

# FCC Part 15C

## Measurement And Test Report For

### **Xiamen Tongren IOT Technology Co.,Ltd.**

4F-A, Block A, Huaxun Buliding, Software Park, Torch Hi-tech Zone,  
Xiamen, China.

**FCC ID: 2AD3CUS-G101**

**Jan. 17, 2015**

<b>This Report Concerns:</b> <input checked="" type="checkbox"/> Original Report	<b>Equipment Type:</b> Smart Gateway
<b>Report Number:</b>	MTI141204001RF-2
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<b>Test Date:</b>	Jan. 05 - Jan. 17, 2015
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**Note:** This test report is limited to the above client company and the product model only. It may not be duplicated without prior written consent of Shenzhen Microtest Technology Co.,Ltd.

TEST RESULT CERTIFICATION	
<b>Applicant's name .....</b>	<b>Xiamen Tongren IOT Technology Co.,Ltd.</b>
<b>Address.....</b>	4F-A, Block A, Huaxun Buliding, Software Park, Torch Hi-tech Zone, Xiamen, China.
<b>Manufacture's Name .....</b>	<b>Xiamen Tongren IOT Technology Co.,Ltd.</b>
<b>Address.....</b>	4F-A, Block A, Huaxun Buliding, Software Park, Torch Hi-tech Zone, Xiamen, China.
<b>Product description</b>	
<b>Product name .....</b>	Smart Gateway
<b>Model and/or type reference :</b>	US-G101
<b>Serial Model.....</b>	N/A
<b>Standards.....</b>	FCC Part15.247
<b>Test procedure.....</b>	ANSI C63.4-2003

## Table of Contents

	Page
<b>1 . SUMMARY OF TEST RESULTS</b>	<b>5</b>
1.1 TEST FACILITY	6
1.2 MEASUREMENT UNCERTAINTY	6
<b>2 . GENERAL INFORMATION</b>	<b>7</b>
2.1 GENERAL DESCRIPTION OF EUT	7
2.2 DESCRIPTION OF TEST MODES	9
2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED	10
2.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)	11
2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS	12
<b>3 . EMC EMISSION TEST</b>	<b>13</b>
3.1 CONDUCTED EMISSION MEASUREMENT	13
3.1.1 POWER LINE CONDUCTED EMISSION LIMITS	13
3.1.2 TEST PROCEDURE	14
3.1.3 DEVIATION FROM TEST STANDARD	14
3.1.4 TEST SETUP	14
3.1.5 EUT OPERATING CONDITIONS	14
3.1.6 TEST RESULTS	15
3.2 RADIATED EMISSION MEASUREMENT	17
3.2.1 RADIATED EMISSION LIMITS	17
3.2.2 TEST PROCEDURE	17
3.2.3 DEVIATION FROM TEST STANDARD	18
3.2.4 TEST SETUP	19
3.2.5 EUT OPERATING CONDITIONS	20
3.2.6 TEST RESULTS (BETWEEN 9KHZ – 30 MHZ)	21
3.2.7 TEST RESULTS (BETWEEN 30MHZ – 1GHZ)	22
3.2.8 TEST RESULTS (ABOVE 1000 MHZ)	23
<b>4 . POWER SPECTRAL DENSITY TEST</b>	<b>53</b>
4.1 APPLIED PROCEDURES / LIMIT	53
4.1.1 TEST PROCEDURE	53
4.1.2 DEVIATION FROM STANDARD	53
4.1.3 TEST SETUP	53
4.1.4 EUT OPERATION CONDITIONS	53
4.1.5 TEST RESULTS	54
<b>5 . BANDWIDTH TEST</b>	<b>60</b>
5.1 APPLIED PROCEDURES / LIMIT	60
5.1.1 TEST PROCEDURE	60
5.1.2 DEVIATION FROM STANDARD	60

<b>Table of Contents</b>	<b>Page</b>
5.1.3 TEST SETUP	60
5.1.4 EUT OPERATION CONDITIONS	60
5.1.5 TEST RESULTS	61
<b>6 . PEAK OUTPUT POWER TEST</b>	<b>67</b>
6.1 APPLIED PROCEDURES / LIMIT	67
6.1.1 TEST PROCEDURE	67
6.1.2 DEVIATION FROM STANDARD	67
6.1.3 TEST SETUP	67
6.1.4 EUT OPERATION CONDITIONS	67
6.1.5 TEST RESULTS	68
<b>7 . ANTENNA REQUIREMENT</b>	<b>69</b>
7.1 STANDARD REQUIREMENT	69
7.2 EUT ANTENNA	69
<b>8 . EUT TEST PHOTO</b>	<b>70</b>

## 1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 (15.247) , Subpart C			
Standard Section	Test Item	Judgment	Remark
15.207	Conducted Emission	PASS	
15.247 (a)(2)	6dB Bandwidth	PASS	
15.247 (b)	Peak Output Power	PASS	
15.247 (c)	Radiated Spurious Emission	PASS	
15.247 (d)	Power Spectral Density	PASS	
15.205	Band Edge Emission	PASS	
15.203	Antenna Requirement	PASS	

NOTE:

(1) "N/A" denotes test is not applicable in this Test Report

## 1.1 TEST FACILITY

Shenzhen Toby Technology Co., Ltd.

Add.: 10/F.,A Block, Jiada R&D Bldg., No.5 Songpingshan, Road, Science&Technology Park,  
Shenzhen, 518057

FCC Registration No.:811562

## 1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement  $y \pm U$ , where expanded uncertainty  $U$  is based on a standard uncertainty multiplied by a coverage factor of  $k=2$ , providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	Conducted Emission Test	$\pm 1.38\text{dB}$
2	RF power, conducted	$\pm 0.16\text{dB}$
3	Spurious emissions, conducted	$\pm 0.21\text{dB}$
4	All emissions, radiated(<1G)	$\pm 4.68\text{dB}$
5	All emissions, radiated(>1G)	$\pm 4.89\text{dB}$
6	Temperature	$\pm 0.5^{\circ}\text{C}$
7	Humidity	$\pm 2\%$

## 2. GENERAL INFORMATION

### 2.1 GENERAL DESCRIPTION OF EUT

Equipment	Smart Gateway	
Trade Name	USUNG	
Model Name	US-G101	
Serial Model	N/A	
Model Difference	N/A	
Product Description	The EUT is a Smart Gateway	
	Operation Frequency:	2412~2462 MHz
	Modulation Type:	11b: DQPSK, DBPSK, CCK , DSSS 11g: BPSK, QPSK, 16QAM, 64QAM, OFDM 11n: MCS0~7, OFDM
	Bit Rate of Transmitter	802.11b: 11/5.5/2/1 Mbps 802.11g: 54/48/36/24/18/12/9/6 Mbps 802.11n: MCS0~7, up to 150 Mbps
	Number Of Channel	11 CH, Please see Note 2.
	Antenna Designation:	Please see Note 3.
	Output Power(Conducted):	802.11b: 12.24 dBm (Max.) 802.11g: 9.46 dBm (Max.) 802.11n: 9.56 dBm (Max.)
	Antenna Gain (dBi)	2.0dbi
	Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.	
Channel List	Please refer to the Note 2.	
Battery	N/A	
Adapter	Model: SW-050150 INPUT: AC100-240V, 50/60Hz OUTPUT: 5V, 1.5A	
Connecting I/O Port(s)	Please refer to the User's Manual	

Note:

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

2.

Channel List for 802.11b/g/n							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2412	04	2427	07	2442	10	2457
02	2417	05	2432	08	2447	11	2462
03	2422	06	2437	09	2452		

3.

Table for Filed Antenna

Ant	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	NOTE
A	N/A	N/A	PCB antenna	Reverse SMA-type	2.0	N/A



## 2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generated from EUT, the test system was pre-scanning tested based on the consideration of following EUT operation mode or test configuration mode which possibly have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	802.11b CH1/ CH6/ CH11
Mode 2	802.11g CH1/ CH6/ CH11
Mode 3	802.11n CH1/ CH6/ CH11
Mode 4	Link Mode

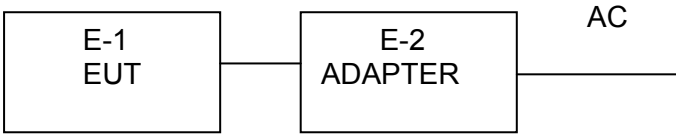
For Conducted Emission	
Final Test Mode	Description
Mode 4	Link Mode

For Radiated Emission	
Final Test Mode	Description
Mode 1	802.11b CH1/ CH6/ CH11
Mode 2	802.11g CH1/ CH6/ CH11
Mode 3	802.11n CH1/ CH6/ CH11

Note:

- (1) The measurements are performed at the highest, middle, lowest available channels.
- (2) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported

2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



## 2.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

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.	Note
E-1	Smart Gateway	USUNG	US-G101	N/A	EUT
E-2	Adapter	N/A	SMP012C050200	N/A	

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	0.5m	

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.
- (4) A Ferrite Core (model number: S07, manufacturer: Shenzhen Dongyang cicai co.,Ltd) is used on C1 .

## 2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS

### Radiation Test equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Spectrum Analyzer	Agilent	E4407B	MY45106456	Mar. 20, 2014	Mar. 19, 2015
Spectrum Analyzer	Rohde & Schwarz	FSP30	DE25181	Mar. 07, 2014	Mar.06, 2015
EMI Test Receiver	Rohde & Schwarz	ESCI	101165	Mar. 07, 2014	Mar.06, 2015
Bilog Antenna	ETS-LINDGREN	3142E	00117537	Mar. 07, 2014	Mar.06, 2015
Bilog Antenna	ETS-LINDGREN	3142E	00117542	Mar. 07, 2014	Mar.06, 2015
Horn Antenna	ETS-LINDGREN	3117	00143207	Mar. 07, 2014	Mar.06, 2015
Horn Antenna	ETS-LINDGREN	3117	00143209	Mar. 07, 2014	Mar.06, 2015
Pre-amplifier	HP	11909A	185903	Mar. 07, 2014	Mar.06, 2015
Pre-amplifier	HP	8447B	3008A00849	Mar. 07, 2014	Mar.06, 2015
Cable	HUBER+SUHNE R	100	SUCOFLEX	Mar. 07, 2014	Mar.06, 2015
Signal Generator	Rohde & Schwarz	SML03	IKW682-054	Feb. 11, 2014	Feb.10, 2015
Positioning Controller	ETS-LINDGREN	2090	N/A	N/A	N/A

### Conduction Test equipment

Description	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due Date
EMI Test Receiver	ROHDE& SCHWARZ	ESCI	100321	2014-08-10	2015-08-09
50ΩCoaxial Switch	Anritsu	MP59B	X10321	2014-08-10	2015-08-09
L.I.S.N	Rohde & Schwarz	ENV216	101131	2014-08-10	2015-08-09
L.I.S.N	SCHWARZBECK	NNBL 8226-2	8226-2/164	2014-08-10	2015-08-09

### 3. EMC EMISSION TEST

#### 3.1 CONDUCTED EMISSION MEASUREMENT

##### 3.1.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)		Standard
	Quasi-peak	Average	Quasi-peak	Average	
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	CISPR
0.50 -5.0	73.00	60.00	56.00	46.00	CISPR
5.0 -30.0	73.00	60.00	60.00	50.00	CISPR

0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	73.00	60.00	56.00	46.00	FCC
5.0 -30.0	73.00	60.00	60.00	50.00	FCC

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " \* " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

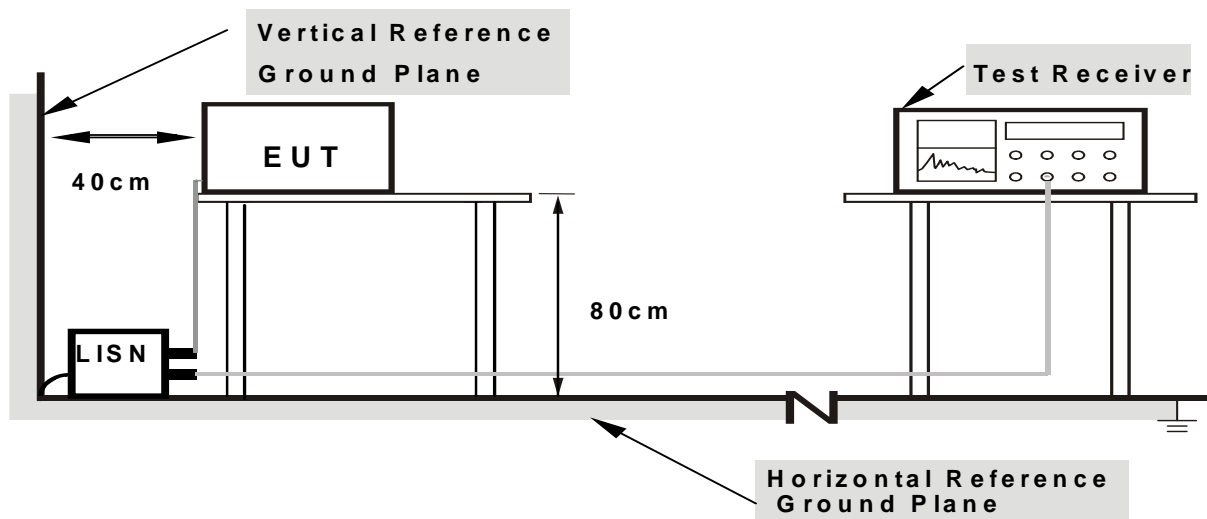
### 3.1.2 TEST PROCEDURE

- The EUT was placed 0.4 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- LISN at least 80 cm from nearest part of EUT chassis.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

### 3.1.3 DEVIATION FROM TEST STANDARD

No deviation

### 3.1.4 TEST SETUP



**Note: 1.Support units were connected to second LISN.**

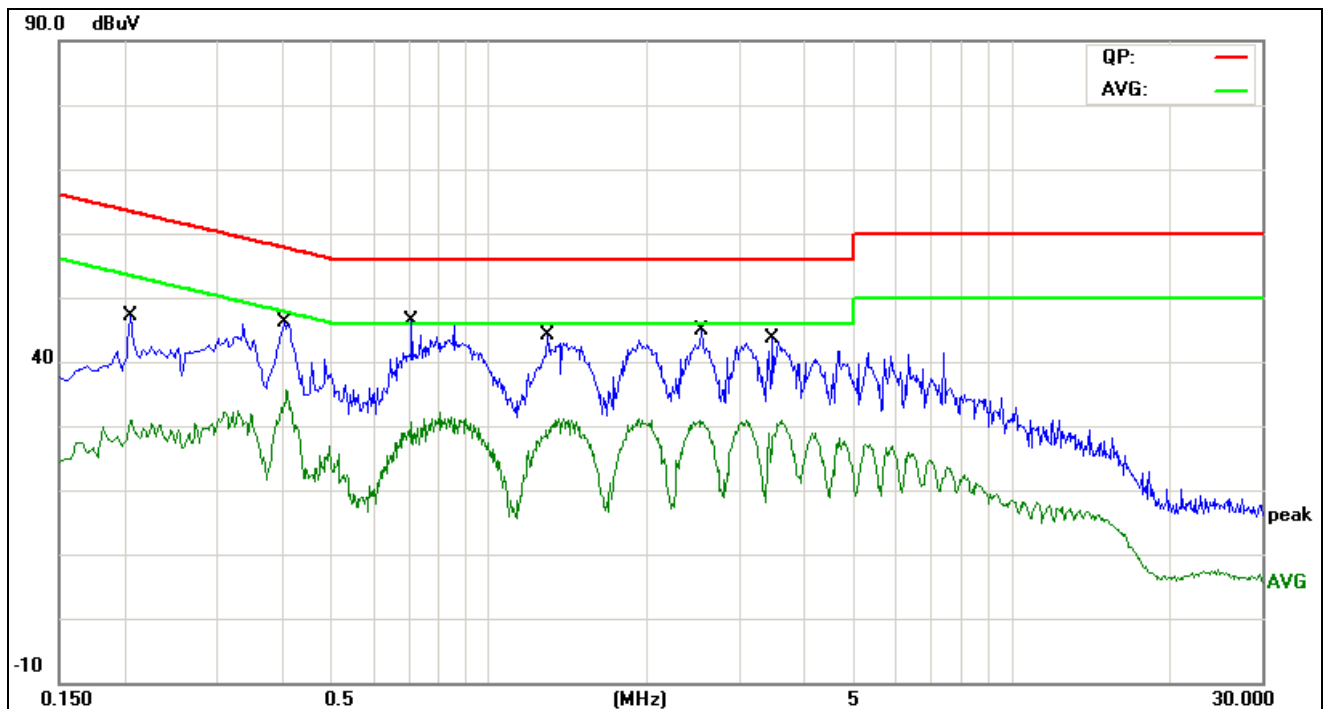
**2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes**

### 3.1.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

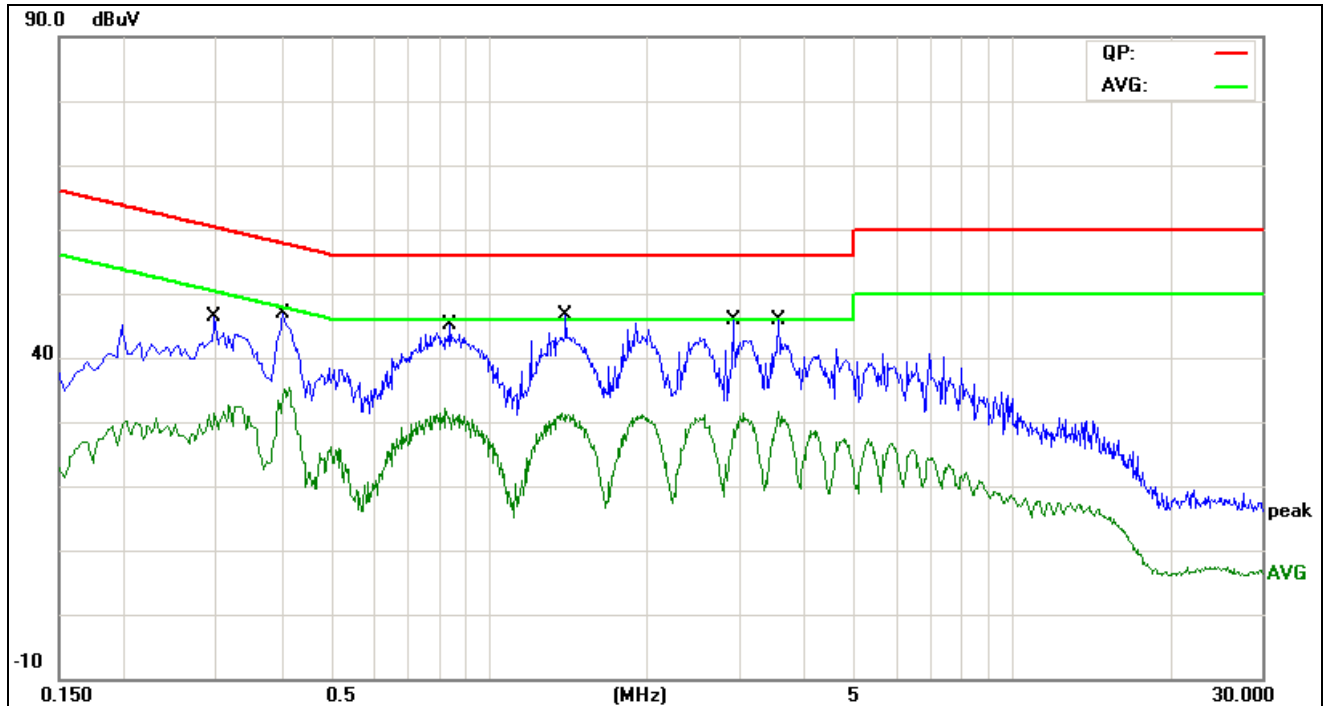
### 3.1.6 TEST RESULTS

EUT :	Smart Gateway	Model Name. :	US-G101
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	L
Test Voltage :	AC 120V/60Hz	Test Mode :	Mode 4



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.2060	27.35	10.12	37.47	63.36	-25.89	QP	
2		0.2060	19.15	10.12	29.27	53.36	-24.09	AVG	
3		0.4060	32.26	10.05	42.31	57.73	-15.42	QP	
4	*	0.4060	23.46	10.05	33.51	47.73	-14.22	AVG	
5		0.7100	26.52	10.02	36.54	56.00	-19.46	QP	
6		0.7100	17.74	10.02	27.76	46.00	-18.24	AVG	
7		1.2940	27.43	10.13	37.56	56.00	-18.44	QP	
8		1.2940	18.42	10.13	28.55	46.00	-17.45	AVG	
9		2.5420	28.80	10.06	38.86	56.00	-17.14	QP	
10		2.5420	19.70	10.06	29.76	46.00	-16.24	AVG	
11		3.4860	25.20	10.06	35.26	56.00	-20.74	QP	
12		3.4860	16.30	10.06	26.36	46.00	-19.64	AVG	

EUT :	Smart Gateway	Model Name. :	US-G101
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	N
Test Voltage :	AC 120V/60Hz	Test Mode :	Mode 4



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.2980	28.88	10.02	38.90	60.30	-21.40	QP	
2		0.2980	19.87	10.02	29.89	50.30	-20.41	AVG	
3		0.4020	31.97	10.02	41.99	57.81	-15.82	QP	
4	*	0.4020	23.04	10.02	33.06	47.81	-14.75	AVG	
5		0.8420	28.98	10.09	39.07	56.00	-16.93	QP	
6		0.8420	19.90	10.09	29.99	46.00	-16.01	AVG	
7		1.3980	28.97	10.06	39.03	56.00	-16.97	QP	
8		1.3980	19.84	10.06	29.90	46.00	-16.10	AVG	
9		2.9180	24.39	10.03	34.42	56.00	-21.58	QP	
10		2.9180	15.65	10.03	25.68	46.00	-20.32	AVG	
11		3.5740	27.09	10.01	37.10	56.00	-18.90	QP	
12		3.5740	18.71	10.01	28.72	46.00	-17.28	AVG	



