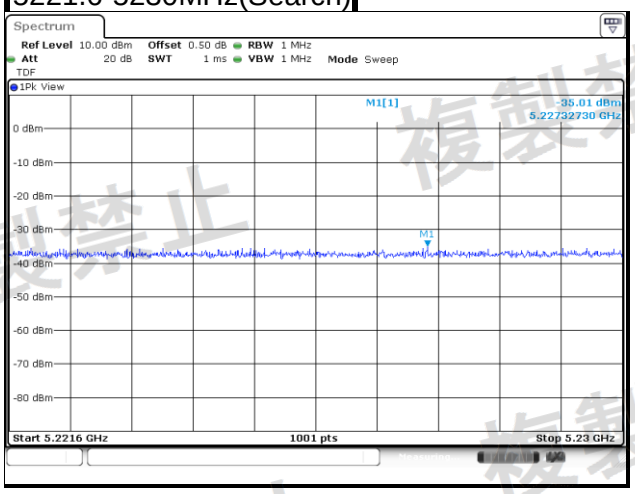
5230-5249MHz(Detail)

Blank

Tx2

Ch.54: 5270MHz

5221.6-5230MHz(Search)



5221.6-5230MHz(Detail)

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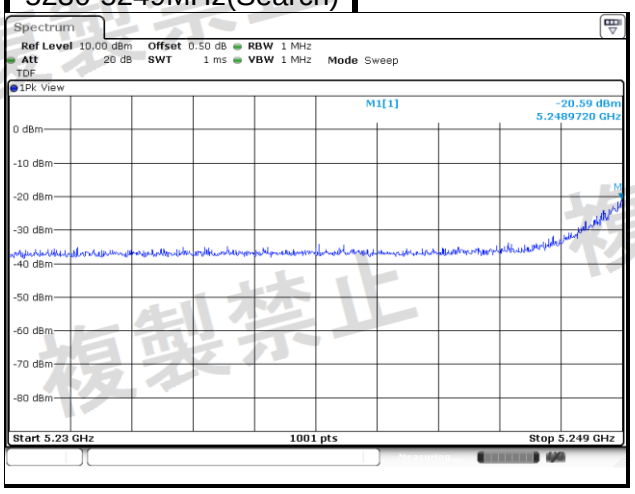
5230-5249MHz(Search)



5230-5249MHz(Detail)

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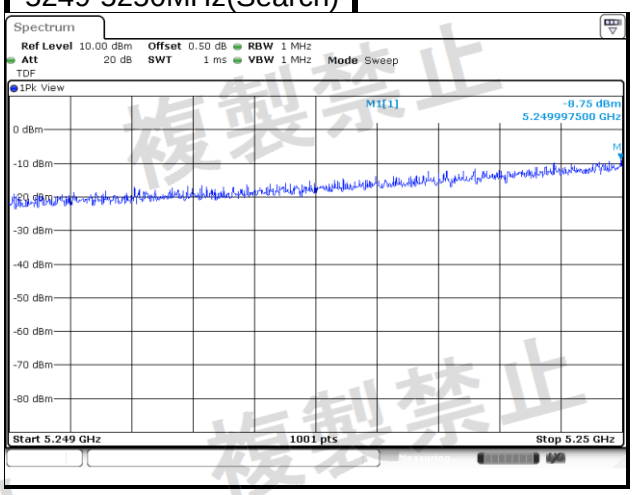
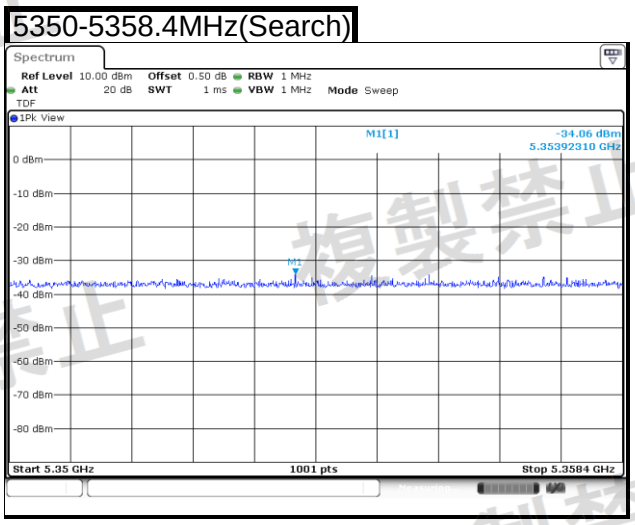
5249-5250MHz(Search)



5249-5250MHz(Detail)

Blank

5350-5358.4MHz(Search)

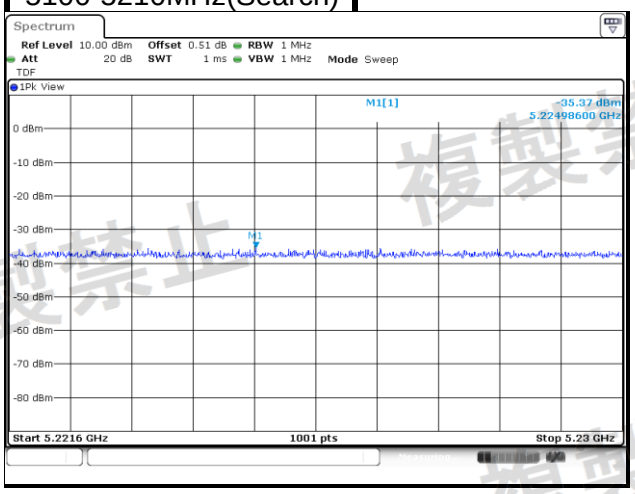


5350-5358.4MHz(Detail)

Blank

Ch.62: 5310MHz

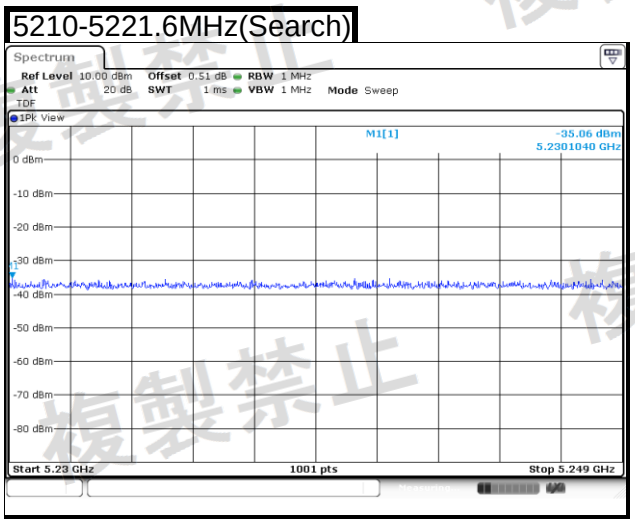
5100-5210MHz(Search)



5100-5210MHz(Detail)

Blank

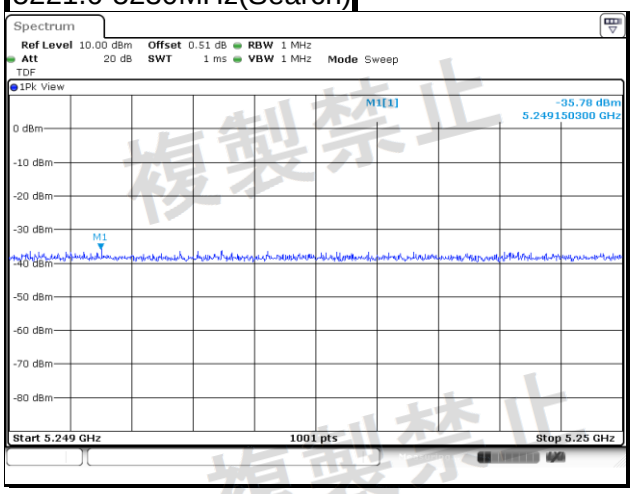
5210-5221.6MHz(Search)



5210-5221.6MHz(Detail)

Blank

5221.6-5230MHz(Search)



5221.6-5230MHz(Detail)

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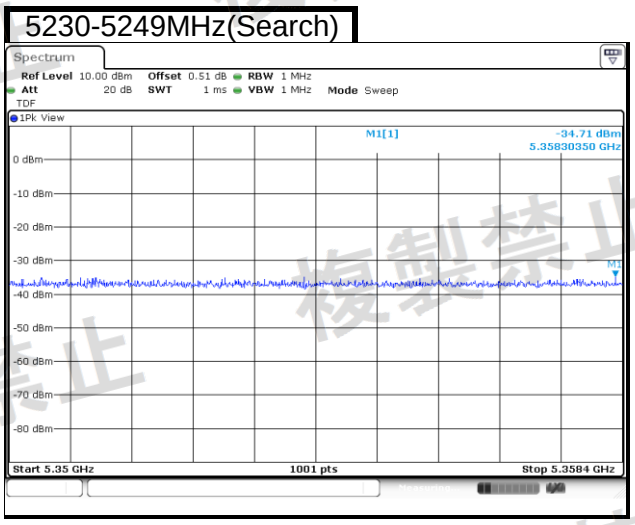
5230-5249MHz(Search)



5230-5249MHz(Detail)

Blank

3. Test results (Rated voltage)

S/N : 563b88ad

Environment of test room	Date of test	2022-02-04	2022-02-05	2022-02-06
	Temperature	21 °C	20 °C	21 °C
	Humidity	51 %	51 %	52 %

Peak Antenna Gain	-5.99	dBi
Beamforming Gain	3.00	dB
Peak Antenna Gain + Beamforming Gain	-2.99	dBi
Declaration Output Power	2.50	mW/MHz
	3.98	dBm/MHz
E.I.R.P	**1.26**	mW/MHz
	0.99	**dBm/MHz**
Input Power Voltage	3.86	VDC

Test category		IEEE802.11ax HE80 / MIMO(2TX)	
Tested Circit Insertion Loss		0.00	dB
Transmission Time	ON TIME (1sec or less)	5.38	ms
	OFF TIME (0.1sec or more)	0.11	ms
	Ratio	0.98	%

Using TDF and offset function in Spectrum Analyz

Measurement of plots are included Loss value.

Offset : EUT cable(0.51dB)

Test category :	5GHz Band Low-Power Data Communication System (802.11ax HE80 W53/MIMO(2TX))_Beamforming
The reason why the tests are performed only at rated voltage :	The fluctuation of input voltage to the circuit of the radio part of the equipment to be tested is identified as being less than ±1 % when input voltage from an external supply into the equipment fluctuates ±10 %.

Measurement Channel	Ch.	58		
Measurement Frequency	MHz	5290	Result	Limit
RF Output Power(Tx1)	mW/MHz	0.36	**PASS**	2.5mW/MHz or below
RF Output Power(Tx2)	mW/MHz	0.32	**PASS**	2.5mW/MHz or below
RF Output Power (Tx1+2)	mW/MHz	0.68	**PASS**	2.5mW/MHz or below
RF Output Power Tolerance (Tx1+2)	%	-72.77	**PASS**	+20% to -80%

Measurement Channel		Ch.	58		
Measurement Frequency		MHz	5290	Result	Limit
Unwanted (Spurious) Emission Strength (Tx1)	30MHz to 5203.3MHz	uW/MHz	0.13	**PASS**	2.5uW/MHz or below
		MHz	4792.40	----	----
	5376.8MHz to 26GHz	uW/MHz	0.21	**PASS**	2.5uW/MHz or below
		MHz	18078.80	----	----
Unwanted (Spurious) Emission Strength (Tx2)	30MHz to 5203.3MHz	uW/MHz	0.14	**PASS**	2.5uW/MHz or below
		MHz	5097.40	----	----
	5376.8MHz to 26GHz	uW/MHz	0.23	**PASS**	2.5uW/MHz or below
		MHz	18078.80	----	----
Unwanted (Spurious) Emission Strength (Tx1+2)	30MHz to 5203.3MHz	uW/MHz	0.27	**PASS**	2.5uW/MHz or below
		----	----	----	----
	5376.8MHz to 26GHz	uW/MHz	0.44	**PASS**	2.5uW/MHz or below
		----	----	----	----

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Measurement Channel		Ch.	58		
Measurement Frequency		MHz	5290	Result	Limit
Out-band of Leakage Power (Tx1)	5203.3 to 5210MHz	uW/MHz	0.17	**PASS**	$10^{-(3/100)(f-80)-1.8+\log(1/4)}$mW/MHz or below
		MHz	5209.23	----	----
	Limit	uW/MHz	3.76	----	----
	5210 to 5249MHz	uW/MHz	4.86	**PASS**	$10^{-(8/390)(f-41)-1+\log(1/4)}$mW/MHz or below
		MHz	5248.94	----	----
	Limit	uW/MHz	24.93	----	----
	5249 to 5250MHz	uW/MHz	42.46	**PASS**	$10^{-(f-40)+\log(1/4)}$mW/MHz or below
		MHz	5249.95	----	----
	Limit	uW/MHz	220.26	----	----
	5350 to 5376.8MHz	uW/MHz	0.18	**PASS**	15uW/MHz or below
		MHz	5350.55	----	----
Out-band of Leakage Power (Tx2)	5203.3 to 5210MHz	uW/MHz	0.15	**PASS**	$10^{-(3/100)(f-80)-1.8+\log(1/4)}$mW/MHz or below
		MHz	5209.04	----	----
	Limit	uW/MHz	3.71	----	----
	5210 to 5249MHz	uW/MHz	2.96	**PASS**	$10^{-(8/390)(f-41)-1+\log(1/4)}$mW/MHz or below
		MHz	5248.86	----	----
	Limit	uW/MHz	24.84	----	----
	5249 to 5250MHz	uW/MHz	33.19	**PASS**	$10^{-(f-40)+\log(1/4)}$mW/MHz or below
		MHz	5249.94	----	----
	Limit	uW/MHz	218.75	----	----
	5350 to 5376.8MHz	uW/MHz	0.21	**PASS**	15uW/MHz or below
		MHz	5375.64	----	----
Out-band of Leakage Power (Tx1+2)	5203.3 to 5210MHz	uW/MHz	0.31	**PASS**	$10^{-(3/100)(f-80)-1.8+\log(1/4)}$mW/MHz or below
		MHz	5209.23	----	----
	Limit	uW/MHz	3.76	----	----
	5210 to 5249MHz	uW/MHz	7.83	**PASS**	$10^{-(8/390)(f-41)-1+\log(1/4)}$mW/MHz or below
		MHz	5248.94	----	----
	Limit	uW/MHz	24.93	----	----
	5249 to 5250MHz	uW/MHz	75.65	**PASS**	$10^{-(f-40)+\log(1/4)}$mW/MHz or below
		MHz	5249.95	----	----
	Limit	uW/MHz	220.26	----	----
	5350 to 5376.8MHz	uW/MHz	0.39	**PASS**	15uW/MHz or below
		----	----	----	----

