



TEST REPORT

Applicant: Grandstream Networks, Inc.

Address: 126 Brookline Ave., 3rd Floor Boston, MA 02215, USA

FCC ID: YZZGWN7813P

Product Name: Enterprise Layer 3 Managed Network Switch

Model Number: GWN7813P

Standard(s): 47 CFR Part 15 Subpart B

ANSI C63.4-2014

The above equipment has been tested and found compliant with the requirement of the relative standards by China Certification ICT Co., Ltd (Dongguan)

Report Number: CR230314625-00A

Date Of Issue: 2023/4/17

Reviewed By: Sun Zhong Sun 2hong

Title: Manager

Test Laboratory: China Certification ICT Co., Ltd (Dongguan)

No. 113, Pingkang Road, Dalang Town, Dongguan,

Guangdong, China Tel: +86-769-82016888

Test Facility

The Test site used by China Certification ICT Co., Ltd (Dongguan) to collect test data is located on the No. 113, Pingkang Road, Dalang Town, Dongguan, Guangdong, China.

Report No.: CR230314625-00A

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 442868, the FCC Designation No. : CN1314.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0123.

Declarations

China Certification ICT Co., Ltd (Dongguan) is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with a triangle symbol "\(^{\dagger}\)". Customer model name, addresses, names, trademarks etc. are not considered data.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

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CONTENTS

TEST FACILITY	
DECLARATIONS	2
DOCUMENT REVISION HISTORY	
	······
1. GENERAL INFORMATION	5
1.1 PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT)	5
1.2 DESCRIPTION OF TEST CONFIGURATION	
1.2.2 Support Equipment List and Details	6
1.2.3 Support Cable List and Details	
1.2.4 Block Diagram of Test Setup	
1.3 Measurement Uncertainty	9
2. SUMMARY OF TEST RESULTS	10
3. REQUIREMENTS AND TEST PROCEDURES	
3.1 AC LINE CONDUCTED EMISSIONS	
3.1.1 EUT Setup	
3.1.2 EMI Test Receiver Setup	
3.1.3 Test Procedure	
3.1.4 Corrected Amplitude & Margin Calculation	12
3.2 RADIATION SPURIOUS EMISSIONS	
3.2.1 EUT Setup	
3.2.2 EMI Test Receiver Setup	
3.2.3 Test Procedure 3.2.4 Corrected Amplitude & Margin Calculation.	
· -	
4. TEST DATA AND RESULTS	15
4.1 AC LINE CONDUCTED EMISSIONS	15
4.2 RADIATION SPURIOUS EMISSIONS	

DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
1.0	CR230314625-00A	Original Report	2023/4/17

1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

111 1 Todace Description for Equipment under Test (ECT)			
EUT Name:	Enterprise Layer 3 Managed Network Switch		
Trade Name:	GRANDSTREAM		
EUT Model:	GWN7813P		
Highest Operation Frequency:	800 MHz		
Rated Input Voltage: AC 100~240V/50~60Hz or DC 54V from adapter			
Serial Number: 2302_1			
EUT Received Date: 2023/4/3			
EUT Received Status: Good			
Note: EUT can configure with two different power modules, power #1(G1489-0460W) and power #2(PA-2431-			

Report No.: CR230314625-00A

Note: EUT can configure with two different power modules, power #1(G1489-0460W) and power #2(PA-2431-54H1)

Accessory Information:

Accessory Description	Manufacturer	Model
/	/	/

1.2 Description of Test Configuration

1.2.1 EUT Operation Condition:

1.2.1 ECT Operation Condition.		
EUT Operation Mode:	The system was configured for testing in Typical Use Mode, which was provided by the manufacturer. Test Mode: M1: Operation from power #1 (G1489-0460W) M2: Operation from power #2 (PA-2431-54H1) M3: Operation from adapter (PA-1301-66C3)	
Equipment Modifications:	No	
EUT Exercise Software:	No	

Report No.: CR230314625-00A

1.2.2 Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Unknown	POE Load	Unknown	CR234632
Unknown	Adapter	PA-1301-66C3	unknown

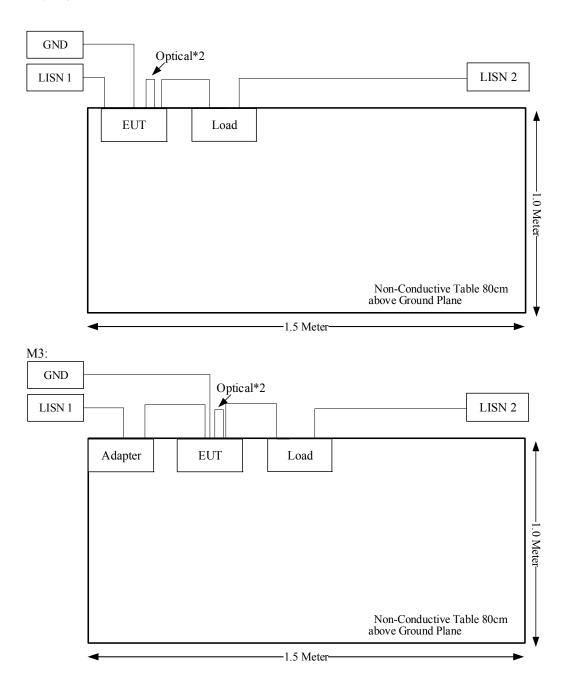
1.2.3 Support Cable List and Details

	inac Support Cubic Bist and Details						
Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	То		
RJ45 Cable*24	No	No	1.8	EUT	POE Load		
Optical*2	No	No	4	EUT	EUT		
Earth Line	No	No	1	EUT	GND		
Power Cable	No	No	1.5	POE Load	LISN2		
Power Cable	No	No	1.2	EUT	LISN1		
Power Cable	No	No	1.2	Adapter	LISN1		
Power Cable	No	Yes	1	Adapter	EUT		

