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MEASUREMENT REPORT

Low power data communication system in the 2.4GHz band

Applicant: Hitachi Ltd.
Address: 6-6, Marunouchi 1-chome, Chiyoda-ku, Tokyo, 100-8280
Product: HA8000E EL300
Model No.: HSTNS-2162
Trademark: **HITACHI**
Standards: ARIB STD-T66 V3.7
Result: Complies
Received Date: January 17, 2019
Test Date: January 29 ~ 30, 2019

Tested By : Fran Chen

(Fran Chen)

Reviewed By : Paddy Chen

(Paddy Chen)

Approved By : Chenz Ker

(Chenz Ker)



The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ARIB STD-T66. Test results reported herein relate only to the item(s) tested.

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Revision History

Report No.	Version	Description	Issue Date
2011TW5101-J6	1.0	Original Report	2020-12-04

Note: This case is a copy report, the original report number is 1901TW7103-J6. Only change Applicant、Address、Product Name、Trademark.

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§ General Information

Applicant	Hitachi Ltd.
Applicant Address	6-6, Marunouchi 1-chome, Chiyoda-ku, Tokyo, 100-8280
Manufacturer	Inventec Corporation
Manufacturer Address	No.88, Dazhi Rd. Taoyuan Dist. 33068 Taoyuan City, Taiwan
Test Site	MRT Technology (Taiwan) Co., Ltd
Test Site Address	No. 38, Fuxing Second Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C)
Rule Part(s)	MIC Notice No.88 Annex 43
Model Name	HSTNS-2162
Test Device Serial No.	N/A ☐ Production ☒ Pre-Production ☐ Engineering
Method/System	Frequency Hopping Spread Spectrum (FHSS)

Test Facility / Accreditations

1. MRT facility is a FCC registered (Reg. No. 291082) test facility with the site description report on file and is designated by the FCC as an Accredited Test Firm.
2. MRT facility is an IC registered (MRT Reg. No. 21723) test laboratory with the site description on file at Industry Canada.
3. MRT Lab is accredited to ISO 17025 by the Taiwan Accreditation Foundation (TAF Cert. No. 3261) in EMC, Telecommunications and Radio testing for FCC (Designation Number: TW3261), Industry Taiwan, EU and TELEC Rules.

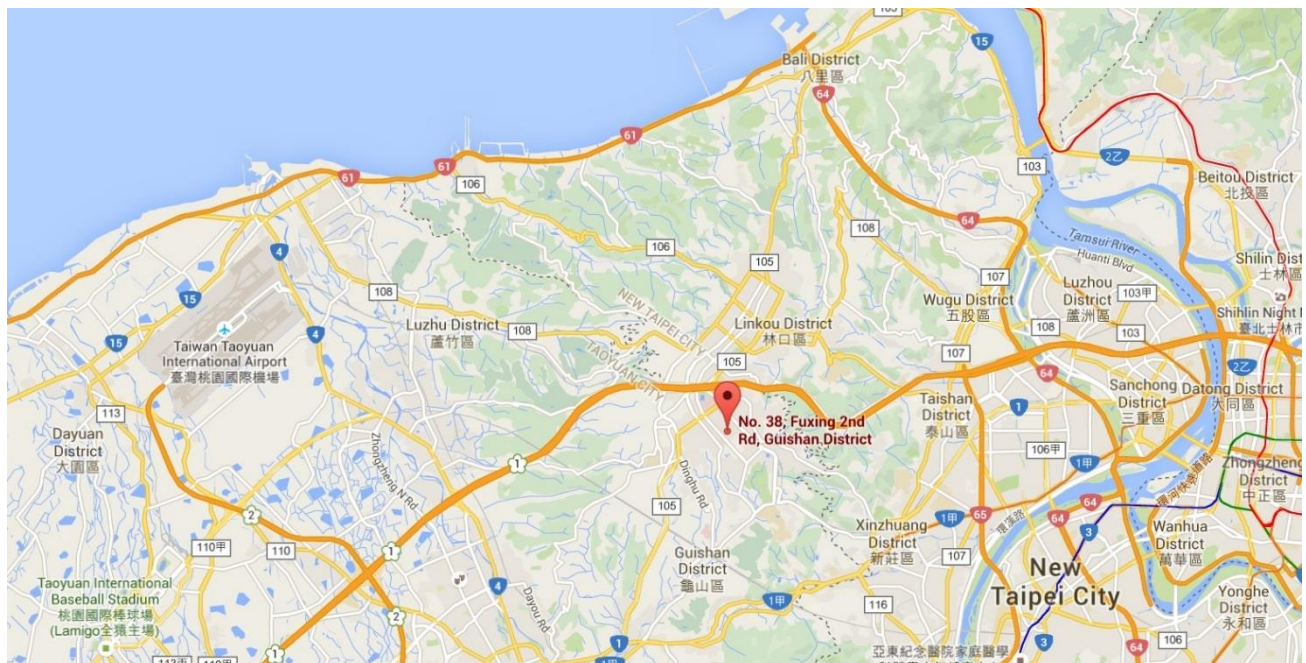
1. INTRODUCTION

1.1. Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Ministry of Internal Affairs and Communications.

1.2. MRT Test Location

The map below shows the location of the MRT LABORATORY, its proximity to the Taoyuan City. These measurement tests were conducted at the MRT Technology (Taiwan) Co., Ltd. Facility located at No.38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 33377, Taiwan (R.O.C).



2. PRODUCT INFORMATION

2.1. Equipment Description

Product Name	HA8000E EL300
Model No.	HSTNS-2162
Module	INTEL / 9260NGW
Trademark	HITACHI
Hardware Version	958867
Firmware Version	20.70.0.5
Supports Radios Spec.	WLAN (Intel/9260NGW): 2.4G: 802.11b/g/n-20/n-40 5G: 802.11a/n-20/ac-20/n-40/ac-40/ac-80, Band 1 Bluetooth Dual Mode: V2.1+EDR/ V5.0 LE WLAN (Samsung/SIP005AFS30): 2.4G: 802.11b/g/n-20 5G: 802.11a/n-20/n-40, Band 1 Bluetooth Dual Mode: V2.1+EDR/ V4.2 LE WWAN (Sierra/ EM7565): 3G: WCDMA Band 1,6,8,9 4G: FDD Band 1,3,8,18,28 GNSS
Power Adapter	MFR: FSP GROUP INC. Model No: FSP096-AHAN3 Input: AC 100-240V~1.8A, 50-60Hz Output: DC 12V, 8A Cable Out: Non-shielding, 1.8m with Core*1
Frequency Range	2402~2480MHz
Type of Modulation	FHSS
Data Rate	1Mbps, 2Mbps
Antenna Type / Gain	Dipole Antenna: 5dBi
Declared Output Power	LE 1Mbps: 4mW LE 2Mbps: 3mW

2.2. Operation Description

This device is a Bluetooth transmitter and receiver in one model. When it worked as a Bluetooth transmitter, the unit could make your regular stereo audio devices into Bluetooth-enabled. When it worked as a Bluetooth receiver, it adds Bluetooth receiving capability to your headphones, home stereo.

2.3. Test Mode

Test Mode	Mode 1: Transmitter - LE 1Mbps (GFSK)
	Mode 2: Transmitter - LE 2Mbps (GFSK)
	Mode 3: Receiver - LE 1Mbps (GFSK)
	Mode 4: Receiver - LE 2Mbps (GFSK)

2.4. Frequency / Channel Opreation

Channel	Frequency	Channel	Frequency	Channel	Frequency
00	2402 MHz	01	2404 MHz	02	2406 MHz
03	2408 MHz	04	2410 MHz	05	2412 MHz
06	2414 MHz	07	2416 MHz	08	2418 MHz
09	2420 MHz	10	2422 MHz	11	2424 MHz
12	2426 MHz	13	2428 MHz	14	2430 MHz
15	2432 MHz	16	2434 MHz	17	2436 MHz
18	2438 MHz	19	2440 MHz	20	2442 MHz
21	2444 MHz	22	2446 MHz	23	2448 MHz
24	2450 MHz	25	2452 MHz	26	2454 MHz
27	2456 MHz	28	2458 MHz	29	2460 MHz
30	2462 MHz	31	2464 MHz	32	2466 MHz
33	2468 MHz	34	2470 MHz	35	2472 MHz
36	2474 MHz	37	2476 MHz	38	2478 MHz
39	2480 MHz	N/A	N/A	N/A	N/A

2.5. Device Capabilities

This device contains the following capabilities:

Bluetooth V5.0 LE+EDR

2.6. Test Configuration

The **HA8000E EL300** was tested per the guidance of ARIB STD-T66.

The change of the internal voltage of the RF circuits of the EUT is below $\pm 1\%$, when input voltage from external power supply to the equipment under test is varied by $\pm 10\%$, thus the RF test is tested at rated voltage only.

The EUT obviously has no fluctuation with such voltage, only the rated voltage is supplied. (That to which rated voltage is supplied from the standard interface for international <For example>; USB, MINIPCI, PCMCIA, PCI, etc.)

The EUT Voltage by: AC 100V/50Hz

2.7. Test Software

The test utility software used during testing was "DRTU".

2.8. RF and IF section must be tamper requirement

Requirement	Comments	Result
RF, IF and Modulation section must be tamper	☐ Use Special Screw ☒ Metal Shielding is Soldered ☒ Use Ball Grid Array (BGA) (Please see Attachment: EUT Detailed Photographs)	Complete
	☒ RF module/Chip pin >10 ☒ RF module/Chip pins distance <1.5mm (Please see Attachment: EUT Detailed Photographs)	Complete

3. DESCRIPTION OF TEST

3.1. Evaluation Procedure

The measurement procedures described in the Japanese standard for 2.4GHz band wide-band low-power data communication system (ARIB STD-T66) was used in the measurement of the **HA8000E EL300**.

