EMC MEASUREMENT REPORT

FCC ID:	2BXPU029
Applicant:	TERAHOP PTE. LTD.
Address:	25 INTERNATIONAL BUSINESS PARK #02-72/75 GERMAN CENTRE SINGAPORE
Product:	400G QSFP112 FR4 C1,Siph
Model No.:	T-GQ4CNx-Nxx
Brand Name:	TERAHOP
FCC Rule Part(s):	FCC Part 15 Subpart B
ISED Rule(s):	ICES-003 Issue 7 (October 15, 2020)
Test Procedure:	ANSI C63.4-2014
Result:	Complies
Received Date:	2026-09-01
Test Date:	2026-09-08 ~ 2026-09-09

Prepared By: Aurora Ding

Reviewed By: Jame Yuan

Approved By: Robin Wu

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. Testing was performed in accordance with the applicable measurement procedures. The test results reported herein apply only to the specific item(s) tested.
The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

Revision History

Report No.	Version	Description	Issue Date	Note
E26S1011096-U101	V01	Initial Report	2026-10-08	Valid

CONTENTS

Description Page

1. General Information 4

1.1. Applicant 4

1.2. Manufacturer 4

1.3. Testing Facility 4

1.4. Product Information 5

2. Test Configuration 6

2.1. Test Mode 6

2.2. Configuration of Tested System 6

2.3. EMI Suppression Device(s)/Modifications 6

3. Measuring Instrument 7

4. Decision Rules and Measurement Uncertainty 8

4.1. Decision Rules 8

4.2. Measurement Uncertainty 8

5. Test Result 9

5.1. Summary 9

5.2. Conducted Emission 10

5.2.1. Test Limit 10

5.2.2. Test Setup 10

5.2.3. Test Result 10

5.3. Radiated Emission 11

5.3.1. Test Limit 11

5.3.2. Test Setup 12

5.3.3. Test Result 14

Appendix A - Test Setup Photograph 20

Appendix B - EUT Photograph 21

1. General Information

1.1. Applicant

TERAHOP PTE. LTD.

25 INTERNATIONAL BUSINESS PARK #02-72/75 GERMAN CENTRE SINGAPORE

1.2. Manufacturer

TERAHOP PTE. LTD.

25 INTERNATIONAL BUSINESS PARK #02-72/75 GERMAN CENTRE SINGAPORE

1.3. Testing Facility

Test Site - MRT Suzhou Laboratory	
☐ **Laboratory Location (Suzhou - Wuzhong)**	
D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China	
☒ **Laboratory Location (Suzhou - SIP)**	
4b Building, Liando U Valley, No.200 Xingpu Rd., Shengpu Town, Suzhou Industrial Park, China	
☐ **Laboratory Location (Suzhou - Wujiang)**	
Building 1, No.1 Xingdong Road, Wujiang, Suzhou, Jiangsu, People's Republic of China	
Laboratory Accreditations	
A2LA: 3628.01	CNAS: L10551
FCC: CN1166	ISED: CN0001

1.4. Product Information

Product Name	400G QSFP112 FR4 C1,Siph
Model No.	T-GQ4CNx-Nxx Note 2
Test Device Model No.	T-GQ4CNT-N00 Note 3
Brand Name	TERAHOP
Test Device Serial No.	ICQBAV550550
Operating Temp	0 ~ 70 °C
Power Type	DC 3.3 V
Operating Rate	53.125GBaud

Notes:

1. The information of the EUT (Equipment Under Test) was provided by the manufacturer. The accuracy, completeness, and validity of the information are solely the responsibility of the manufacturer.
2. The first "x" can be A ~ Z, which indicate the transmission distance, the last "xx" can be 00 ~ 99 or AA ~ ZZ, which indicate customer code. All models have the same hardware and multiple models exist in order to satisfy the sales needs of various markets.
3. It has been confirmed with the applicant that the model differences do not affect the product compliance testing. Therefore, Model T-GQ4CNT-N00 was selected as the representative model for testing in this report.

2. Test Configuration

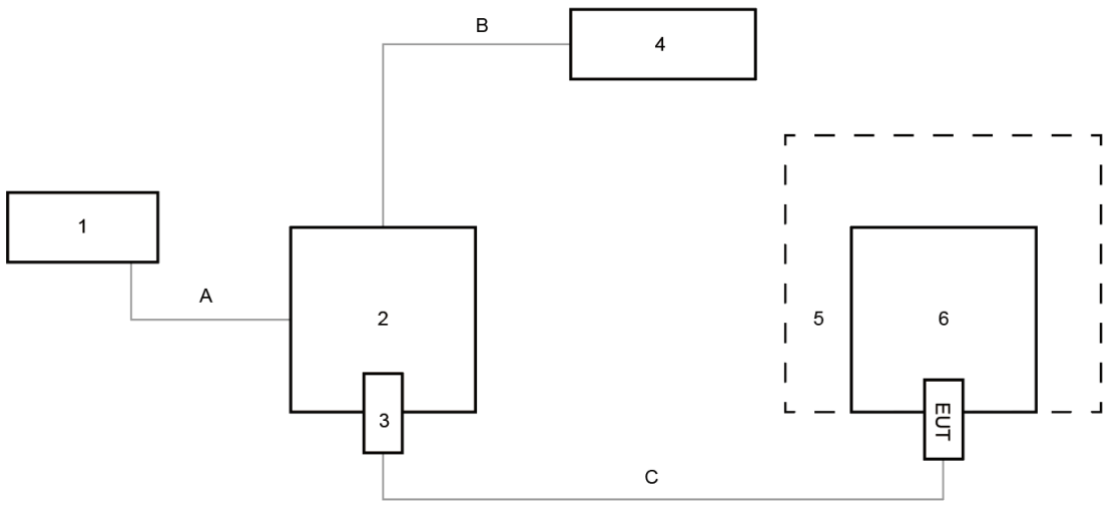
2.1. Test Mode

Mode 1: The EUT powered by the Electrical Loopback Board + connect to the Optical Transceiver on Bert through the Fiber cable + the Bert connect to the Notebook + make the EUT and the Optical Transceiver transmit and receive at the data rate of 53.125GBaud PAM4 per channel.