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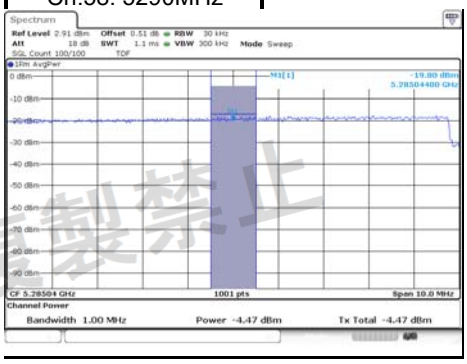
7. Test chart

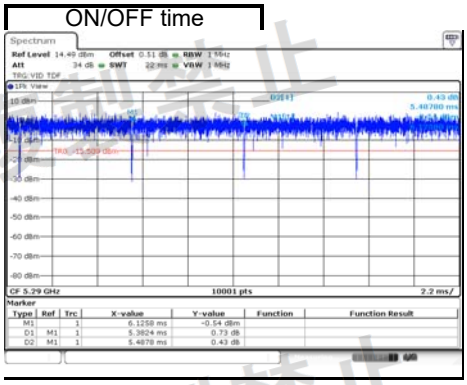
7.4 RF output power tolerance (Rated voltage)

Tx1

Ch.58: 5290MHz

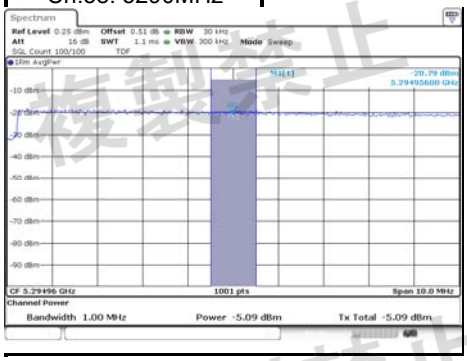


ON/OFF time



Tx2

Ch.58: 5290MHz



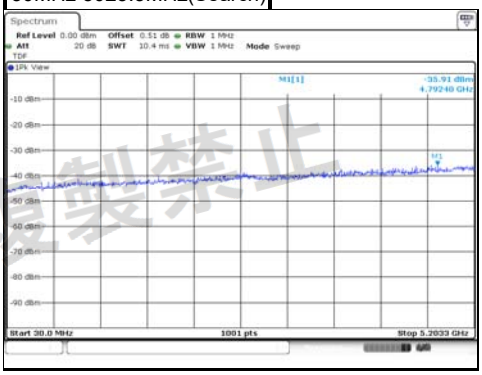
7. Test chart

7.5 Unwanted(Spurious) emission strength (Rated voltage)

Tx1

Ch.58: 5290MHz

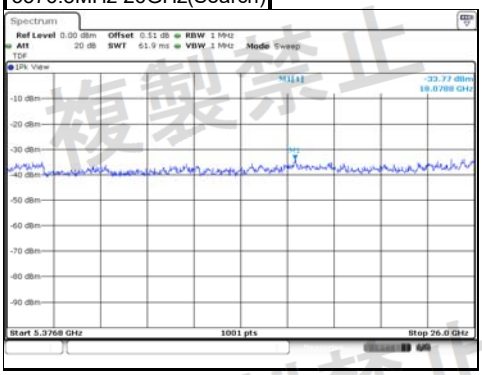
30MHz-5023.3MHz(Search)



30MHz-5203.3MHz(Detail)

Blank

5376.8MHz-26GHz(Search)



5376.8MHz-26GHz(Detail)

Blank

Tx2

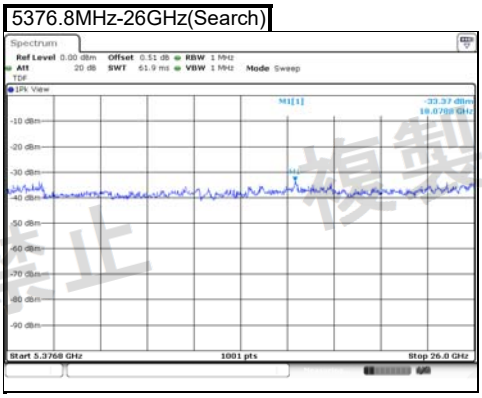
Ch.58: 5290MHz

30MHz-5023.3MHz(Search)

30MHz-5203.3MHz(Detail)

Blank

5376.8MHz-26GHz(Search)



5376.8MHz-26GHz(Detail)

Blank

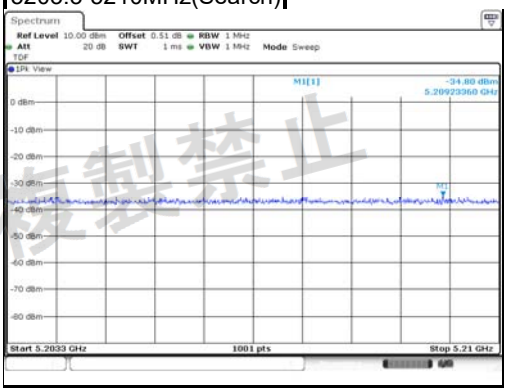
7. Test chart

7.6 Out-Band Leakage Power (Rated voltage)

Tx1

Ch.58: 5290MHz

5203.3-5210MHz(Search)



5203.3-5210MHz(Detail)

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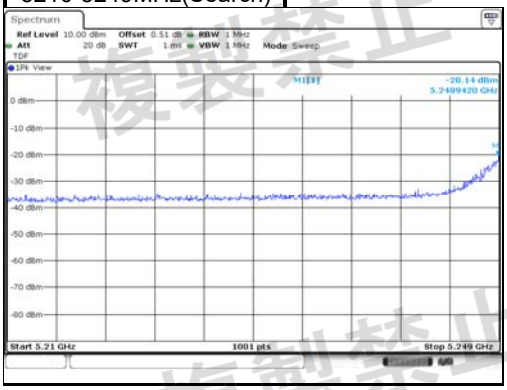
5210-5249MHz(Search)



5210-5249MHz(Detail)

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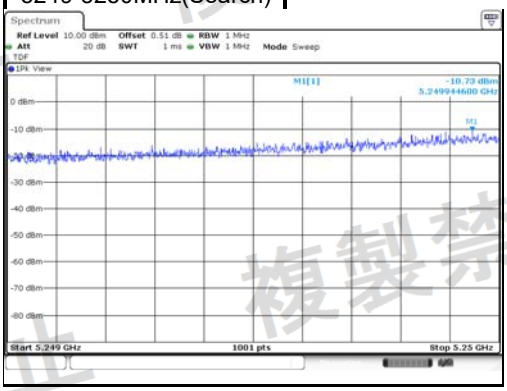
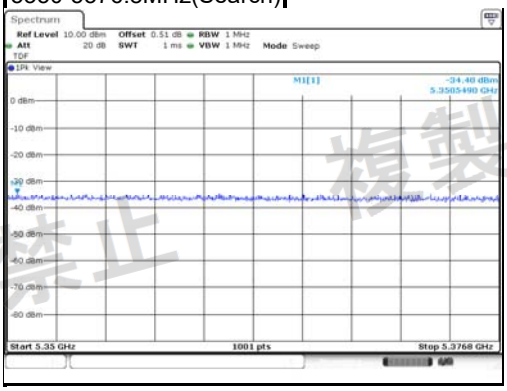
5249-5250MHz(Search)



5249-5250MHz(Detail)

Blank

5350-5376.8MHz(Search)



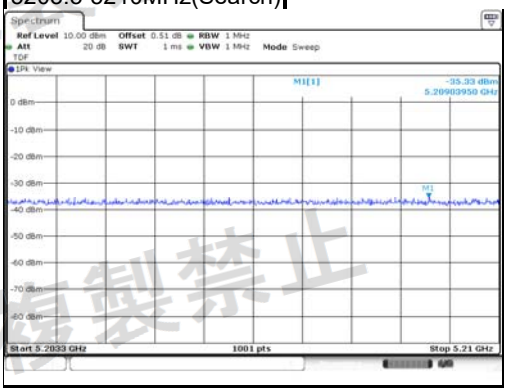
5350-5376.8MHz(Detail)

Blank

Tx2

Ch.58: 5290MHz

5203.3-5210MHz(Search)



5203.3-5210MHz(Detail)

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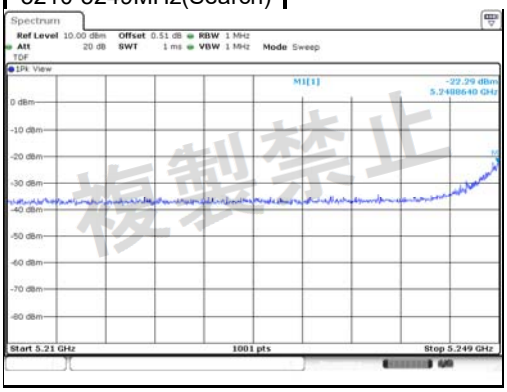
5210-5249MHz(Search)



5210-5249MHz(Detail)

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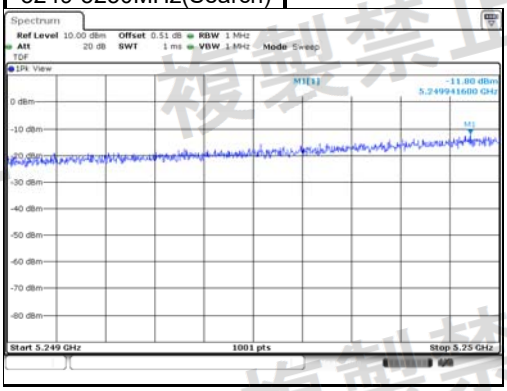
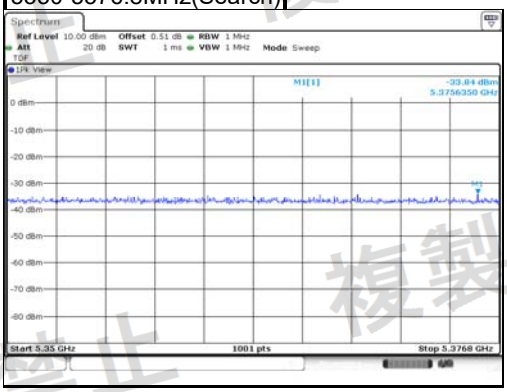
5249-5250MHz(Search)



5249-5250MHz(Detail)

Blank

5350-5376.8MHz(Search)



5350-5376.8MHz(Detail)

Blank

3. Test results (Rated voltage)

S/N : 563b88ad

Environment of test room	Date of test	2022-02-04	2022-02-05	2022-02-06	2022-02-16
	Temperature	21 °C	20 °C	21 °C	23 °C
	Humidity	51 %	51 %	52 %	52 %

Peak Antenna Gain	-5.75	dBi
Beamforming Gain	3.00	dB
Peak Antenna Gain + Beamforming Gain	-2.75	dBi
Declaration Output Power	3.50	mW/MHz
	5.44	dBm/MHz
E.I.R.P	**1.86**	mW/MHz
	2.69	**dBm/MHz**
Input Power Voltage	3.86	VDC

Test category		IEEE802.11ax HE20 / MIMO(2TX)	
Tested Circit Insertion Loss		0	dB
Transmission Time	ON TIME (1sec or less)	5.42	ms
	OFF TIME (0.1sec or more)	0.05	ms
	Ratio	0.99	%

Using TDF and offset function in Spectrum Analyzer.

Measurement of plots are included Loss value.

Offset : EUT cable
(ch100: 0.51, ch120: 0.54, ch144: 0.58dB)

Test category :	5GHz Band Low-Power Data Communication System (802.11ax HE20 W56/MIMO(2TX))_Beamforming
The reason why the tests are performed only at rated voltage:	The fluctuation of input voltage to the circuit of the radio part of the equipment to be tested is identified as being less than ±1 % when input voltage from an external supply into the equipment fluctuates ±10 %.

Measurement Channel	Ch.	100	120	144		
Measurement Frequency	MHz	5500	5600	5720	Result	Limit
RF Output Power(Tx1)	mW/MHz	1.96	1.97	1.51	**PASS**	10mW/MHz or below
RF Output Power(Tx2)	mW/MHz	1.48	1.54	1.19	**PASS**	10mW/MHz or below
RF Output Power (Tx1+2)	mW/MHz	3.44	3.51	2.70	**PASS**	10mW/MHz or below
RF Output Power Tolerance (Tx1+2)	%	-1.65	0.30	-22.82	**PASS**	+50% to -50%

Measurement Channel		Ch.	100	120	144		
Measurement Frequency		MHz	5500	5600	5720	Result	Limit
Unwanted (Spurious) Emission Strength(Tx1)	30MHz to 5460MHz	uW/MHz	0.15	0.19	0.17	**PASS**	2.5uW/MHz or below
		MHz	5055.90	5039.60	5305.40	----	----
	5765MHz to 26GHz	uW/MHz	0.25	0.25	0.26	**PASS**	2.5uW/MHz or below
		MHz	18066.00	18086.00	18086.00	----	----
Unwanted (Spurious) Emission Strength(Tx2)	30MHz to 5460MHz	uW/MHz	0.16	0.14	0.14	**PASS**	2.5uW/MHz or below
		MHz	5381.30	5408.50	5327.10	----	----
	5765MHz to 26GHz	uW/MHz	0.26	0.25	0.22	**PASS**	2.5uW/MHz or below
		MHz	18106.00	18086.00	18126.00	----	----
Unwanted (Spurious) Emission Strength (Tx1+2)	30MHz to 5460MHz	uW/MHz	0.31	0.33	0.31	**PASS**	2.5uW/MHz or below
		----	----	----	----	----	----
	5765MHz to 26GHz	uW/MHz	0.51	0.51	0.48	**PASS**	2.5uW/MHz or below
		----	----	----	----	----	----

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Measurement Channel		Ch.	100	120	144		
Measurement Frequency		MHz	5500	5600	5720	Result	Limit
Out-band of Leakage Power (Tx1)	5460 to 5470MHz	uW/MHz	0.19	0.18	0.18	**PASS**	12.5uW/MHz or below
		MHz	5462.86	5462.61	5461.76	----	----
	5745 to 5765MHz	uW/MHz	0.21	0.21	0.26	**PASS**	12.5uW/MHz or below
		MHz	5761.31	5764.07	5760.02	----	----
Out-band of Leakage Power (Tx2)	5460 to 5470MHz	uW/MHz	0.18	0.18	0.17	**PASS**	12.5uW/MHz or below
		MHz	5466.48	5469.69	5460.46	----	----
	5745 to 5765MHz	uW/MHz	0.19	0.20	0.21	**PASS**	12.5uW/MHz or below
		MHz	5759.94	5753.54	5761.13	----	----
Out-band of Leakage Power (Tx1+2)	5460 to 5470MHz	uW/MHz	0.38	0.36	0.35	**PASS**	12.5uW/MHz or below
		----	----	----	----	----	----
	5745 to 5765MHz	uW/MHz	0.40	0.41	0.47	**PASS**	12.5uW/MHz or below
		----	----	----	----	----	----