Deviation from measurement procedure.....None

4. TEST EQUIPMENT CALIBRATION DATE

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	KEYSIGHT	N9010A	MRTTWA00012	1 year	2019/7/30
USB Wideband Power Sensor	KEYSIGHT	U2021XA	MRTTWA00015	1 year	2019/3/20

5. MEASUREMENT UNCERTAINTY

Frequency Error
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): $\pm 78.4\text{Hz}$
Conducted Power
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): $\pm 0.84\text{dB}$
Conducted Spurious Emission
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): $\pm 2.65\text{ dB}$
Occupied Bandwidth
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 3.3%
Temp. / Humidity
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): $\pm 0.82^\circ\text{C} / \pm 3\%$
DC Voltage
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): $\pm 0.3\%$

6. TEST RESULT

6.1. Summary

Company Name: Hitachi Ltd.
Product Name HA8000E EL300
Method/System: Other Digital Method
Number of Channels: 40

Test Description	Test Limit	Test Condition	Test Result	Reference
Output Power	10mW or less	Conducted	PASS	Section 6.2
Output Power Tolerance	+20% to -80%		PASS	Section 6.2
Output Power E.I.R.P	12.14dBm		PASS	Section 6.2
Occupied Bandwidth	$\leq 26\text{MHz}$		PASS	Section 6.4
Frequency Tolerance	$\leq 50\text{ppm}$		PASS	Section 6.5
Transmitter Spurious Emissions	$\leq 2.5\text{uW}$ for 30 ~ 2387MHz $\leq 25\text{uW}$ for 2387 ~ 2400MHz $\leq 25\text{uW}$ for 2483.5 ~ 2496.5MHz $\leq 2.5\text{uW}$ for 2496.5 ~ 12500MHz		PASS	Section 6.7
Receiver Spurious Emissions	$\leq 4\text{nW}$ for 10 ~ 1000MHz $\leq 20\text{nW}$ for 1000 ~ 12500MHz		PASS	Section 6.8
Interference Prevention Function	Automatic Transmission or Receiving function of Identification Sign		PASS	Section 6.9

Note: The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer.

The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.

6.2. Output Power Density, Output Power Density Tolerance and E.I.R.P

6.2.1. Test Limit

Output Power Density must be 10mW or less;

Output Power Tolerance: +20% to -80%;

EIRP must be 12.14dBm/MHz or less.

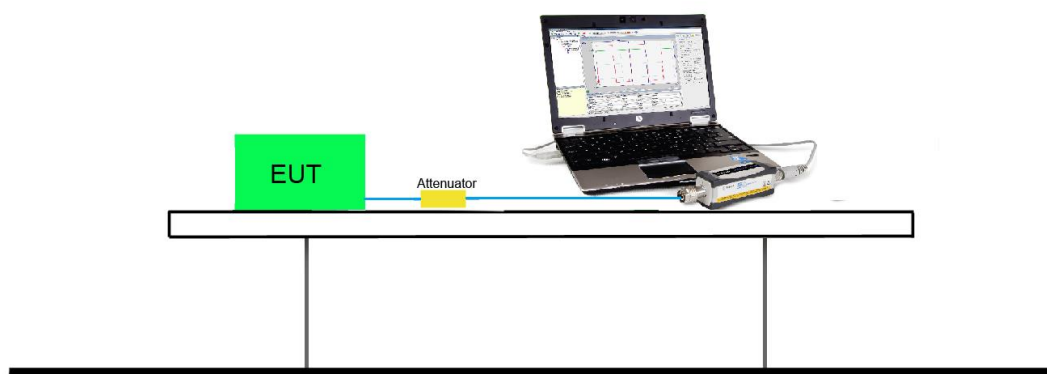
6.2.2. Test Procedure used

Measure the total power by Power Meter in a state of hopping mode (with Average Sensor).

If it's the burst wave, please measure the burst ratio. Then calculate the real total power by burst ratio.

Calculate the mean power per 1MHz by dividing the total power by spread bandwidth.

6.2.3. Test Setup



6.2.4. Test Result

Product	HA8000E EL300	Temperature	25°C
Test Engineer	Fran	Relative Humidity	50%
Test Site	SR2	Test Date	2019/1/29

Output Power

Test Mode	Frequency (MHz)	Reading Value (dBm)	Real Value (mW)	Limit (mW)	Result
Transmitter - LE					
GFSK (LE-1Mbps)	2402	6.75	4.73	10	Pass
	2440	6.41	4.38	10	Pass
	2480	6.29	4.26	10	Pass
GFSK (LE-2Mbps)	2402	5.01	3.17	10	Pass
	2440	4.78	3.01	10	Pass
	2480	4.48	2.81	10	Pass

Output Power Tolerance

Test Mode	Frequency (MHz)	Reading Level (dBm)	Reading Level (mW)	Declared Output Power (mW)	Tolerance	Limit	Result
Transmitter -LE							
GFSK (LE-1Mbps)	2402	6.75	4.73	4	18.29%	+20%~-80%	Pass
	2440	6.41	4.38	4	9.38%	+20%~-80%	Pass
	2480	6.29	4.26	4	6.40%	+20%~-80%	Pass
GFSK (LE-2Mbps)	2402	5.01	3.17	3	5.65%	+20%~-80%	Pass
	2440	4.78	3.01	3	0.20%	+20%~-80%	Pass
	2480	4.48	2.81	3	-6.49%	+20%~-80%	Pass

Note: Tolerance = (Output Power Density - Declared Output Power) / Declared Output Power*100%

Output Power EIRP

Test Mode	Frequency (MHz)	Output Power Density (dBm)	EIRP (dBm)	Limit (dBm)	Result
Transmitter - LE					
GFSK (LE-1Mbps)	2402	6.75	11.75	12.14	Pass
	2440	6.41	11.41	12.14	Pass
	2480	6.29	11.29	12.14	Pass
GFSK (LE-2Mbps)	2402	5.01	10.01	12.14	Pass
	2440	4.78	9.78	12.14	Pass
	2480	4.48	9.48	12.14	Pass

Note:1. EIRP (dBm) = Output Power Density (dBm) + Antenna Gain (dBi)

2. Antenna Gain = 5dBi

6.3. Occupied Bandwidth

6.3.1. Test Limit

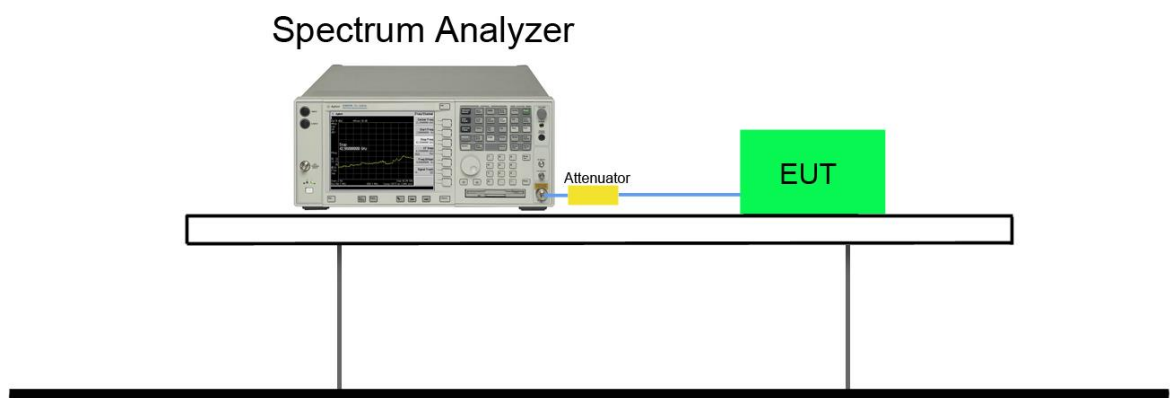
≤ 26 MHz

6.3.2. Test Procedure Used

A spectrum analyzer or similar device shall be used to observe a sample of the modulated transmitter's radio frequency power output.

- (a) A positive peak detector function must be used.
- (b) A measurement instrument with an integrated 99% power bandwidth function may be used to automate the test process.
- (c) The measurement instrument bandwidth and span must be set sufficiently with, and, the scan time set sufficiently slow, to ensure all major modulation products are captured. Note that the measurement bandwidth should also be set sufficiently narrow to avoid adding significant error to the test result.
- (d) 'Maximum Hold' mode may be used to accumulate the measurement result over several scans provided the emission is repetitive in nature.

6.3.3. Test Setup



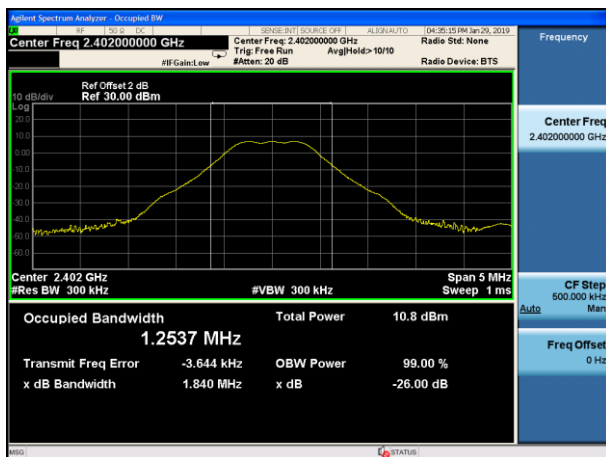
6.3.4. Test Result

Product	HA8000E EL300	Temperature	25°C
Test Engineer	Fran	Relative Humidity	50%
Test Site	SR2	Test Date	2019/1/29

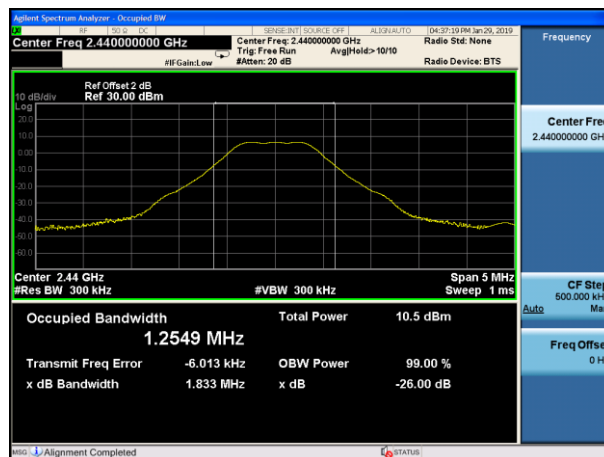
Test Mode	Frequency (MHz)	Occupied Bandwidth (MHz)	Limit (MHz)	Result
Transmitter - LE				
GFSK (LE-1Mbps)	2402	1.2537	≤ 26	Pass
	2440	1.2549	≤ 26	Pass
	2480	1.2474	≤ 26	Pass
GFSK (LE-2Mbps)	2402	2.1619	≤ 26	Pass
	2440	2.1544	≤ 26	Pass
	2480	2.1585	≤ 26	Pass

Occupied Bandwidth

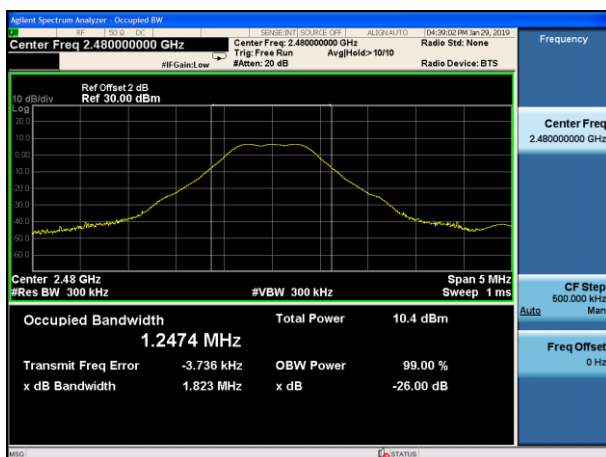
2402 MHz (1Mbps)