1.2.4 Block Diagram of Test Setup

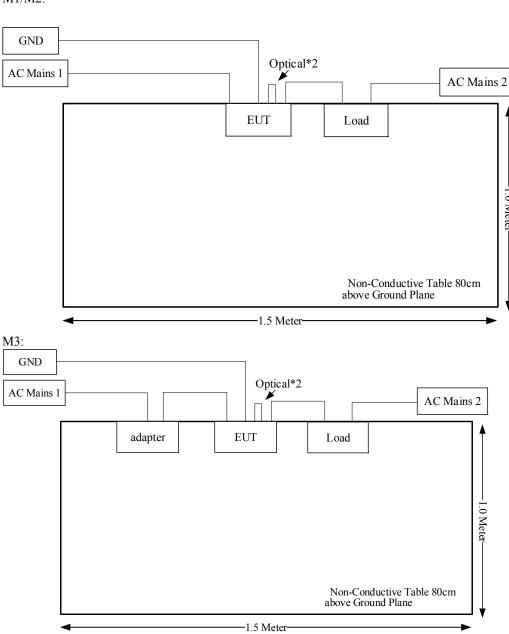
Conducted emissions:

M1/M2:



Radiated emissions:

M1/M2:



1.3 Measurement Uncertainty

Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.

Parameter	Measurement Uncertainty
Unwanted Emissions, radiated	30M~200MHz: 4.15 dB,200M~1GHz: 5.61 dB,1G~6GHz: 5.14 dB,
Oliwanted Ellissions, radiated	6G~18GHz: 5.93 dB,18G~26.5G:5.47 dB,26.5G~40G:5.63 dB
Temperature	±1°C
Humidity	±5%
AC Power Lines Conducted Emission	2.8 dB (150 kHz to 30 MHz)

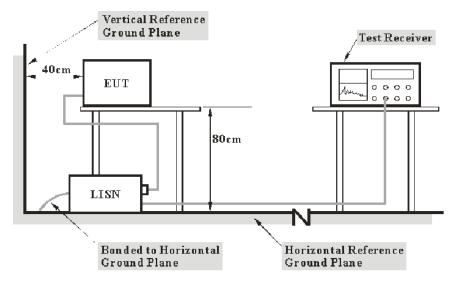
2. SUMMARY OF TEST RESULTS

Standard(s) Section	Description of Test	Result
§15.107	Conducted emissions	Compliant
§15.109	Radiated emissions	Compliant

3. REQUIREMENTS AND TEST PROCEDURES

3.1 AC Line Conducted Emissions

3.1.1 EUT Setup



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

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

The setup of EUT is according with per ANSI C63.4-2014 measurement procedure. The specification used was with the FCC Part 15 B Class A limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The adapter or EUT was connected to the main LISN with a 120 V/60 Hz AC power source.

3.1.2 EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W	
150 kHz – 30 MHz	9 kHz	

3.1.3 Test Procedure

During the conducted emission test, the adapter was connected to the outlet of the first LISN and the other support equipments were connected to the outlet of the second LISN.

Report No.: CR230314625-00A

Maximizing procedure was performed on the six (6) highest emissions of the EUT, the report shall list the six emissions with the smallest margin relative to the limit, unless the margin is greater than 20 dB.

All data was recorded in the Quasi-peak and average detection mode.

The report shall list the six emissions with the smallest margin relative to the limit, unless the margin is greater than 20 dB.

3.1.4 Corrected Amplitude & Margin Calculation

The basic equation is as follows:

Result = Reading + Factor

Factor = attenuation caused by cable loss + voltage division factor of AMN

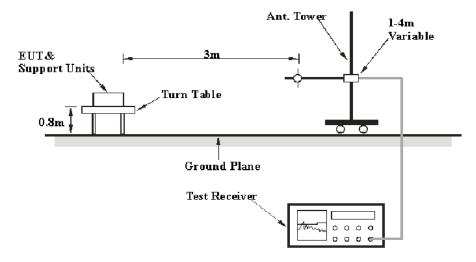
The "Margin" column of the following data tables indicates the degree of compliance within the applicable limit. The equation for margin calculation is as follows:

Margin = Limit - Result

3.2 Radiation Spurious Emissions

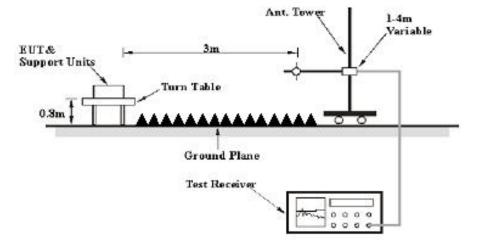
3.2.1 EUT Setup

Below 1GHz:



Report No.: CR230314625-00A

Above 1GHz:



The radiated emission were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.4-2014. The specification used was with the FCC Part 15 B Class A limits.