2.2. Configuration of Tested System

The measurement procedures and appropriate EUT setup described in the ANSI C63.4-2014 was used in the measurement.

Connection Diagram



No.	Cable Type	Cable Spec.	Length
A	USB Cable	Shielded	1.0 m
B	DC Power supply Cable	Non-Shielded	1.0 m
C	Fiber Cable	Non-Shielded	10.0 m
No.	Product	Manufacturer	Model No.
1	Notebook	ThinkPad	L490
2	Bert	TERAHOP	TERAHOP 800G bert
3	Optical Transceiver	TERAHOP	T-GQ4CNT-N00
4	Power supply	MW	LRS-50-3.3
5	Enclosure Box	TERAHOP	N/A
6	Electrical Loopback Board	TERAHOP	N/A

Note: All the accessory equipment was supplied by manufacturer.

2.3. EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and/or no modifications were made during testing.

3. Measuring Instrument

Instrument Name	Manufacturer	Model No.	Asset No.	Cali. Interval	Cal. Due Date	Test Site
Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06648	1 year	2026-10-17	SIP-AC2
Preamplifier	EMCI	EMC051845SE	MRTSUE06600	1 year	2026-10-15	SIP-AC2
Thermohygrometer	testo	608-H1	MRTSUE06622	1 year	2026-10-08	SIP-AC2
TRILOG Antenna	Schwarzbeck	VULB 9168	MRTSUE06647	1 year	2027-05-11	SIP-AC2
Anechoic Chamber	RIKEN	SIP-AC2	MRTSUE06781	1 year	2026-12-15	SIP-AC2
Signal Analyzer	Keysight	N9020B	MRTSUE06604	1 year	2027-01-21	SIP-AC2
EMI Test Receiver	R&S	ESR3	MRTSUE06613	1 year	2026-09-28	SIP-AC2
Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06598	1 year	2026-11-02	SIP-AC2
Preamplifier	EMCI	EMC184045SE	MRTSUE06602	1 year	2026-09-29	SIP-AC2

Software	Version	Function
e3	230711	RE & CE
Controller_MF 7802	2.03C	RE Antenna & Turntable

4. Decision Rules and Measurement Uncertainty

4.1. Decision Rules

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4: 2012 Clause 8.2. (Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

4.2. Measurement Uncertainty

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Conducted Emission Measurement
The maximum measurement uncertainty is evaluated as: 9 kHz ~ 150 kHz: 3.59 dB 150 kHz ~ 30 MHz: 3.20 dB
Radiated Emission Measurement
The maximum measurement uncertainty is evaluated as: Horizontal: 30 MHz ~ 200 MHz: 3.48 dB 200 MHz ~ 1 GHz: 4.17 dB 1 GHz ~ 40 GHz: 5.01 dB Vertical: 30 MHz ~ 200 MHz: 4.09 dB 200 MHz ~ 1 GHz: 5.30 dB 1 GHz ~ 40 GHz: 4.85 dB

5. Test Result

5.1. Summary

FCC Part Section(s)	ICES-003 Section(s)	Test Description	Result
15.107	3.2.1	Conducted Emission	N/A
15.109	3.2.2	Radiated Emission	Pass

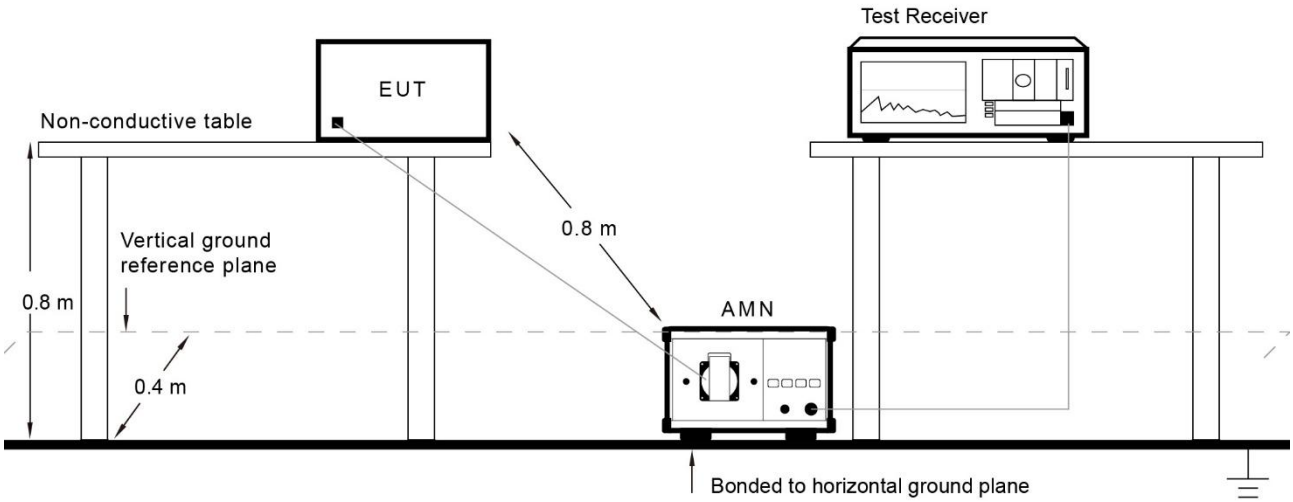
Note: “N/A” means that the test item is not applicable, and the detailed information refers to relevant section.