## 3.2 RADIATED EMISSION MEASUREMENT

### 3.2.1 RADIATED EMISSION LIMITS (Frequency Range 9kHz-1000MHz)

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

### 3.2.2 TEST PROCEDURE

- The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

- d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

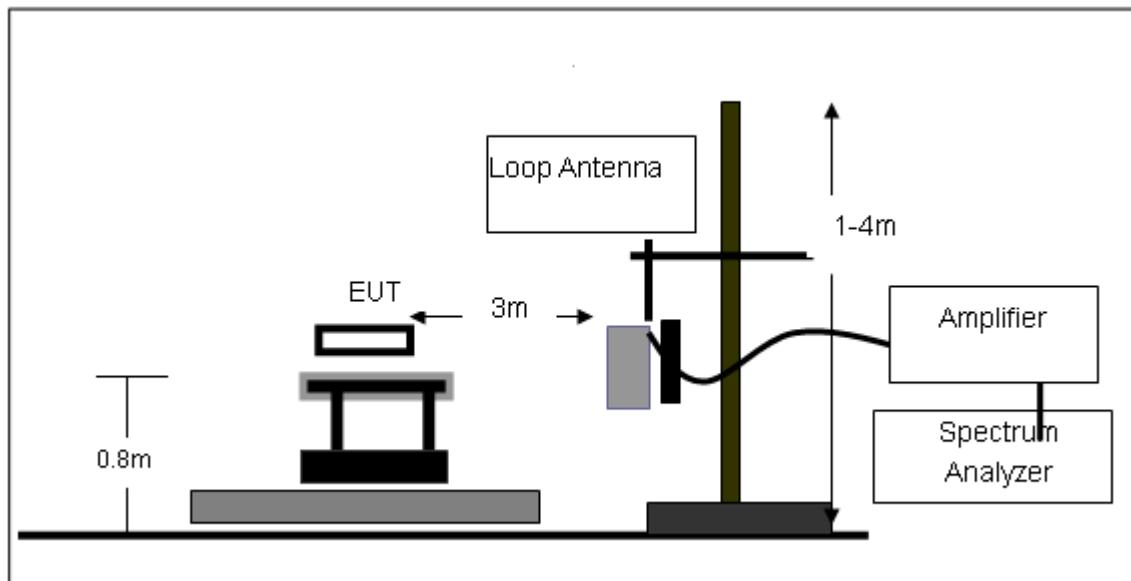
Both horizontal and vertical antenna polarities were tested  
and performed pretest to three orthogonal axis. The worst case emissions were reported

### **3.2.3 DEVIATION FROM TEST STANDARD**

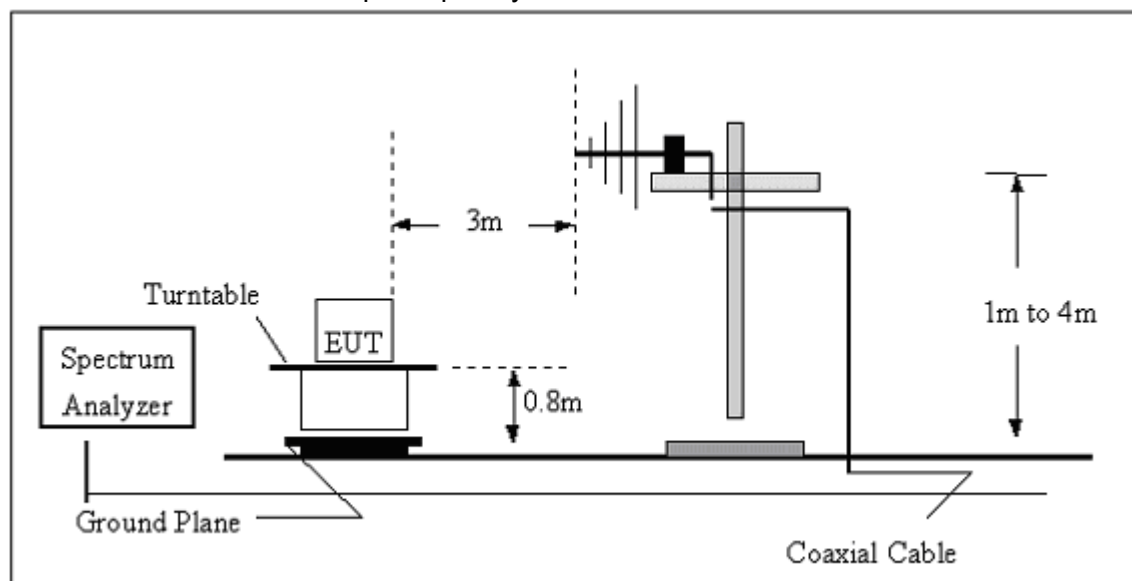
No deviation

### 3.2.4 TEST SETUP

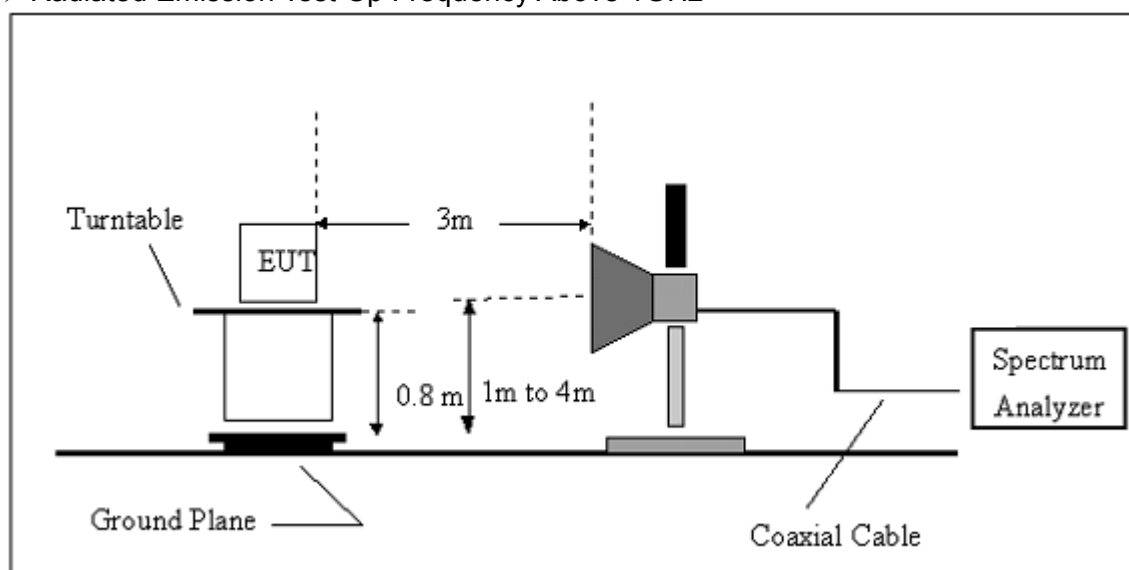
#### (A) Radiated Emission Test-Up Frequency Below 30MHz



#### (B) Radiated Emission Test-Up Frequency 30MHz~1GHz



(C) Radiated Emission Test-Up Frequency Above 1GHz



### 3.2.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

### 3.2.6 TEST RESULTS (BETWEEN 9KHZ – 30 MHZ)

EUT:	Smart Gateway	Model Name. :	US-G101
Temperature:	20 °C	Relative Humidity:	48%
Pressure:	1010 hPa	Test Voltage :	AC 120V
Test Mode :	TX	Polarization :	--

Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	PASS
--	--	--	--	PASS

#### NOTE:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor =  $40 \log (\text{specific distance}/\text{test distance})$ (dB);

Limit line = specific limits(dBuv) + distance extrapolation factor.

### 3.2.7 TEST RESULTS (BETWEEN 30MHZ – 1GHZ)

EUT :	Smart Gateway	Model Name :	US-G101
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	AC 120V
Test Mode :	TX		

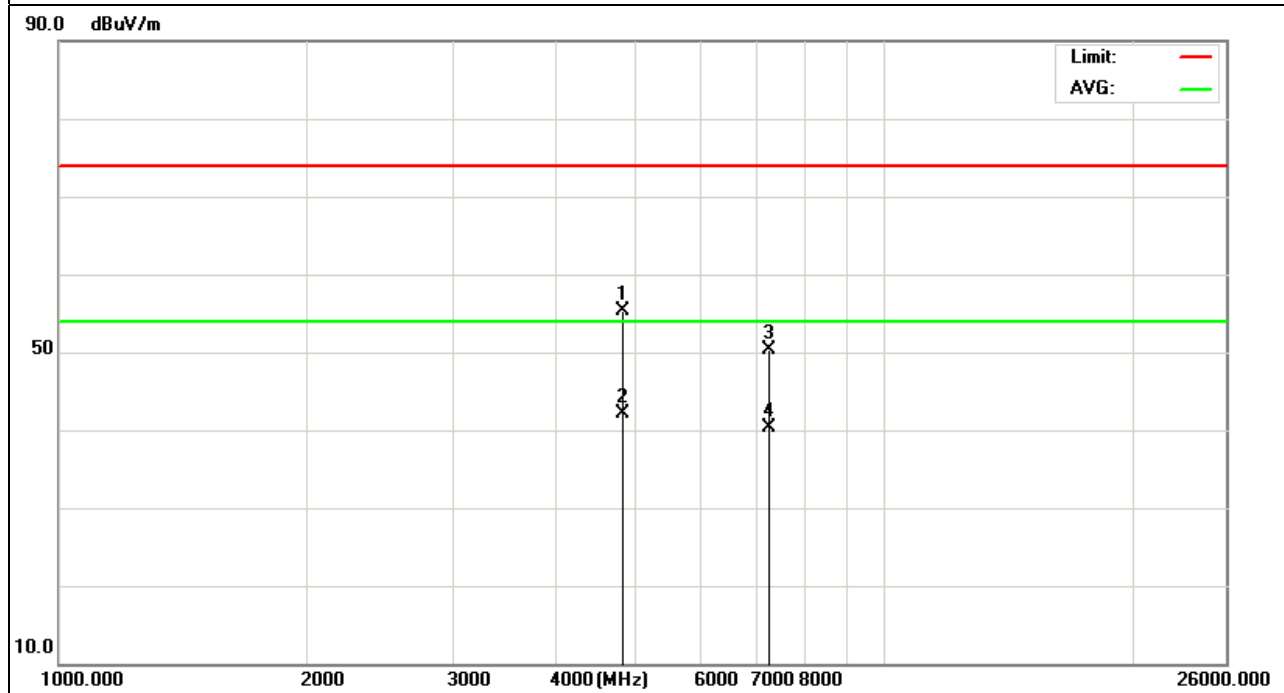
Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
V	148.441	38.39	-13.83	24.56	43.5	-18.94	QP
V	164.9074	41.72	-12.81	28.91	43.5	-14.59	QP
V	975.7528	45.16	-6.72	38.44	54	-15.56	QP
H	164.9074	35.72	-10.81	24.91	43.5	-18.59	QP
H	297.2241	41.12	-12.73	28.39	46	-17.61	QP
H	750.1082	39.83	-10.39	29.44	46	-16.56	QP
H	975.7528	46.87	-6.72	40.15	54	-13.85	QP
<b>Remark:</b> Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level- Limit Factor = Antenna Factor + Cable Loss – Pre-amplifier. Factor added by measurement software automatically							

### 3.2.8 TEST RESULTS (ABOVE 1000 MHZ)

EUT :	Smart Gateway	Model Name :	US-G101
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	AC 120V
Test Mode :	CH1 (802.11b Mode)	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4824.059	44.9	10.44	55.34	74	-18.66	peak
4824.059	31.74	10.44	42.18	54	-11.82	AVG
7236.231	37.93	12.39	50.32	74	-23.68	peak
7236.231	27.86	12.39	40.25	54	-13.75	AVG

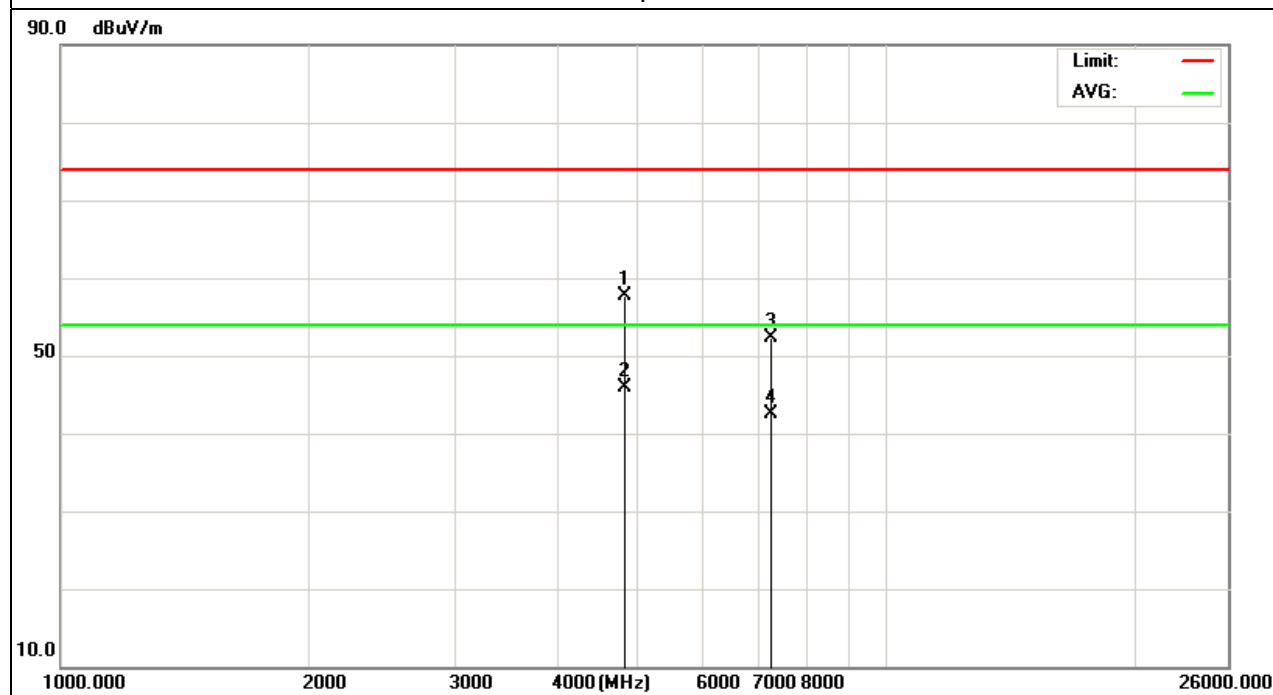
Remark:  
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	Smart Gateway	Model Name :	US-G101
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	AC 120V
Test Mode :	CH1 (802.11b Mode)	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4824.173	47.22	10.44	57.66	74	-16.34	peak
4824.173	35.4	10.44	45.84	54	-8.16	AVG
7236.276	40	12.39	52.39	74	-21.61	peak
7236.276	30.19	12.39	42.58	54	-11.42	AVG

Remark:  
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



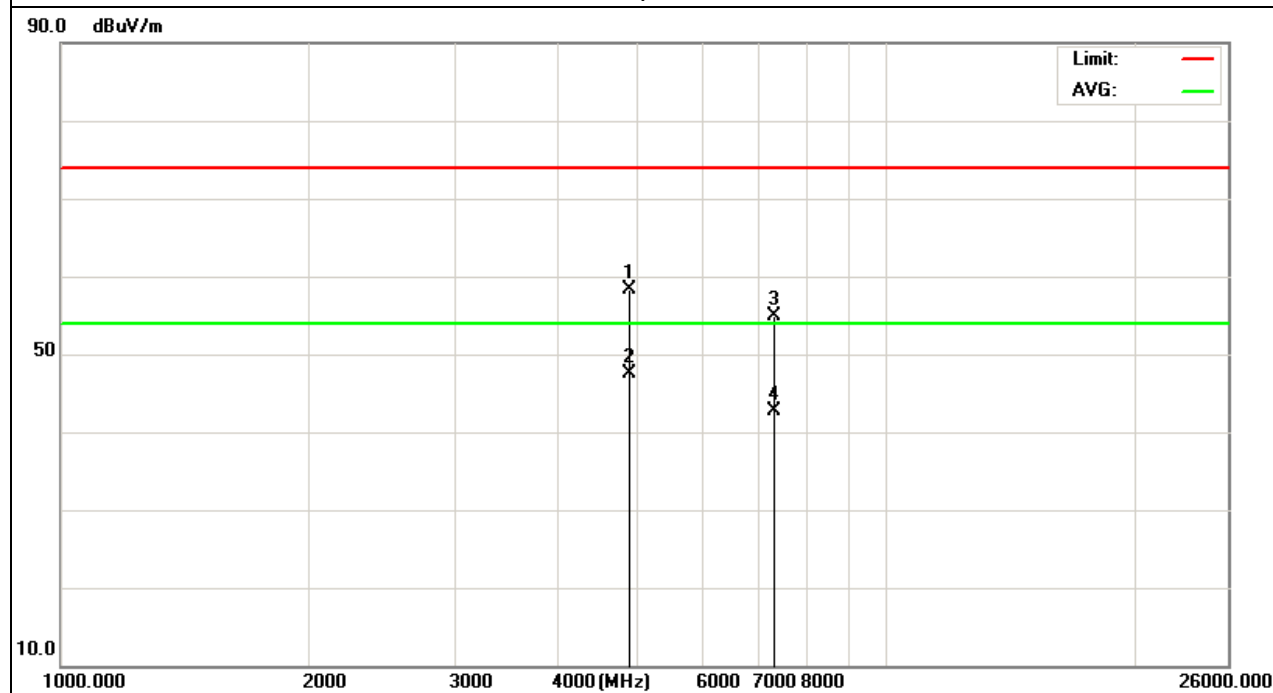


EUT :	Smart Gateway	Model Name :	US-G101
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	AC 120V
Test Mode :	CH6 (802.11b Mode)	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4874.197	47.95	10.4	58.35	74	-15.65	peak
4874.197	37.06	10.4	47.46	54	-6.54	AVG
7311.329	42.08	12.75	54.83	74	-19.17	peak

Remark:

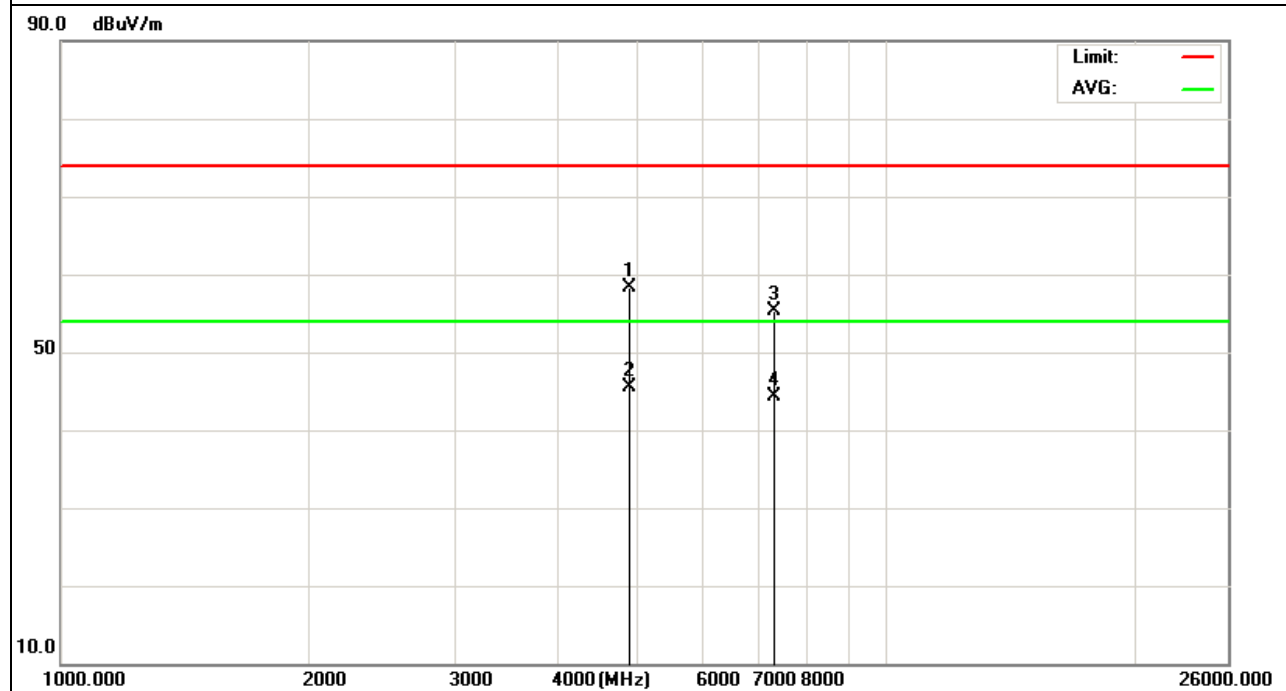
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	Smart Gateway	Model Name :	US-G101
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	AC 120V
Test Mode :	CH6 (802.11b Mode)	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4874.373	47.92	10.4	58.32	74	-15.68	peak
4874.373	35.11	10.4	45.51	54	-8.49	AVG
7311.225	42.49	12.75	55.24	74	-18.76	peak
7311.225	31.53	12.75	44.28	54	-9.72	AVG

Remark:  
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

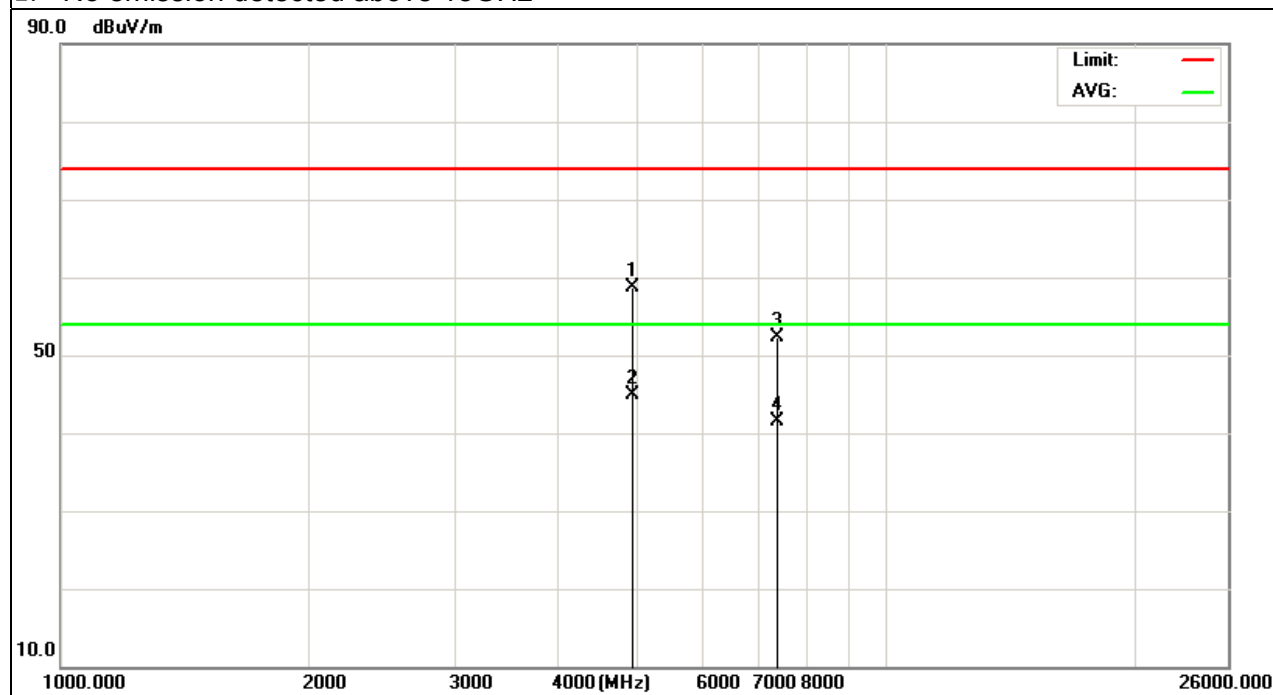


EUT :	Smart Gateway	Model Name :	US-G101
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	AC 120V
Test Mode :	CH11 (802.11b Mode)	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4924.121	48.38	10.39	58.77	74	-15.23	peak
4934.121	34.42	10.44	44.86	54	-9.14	AVG
7386.209	39.71	12.68	52.39	74	-21.61	peak
7386.209	28.8	12.68	41.48	54	-12.52	AVG