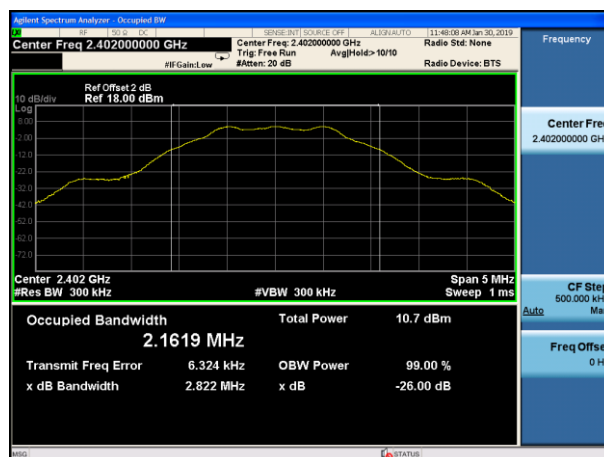
2440MHz (1Mbps)



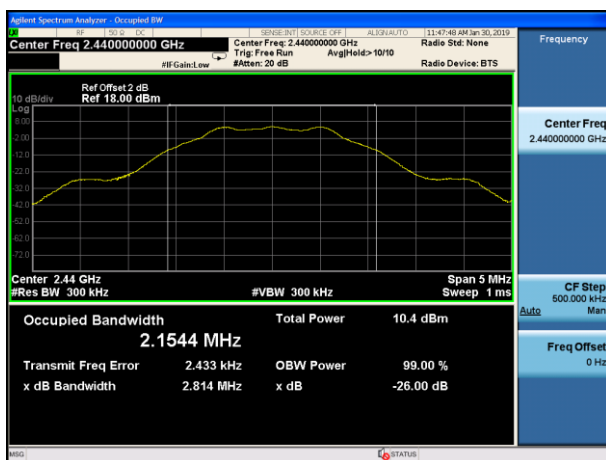
2480 MHz (1Mbps)



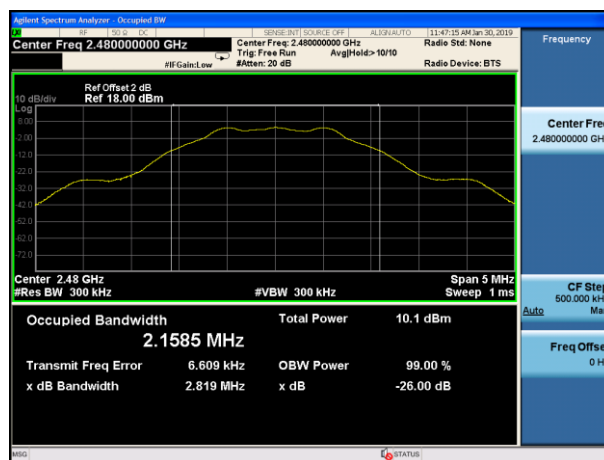
2402 MHz (2Mbps)



2440MHz (2Mbps)



2480 MHz (2Mbps)



6.4. Frequency Tolerance

6.4.1. Test Limit

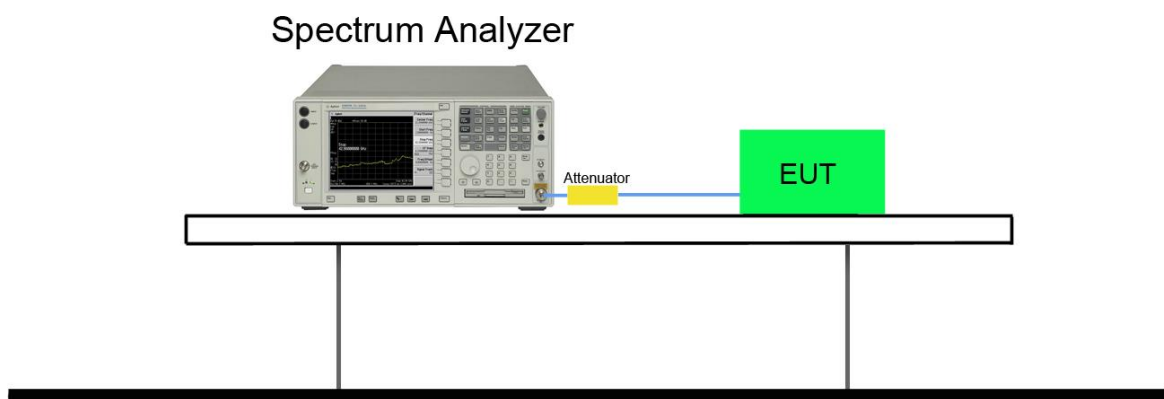
$\leq 50\text{ppm}$

6.4.2. Test Procedure Used

A spectrum analyzer or similar device shall be used to observe a sample of the modulated transmitter's radio frequency power output.

- (a) A positive peak detector function must be used.
- (b) The measurement instrument bandwidth and span must be set sufficiently with, and, the scan time set sufficiently slowly, to ensure all major modulation products are captured. Note that the measurement bandwidth should also be set sufficiently narrow to avoid adding significant error to the test result.
- (c) 'Maximum Hold' mode may be used to accumulate the measurement result over several scans provided the emission is repetitive in nature.

6.4.3. Test Setup



6.4.4. Test Result

Product	HA8000E EL300	Temperature	25°C
Test Engineer	Fran	Relative Humidity	50%
Test Site	SR2	Test Date	2019/1/30

Test Mode	Frequency (MHz)	Measurement Frequency (MHz)	Tolerance (ppm)	Limit (ppm)	Result
Transmitter - LE - AC 100V/50Hz					
Carrier Wave	2402	2401.9994	-0.25	≤ 50	Pass
	2440	2439.9963	-1.54	≤ 50	Pass
	2480	2479.9993	-0.30	≤ 50	Pass
Transmitter – LE - AC 115V/50Hz					
Carrier Wave	2402	2401.9994	-0.25	≤ 50	Pass
	2440	2439.9963	-1.54	≤ 50	Pass
	2480	2479.9993	-0.30	≤ 50	Pass
Transmitter - LE - AC 85V/50Hz					
Carrier Wave	2402	2401.9994	-0.25	≤ 50	Pass
	2440	2439.9963	-1.54	≤ 50	Pass
	2480	2479.9993	-0.30	≤ 50	Pass

Note: Tolerance (ppm) = {[Measured Frequency (MHz) – Declared Frequency (MHz)] / Declared Frequency (MHz)} *10⁶

6.5. Transmitter Spurious Emissions

6.5.1. Test Limit

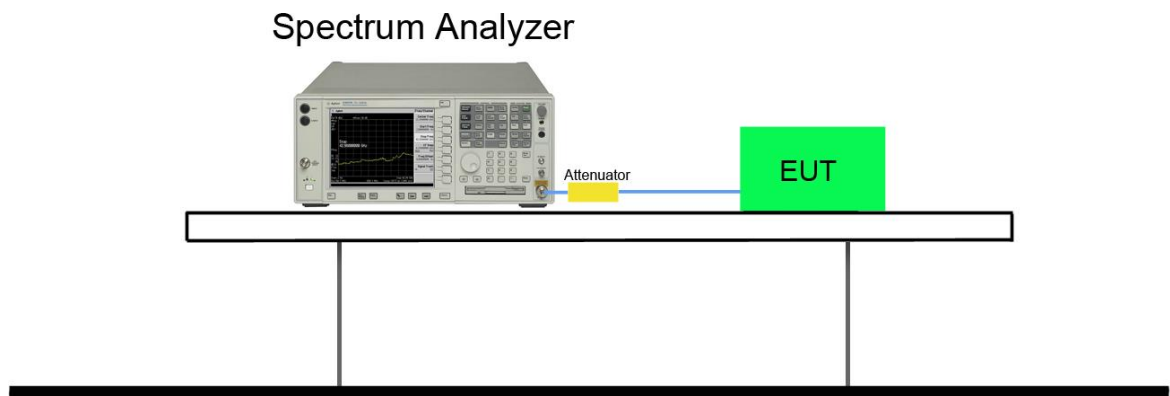
- $\leq 2.5\mu\text{W}$ (-26dBm) for 30 ~ 2387MHz;
- $\leq 25\mu\text{W}$ (-16dBm) for 2387 ~ 2400MHz;
- $\leq 25\mu\text{W}$ (-16dBm) for 2483.5 ~ 2496.5MHz;
- $\leq 2.5\mu\text{W}$ (-26dBm) for 2496.5 ~ 12500MHz;

6.5.2. Test Procedure Used

A spectrum analyzer or similar device shall be used to observe a sample of the modulated transmitter's radio frequency power output.

- (a) A positive peak detector function must be used.
- (b) The measurement instrument bandwidth and span must be set sufficiently with, and, the scan time set sufficiently slowly, to ensure all major modulation products are captured. Note that the measurement bandwidth should also be set sufficiently narrow to avoid adding significant error to the test result.
- (c) 'Maximum Hold' mode may be used to accumulate the measurement result over several scans provided the emission is repetitive in nature.

