

May 23, 2025

HP Inc.
1501 Old Page Mill Rd.
Palo Alto, CA 94304-1126
USA

Dear Samah Othman,

Enclosed is the EMC Wireless test report for compliance testing of the HP Inc. model P033 as tested to the requirements of Item 19 of Article 38-2, Paragraph 1 of Japan Radio Law for Intentional Radiators.

Thank you for using the services of Eurofins MET Labs. If you have any questions regarding these results or if MET can be of further service to you, please feel free to contact me.

Sincerely yours,
EUROFINS MET LABS



Nancy LaBrecque
Documentation Department

Reference: WIRA135001 – Japan-FHSS

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**Bluetooth Energy (FHSS)
Test Report**

for the

HP Inc.
Model: P033

Tested under
Rules for
2.4 GHz Wide-Band Low-Power
Communication System in
Item 19 of Article 38-2, Paragraph 1 of Japan Radio Law
For Intentional Radiators



Bryan Taylor, Wireless Team Lead
Electromagnetic Compatibility Lab



Nancy LaBrecque
Documentation Department

Engineering Statement: The measurements shown in this report were made in accordance with the procedures indicated, and the emissions from this equipment were found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them.



Matthew Hinojosa
EMC Manager, Austin Electromagnetic Compatibility Lab

Report Status Sheet

Revision	Report Date	Reason for Revision
Ø	May 23, 2025	Initial Issue.

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List of Terms and Abbreviations

AC	Alternating Current
ACF	Antenna Correction Factor
Cal	Calibration
<i>d</i>	Measurement Distance
dB	Decibels
dB μ A	Decibels above one microamp
dB μ V	Decibels above one microvolt
dB μ A/m	Decibels above one microamp per meter
dB μ V/m	Decibels above one microvolt per meter
DC	Direct Current
E	Electric Field
DSL	Digital Subscriber Line
ESD	Electrostatic Discharge
EUT	Equipment Under Test
<i>f</i>	Frequency
FCC	Federal Communications Commission
GRP	Ground Reference Plane
H	Magnetic Field
HCP	Horizontal Coupling Plane
Hz	Hertz
IEC	International Electrotechnical Commission
kHz	kilohertz
kPa	kilopascal
kV	kilovolt
LISN	Line Impedance Stabilization Network
MHz	Megahertz
μ H	microhenry
μ	microfarad
μ s	microseconds
NEBS	Network Equipment-Building System
PRF	Pulse Repetition Frequency
RF	Radio Frequency
RMS	Root-Mean-Square
TWT	Traveling Wave Tube
V/m	Volts per meter
VCP	Vertical Coupling Plane

I. Executive Summary

A. Purpose of Test

An EMC evaluation was performed to determine compliance of the HP Inc. model P033, with the requirements of a 2.4 GHz Wide-Band Low-Power Data Communication System in Item 19 of Article 38-2, Paragraph 1 of Japan Radio Law. HP Inc. should retain a copy of this document which should be kept on file for at least two years after the manufacturing of the model P033, has been **permanently** discontinued.

B. Executive Summary

The following tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Item 19 of Article 38-2, Paragraph 1 of Japan Radio Law, in accordance with HP Inc. purchase order number 9100415812.

Description	Compliance	Remark
Frequency Error	Compliant	Middle channel only was measured since this is for a permissive change application
Occupied Bandwidth and Spreading Bandwidth	Compliant	Middle channel only was measured since this is for a permissive change application
Spurious Emissions	Compliant	Middle channel only was measured since this is for a permissive change application
Antenna Power	Compliant	
Retention Time	Note	This test was not performed as part of the permissive change application
Secondary Radiated Emissions (Spurious Emission of Receiver)	Note	This test was not performed as part of the permissive change application
Function of Carrier Sense	Note	This test was not performed as part of the permissive change application
Absolute Gain of Tx Antenna	Note	This test was not performed as part of the permissive change application
Angle Width of Main Beam of Tx Antenna	Not Applicable	
Interference Prevention Function	Note	This test was not performed as part of the permissive change application

Table 1. Executive Summary

II. Equipment Configuration

A. Overview

Eurofins MET Labs was contracted by HP Inc. to perform testing on the model P033, under HP Inc.'s purchase order number 9100415812.

This document describes the test setups, test methods, required test equipment, and the test limit criteria used to perform compliance testing of the model HP Inc. P033.

The results obtained relate only to the item(s) tested.

Product Marketing Name Tested:	Poly Studio X52		
Model(s) Number:	P033		
EUT Specifications:	Primary Power: 100 – 230VAC Frequency Range: 50Hz / 60Hz		
	Type of Modulations:	GFSK, QPSK, 8DPSK	
	Number of Channels	79	
	Channel Spacing	1MHz	
	Peak Power Density:	0.0168mW/MHz	
	EUT Frequency Ranges:	2402-2480 MHz	
	Antenna Gain (declared by HP Inc.)	4.0dBi	
Analysis:	The results obtained relate only to the item(s) tested.		
Environmental Test Conditions:	Temperature: 15-35° C		
	Relative Humidity: 30-60%		
	Barometric Pressure: 860-1060 mbar		
Evaluated by:	Bryan Taylor		
Report Date(s):	May 23, 2025		

Description	Model Number	Part Number	Serial Number	Rev #
Power Supply	S065-1A120500B3	SM00754DG	1GBBL003T	N.A.
Poly Studio X52	OBAN50	2201-8749-001	822238671543FM	N.A.