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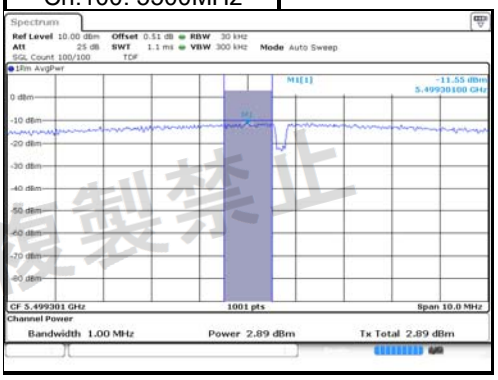
7. Test chart

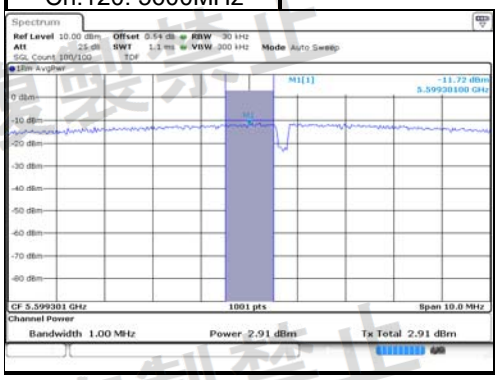
7.4 RF output power tolerance (Rated voltage)

Tx1

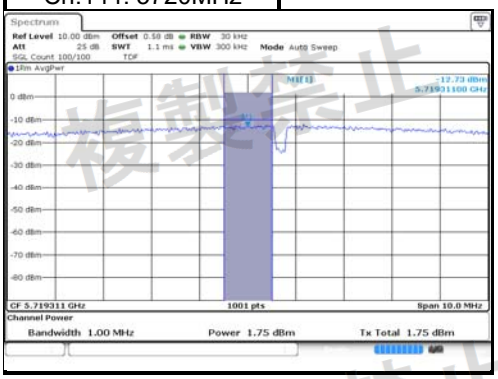
Ch.100: 5500MHz



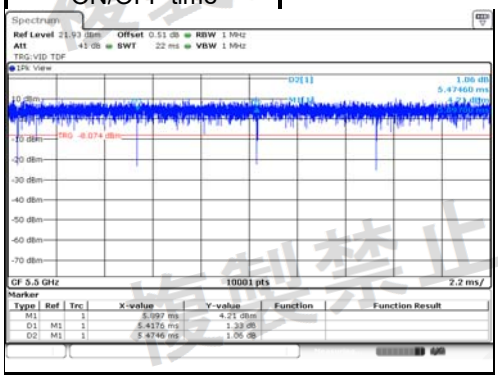
Ch.120: 5600MHz



Ch.144: 5720MHz

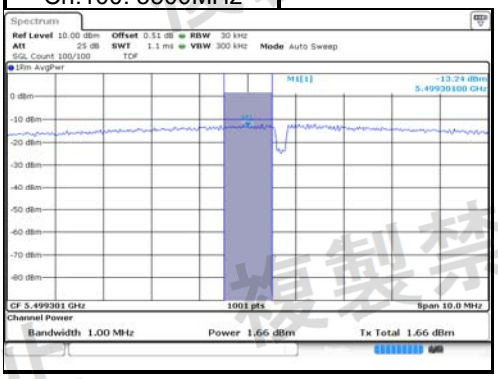


ON/OFF time

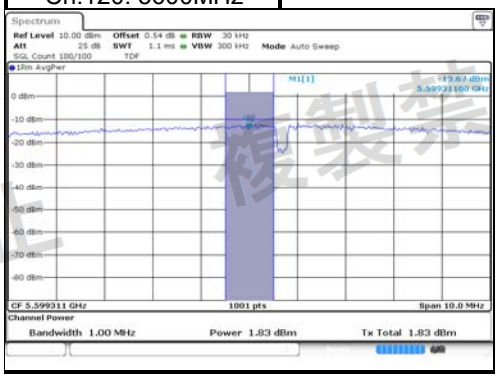


Tx2

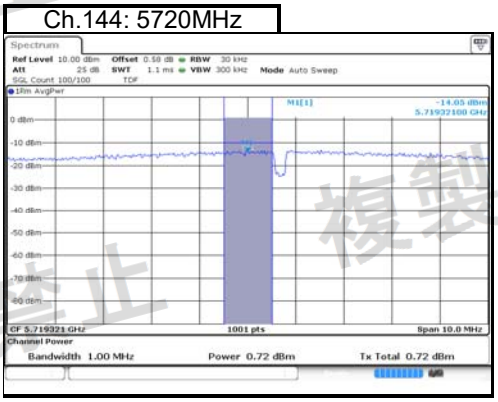
Ch.100: 5500MHz



Ch.120: 5600MHz



Ch.144: 5720MHz



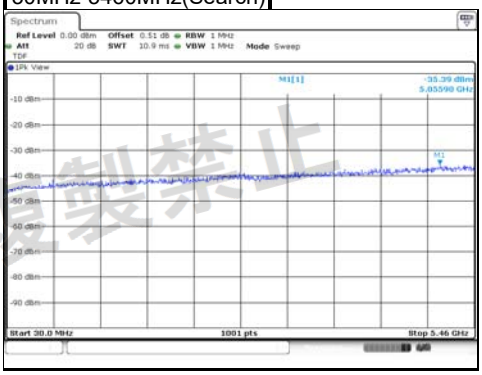
7. Test chart

7.5 Unwanted(Spurious) emission strength (Rated voltage)

Tx1

Ch.100: 5500MHz

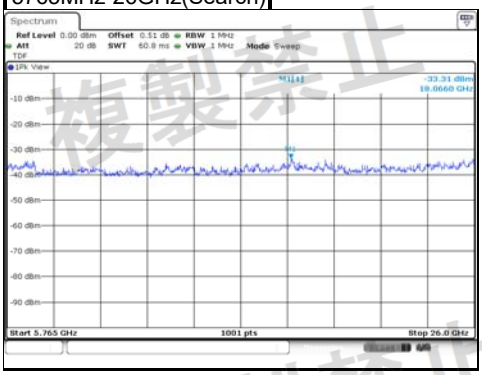
30MHz-5460MHz(Search)



30MHz-5460MHz(Detail)

Blank

5765MHz-26GHz(Search)

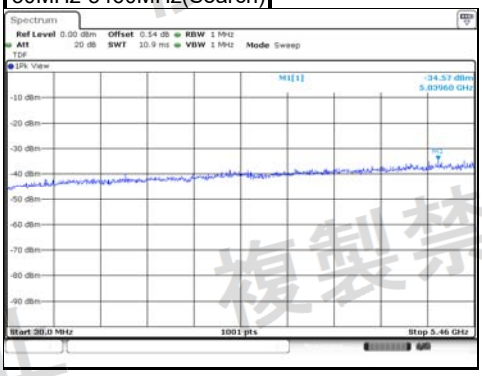


5765MHz-26GHz(Detail)

Blank

Ch.120: 5600MHz

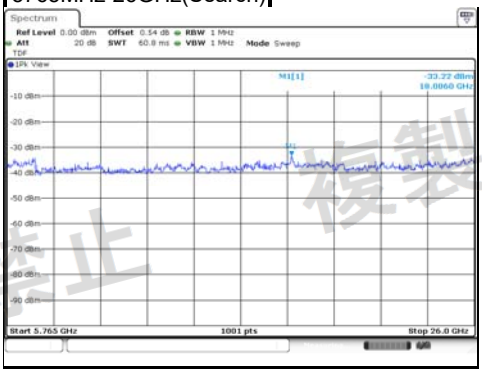
30MHz-5460MHz(Search)



30MHz-5460MHz(Detail)

Blank

5765MHz-26GHz(Search)



5765MHz-26GHz(Detail)

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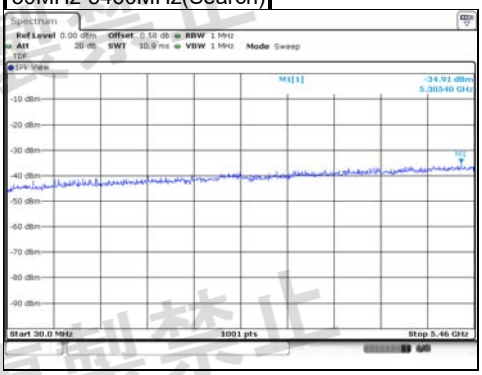
Ch.144: 5720MHz

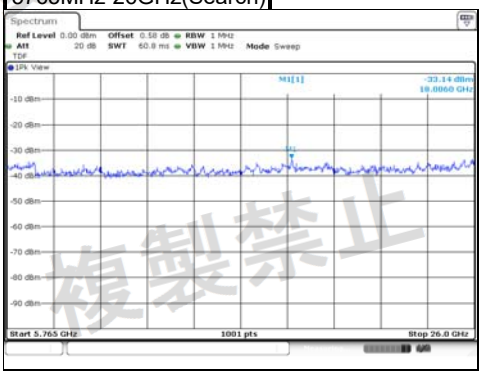
30MHz-5460MHz(Search)



30MHz-5460MHz(Detail)

Blank

5765MHz-26GHz(Search)



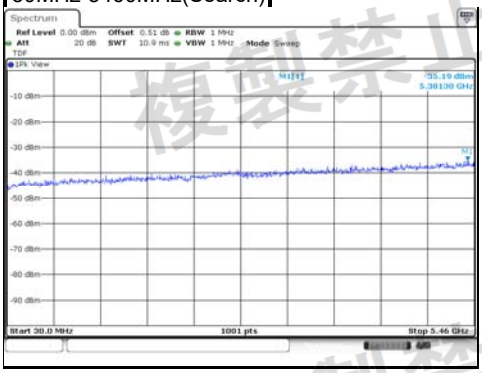
5765MHz-26GHz(Detail)

Blank

Tx2

Ch.100: 5500MHz

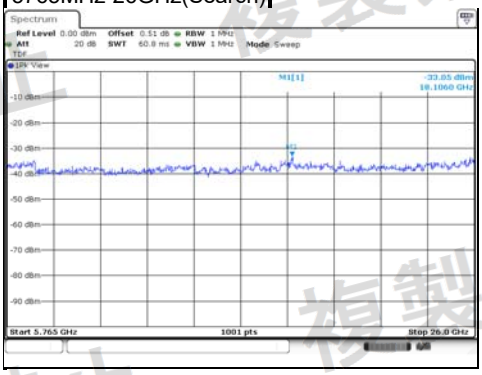
30MHz-5460MHz(Search)



30MHz-5460MHz(Detail)

Blank

5765MHz-26GHz(Search)



5765MHz-26GHz(Detail)

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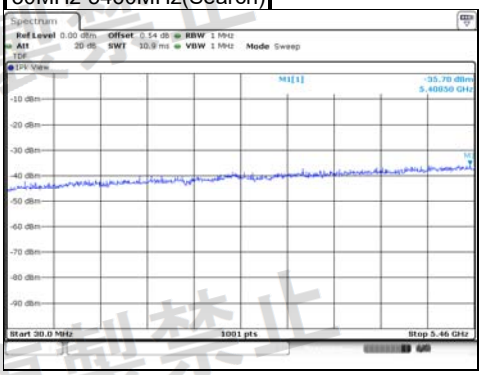
Ch.120: 5600MHz

30MHz-5460MHz(Search)



30MHz-5460MHz(Detail)

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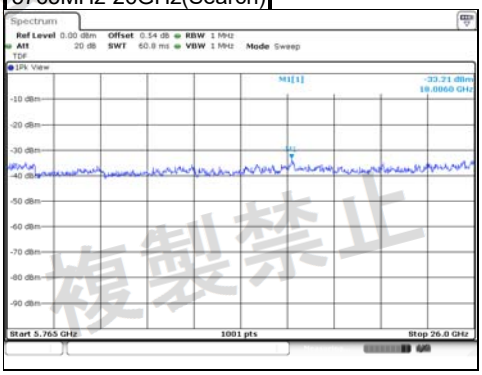
5765MHz-26GHz(Search)

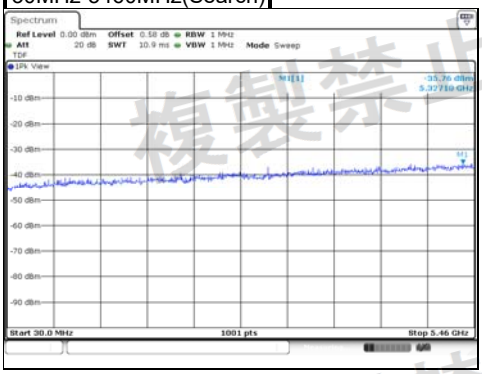


5765MHz-26GHz(Detail)

Blank

Ch.144: 5720MHz

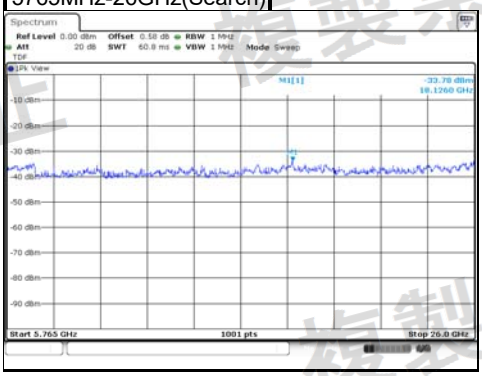
30MHz-5460MHz(Search)



30MHz-5460MHz(Detail)

Blank

5765MHz-26GHz(Search)



5765MHz-26GHz(Detail)

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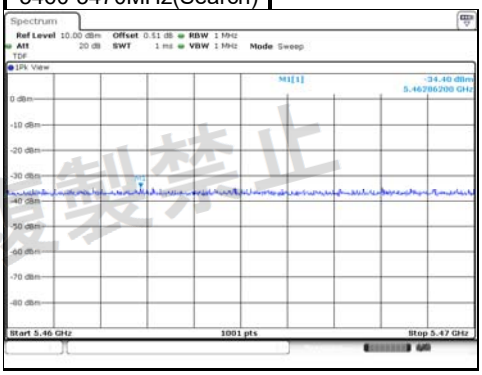
7. Test chart

7.6 Out-Band Leakage Power (Rated voltage)

Tx1

Ch.100: 5500MHz

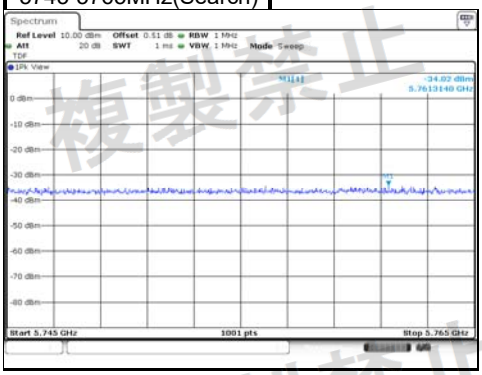
5460-5470MHz(Search)



5460-5470MHz(Detail)

Blank

5745-5765MHz(Search)



5745-5765MHz(Detail)