5.2. Conducted Emission

5.2.1. Test Limit

FCC Part 15.107 / ICES-003 Issue 7 - 3.2.1				
Frequency (MHz)	Class A Limits		Class B Limits	
	QP (dBμV)	AV (dBμV)	QP (dBμV)	AV (dBμV)
0.15 - 0.50	79	66	66 ~ 56	56 ~ 46
0.50 - 5.0	73	60	56	46
5.0 - 30	73	60	60	50
Note 1: The lower limit shall apply at the transition frequencies. Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.				

5.2.2. Test Setup



5.2.3. Test Result

The EUT is powered by a battery-powered test fixture, therefore, this item is not applicable.

5.3. Radiated Emission

5.3.1. Test Limit

FCC Part 15.109 Limits					
Frequency Range (MHz)	Class A (dBμV/m)		Class B (dBμV/m)		Detector Function
	3 meters	10 meters	3 meters	10 meters	
30 - 88	49.0	39.0	40.0	30.0	Quasi-peak
88 - 216	53.5	43.5	43.5	33.5	Quasi-peak
216 - 960	56.4	46.4	46.0	36.0	Quasi-peak
960 - 1000	59.5	49.5	54.0	44.0	Quasi-peak
Above 1000	59.5	49.5	54.0	44.0	Average
	79.5	69.5	74.0	64.0	Peak
ICES-003 Issue 7 - 3.2.2 Limits					
Frequency Range (MHz)	Class A (dBμV/m)		Class B (dBμV/m)		Detector Function
	3 meters	10 meters	3 meters	10 meters	
30 - 88	50.0	40.0	40.0	30.0	Quasi-peak
88 - 216	54.0	43.5	43.5	33.1	Quasi-peak
216 - 230	56.9	46.4	46.0	35.6	Quasi-peak
230 - 960	57.0	47.0	47.0	37.0	Quasi-peak
960 - 1000	60.0	49.5	54.0	43.5	Quasi-peak
Above 1000	60.0	49.5	54.0	43.5	Average
	80.0	69.5	74.0	63.5	Peak

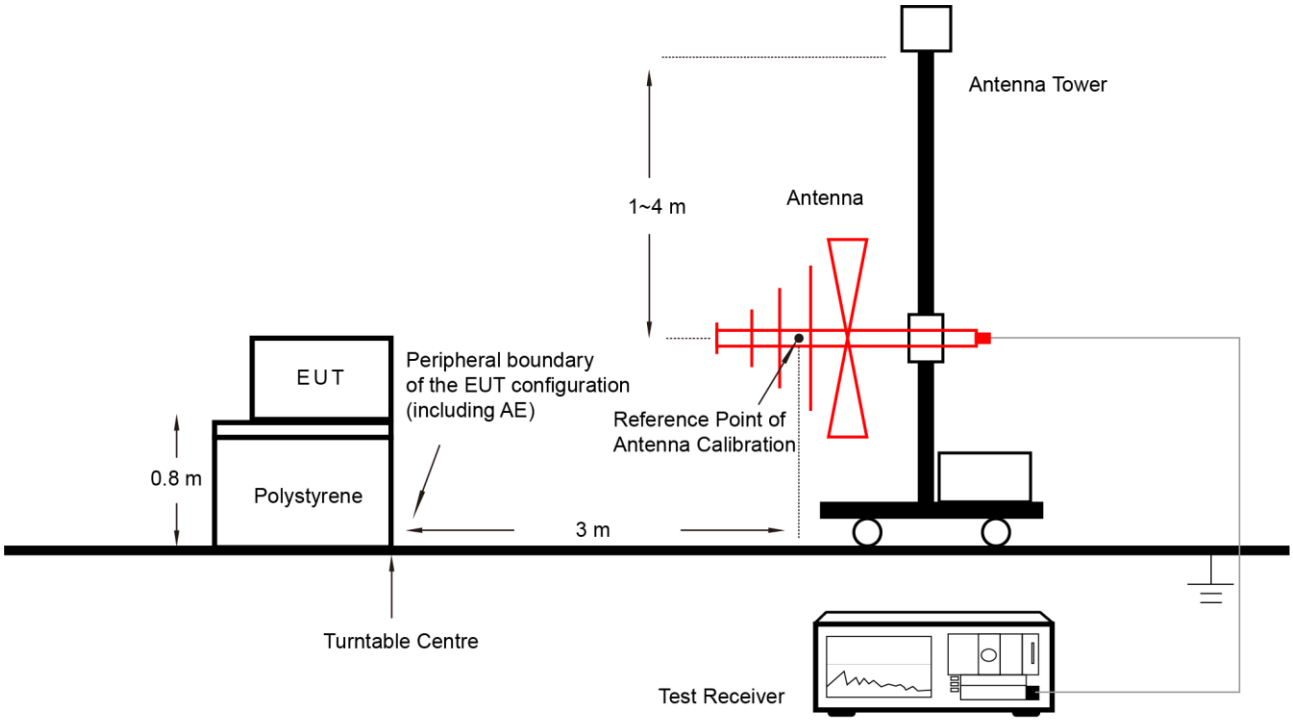
Note 1: The lower limit shall apply at the transition frequency.