Table 2. EUT Summary Table

B. References

2.4 GHz Band Wide-Band Low-Power Data Communication System (Item 19 of Article 2 Paragraph 1)	Radio equipment for low-power data communications system radio station using a radio wave of 2,400 – 2,483.5 MHz
ANSI C63.10:2013	Procedures for Compliance Testing of Unlicensed Wireless Devices
ANSI/ISO/IEC 17025:2000	General Requirements for the Competence of Testing and Calibration Laboratories

Table 3. References

C. Test Site

All testing was performed at Eurofins MET Labs, Inc., 13501 McCallen Pass, Austin, TX 78753. All equipment used in making physical determinations is accurate and bears recent traceability to the National Institute of Standards and Technology.

Radiated Emissions measurements were performed in a 10 meter semi-anechoic chamber (equivalent to an Open Area Test Site).

D. Measurement Uncertainty

Test Method	Typical Expanded Uncertainty	K	Confidence Level
RF Frequencies	±4.52 Hz	2	95%
RF Power Conducted Emissions	±2.97 dB	2	95%
RF Power Radiated Emissions	±2.95 dB	2	95%

Table 4. Uncertainty Calculations Summary

E. Description of Test Sample

The HP Inc. model P033 (marketed as Poly Studio X52), is a video conferencing bar designed to act as a Video endpoint over LAN network. The device is powered an AC/DC mains adapter and contains 2.4GHz / 5GHz WiFi and Bluetooth radio interfaces.

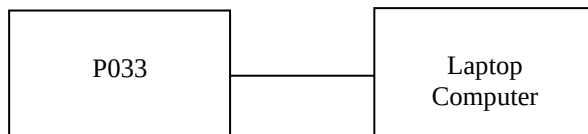


Figure 1. Block Diagram of Test Configuration

F. Equipment Configuration

The EUT was set up as outlined in Figure 1, Block Diagram of Test Setup. The laptop computer was used to send test commands to force the transmitters to operate in the appropriate test mode.

G. Support Equipment

Support equipment necessary for the operation and testing of the EUT is included in the following list.

Name/Description	Manufacturer	Model Number	Customer Supplied Calibration Data
4k Monitors	hp	1B9T0AA	N/A
4k Monitors	hp	1B9T0AA	N/A
BT Remote	Poly/ Remotec	BW7640UN	N/A
USB keyboard	hp	KU-0316	N/A
USB mouse	hp	672652-001	N/A
Laptop for content and pings	Dell	XPS 14	N/A
Router Cisco gigabit router	Cisco	RN042G	N/A
WIFI access point Cisco AIR Lap	Cisco	1142N-A-K9	N/A

Table 5. Support Equipment

A. Ports and Cabling Information

Port Name on EUT	Cable Description or reason for no cable	Qty	Length as tested (m)	Max Length (m)	Shielded? (Y/N)	Termination Box ID & Port Name
DC Power	DC Power Cable	1	2m	2m	No	AC/DC Power Adapter
USB-C	USB-C	1	10m	10m	Yes	Laptop Computer

Table 6. Ports and Cabling Information

B. Mode of Operation

The support laptop provided a direct means of controlling transmitter parameters. Unless otherwise stated or shown, all tests were performed at worst-case modulation and data rates on the following channels.

Transmit Band	Operating Mode	Channel Frequencies Tested	Test Tool Power Setting
2400 – 2483.5MHz	GFSK	2402MHz / 2441MHz / 2480MHz	8
	Pi/4 DQPSK	2402MHz / 2441MHz / 2480MHz	8
	8DPSK	2402MHz / 2441MHz / 2480MHz	8

Figure 2. Test Channels Utilized

Additionally, some tests required the test sample to operate in its normal frequency hopping mode.

C. Method of Monitoring EUT Operation

A spectrum analyzer was used to confirm proper transmitter operation.

D. Modifications

a) Modifications to EUT

No modifications were made to the EUT.

b) Modifications to Test Standard

No modifications were made to the test standard.

E. Disposition of EUT

The test sample including all support equipment submitted to the Electro-Magnetic Compatibility Lab for testing was returned to HP Inc. upon completion of testing.

III. Electromagnetic Compatibility Criteria for Intentional Radiators

Electromagnetic Compatibility Criteria for Intentional Radiators

Frequency Error

Test Conditions:

- (1) Frequency counter may be replaced by spectrum analyzer's counter function.
- (2) Accuracy of frequency counter shall be more than 10 times as accurate as the specified limit.
- (3) Deduction of the attenuator shall be enough to sense at the input of the frequency counter for preventing missing carrier due to amplitude fluctuation of EUT.
- (4) Where EUT is not available to transmit carrier wave but only burst signal, pulse measurement function with gate-time which is more than the burst time shall be used. Other practical, reasonable method may also be used.

Operational Condition of the Equipment Under Test:

- (1) Set tested transmitting channel
- (2) Operation mode shall be un-modulated (CW), continuous. If impossible, operation mode shall adjust as a characteristic frequency spectrum can be identified, repeatable. (i.e. one of harmonics, sub-carrier)

Test Method:

- (1) Where un-modulated carrier can be made, frequency counter shall directly be used to measure the frequency error of EUT.
- (2) Where burst signal only be made, gate time of frequency counter shall be enough to keep adequate accuracy of the measurement; calculate the average value.
- (3) Where some characteristic spectrums are repeatable, frequency counter function of spectrum analyzer may be used.