6.5.3. Test Setup



6.5.4. Test Result

Product	HA8000E EL300	Temperature	25°C
Test Engineer	Fran	Relative Humidity	50%
Test Site	SR2	Test Date	2019/1/29

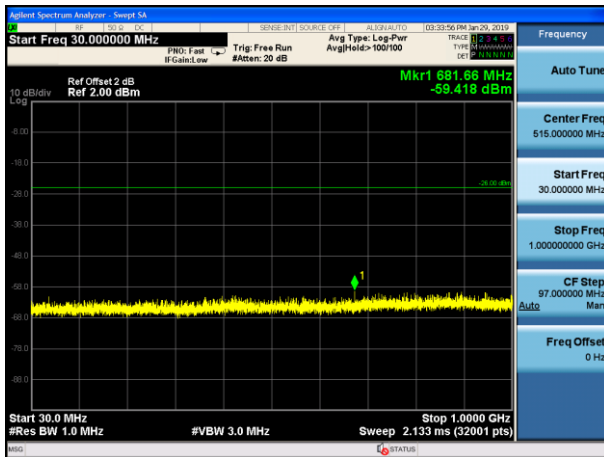
Test Channel	Frequency Range (MHz)	Max Reading Level (dBm)	Limit (dBm)	Result
Transmitter – LE (1Mbps)				
2402MHz	30 ~1000	-59.418	-26	Pass
	1000 ~ 2387	-51.930	-26	Pass
	2387 ~ 2400	-26.229	-16	Pass
	2483.5 ~ 2496.5	-55.010	-16	Pass
	2496.5 ~ 8000	-47.670	-26	Pass
	8000 ~ 12500	-54.420	-26	Pass
2440MHz	30 ~1000	-59.058	-26	Pass
	1000 ~ 2387	-52.801	-26	Pass
	2387 ~ 2400	-55.676	-16	Pass
	2483.5 ~ 2496.5	-54.909	-16	Pass
	2496.5 ~ 8000	-47.828	-26	Pass
	8000 ~ 12500	-53.569	-26	Pass

Test Channel	Frequency Range (MHz)	Max Reading Level (dBm)	Limit (dBm)	Result
Transmitter – LE (1Mbps)				
2480MHz	30 ~1000	-59.485	-26	Pass
	1000 ~ 2387	-55.452	-26	Pass
	2387 ~ 2400	-55.135	-16	Pass
	2483.5 ~ 2496.5	-39.851	-16	Pass
	2496.5 ~ 8000	-45.571	-26	Pass
	8000 ~ 12500	-54.442	-26	Pass

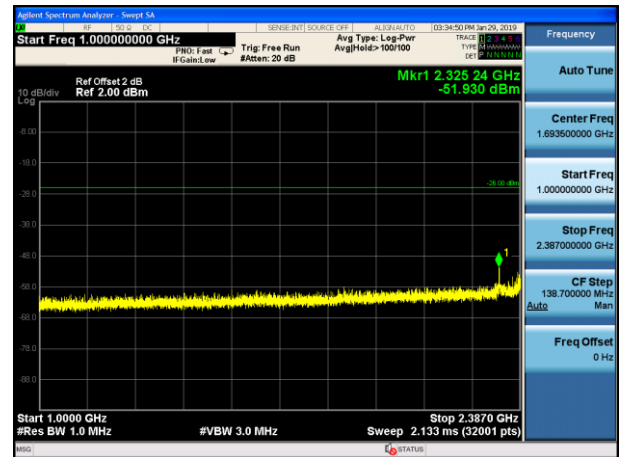
Test Channel	Frequency Range (MHz)	Max Reading Level (dBm)	Limit (dBm)	Result
Transmitter – LE (2Mbps)				
2402MHz	30 ~1000	-58.826	-26	Pass
	1000 ~ 2387	-51.692	-26	Pass
	2387 ~ 2400	-16.320	-16	Pass
	2483.5 ~ 2496.5	-57.577	-16	Pass
	2496.5 ~ 8000	-51.918	-26	Pass
	8000 ~ 12500	-54.068	-26	Pass
2440MHz	30 ~1000	-59.806	-26	Pass
	1000 ~ 2387	-55.429	-26	Pass
	2387 ~ 2400	-16.713	-16	Pass
	2483.5 ~ 2496.5	-57.578	-16	Pass
	2496.5 ~ 8000	-52.092	-26	Pass
	8000 ~ 12500	-54.378	-26	Pass
2480MHz	30 ~1000	-59.604	-26	Pass
	1000 ~ 2387	-56.659	-26	Pass
	2387 ~ 2400	-56.948	-16	Pass
	2483.5 ~ 2496.5	-41.163	-16	Pass
	2496.5 ~ 8000	-49.703	-26	Pass
	8000 ~ 12500	-54.108	-26	Pass

2402MHz Transmitter Spurious Emissions (1Mbps)

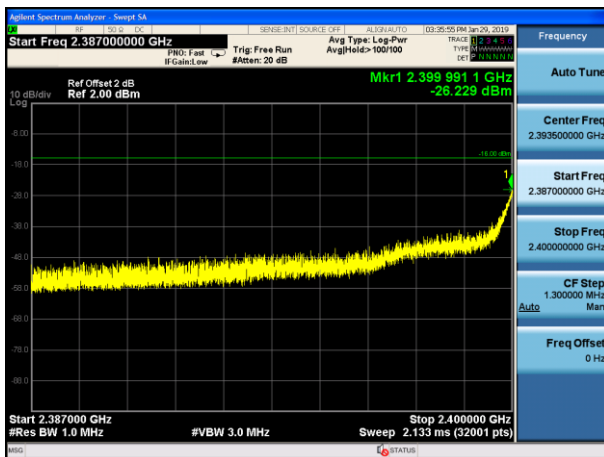
30 ~ 1000MHz



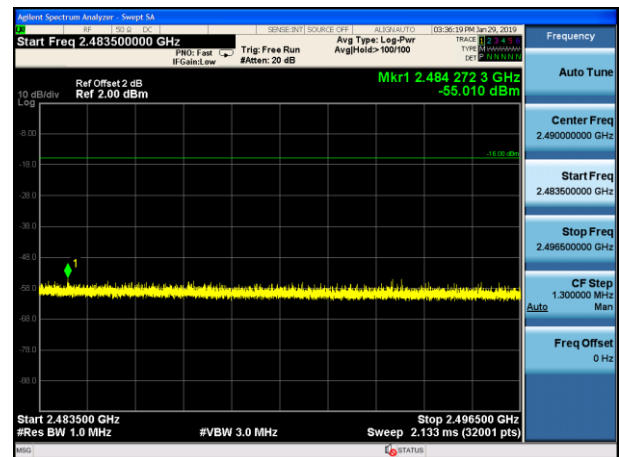
1000 ~ 2387MHz



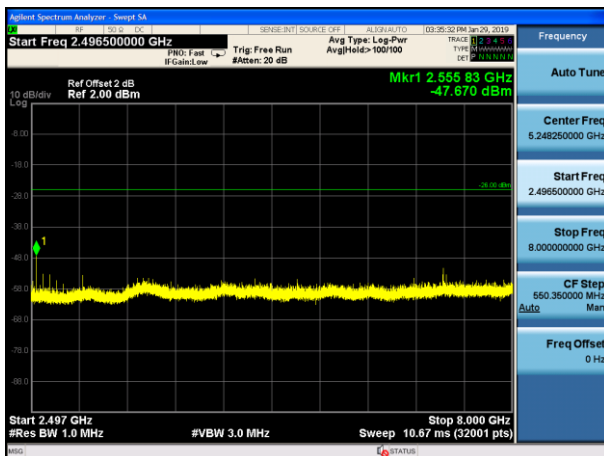
2387 ~ 2400MHz



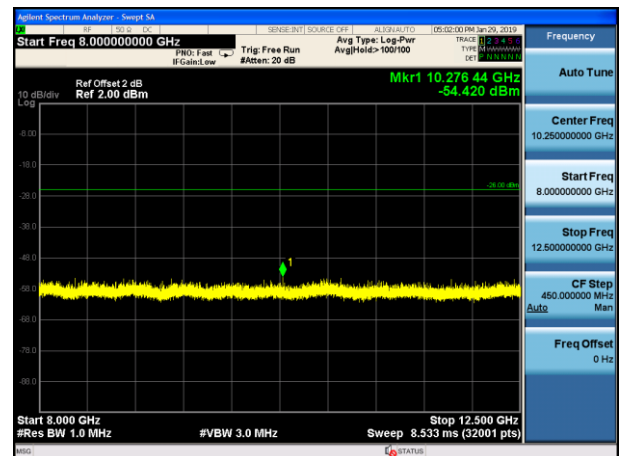
2483.5 ~ 2496.5MHz



2496.5 ~ 8000MHz

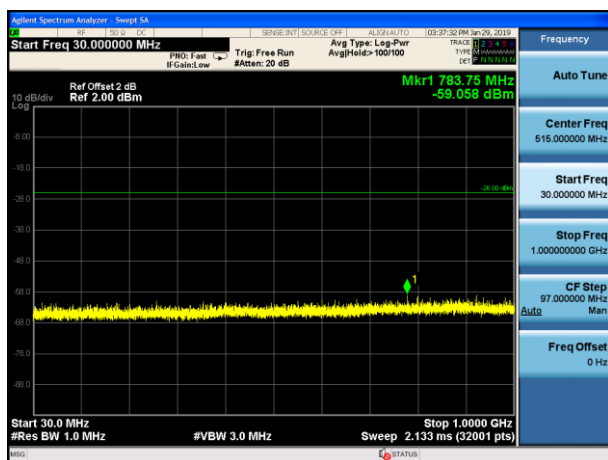


8000 ~ 12500MHz

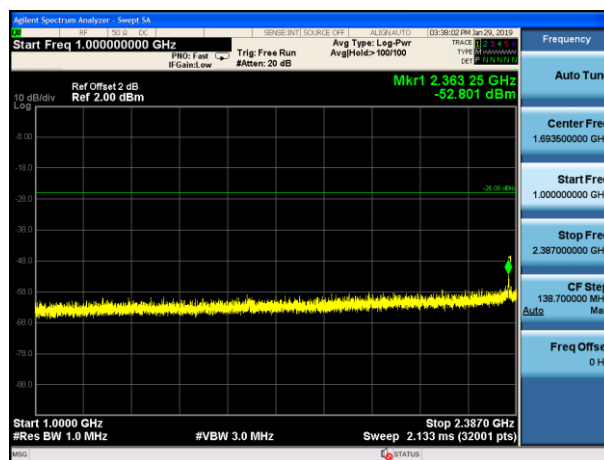


2440MHz Transmitter Spurious Emissions (1Mbps)