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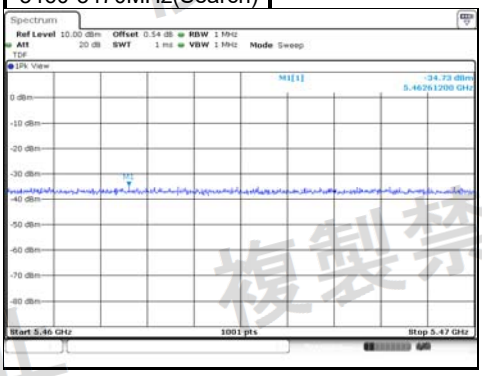
Ch.120: 5600MHz

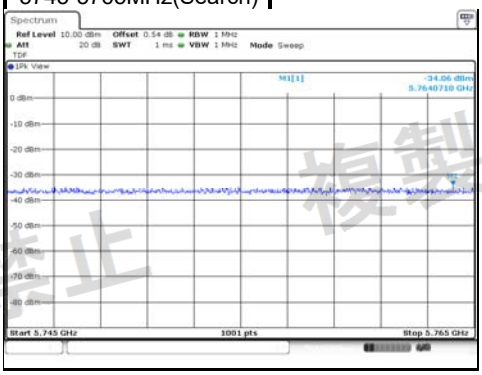
5460-5470MHz(Search)



5460-5470MHz(Detail)

Blank

5745-5765MHz(Search)

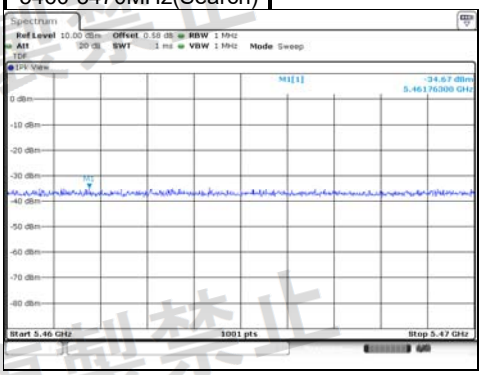


5745-5765MHz(Detail)

Blank

Ch.144: 5720MHz

5460-5470MHz(Search)



5460-5470MHz(Detail)

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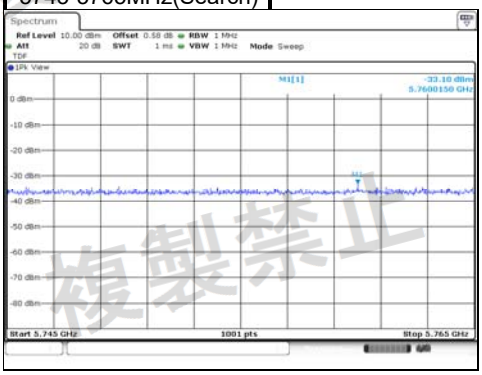
5745-5765MHz(Search)



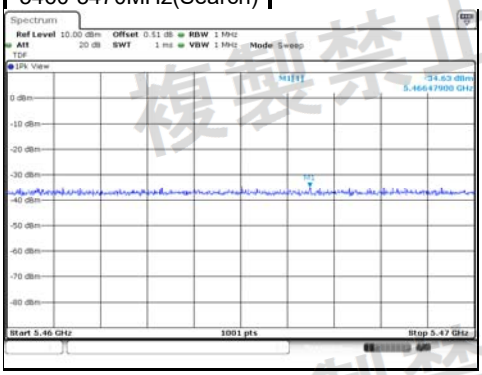
5745-5765MHz(Detail)

Blank

Tx2

Ch.100: 5500MHz

5460-5470MHz(Search)



5460-5470MHz(Detail)

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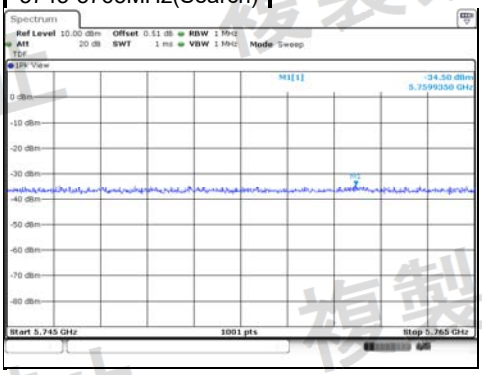
5745-5765MHz(Search)



5745-5765MHz(Detail)

Blank

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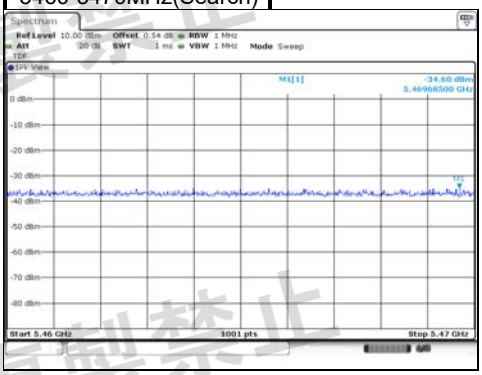
Ch.120: 5600MHz

5460-5470MHz(Search)



5460-5470MHz(Detail)

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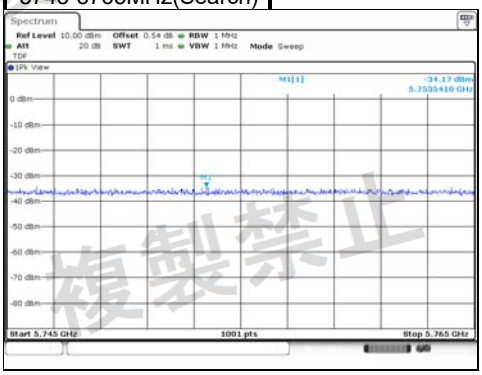
5745-5765MHz(Search)

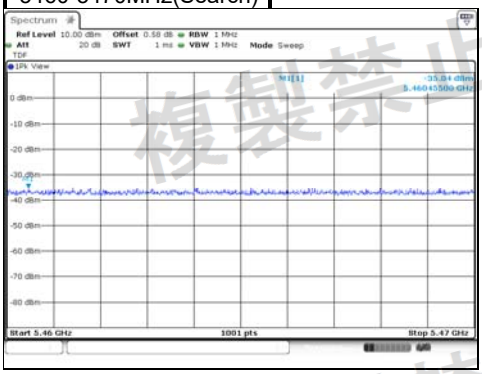


5745-5765MHz(Detail)

Blank

Ch.144: 5720MHz

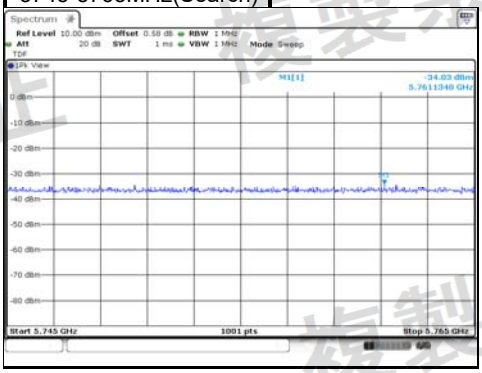
5460-5470MHz(Search)



5460-5470MHz(Detail)

Blank

5745-5765MHz(Search)



5745-5765MHz(Detail)

Blank

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3. Test results (Rated voltage)

S/N : 563b88ad

Environment of test room	Date of test	2022-02-04	2022-02-05	2022-02-06	2022-02-16
	Temperature	21 °C	20 °C	21 °C	23 °C
	Humidity	51 %	51 %	52 %	52 %

Peak Antenna Gain	-5.75	dBi
Beamforming Gain	3.00	dB
Peak Antenna Gain + Beamforming Gain	-2.75	dBi
Declaration Output Power	2.50	mW/MHz
	3.98	dBm/MHz
E.I.R.P	**1.33**	mW/MHz
	1.23	**dBm/MHz**
Input Power Voltage	3.86	VDC

Test category		IEEE802.11ax HE40 / MIMO(2TX)	
Tested Circit Insertion Loss		0.00	dB
Transmission Time	ON TIME (1sec or less)	5.38	ms
	OFF TIME (0.1sec or more)	0.09	ms
	Ratio	0.98	%

Using TDF and offset function in Spectrum Analyzer.

Measurement of plots are included Loss value.

Offset : EUT cable
(ch102: 0.51, ch118:0.54, ch142:0.58dB)

Test category :	5GHz Band Low-Power Data Communication System (802.11ax HE40 W56/MIMO(2TX))_Beamforming
The reason why the tests are performed only at rated voltage:	The fluctuation of input voltage to the circuit of the radio part of the equipment to be tested is identified as being less than ±1 % when input voltage from an external supply into the equipment fluctuates ±10 %.

Measurement Channel	Ch.	102	118	142		
Measurement Frequency	MHz	5510	5590	5710	Result	Limit
RF Output Power(Tx1)	mW/MHz	1.21	1.17	1.03	**PASS**	5mW/MHz or below
RF Output Power(Tx2)	mW/MHz	0.91	0.98	0.83	**PASS**	5mW/MHz or below
RF Output Power (Tx1+2)	mW/MHz	2.11	2.15	1.87	**PASS**	5mW/MHz or below
RF Output Power Tolerance (Tx1+2)	%	-15.45	-13.93	-25.38	**PASS**	+50% to -50%

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Measurement Channel		Ch.	102	118	142		
Measurement Frequency		MHz	5510	5590	5710	Result	Limit
Unwanted (Spurious) Emission Strength(Tx1)	30MHz to 5460MHz	uW/MHz	0.17	0.15	0.15	**PASS**	12.5uW/MHz or below
		MHz	4735.80	5451.90	5430.20	----	----
	5770MHz to 26GHz	uW/MHz	0.24	0.26	0.25	**PASS**	12.5uW/MHz or below
		MHz	25848.00	18068.00	25545.00	----	----
Unwanted (Spurious) Emission Strength(Tx2)	30MHz to 5460MHz	uW/MHz	0.20	0.14	0.15	**PASS**	12.5uW/MHz or below
		MHz	5066.70	5126.40	5337.90	----	----
	5770MHz to 26GHz	uW/MHz	0.22	0.23	0.23	**PASS**	12.5uW/MHz or below
		MHz	18108.00	25929.00	18068.00	----	----
Unwanted (Spurious) Emission Strength (Tx1+2)	30MHz to 5460MHz	uW/MHz	0.36	0.29	0.30	**PASS**	12.5uW/MHz or below
		----	----	----	----	----	----
	5770MHz to 26GHz	uW/MHz	0.46	0.49	0.48	**PASS**	12.5uW/MHz or below
		----	----	----	----	----	----

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Measurement Channel		Ch.	102	118	142		
Measurement Frequency		MHz	5510	5590	5710	Result	Limit
Out-band of Leakage Power (Tx1)	5460 to 5470MHz	uW/MHz	0.20	0.18	0.17	**PASS**	50uW/MHz or below
		MHz	5467.77	5465.54	5467.50	----	----
Out-band of Leakage Power (Tx2)	5460 to 5470MHz	uW/MHz	0.18	0.18	0.17	**PASS**	50uW/MHz or below
		MHz	5466.32	5467.65	5468.45	----	----
Out-band of Leakage Power (Tx1+2)	5460 to 5470MHz	uW/MHz	0.38	0.36	0.34	**PASS**	50uW/MHz or below
		----	----	----	----	----	----

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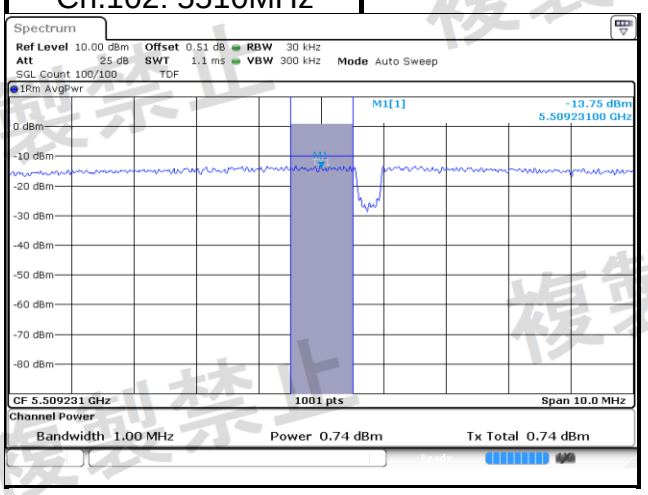
7. Test chart

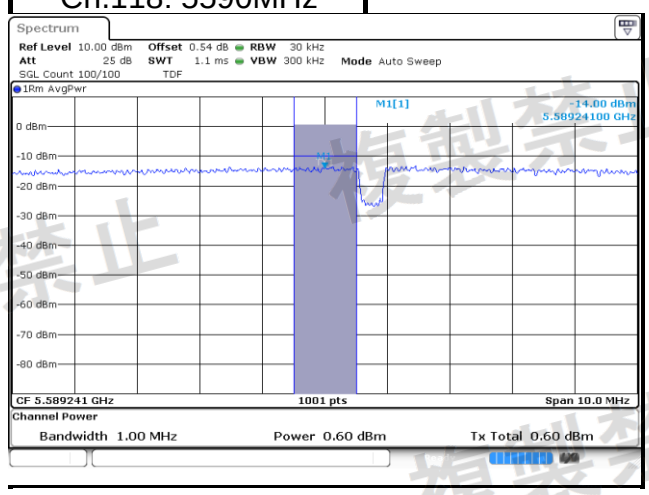
7.4 RF output power tolerance (Rated voltage)