Figure 3. Frequency Error Test Configuration

Test Limit: Tolerance of frequency ($\times 10^{-6}$): ± 50 ppm

Test Engineer(s): Bryan Taylor

Test Date(s): 3/26/2025

Results: The EUT was compliant with the requirements of this section. Engineering Note: Per Test Method - Table 43 - 1.2.2.A -) If the fluctuation of input voltage to the circuit of RF unit (except power supply) of test equipment is under 1%, when input voltage from external power supply to the test equipment is fluctuated by $\pm 10\%$, conduct the test with the rated voltage only.

Voltage	Target Frequency (MHz)	Measured Frequency (MHz)	Frequency Deviation (MHz)	Limit (ppm)	Δ (ppm)
Vnom	2441	2441.05	0.05	50	20.48341
Vlow	2441	2441.07	0.07	50	28.67677
Vhigh	2441	2441.06	0.06	50	24.58009

Table 7. Frequency Error, Test Results (CW Transmission)

Electromagnetic Compatibility Criteria for Intentional Radiators

Occupied Bandwidth and Spread Spectrum Bandwidth

Test Condition:

- (1) Set the spectrum analyzer as follows:
 - Center frequency: Operational frequency;
 - Span: 2 to 3.5 times of the specified limit;
 - RBW: Less than 3% of the specified limit;
 - VBW: Equivalent to RBW;
 - Sweep time: Minimum time keeping measurement accuracy (In the case of burst waves, the time at which one burst or more is included per sample);
 - Quantity of sampling: More than 400 points;
 - Sweep mode: Continuous sweep;
 - Detecting mode: Max hold.
- (2) For OFDM (non-burst wave) the spectrum analyzer settings are updated as follows:
 - Average processing times: 10 or more;
 - Detecting mode: Sample.

Operational Condition of the Equipment Under Test:

One low, middle, and high channel were selected to perform this test. Where EUT transmits burst signal with OFDM technique, modulation shall be made as spreading spectrum width and sub-carriers are maximum as possible.

Test Method:

- (1) Spectrum analyzer shall be set up as (1) from the Test Condition above.
- (2) The sweep shall be repeated until there are no changes in the spectrum.
- (3) Convert the dB value into watts.
- (4) Amount of all measured data in Watts shall be recorded as “total power”.
- (5) From the lowest frequency, sum the stored data one by one until the summed amount is 0.5% (5% for FHSS transmitter) of “total power” and the frequency related to the data getting to 0.5% shall be recorded as “the lowest frequency.”
- (6) From the highest frequency, sum the stored data one by one until the summed amount is 0.5% (5% for FHSS transmitter) of “total power” and the frequency related to the data getting to 0.5% shall be recorded as “the highest frequency.”
- (7) Where spectrum analyzer has a function to automatically calculate the lowest and highest frequencies as above, it may be used instead.



Figure 4. Occupied Bandwidth and Spread Spectrum Bandwidth Test Configuration

Test Limit: Tolerance of occupied bandwidth:

FHSS: 83.5 MHz
FHSS + DSSS: 83.5 MHz
FHSS + OFDM: 83.5 MHz
OFDM: 38 MHz
DSSS: 26 MHz
Others: 26 MHz