Remark:

- Factor = Antenna Factor + Cable Loss – Pre-amplifier.
- No emission detected above 18GHz

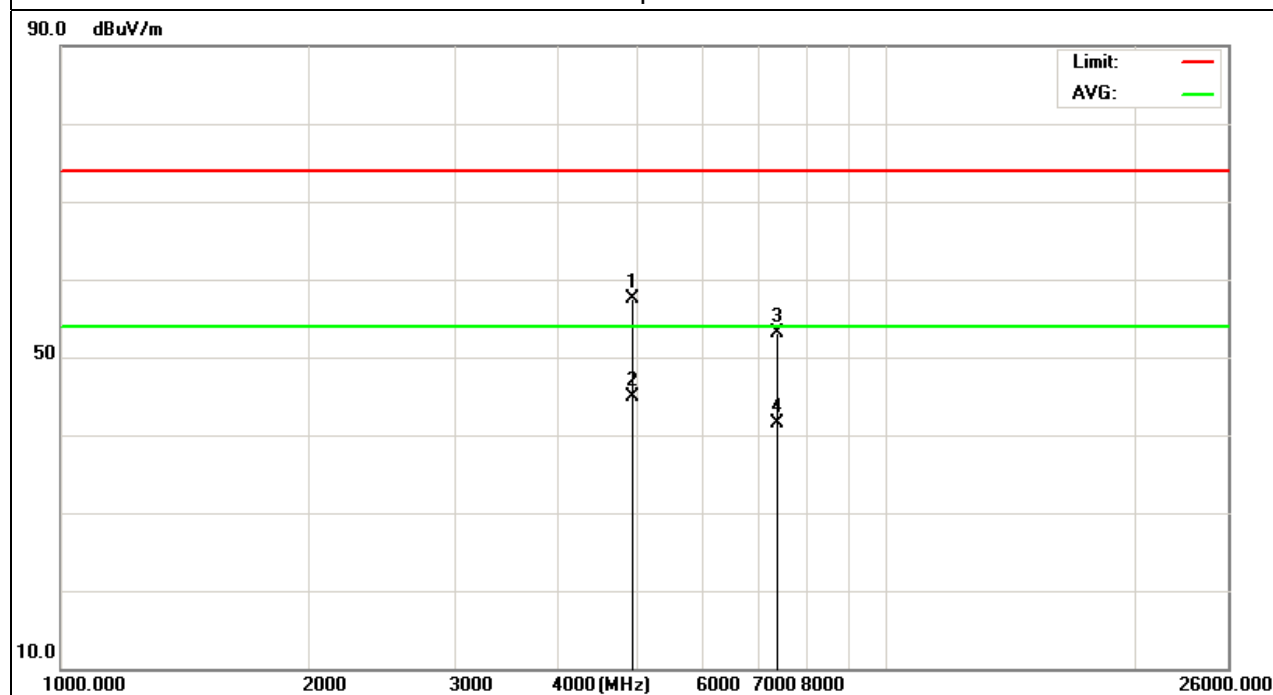


EUT :	Smart Gateway	Model Name :	US-G101
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	AC 120V
Test Mode :	CH11 (802.11b Mode)	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4924.374	47.07	10.39	57.46	74	-16.54	peak
4924.374	34.53	10.39	44.92	54	-9.08	AVG
7386.293	40.47	12.68	53.15	74	-20.85	peak
7386.293	28.81	12.68	41.49	54	-12.51	AVG

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

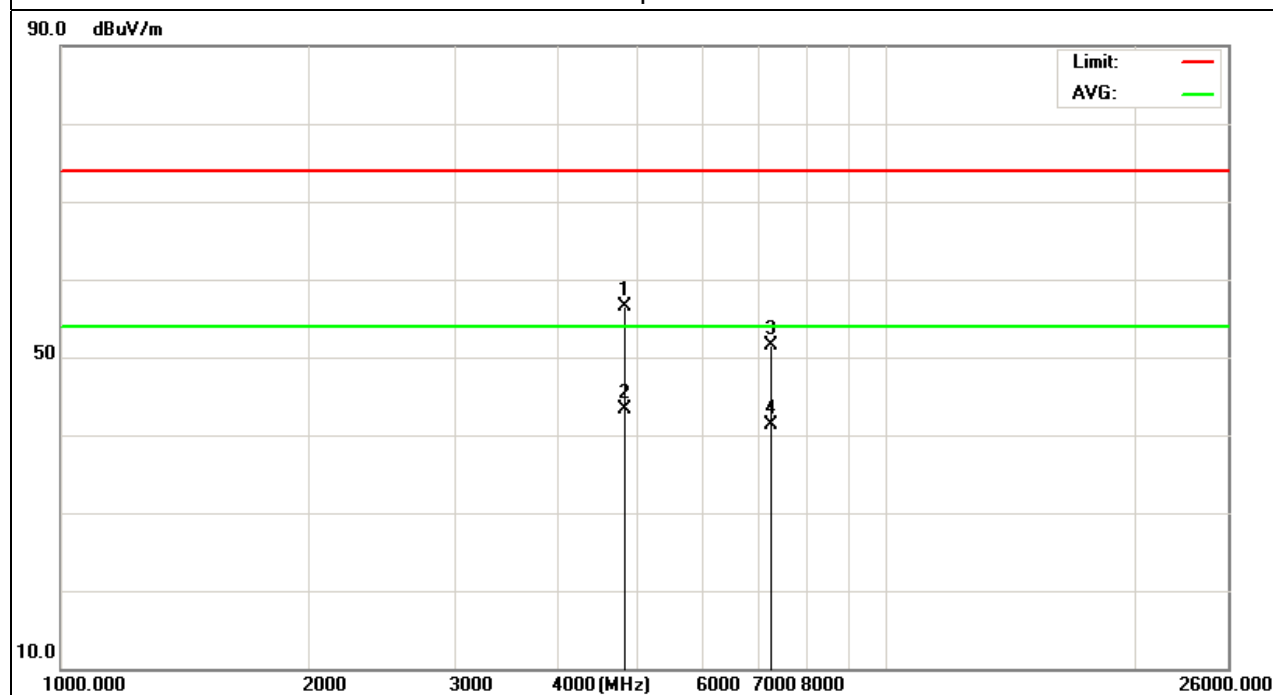


EUT :	Smart Gateway	Model Name :	US-G101
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	AC 120V
Test Mode :	CH1 (802.11g Mode)	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4824.127	46.08	10.44	56.52	74	-17.48	peak
4824.127	32.81	10.44	43.25	54	-10.75	AVG
7236.338	39.1	12.39	51.49	74	-22.51	peak
7236.338	28.87	12.39	41.26	54	-12.74	AVG

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

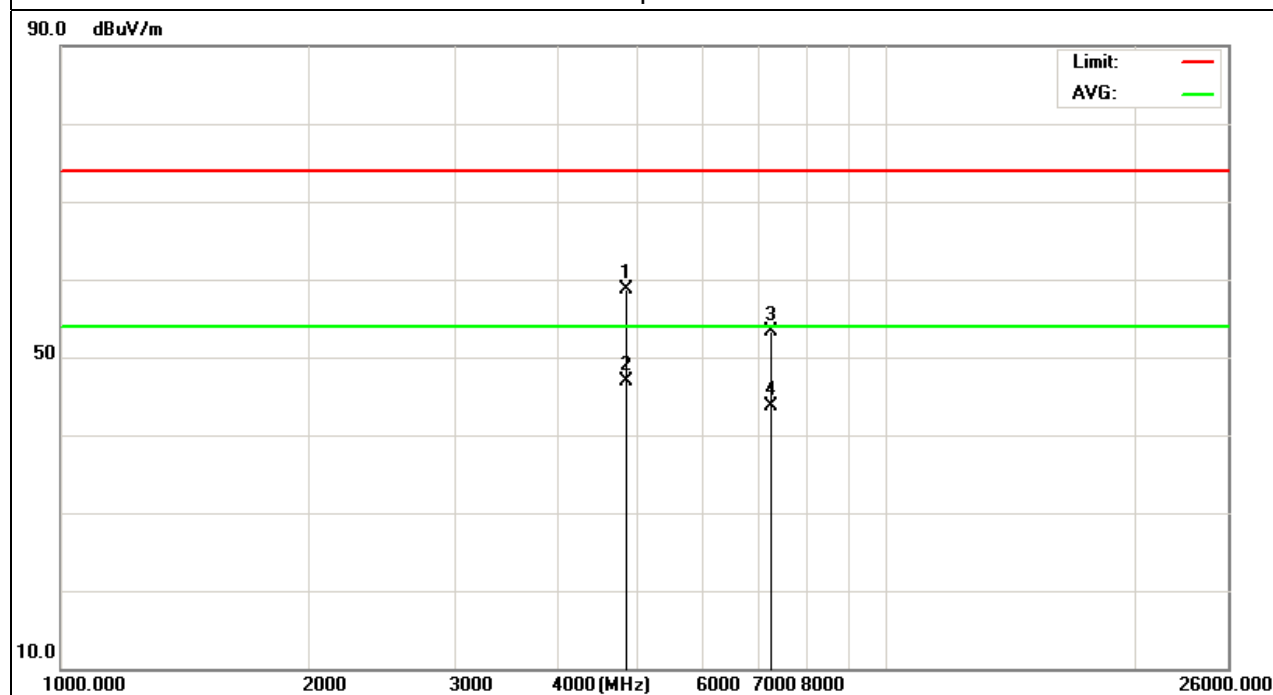


EUT :	Smart Gateway	Model Name :	US-G101
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	AC 120V
Test Mode :	CH1 (802.11g Mode)	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4824.289	48.31	10.44	58.75	74	-15.25	peak
4824.289	36.48	10.44	46.92	54	-7.08	AVG
7236.455	40.87	12.39	53.26	74	-20.74	peak
7236.455	31.4	12.39	43.79	54	-10.21	AVG

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

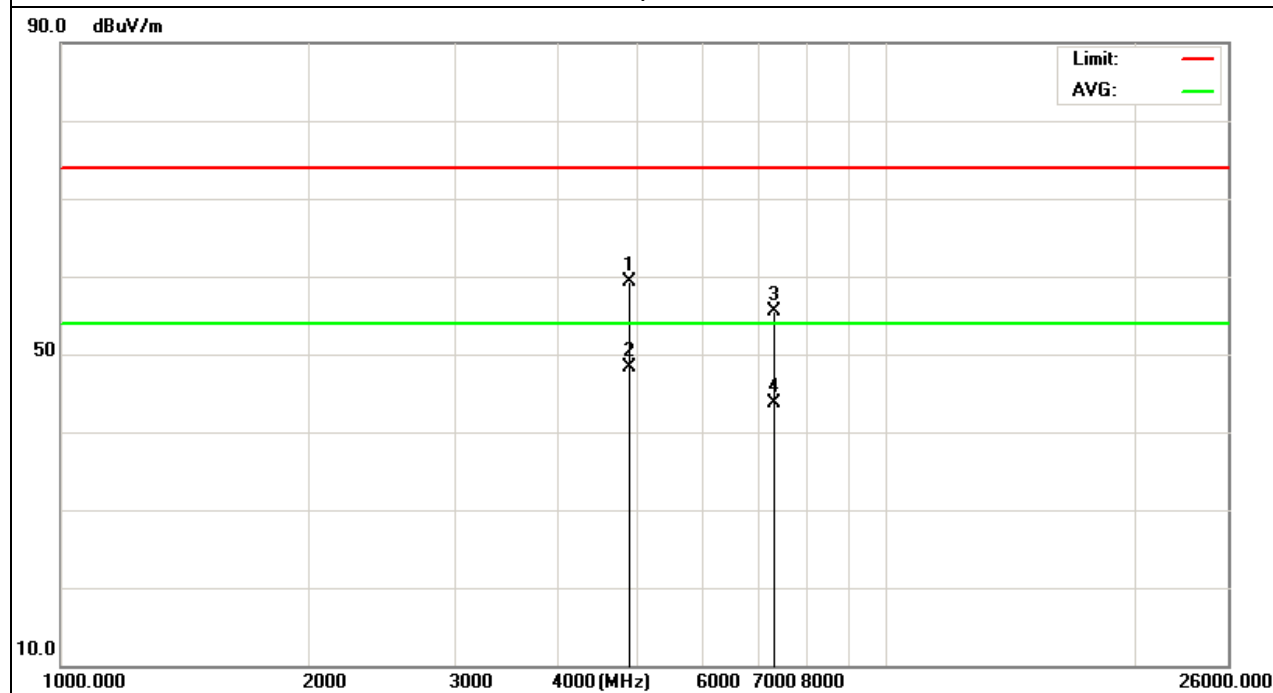


EUT :	Smart Gateway	Model Name :	US-G101
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	AC 120V
Test Mode :	CH6 (802.11g Mode)	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4874.039	48.97	10.4	59.37	74	-14.63	peak
4874.039	37.92	10.4	48.32	54	-5.68	AVG
7311.591	42.68	12.75	55.43	74	-18.57	peak
7311.591	31	12.75	43.75	54	-10.25	AVG

Remark:

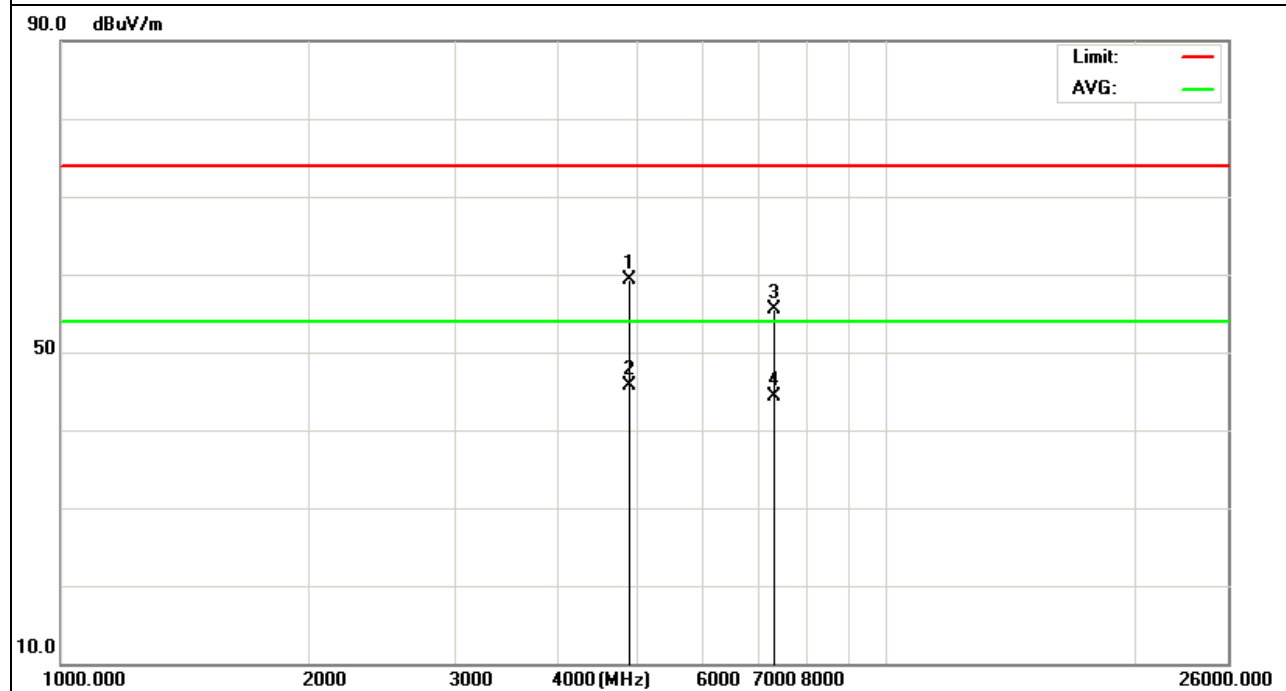
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	Smart Gateway	Model Name :	US-G101
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	AC 120V
Test Mode :	CH6 (802.11g Mode)	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4874.408	48.88	10.4	59.28	74	-14.72	peak
4874.488	35.22	10.4	45.62	54	-8.38	AVG
7311.351	42.66	12.75	55.41	74	-18.59	peak
7311.351	31.61	12.75	44.36	54	-9.64	AVG

Remark:  
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



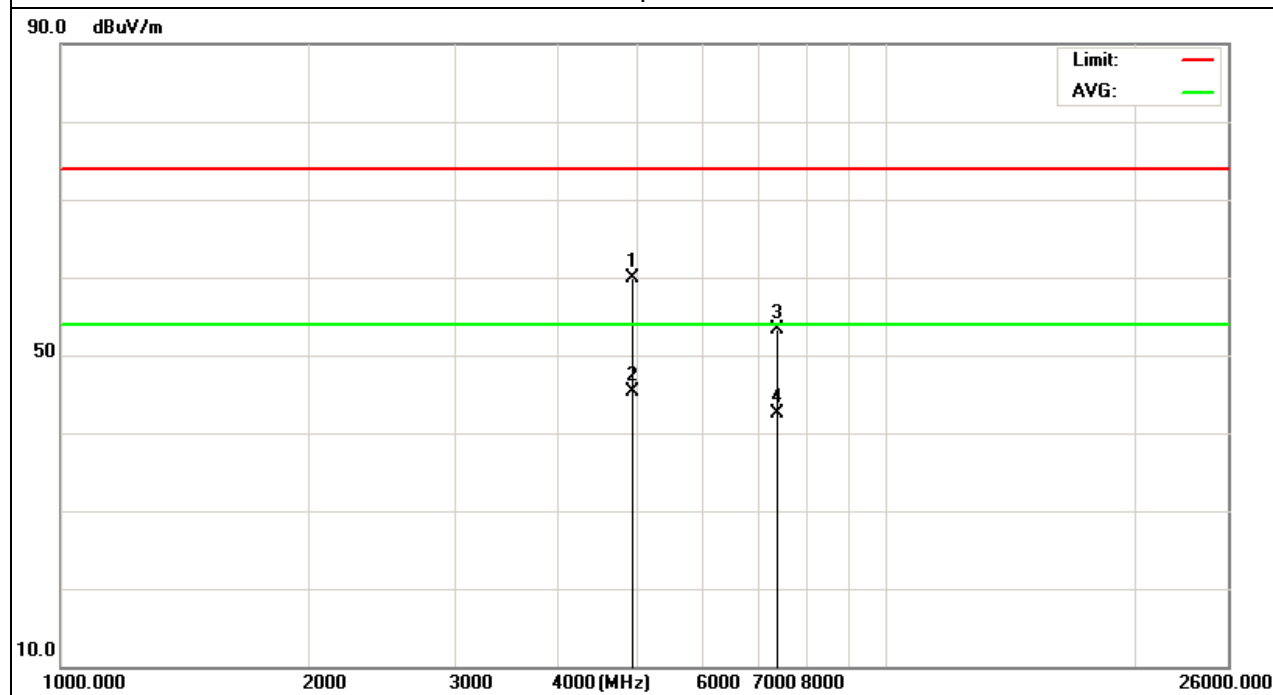


EUT :	Smart Gateway	Model Name :	US-G101
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	AC 120V
Test Mode :	CH11 (802.11g Mode)	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4924.075	49.49	10.39	59.88	74	-14.12	peak
4934.075	34.96	10.44	45.4	54	-8.6	AVG
7386.152	40.56	12.68	53.24	74	-20.76	peak
7386.152	29.85	12.68	42.53	54	-11.47	AVG

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

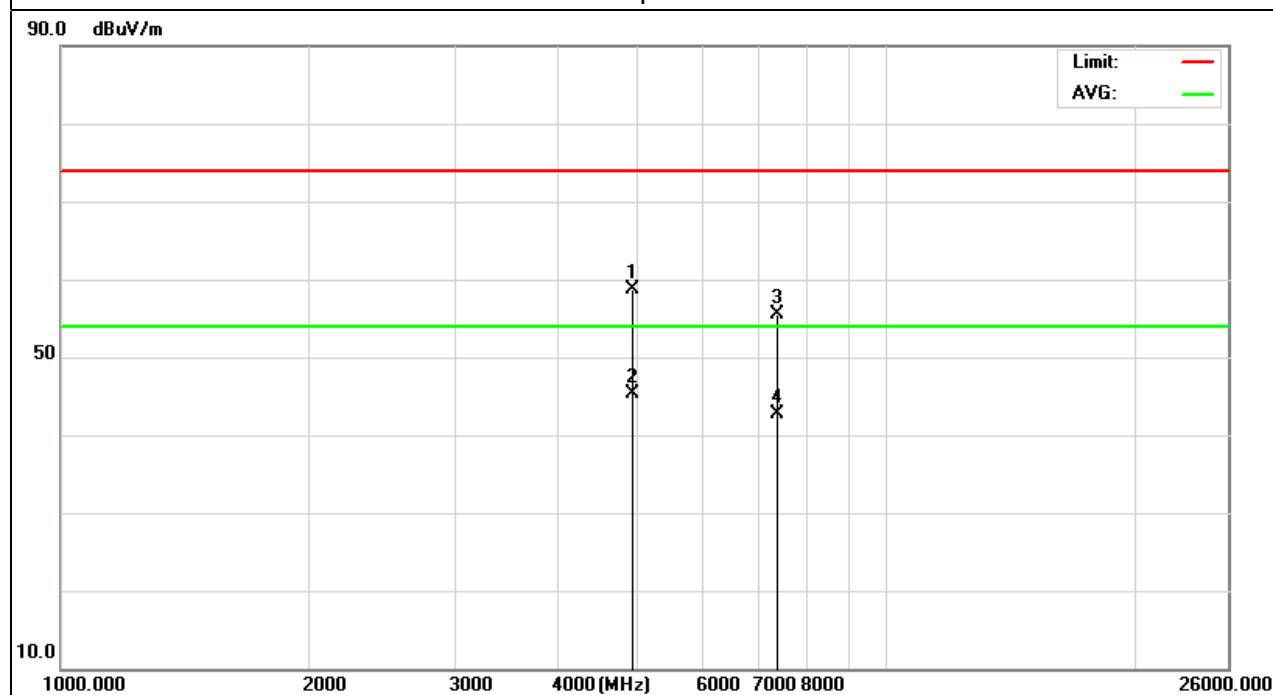


EUT :	Smart Gateway	Model Name :	US-G101
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	AC 120V
Test Mode :	CH11(802.11g Mode)	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4924.263	48.32	10.39	58.71	74	-15.29	peak
4924.263	34.97	10.39	45.36	54	-8.64	AVG
7386.154	42.9	12.68	55.58	74	-18.42	peak
7386.154	29.95	12.68	42.63	54	-11.37	AVG

