

# Japan Radio Test Report

**Project No.** : 1910C137  
**Equipment** : WiFi Module  
**Brand Name** : Dialog  
**Test Model** : DA16200MOD-AAE4WA32  
**Series Model** : N/A  
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**Date of Receipt** : Nov. 07, 2019  
**Date of Test** : Nov. 08, 2019 ~ Nov. 28, 2019  
**Issued Date** : Dec. 13, 2019  
**Report Version** : R00  
**Test Sample** : Engineering Sample No.: DG2019110652  
**Standard(s)** : Article 49-20 and the relevant articles of the Ordinance Regulating Radio Equipment and MIC Notice No.88 Appendix No.43 Test method

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.

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For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

Please note that the measurement uncertainty is provided for informational purpose only and are not use in determining the Pass/Fail results.

<b>Table of Contents</b>	<b>page</b>
<b>REPORT ISSUED HISTORY</b>	<b>4</b>
<b>1. SUMMARY OF TEST RESULTS</b>	<b>5</b>
1.1 TEST FACILITY	6
1.2 MEASUREMENT UNCERTAINTY	6
1.3 TEST ENVIRONMENT CONDITIONS	6
<b>2. GENERAL INFORMATION</b>	<b>7</b>
2.1 GENERAL DESCRIPTION OF EUT	7
2.2 DESCRIPTION OF TEST MODES	8
2.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED	10
2.4 DESCRIPTION OF SUPPORT UNITS	10
2.5 TABLE FOR PARAMETERS OF TEST SOFTWARE SETTING	11
<b>3. TEST RESULTS</b>	<b>12</b>
3.1 FREQUENCY TOLERANCE MEASUREMENT	12
3.2 OCCUPIED BANDWIDTH AND SPREAD-SPECTRUM BANDWIDTH MEASUREMENT	13
3.3 UNWANTED EMISSION INTENSITY MEASUREMENT	15
3.4 ANTENNA POWER ERROR MEASUREMENT	17
3.5 LIMITATION OF COLLATERAL EMISSION OF RECEIVER MEASUREMENT	19
3.6 TRANSMISSION ANTENNA GAIN (EIRP ANTENNA POWER) MEASUREMENT	21
3.7 TRANSMISSION RADIATION ANGLE WIDTH (3DB BEAMWIDTH) MEASUREMENT	23
3.8 RADIO INTERFERENCE PREVENTION CAPABILITY MEASUREMENT	25
3.9 CARRIER SENSE CAPABILITY MEASUREMENT	27
3.10 CONSTRUCTION PROTECTION CONFIRMATION METHOD	29
<b>4. LIST OF MEASURING EQUIPMENTS</b>	<b>30</b>
<b>5. EUT TEST PHOTO</b>	<b>31</b>
<b>APPENDIX A - FREQUENCY TOLERANCE</b>	<b>32</b>
<b>APPENDIX B - OCCUPIED BANDWIDTH AND SPREAD-SPECTRUM BANDWIDTH</b>	<b>36</b>
<b>APPENDIX C - UNWANTED EMISSION INTENSITY</b>	<b>40</b>
<b>APPENDIX D - ANTENNA POWER TOLERANCE</b>	<b>50</b>
<b>APPENDIX E - LIMITATION OF COLLATERAL EMISSION OF RECEIVER</b>	<b>54</b>

**REPORT ISSUED HISTORY**

Report Version	Description	Issued Date
R00	Original Issue.	Dec. 13, 2019

## 1. SUMMARY OF TEST RESULTS

Section Number	Description of Test	Article of ORRE <sup>(1)</sup>	Result
4.1	Frequency Tolerance	Article 5, Table 1	Pass
4.2	Occupied Bandwidth (99%) and Spread-spectrum Bandwidth (90%) / Spreading Factor (diffusion rate)	Article 6, Table 2 & Article 49-20, Item1-h & 1-i	Pass
4.3	Unwanted Emission Intensity	Article 7, Table 3	Pass
4.4	Antenna Power Tolerance	Article 14	Pass
4.5	Limitation of Collateral Emission of Receiver	Article 24, Paragraph 2	Pass
4.6	Transmission Antenna Gain (EIRP Antenna Power)	Article 49-20, Item 1-e & 1-f	N/A
4.7	Transmission Radiation Angle Width (3dB Beamwidth)	Article 49-20, Item 1-f	N/A
4.8	Radio Interference Prevention Capability	Article 9-4, Item 9-C Article 6-2, Item 3 of the Regulation for Enforcement of the Radio Law	Good
4.9	Carrier Sense Capability	Article 49-20, Item1-k	Good
4.10	Construction Protection Confirmation	Article 49-20, Item1-a	Pass

Method of measurement:	MIC Notice No.88 Appendix No.43
Test condition:	Conductive, RF test program provided by the customer was used to control the operating channel as well as the output power level.

### Abbreviations used in this test report are as follows;

NC:	Normal Condition
EC:	Extreme Condition
EUT:	Equipment Under Test
DS:	Direct spreading
FH:	Frequency hopping
OFDM:	Orthogonal frequency division multiplexing

## 1.1 TEST FACILITY

The test facilities used to collect the test data in this report:

**TR13:** No.3, Jinshagang 1st Road, Shixia, Dalang Town, Dongguan, Guangdong, China.

## 1.2 MEASUREMENT UNCERTAINTY

Test Items	Uncertainty	Remark
Frequency Tolerance / 99% & 90% Bandwidth	$\pm 6.25 \times 10^{-7}$	Confidence levels of 95%
Antenna Power / TX-RX Emission	$\pm 0.5\text{dB}$	Confidence levels of 95%
Transmission Antenna Gain	$\pm 3.72\text{dB}$	Confidence levels of 95%
Carrier Sense Capability	$\pm 0.76\text{dB}$	Confidence levels of 95%

## 1.3 TEST ENVIRONMENT CONDITIONS

Test Item	Temperature	Humidity	Test Voltage	Tested By
Frequency Tolerance	23°C	53%	DC 3.3V	Jonas Chen
Occupied Bandwidth (99%) and Spread-spectrum Bandwidth (90%) / Spreading Factor (diffusion rate)	23°C	53%	DC 3.3V	Jonas Chen
Unwanted Emission Intensity	23°C	53%	DC 3.3V	Jonas Chen
Antenna Power Tolerance	23°C	53%	DC 3.3V	Laughing Zhang
Limitation of Collateral Emission of Receiver	23°C	53%	DC 3.3V	Jonas Chen

## 2. GENERAL INFORMATION

### 2.1 GENERAL DESCRIPTION OF EUT

Equipment	WiFi Module
Brand Name	Dialog
Test Model	DA16200MOD-AAE4WA32
Series Model	N/A
Model Difference(s)	N/A
Software Version	RTOS-GEN01-01-8803-000000
Hardware Version	DA16200E_V1.0
Power Source	DC voltage supplied from external power supply.
Power Rating	DC 3.3V
Operation Frequency	2412 MHz ~ 2472 MHz
Modulation Technology	IEEE 802.11b:DSSS IEEE 802.11g:OFDM IEEE 802.11n:OFDM
Bit Rate of Transmitter	IEEE 802.11b: 11/5.5/2/1 Mbps IEEE 802.11g: 54/48/36/24/18/12/9/6 Mbps IEEE 802.11n up to 72.2 Mbps
Occupied Bandwidth	17.80 MHz
Spread Bandwidth	8.90 MHz
Antenna Power (Rated Power)	9.42 mW/MHz 11b mode 3.82 mW/MHz 11g mode 3.61 mW/MHz 11n(HT20) mode
Antenna Power (Max. Conducted Power)	9.4189 mW/MHz 11b mode 3.8194 mW/MHz 11g mode 3.6141 mW/MHz 11n(HT20) mode

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

#### 2. Channel List:

CH01 - CH13 for IEEE 802.11b, IEEE 802.11g, IEEE 802.11n(20MHz)					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2412	06	2437	11	2462
02	2417	07	2442	12	2467
03	2422	08	2447	13	2472
04	2427	09	2452		
05	2432	10	2457		

#### 3. Table for Filed Antenna:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain(dBi)
1	N/A	N/A	Dipole	N/A	2

## 2.2 DESCRIPTION OF TEST MODES

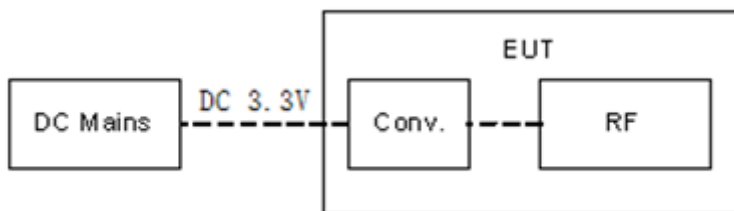
The EUT was tested while in a continuous transmitter / receiver mode

The EUT was tuned to a low, middle and high channel for all tests. The EUT continuously transmitted a modulated packet with payload, while transmitting the EUT was setup to operate at the intended maximum power output available to the end user. For all test case pre/scans were completed in all modes to determine worst case levels.

Test Mode	Description
Mode 1	IEEE 802.11b/CH01,CH07,CH13
Mode 2	IEEE 802.11g/CH01,CH07,CH13
Mode 3	IEEE 802.11n(HT20)/CH01,CH07,CH13

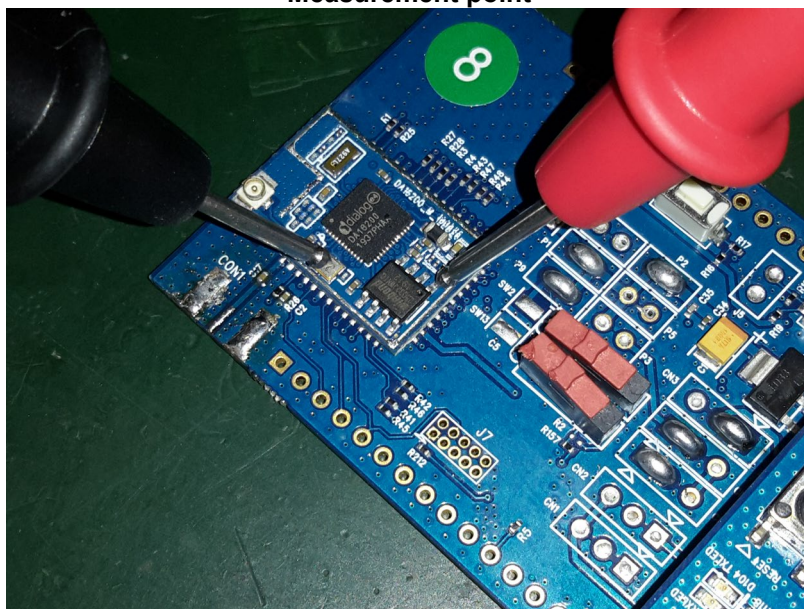


## Power Supply Voltage Fluctuation Test



Voltage Fluctuation Test	Normal Voltage	High Voltage + 10% of Normal Voltage	Low Voltage - 10% of Normal Voltage
Input: DC Power	3.3V	3.63V	2.97V
Output: DC Power	1.804V	1.803V	1.804V
Voltage Variation (%)	-	0.1%	-0.1%

Measurement point



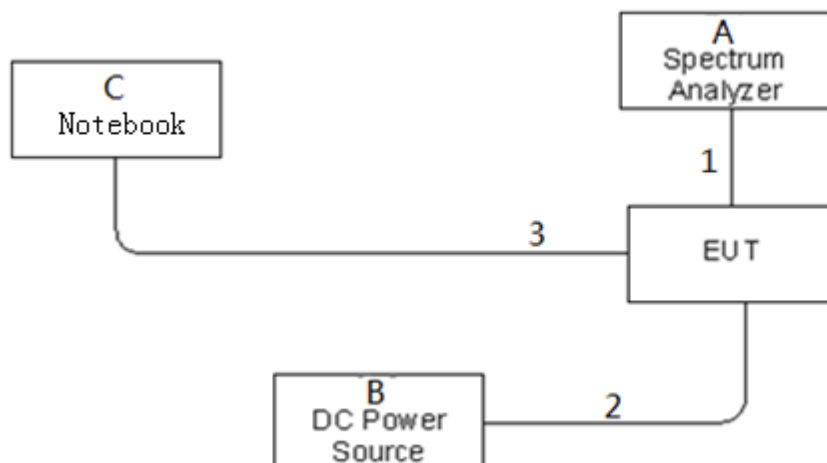
Note:

$$\text{Voltage Variation (\%)} = (\text{Output High Voltage or Low Voltage} - \text{Output Normal Voltage}) / \text{Output Normal Voltage} * 100$$

During the input supply voltage to the EUT from the external power source is varied by +/- 10%, if output voltage had been confirmed that the fluctuation of power supply to the RF circuit of EUT (excluding power source) is equal to or less than +/- 1%.