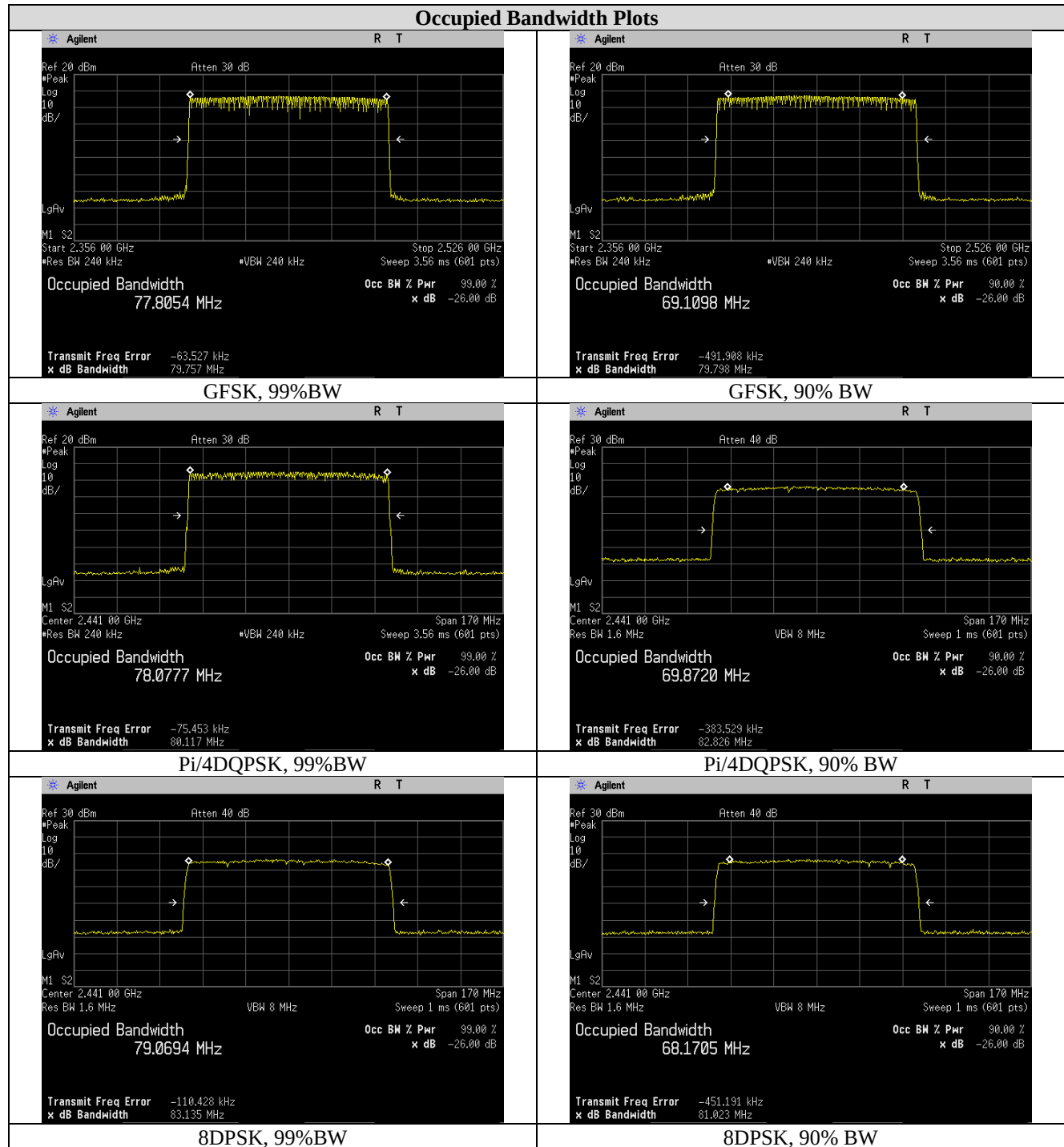
Test Engineer(s): Bryan Taylor

Test Date(s): 3/26/2025

Test Results: The EUT was compliant with the requirements of this section.

2.4GHz FHSS Japan OBW	99% Bandwidth (MHz)	90% Bandwidth (MHz)	TX Rate (Mbps)	Spreading Factor
GFSK_Mid Ch_2441MHz	77.80	69.11	1	69.11
Pi/4QPSK_Mid Ch_2441MHz	78.07	69.87	2	69.87
8DPSK_Mid Ch_2441MHz	79.07	68.17	3	68.17

Table 8. Occupied Bandwidth, Test Results



Electromagnetic Compatibility Criteria for Intentional Radiators

Spurious Emissions

Test Condition:

(1) Searching spurious emissions, the spectrum analyzer shall setup as following;

- Frequency range: Searching spurious emissions shall be done from 30 MHz to 5 times of fundamental frequency (i.e. 30 MHz – 12.5 GHz)
- RBW: 1MHz;
- VBW: Equivalent to RBW;
- Scale of Y axis: 10dB/Div;
- Input level: Maximum dynamic range;
- Sweep time: Least time keeping measurement accuracy;
- Quantity of sampling: More than 400 points;
- Sweep mode: Single sweep (*);
- Detecting mode: Positive peak hold;

* Where EUT employs DSSS technique and is burst transmitter, shortening measurement work any sweep time may be applied as long as the time is longer than one is conducted form the following formula; Least sweep time = [Span (MHz) / RBW (MHz)] × Burst cycle(s) due to cut the sweep time. However, detected signal may appear lower than real value by maximum 3dB and this possibility shall be taken into account.

(2) Determining the level of the detected spurious emission the following settings of the spectrum analyzer shall be used;

- Center frequency: A frequency of detected spurious emissions;
- Span: 0Hz;
- RBW: 1MHz;
- VBW: Equivalent to RBW;
- Scale of Y axis: 10dB / Div;
- Input level: Around maximum dynamic range area where input mixer can keep its linear character;
- Sweep time: Minimum time keeping measurement accuracy (In the case of burst waves, the time at which one burst or more is included per sample);
- Quantity of sampling: More than 400 points;
- Sweep mode: Single sweep;
- Detecting mode: Sampling;

Operational Condition of the Equipment Under Test:

One low, middle, and high channel were selected to perform this test.

Test Method:

- (1) Spectrum analyzer shall be set up as Test Condition Section (1) and significant spurious emissions shall be searched. If the level of the searched spurious emission is lower than the specified limit (Where *1 of 5.2 is applied, 3dB lower than the limit shall be referred.), the level shall be recorded as a final result.
- (2) If the level of the searched spurious emission is greater than the specified limit, RBW shall change like 100MHz, 10MHz, 1MHz and more narrow until determining the precise frequency. Determine the level of the detected spurious emission using the setting in Test Condition Section (2). Average value based on the sampled data shall be a final result. (Where burst signal is measured, averaging shall be applied to on-time of the burst signal.)