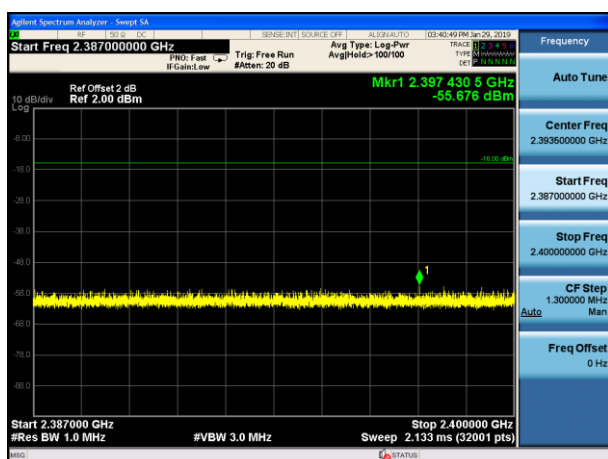
30 ~ 1000MHz



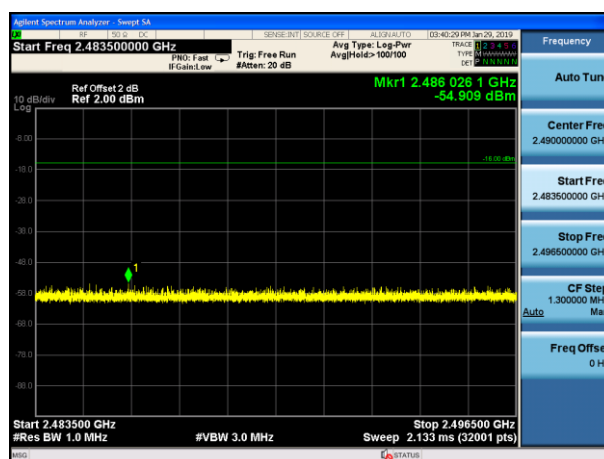
1000 ~ 2387MHz



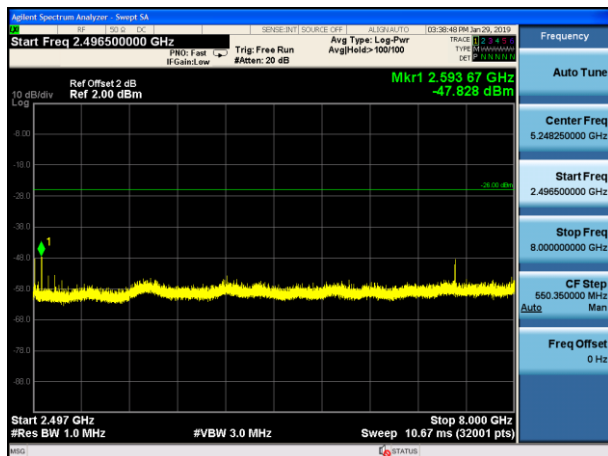
2387 ~ 2400MHz



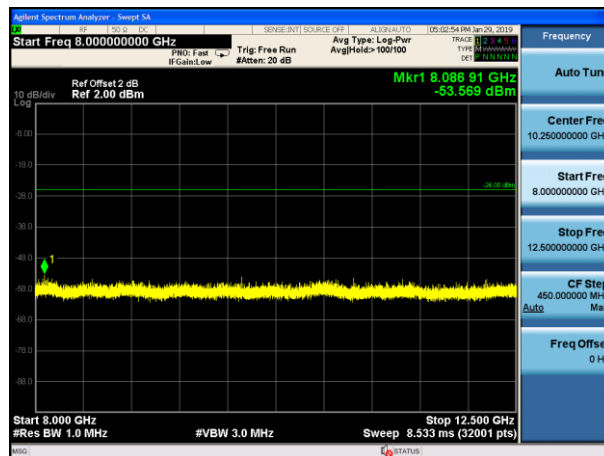
2483.5 ~ 2496.5MHz



2496.5 ~ 8000MHz

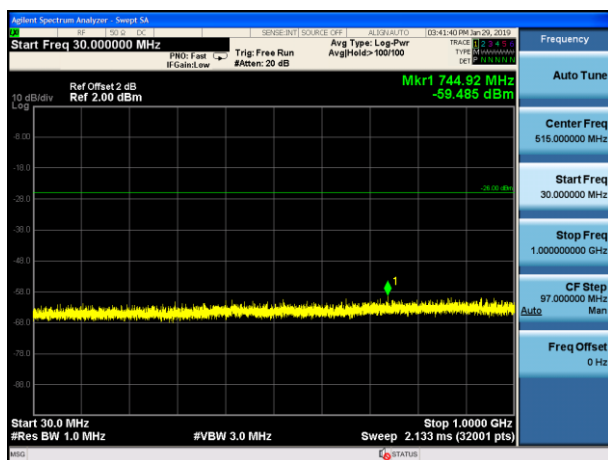


8000 ~ 12500MHz

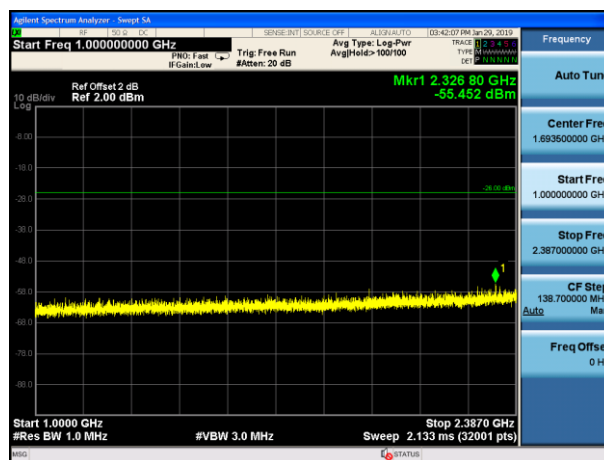


2480MHz Transmitter Spurious Emissions (1Mbps)

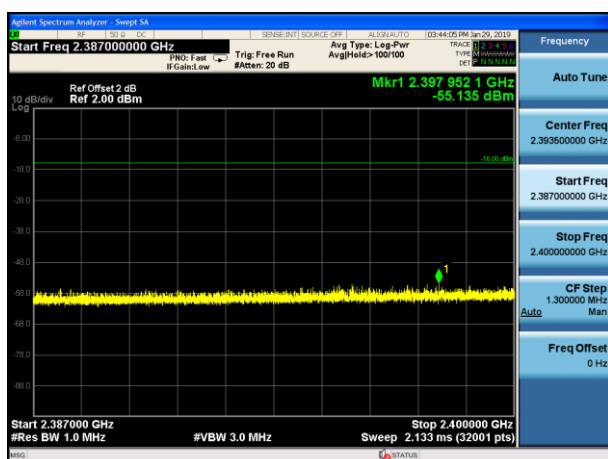
30 ~ 1000MHz



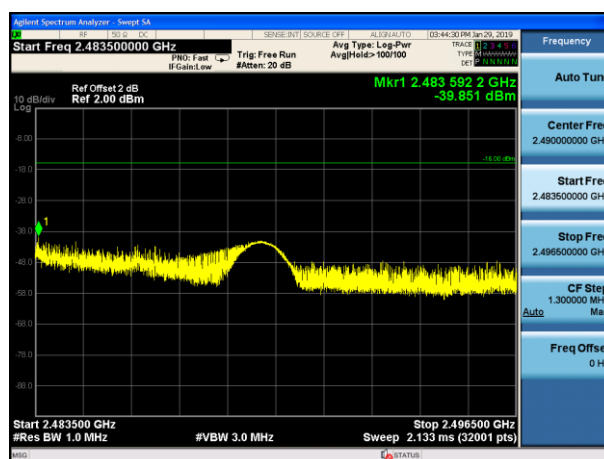
1000 ~ 2387MHz



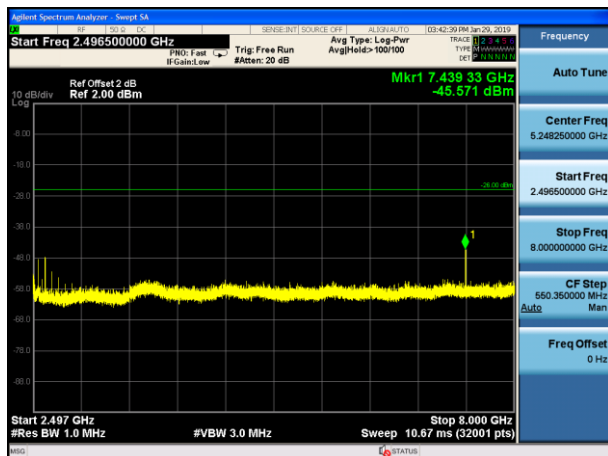
2387 ~ 2400MHz



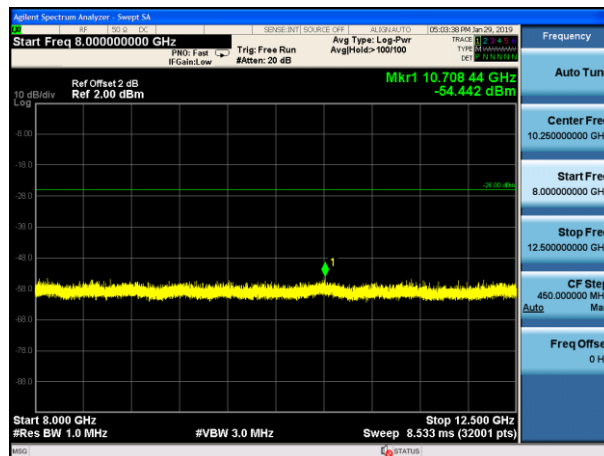
2483.5 ~ 2496.5MHz



2496.5 ~ 8000MHz

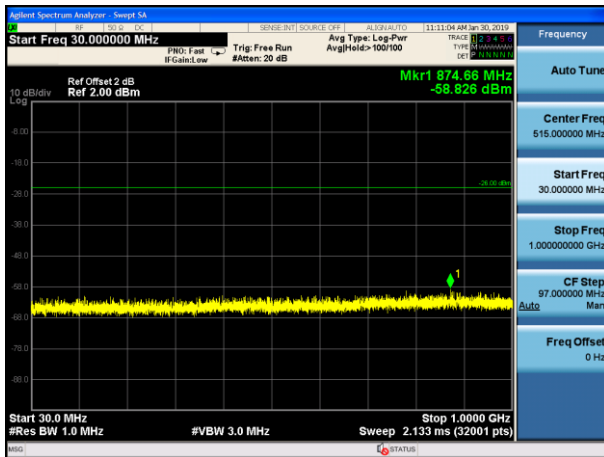


8000 ~ 12500MHz

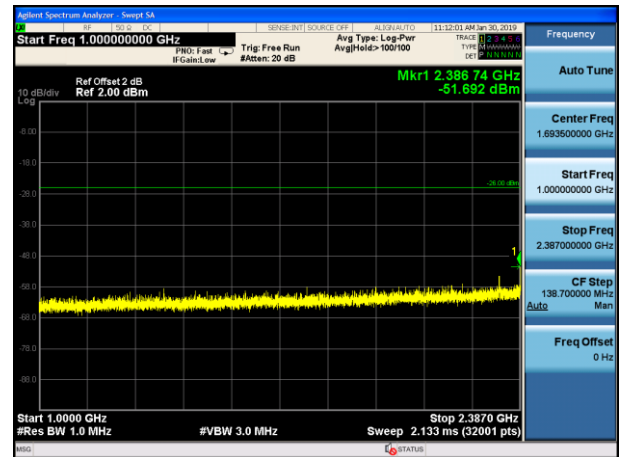


2402MHz Transmitter Spurious Emissions (2Mbps)