Tx1

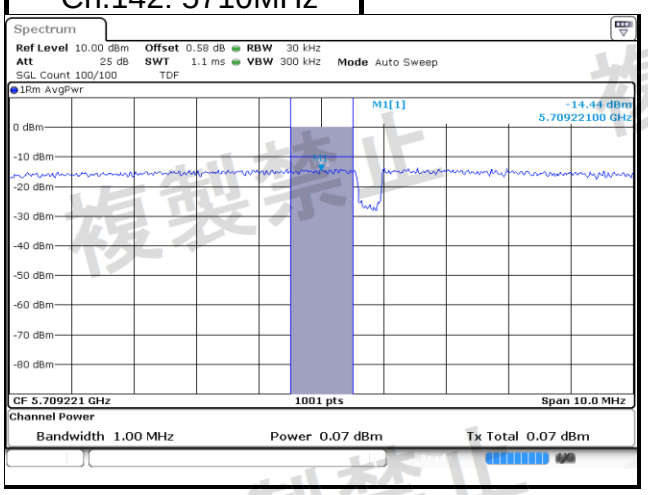
Ch.102: 5510MHz



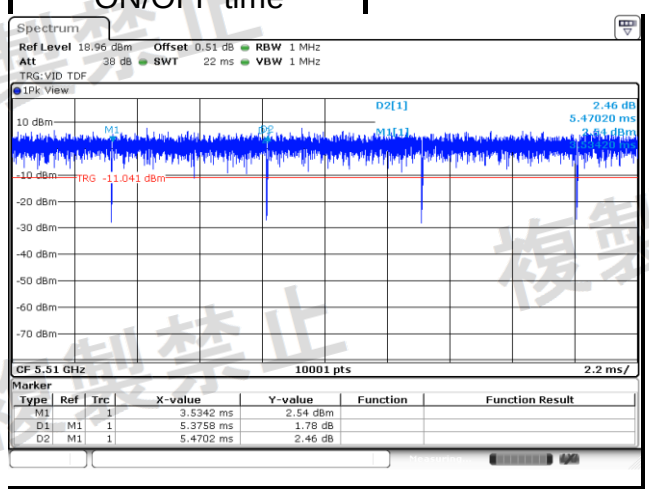
Ch.118: 5590MHz



Ch.142: 5710MHz

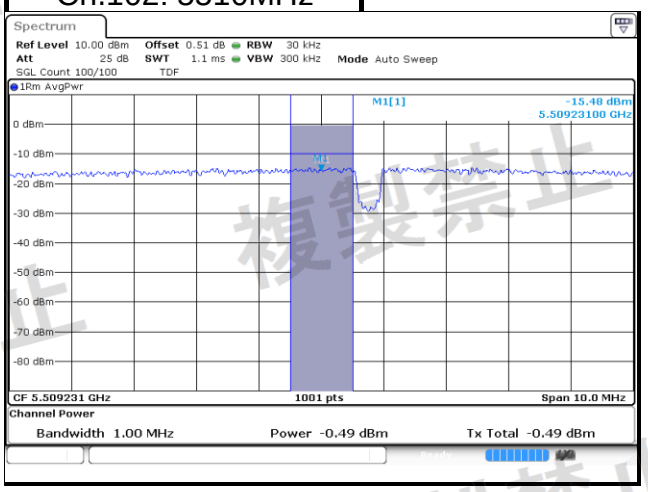


ON/OFF time

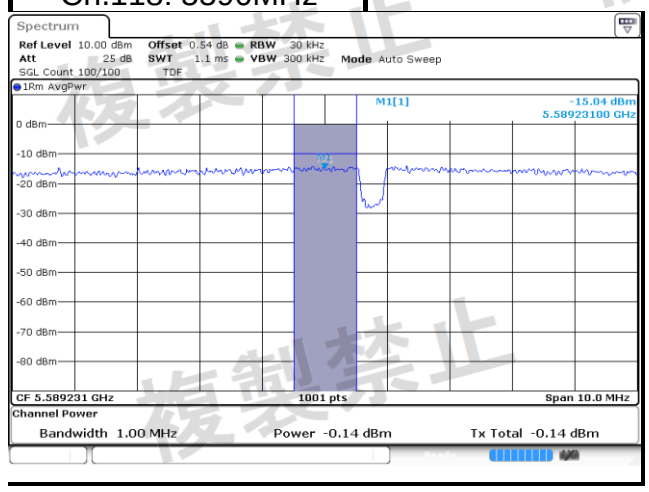


Tx2

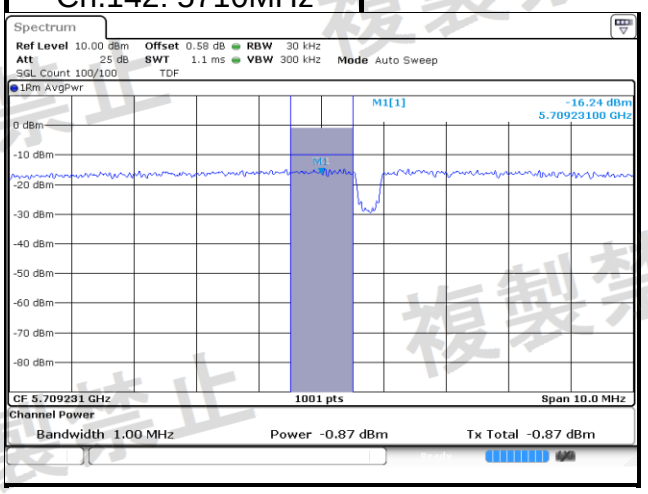
Ch.102: 5510MHz



Ch.118: 5590MHz



Ch.142: 5710MHz



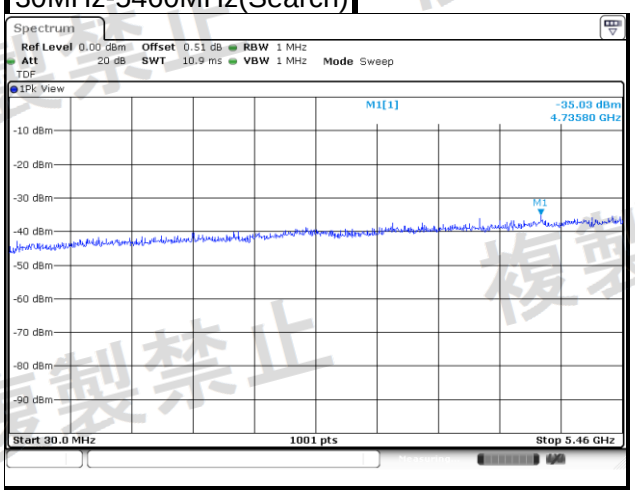
7. Test chart

7.5 Unwanted(Spurious) emission strength (Rated voltage)

Tx1

Ch.102: 5510MHz

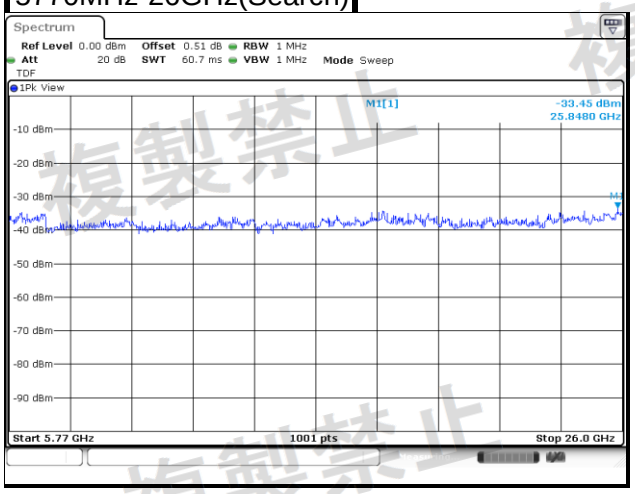
30MHz-5460MHz(Search)



30MHz-5460MHz(Detail)

Blank

5770MHz-26GHz(Search)

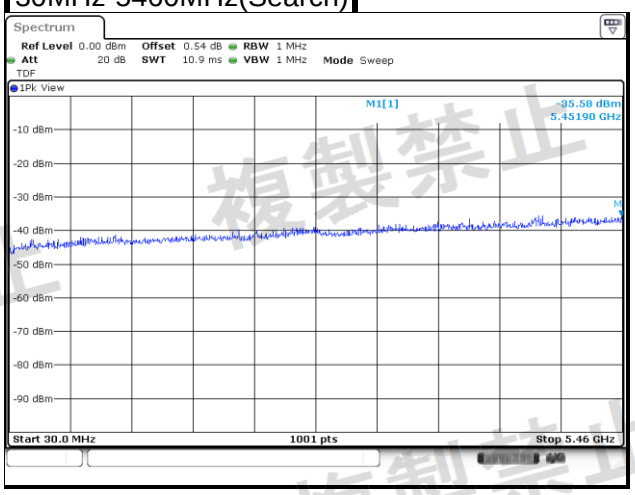


5770MHz-26GHz(Detail)

Blank

Ch.118: 5590MHz

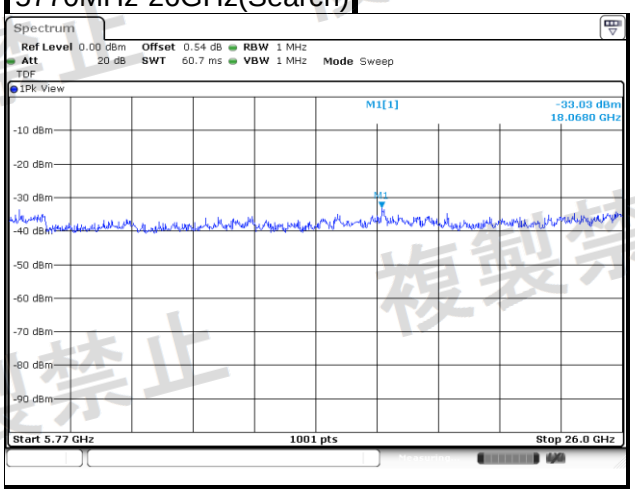
30MHz-5460MHz(Search)



30MHz-5460MHz(Detail)

Blank

5770MHz-26GHz(Search)



5770MHz-26GHz(Detail)

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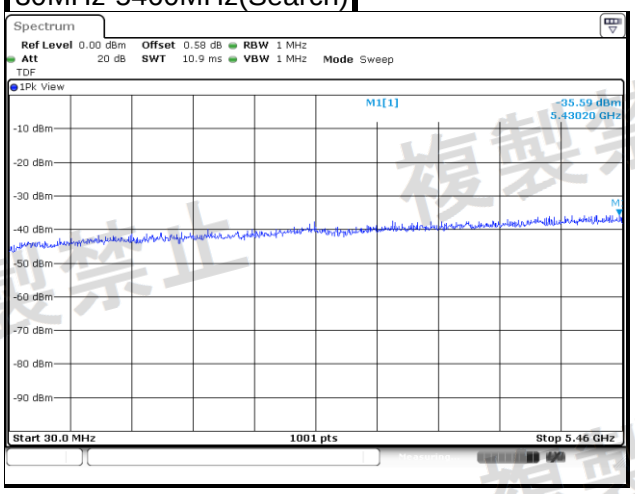
Ch.142: 5710MHz

30MHz-5460MHz(Search)



30MHz-5460MHz(Detail)

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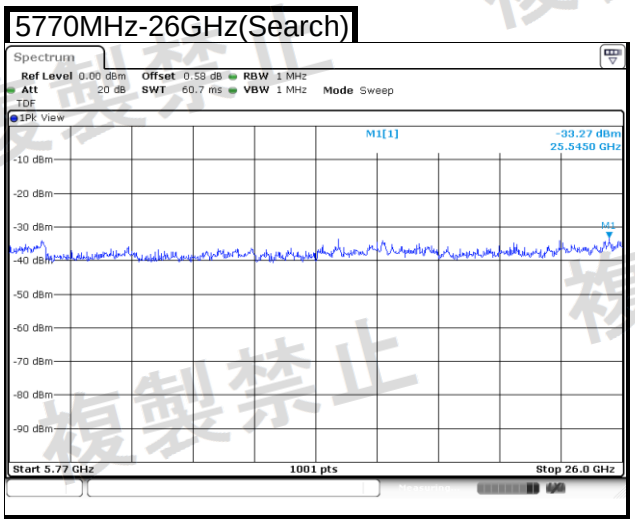
5770MHz-26GHz(Search)



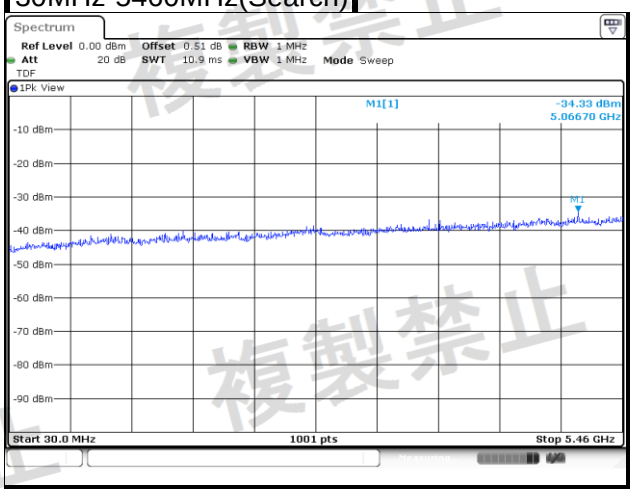
5770MHz-26GHz(Detail)

Blank

Tx2

Ch.102: 5510MHz

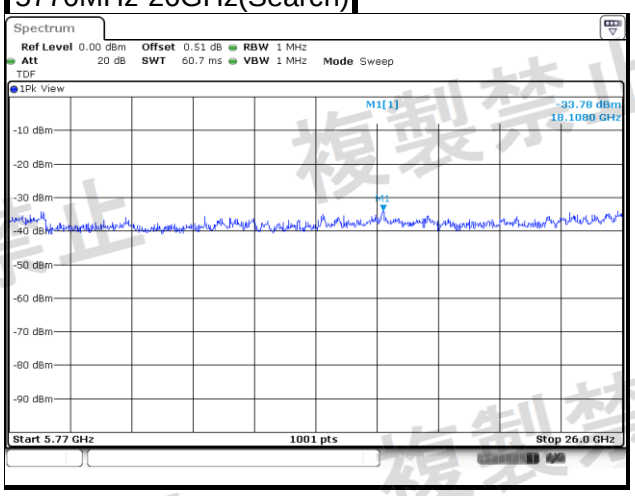
30MHz-5460MHz(Search)



30MHz-5460MHz(Detail)

Blank

5770MHz-26GHz(Search)

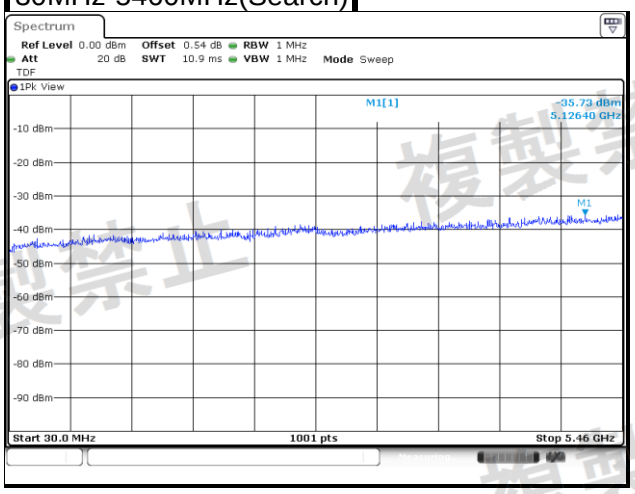


5770MHz-26GHz(Detail)

Blank

Ch.118: 5590MHz

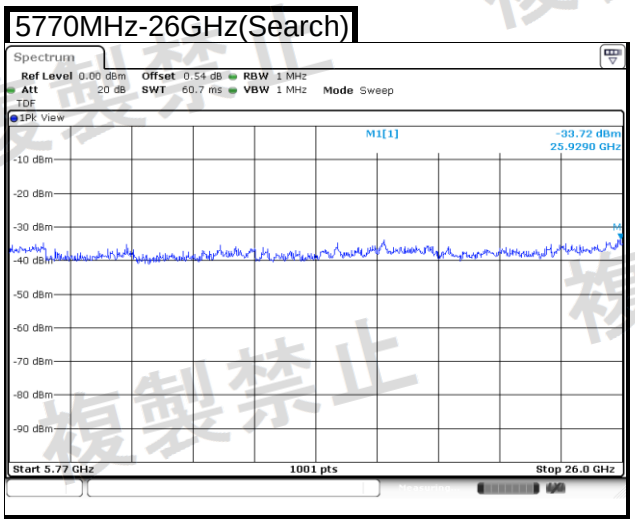
30MHz-5460MHz(Search)