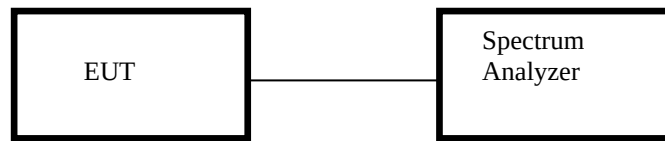


Figure 5. Spurious Emissions Test Configuration

Test Limit: Tolerance of unwanted emission density:

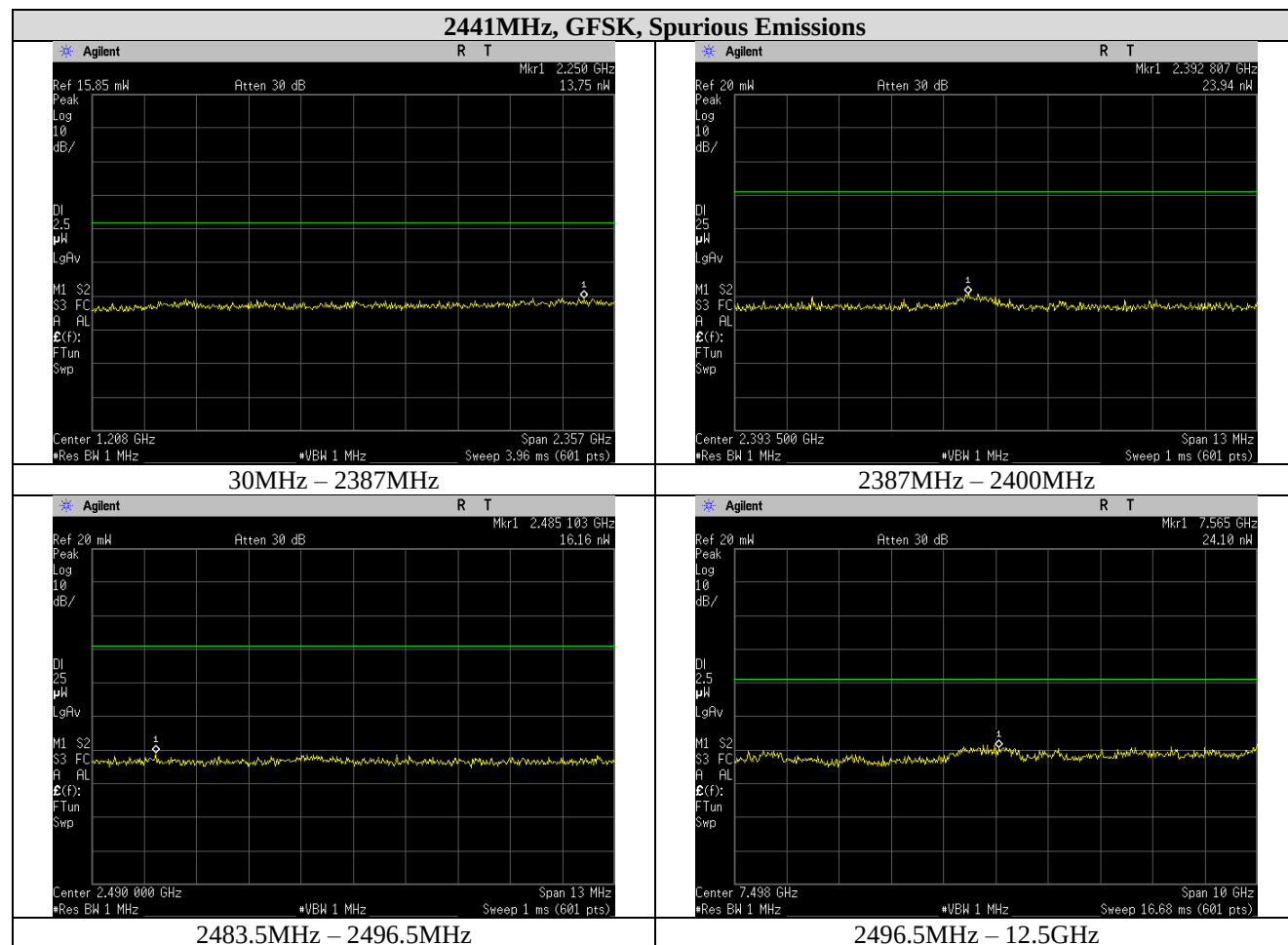
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|----------------------------|-----------------|
| (1) 30 – 2387 MHz: | 2.5 μ W/MHz |
| (2) 2387 – 2400 MHz: | 25 μ W/MHz |
| (3) 2483.5 – 2496.5 MHz: | 25 μ W/MHz |
| (4) 2496.5 MHz – 12.5 GHz: | 2.5 μ W/MHz |

Test Engineer(s): Bryan Taylor

Test Date(s): 3/26/2025

Test Results The EUT was compliant with the requirements of this section.

Spurious Emissions Test Results



Frequency Range (MHz)	Level (uW/MHz)	Limit (uW/MHz)	Result
30MHz - 2387MHz	0.013750	2.5	Pass
2387MHz - 2400MHz	0.023939	25	Pass
2483.5MHz - 2496.5MHz	0.016162	25	Pass
2496.5MHz - 12.5GHz	0.024105	2.5	Pass