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

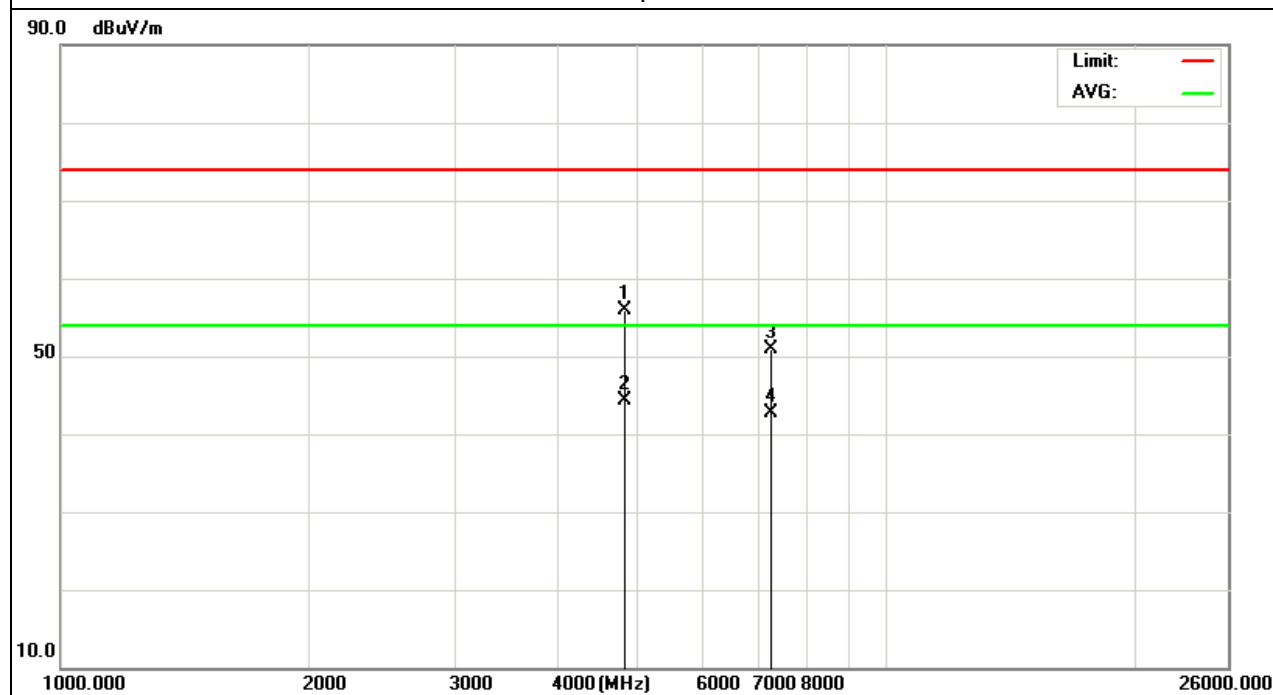


EUT :	Smart Gateway	Model Name :	US-G101
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	AC 120V
Test Mode :	CH1 (802.11n/20M Mode)	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4824.027	45.56	10.44	56	74	-18	peak
4824.027	33.92	10.44	44.36	54	-9.64	AVG
7236.289	38.59	12.39	50.98	74	-23.02	peak
7236.289	30.29	12.39	42.68	54	-11.32	AVG

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

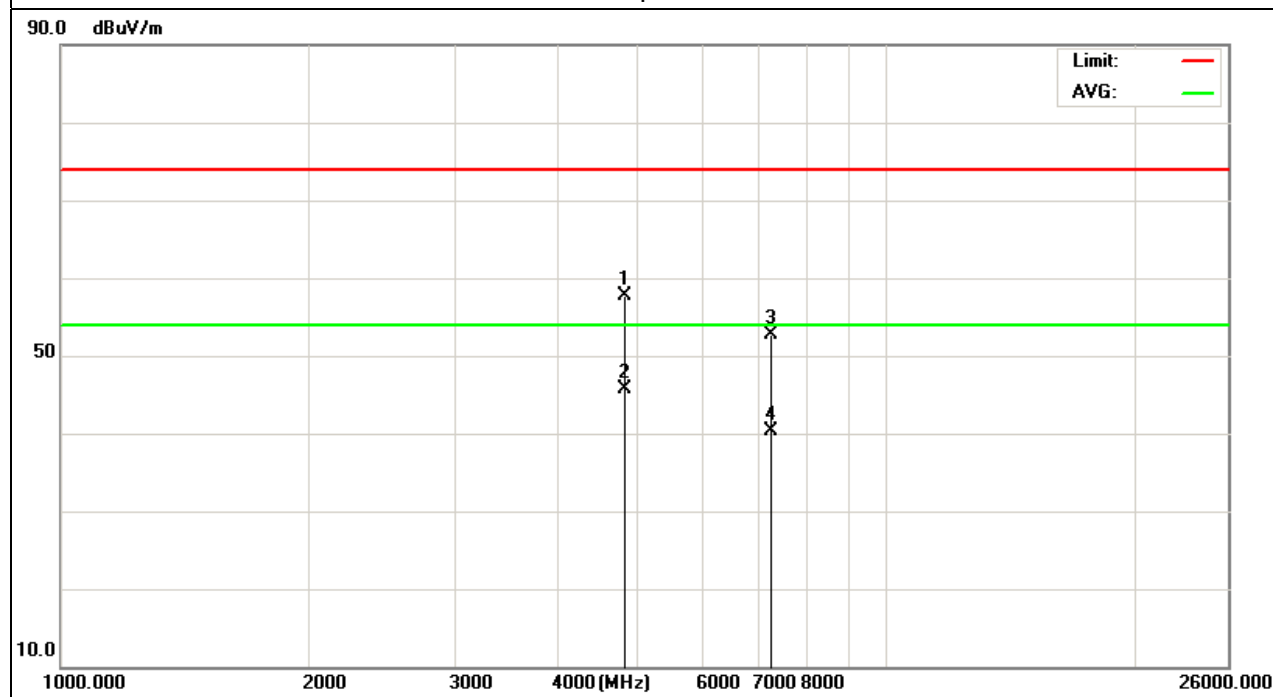


EUT :	Smart Gateway	Model Name :	US-G101
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	AC 120V
Test Mode :	CH1 (802.11n/20M Mode)	Polarization :	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4824.133	47.24	10.44	57.68	74	-16.32	peak
4824.133	35.19	10.44	45.63	54	-8.37	AVG
7236.104	40.3	12.39	52.69	74	-21.31	peak
7236.104	27.87	12.39	40.26	54	-13.74	AVG

Remark:

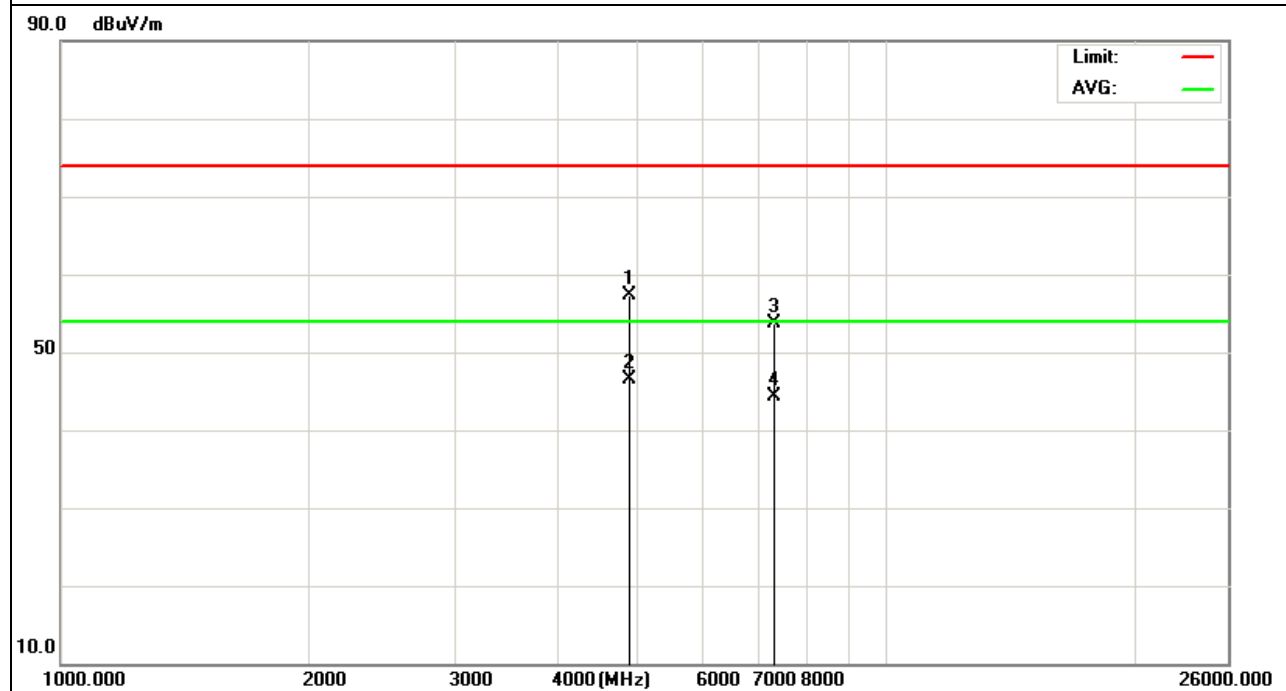
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	Smart Gateway	Model Name :	US-G101
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	AC 120V
Test Mode :	CH6 (802.11n/20M Mode)	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4874.159	46.88	10.4	57.28	74	-16.72	peak
4874.159	36.18	10.4	46.58	54	-7.42	AVG
7311.257	41.04	12.75	53.79	74	-20.21	peak
7311.257	31.47	12.75	44.22	54	-9.78	AVG

Remark:  
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

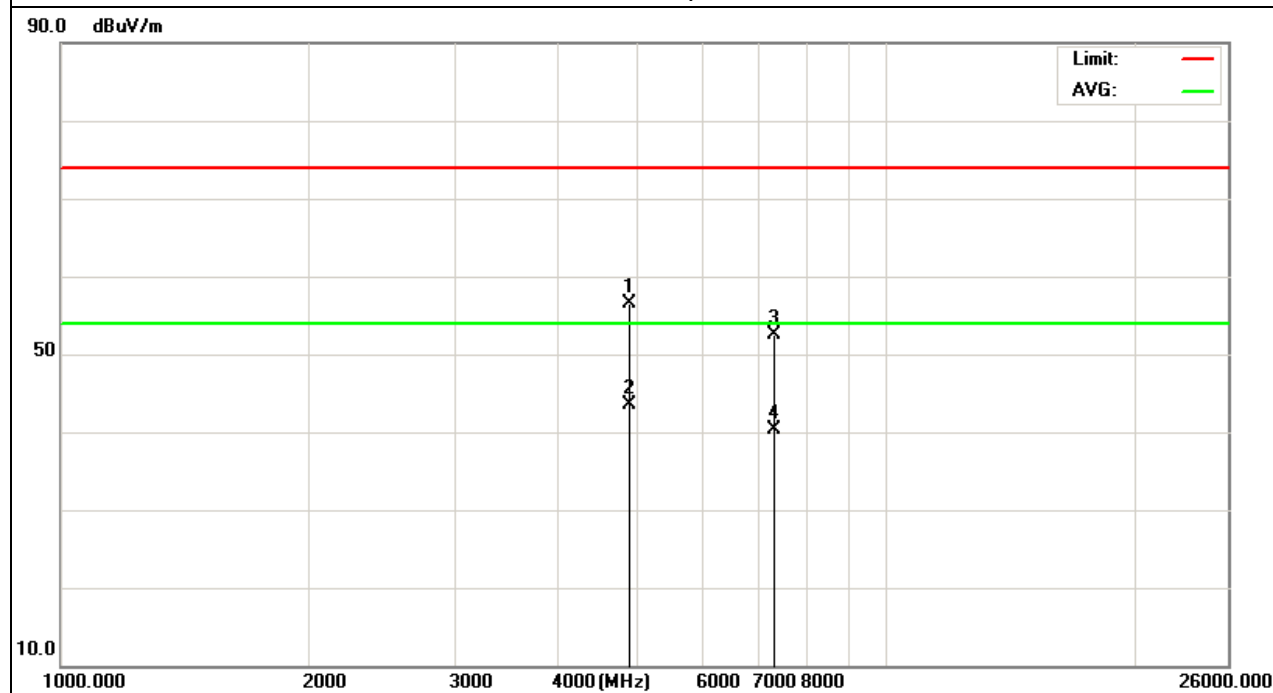


EUT :	Smart Gateway	Model Name :	US-G101
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	AC 120V
Test Mode :	CH6 (802.11n/20M Mode)	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4874.238	46.07	10.4	56.47	74	-17.53	peak
4874.238	33.16	10.4	43.56	54	-10.44	AVG
7311.265	39.67	12.75	52.42	74	-21.58	peak
7311.265	27.56	12.75	40.31	54	-13.69	AVG

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

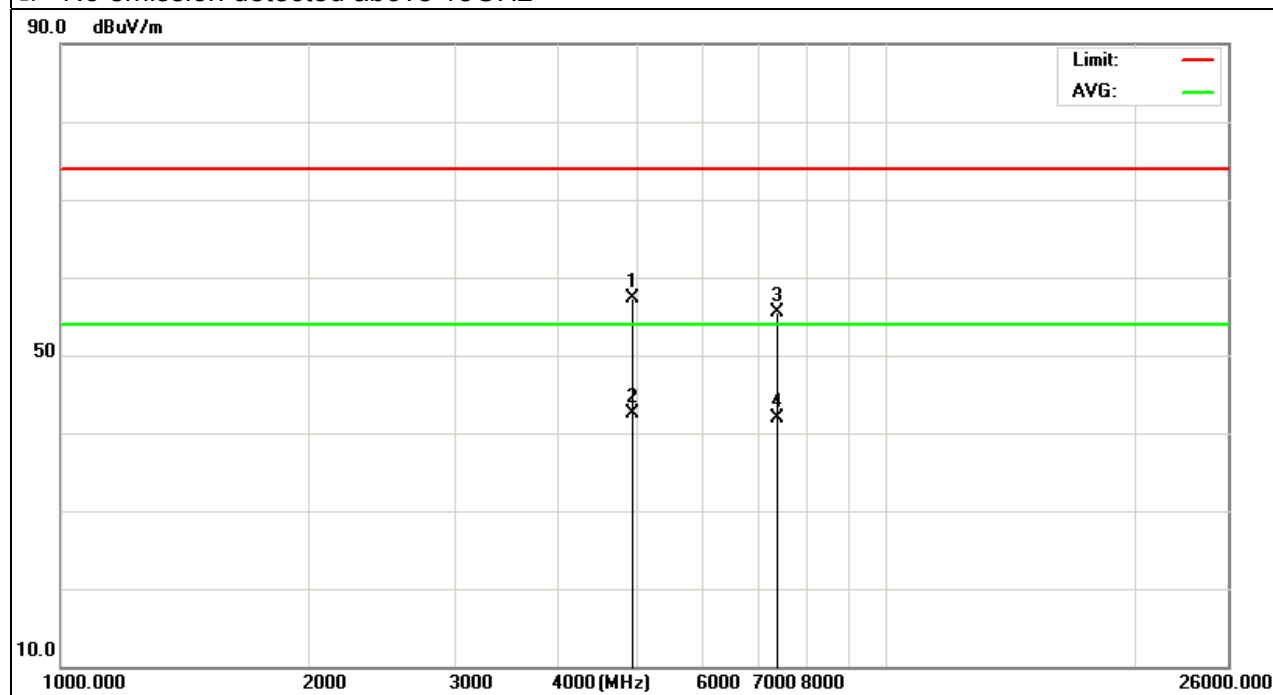


EUT :	Smart Gateway	Model Name :	US-G101
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	AC 120V
Test Mode :	CH11 (802.11n/20M Mode)	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4924.182	46.94	10.39	57.33	74	-16.67	peak
4934.182	32.09	10.44	42.53	54	-11.47	AVG
7386.385	42.77	12.69	55.46	74	-18.54	peak
7386.385	29.15	12.69	41.84	54	-12.16	AVG

Remark:

3. Factor = Antenna Factor + Cable Loss – Pre-amplifier.
4. No emission detected above 18GHz

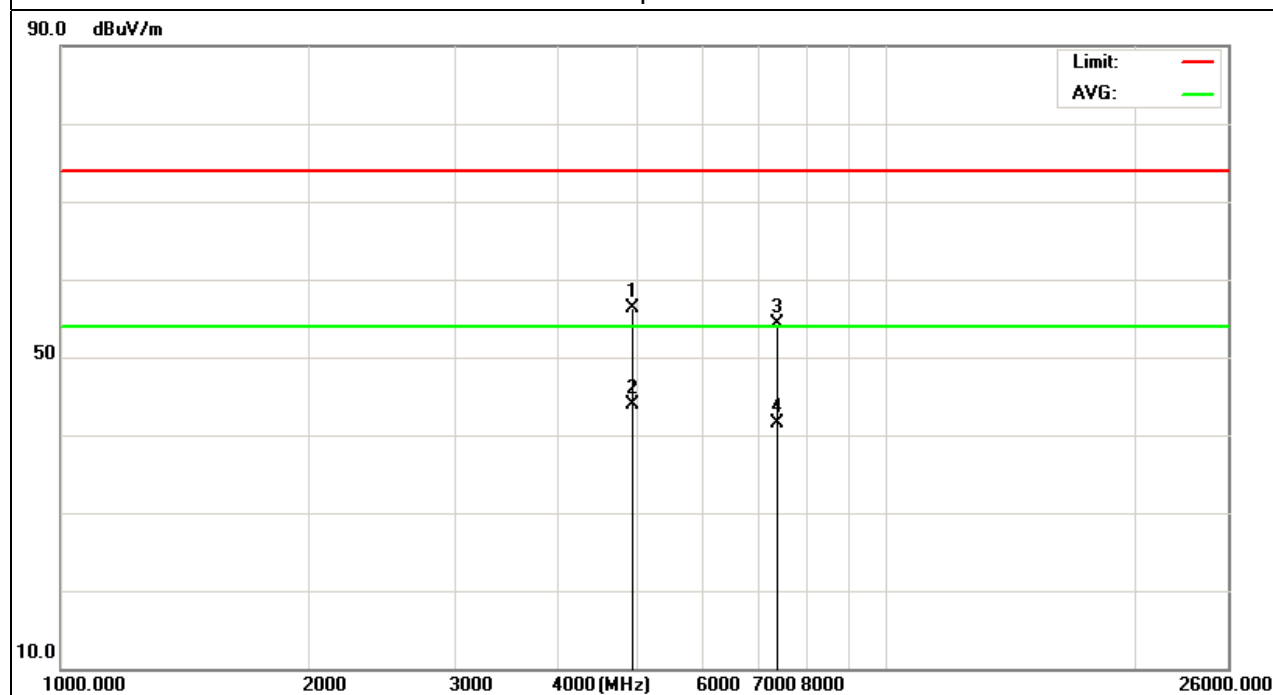


EUT :	Smart Gateway	Model Name :	US-G101
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	AC 120V
Test Mode :	CH11 (802.11n/20M Mode)	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4924.226	45.98	10.39	56.37	74	-17.63	peak
4924.226	33.59	10.39	43.98	54	-10.02	AVG
7386.135	41.61	12.68	54.29	74	-19.71	peak
7386.135	28.9	12.68	41.58	54	-12.42	AVG

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.