30MHz-5460MHz(Detail)

Blank

5770MHz-26GHz(Search)

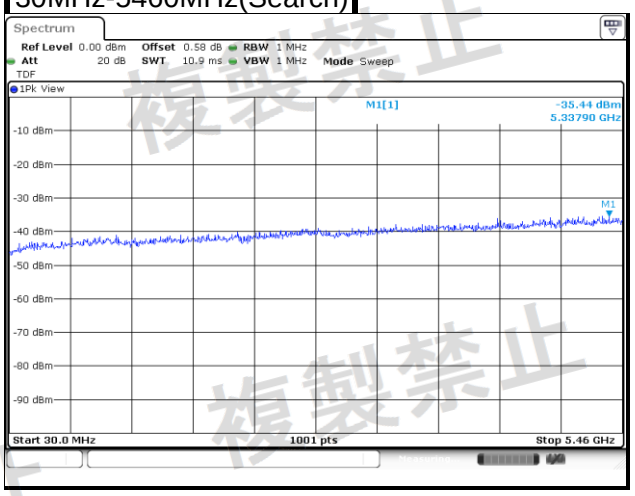


5770MHz-26GHz(Detail)

Blank

Ch.142: 5710MHz

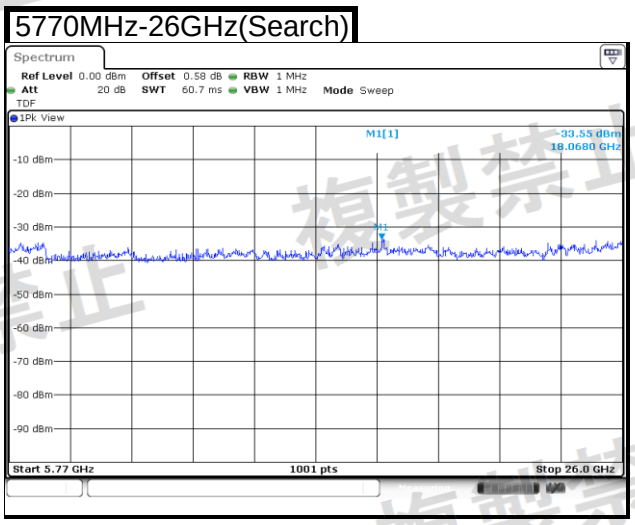
30MHz-5460MHz(Search)



30MHz-5460MHz(Detail)

Blank

5770MHz-26GHz(Search)



5770MHz-26GHz(Detail)

Blank

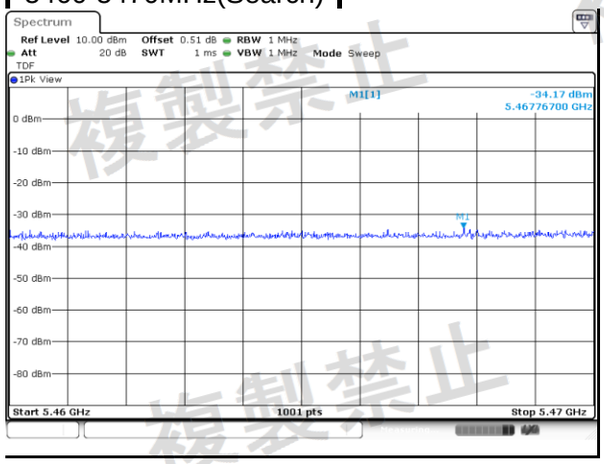
7. Test chart

7.6 Out-Band Leakage Power (Rated voltage)

Tx1

Ch.102: 5510MHz

5460-5470MHz(Search)

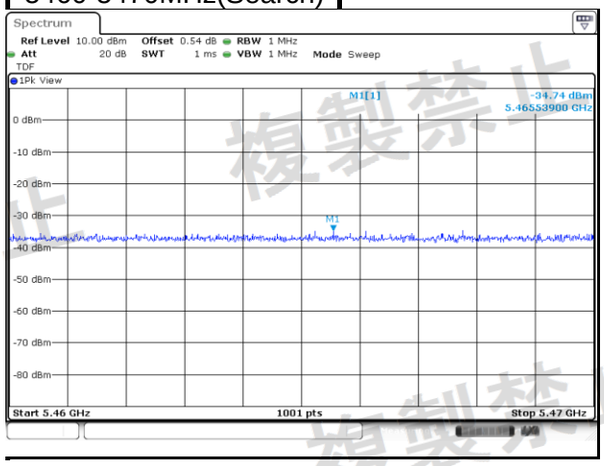


5460-5470MHz(Detail)

Blank

Ch.118: 5590MHz

5460-5470MHz(Search)

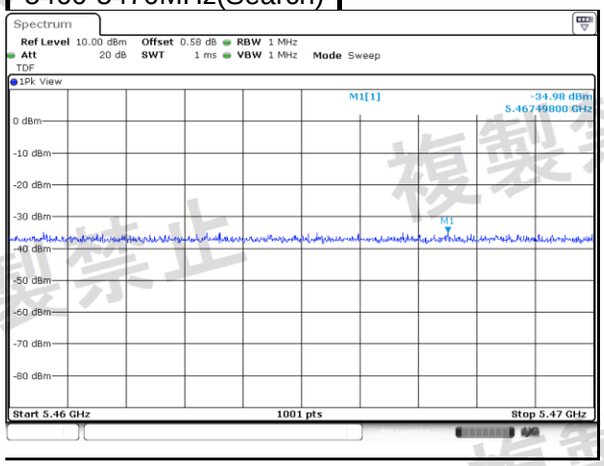


5460-5470MHz(Detail)

Blank

Ch.142: 5710MHz

5460-5470MHz(Search)



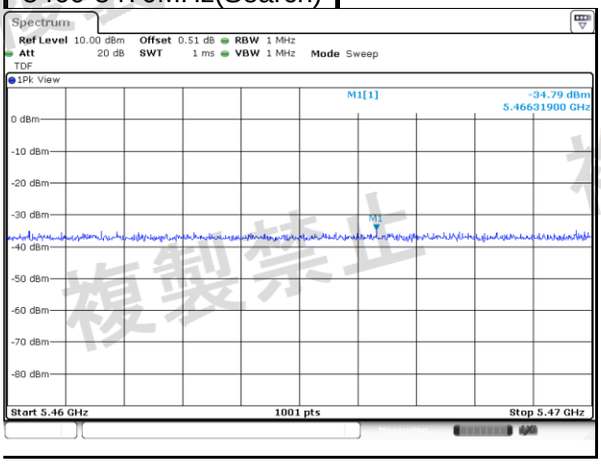
5460-5470MHz(Detail)

Blank

1x2

Ch.102: 5510MHz

5460-5470MHz(Search)

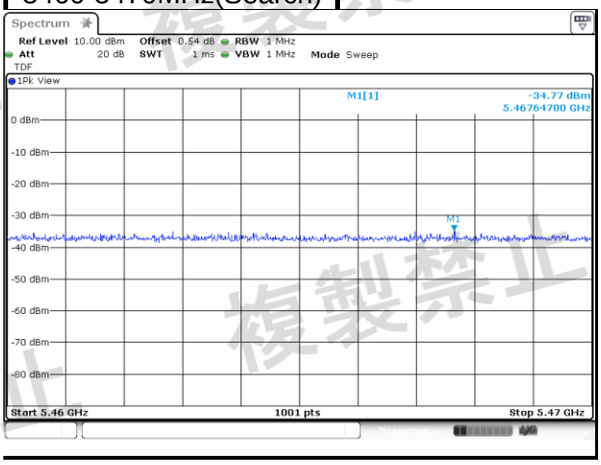


5460-5470MHz(Detail)

Blank

Ch.118: 5590MHz

5460-5470MHz(Search)

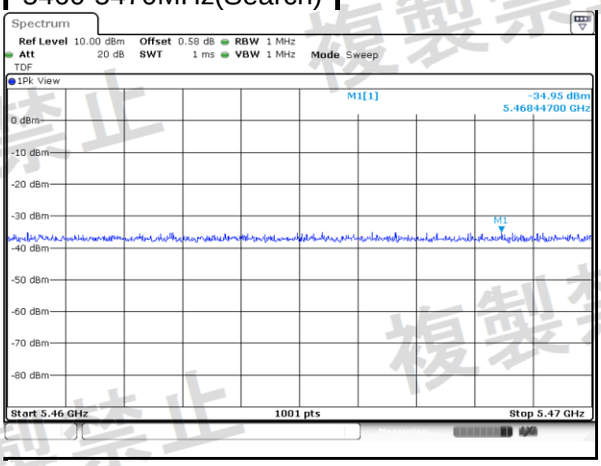


5460-5470MHz(Detail)

Blank

Ch.142: 5710MHz

5460-5470MHz(Search)



5460-5470MHz(Detail)

Blank

3. Test results (Rated voltage)

S/N : 563b88ad

Environment of test room	Date of test	2022-02-04	2022-02-05	2022-02-06
	Temperature	21 °C	20 °C	21 °C
	Humidity	51 %	51 %	52 %

Peak Antenna Gain	-5.75	dBi
Beamforming Gain	3.00	dB
Peak Antenna Gain + Beamforming Gain	-2.75	dBi
Declaration Output Power	1.00	mW/MHz
	0.00	dBm/MHz
E.I.R.P	**0.53**	mW/MHz
	-2.75	**dBm/MHz**
Input Power Voltage	3.86	VDC

Test category		IEEE802.11ax HE80 / MIMO(2TX)	
Tested Circit Insertion Loss		0.00	dB
Transmission Time	ON TIME (1sec or less)	5.47	ms
	OFF TIME (0.1sec or more)	0.08	ms
	Ratio	0.99	%

Using TDF and offset function in Spectrum Analyzer.

Measurement of plots are included Loss value.

Offset : EUT cable
(ch106: 0.52, ch122: 0.54, ch138: 0.58dB)

Test category :	5GHz Band Low-Power Data Communication System (802.11ax HE80 W56/MIMO(2TX))_Beamforming
The reason why the tests are performed only at rated voltage :	The fluctuation of input voltage to the circuit of the radio part of the equipment to be tested is identified as being less than ±1 % when input voltage from an external supply into the equipment fluctuates ±10 %.

Measurement Channel	Ch.	106	122	138		
Measurement Frequency	MHz	5530	5610	5690	Result	Limit
RF Output Power(Tx1)	mW/MHz	0.29	0.38	0.37	**PASS**	2.5mW/MHz or below
RF Output Power(Tx2)	mW/MHz	0.28	0.23	0.22	**PASS**	2.5mW/MHz or below
RF Output Power (Tx1+2)	mW/MHz	0.58	0.60	0.58	**PASS**	2.5mW/MHz or below
RF Output Power Tolerance (Tx1+2)	%	-42.14	-39.50	-41.56	**PASS**	+50% to -50%

複製禁止

Measurement Channel		Ch.	106	122	138		
Measurement Frequency		MHz	5530	5610	5690	Result	Limit
Unwanted (Spurious) Emission Strength(Tx1)	30MHz to 5460MHz	uW/MHz	0.16	0.13	0.16	**PASS**	12.5uW/MHz or below
		MHz	5381.30	5137.20	5007.00	----	----
	5770MHz to 26GHz	uW/MHz	0.21	0.24	0.27	**PASS**	12.5uW/MHz or below
		MHz	17805.00	18027.00	18088.00	----	----
Unwanted (Spurious) Emission Strength(Tx2)	30MHz to 5460MHz	uW/MHz	0.13	0.15	0.16	**PASS**	12.5uW/MHz or below
		MHz	5408.50	5055.90	5392.20	----	----
	5770MHz to 26GHz	uW/MHz	0.27	0.24	0.27	**PASS**	12.5uW/MHz or below
		MHz	25828.00	18088.00	18088.00	----	----
Unwanted (Spurious) Emission Strength (Tx1+2)	30MHz to 5460MHz	uW/MHz	0.29	0.29	0.33	**PASS**	12.5uW/MHz or below
		----	----	----	----	----	----
	5770MHz to 26GHz	uW/MHz	0.48	0.48	0.53	**PASS**	12.5uW/MHz or below
		----	----	----	----	----	----

複製禁止

Measurement Channel		Ch.	106	122	138		
Measurement Frequency		MHz	5530	5610	5690	Result	Limit
Out-Band Leakage Power (Tx1)	5460 to 5469.5MHz	uW/MHz	0.19	0.19	0.19	**PASS**	50uW/MHz or below
		MHz	5466.35	5462.47	5463.16	----	----
	5469.5 to 5470MHz	uW/MHz	0.17	0.14	0.14	**PASS**	51.2uW/MHz or below
		MHz	5469.63	5469.97	5469.81	----	----
Out-Band Leakage Power (Tx2)	5460 to 5469.5MHz	uW/MHz	0.18	0.20	0.17	**PASS**	50uW/MHz or below
		MHz	5468.97	5460.12	5468.30	----	----
	5469.5 to 5470MHz	uW/MHz	0.13	0.14	0.16	**PASS**	51.2uW/MHz or below
		MHz	5469.56	5469.59	5469.55	----	----
Out-Band Leakage Power (Tx1+2)	5460 to 5469.5MHz	uW/MHz	0.37	0.39	0.36	**PASS**	50uW/MHz or below
		----	----	----	----	----	----
	5469.5 to 5470MHz	uW/MHz	0.30	0.28	0.30	**PASS**	51.2uW/MHz or below
		----	----	----	----	----	----

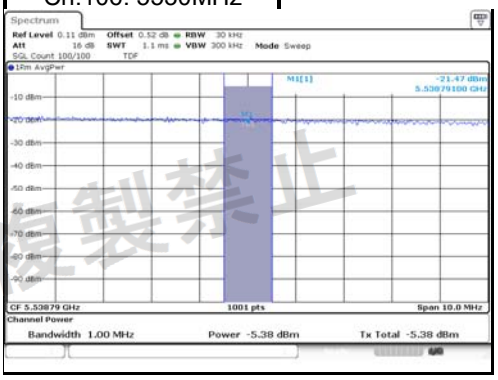
複製禁止

7. Test chart

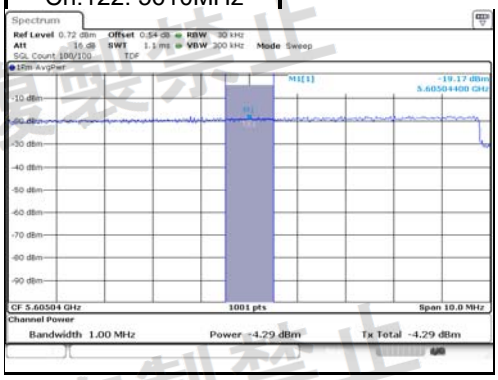
7.4 RF output power tolerance (Rated voltage)