Figure 6. Spurious Emissions, Mid Channel

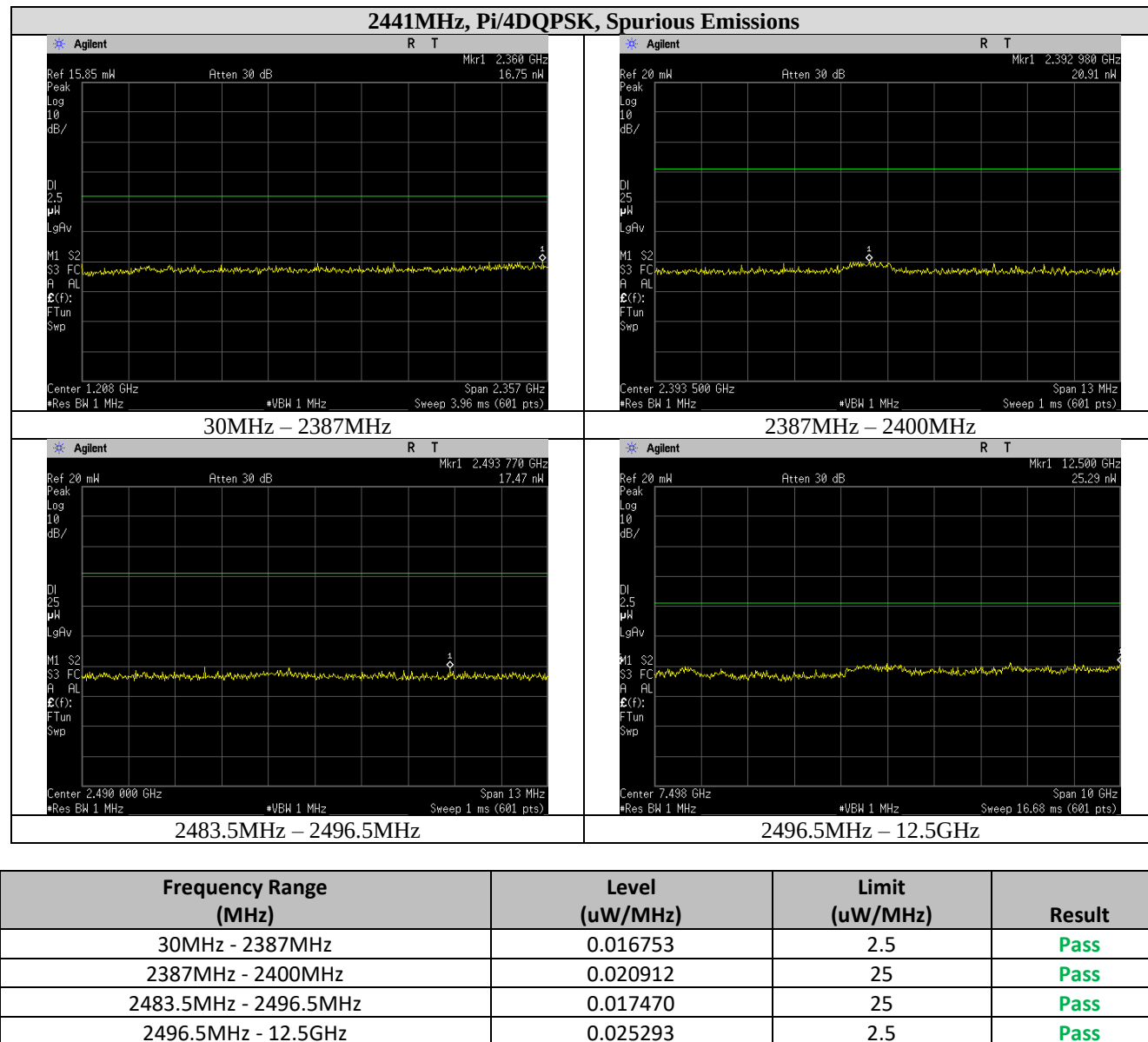


Figure 7. Spurious Emissions, Mid Channel

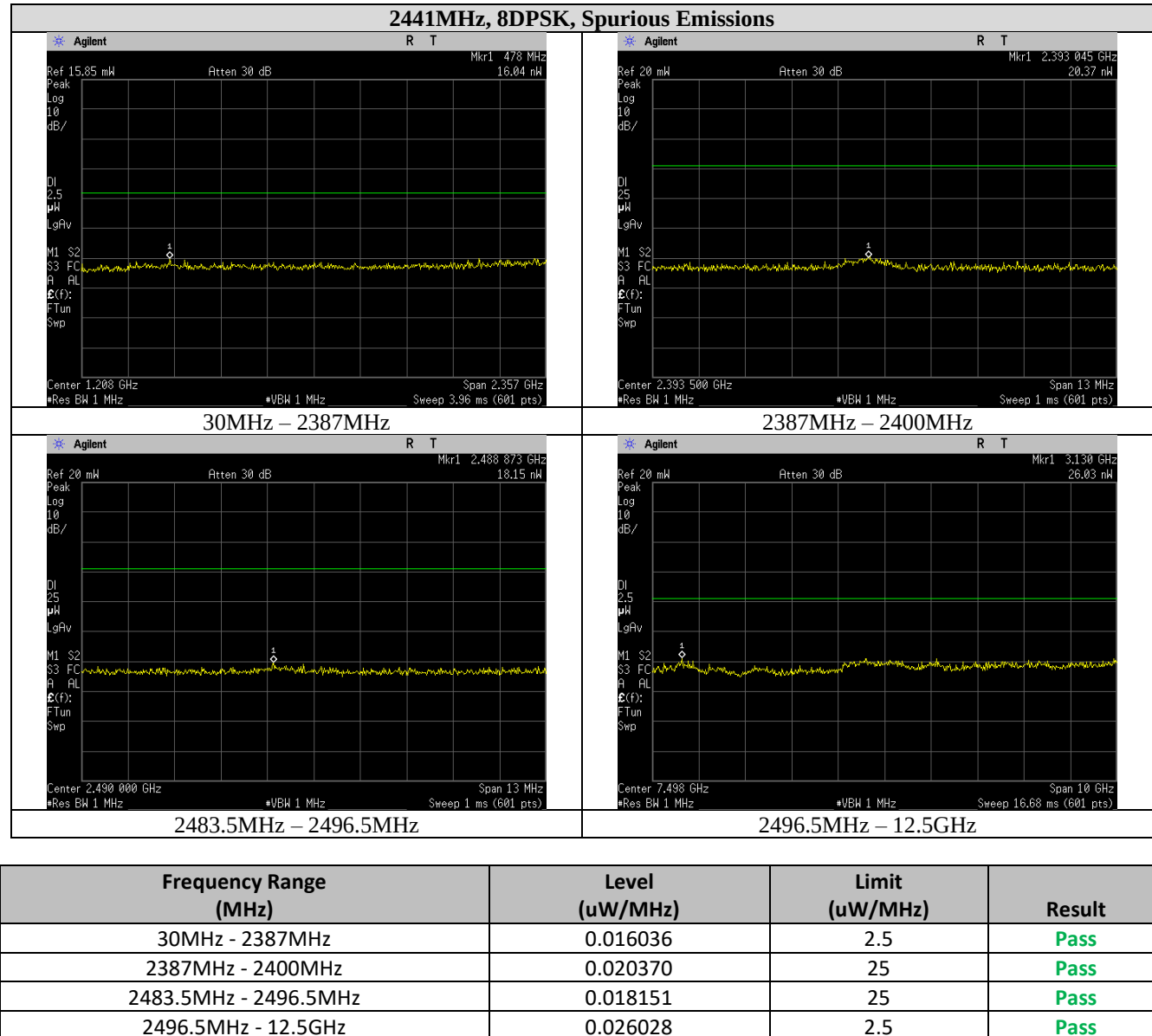


Figure 8. Spurious Emissions, Mid Channel

Electromagnetic Compatibility Criteria for Intentional Radiators

Antenna Power

Test Condition:

- (1) Considering Equivalent Noise Bandwidth of IF filter of the spectrum analyzer, a specified correction factor provided by the manufacturer of the spectrum analyzer shall be added to the reading value. However, where spread spectrum bandwidth is lower than 1MHz, the factor shall be applied if only “Spread Spectrum Bandwidth (MHz) / Equivalent Noise Bandwidth (MHz)” is larger than 1.
- (2) Value of the attenuator shall be suitable to input dynamic range of the spectrum analyzer.
- (3) Searching maximum powered frequency, the spectrum analyzer shall setup as following;
 - Center frequency: Operational frequency specified by the applicant;
 - Frequency range: About 2 times as large as the occupied bandwidth measured
 - RBW: 1MHz;
 - VBW: About 3 times the RBW;
 - Sweep time: Minimum time keeping measurement accuracy (In the case of burst waves, the time at which one burst or more is included per sample);
 - Trigger: Free run;
 - Quantity of sampling: More than 400 points;
 - Sweep mode: Continuous sweep;
 - Detecting mode: Positive peak;
 - Trace mode: Max hold.
- (4) Determining the level of the detected spurious emission the following settings of the spectrum analyzer shall be used;
 - Center frequency: A frequency of detected maximum power (searched frequency)
 - Span: 0Hz;
 - RBW: 1MHz;
 - VBW: Equivalent to RBW;
 - Sweep mode: Continuous

Operational Condition of the Equipment Under Test:

- (1) Set the test frequency and set the continuous transmission state or continuous burst transmission state.
- (2) Those using spreading codes are set to test spreading codes and modulated by standard encoded test signals.
- (3) For OFDM, the burst transmission state is set and the number of subcarriers is the maximum. The modulation state is set such that the proportion of the time of the state with the smallest state is maximized. However, if the unit cannot be set with continuous burst transmission state or continuous, it can be done in the subsequent transmission state.

Test Method:

- (1) FHSS type (including combination with DSSS or OFDM);