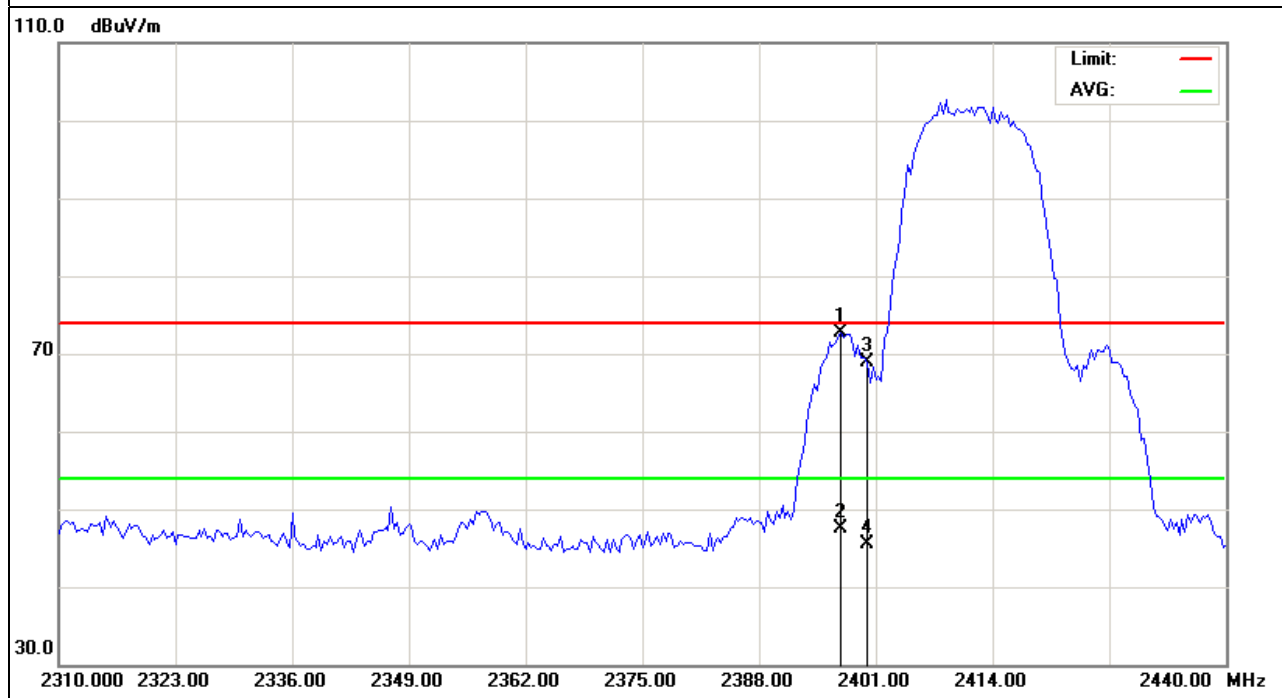


**Band Edge Emission:**

EUT :	Smart Gateway	Model Name :	US-G101
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	AC 120V
Test Mode :	CH1(802.11b Mode)	Polarization :	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2397.1	85.78	-13.02	72.76	74	-1.24	peak
2397.1	60.48	-13.02	47.46	54	-6.54	AVG
2400	81.88	-12.99	68.89	74	-5.11	peak
2400	58.58	-12.99	45.59	54	-8.41	AVG

Remark:  
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

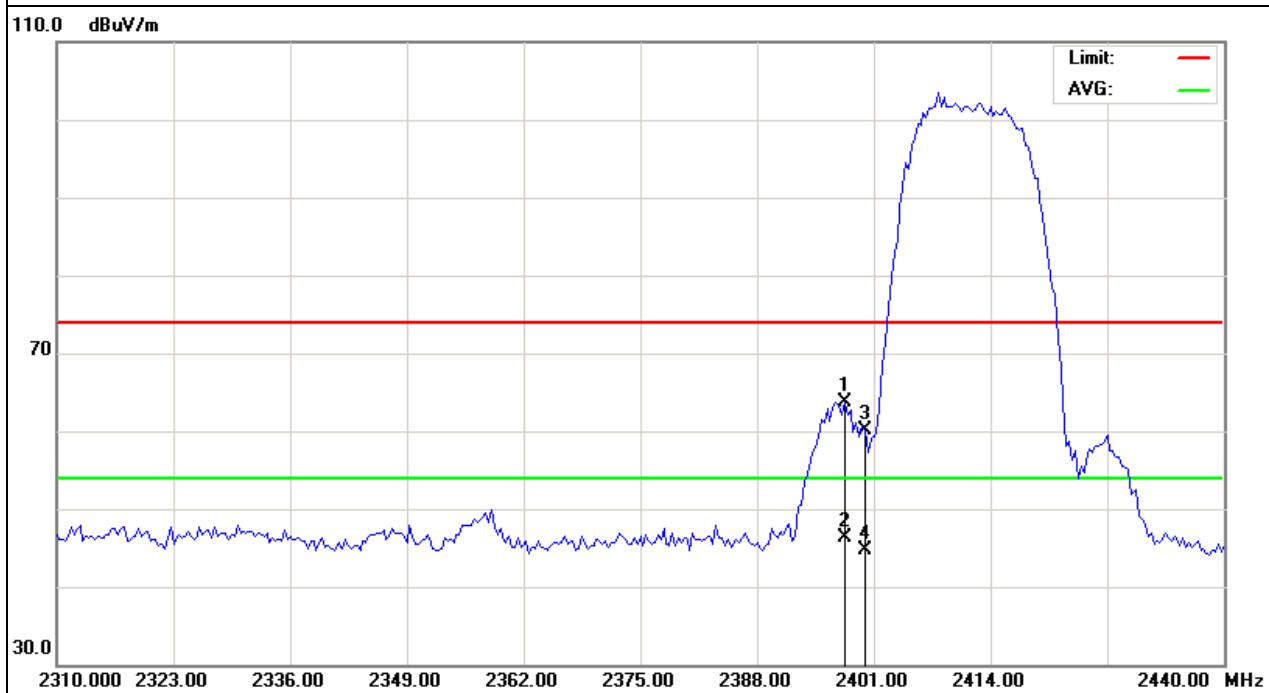


EUT :	Smart Gateway	Model Name :	US-G101
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	AC 120V
Test Mode :	CH1(802.11b Mode)	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2397.75	76.78	-13	63.78	74	-10.22	peak
2397.75	59.34	-13	46.34	54	-7.66	AVG
2400	73.09	-12.99	60.1	74	-13.9	peak
2400	57.65	-12.99	44.66	54	-9.34	AVG

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

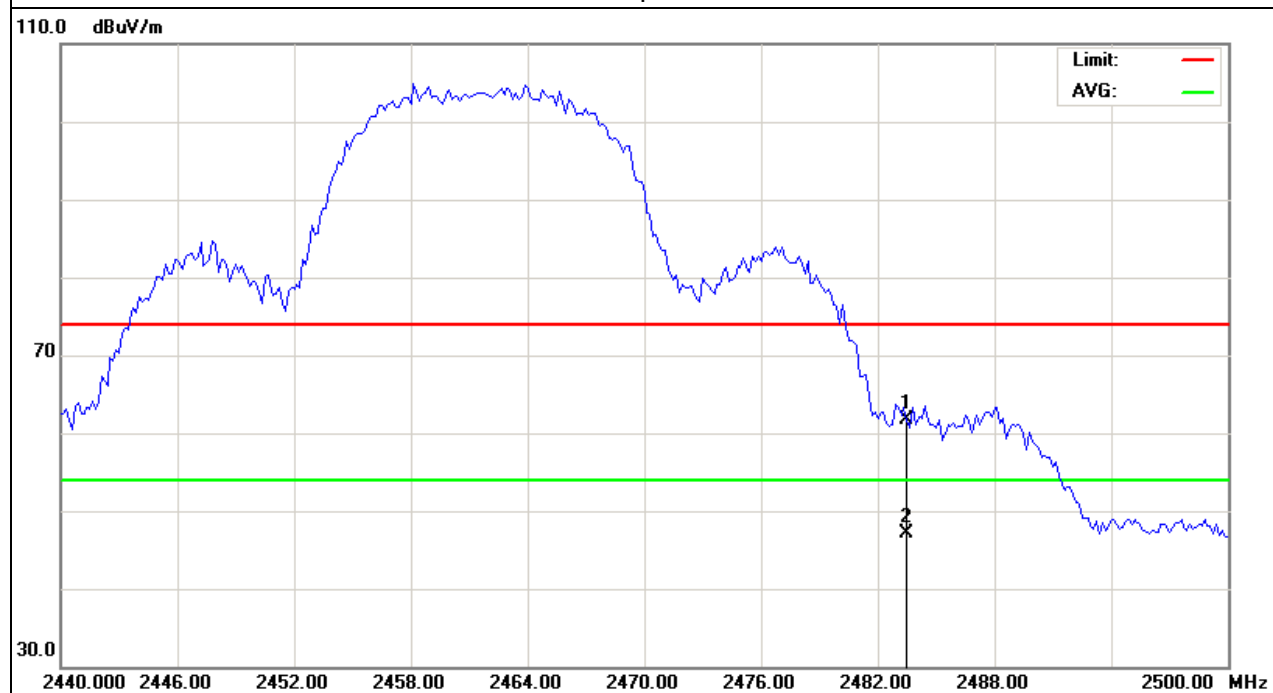


EUT :	Smart Gateway	Model Name :	US-G101
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	AC 120V
Test Mode :	CH11(802.11b Mode)	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2483.5	74.4	-12.78	61.62	74	-12.38	peak
2483.5	59.85	-12.78	47.07	54	-6.93	AVG

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

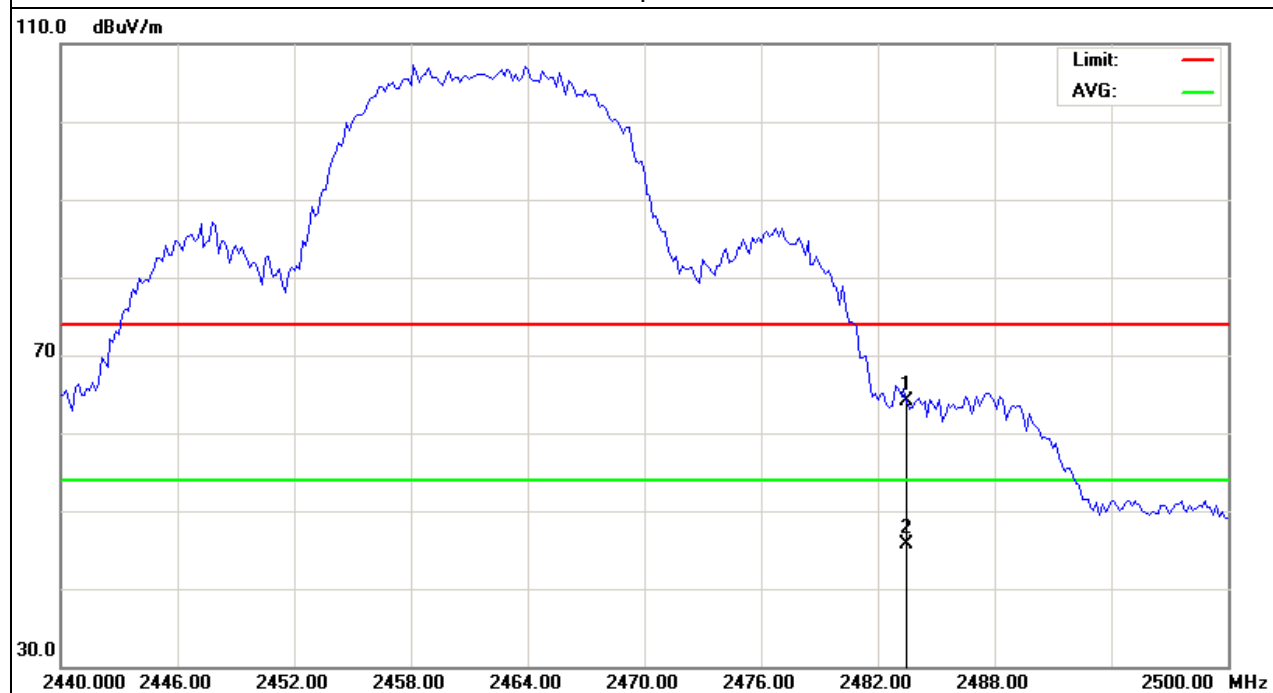


EUT :	Smart Gateway	Model Name :	US-G101
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	AC 120V
Test Mode :	CH11(802.11b Mode)	Polarization :	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.5	76.81	-12.78	64.03	74	-9.97	peak
2483.5	58.57	-12.78	45.79	54	-8.21	AVG

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

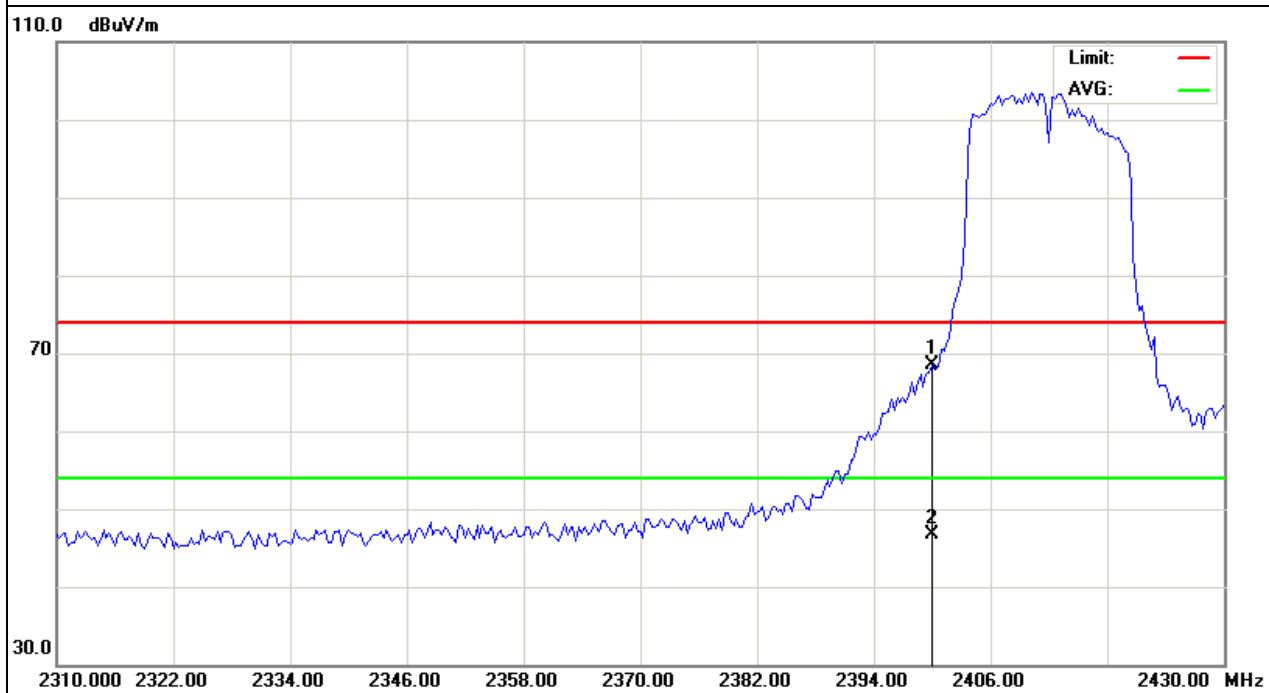


EUT :	Smart Gateway	Model Name :	US-G101
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	AC 120V
Test Mode :	CH1(802.11g Mode)	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2400	81.59	-12.99	68.6	74	-5.4	peak
2400	59.73	-12.99	46.74	54	-7.26	AVG

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

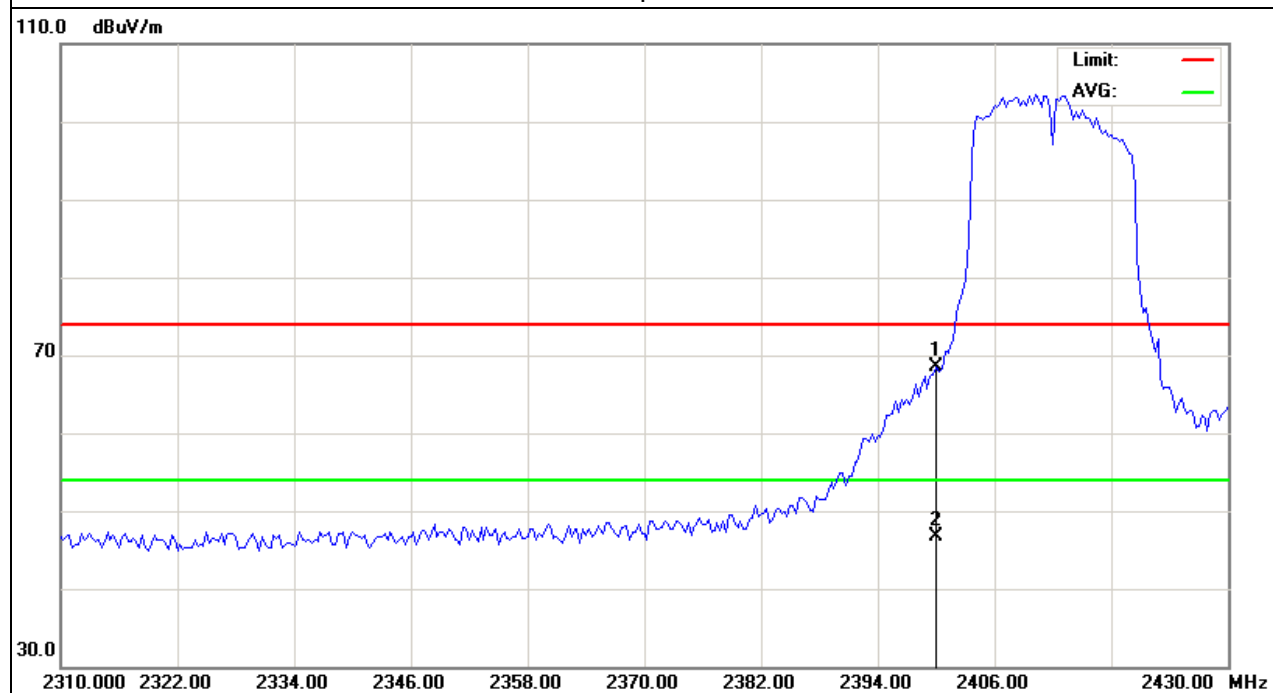


EUT :	Smart Gateway	Model Name :	US-G101
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	AC 120V
Test Mode :	CH1(802.11gMode)	Polarization :	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2400	81.49	-12.99	68.5	74	-5.5	peak
2400	59.73	-12.99	46.74	54	-7.26	AVG

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

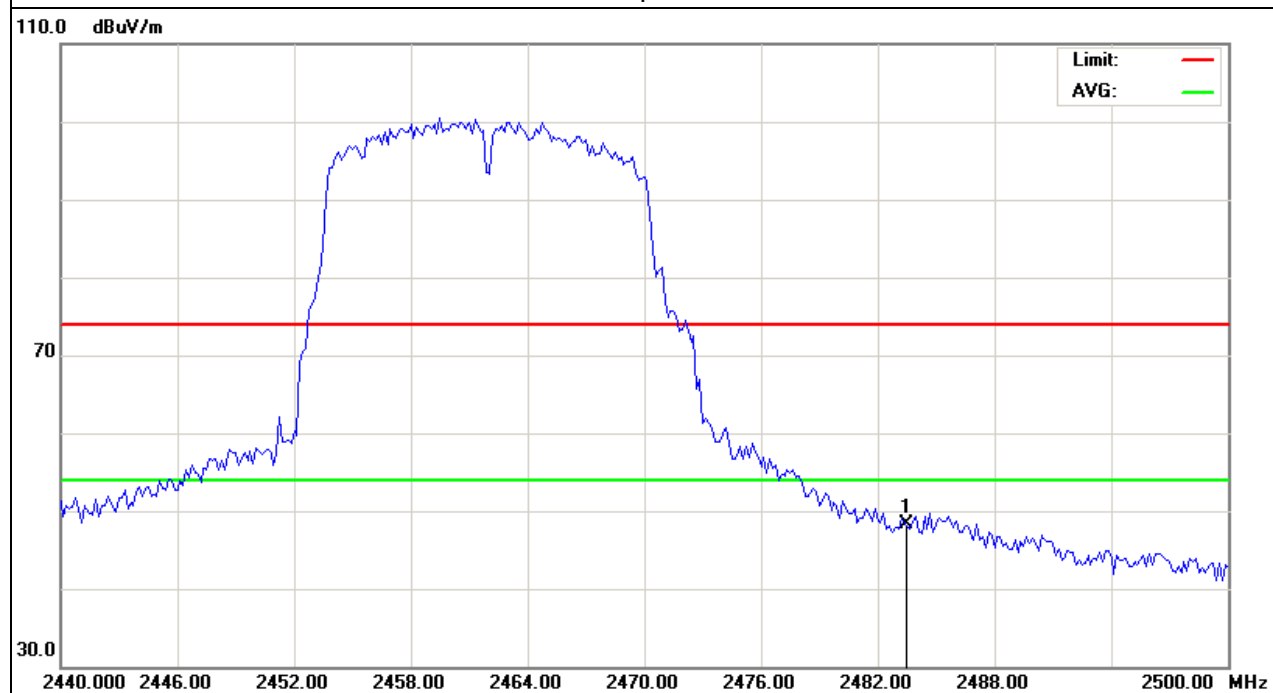


EUT :	Smart Gateway	Model Name :	US-G101
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	AC 120V
Test Mode :	CH11(802.11g Mode)	Polarization :	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.5	60.98	-12.78	48.2	74	-25.8	peak

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

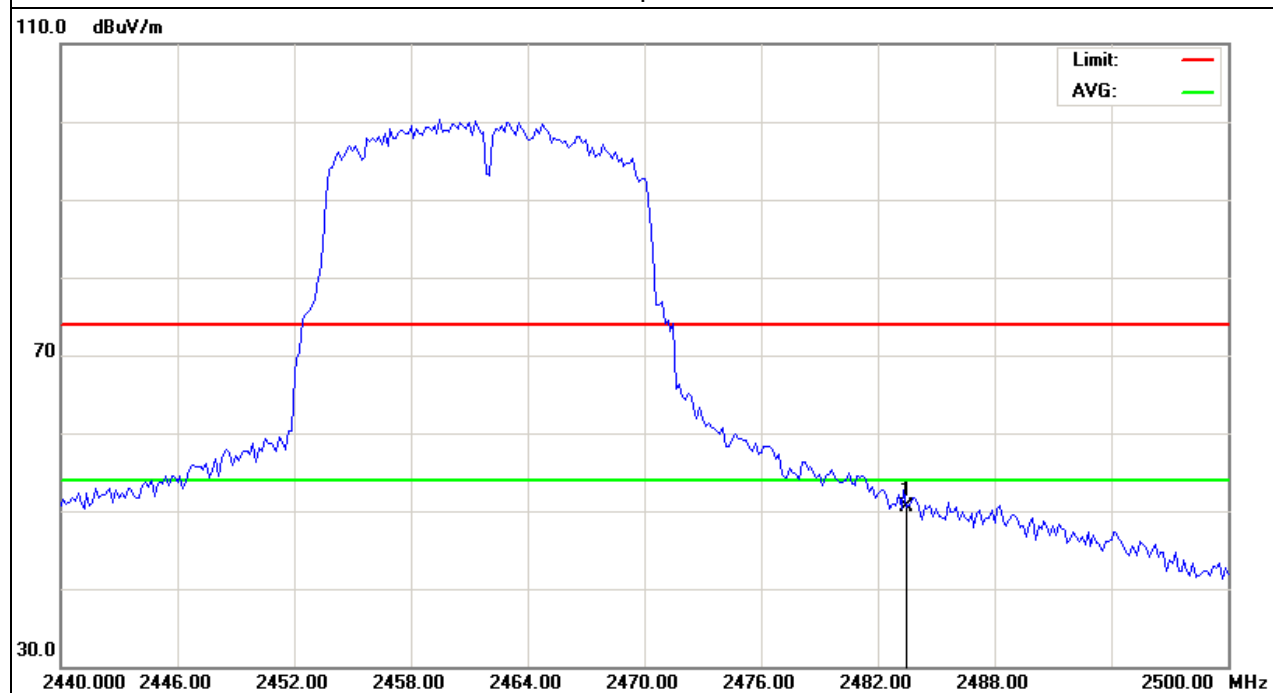


EUT :	Smart Gateway	Model Name :	US-G101
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	AC 120V
Test Mode :	CH11(802.11g Mode)	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2483.5	63.38	-12.78	50.6	74	-23.4	

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.