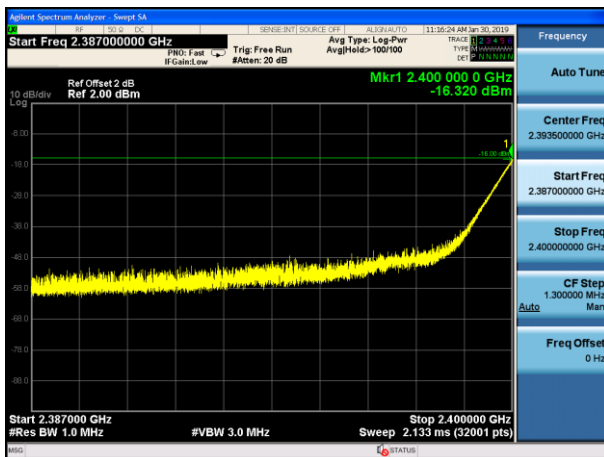
30 ~ 1000MHz



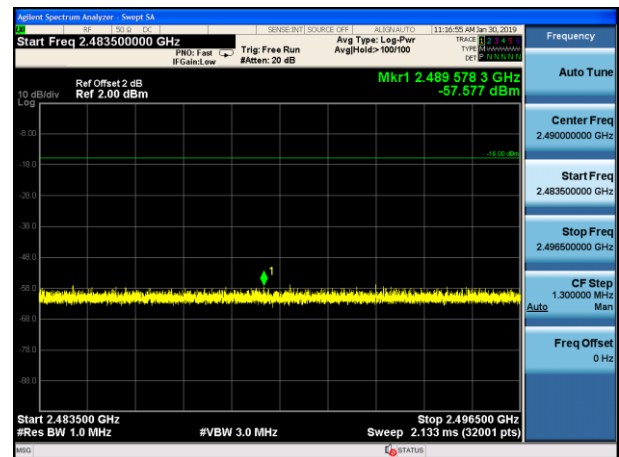
1000 ~ 2387MHz



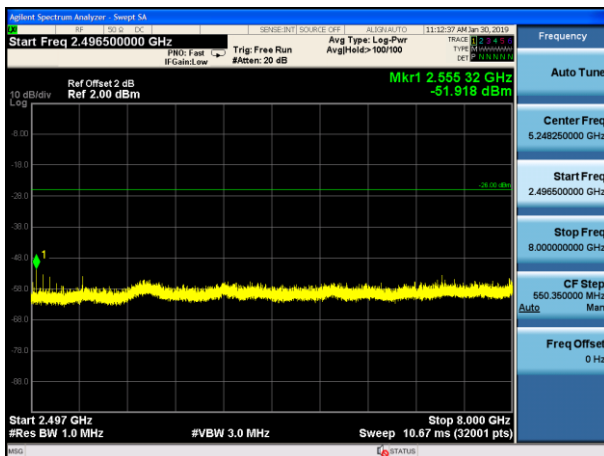
2387 ~ 2400MHz



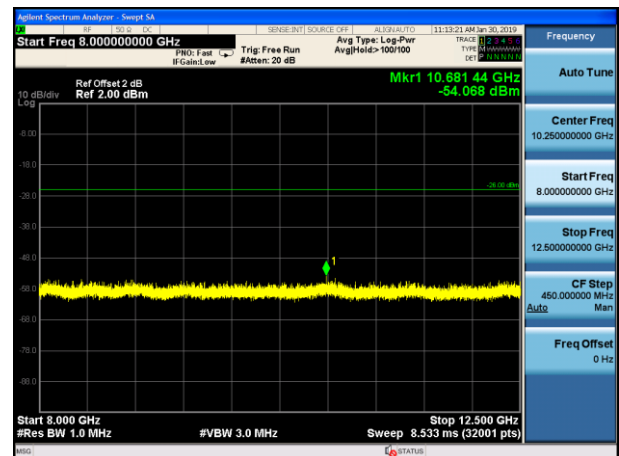
2483.5 ~ 2496.5MHz



2496.5 ~ 8000MHz

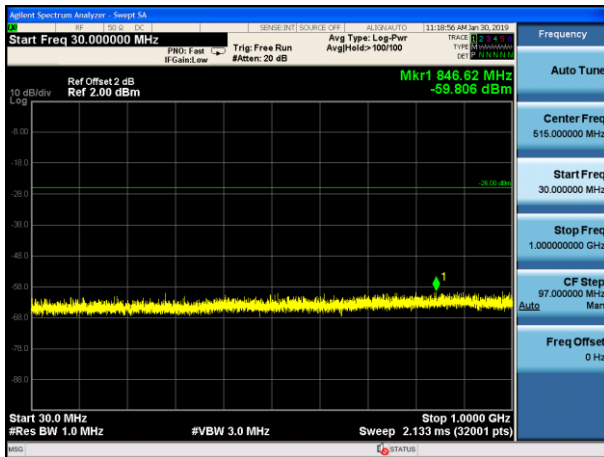


8000 ~ 12500MHz

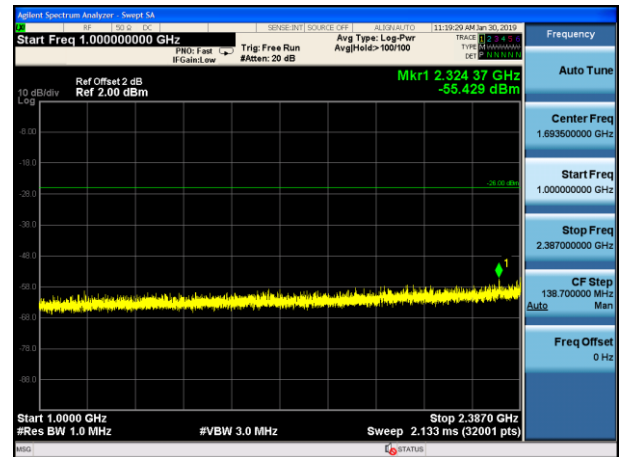


2440MHz Transmitter Spurious Emissions (2Mbps)

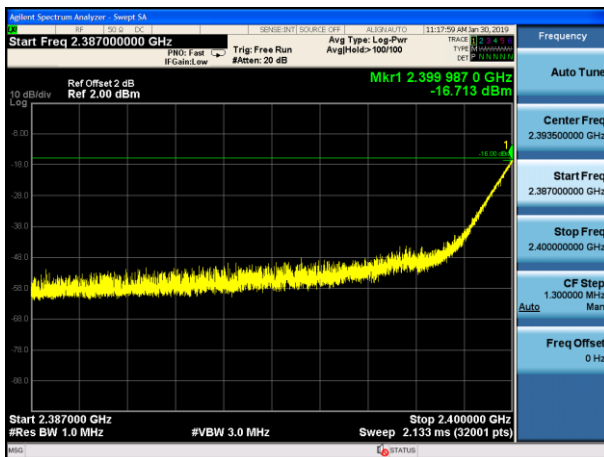
30 ~ 1000MHz



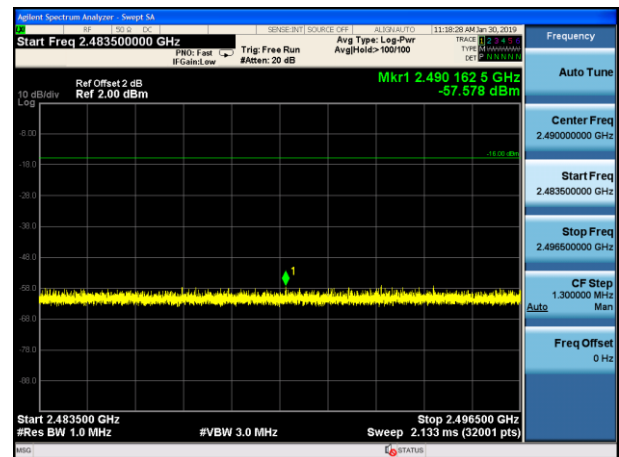
1000 ~ 2387MHz



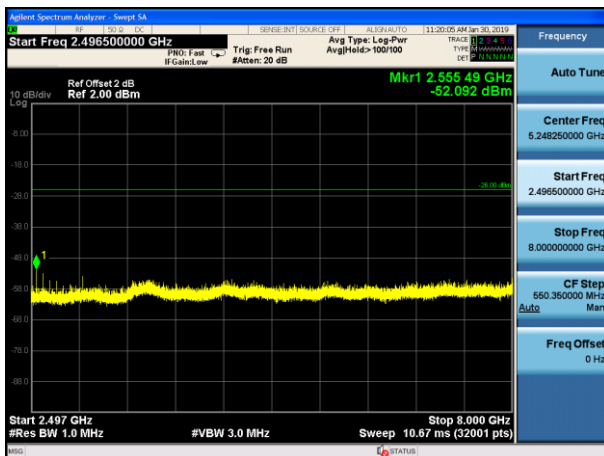
2387 ~ 2400MHz



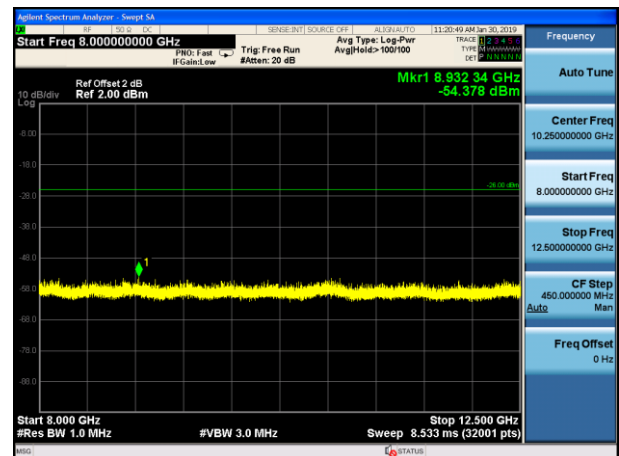
2483.5 ~ 2496.5MHz



2496.5 ~ 8000MHz

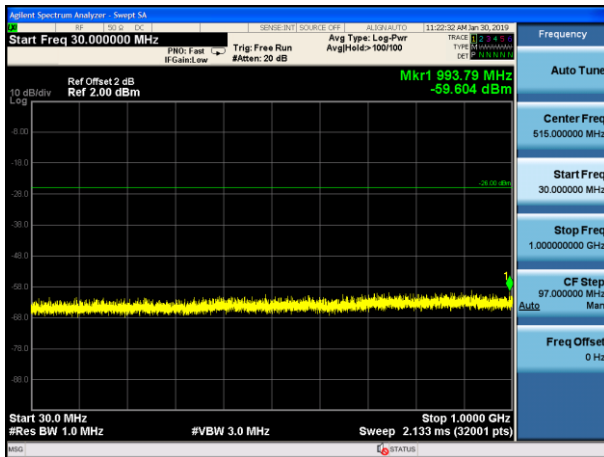


8000 ~ 12500MHz

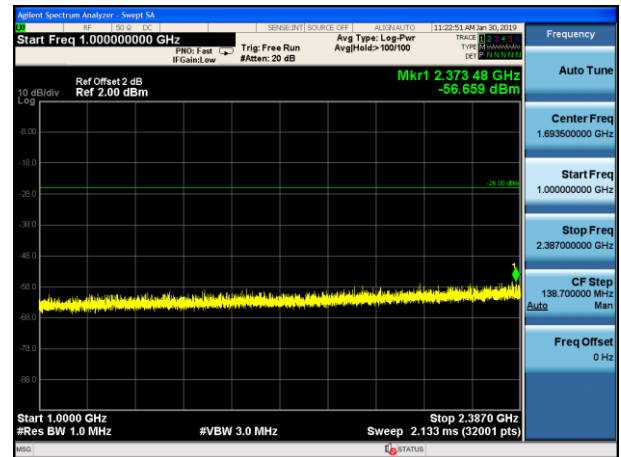


2480MHz Transmitter Spurious Emissions (2Mbps)