Note 2: Distance refers to the distance (in meters) between the antenna of the measuring instrument and the closest point of any part of the device or system.

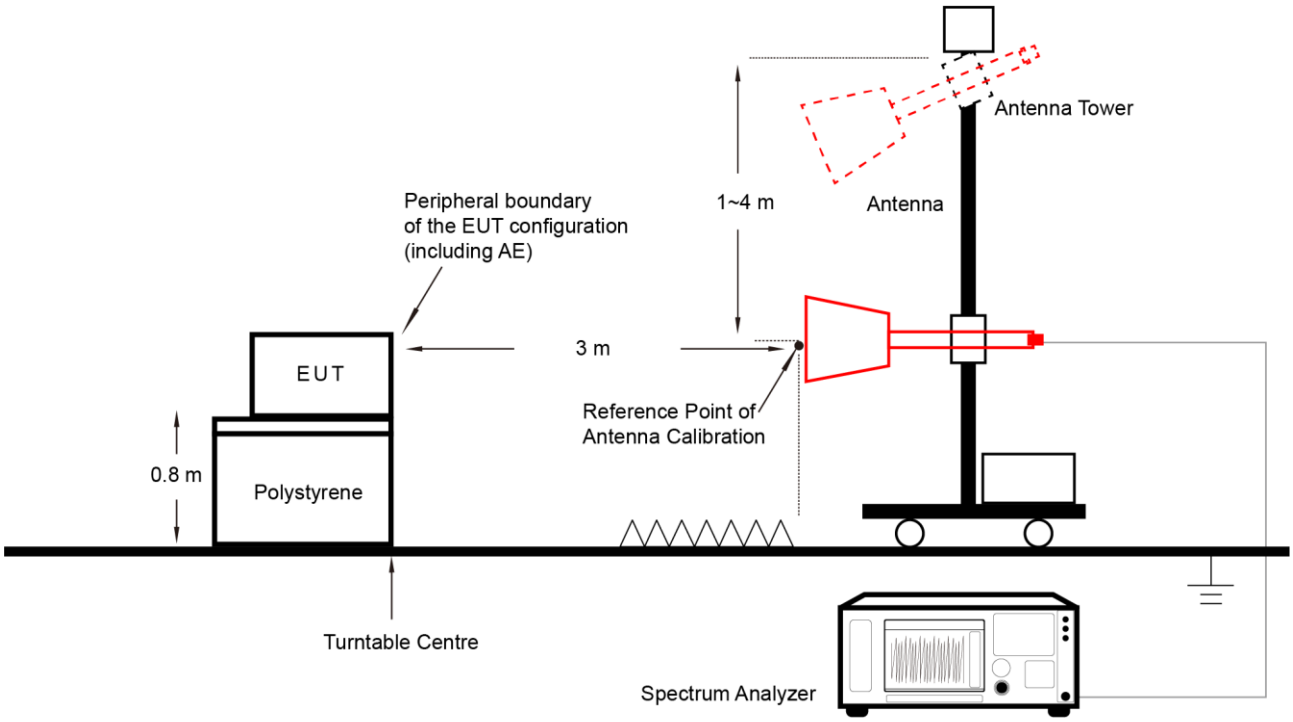
Note 3: The limit specified in FCC Part 15.109 is more stringent than that in ICES-003 Issue 7; therefore, only the FCC Part 15.109 limit is presented in the test data.

5.3.2. Test Setup

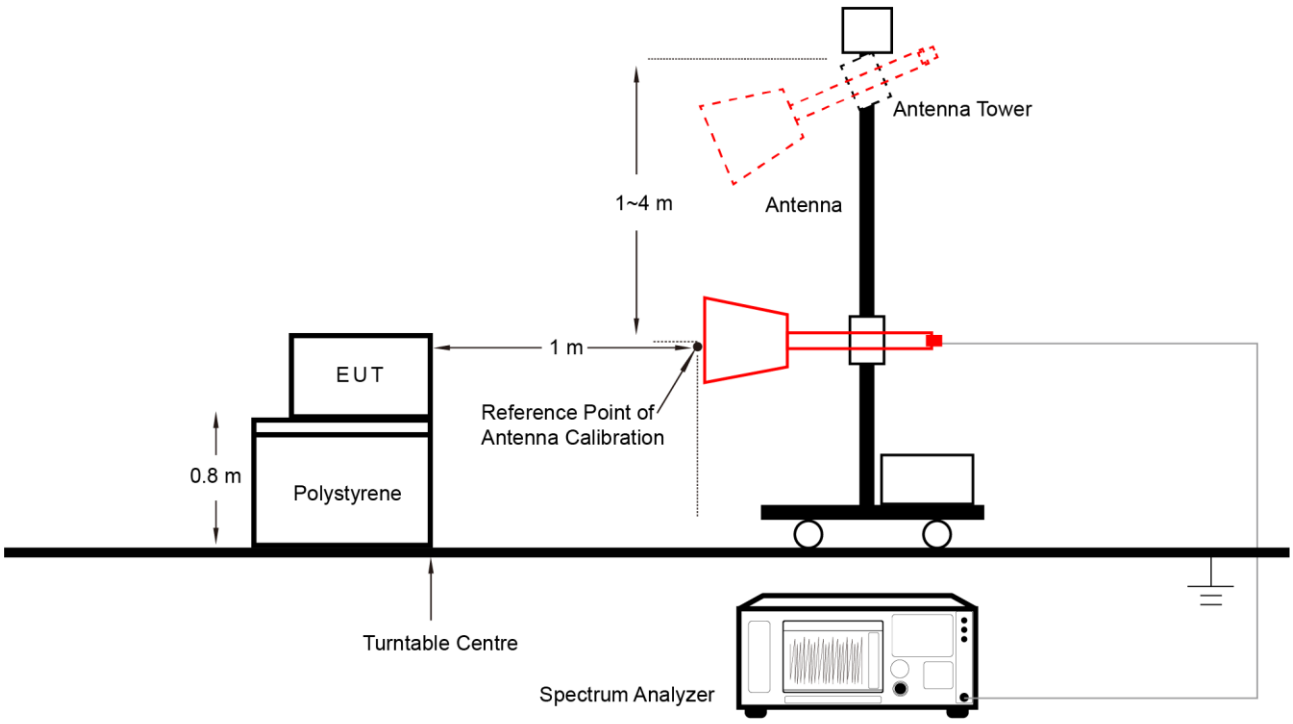
Below 1 GHz Test Setup:



Above 1 GHz Test Setup:

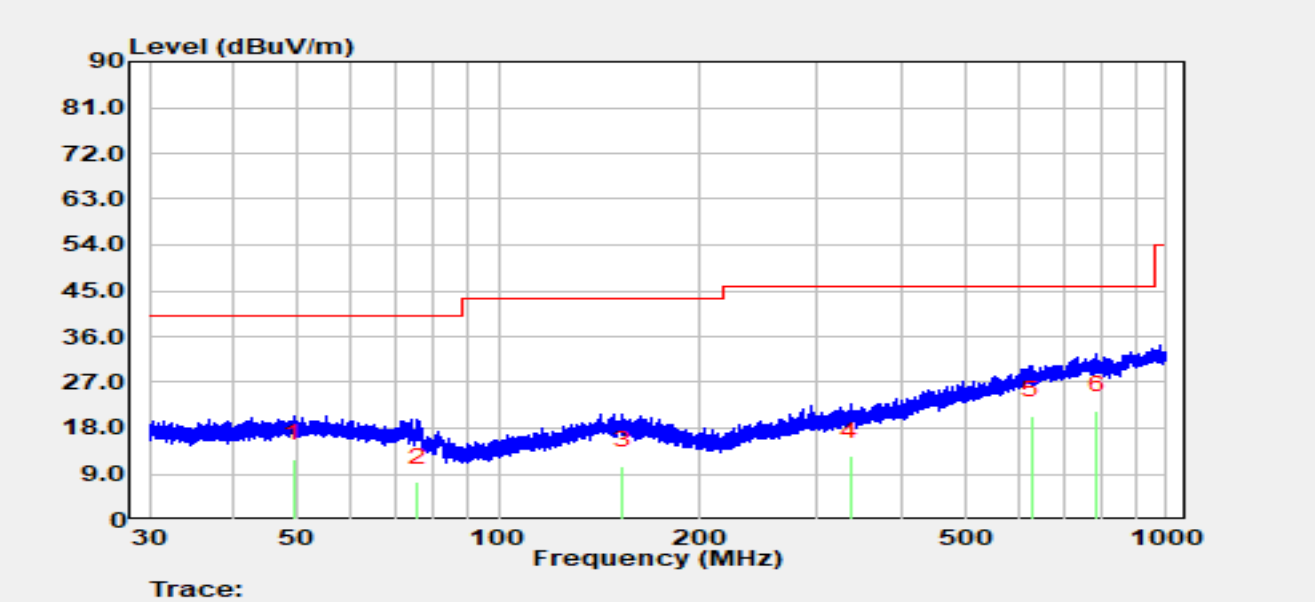


Above 18 GHz Test Setup:



5.3.3. Test Result

Site	SIP-AC2	Test Date	2026-09-08
Temperature	21.3 °C	Humidity	60.6%
Limit	FCC_Part 15.109_RE(3 m)_Class B	Test Engineer	Fusco Pan
Test Voltage	DC 3.3 V	Polarity	Horizontal
Test Mode	Mode 1		

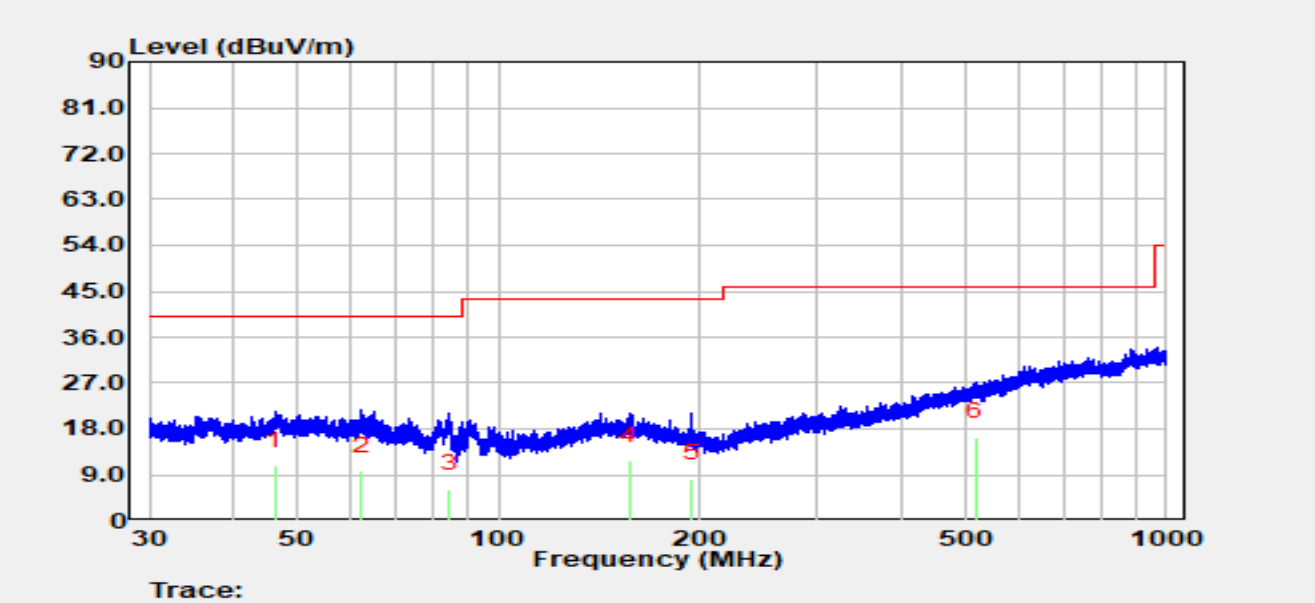


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1		49.429	-7.90	19.80	11.90	-28.10	40.00	QP
2		75.765	-9.30	16.60	7.30	-32.70	40.00	QP
3		153.469	-9.10	19.68	10.58	-32.92	43.50	QP
4		335.800	-8.80	21.32	12.52	-33.48	46.00	QP
5		628.595	-7.80	28.29	20.49	-25.51	46.00	QP
6	*	786.747	-9.10	30.50	21.40	-24.60	46.00	QP

Notes:

1. " * " indicates the worst-case emission level observed during the measurement.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

Site	SIP-AC2	Test Date	2026-09-08
Temperature	21.3 °C	Humidity	60.6%
Limit	FCC_Part 15.109_RE(3 m)_Class B	Test Engineer	Fusco Pan
Test Voltage	DC 3.3 V	Polarity	Vertical
Test Mode	Mode 1		

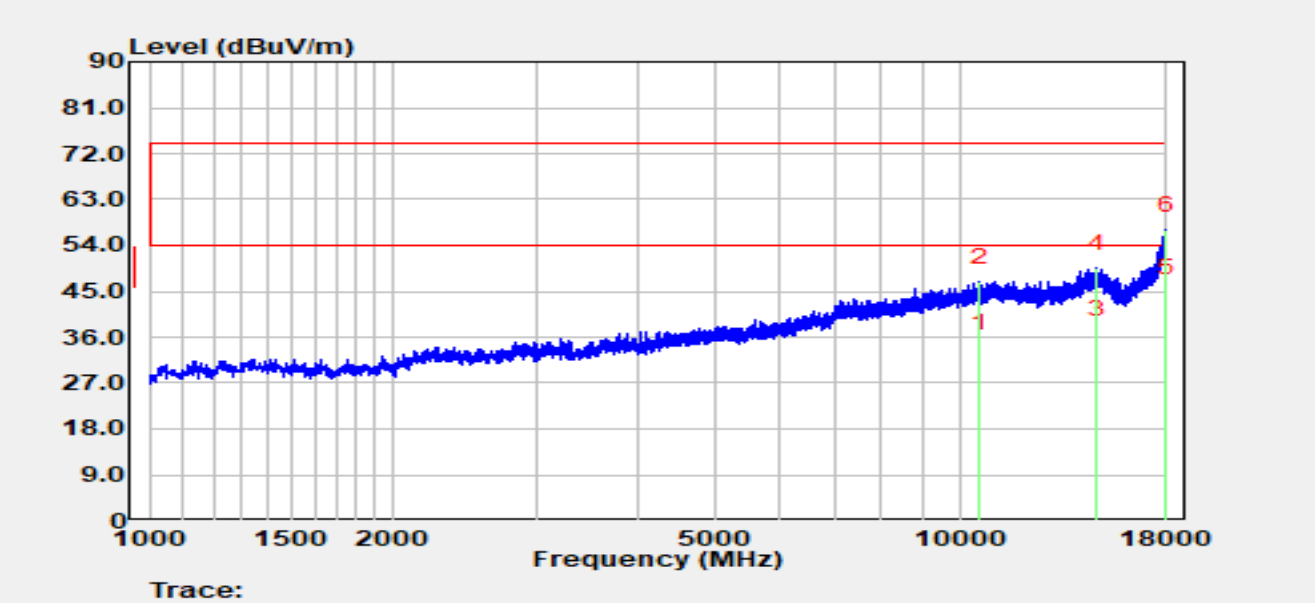


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1	*	46.340	-8.90	19.73	10.83	-29.17	40.00	QP
2		62.256	-9.30	19.01	9.71	-30.29	40.00	QP
3		84.376	-8.30	14.43	6.13	-33.87	40.00	QP
4		157.118	-7.80	19.55	11.75	-31.75	43.50	QP
5		195.000	-8.70	16.86	8.16	-35.34	43.50	QP
6		516.885	-9.30	25.63	16.33	-29.67	46.00	QP

Notes:

1. " * " indicates the worst-case emission level observed during the measurement.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

Site	SIP-AC2	Test Date	2026-09-09
Temperature	22.8 °C	Humidity	58.9%
Limit	FCC_Part 15.109_RE(3 m)_Class B	Test Engineer	Evan Xu
Test Voltage	DC 3.3 V	Polarity	Horizontal
Test Mode	Mode 1		

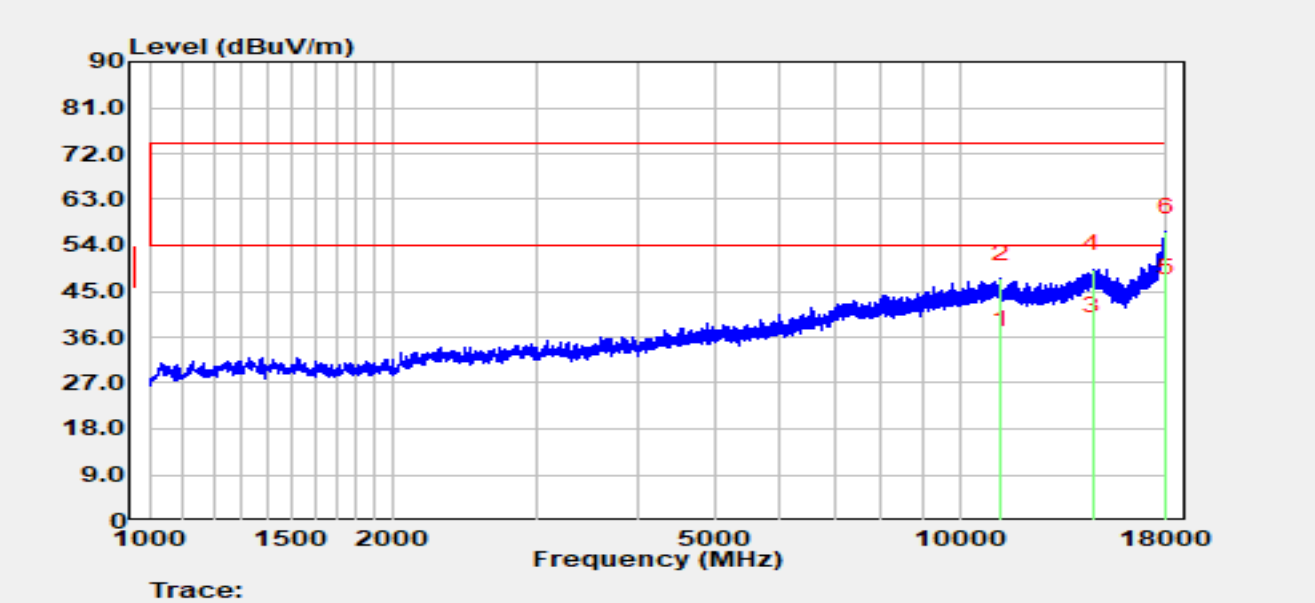


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1		10605.000	33.66	0.07	33.73	-20.28	54.00	Average
2		10605.000	46.71	0.07	46.78	-27.22	74.00	Peak
3		14783.600	30.47	6.14	36.61	-17.39	54.00	Average
4		14783.600	43.44	6.14	49.58	-24.42	74.00	Peak
5	*	17964.300	28.81	15.96	44.77	-9.23	54.00	Average
6		17964.300	40.96	15.96	56.93	-17.07	74.00	Peak

Notes:

1. " * " indicates the worst-case emission level observed during the measurement.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB) - AMP (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).
4. The points (5,6) close to 18GHz are environment noise floor.

Site	SIP-AC2	Test Date	2026-09-09
Temperature	22.8 °C	Humidity	58.9%
Limit	FCC_Part 15.109_RE(3 m)_Class B	Test Engineer	Evan Xu
Test Voltage	DC 3.3 V	Polarity	Vertical
Test Mode	Mode 1		

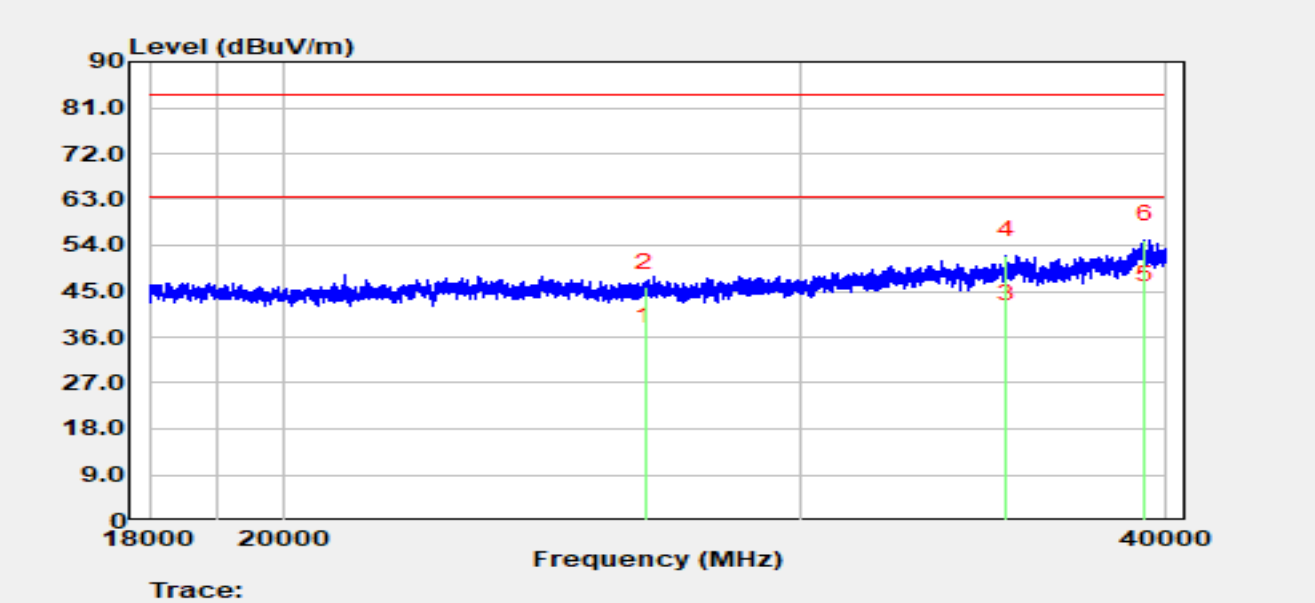


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1		11261.200	33.54	0.80	34.34	-19.66	54.00	Average
2		11261.200	46.68	0.80	47.48	-26.52	74.00	Peak
3		14583.000	31.09	6.17	37.26	-16.74	54.00	Average
4		14583.000	43.11	6.17	49.28	-24.72	74.00	Peak
5	*	17952.400	29.12	15.52	44.64	-9.36	54.00	Average
6		17952.400	41.06	15.52	56.58	-17.42	74.00	Peak