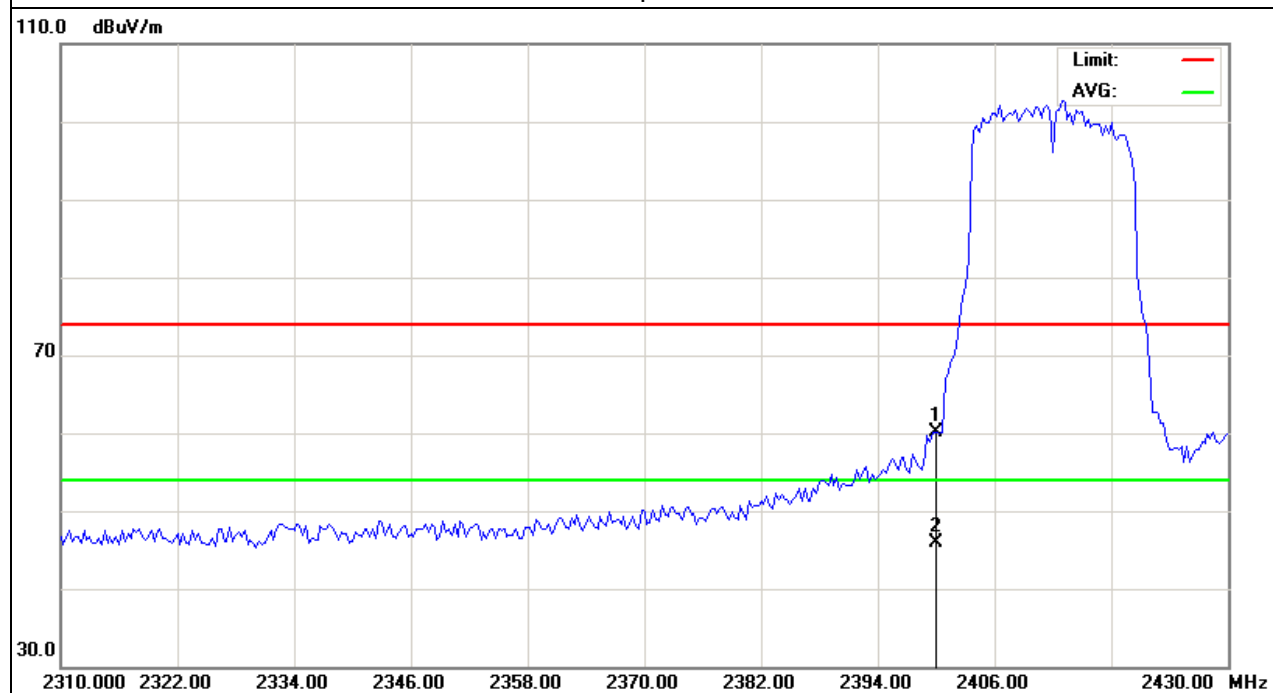


EUT :	Smart Gateway	Model Name :	US-G101
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	AC 120V
Test Mode :	CH1(802.11n Mode)	Polarization :	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2400	73.09	-12.99	60.1	74	-13.9	peak
2400	58.85	-12.99	45.86	54	-8.14	AVG

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

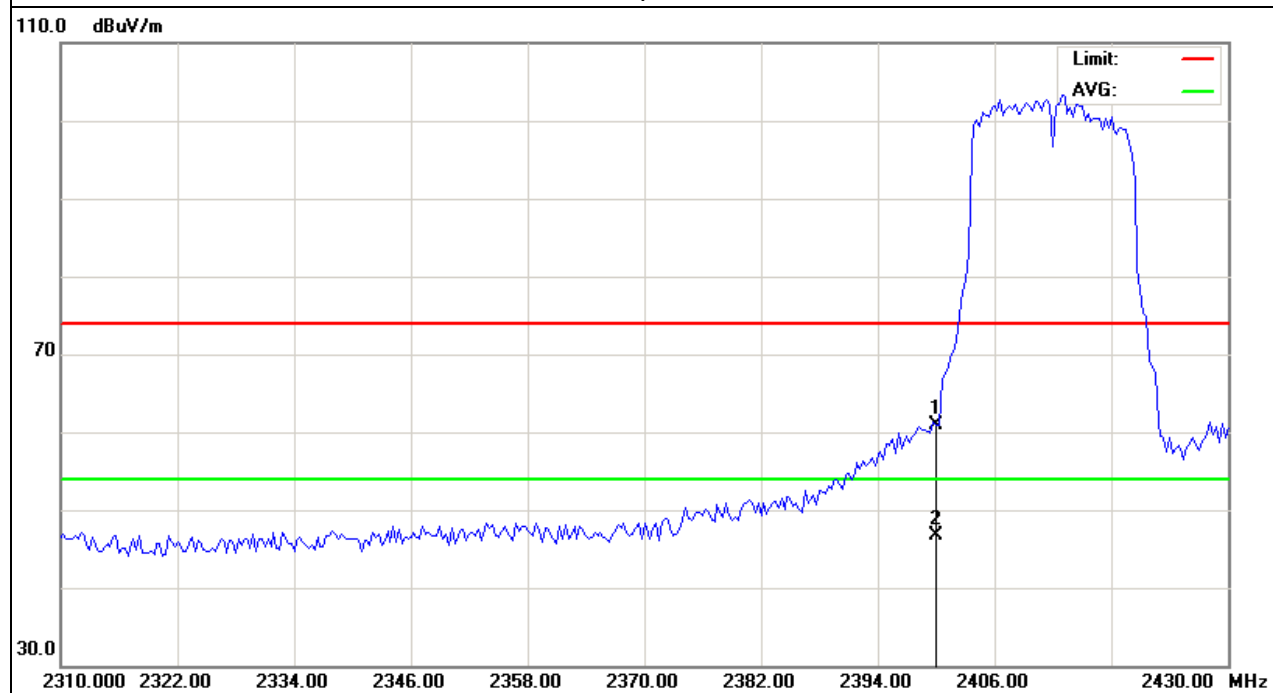


EUT :	Smart Gateway	Model Name :	US-G101
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	AC 120V
Test Mode :	CH1(802.11n Mode)	Polarization :	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2400	73.89	-12.99	60.9	74	-13.1	peak
2400	59.62	-12.99	46.63	54	-7.37	AVG

Remark:

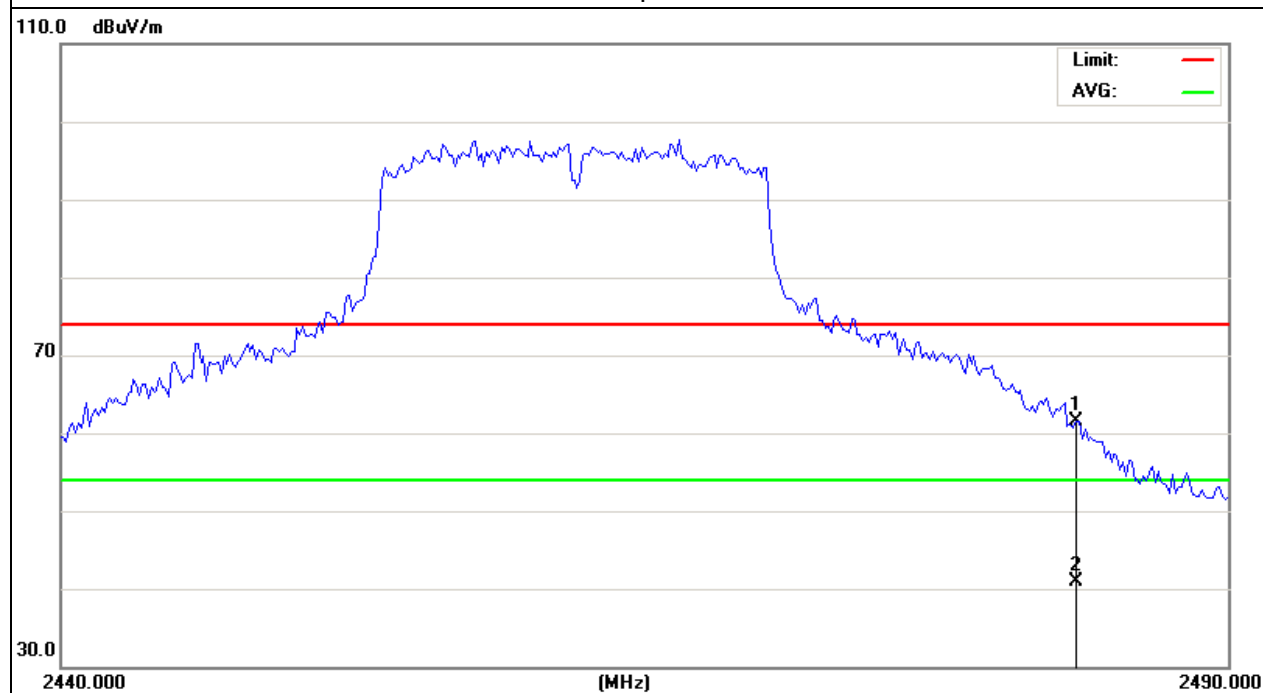
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	Smart Gateway	Model Name :	US-G101
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	AC 120V
Test Mode :	CH11(802.11n Mode)	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2483.5	74.3	-12.78	61.52	74	-12.48	peak
2483.5	53.73	-12.78	40.95	54	-13.05	AVG

Remark:  
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

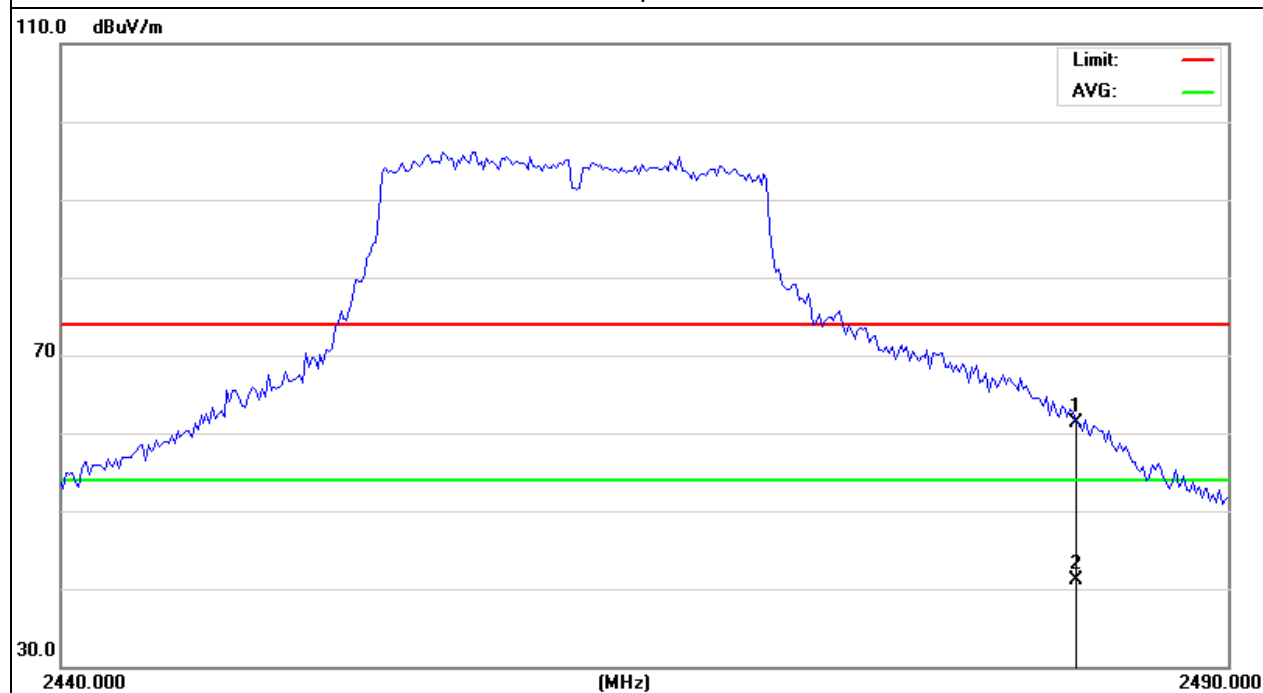


EUT :	Smart Gateway	Model Name :	US-G101
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	AC 120V
Test Mode :	CH11(802.11n Mode)	Polarization :	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.5	71.88	-12.78	59.1	74	-14.9	peak
2483.5	59.32	-12.78	46.54	54	-7.46	AVG

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.



## 4. POWER SPECTRAL DENSITY TEST

### 4.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247	Power Spectral Density	8 dBm (in any 3KHz)	2400-2483.5	PASS

#### 4.1.1 TEST PROCEDURE

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS channel bandwidth.
3. Set the RBW  $\geq$  3 kHz.
4. Set the VBW  $\geq$  3 x RBW.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

#### 4.1.2 DEVIATION FROM STANDARD

No deviation.

#### 4.1.3 TEST SETUP



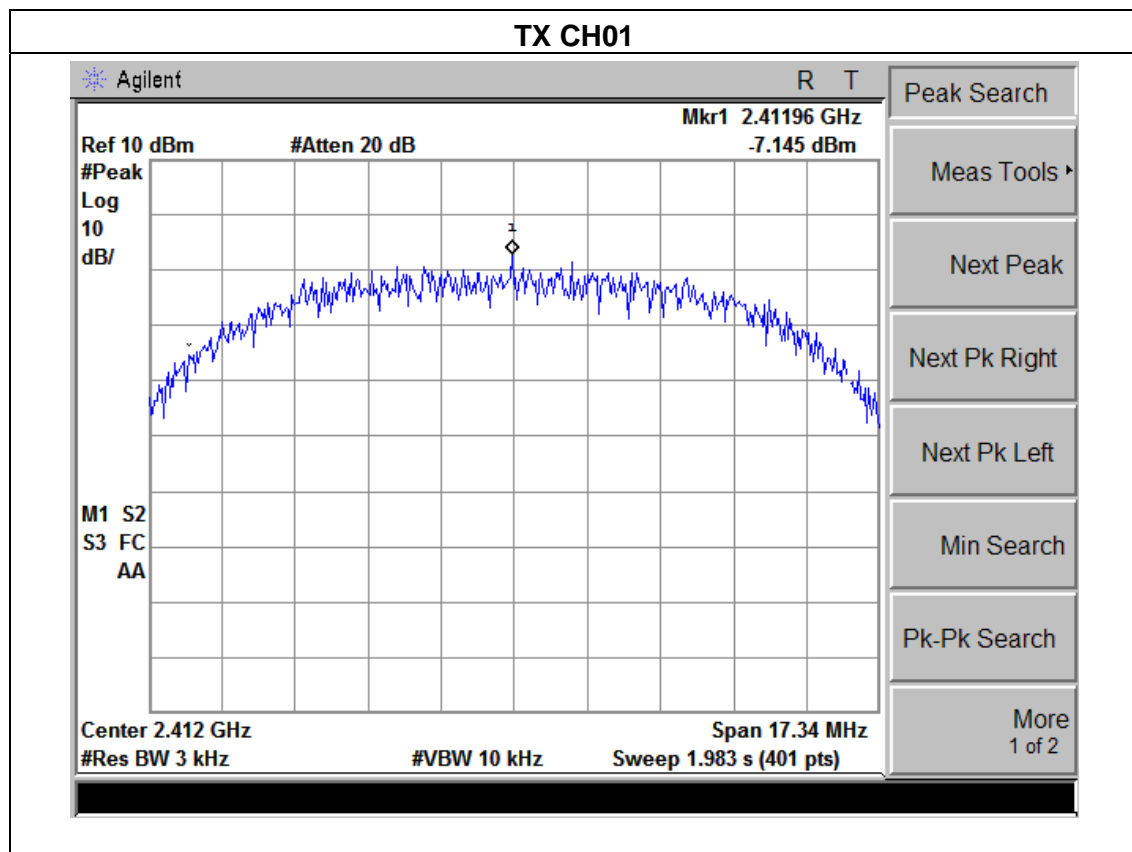
#### 4.1.4 EUT OPERATION CONDITIONS

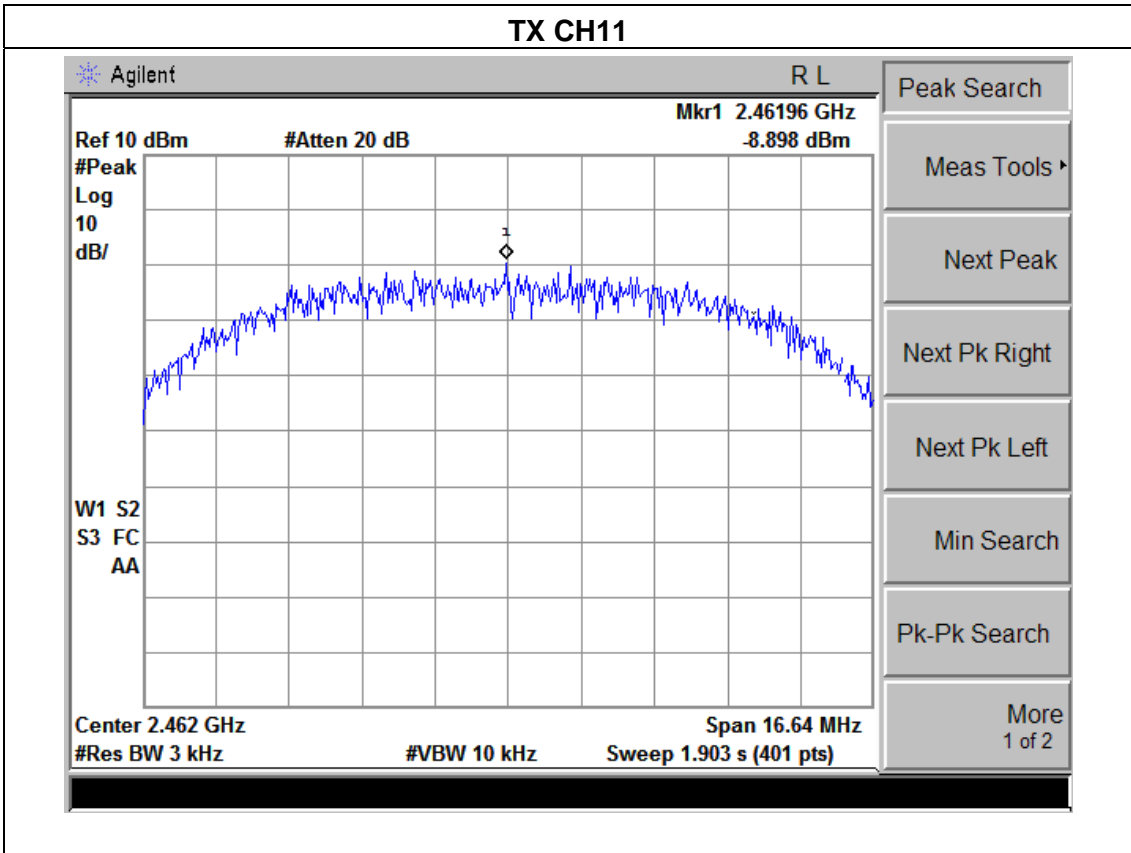
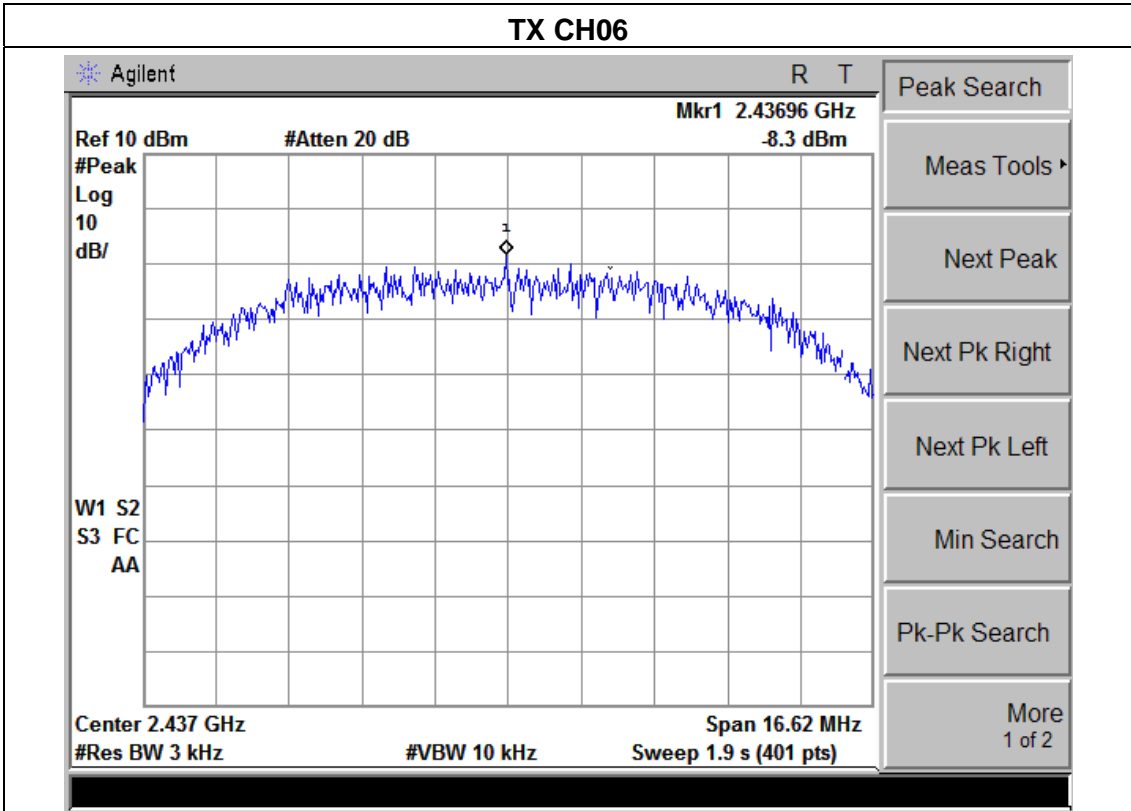
The EUT tested system was configured as the statements of 2.1 Unless otherwise a special operating condition is specified in the follows during the testing.