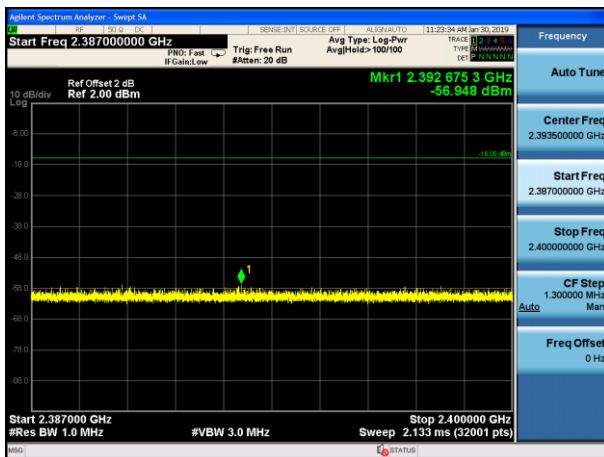
30 ~ 1000MHz



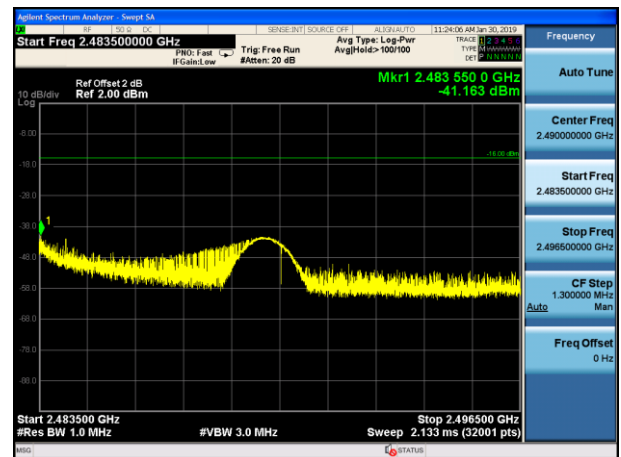
1000 ~ 2387MHz



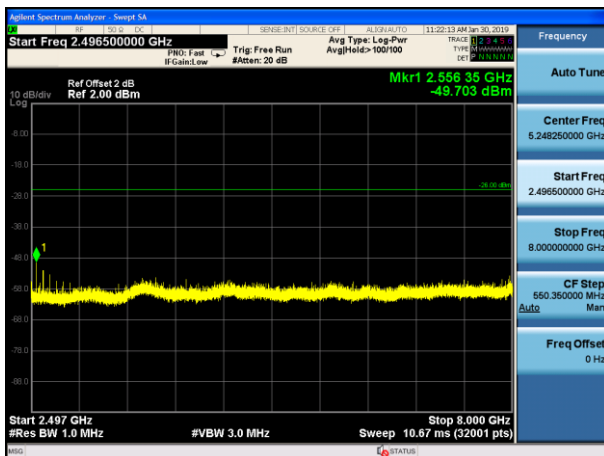
2387 ~ 2400MHz



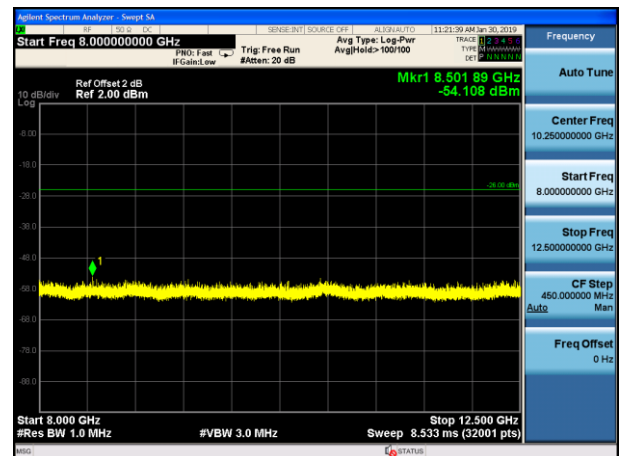
2483.5 ~ 2496.5MHz



2496.5 ~ 8000MHz



8000 ~ 12500MHz



6.6. Receiver Spurious Emissions

6.6.1. Test Limit

$\leq 4\text{nW}$ (-54dBm) for 10 ~ 1000MHz;

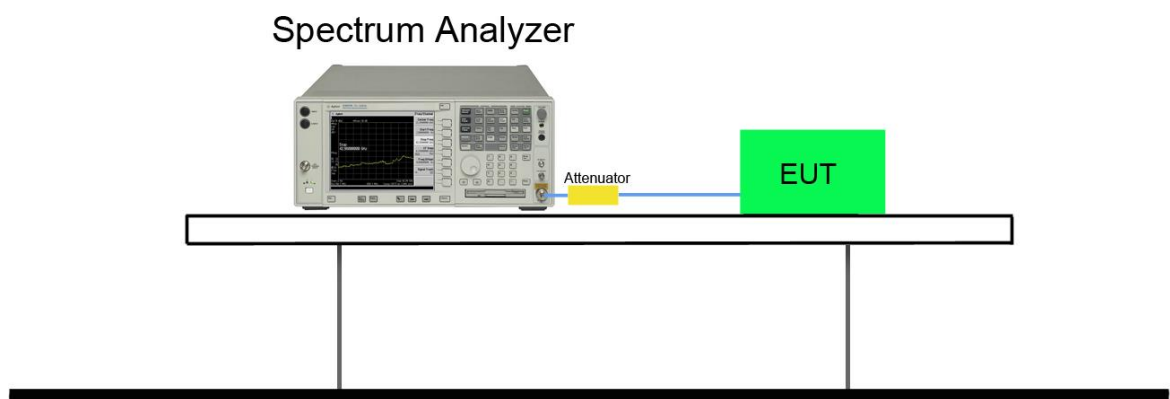
$\leq 20\text{nW}$ (-47dBm) for 1000 ~ 12500MHz;

6.6.2. Test Procedure Used

A spectrum analyzer or similar device shall be used to observe a sample of the modulated transmitter's radio frequency power output.

- (a) A positive peak detector function must be used.
- (b) The measurement instrument bandwidth and span must be set sufficiently with, and, the scan time set sufficiently slowly, to ensure all major modulation products are captured. Note that the measurement bandwidth should also be set sufficiently narrow to avoid adding significant error to the test result.
- (c) 'Maximum Hold' mode may be used to accumulate the measurement result over several scans provided the emission is repetitive in nature.

6.6.3. Test Setup



6.6.4. Test Result

Product	HA8000E EL300	Temperature	25°C
Test Engineer	Fran	Relative Humidity	50%
Test Site	SR2	Test Date	2019/1/30

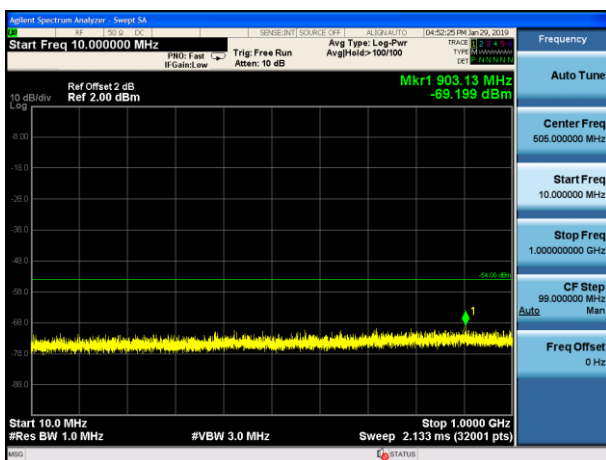
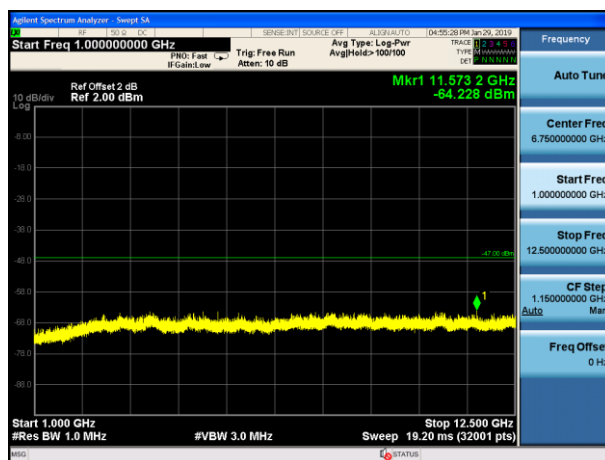
Test Channel	Frequency Range (MHz)	Max Reading Level (dBm)	Limit (dBm)	Result
Receiver- LE (1Mbps)				
2402MHz	10 ~1000	-69.199	-54	Pass
	1000 ~ 12500	-64.228	-47	Pass
2440MHz	10 ~1000	-69.758	-54	Pass
	1000 ~ 12500	-63.852	-47	Pass
2480MHz	10 ~1000	-68.934	-54	Pass
	1000 ~ 12500	-64.219	-47	Pass

Test Channel	Frequency Range (MHz)	Max Reading Level (dBm)	Limit (dBm)	Result
Receiver- LE (2Mbps)				
2402MHz	10 ~1000	-69.634	-54	Pass
	1000 ~ 12500	-63.273	-47	Pass
2440MHz	10 ~1000	-69.595	-54	Pass
	1000 ~ 12500	-64.324	-47	Pass
2480MHz	10 ~1000	-67.729	-54	Pass
	1000 ~ 12500	-64.496	-47	Pass