 - A. If the frequency hopping interval in the frequency distribution of frequency hopping is equidistant at 1 MHz or less and the appearance probability at each hopping frequency is uniform and the occurrence probability at each hopping frequency is uniform, it is carried out by the following method:
 - Connect the power meter directly to the output attenuator (not the IF output of the spectrum analyzer) and measure the total power.
 - Divide the total power by the spread spectrum bandwidth and find an average power per 1 MHz.
 - The antenna power shall be as follows:
 - Value with continuous save
 - Burse wave value and value calculated from the average power in the burst from the transmission time rate
 - B. From references submitted by the applicant rate of distribution of the hopping frequency shall be confirmed if it is uniform with flat channel separation less than 1MHz and rate of hopping emergence at each frequency is also uniform. If the rate of distribution is not uniform, set the spectrum analyzer as in Test Condition (4). Measure the antenna power.
- (2) OFDM or DSSS type;
 - The spectrum analyzer shall be setup as Test Condition (3).
 - Sweeping shall be repeated until spectrum appearance does not change. Then the frequency having maximum power per 1MHz shall be measured.
 - The spectrum analyzer shall be setup as Test Condition (4).
 - The power meter shall be connected to IF output of the spectrum analyzer.
 - The final value shall be determined as following;
 - Continuous signal: The reading of the power meter corrected by the specified factor defined in Test Condition (1)
 - Burst signal: The reading of the power meter corrected by the specified factor defined in Test Condition (1) and an average power of the burst term shall be calculated by the total power and the rate of transmitting time (Duty cycle).
 - Where transmitter employing OFDM technique and having one more modulation techniques of sub-carrier, the antenna power shall be determined in each modulation mode.
- (3) Other types;
 - The power meter shall directly connect to the attenuator and the total average power shall be measured.
 - The final value shall be determined as following;
 - Continuous signal: The reading of the power meter
 - Burst signal: The reading of the power meter, corrected with the rate of transmitting time (Duty cycle).