Tx1

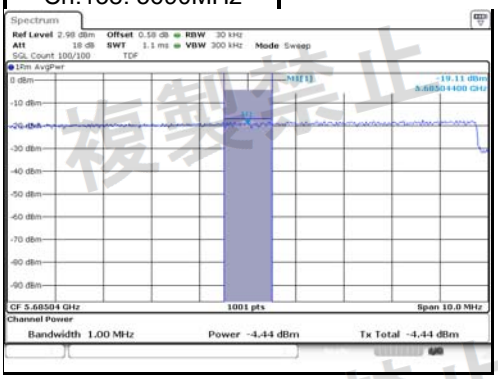
Ch.106: 5530MHz



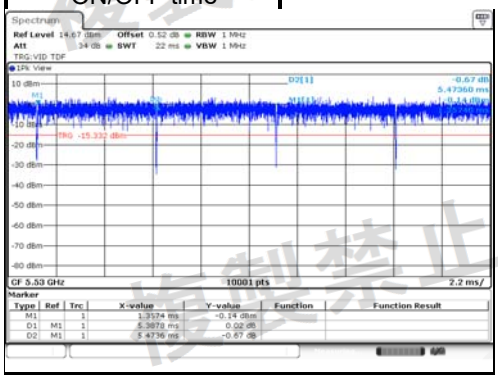
Ch.122: 5610MHz



Ch.138: 5690MHz

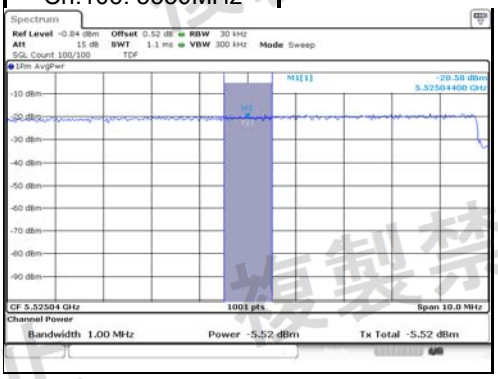


ON/OFF time

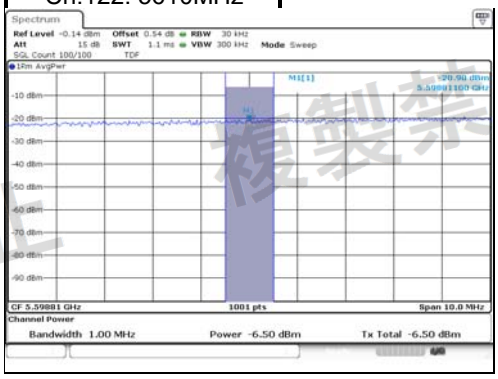


Tx2

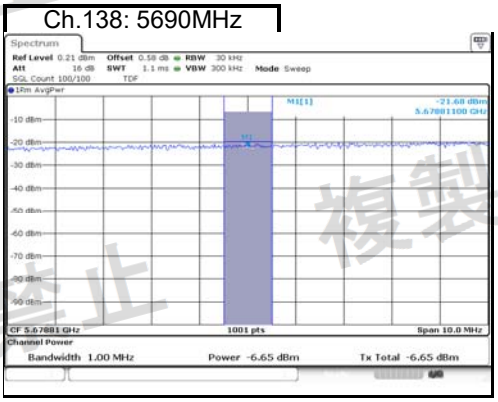
Ch.106: 5530MHz



Ch.122: 5610MHz



Ch.138: 5690MHz



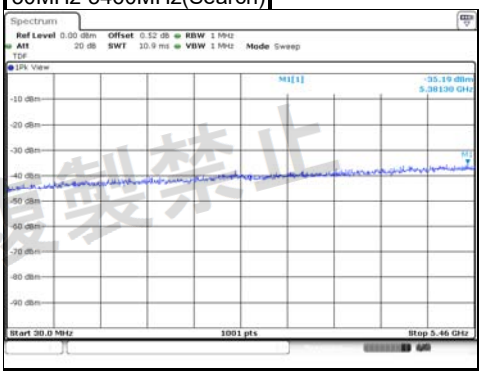
7. Test chart

7.5 Unwanted(Spurious) emission strength (Rated voltage)

Tx1

Ch.106: 5530MHz

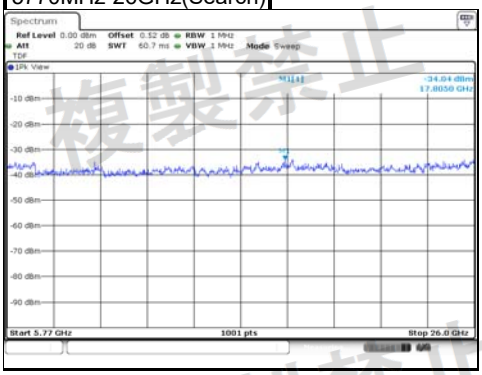
30MHz-5460MHz(Search)



30MHz-5460MHz(Detail)

Blank

5770MHz-26GHz(Search)

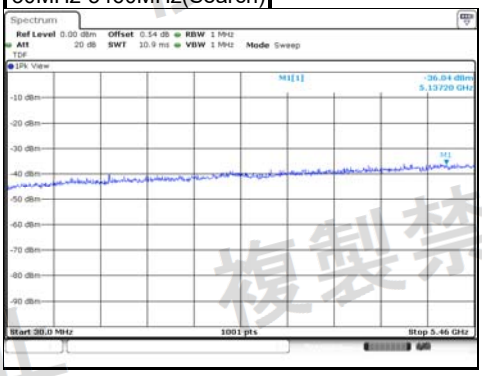


5770MHz-26GHz(Detail)

Blank

Ch.122: 5610MHz

30MHz-5460MHz(Search)



30MHz-5460MHz(Detail)

Blank

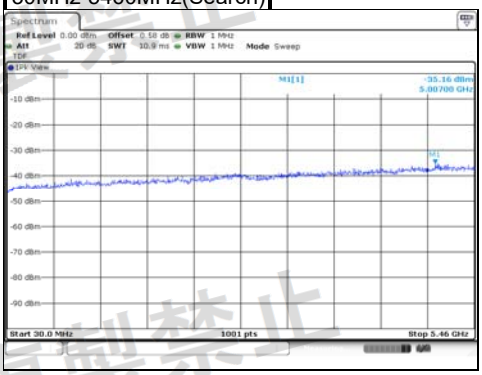
5770MHz-26GHz(Search)

5770MHz-26GHz(Detail)

Blank

Ch.138: 5690MHz

30MHz-5460MHz(Search)



30MHz-5460MHz(Detail)

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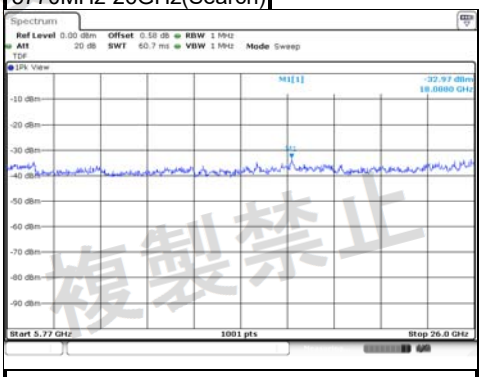
5770MHz-26GHz(Search)



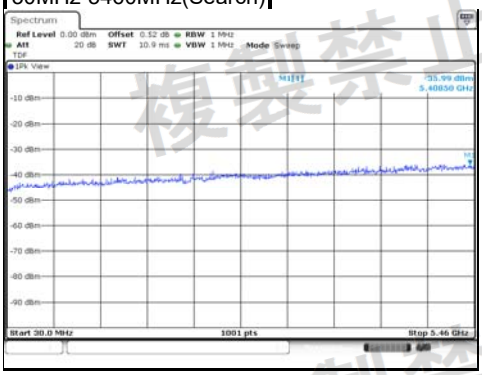
5770MHz-26GHz(Detail)

Blank

Tx2

Ch.106: 5530MHz

30MHz-5460MHz(Search)



30MHz-5460MHz(Detail)

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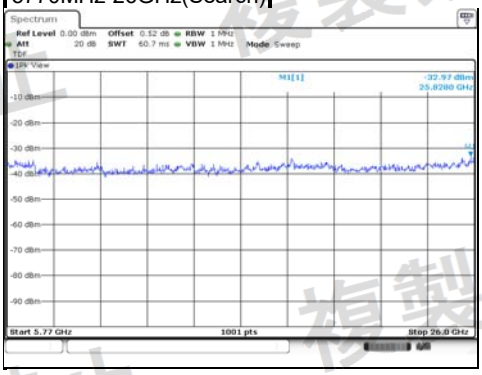
5770MHz-26GHz(Search)

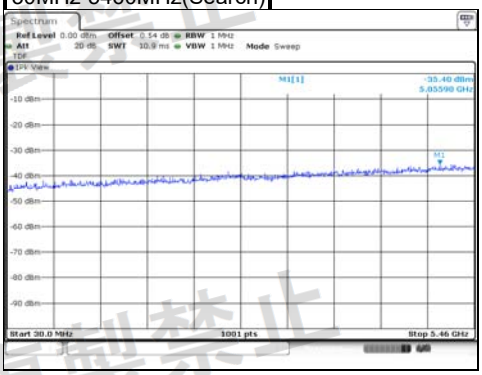


5770MHz-26GHz(Detail)

Blank

Ch.122: 5610MHz

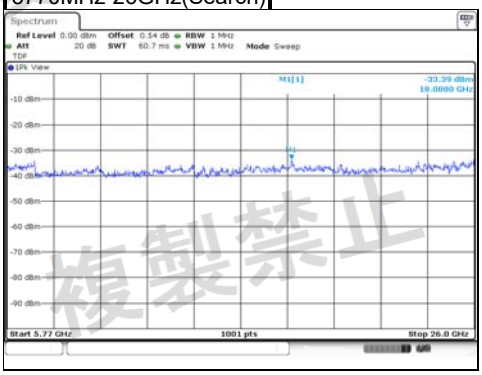
30MHz-5460MHz(Search)



30MHz-5460MHz(Detail)

Blank

5770MHz-26GHz(Search)



5770MHz-26GHz(Detail)

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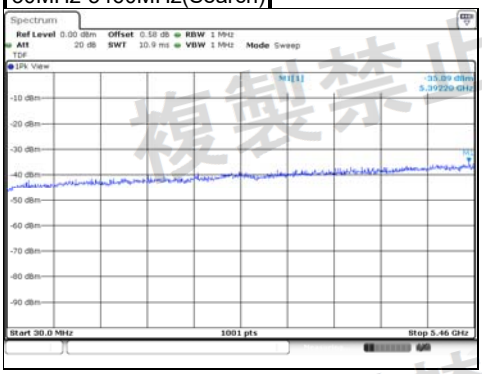
Ch.138: 5690MHz

30MHz-5460MHz(Search)



30MHz-5460MHz(Detail)

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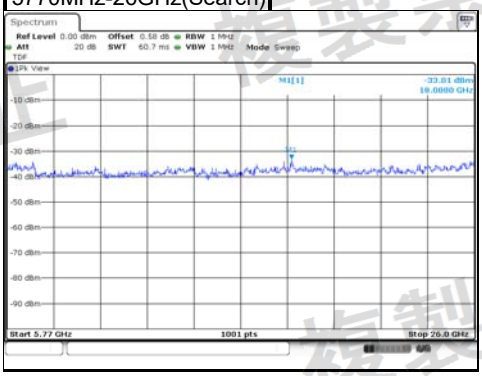
5770MHz-26GHz(Search)



5770MHz-26GHz(Detail)

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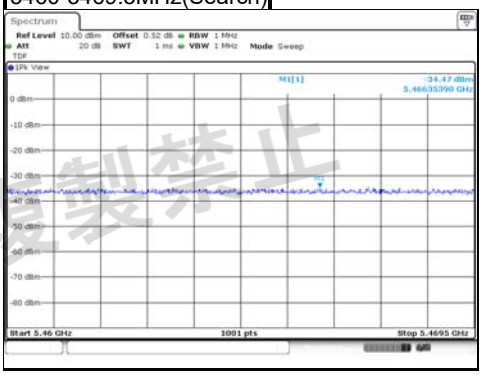
7. Test chart

7.6 Out-Band Leakage Power (Rated voltage)

Tx1

Ch.106: 5530MHz

5460-5469.5MHz(Search)



5460-5469.5MHz(Detail)

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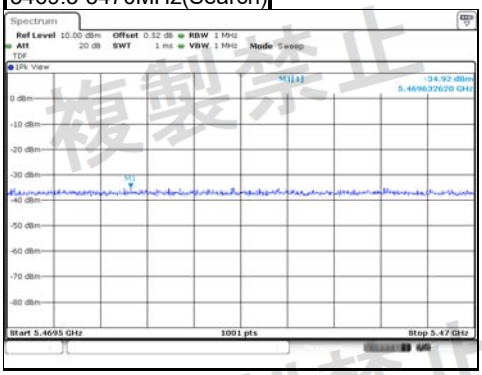
5469.5-5470MHz(Search)

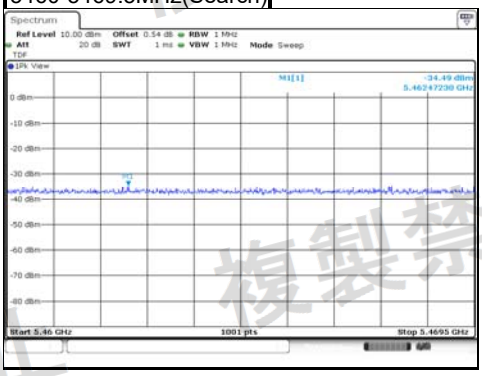


5469.5-5470MHz(Detail)

Blank

Ch.122: 5610MHz

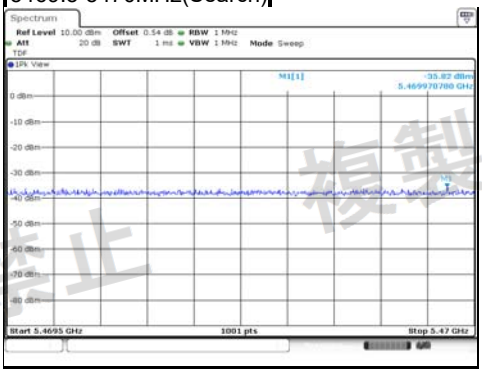
5460-5469.5MHz(Search)



5460-5469.5MHz(Detail)

Blank

5469.5-5470MHz(Search)

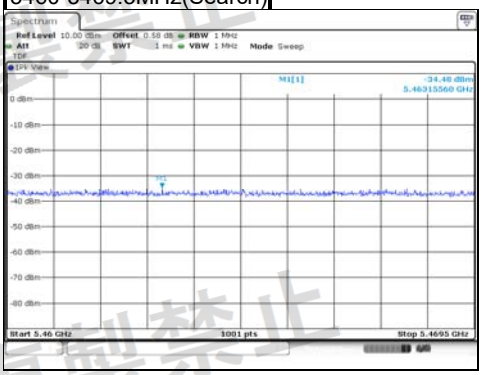


5469.5-5470MHz(Detail)