#### 4.1.5 TEST RESULTS

EUT :	Smart Gateway	Model Name :	US-G101
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1015 hPa	Test Voltage :	AC 120V
Test Mode :	TX b Mode /CH01, CH06, CH11		

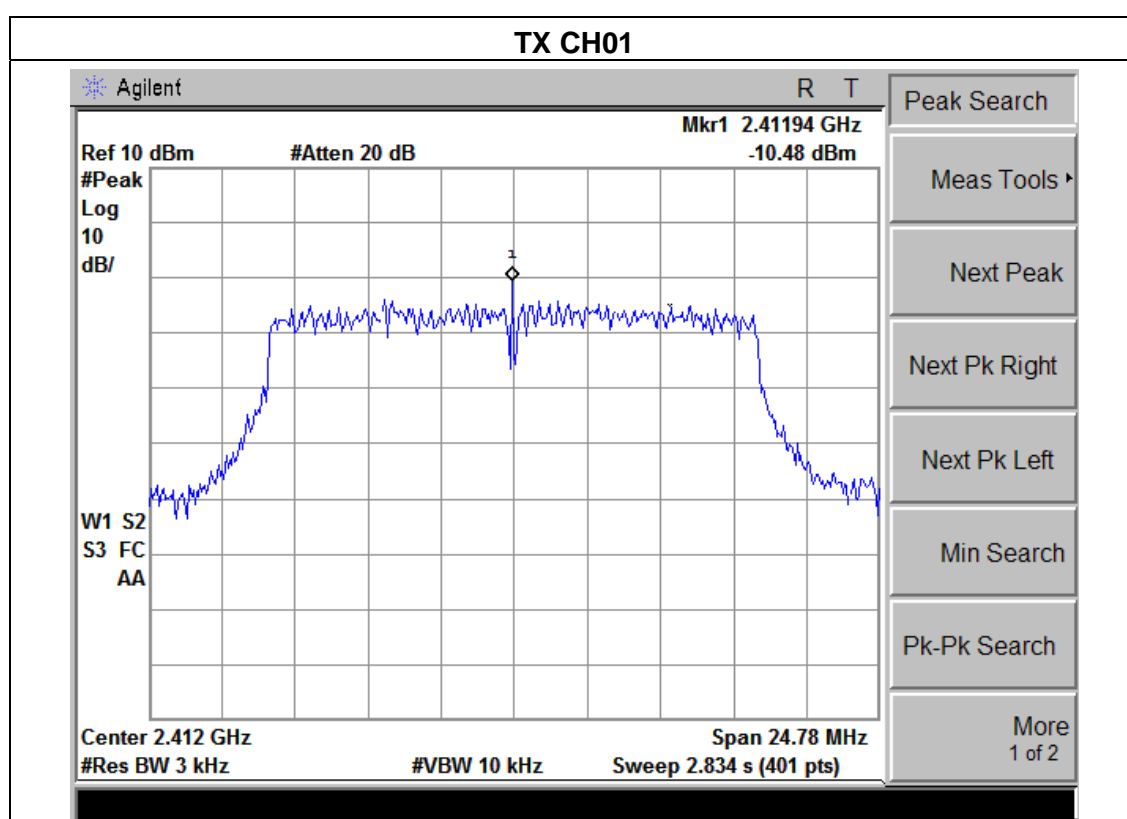
Frequency	Power Density (dBm)	Limit (dBm)	Result
2412 MHz	-7.15	8	<b>PASS</b>
2437 MHz	-8.30	8	<b>PASS</b>
2462 MHz	-8.90	8	<b>PASS</b>



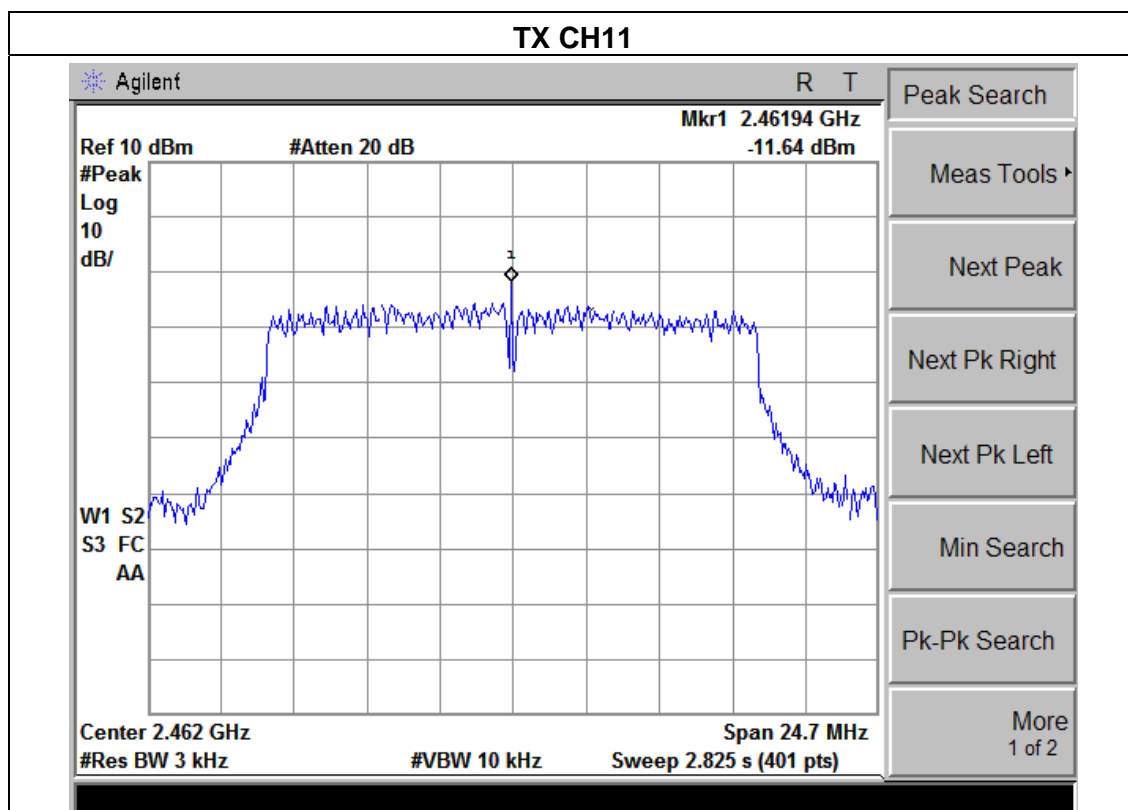
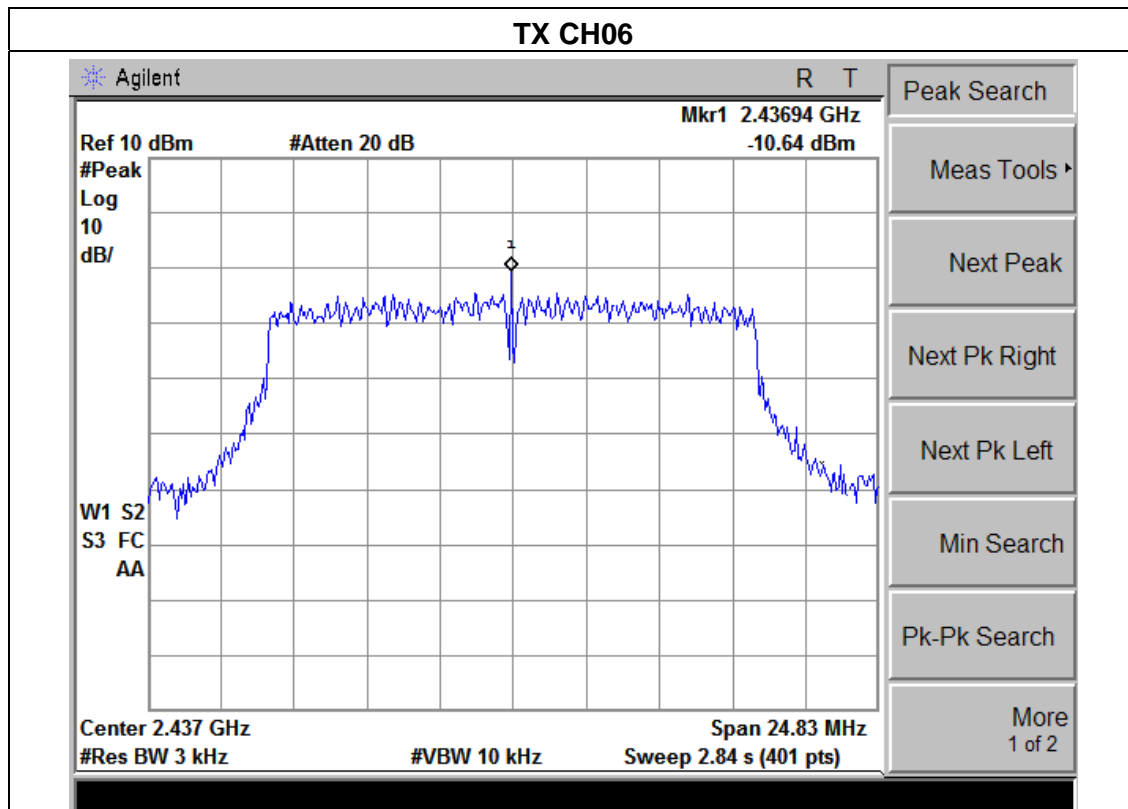


EUT :	Smart Gateway	Model Name :	US-G101
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1015 hPa	Test Voltage :	AC 120V
Test Mode :	TX g Mode /CH01, CH06, CH11		

Frequency	Power Density (dBm)	Limit (dBm)	Result
2412 MHz	-10.48	8	<b>PASS</b>
2437 MHz	-10.64	8	<b>PASS</b>
2462 MHz	-11.64	8	<b>PASS</b>

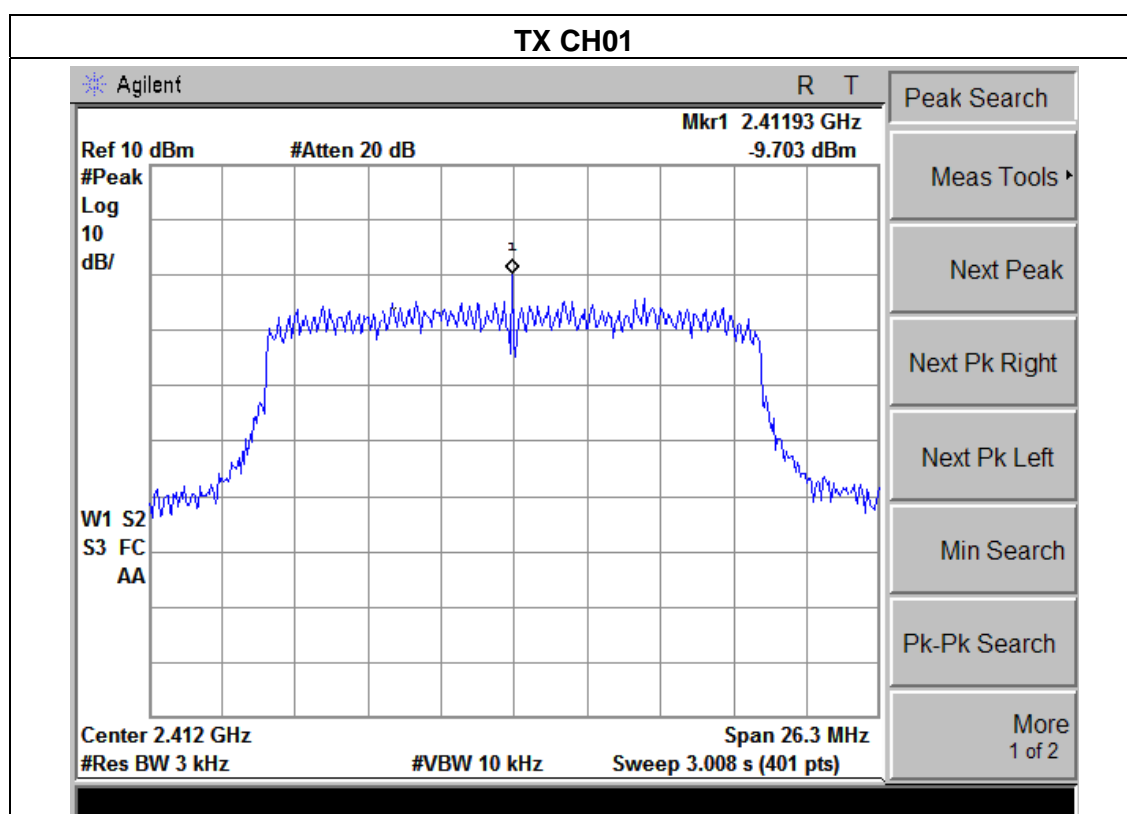


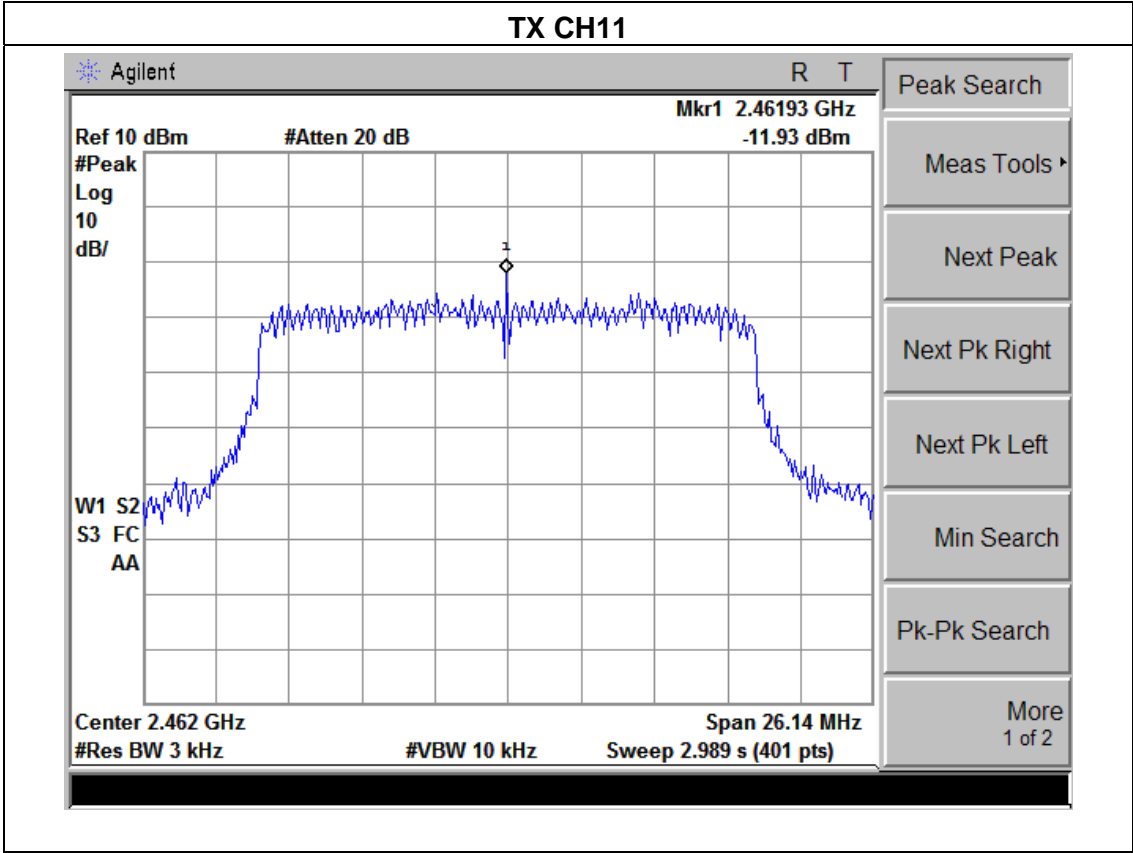
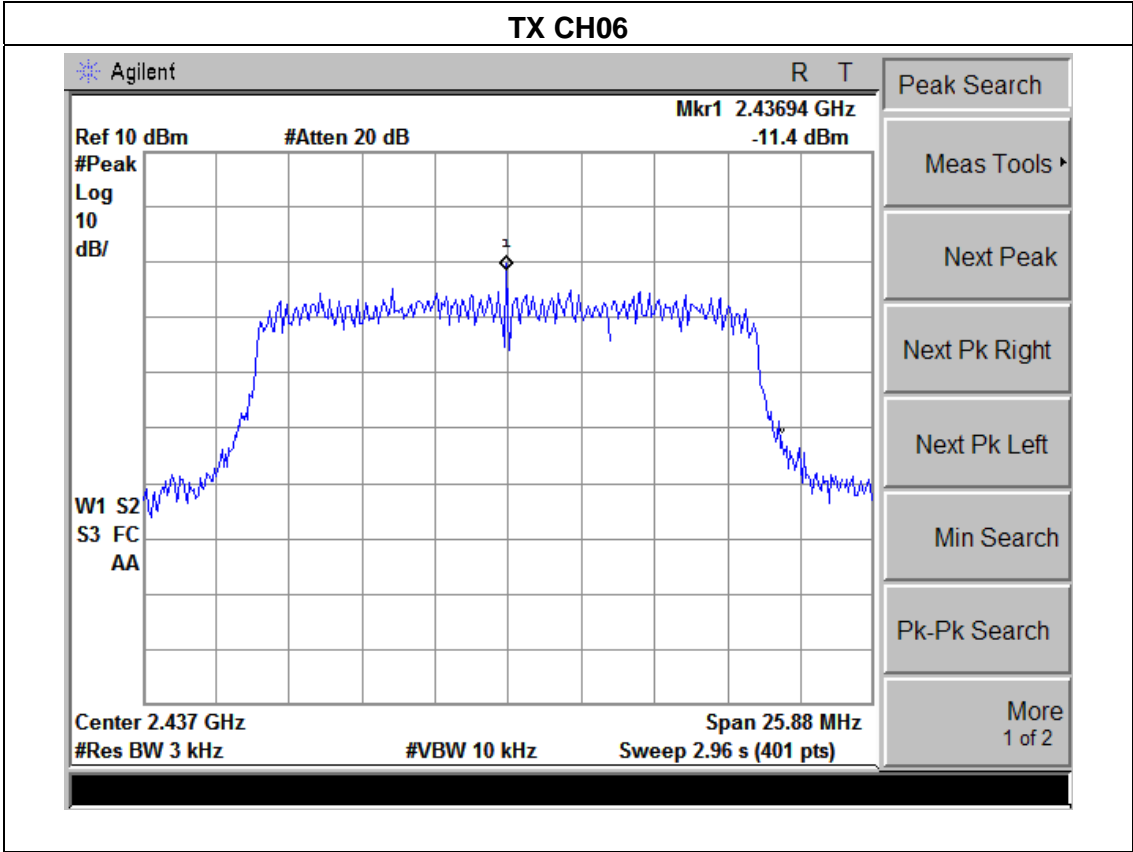




EUT :	Smart Gateway	Model Name :	US-G101
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1015 hPa	Test Voltage :	AC 120V
Test Mode :	TX n Mode /CH01, CH06, CH11		

Frequency	Power Density (dBm)	Limit (dBm)	Result
2412 MHz	-9.703	8	<b>PASS</b>
2437 MHz	-11.40	8	<b>PASS</b>
2462 MHz	-11.93	8	<b>PASS</b>





## 5. BANDWIDTH TEST

### 5.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(a)(2)	Bandwidth	$\geq 500\text{KHz}$ (6dB bandwidth)	2400-2483.5	PASS

#### 5.1.1 TEST PROCEDURE

a.

1. Set RBW= 100 kHz.
2. Set the video bandwidth (VBW)  $\geq 3 \times \text{RBW}$ .
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

#### 5.1.2 DEVIATION FROM STANDARD

No deviation.

#### 5.1.3 TEST SETUP



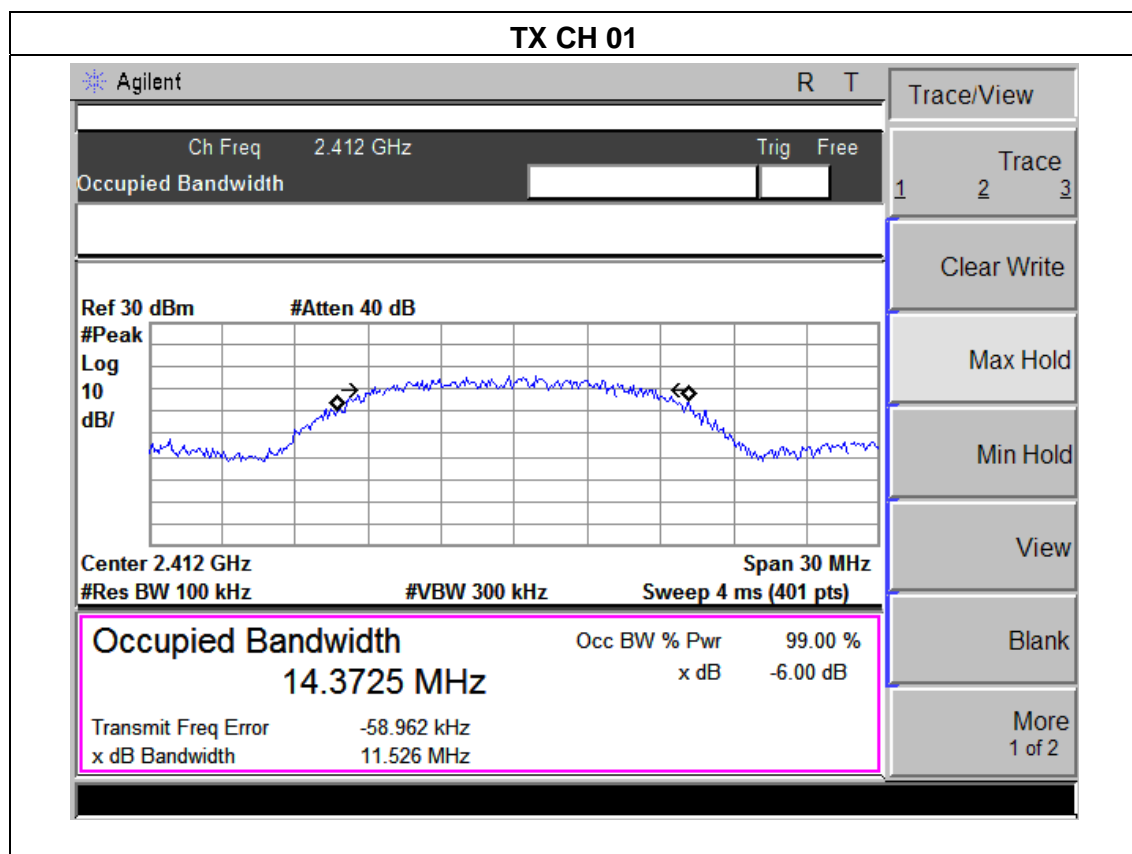
#### 5.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