Exempt extremely high and low supply voltage condition tests, EUT only operated in normal voltage to test all regulations.

## 2.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



## 2.4 DESCRIPTION OF SUPPORT UNITS

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

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.
A	Spectrum Analyzer	R&S	FSP40	100185
B	DC Power Supply	GW Instek	GPC-3030DN	EK880675
C	Notebook	Dell	Inspiron 15-7559	N/A

Item	Cable Type	Shielded Type	Ferrite Core	Length
1	RF Cable	YES	NO	0.1m
2	DC Power Cable	YES	NO	1.2m
3	Control Cable	NO	NO	1.1m

## 2.5 TABLE FOR PARAMETERS OF TEST SOFTWARE SETTING

During testing, Channel & Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

Test Software Version	DA16200_AT_GUI_1.0.0.0		
Frequency (MHz)	2412	2442	2472
IEEE 802.11b	0	0	0
IEEE 802.11g	0	0	0
IEEE 802.11n(HT20)	1	1	1

### 3. TEST RESULTS

#### 3.1 FREQUENCY TOLERANCE MEASUREMENT

##### 3.1.1 LIMIT

Item	Limits
	(See Article 5, Table1 of the Ordinance Regulating Radio Equipment)
Frequency Tolerance	$\leq 50\text{ppm}$

##### 3.1.2 SETTING

The following table is the setting of the spectrum.

Spectrum Parameter	Setting
Span	200 kHz
RBW / VBW	10 kHz / 10 kHz

##### 3.1.3 TEST PROCEDURES

Test method which surpass to Claus 3 of Annex No.43 of MIC Notification No.88.

1. Frequency accuracy of SA shall be less than 10% of limits tolerance (5ppm)
2. Setting of SA is following as: RBW:10 kHz / VBW:10 kHz / SPAN: 200 KHz / AT: 30dB / Ref: 20dBm
3. Center Frequency: The center frequency of testing for EUT
4. Sweep time: Auto
5. Sweep mode: Continuous sweep
6. Detect mode: Positive peak
7. Mark function: Frequency Counter (Resolution 100Hz)
8. EUT have transmitted absence of modulation signal and fixed channelize. f is using the mark cursor to mark the peak frequency value , fc is declaring of channel frequency.  
Then the frequency error formula is  $(f_c - f) / f_c \times 10^6$  ppm and the limit is less than  $\pm 50\text{ppm}$

##### 3.1.4 TEST SETUP LAYOUT



##### 3.1.5 TEST DEVIATION

There is no deviation with the original standard.

##### 3.1.6 EUT OPERATION DURING TEST

The EUT was programmed to be in modulation mode.

##### 3.1.7 TEST RESULTS

Please refer to the Appendix A.

### 3.2 OCCUPIED BANDWIDTH AND SPREAD-SPECTRUM BANDWIDTH MEASUREMENT

#### 3.2.1 LIMIT

Item	Limits (See Article 6, Table2 and Article 49-20, Item1-h,i of the Ordinance Regulating Radio Equipment)
Occupied Bandwidth	FHSS $\leq$ 83.5MHz; OFDM,DSSS $\leq$ 26MHz; Others $\leq$ 26MHz HT40 $\leq$ 38 MHz
Spreading Bandwidth	$\geq$ 500 kHz (FHSS, DSSS)
Spreading Factor	$\geq$ 5 , Operating Frequency 2400 -2483.5 MHz

#### 3.2.2 SETTING

The following table is the setting of the spectrum.

Power Meter Parameter	Setting
Span	50 MHz
RBW / VBW	300 kHz / 300 kHz

#### 3.2.3 TEST PROCEDURES

Test method which surpass to Clause 4 of Annex No.43 of MIC Notification No.88.

- Setting of SA is following as: RBW:300kHz / VBW:300kHz / SPAN: 50MHz / AT: 30dB Ref: 20dBm / Sweep time: Auto / Sweep Mode: Continuous sweep / Detect mode: Positive peak / Trace mode: Max hold
- EUT have transmitted the maximum modulation signal and fixed channelize ( For DSSS or OFDM Device) or continuous maximum power of hopping mode(For FHSS Device).  
SA set to 99% of occupied bandwidth to measure occupied bandwidth. The limit is less than 26MHz(For DSSS or OFDM Device) or 83.5MHz(For FHSS Device).
- SA set to 90% of occupied bandwidth to measure Spread Spectrum Bandwidth and must greater than 500kHz.
- Spread Spectrum Factor = Spread Spectrum Bandwidth / modulation rate of EUT.
- Spread Spectrum Factor limit is greater than 5

### 3.2.4 TEST SETUP LAYOUT



### 3.2.5 TEST DEVIATION

There is no deviation with the original standard.

### 3.2.6 EUT OPERATION DURING TEST

The EUT was programmed to be in continuously transmitting mode.

### 3.2.7 TEST RESULTS

Please refer to the Appendix B.

### 3.3 UNWANTED EMISSION INTENSITY MEASUREMENT

#### 3.3.1 LIMIT

Item	Limits
	(See Article 7, Table 3 of the Ordinance Regulating Radio Equipment)
TX	$\leq 0.25 \mu\text{W}/100\text{kHz}$ ( $30\text{MHz} \leq f \leq 1000\text{MHz}$ )
Spurious	$\leq 2.5 \mu\text{W}/\text{MHz}$ ( $1000\text{MHz} \leq f < 2387\text{MHz}$ ; $2496.5\text{MHz} < f$ )
Emission	$\leq 25 \mu\text{W}/\text{MHz}$ ( $2387\text{MHz} \leq f < 2400\text{MHz}$ ) and ( $2483.5\text{MHz} < f \leq 2496.5\text{MHz}$ )
Measurement range: 30MHz - 5th harmonics	

#### 3.3.2 SETTING

The following table is the setting of Spectrum Analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
RBW / VBW	100kHz / 100kHz (30-1000MHz) 1 MHz / 1 MHz (Above1000MHz)
Detector	RMS
Trace	Max Hold
Sweep Time	Auto

#### 3.3.3 TEST PROCEDURES

Test method which surpass to Clause 5 of Annex No.43 of MIC Notification No.88.

- EUT have transmitted the maximum modulation signal and fixed channelize.
- Setting of SA is following as: RBW/VBW: 100 kHz / 100 kHz (30-1000MHz)  
1 MHz / 1 MHz (Above1000MHz) / AT: 30dB / Ref: 20dBm /  
Sweep time: Auto / Sweep Mode: Continuous sweep /  
Detect mode: RMS / Trace mode: Max hold
- Setting of SA is following as 30MHz and stop frequency 1000MHz Then to mark peak reading value + cable loss shall be less than 0.25μW.
- Setting of SA is following as 1000MHz and stop frequency 2387MHz Then to mark peak reading value + cable loss shall be less than 2.5μW.
- SA adjusted to start frequency 2387MHz and stop frequency 2400MHz. Then to mark peak reading value + cable loss shall be less than 25μW.
- SA adjusted to start frequency 2483.5MHz and stop frequency 2496.5MHz Then to mark peak reading value + cable loss shall be less than 25μW
- SA adjusted to start frequency 2496.5MHz and stop frequency 12500MHz Then to mark peak reading value + cable loss shall be less than 2.5μW

### 3.3.4 TEST SETUP LAYOUT



### 3.3.5 TEST DEVIATION

There is no deviation with the original standard.

### 3.3.6 EUT OPERATION DURING TEST

The EUT was programmed to be in continuously transmitting mode.

Note:

- ※ 1: Frequency Band 1 ( $30 \text{ MHz} \leq f \leq 1000 \text{ MHz}$ )
- ※ 2: Frequency Band 2 ( $1000 \text{ MHz} < f \leq 2387 \text{ MHz}$ )
- ※ 3: Frequency Band 3 ( $2387 \text{ MHz} \leq f < 2400 \text{ MHz}$ )
- ※ 4: Frequency Band 4 ( $2483.5 \text{ MHz} \leq f < 2496.5 \text{ MHz}$ )
- ※ 5: Frequency Band 5 ( $2496.5 \text{ MHz} \leq f < 12.5 \text{ GHz}$ )

Band	1	2	3	4	5
Cable Loss(dB)	1.5	1.5	1.5	1.5	1.5

### 3.3.7 TEST RESULTS

Please refer to the Appendix C.



### 3.4 ANTENNA POWER ERROR MEASUREMENT

#### 3.4.1 LIMIT

Item	Limits (See Article 14 and 49-20 Item1-e of the Ordinance Regulating Radio Equipment)
Antenna Power Density	$\leq 3\text{mW/MHz}$ (FHSS 2427 - 2470.75 MHz) $\leq 5\text{mW/MHz}$ (OFDM,DSSS 2400~2483.5MHz) (HT40) $\leq 10\text{mW/MHz}$ (OFDM,DSSS 2400~2483.5MHz) (HT20) $\leq 10\text{mW}$ (Other modulation method 2400~2483.5MHz)
Antenna Power Error	+20%, -80% (Base on manufacturer declare antenna power density)

#### 3.4.2 SETTING

The following table is the setting of the power meter and spectrum analyzer.

Spectrum Analyzer	Setting
Attenuation	30dB
Span	50 MHz
RBW	1 MHz
VBW	1 MHz
Detector	Positive Peak
Trace	Max Hold
Sweep Time	Auto

#### 3.4.3 TEST PROCEDURES

Test method which surpass to Clause 6 of Annex No.43 of MIC Notification No.88.

##### Step 1:

Connect the UUT to the spectrum analyser and use the following settings:

- Centre Frequency: The centre frequency of the channel under test.
- Resolution BW: 1 MHz.
- Video BW: 1 MHz.
- Span: Wide enough to cover the complete power envelope of the signal of the UUT.
- Detector: Peak.
- Trace Mode: Max Hold.

##### Step 2:

When the trace is complete, find the peak value of the power envelope and record the frequency.

### Step 3:

Make the following changes to the settings of the spectrum analyser:

- Centre Frequency: Equal to the frequency recorded in step 2.
- Span: 3 MHz.
- Resolution BW: 1 MHz.
- Video BW: 1 MHz.
- Sweep time: 1 minute.
- Detector: Average (see note).
- Trace Mode: Max Hold.

NOTE: The detector mode "Average" is often referred to as "RMS Average" or "Sample" but do not use Video Average.

### Step 4:

When the trace is complete, capture the trace, for example using the "View" option on the spectrum analyser.

Find the peak value of the trace and place the analyser marker on this peak. This level is recorded as the highest mean power (spectral power density) D in a 1 MHz band.

### Step 5:

The maximum e.i.r.p. spectral density is calculated from the above measured power density (D), the observed duty cycle x (see clause 5.7.2.2, step 1), and the applicable antenna assembly gain "G" in dBi, according to the formula below. If more than one antenna assembly is intended for this power setting, the gain of the antenna assembly with the highest gain shall be used.

- $PD = D + G + 10 \log (1/x);$

## 3.4.4 TEST SETUP LAYOUT



## 3.4.5 TEST DEVIATION

There is no deviation with the original standard.

## 3.4.6 EUT OPERATION DURING TEST

The EUT was programmed to be in continuously transmitting mode.

## 3.4.7 TEST RESULTS

Please refer to the Appendix D.

### 3.5 LIMITATION OF COLLATERAL EMISSION OF RECEIVER MEASUREMENT

#### 3.5.1 LIMIT

Item	Limits (See Article 24, Paragraph 2 of the Ordinance Regulating Radio Equipment)
RX Spurious Emission:	$\leq 4 \text{ nW } (-54 \text{ dBm}) (f < 1\text{GHz})$
	$\leq 20 \text{ nW } (-47 \text{ dBm}) (1\text{GHz} \leq f)$
Measurement range: 30MHz - 5th harmonics	

#### 3.5.2 SETTING

The following table is the setting of Spectrum Analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
RBW / VBW	100kHz / 100kHz (30-1000MHz) 1 MHz / 1 MHz (Above 1000MHz)
Detector	RMS
Trace	Max Hold
Sweep Time	Auto

#### 3.5.3 TEST PROCEDURES

Test method which surpass to Clause 7 of Annex No.43 of MIC Notification No.88.