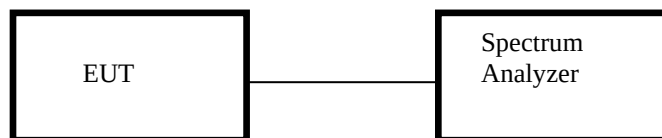


Figure 9. Antenna Power Test Configuration

Test Limit: Antenna power designated value:

- (1) FHSS, FHSS+DSSS, FHSS+OFDM
 - a. 2427 – 2470.75 MHz: 3 mW/MHz
 - b. 2400 – 2483.5 MHz (except 2427 – 2470 MHz): 10 mW/MHz
- (2) DSSS: 10 mW/MHz
- (3) OFDM:
 - a. OBW < 26 MHz: 10 mW/MHz
 - b. 26 MHz < OBW < 38 MHz: 5 mW/MHz
- (4) Others: 10 mW

Tolerance +20%, -80%

Test Engineer(s): Bryan Taylor

Test Date(s): 3/27/2025

Test Results: The EUT was compliant with the requirements of this section.

Mode	Freq (MHz)	Conducted Pwr (dBm/MHz)	Spreading Factor	Antenna Power (mW/MHz)	Antenna Power Limit (mW/MHz)	Margin	Rated Power (mW/MHz)	Power Deviation (%)
FSK	2402	-0.11800131	69.11	0.014081826	3	2.985918174	0.03	-53.06057975
FSK	2441	0.664999811	69.11	0.016863942	3	2.983136058	0.03	-43.78686153
FSK	2480	-1.890997468	69.11	0.0093618	3	2.9906382	0.03	-68.7939999
QPSK	2402	-2.539000471	69.87	0.007976442	3	2.992023558	0.03	-73.41186012
QPSK	2441	-2.022997656	69.87	0.008982754	3	2.991017246	0.03	-70.05748772
QPSK	2480	-3.48400262	69.87	0.00641666	3	2.99358334	0.03	-78.61113496
PSK	2402	-1.743999396	68.17	0.009817632	3	2.990182368	0.03	-67.2745587
PSK	2441	-1.000001283	68.17	0.011652164	3	2.988347836	0.03	-61.15945431
PSK	2480	-2.976995991	68.17	0.007391066	3	2.992608934	0.03	-75.36311183

Table 9. Antenna Power Output, Conducted Test Results

Mode	Freq (MHz)	Conducted Power (dBm/MHz)	Gain (dBi)	EIRP Power Density (dBm/MHz)	EIRP Limit (dBm/MHz)	Margin
GFSK	2402	-0.1180013	4	3.88199869	12.14	8.258001
GFSK	2441	0.66499981	4	4.664999811	12.14	7.475
GFSK	2480	-1.8909975	4	2.109002532	12.14	10.031
i/4QPSK	2402	-2.5390005	4	1.460999529	12.14	10.679
i/4QPSK	2441	-2.0229977	4	1.977002344	12.14	10.163
i/4QPSK	2480	-3.4840026	4	0.51599738	12.14	11.624
8DPSK	2402	-1.7439994	4	2.256000604	12.14	9.883999
8DPSK	2441	-1.0000013	4	2.999998717	12.14	9.140001
8DPSK	2480	-2.976996	4	1.023004009	12.14	11.117

Table 10. Antenna Power Output, EIRP Test Results

IV. Test Equipment

Test Equipment

Calibrated test equipment utilized during testing was maintained in a current state of calibration per the requirements of ISO/IEC 17025:2017.

Met Asset #	Equipment	Manufacturer	Model	Calibration Company	Last Cal Date	Cal Due Date
1A1234	Spectrum Analyzer	Rohde & Schwarz	FSV40	HCT Calibration	1/23/2023	1/23/2025
1A1250	Receiver	Rohde & Schwarz	ESW44	HCT Calibration	04/08/2024	04/08/2025
MY46180897	Spectrum Analyzer	Agilent Technologies	E4448A	HCT Calibration	8/28/2024	8/28/2025
1A1147	Bi-Log Antenna	Suno Sciences Corp	JB3	Keysight Technologies	04/06/2023	04/06/2025
1A1047	Horn Antenna	ETS - Lindgren	3117	Keysight Technologies	06/26/2024	06/26/2025
1A1225	Environmental Chamber	Espec	EXP-2H/NEW	Thermotron	5/15/2024	5/15/2025
1A1088	Pre-Amp	Rohde & Schwarz	TS-PR1	---	See Note	
1A1080	Multi-Device Controller	ETS-Emco	2090	---	See Note	
1A1180	Pre-Amp	Miteq	AMF-7D-01001800-22-10P	---	See Note	
1A1106	10m Semi-Anechoic Chamber	Lindgren	N/A	---	See Note	
1A1230	RF Rotary Attenuator	N/A	SA3700SMA	---	See Note	
None	RF Power Divider	Mni-Circuits	ZFSC-2-2500-S+	---	See Note	
None	RF Power Divider	Weinschel	1506A	---	See Note	
None	Directional Coupler	Narda	4226-20	---	See Note	

Figure 10. Test Equipment List

Note: Functionally tested equipment is verified using calibrated instrumentation at the time of testing.

End of Report