Blank

Ch.138: 5690MHz

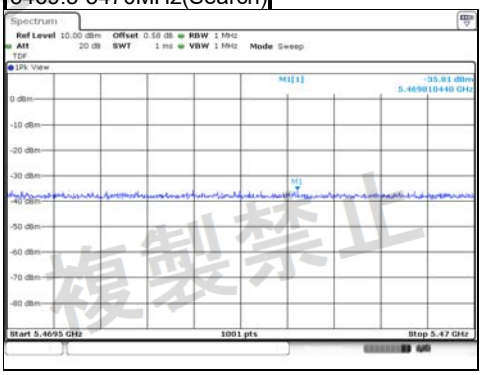
5460-5469.5MHz(Search)



5460-5469.5MHz(Detail)

Blank

5469.5-5470MHz(Search)



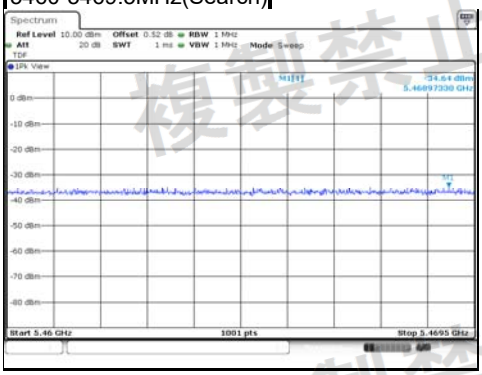
5469.5-5470MHz(Detail)

Blank

Tx2

Ch.106: 5530MHz

5460-5469.5MHz(Search)



5460-5469.5MHz(Detail)

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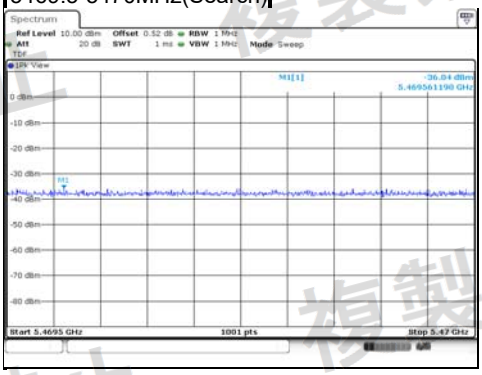
5469.5-5470MHz(Search)



5469.5-5470MHz(Detail)

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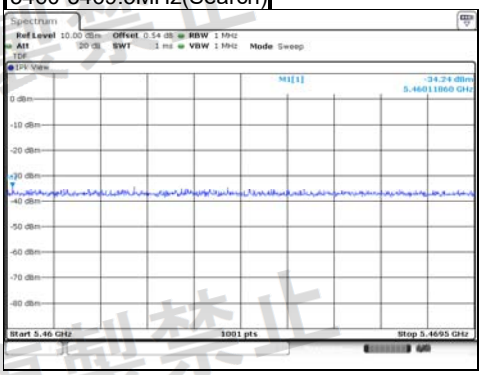
Ch.122: 5610MHz

5460-5469.5MHz(Search)



5460-5469.5MHz(Detail)

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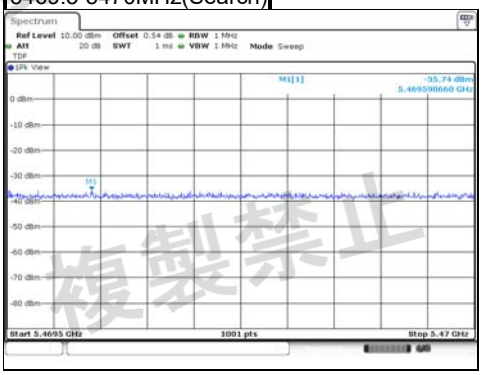
5469.5-5470MHz(Search)

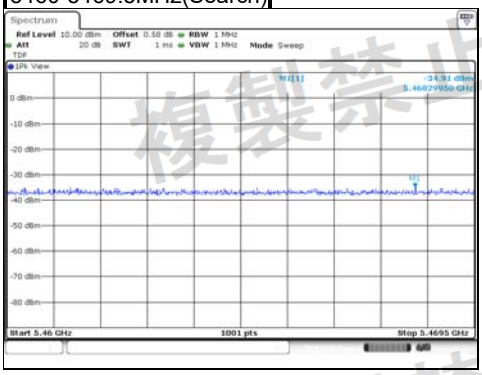


5469.5-5470MHz(Detail)

Blank

Ch.138: 5690MHz

5460-5469.5MHz(Search)



5460-5469.5MHz(Detail)

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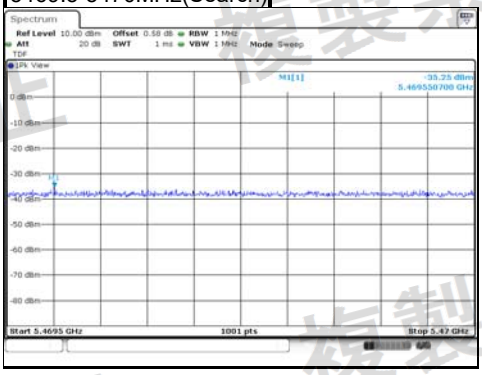
5469.5-5470MHz(Search)



5469.5-5470MHz(Detail)

Blank

3. Test results (Rated voltage)

S/N : 563b88ad

Environment of test room	Date of test	2022-02-04	2022-02-05	2022-02-06
	Temperature	21 °C	20 °C	21 °C
	Humidity	51 %	51 %	52 %

Peak Antenna Gain	-5.75	dBi
Beamforming Gain	3.00	dB
Peak Antenna Gain + Beamforming Gain	-2.75	dBi
Declaration Output Power	0.25	mW/MHz
	-6.02	dBm/MHz
E.I.R.P	**0.13**	mW/MHz
	-8.77	**dBm/MHz**
Input Power Voltage	3.86	VDC

Test category		IEEE802.11ax HE160 / MIMO(2TX)	
Tested Circit Insertion Loss		0.00	dB
Transmission Time	ON TIME (1sec or less)	5.43	ms
	OFF TIME (0.1sec or more)	0.06	ms
	Ratio	0.99	%

Using TDF and offset function in Spectrum Analyzer.

Measurement of plots are included Loss value.

Offset : EUT cable(0.53dB)

Test category :	5GHz Band Low-Power Data Communication System (802.11ax HE160 W56/MIMO(2TX))_Beamforming
The reason why the tests are performed only at rated voltage :	The fluctuation of input voltage to the circuit of the radio part of the equipment to be tested is identified as being less than ±1 % when input voltage from an external supply into the equipment fluctuates ±10 %.

Measurement Channel	Ch.	114		
Measurement Frequency	MHz	5570	Result	Limit
RF Output Power(Tx1)	mW/MHz	0.15	**PASS**	1.25mW/MHz or below
RF Output Power(Tx2)	mW/MHz	0.10	**PASS**	1.25mW/MHz or below
RF Output Power (Tx1+2)	mW/MHz	0.25	**PASS**	1.25mW/MHz or below
RF Output Power Tolerance (Tx1+2)	%	1.92	**PASS**	+50% to -50%

Measurement Channel		Ch.	114		
Measurement Frequency		MHz	5570	Result	Limit
Unwanted (Spurious) Emission Strength (Tx1)	30MHz to 5419.6MHz	uW/MHz	0.18	**PASS**	12.5uW/MHz or below
		MHz	4722.30	----	----
	5725MHz to 26GHz	uW/MHz	0.30	**PASS**	12.5uW/MHz or below
		MHz	18131.00	----	----
Unwanted (Spurious) Emission Strength (Tx2)	30MHz to 5419.6MHz	uW/MHz	0.15	**PASS**	12.5uW/MHz or below
		MHz	5083.10	----	----
	5725MHz to 26GHz	uW/MHz	0.29	**PASS**	12.5uW/MHz or below
		MHz	18091.00	----	----
Unwanted (Spurious) Emission Strength (Tx1+2)	30MHz to 5419.6MHz	uW/MHz	0.33	**PASS**	12.5uW/MHz or below
		----	----	----	----
	5725MHz to 26GHz	uW/MHz	0.59	**PASS**	12.5uW/MHz or below
		----	----	----	----

Measurement Channel		Ch.	114		
Measurement Frequency		MHz	5570	Result	Limit
Out-Band Leakage Power (Tx1)	5419.6 to 5470MHz	uW/MHz	0.20	**PASS**	50uW/MHz or below
		MHz	5456.48	----	----
Out-Band Leakage Power (Tx2)	5419.6 to 5470MHz	uW/MHz	0.20	**PASS**	50uW/MHz or below
		MHz	5425.32	----	----
Out-Band Leakage Power (Tx1+2)	5419.6 to 5470MHz	uW/MHz	0.41	**PASS**	50uW/MHz or below
		----	----	----	----

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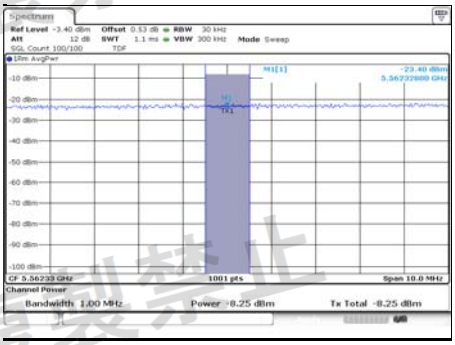
7. Test chart

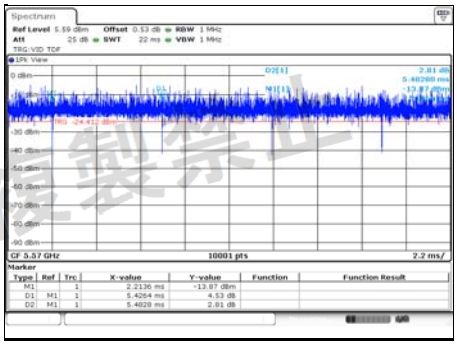
7.4 RF output power tolerance (Rated voltage)

Tx1

Ch.114: 5570MHz

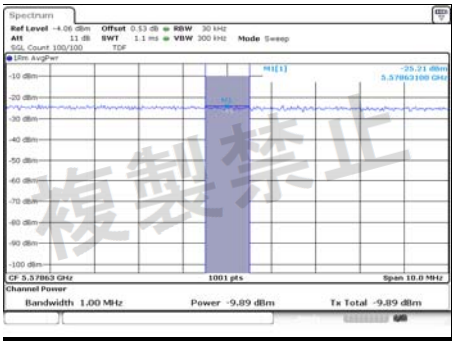


ON/OFF time



Tx2

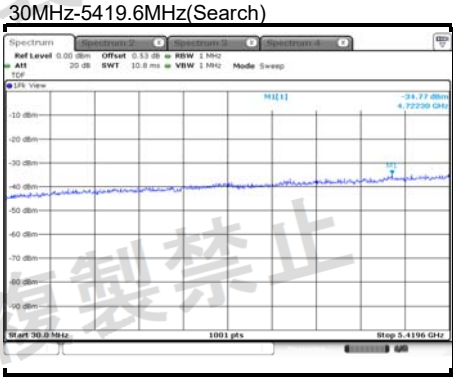
Ch.114: 5570MHz



7. Test chart

7.5 Unwanted(Spurious) emission strength (Rated voltage)

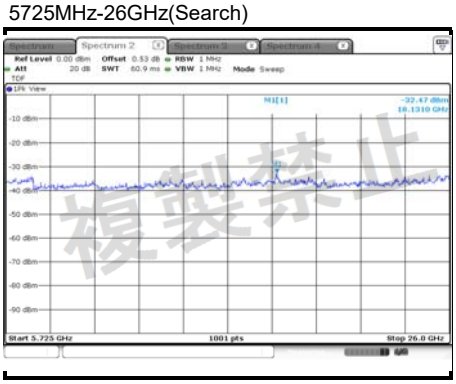
Tx1
Ch.114: 5570MHz
30MHz-5419.6MHz(Search)



30MHz-5419.6MHz(Detail)

Blank

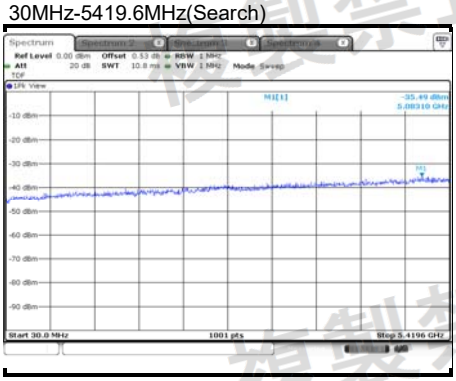
5725MHz-26GHz(Search)



5725MHz-26GHz(Detail)

Blank

Tx2
Ch.114: 5570MHz
30MHz-5419.6MHz(Search)



30MHz-5419.6MHz(Detail)

Blank

5725MHz-26GHz(Search)

5725MHz-26GHz(Detail)

Blank

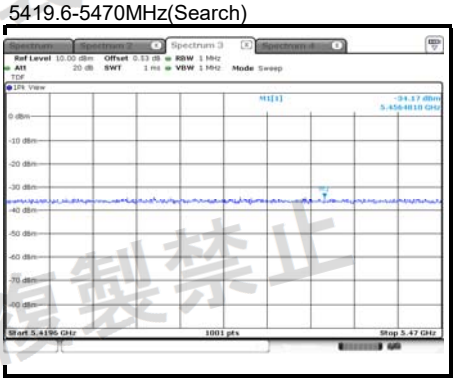
7. Test chart

7.6 Out-Band Leakage Power (Rated voltage)

Tx1

Ch.114: 5570MHz

5419.6-5470MHz(Search)



5419.6-5470MHz(Detail)

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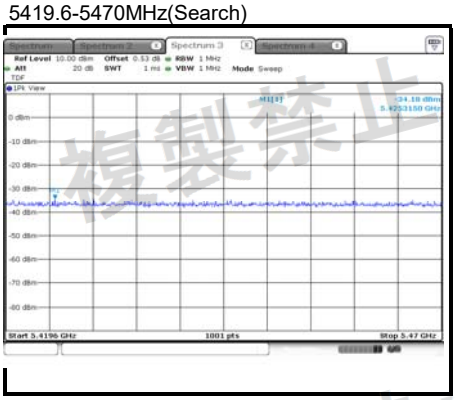
Tx2

Ch.114: 5570MHz

5419.6-5470MHz(Search)



5419.6-5470MHz(Detail)

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8. Laboratory description

1. Location
Name: KCTL Inc.
65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea
Telephone Number: +82 31 285 0894
Facsimile Number: +82 505 299 8311

2. Accreditation and Registration

1) FCC
Site Designation No.: KR0040
Site Registration No.: 687132

2) VCCI
Registration No.: R-20080, G-20078, C-20059, T-20056

3) Industry Canada
Registration No.: 8035A

Test Site	OATS 3m	OATS 10m	OATS 30m	Chamber 3m	Chamber 10m	Expiry Date
8035A-2	No	No	No	Yes	Yes	2022-12-31

4) KOLAS

Registration number	Expiration date
KT231	2024-09-13