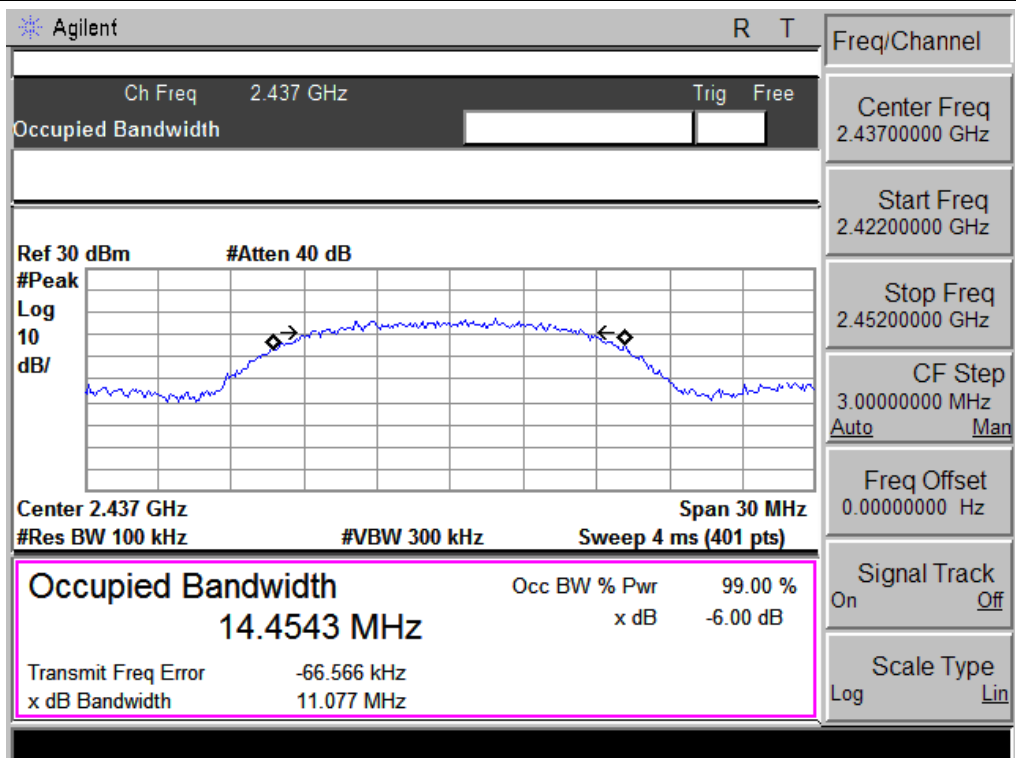
## 5.1.5 TEST RESULTS

EUT :	Smart Gateway	Model Name :	US-G101
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	AC 120V
Test Mode :	TX B Mode /CH01, CH06, CH11		

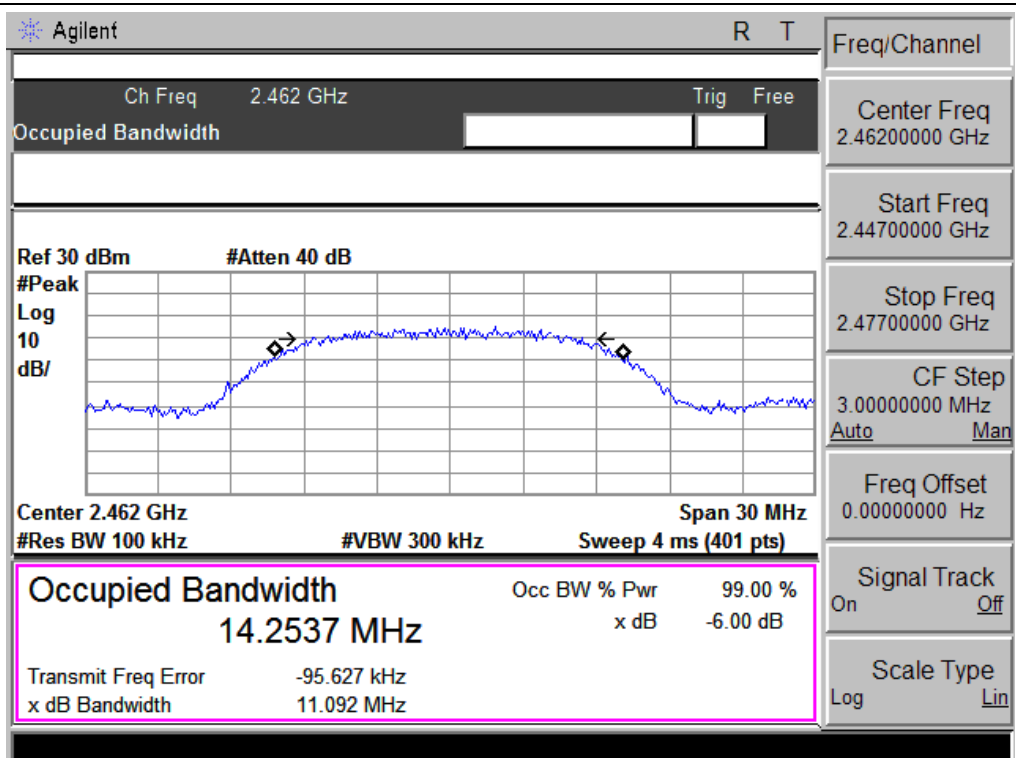
Frequency	6dB Bandwidth (MHz)	Channel Separation (MHz)	Result
2412 MHz	11.53	>=500KHz	<b>PASS</b>
2437 MHz	11.08	>=500KHz	<b>PASS</b>
2462 MHz	11.09	>=500KHz	<b>PASS</b>



## TX CH 06

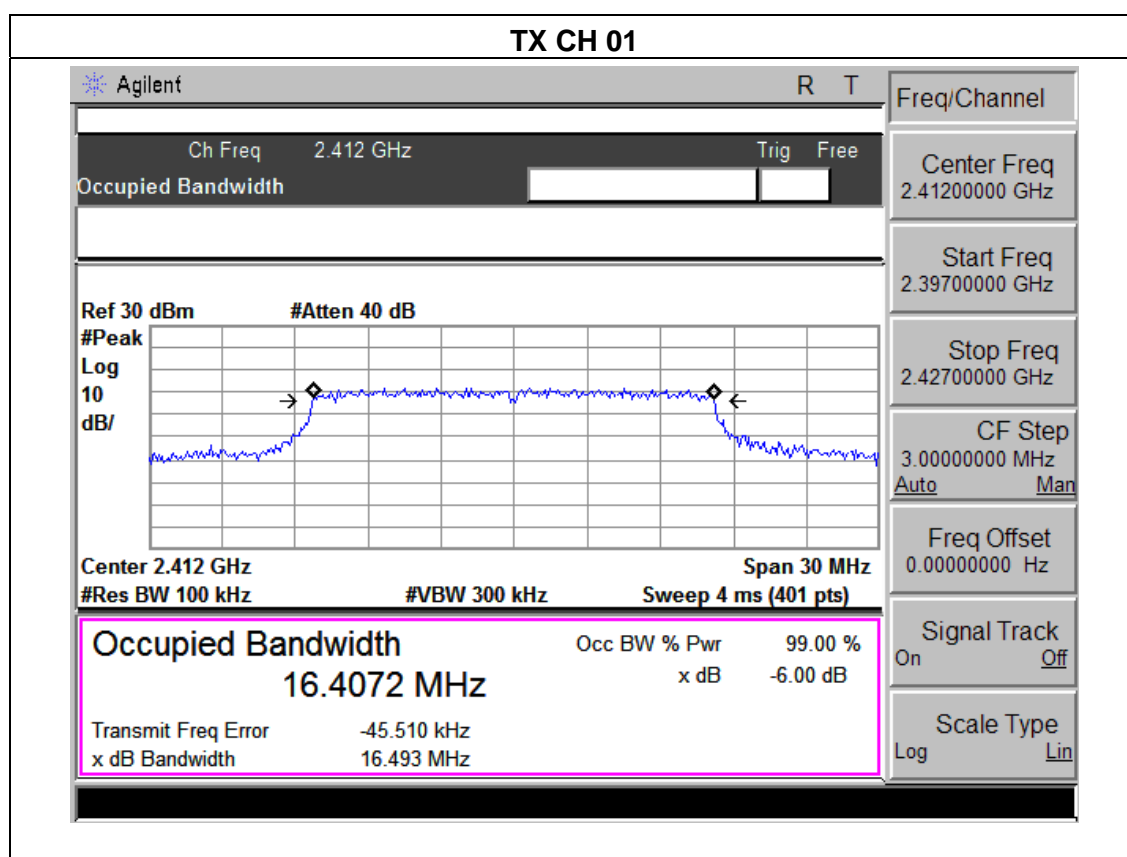


## TX CH 11

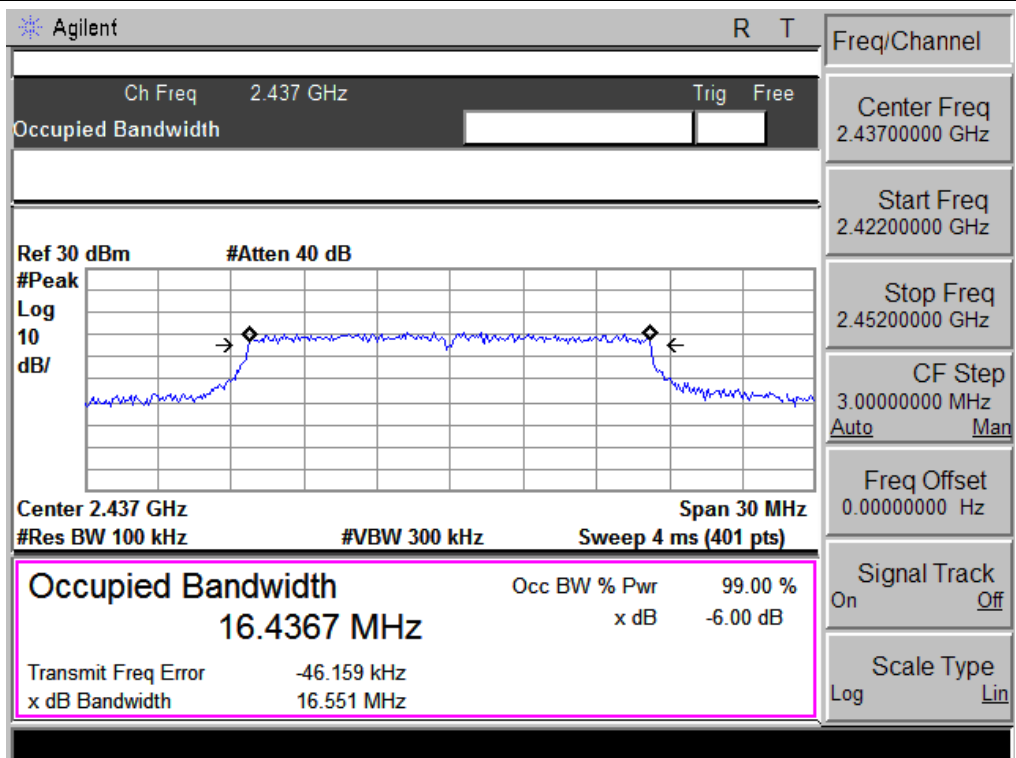


EUT :	Smart Gateway	Model Name :	US-G101
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	AC 120V
Test Mode :	TX g Mode /CH01, CH06, CH11		

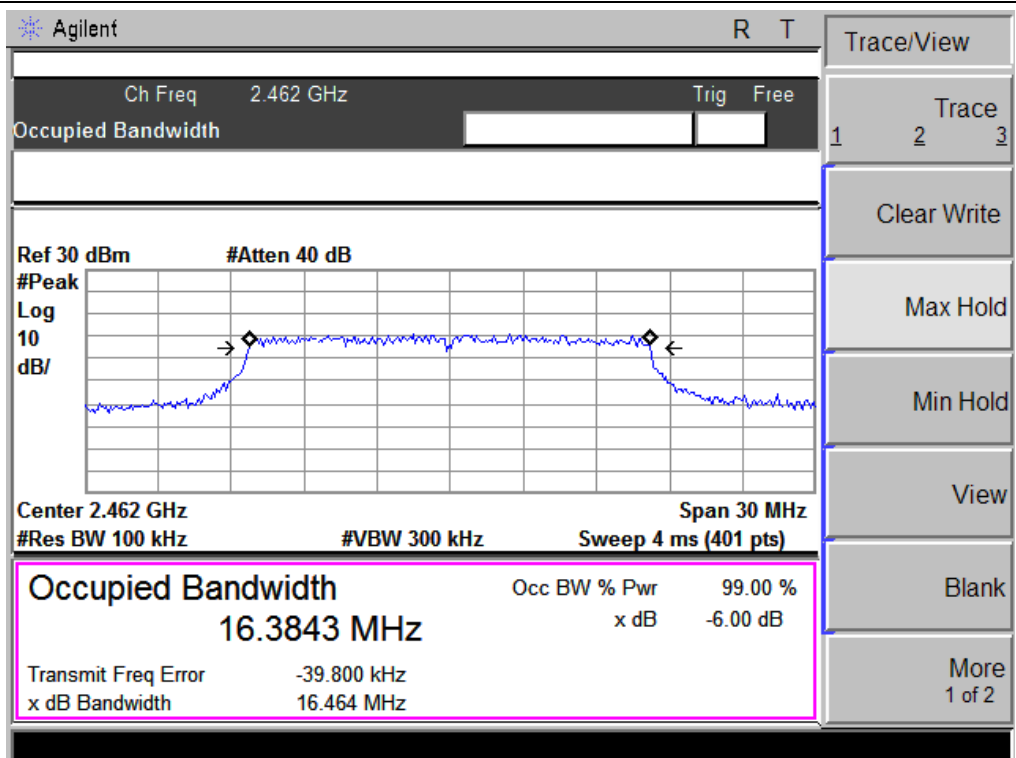
Frequency	6dB Bandwidth (MHz)	Channel Separation (MHz)	Result
2412 MHz	16.49	>=500KHz	<b>PASS</b>
2437 MHz	16.55	>=500KHz	<b>PASS</b>
2462 MHz	16.46	>=500KHz	<b>PASS</b>



## TX CH 06



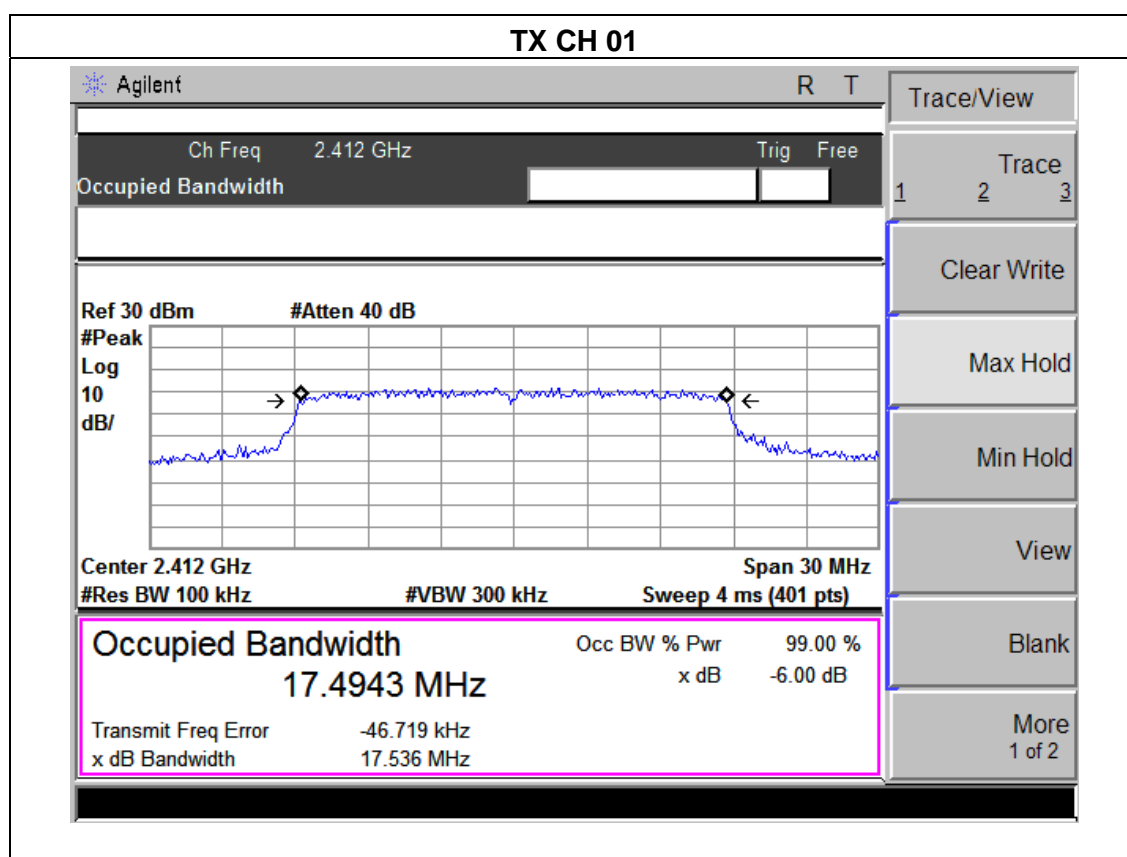
## TX CH 11

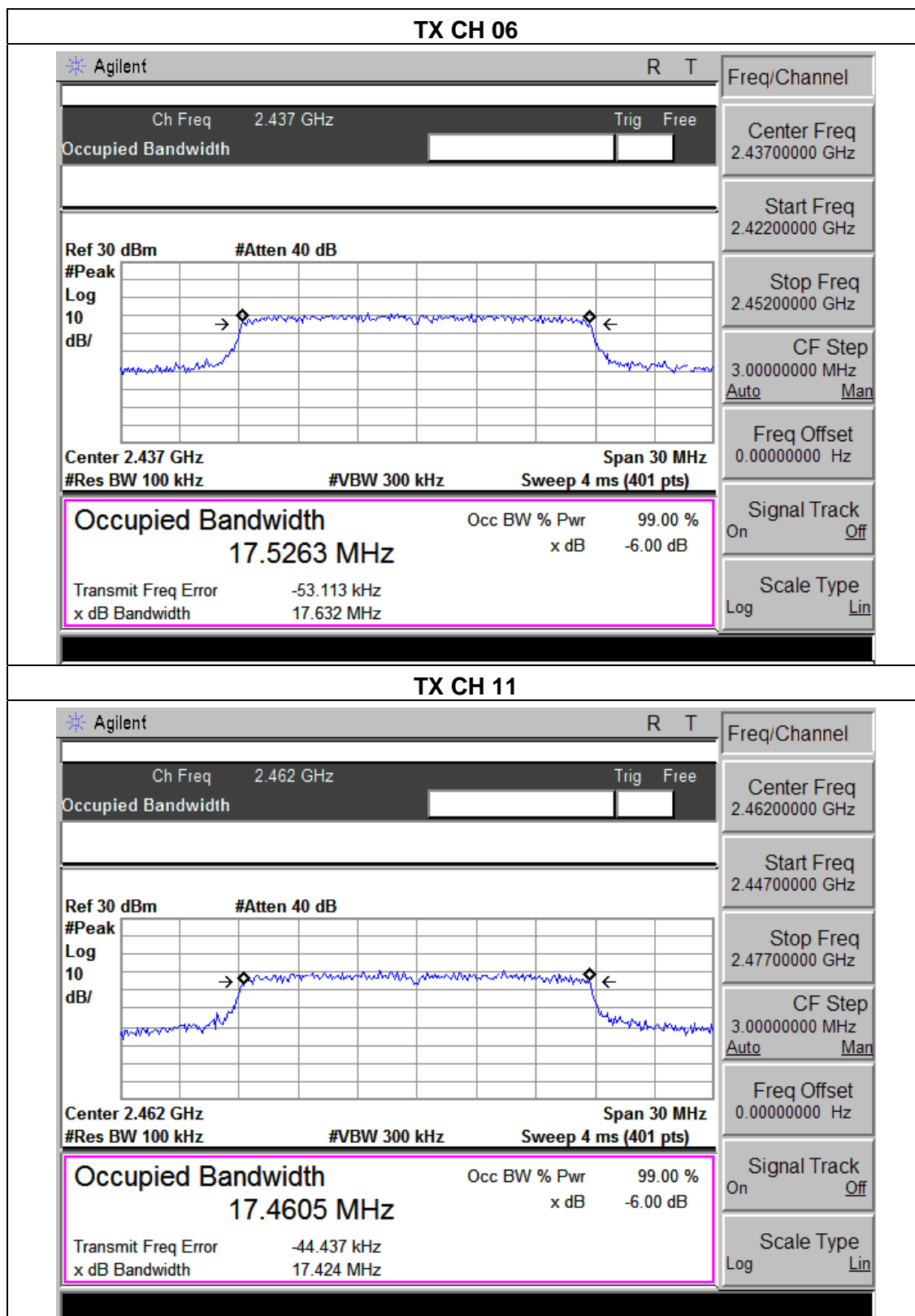




EUT :	Smart Gateway	Model Name :	US-G101
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	AC 120V
Test Mode :	TX n Mode /CH01, CH06, CH11		

Frequency	6dB Bandwidth (MHz)	Channel Separation (MHz)	Result
2412 MHz	17.54	>=500KHz	<b>PASS</b>
2437 MHz	17.63	>=500KHz	<b>PASS</b>
2462 MHz	17.42	>=500KHz	<b>PASS</b>





Freq/Channel

Center Freq 2.43700000 GHz

Start Freq 2.42200000 GHz

Stop Freq 2.45200000 GHz

CF Step 3.00000000 MHz

Auto Man

Freq Offset 0.00000000 Hz

Signal Track On Off

Scale Type Log Lin

Agilent

R T

Ch Freq 2.462 GHz

Trig Free

Occupied Bandwidth

Ref 30 dBm

#Atten 40 dB

#Peak

Log

10

dB/



Center 2.462 GHz

Span 30 MHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 4 ms (401 pts)

Occupied Bandwidth

17.4605 MHz

Occ BW % Pwr 99.00 %

x dB -6.00 dB

Transmit Freq Error -44.437 kHz

x dB Bandwidth 17.424 MHz

Freq/Channel

Center Freq 2.46200000 GHz

Start Freq 2.44700000 GHz

Stop Freq 2.47700000 GHz

CF Step 3.00000000 MHz

Auto Man

Freq Offset 0.00000000 Hz

Signal Track On Off

Scale Type Log Lin

## 6. PEAK OUTPUT POWER TEST

### 6.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(b)(3)	Peak Output Power	1 watt or 30dBm	2400-2483.5	PASS

#### 6.1.1 TEST PROCEDURE

The EUT was directly connected to the Power meter

Refer to 558074 D01 DTS Meas Guidance v02 Section 8.1.3 and 8.2.3

#### 6.1.2 DEVIATION FROM STANDARD

No deviation.

#### 6.1.3 TEST SETUP



#### 6.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

### 6.1.5 TEST RESULTS

EUT :	Smart Gateway	Model Name :	US-G101
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	AC 120V
Test Mode :	TX b/g/n Mode /CH01, CH06, CH11		

TX 802.11b Mode				
Test Channe	Frequency	Maximum Conducted Output Power(PK)	Maximum Conducted Output Power(AV)	LIMIT
	(MHz)	(dBm)	(dBm)	dBm
CH01	2412	12.24	8.51	30
CH06	2437	11.78	8.35	30
CH11	2462	11.54	8.29	30
TX 802.11g Mode				
CH01	2412	9.46	7.13	30
CH06	2437	9.33	7.83	30
CH11	2462	9.08	7.89	30
TX 802.11n Mode				
CH01	2412	9.56	7.20	30
CH06	2437	9.43	7.09	30
CH11	2462	9.22	7.86	30

## **7. ANTENNA REQUIREMENT**

### **7.1 STANDARD REQUIREMENT**

15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

### **7.2 EUT ANTENNA**

The EUT antenna is External antenna(Reverse SMA-type,2dbi) . It comply with the standard requirement

## 8. EUT TEST PHOTO

### Radiated Measurement Photos