3.2.2 EMI Test Receiver Setup

The system was investigated from 30 MHz to 5 GHz.

During the radiated emission test, the EMI test receiver was set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Detector
30 MHz – 1000 MHz	120 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1 MHz	3 MHz	/	Peak
Above I GHZ	1 MHz	3 MHz	/	AVG

Report No.: CR230314625-00A

If the maximized peak measured value complies with under the limit more than 6dB, then it is unnecessary to perform an QP/Average measurement.

3.2.3 Test Procedure

During the radiated emissions, the adapter was connected to the first AC floor outlet and the other support equipments were connected to the second AC floor outlet.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

The data was recorded in the Quasi-peak detection mode for below 1 GHz.

All emissions under the average limit and under the noise floor have not recorded in the report.

3.2.4 Corrected Amplitude & Margin Calculation

The basic equation is as follows:

Result = Reading + Factor

Factor = Antenna Factor + Cable Loss- Amplifier Gain

The "Margin" column of the following data tables indicates the degree of compliance within the applicable limit. The equation for margin calculation is as follows:

Margin = Limit - Result

4. TEST DATA AND RESULTS

4.1 AC Line Conducted Emissions

Serial Number:	2302_1	Test Date:	2023/04/14
Test Site:	CE	Test Mode:	M1,M2,M3
Tester:	David Huang	Test Result:	Pass

Report No.: CR230314625-00A

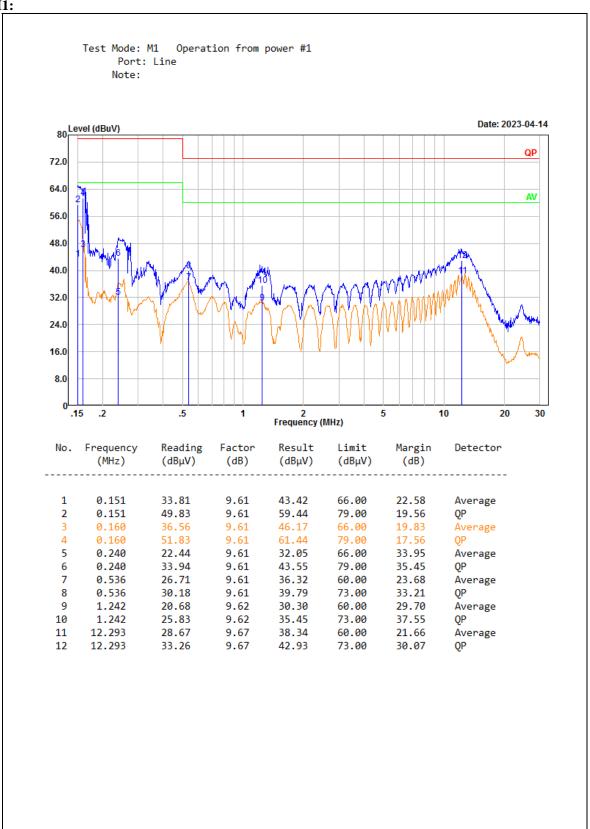
Environmental Conditions:						
Temperature: (°C)	24	Relative Humidity: (%)	67	ATM Pressure: (kPa)	101	

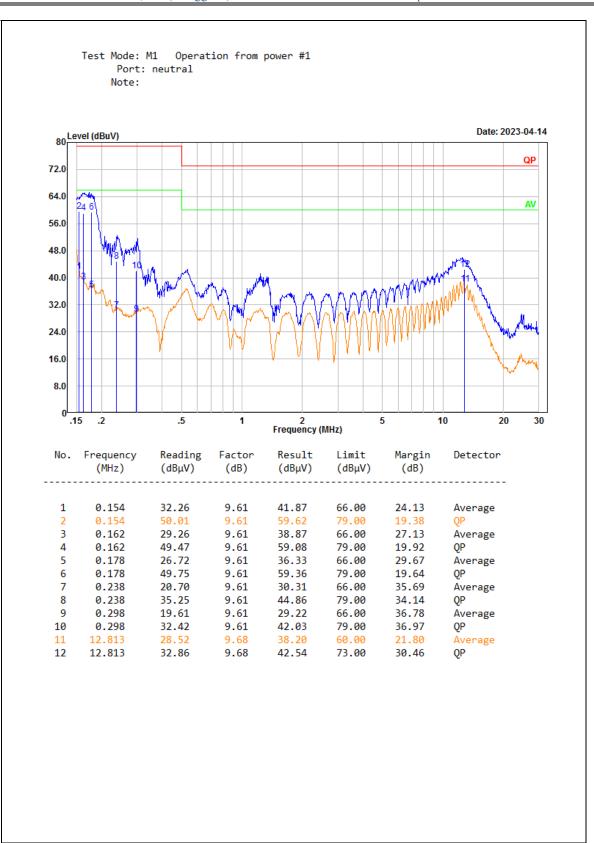
Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	LISN	ENV216	101134	2023/03/31	2024/03/30
R&S	LISN	ENV216	101132	2023/03/31	2024/03/30
R&S	EMI Test Receiver	ESR3	102726	2022/07/15	2023/07/14
MICRO-COAX	Coaxial Cable	UTIFLEX	C-0200-01	2022/08/07	2023/08/06
Audix	Test Software	E3	190306 (V9)	N/A	N/A