2402MHz Receiver Spurious Emissions (1Mbps)

10 ~ 1000MHz

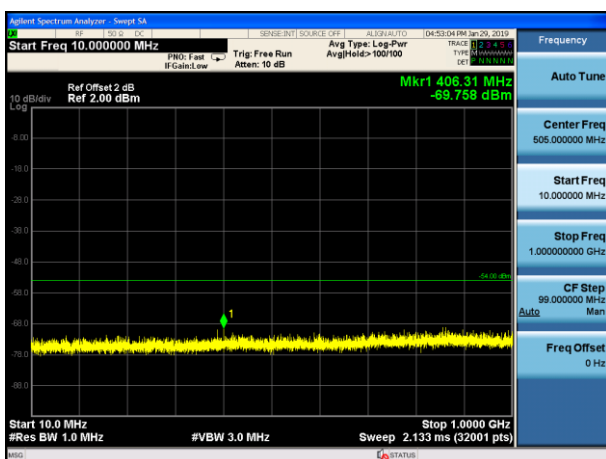
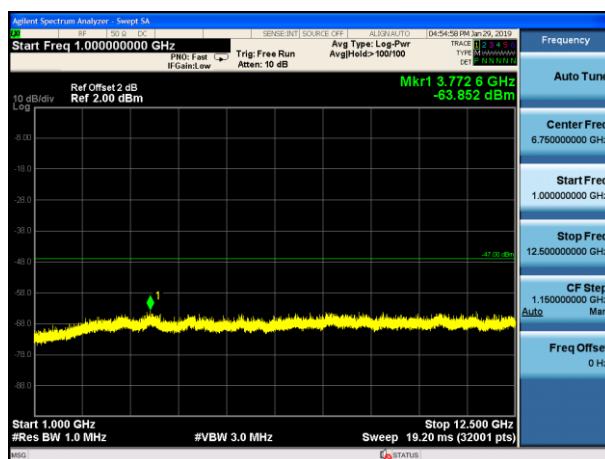
1000 ~ 12500MHz



2440MHz Receiver Spurious Emissions (1Mbps)

10 ~ 1000MHz

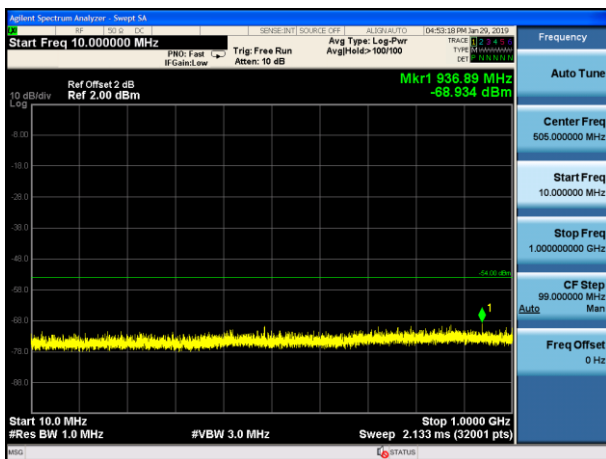
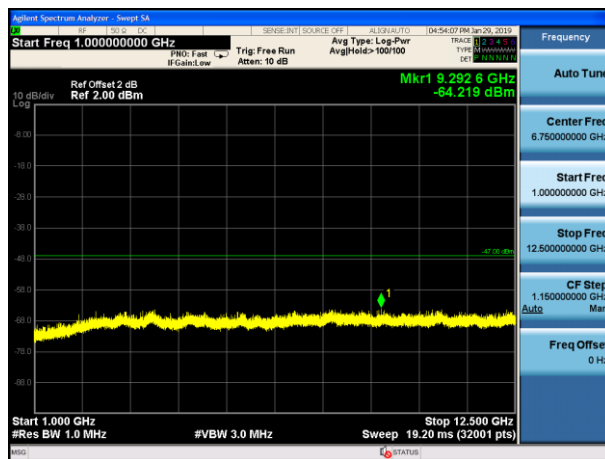
1000 ~ 12500MHz



2480MHz Receiver Spurious Emissions (1Mbps)

10 ~ 1000MHz

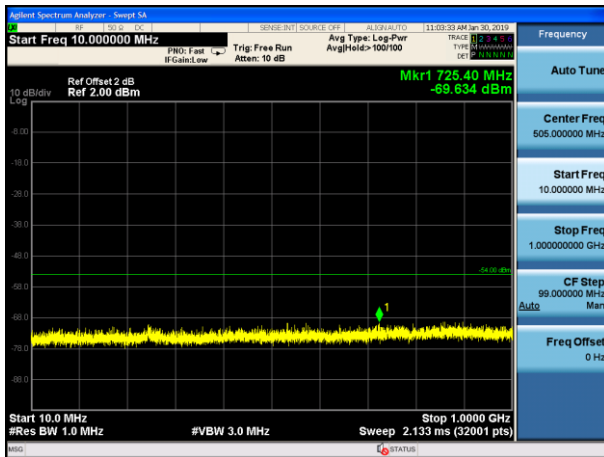
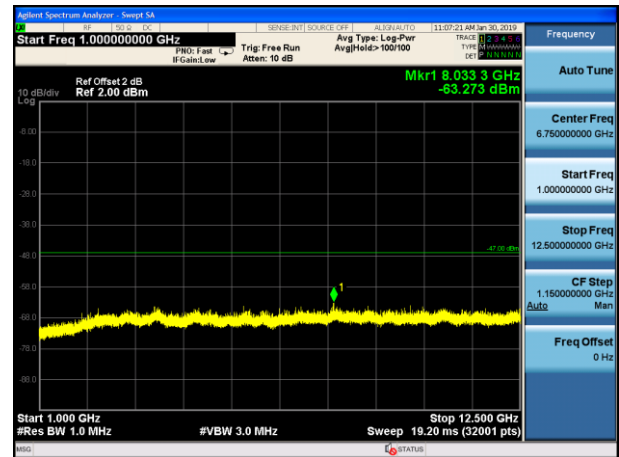
1000 ~ 12500MHz



2402MHz Receiver Spurious Emissions (2Mbps)

10 ~ 1000MHz

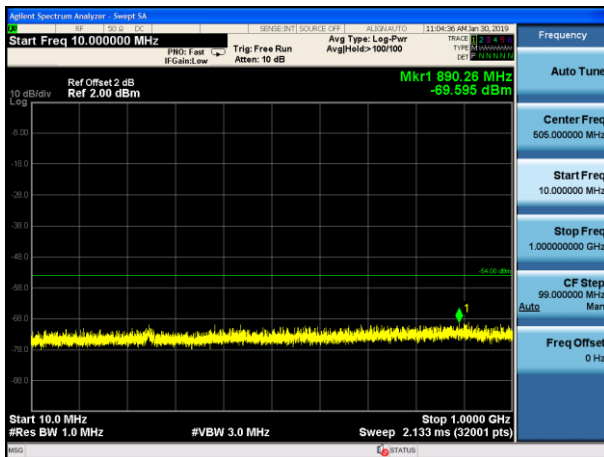
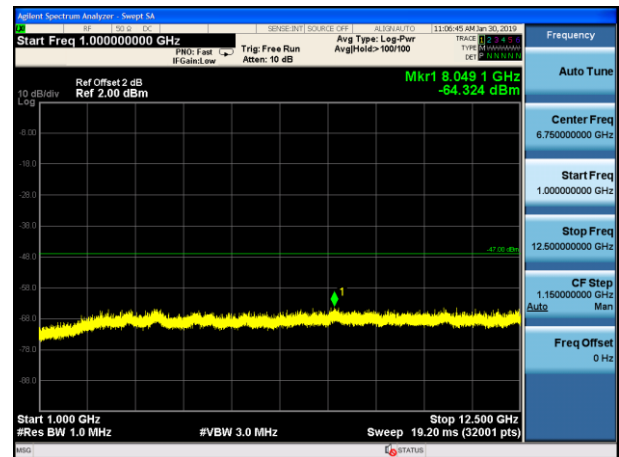
1000 ~ 12500MHz



2440MHz Receiver Spurious Emissions (2Mbps)

10 ~ 1000MHz

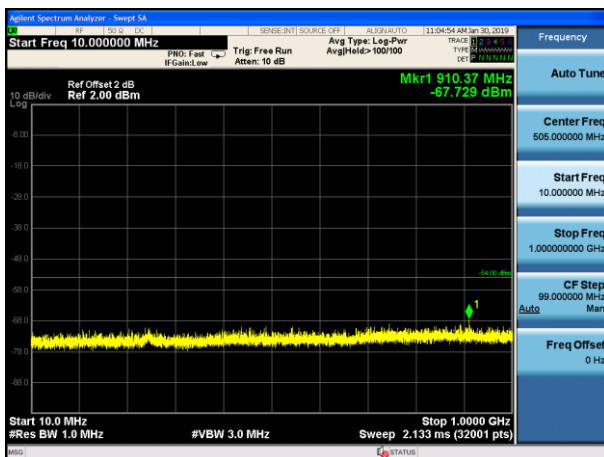
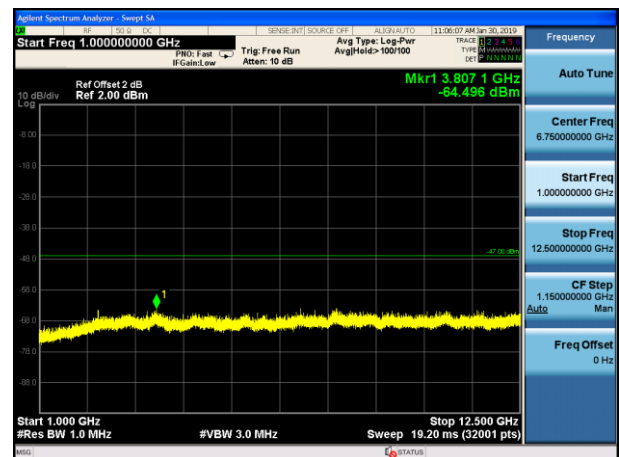
1000 ~ 12500MHz



2480MHz Receiver Spurious Emissions (2Mbps)

10 ~ 1000MHz

1000 ~ 12500MHz



6.7. Interference Prevention Function

6.7.1. Test Result

When the DUT works on normal operation, we can read the DUT address from Host.

Test Result	Pass
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7. CONCLUSION

The data collected relate only the item(s) tested and show that the **HA8000E EL300** is in compliance with MIC Notice No.88 Annex 43.

_____ The End _____