Notes:

1. " * " indicates the worst-case emission level observed during the measurement.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB) - AMP (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).
4. The points (5,6) close to 18GHz are environment noise floor.

Site	SIP-AC2	Test Date	2026-09-09
Temperature	22.8 °C	Humidity	58.9%
Limit	FCC_Part 15.109_RE(1m)_Class B	Test Engineer	Evan Xu
Test Voltage	DC 3.3 V	Polarity	Horizontal
Test Mode	Mode 1		

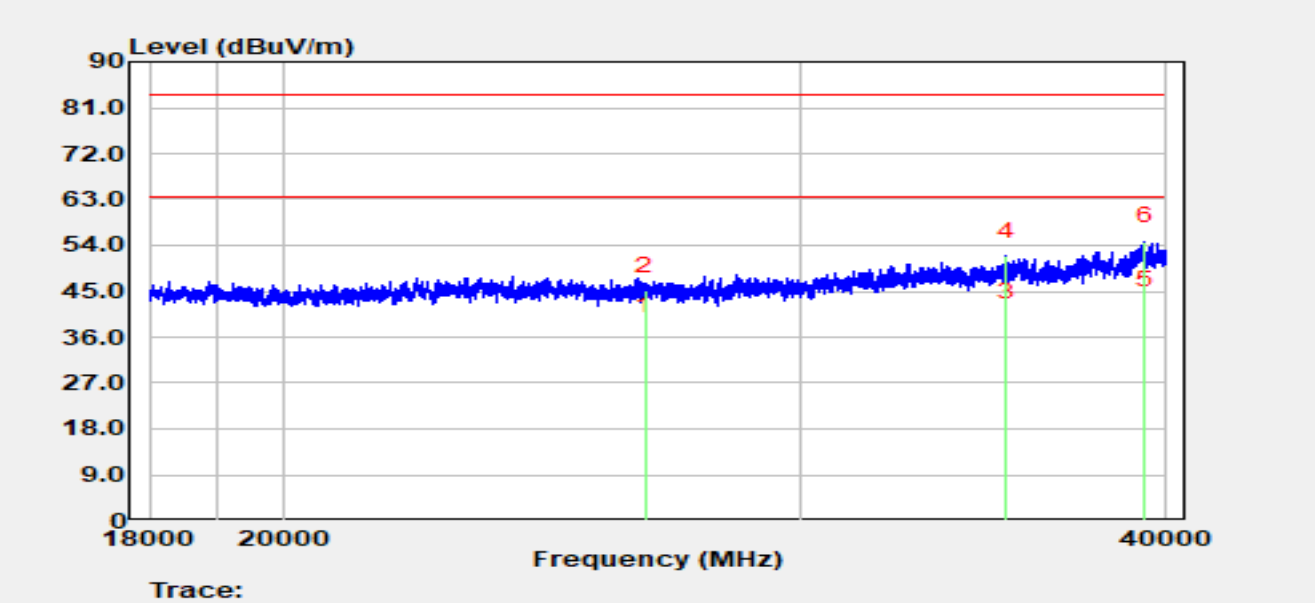


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1		26562.000	38.12	-3.11	35.01	-28.49	63.50	Average
2		26562.000	48.86	-3.11	45.74	-37.76	83.50	Peak
3		35259.000	39.75	-0.22	39.53	-23.97	63.50	Average
4		35259.000	52.22	-0.22	52.00	-31.50	83.50	Peak
5	*	39313.600	35.87	7.41	43.28	-20.22	63.50	Average
6		39313.600	47.66	7.41	55.07	-28.43	83.50	Peak

Notes:

1. " * " indicates the worst-case emission level observed during the measurement.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB) - AMP (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

Site	SIP-AC2	Test Date	2026-09-09
Temperature	22.8 °C	Humidity	58.9%
Limit	FCC_Part 15.109_RE(1m)_Class B	Test Engineer	Evan Xu
Test Voltage	DC 3.3 V	Polarity	Vertical
Test Mode	Mode 1		



No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1		26562.000	40.20	-3.11	37.09	-26.41	63.50	Average
2		26562.000	48.12	-3.11	45.01	-38.49	83.50	Peak
3		35270.000	39.83	-0.05	39.78	-23.72	63.50	Average
4		35270.000	51.92	-0.05	51.87	-31.63	83.50	Peak
5	*	39337.800	35.48	6.78	42.26	-21.24	63.50	Average
6		39337.800	47.94	6.78	54.72	-28.78	83.50	Peak

Notes:

1. " * " indicates the worst-case emission level observed during the measurement.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB) - AMP (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

Appendix A - Test Setup Photograph

Refer to “E26S1011096-UT” file.

Appendix B - EUT Photograph

Refer to “E26S1011096-UE” file.

The End