- EUT have the continuous reception mode and fixed only one channelize.
- Setting of SA is following as RBW / VBW: 100 kHz (below 1GHz emissions) / 1 MHz (above 1GHz emissions)  
AT: 10dB / Ref: 0dBm / Sweep time: Auto / Sweep Mode: Continuous sweep / Detect mode: RMS / Trace mode: Max hold
- SA set RBW: 100kHz and VBW: 100kHz. Then adjust to start frequency 30MHz and stop frequency 1000MHz. Search to mark peak reading value + cable loss shall be less than 4nW
- SA set RBW: 1MHz and VBW: 1MHz. Then adjust to start frequency 1000MHz and stop frequency 12500MHz. Search to mark peak reading value + cable loss shall be less than 20nW
- If power level of lower emissions are more than 1/10 of limit (.0.4nW for  $f < 1\text{GHz}$ , 2nW for  $f \geq 1\text{GHz}$ ), all those are to be indicated in the 2nd and 3rd lines. If others are 1/10 or less more of the limit, no necessary to be indicated.

### 3.5.4 TEST SETUP LAYOUT



### 3.5.6 TEST DEVIATION

There is no deviation with the original standard.

### 3.5.6 EUT OPERATION DURING TEST

The EUT was programmed to be in continuously receiving mode.

Note:

- ※ 6: Frequency Band 6 ( $30 \text{ MHz} \leq f < 1000 \text{ MHz}$ )
- ※ 7: Frequency Band 7 ( $1000 \text{ MHz} \leq f < 12.5 \text{ GHz}$ )

Band	6	7
Cable Loss(dB)	1.5	1.5

### 3.5.7 TEST RESULTS

Please refer to the Appendix E.

### 3.6 TRANSMISSION ANTENNA GAIN (EIRP ANTENNA POWER) MEASUREMENT

#### 3.6.1 LIMIT

Item	Limits (See Article 49-20, Item1-f of the Ordinance Regulating Radio Equipment)	
EIRP Power Density	<input checked="" type="checkbox"/>	For an Omni-directional antenna: $\leq 6.91\text{dBm/MHz}$ (FHSS 2427~2470.75MHz) $\leq 12.14\text{dBm/MHz}$ (OFDM, DSSS 2400~2483.5MHz) $\leq 12.14\text{dBm/MHz}$ (Other modulation method 2400~2483.5MHz)
	<input type="checkbox"/>	For a directional antenna: $\leq 16.91\text{dBm/MHz}$ (FHSS 2427~2470.75MHz) $\leq 22.14\text{dBm/MHz}$ (OFDM, DSSS 2400~2483.5MHz) $\leq 22.14\text{dBm/MHz}$ (Other modulation method 2400~2483.5MHz)
Note: This test item will not be applied to the transmission antenna which has a gain of 2.14dBi or less		

#### 3.6.2 SETTING

The following table is the setting of spectrum analyzer.

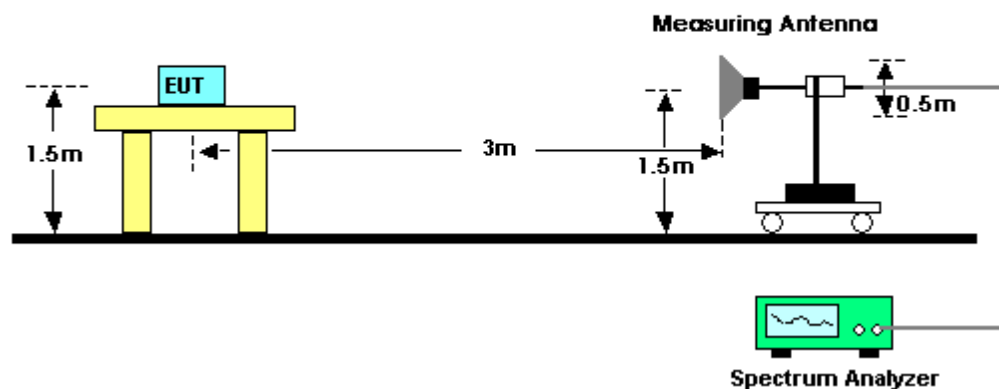
Spectrum Analyzer	Setting
Attenuation	30dB
Span	3 MHz
RBW	1 MHz
VBW	1 MHz
Detector	RMS
Trace	Max Hold
Sweep Time	60s

#### 3.6.3 TEST PROCEDURES

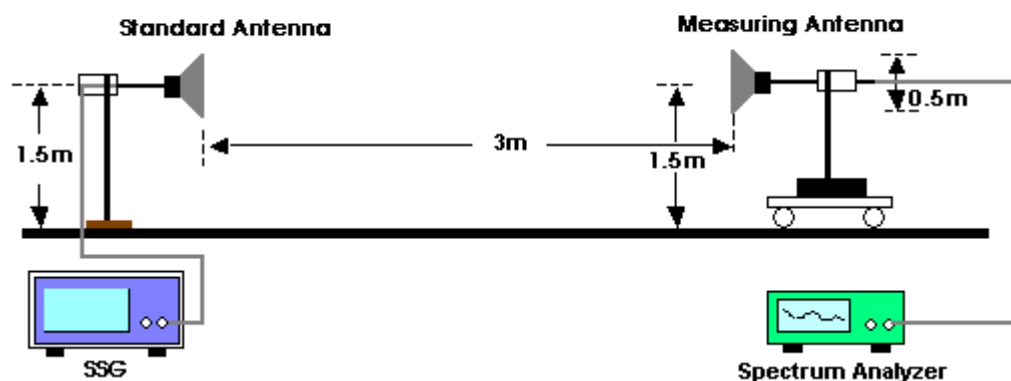
Please refer to 4.4.3 and the EIRP= PD+ Gain.

### 3.6.4 TEST SETUP LAYOUT

For EUT radiation measurement



For standard antenna measurement



### 3.6.5 TEST DEVIATION

There is no deviation with the original standard.

### 3.6.6 EUT OPERATION DURING TEST

The EUT was programmed to be in continuously transmitting mode.

### 3.6.7 RESULTS OF TRANSMISSION ANTENNA GAIN (EIRP ANTENNA POWER)

Method of measurement:	See MIC Notice No.88 Appendix No.43 Clause 10
Results:	N/A

### 3.7 TRANSMISSION RADIATION ANGLE WIDTH (3DB BEAMWIDTH) MEASUREMENT

#### 3.7.1 LIMIT

Item	Limits (See Article 49-20, Item 1-f of the Ordinance Regulating Radio Equipment)
3dB antenna beam width	360/A (if $A < 1$ ; then $A = 1$ ) $A = \{\text{EIRP Power [mW]} / 16.36 \text{ for DSSS, OFDM}\}$

#### 3.7.2 SETTING

The following table is the setting of the spectrum analyzer.

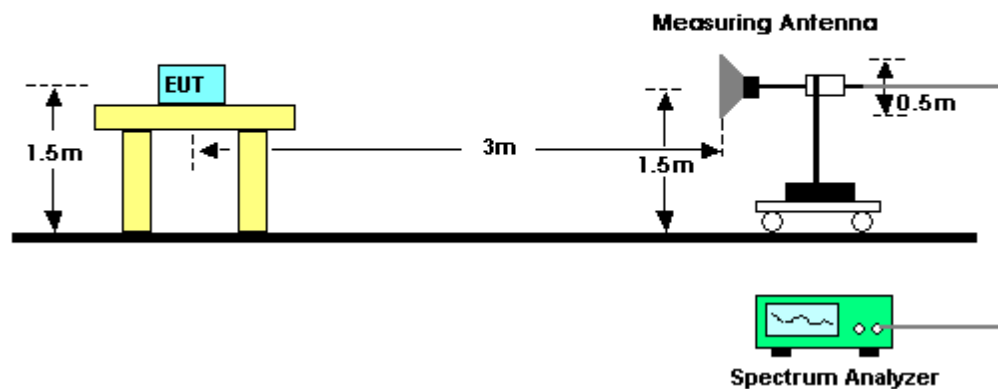
Spectrum Parameter	Setting
Attenuation	Auto
Span	0 MHz
RBW	1 MHz
VBW	1 kHz
Y scale	5 dB
Detector	Peak
Trace	Max Hold

#### 3.7.3 TEST PROCEDURES

Test method which surpass to Clause 22 of Annex No.43 of MIC Notification No.88.

1. Set EUT and measuring antenna at the same height and roughly facing each other.
2. Set spectrum analyzer with condition in section 4.7.2 and tune reference level to observe receiving signal position.
3. Rotate directions of the EUT horizontally and vertically to find the maximum receiving power.
4. Move the measuring antenna height up and down within  $\pm 50\text{cm}$  of EUT height and swing it to find the maximum output of measuring antenna. The output level at the spectrum analyzer is read as "E"
5. Calculate permitted radiation angle in horizontal and vertical using EIRP measured in another test method.
6. Calculate 3dB antenna beam width by the formula below  $360/A$  (If  $A < 1$ ; then  $A = 1$ ).  
 $A = \{\text{EIRP Power [mW]} / 16.36 \text{ for DSSS, OFDM}\}$

### 3.7.4 TEST SETUP LAYOUT



### 3.7.5 TEST DEVIATION

There is no deviation with the original standard.

### 3.7.6 EUT OPERATION DURING TEST

The EUT was programmed to be in continuously transmitting mode.

### 3.7.7 TEST RESULT OF TRANSMISSION RADIATION ANGLE WIDTH (3DB BEAMWIDTH)

Method of measurement:	See MIC Notice No.88 Appendix No.43 Clause 22
Results:	N/A



### 3.8 RADIO INTERFERENCE PREVENTION CAPABILITY MEASUREMENT

#### 3.8.1 LIMIT

Item	Limits (See Article 9-4, Item9-C of the Ordinance Regulating Radio Equipment)
Identification code	$\geq 48$ bits

#### 3.8.2 MEASURING ID CODE SOFTWARE

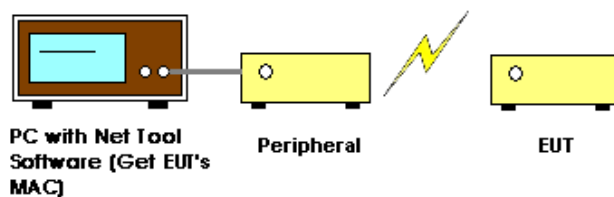
PC with Net Tool	Setting
MAC IP List	MAC Scan

#### 3.8.3 TEST PROCEDURES

Test method which surpass to Clause 23 of Annex No.43 of MIC Notification No.88.

1. In the case that the EUT has the function of automatically transmitting the identification code:
  - a. Transmit the predetermined identification codes form EUT.
  - b. Check the transmitted identification codes with the demodulator.
2. In the case of receiving the identification ocde:
  - a. Transmit the predetermined identification codes form the counterpart.
  - b . Check if communication is normal.
  - c. Transmit the signals other than predetermined ID codes form the counterpart.
  - d. check if the EUT stops the transmission, or if it displays that idnetification codes are different from the predetermined ones.

#### 3.8.4 TEST SETUP LAYOUT



#### 3.8.5 TEST DEVIATION

There is no deviation with the original standard.

**3.8.6 EUT OPERATION DURING TEST**

The EUT was programmed to be in normal mode.

**3.8.7 TEST RESULT OF RADIO INTERFERENCE PREVENTION CAPABILIT**

Test Power:	Normal Voltage
Test Mode:	IEEE 802.11b
Test Result:	Good (identification code: [D4:3D:39:10:D6:7A])

### 3.9 CARRIER SENSE CAPABILITY MEASUREMENT

#### 3.9.1 LIMIT

Item	Limits (See Article 49-20, Item1-k of the Ordinance Regulating Radio Equipment)
Carrier Sense	Good - EUT stop RF transmission signal after carrier inject to EUT. (On $22.79 + Gr - 20 \cdot \log(f)$ [dBm] (Gr: dB; f: MHz) or 100mV/m)
Remarks	This test item will be applied to OFDM, $26\text{MHz} < BW \leq 38\text{MHz}$

#### 3.9.2 SETTING

The following table is the setting of the spectrum analyzer.

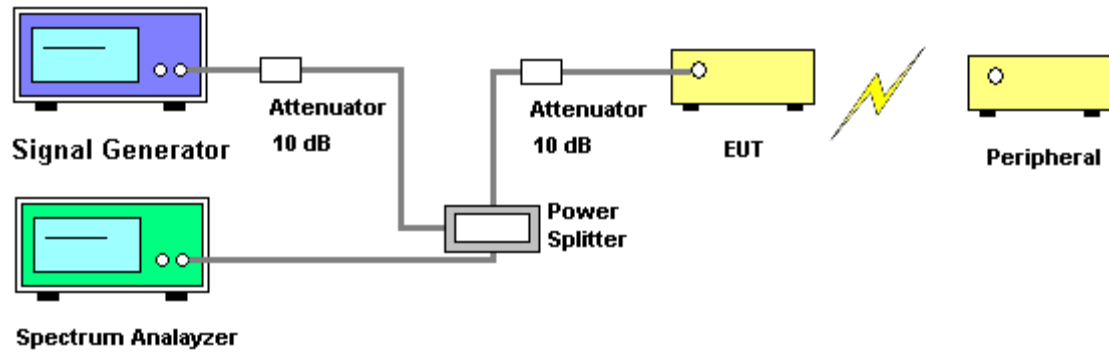
Spectrum Parameter	Setting
Attenuation	Auto
RBW / VBW	1 MHz / 1MHz
Span	0 MHz
Sweep	Continuous
Detector	Peak
Trigger mode	Video

#### 3.9.3 TEST PROCEDURES

Test method which surpass to Clause 8,9 of Annex No.43 of MIC Notification No.88.

- SSG adjusted the frequency as same as the EUT transmitted signal and emitted the absence of modulation from SSG and power level is (On  $22.79 + Gr - 20 \cdot \log(f)$  [dBm] (Gr: dB; f: MHz). Then turn off the RF signal of SSG.
- EUT have transmitted the maximum modulation signal and fixed channelize.
- Setting of SA is following as: RBW:1MHz / VBW:1MHz / SPAN: 0 MHz / AT: 10dB /Ref: 0dBm / Sweep time: Auto / Sweep Mode: Continuous sweep / Detect mode: Positive peak.
- SSG RF Signal On.
- EUT shall be stop the transmitted any signal and SSG RF Signal Off. Then EUT will be continuous transmitted signal.

### 3.9.4 TEST SETUP LAYOUT



### 3.9.5 TEST DEVIATION

There is no deviation with the original standard.

### 3.9.6 EUT OPERATION DURING TEST

The EUT was programmed to be in normal mode.

### 3.9.7 TEST RESULT OF CARRIER SENSE CAPABILITY

Test Power:	Normal Voltage
Test Mode:	802.11n-HT20
Test Result:	Good

### 3.10 CONSTRUCTION PROTECTION CONFIRMATION METHOD

#### 3.10.1 LIMIT

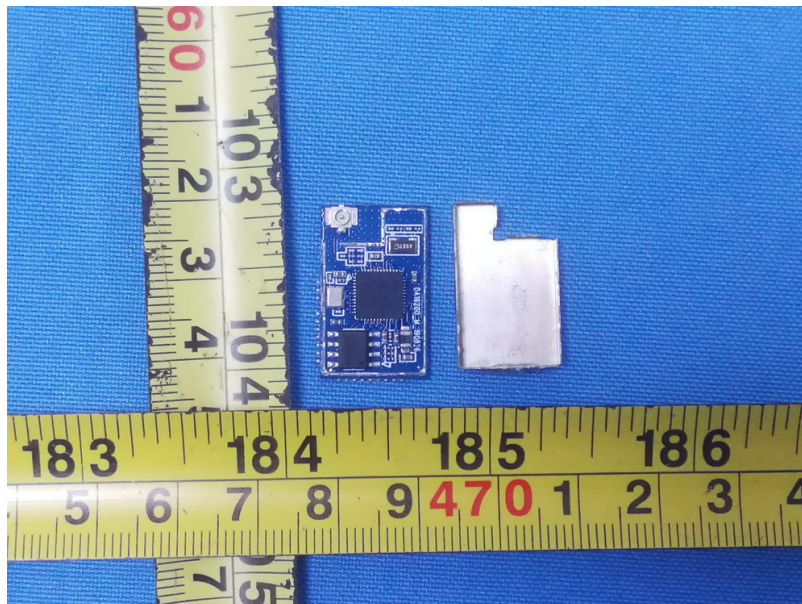
(See Article 49-20, Item1-a of the Ordinance Regulating Radio Equipment)

The high-frequency section and modulation section of the radio equipment except for the antenna system shall not be capable of being opened easily.

#### 3.10.2 CONFIRMATION METHOD

The RF and modulation portions are protected against illegal modification as following method:

Tick the appropriate box	
	1. Sealed with special screws.
	2. Plastic chassis is being welded using ultrasonic waves.
	3. Chassis is glued using a special adhesive.
	4. Metal covers are spot-fused.
	5. Cover is specially interlocked.
X	6. RF and Modulation components are covered with shielding case and this shielding case is soldered.
	7. Shield case is welded at RF and modulation parts, and ID-ROM is welded using the BGA Method.
	8. Shield case is welded at RF and modulation parts, and ID-ROM is glued at its lead with a special adhesive
	9. Shield case is welded at RF and modulation parts, and ID-ROM is guled with a non-transparent laminating agent.
	10. RF and Modulation parts are mounted on PCB with surface mount technology, and there is no any adjustable part on PCB or adjustable parts are not exposed.



#### 4. LIST OF MEASURING EQUIPMENTS

Kind of Equipment	Manufacturer	Model No.	Serial No.	Calibrated Date	Validity Date	Calibration Agency
Spectrum Analyzer	R&S	FSP40	100185	Aug. 03, 2019	Aug. 03, 2020	CHINA CEPREI LABORATORY
Signal Generator	R&S	SMR40	100504	Mar. 11, 2019	Mar. 10, 2020	CEPREI Calibration and Testing Center
Multi-output DC Power Supply	GW Instek	GPC-3030DN	EK880675	Sep. 24, 2018	Sep. 23, 2019	CEPREI Calibration and Testing Center
Attenuator	WOKEN	6SM3502	VAS1214NL	Feb. 15, 2018	Feb. 12, 2020	CEPREI Calibration and Testing Center
Cable	emci	EMC104-SM-SM-9000(0.01GHz-26.5GHz)	N/A	N/A	N/A	N/A

#### Note

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

## 5. EUT TEST PHOTO

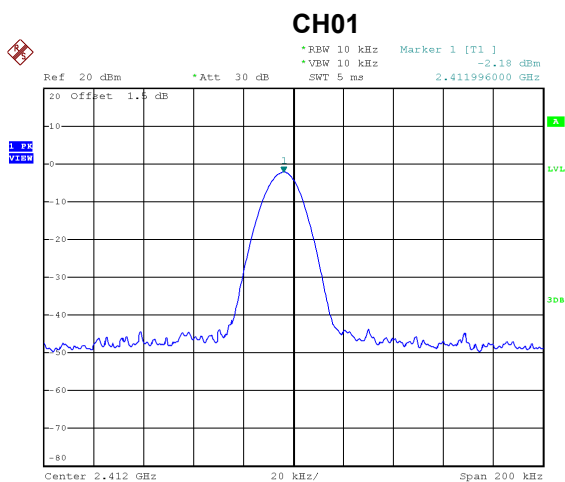


## APPENDIX A - FREQUENCY TOLERANCE

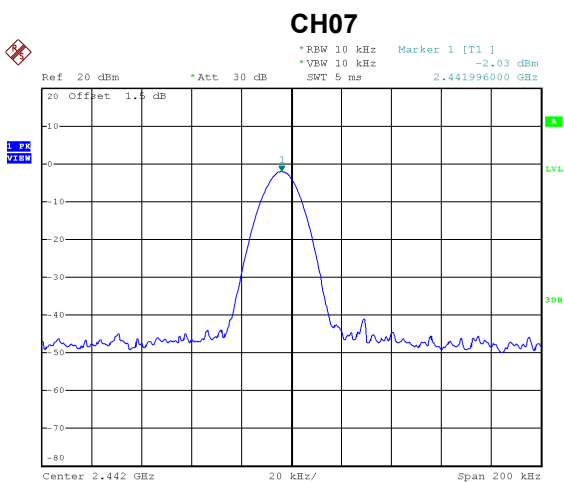


Test Mode:	IEEE 802.11b/CH01,CH07,CH13
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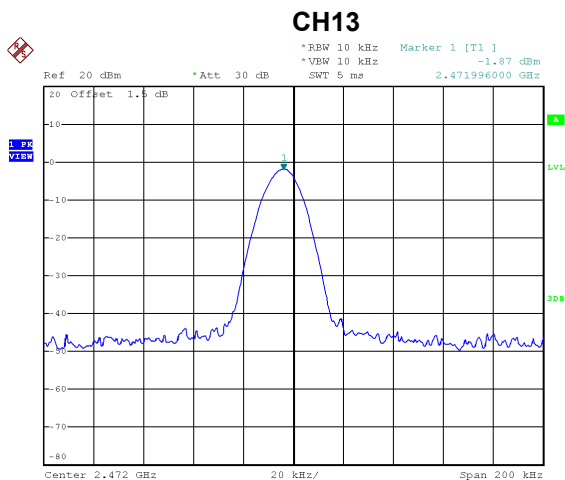
Test Voltage (V)	Normal Voltage			Remarks
Test Frequency (MHz)	2412	2442	2472	Low/Mid/High of test frequency range
Measured Frequency (MHz)	2411.9960	2441.9960	2471.9960	-
Frequency Tolerance (ppm)	-1.66	-1.64	-1.62	Limit $\leq$ 50 ppm



Date: 12.NOV.2019 14:24:40



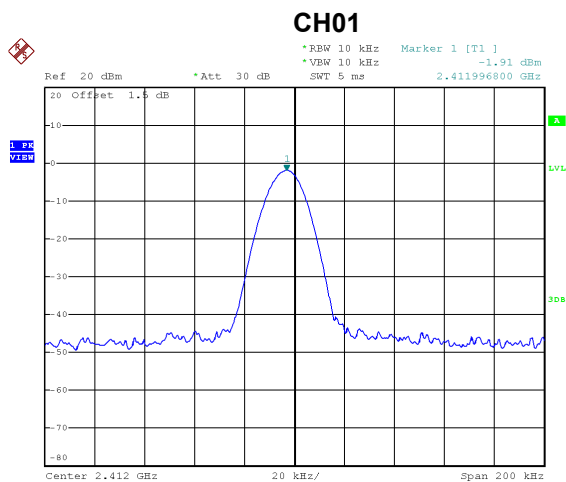
Date: 12.NOV.2019 14:30:57



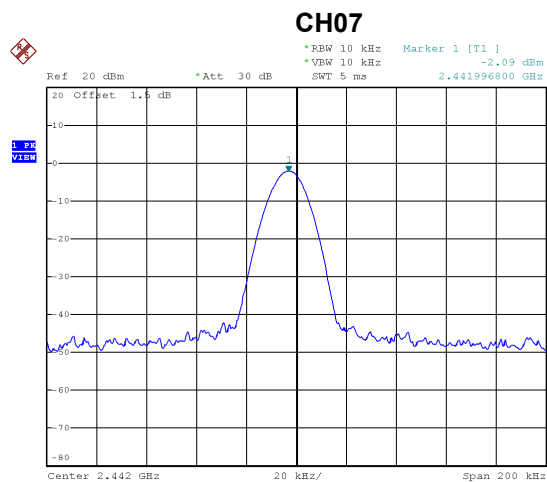
Date: 12.NOV.2019 14:34:22

Test Mode:	IEEE 802.11g/CH01,CH07,CH13
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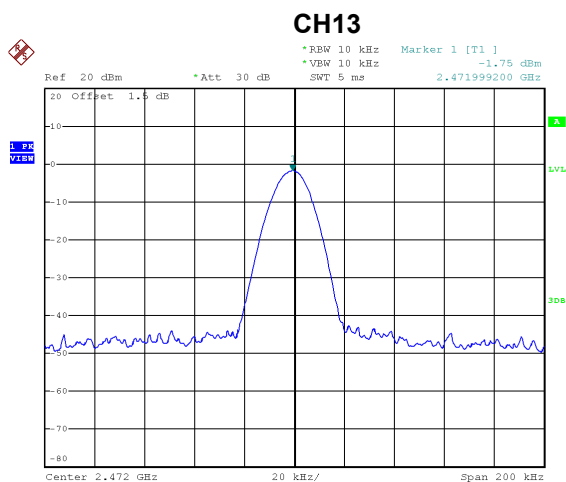
Test Voltage (V)	Normal Voltage			Remarks
Test Frequency (MHz)	2412	2442	2472	Low/Mid/High of test frequency range
Measured Frequency (MHz)	2411.9968	2441.9968	2471.9992	-
Frequency Tolerance (ppm)	-1.33	-1.31	-0.32	Limit $\leq$ 50 ppm



Date: 12.NOV.2019 14:38:01



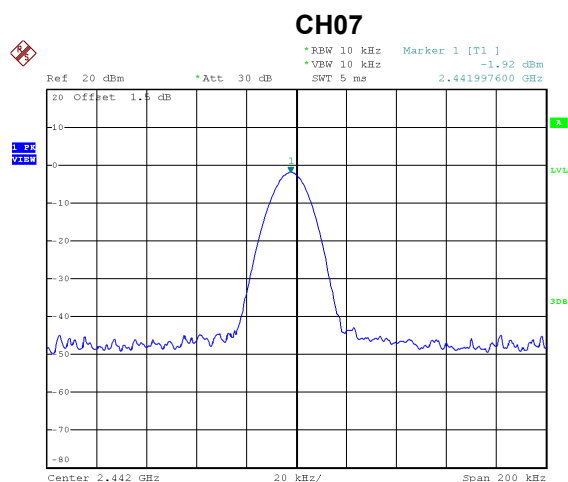
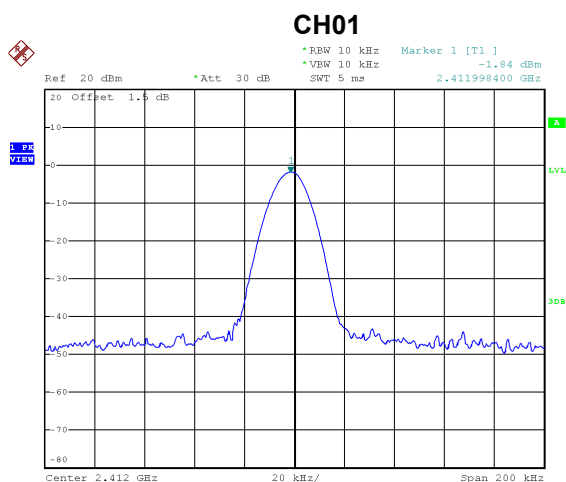
Date: 12.NOV.2019 14:41:21



Date: 12.NOV.2019 14:47:33

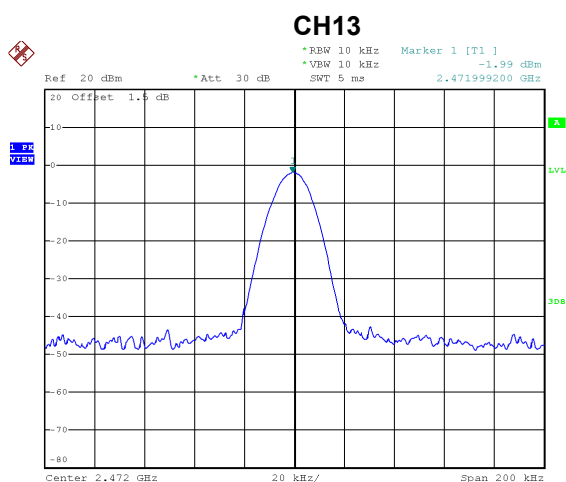
Test Mode:	IEEE 802.11n(HT20)/CH01,CH07,CH13
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Test Voltage (V)	Normal Voltage			Remarks
Test Frequency (MHz)	2412	2442	2472	Low/Mid/High of test frequency range
Measured Frequency (MHz)	2411.9984	2441.9976	2471.9992	-
Frequency Tolerance (ppm)	-0.66	-0.98	-0.32	Limit $\leq$ 50 ppm



Date: 12.NOV.2019 14:51:54

Date: 12.NOV.2019 14:55:35



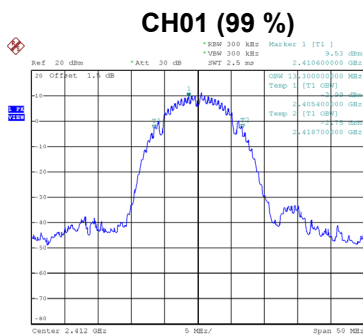
Date: 12.NOV.2019 15:00:04

## **APPENDIX B - OCCUPIED BANDWIDTH AND SPREAD-SPECTRUM BANDWIDTH**

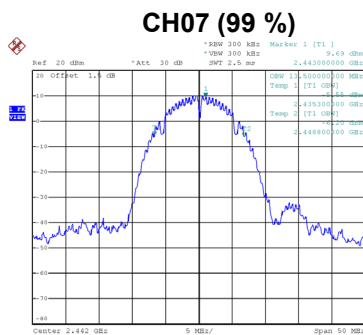
Test Mode:	IEEE 802.11b/CH01,CH07,CH13
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Test Voltage (V)	Normal Voltage			Remarks
Test Frequency (MHz)	2412	2442	2472	Low/Mid/High of test frequency range
Occupied Bandwidth (MHz)	13.30	13.50	13.50	Limit $\leq$ 26 MHz (RBW/VBW : 300kHz/300kHz)
Spreading Bandwidth (MHz)	8.90	8.90	8.90	$\geq$ 500 kHz (FHSS, DSSS)
Spread Factor	6.47	6.47	6.47	Spread Factor Limit $\geq$ 5 (DSSS and FHSS)

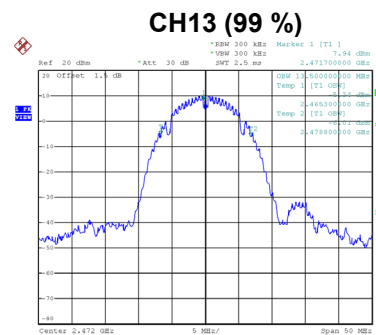
**Note:** 1. Spread Factor = Spread Bandwidth / TR  
(TR = 1.375 for IEEE 802.11b)



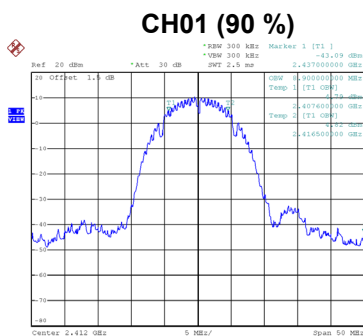
Date: 12.NOV.2019 14:23:46



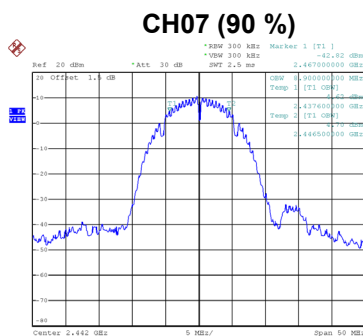
Date: 12.NOV.2019 14:28:25



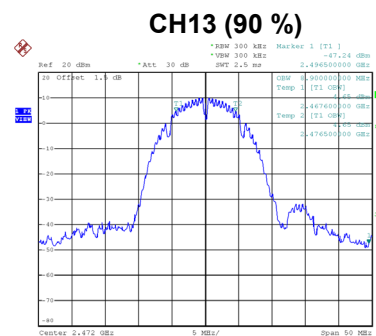
Date: 12.NOV.2019 14:33:34



Date: 12.NOV.2019 14:23:39



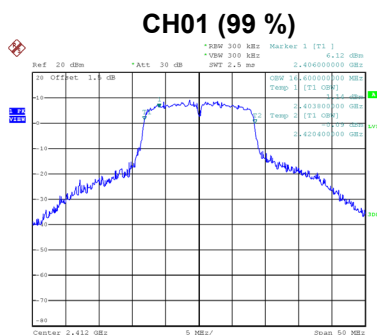
Date: 12.NOV.2019 14:28:17



Date: 12.NOV.2019 14:33:27

Test Mode:	IEEE 802.11g/CH01,CH07,CH13
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Test Voltage (V)	Normal Voltage			Remarks
Test Frequency (MHz)	2412	2442	2472	Low/Mid/High of test frequency range
Occupied Bandwidth (MHz)	16.60	16.80	16.70	Limit $\leq 26$ MHz (RBW/VBW : 300kHz/300kHz)





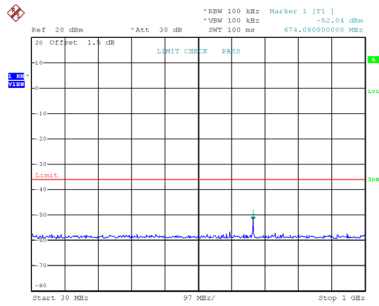
## **APPENDIX C - UNWANTED EMISSION INTENSITY**



Test Mode:	IEEE 802.11b/CH01,CH07,CH13
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Test Voltage		V	Normal Voltage			Remarks
Test Frequency		MHz	2412	2442	2472	Low/Mid/High of test frequency range
Unwanted Emission Intensity (Power emission within 1MHz bandwidth) (units: $\mu\text{W}$ )	※1	$\mu\text{W}/100\text{kHz}$	0.0063	0.0058	0.0084	Limit $\leq 0.25 \mu\text{W}/100\text{kHz}$ (-36 dBm/100kHz)
	※2	$\mu\text{W}/\text{MHz}$	0.0175	0.0096	0.0053	Limit $\leq 2.5 \mu\text{W}/\text{MHz}$ (-26 dBm/MHz)
	※3	$\mu\text{W}/\text{MHz}$	0.1754	0.0254	0.0160	Limit $\leq 25 \mu\text{W}/\text{MHz}$ (-16 dBm/MHz)
	※4	$\mu\text{W}/\text{MHz}$	0.0076	0.0128	0.7345	Limit $\leq 25 \mu\text{W}/\text{MHz}$ (-16 dBm/MHz)
	※5	$\mu\text{W}/\text{MHz}$	0.0047	0.0042	0.0063	Limit $\leq 2.5 \mu\text{W}/\text{MHz}$ (-26 dBm/MHz)

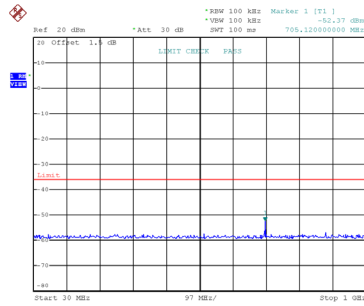
## CH01



Date: 12.NOV.2019 14:22:55

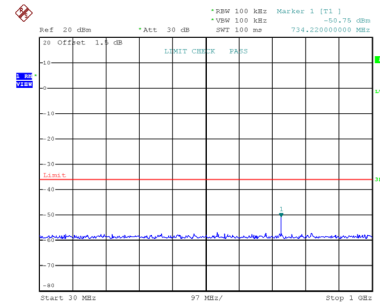
## CH07

※1:  $30 \text{ MHz} \leq f \leq 1000 \text{ MHz}$



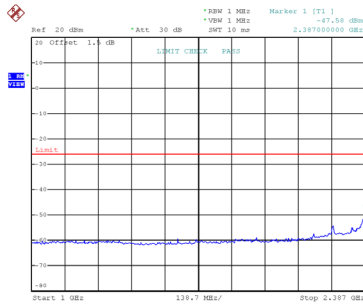
Date: 12.NOV.2019 14:27:34

## CH13

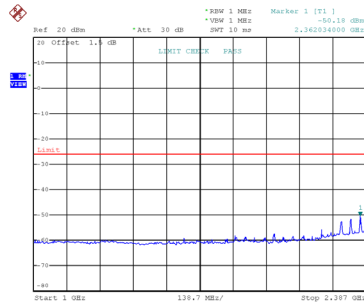


Date: 12.NOV.2019 14:32:43

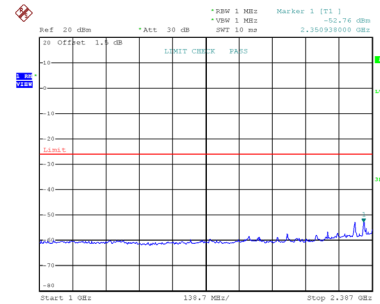
※2:  $1000 \text{ MHz} < f \leq 2387 \text{ MHz}$



Date: 12.NOV.2019 14:23:04

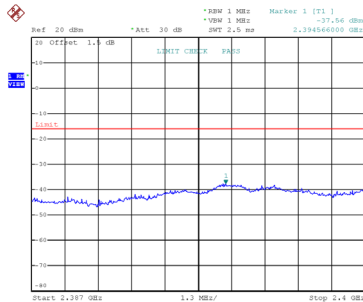


Date: 12.NOV.2019 14:27:43

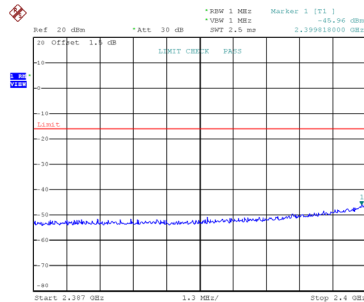


Date: 12.NOV.2019 14:32:52

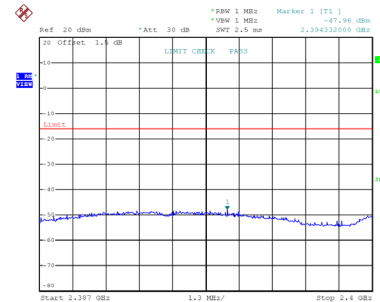
※3:  $2387 \text{ MHz} \leq f < 2400 \text{ MHz}$



Date: 12.NOV.2019 14:23:13

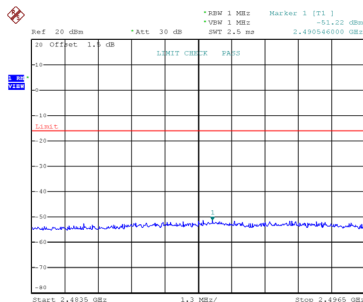


Date: 12.NOV.2019 14:27:52

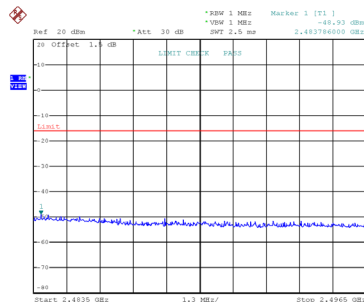


Date: 12.NOV.2019 14:33:01

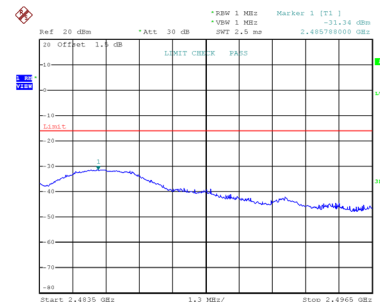
※4:  $2483.5 \text{ MHz} \leq f < 2496.5 \text{ MHz}$



Date: 12.NOV.2019 14:23:22

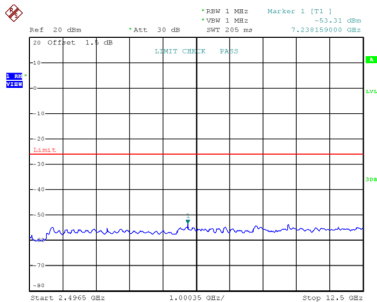


Date: 12.NOV.2019 14:28:01



Date: 12.NOV.2019 14:33:11

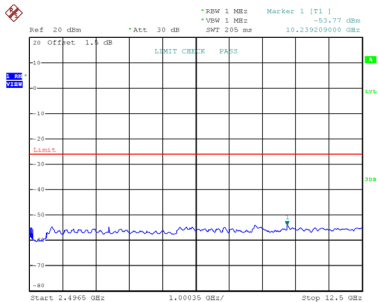
CH01



Date: 12.NOV.2019 14:23:32

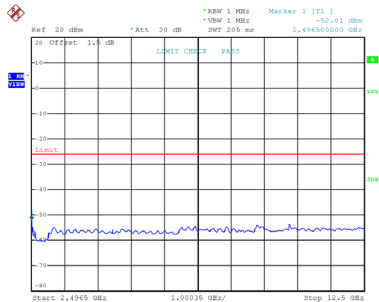
CH07

※5: 2496.5 MHz ≒ f <12.5 GHz



Date: 12.NOV.2019 14:28:11

CH13

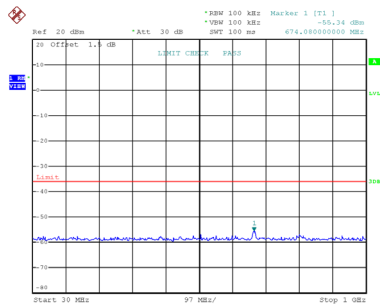


Date: 12.NOV.2019 14:33:20

Test Mode:	IEEE 802.11g/CH01,CH07,CH13
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Test Voltage		V	Normal Voltage			Remarks
Test Frequency		MHz	2412	2442	2472	Low/Mid/High of test frequency range
Unwanted Emission Intensity (Power emission within 1MHz bandwidth) (units: $\mu\text{W}$ )	※1	$\mu\text{W}/100\text{kHz}$	0.0029	0.0038	0.0033	Limit $\leq 0.25 \mu\text{W}/100\text{kHz}$ (-36 dBm/100kHz)
	※2	$\mu\text{W}/\text{MHz}$	0.0500	0.0072	0.0050	Limit $\leq 2.5 \mu\text{W}/\text{MHz}$ (-26 dBm/MHz)
	※3	$\mu\text{W}/\text{MHz}$	1.9275	0.0248	0.0116	Limit $\leq 25 \mu\text{W}/\text{MHz}$ (-16 dBm/MHz)
	※4	$\mu\text{W}/\text{MHz}$	0.0071	0.0383	5.3456	Limit $\leq 25 \mu\text{W}/\text{MHz}$ (-16 dBm/MHz)
	※5	$\mu\text{W}/\text{MHz}$	0.0052	0.0045	0.0229	Limit $\leq 2.5 \mu\text{W}/\text{MHz}$ (-26 dBm/MHz)

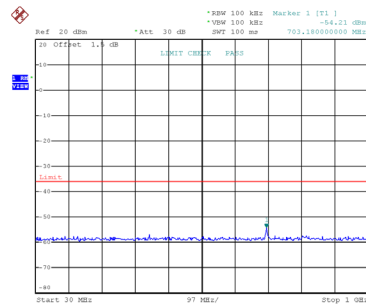
## CH01



Date: 12.NOV.2019 14:36:06

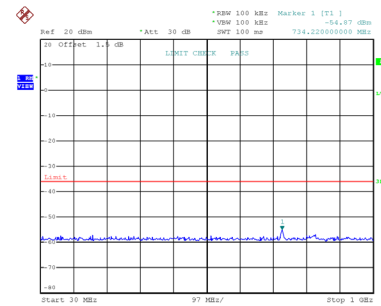
## CH07

※1:  $30 \text{ MHz} \leq f \leq 1000 \text{ MHz}$



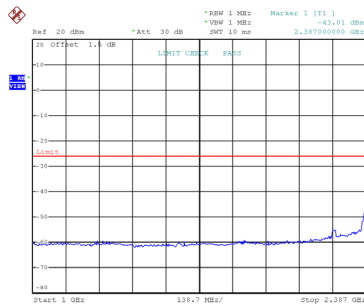
Date: 12.NOV.2019 14:39:43

## CH13

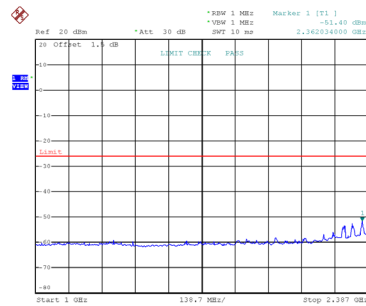


Date: 12.NOV.2019 14:42:58

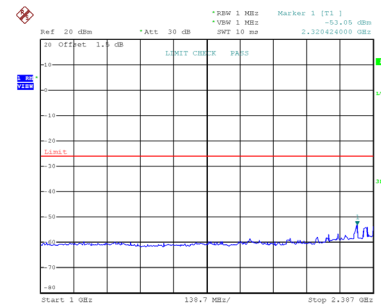
※2:  $1000 \text{ MHz} < f \leq 2387 \text{ MHz}$



Date: 12.NOV.2019 14:36:16

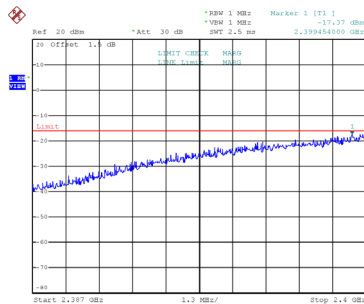


Date: 12.NOV.2019 14:39:52

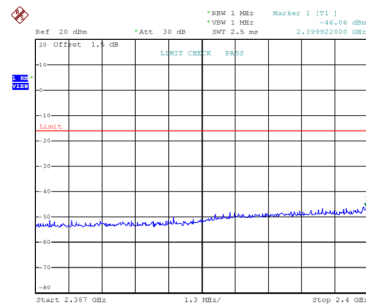


Date: 12.NOV.2019 14:43:07

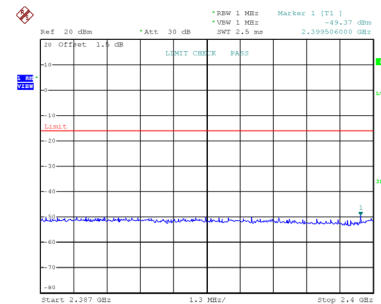
※3:  $2387 \text{ MHz} \leq f < 2400 \text{ MHz}$



Date: 12.NOV.2019 14:36:25

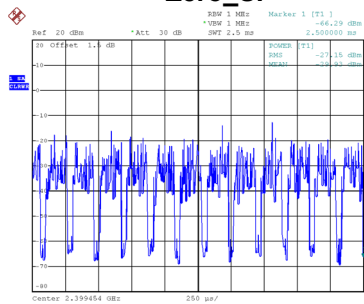


Date: 12.NOV.2019 14:40:01



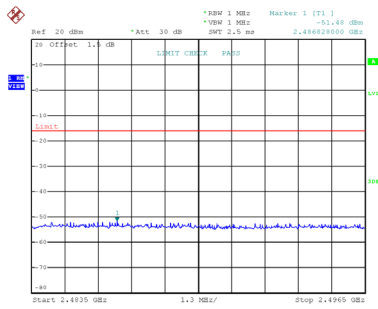
Date: 12.NOV.2019 14:43:16

## Zero\_SP

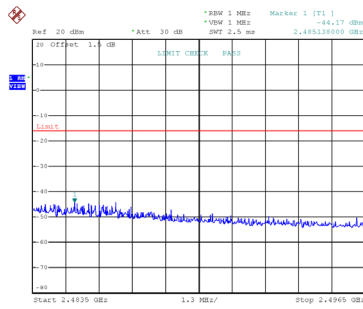


Date: 12.NOV.2019 14:36:30

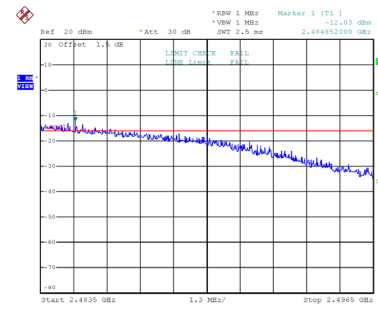
## ※4: 2483.5 MHz $\leq$ f < 2496.5 MHz



Date: 12.NOV.2019 14:36:40

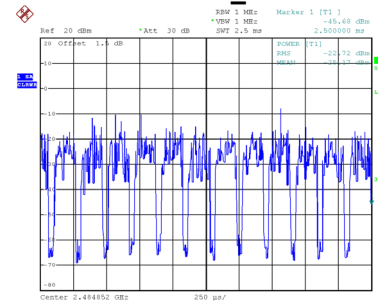


Date: 12.NOV.2019 14:40:10



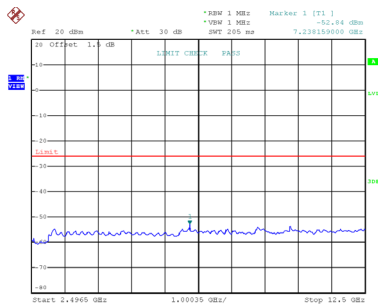
Date: 12.NOV.2019 14:43:25

## Zero\_SP

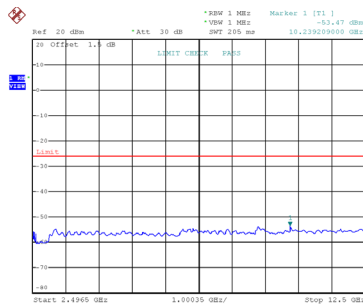


Date: 12.NOV.2019 14:43:30

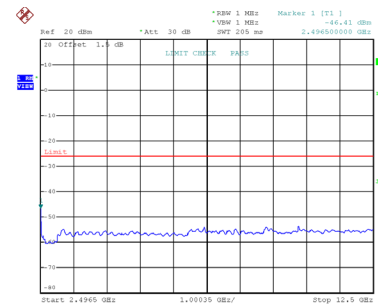
## ※5: 2496.5 MHz $\leq$ f < 12.5 GHz



Date: 12.NOV.2019 14:36:51



Date: 12.NOV.2019 14:40:20

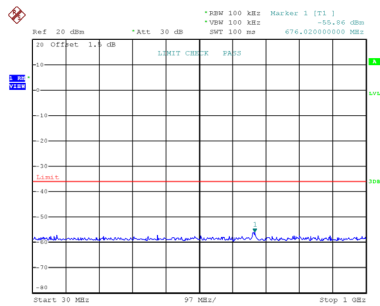


Date: 12.NOV.2019 14:43:42

Test Mode:	IEEE 802.11n(HT20)/CH01,CH07,CH13
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Test Voltage		V	Normal Voltage			Remarks
Test Frequency		MHz	2412	2442	2472	Low/Mid/High of test frequency range
Unwanted Emission Intensity (Power emission within 1MHz bandwidth) (units: $\mu\text{W}$ )	※1	$\mu\text{W}/100\text{kHz}$	0.0026	0.0027	0.0031	Limit $\leq 0.25 \mu\text{W}/100\text{kHz}$ (-36 dBm/100kHz)
	※2	$\mu\text{W}/\text{MHz}$	0.0336	0.0074	0.0049	Limit $\leq 2.5 \mu\text{W}/\text{MHz}$ (-26 dBm/MHz)
	※3	$\mu\text{W}/\text{MHz}$	14.9624	0.0331	0.0118	Limit $\leq 25 \mu\text{W}/\text{MHz}$ (-16 dBm/MHz)
	※4	$\mu\text{W}/\text{MHz}$	0.0060	0.0557	5.9704	Limit $\leq 25 \mu\text{W}/\text{MHz}$ (-16 dBm/MHz)
	※5	$\mu\text{W}/\text{MHz}$	0.0048	0.0044	0.0272	Limit $\leq 2.5 \mu\text{W}/\text{MHz}$ (-26 dBm/MHz)

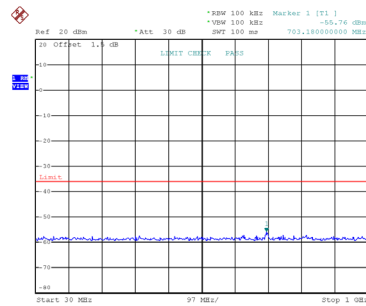
## CH01



Date: 12.NOV.2019 14:49:57

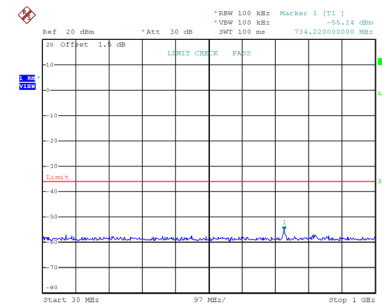
## CH07

※1:  $30 \text{ MHz} \leq f \leq 1000 \text{ MHz}$



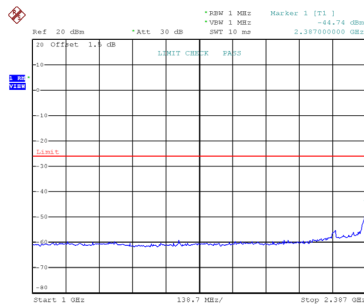
Date: 12.NOV.2019 14:53:33

## CH13

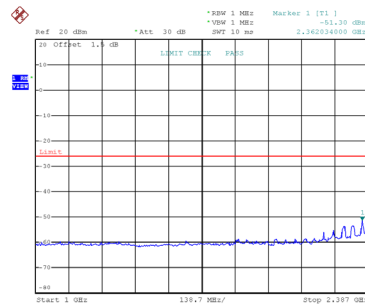


Date: 12.NOV.2019 14:57:12

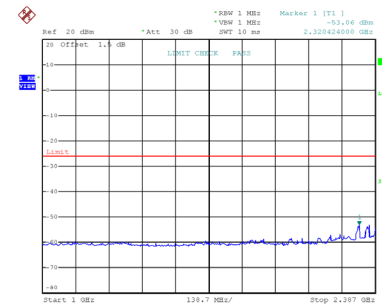
※2:  $1000 \text{ MHz} < f \leq 2387 \text{ MHz}$



Date: 12.NOV.2019 14:50:06

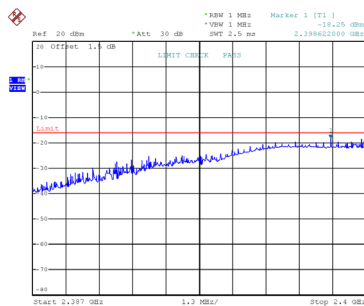


Date: 12.NOV.2019 14:53:42

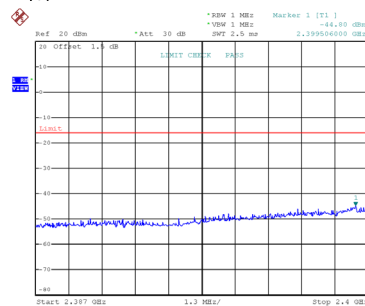


Date: 12.NOV.2019 14:57:21

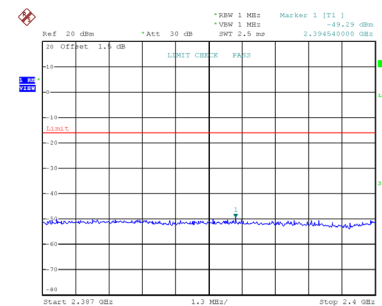
※3:  $2387 \text{ MHz} \leq f < 2400 \text{ MHz}$



Date: 12.NOV.2019 14:50:15



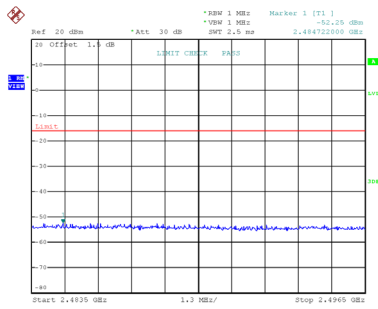
Date: 12.NOV.2019 14:53:51



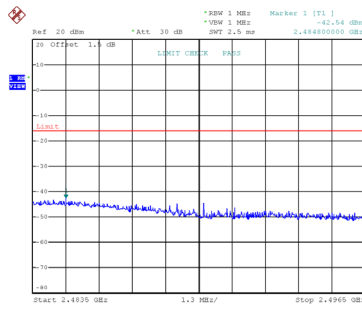
Date: 12.NOV.2019 14:57:31



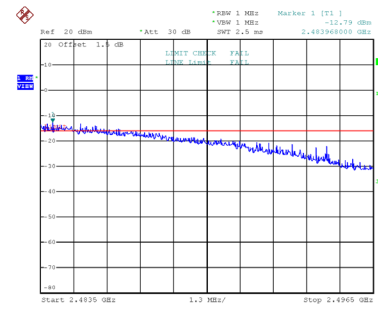
## ※4: 2483.5 MHz ≦ f < 2496.5 MHz



Date: 12.NOV.2019 14:50:24

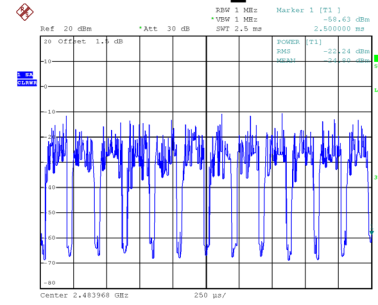


Date: 12.NOV.2019 14:54:00



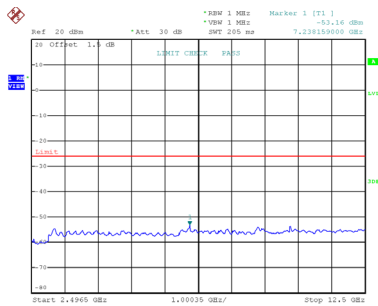
Date: 12.NOV.2019 14:57:40

## Zero\_SP

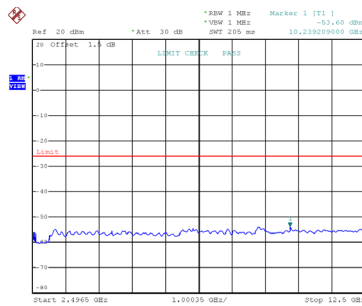


Date: 12.NOV.2019 14:57:44

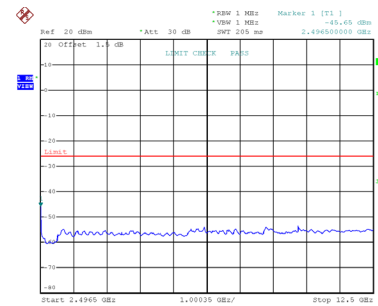
## ※5: 2496.5 MHz ≦ f < 12.5 GHz



Date: 12.NOV.2019 14:50:34



Date: 12.NOV.2019 14:54:10



Date: 12.NOV.2019 14:57:56

## APPENDIX D - ANTENNA POWER TOLERANCE

Test Mode: IEEE 802.11b/CH01,CH07,CH13

## Normal Voltage

Test Frequency (MHz)	Conducted RF output power density		Rated RF output power density	Antenna Power Error in Limit	
	(dBm/MHz)	(mW/MHz)	(mW/MHz)	(+20%, -80%)	
	-	A	B	C	
2412	9.74	9.4189	9.4200	-0.01	%
2442	9.58	9.0782	9.4200	-3.63	%
2472	9.61	9.1411	9.4200	-2.96	%

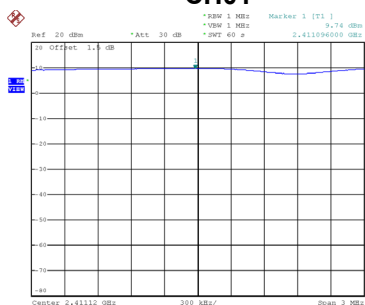
Antenna Gain : 2 dBi

Test Frequency (MHz)	Radiated RF output power density (dBm/MHz)	Limit (dBm/MHz)
	A	
2412	11.7400	12.14
2442	11.5800	12.14
2472	11.6100	12.14

Note:

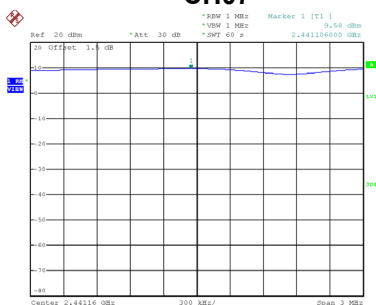
- Antenna power error = {(conducted power - rated conducted power)/rated conducted power} x 100%
- Radiated RF output power (EIRP) = Measured conducted RF output power + Antenna gain

CH01



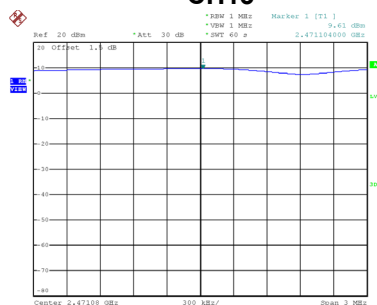
Date: 12.NOV.2019 14:22:46

CH07



Date: 12.NOV.2019 14:27:25

CH13



Date: 12.NOV.2019 14:32:34

Test Mode:	IEEE 802.11g/CH01,CH07,CH13
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## Normal Voltage

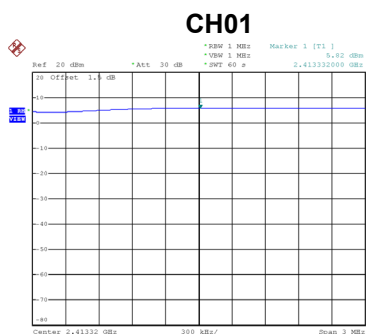
Test Frequency (MHz)	Conducted RF output power density		Rated RF output power density	Antenna Power Error in Limit	
	(dBm/MHz)	(mW/MHz)	(mW/MHz)	(+20%, -80%)	
	-	A	B	C	
2412	5.82	3.8194	3.8200	-0.01	%
2442	5.68	3.6983	3.8200	-3.19	%
2472	5.65	3.6728	3.8200	-3.85	%

Antenna Gain : 2 dBi

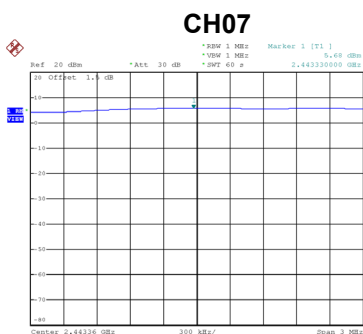
Test Frequency (MHz)	Radiated RF output power density (dBm/MHz)	Limit (dBm/MHz)
	A	
2412	7.8200	12.14
2442	7.6800	12.14
2472	7.6500	12.14

Note:

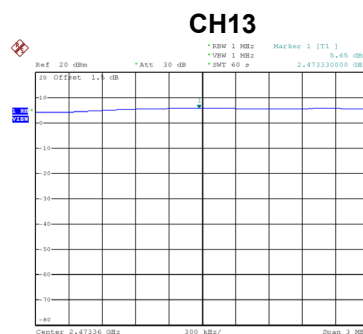
1. Antenna power error = {(conducted power - rated conducted power)/rated conducted power} x 100%
2. Radiated RF output power (EIRP) = Measured conducted RF output power + Antenna gain



Date: 12.NOV.2019 14:35:58



Date: 12.NOV.2019 14:39:34



Date: 12.NOV.2019 14:42:49

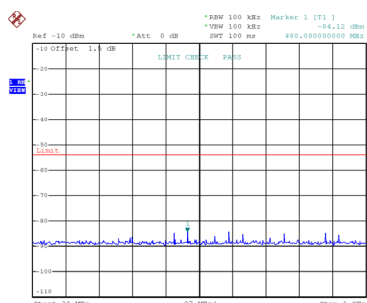


## **APPENDIX E - LIMITATION OF COLLATERAL EMISSION OF RECEIVER**

Test Mode: IEEE 802.11b/CH01,CH07,CH13

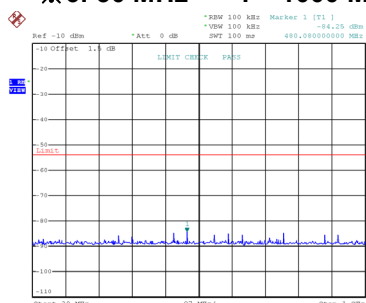
Test Voltage		V	Normal Voltage			Remarks
Test Frequency		MHz	2412	2442	2472	Low/Mid/Low of test frequency range
Limitation of Collateral Emission of Receiver	※6	nW	0.0039	0.0038	0.0039	Limit $\leq$ 4 nW (-54 dBm)
	※7	nW	0.0042	0.0043	0.0042	Limit $\leq$ 20 nW (-47 dBm)

CH01



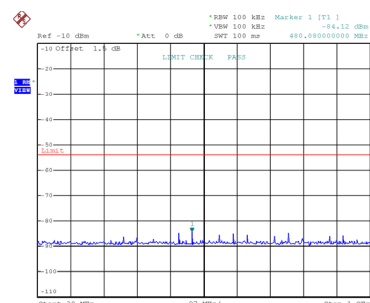
Date: 12.NOV.2019 14:24:14

CH07

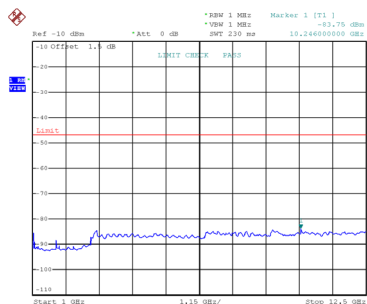
※6: 30 MHz  $\leq$  f < 1000 MHz


Date: 12.NOV.2019 14:30:24

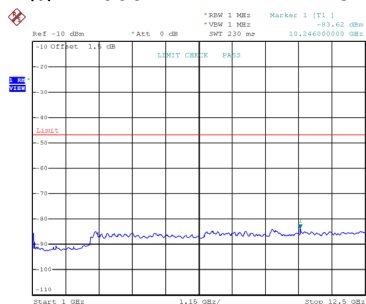
CH13



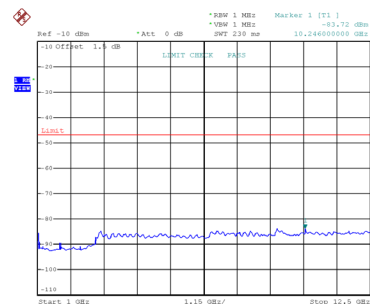
Date: 12.NOV.2019 14:33:55

※7: 1000 MHz  $\leq$  f < 12.5 GHz


Date: 12.NOV.2019 14:24:23



Date: 12.NOV.2019 14:30:33

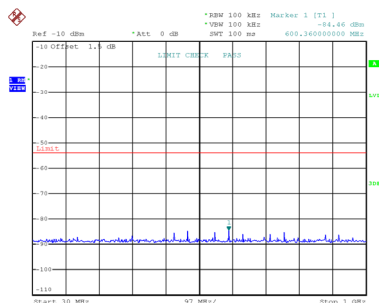


Date: 12.NOV.2019 14:34:05

Test Mode:	IEEE 802.11g/CH01,CH07,CH13
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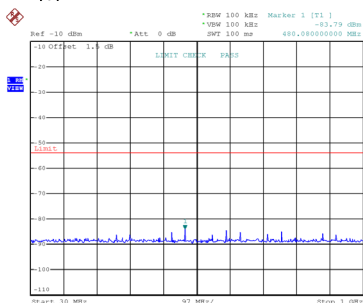
Test Voltage		V	Normal Voltage			Remarks
Test Frequency		MHz	2412	2442	2472	Low/Mid/Low of test frequency range
Limitation of Collateral Emission of Receiver	※6	nW	0.0036	0.0042	0.0041	Limit $\leq$ 4 nW (-54 dBm)
	※7	nW	0.0043	0.0044	0.0069	Limit $\leq$ 20 nW (-47 dBm)

CH01



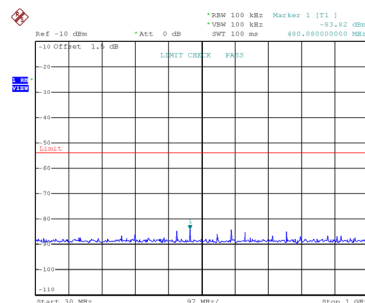
Date: 12.NOV.2019 14:37:32

CH07

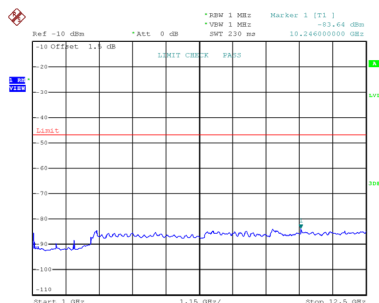
※6: 30 MHz  $\leq$  f < 1000 MHz


Date: 12.NOV.2019 14:40:55

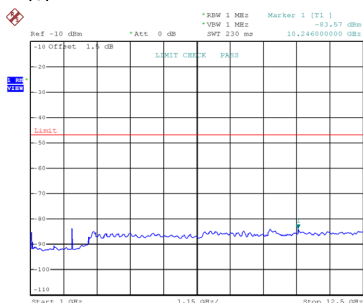
CH13



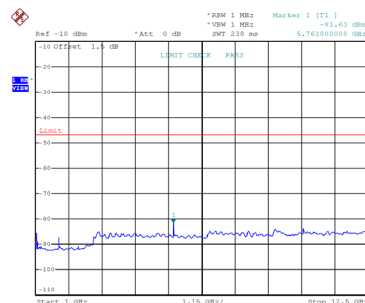
Date: 12.NOV.2019 14:46:32

※7: 1000 MHz  $\leq$  f < 12.5 GHz


Date: 12.NOV.2019 14:37:41



Date: 12.NOV.2019 14:41:05



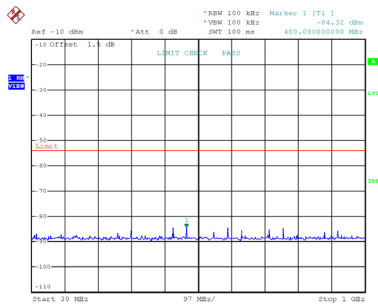
Date: 12.NOV.2019 14:46:42



Test Mode:	IEEE 802.11n(HT20)/CH01,CH07,CH13
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Test Voltage		V	Normal Voltage			Remarks
Test Frequency		MHz	2412	2442	2472	Low/Mid/Low of test frequency range
Limitation of Collateral Emission of Receiver	※6	nW	0.0037	0.0040	0.0037	Limit $\leq$ 4 nW (-54 dBm)
	※7	nW	0.0043	0.0044	0.0044	Limit $\leq$ 20 nW (-47 dBm)

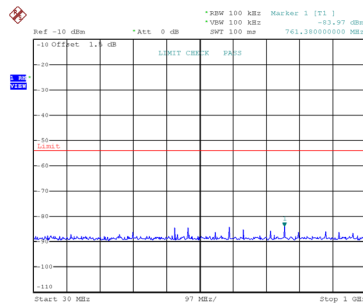
CH01



Date: 12.NOV.2019 14:51:20

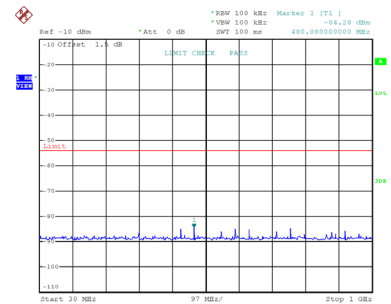
CH07

※6: 30 MHz  $\leq$  f < 1000 MHz



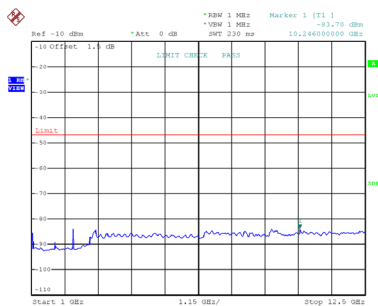
Date: 12.NOV.2019 14:54:53

CH13

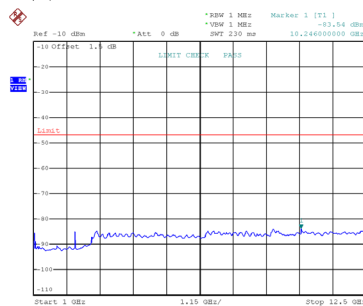


Date: 12.NOV.2019 14:59:41

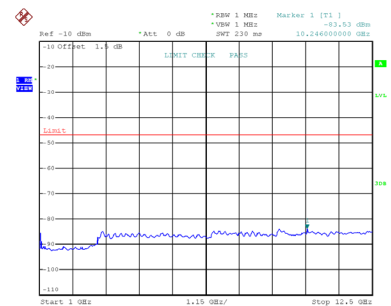
※7: 1000 MHz  $\leq$  f < 12.5 GHz



Date: 12.NOV.2019 14:51:29



Date: 12.NOV.2019 14:55:02



Date: 12.NOV.2019 14:59:51

End of Test Report