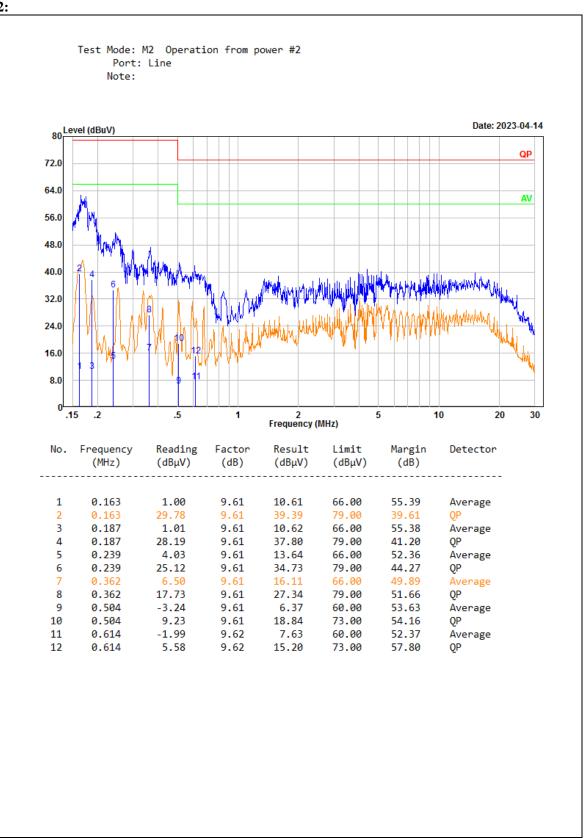
^{*} Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

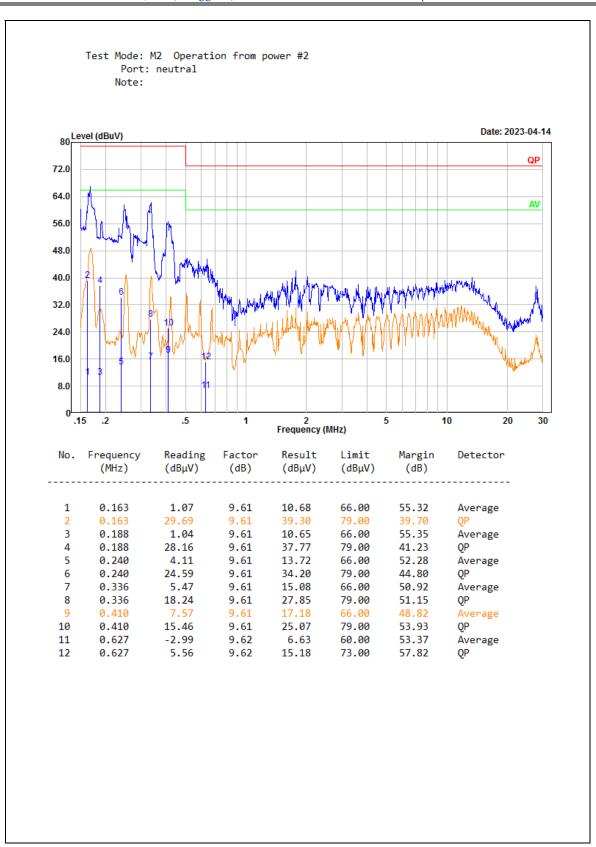
M1:





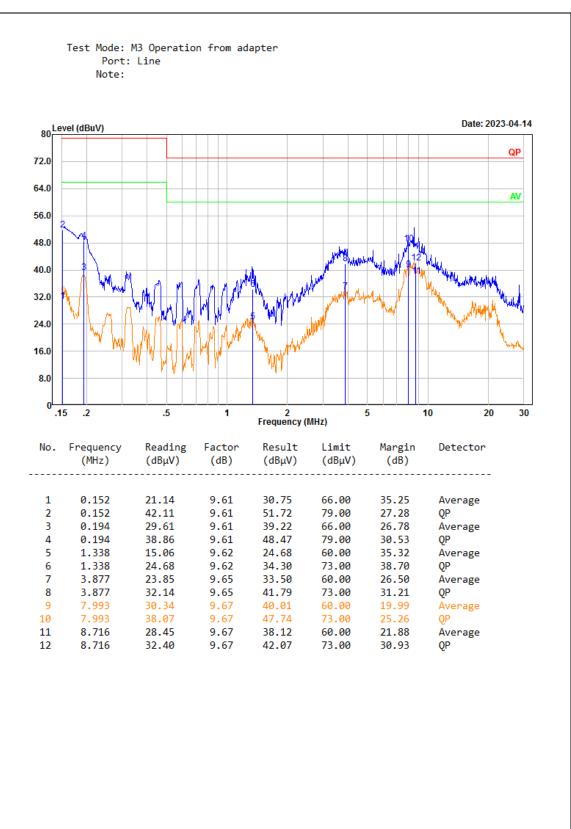
M2:

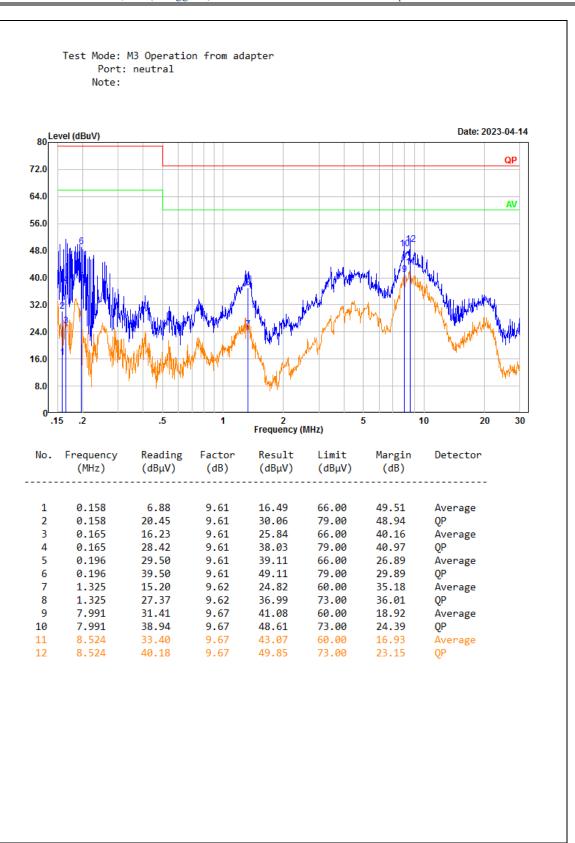












4.2 Radiation Spurious Emissions

Serial Number:	2302_1	Test Date:	2023/4/11~2023/4/16
Test Site:	966-2,966-1	Test Mode:	M1,M2,M3
Tester:	Vic Du,Tao	Test Result:	Pass

Report No.: CR230314625-00A

Environmental Conditions:						
	Temperature: $(^{\circ}\mathbb{C})$	25.1~26.7	Relative Humidity: (%)	50~63	ATM Pressure: (kPa)	100.7

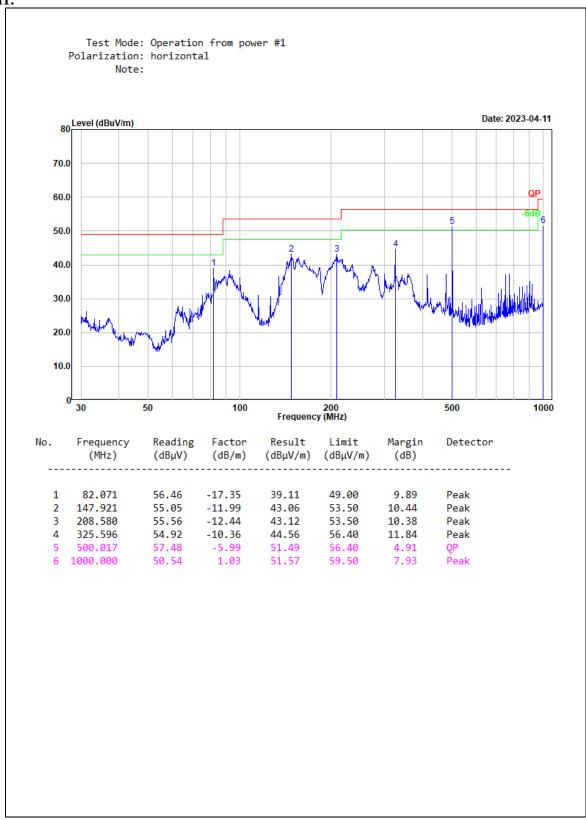
Test Equipment List and Details:

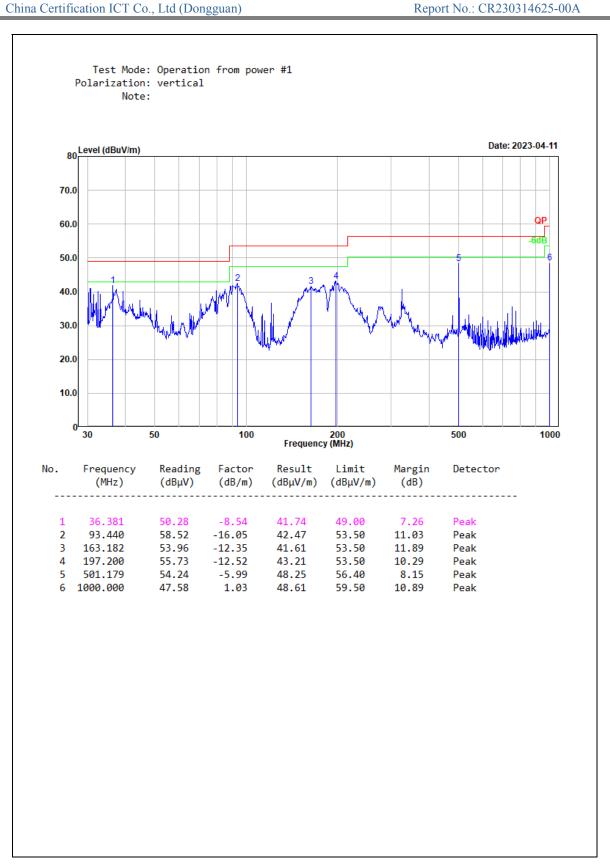
Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Sunol Sciences	Antenna	JB6	A082520-5	2020/10/19	2023/10/18
R&S	EMI Test Receiver	ESR3	102724	2022/07/15	2023/07/14
TIMES MICROWAVE	Coaxial Cable	LMR-600- UltraFlex	C-0470-02	2022/07/17	2023/07/16
TIMES MICROWAVE	Coaxial Cable	LMR-600- UltraFlex	C-0780-01	2022/07/17	2023/07/16
Sonoma	Amplifier	310N	186165	2022/07/17	2023/07/16
Audix	Test Software	E3	201021 (V9)	N/A	N/A
ETS-Lindgren	Horn Antenna	3115	9912-5985	2020/10/13	2023/10/12
R&S	Spectrum Analyzer	FSV40	101591	2022/07/15	2023/07/14
MICRO-COAX	Coaxial Cable	UFA210A-1- 1200-70U300	217423-008	2022/08/07	2023/08/06
MICRO-COAX	Coaxial Cable	UFA210A-1- 2362-300300	235780-001	2022/08/07	2023/08/06
Mini	Pre-amplifier	ZVA-183-S+	5969001149	2022/11/09	2023/11/08

^{*} Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

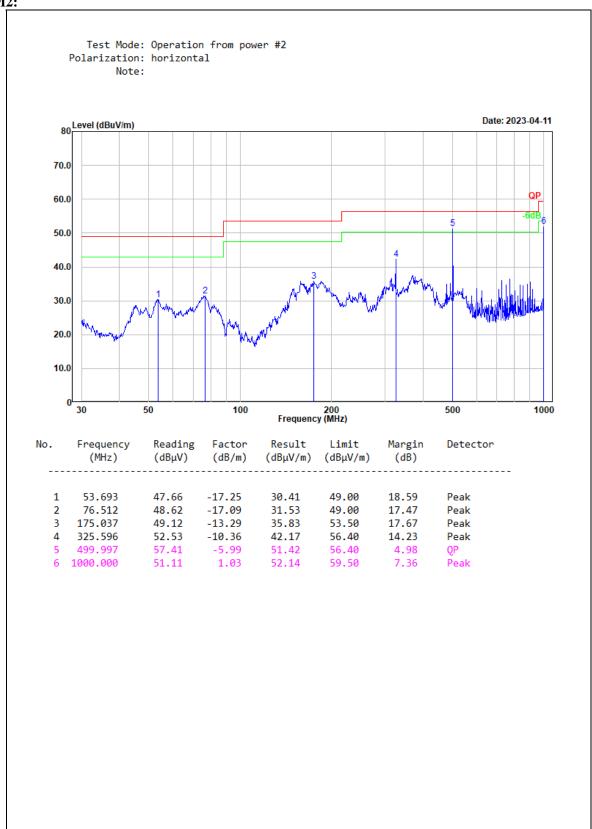
1) 30MHz-1GHz:

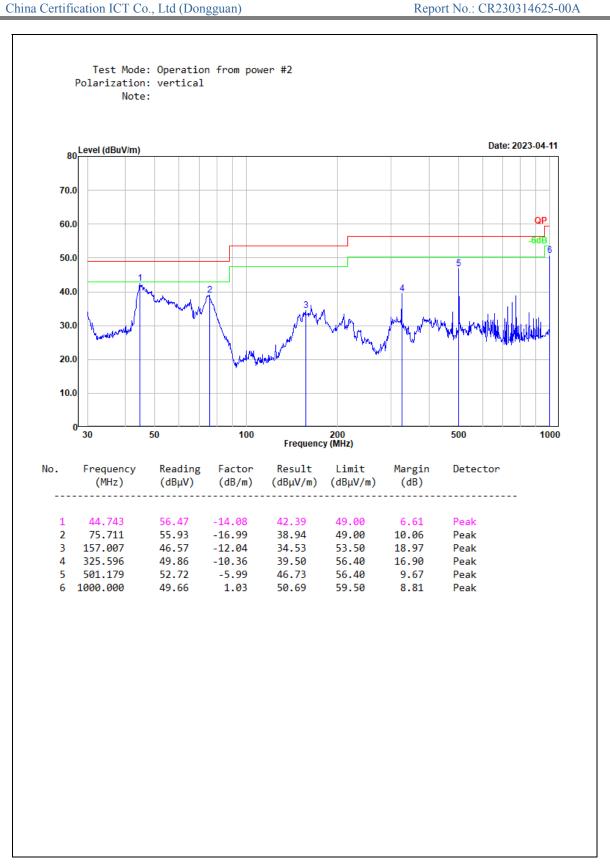
M1:



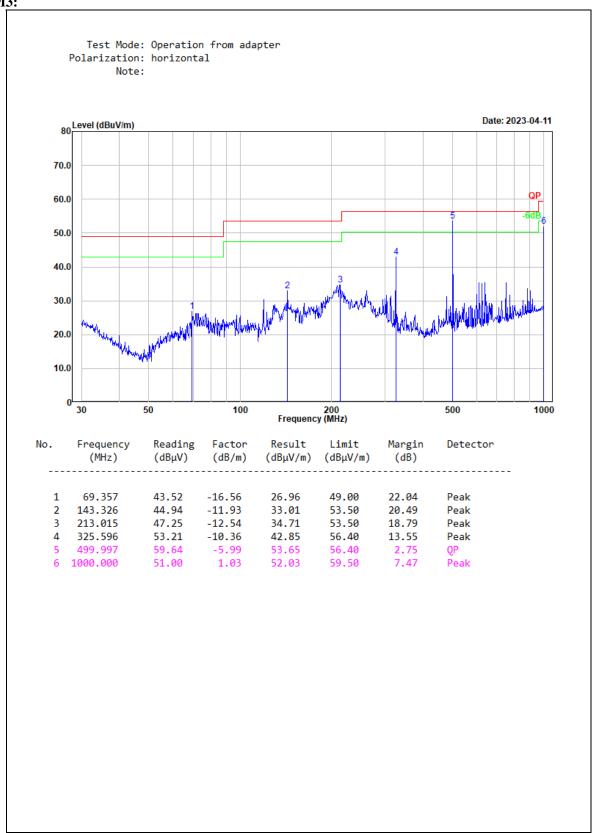


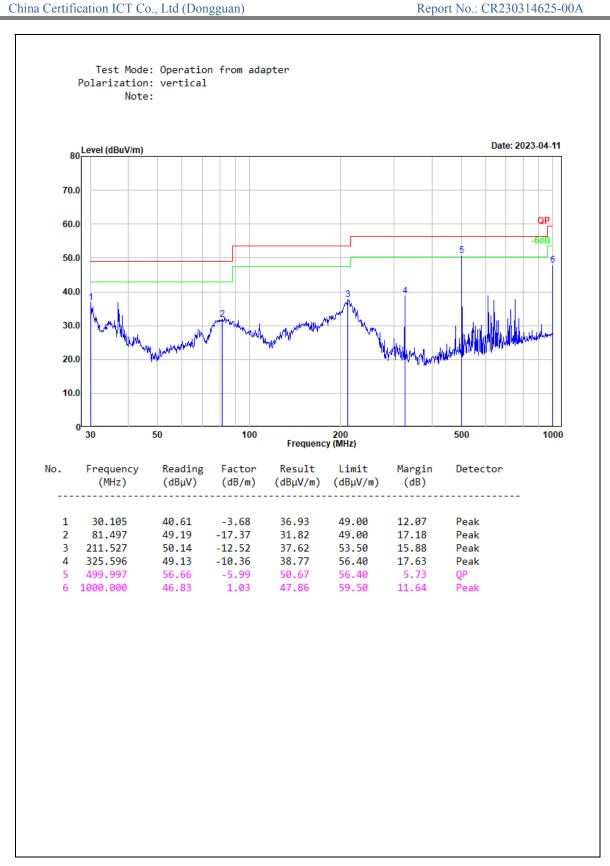






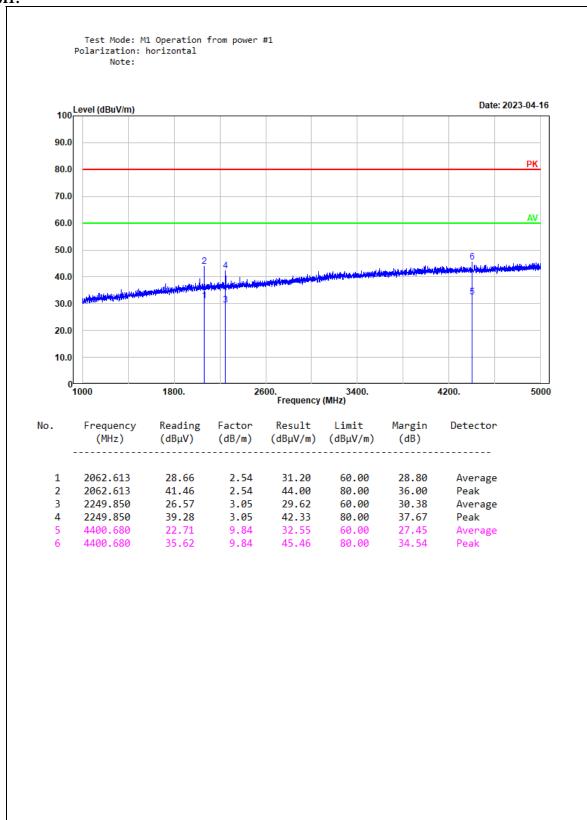
M3:

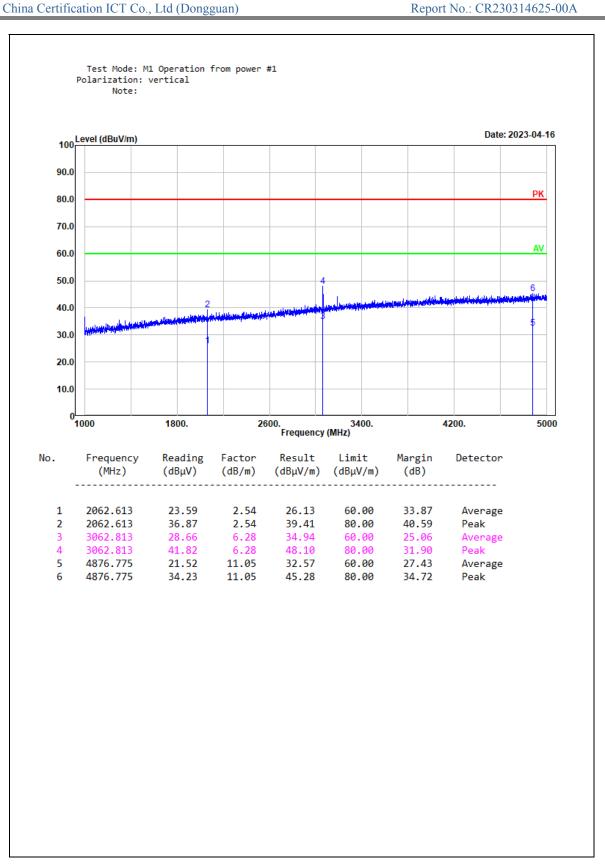




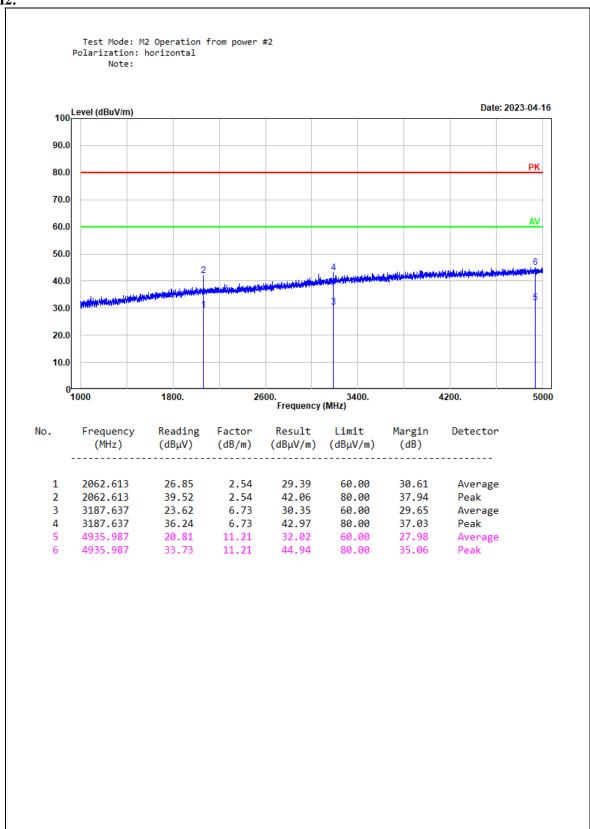
2) 1GHz-5GHz:

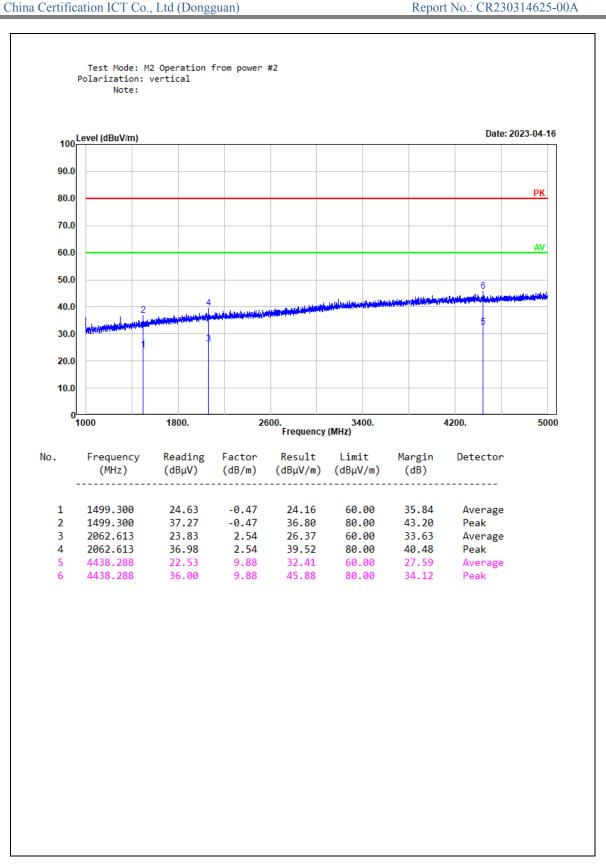
M1:





M2:





M3:

