



# **TEST REPORT**

# Applicant: Grandstream Networks, Inc.

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

FCC ID: YZZGRP2601W

**Product Name: Essential Wi-Fi Phone** 

Standard(s): 47 CFR Part 15 Subpart B ANSI C63.4-2014

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

Report Number: CR231064045-00A

Date Of Issue: 2023/11/27

**Reviewed By:** Calvin Chen Title: RF Engineer

Calvin Chen Sun 2hong

Approved By: Sun Zhong 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.

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 "▲". 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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# **DOCUMENT REVISION HISTORY**

Revision Number	Report Number	Description of Revision	Date of Revision
1.0	CR231064045-00A	Original Report	2023/11/27

# **1. GENERAL INFORMATION**

### **1.1 Product Description for Equipment under Test (EUT)**

EUT Name:	Essential Wi-Fi Phone
Trade Name:	GRANDSTREAM
EUT Model:	GRP2601W
Highest Operation Frequency:	2462MHz
Rated Input Voltage:	DC 5V from adapter
Serial Number:	2CYP-2
EUT Received Date:	2023/11/1
EUT Received Status:	Good

# **Accessory Information:**

Accessory Description	Manufacturer	Model	Parameters
Adapter	DACHUAN	DCT06W050060US-D0	Input: AC 100-240V~ 50/60Hz, 200mA Output: DC 5.0V, 0.6A
Adapter	SUNLIGHT	F06US0500060A	Input: AC 100-240V~ 50/60Hz, 0.2A Output: DC 5.0V, 0.6A
Adapter	GANGQI	GQ06-050060-ZU	Input: AC 100-240V~ 50/60Hz, 0.3A Output: DC 5.0V, 0.6A

# **1.2 Description of Test Configuration**

### **1.2.1 EUT Operation Condition**

EUT Operation Mode:	The system was configured for testing in Typical Use Mode, which was provided by the manufacturer. Test Mode : Talking
Equipment Modifications:	No
EUT Exercise Software:	No

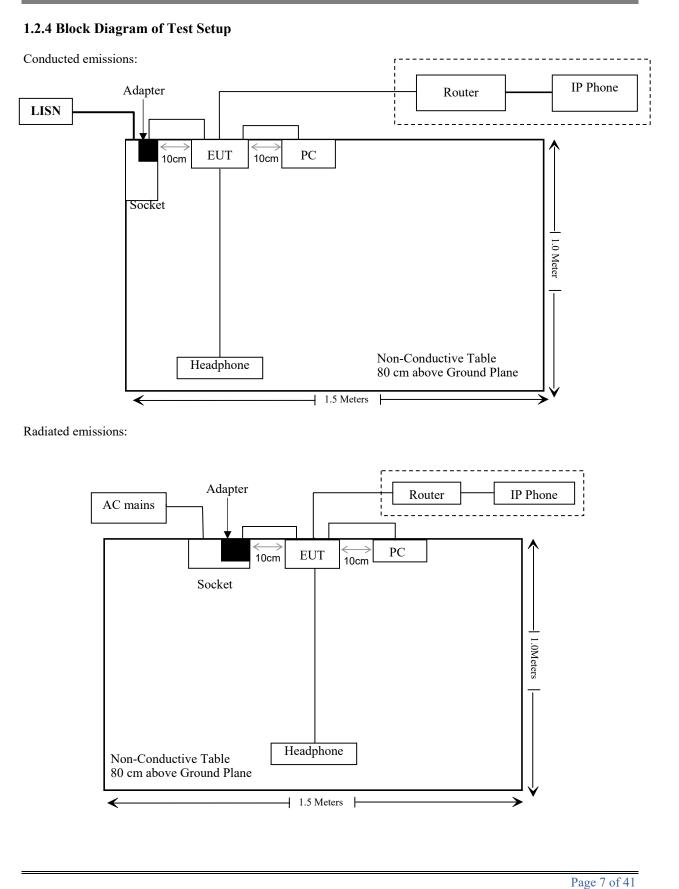
### **1.2.2 Support Equipment List and Details**

Manufacturer	Description Model Serial Number		Serial Number
TOTO LINK	Router	X5000R	X5000RK9T0560
Yealink	IP Phone	SIP-T23G	212319022102620
DELL	PC	E6410	GYXJ3 A00 JSD2
Unknown	Headphone	Unknown	Unknown

# **1.2.3 Support Cable List and Details**

Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	То
AC cable	NO	NO	1.2	LISN/AC mains	Socket
DC cable	NO	NO	1.6	Adapter	EUT
RJ45 Cable	NO	YES	8.0	EUT	Router
RJ45 Cable	NO	YES	1.0	IP Phone	Router
RJ45 Cable	NO	NO	1.5	EUT	PC
RJ11 cable	NO	YES	1.5	EUT	Headphone

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# **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 Emissions, radiated	6G~18GHz: 5.93 dB,18G~26.5G:5.47 dB,26.5G~40G:5.63 dB		
Temperature	$\pm 1$ °C		
Humidity	±5%		
AC Power Lines Conducted Emission	2.8 dB (150 kHz to 30 MHz)		

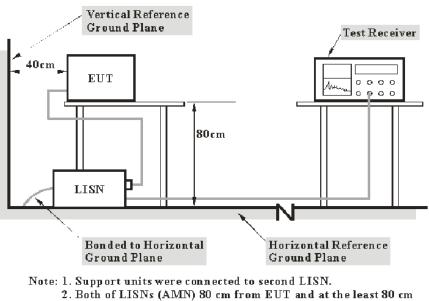
# **2. SUMMARY OF TEST RESULTS**

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



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 B 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.

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

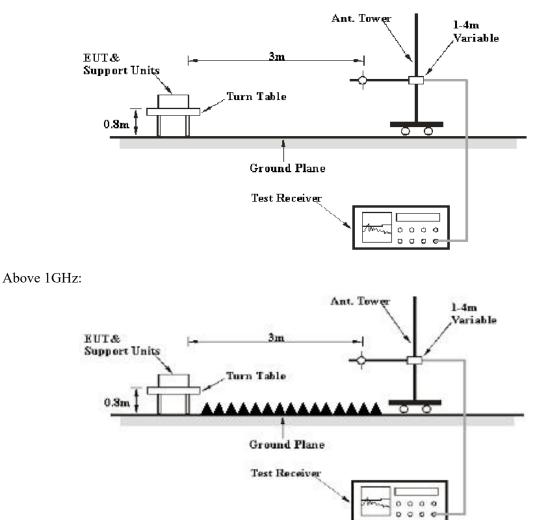
The "**Margin**" column of the following data tables indicates the degree of compliance within the applicable limit. The equation for margin calculation is as follows:

Margin = Limit – Result

# **3.2 Radiation Spurious Emissions**

# 3.2.1 EUT Setup

# Below 1GHz:



The radiated emissions 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 B limits.

#### 3.2.2 EMI Test Receiver Setup

The system was investigated from 30 MHz to 13GHz.

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	100 kHz	300 kHz	120 kHz	QP
Abova 1 CHz	1 MHz	3 MHz	/	Peak
Above 1 GHz	1 MHz	3 MHz	/	AVG

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:	2CYP-2	Test Date:	2023/11/24
Test Site:	CE	Test Mode:	Talking
Tester:	David Huang	Test Result:	Pass

Environmental Conditions:						
Temperature: (℃)	26.5	Relative Humidity: (%)	49	ATM Pressure: (kPa)	101.1	

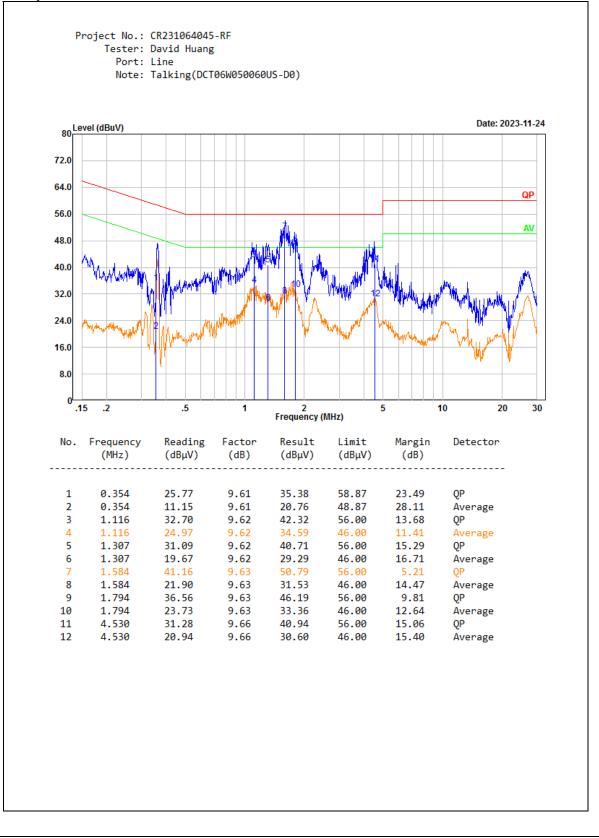
# Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	LISN	ENV216	101134	2023/3/31	2024/3/30
R&S	EMI Test Receiver	ESR3	102726	2023/3/31	2024/3/30
MICRO-COAX	Coaxial Cable	UTIFLEX	C-0200-01	2023/8/6	2024/8/5
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).

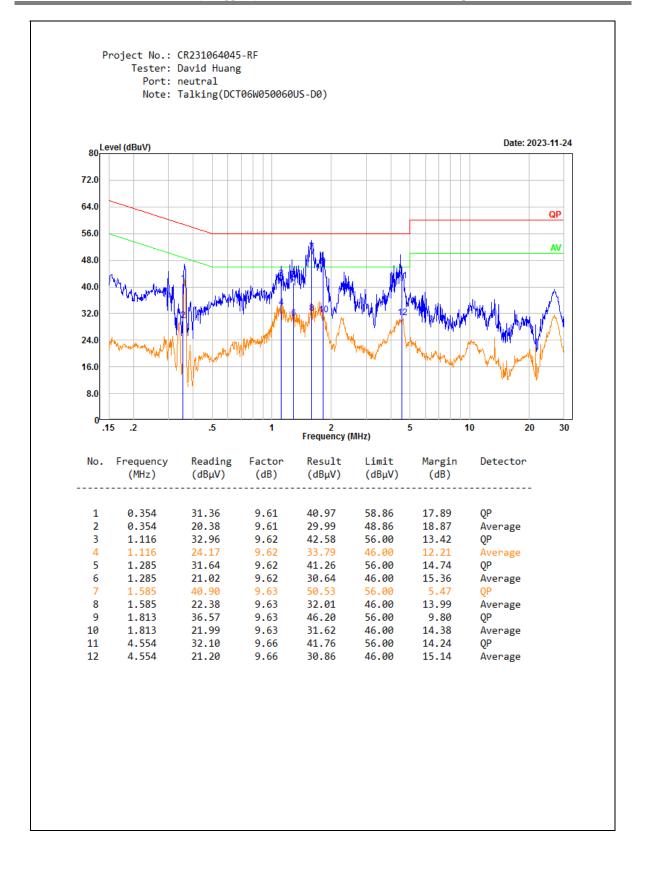
Test Data:

#### For Adapter DCT06W050060US-D0



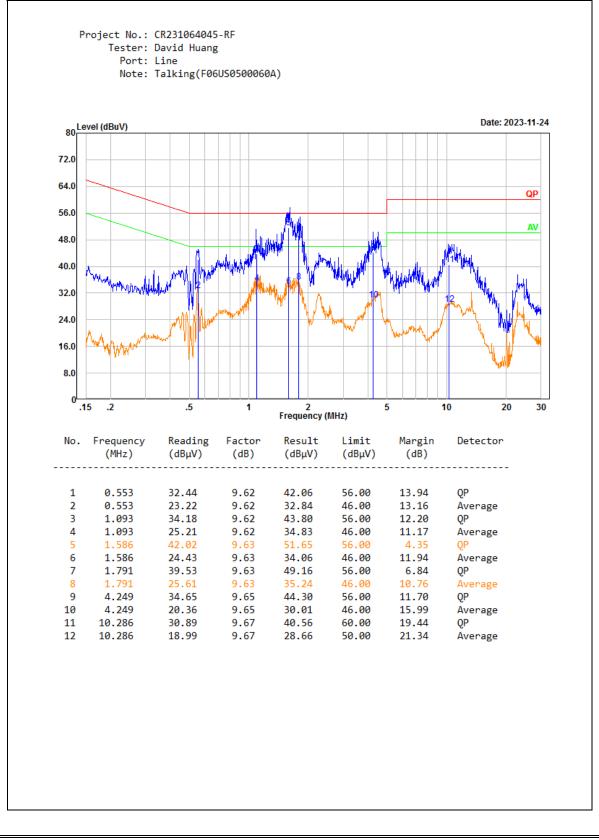
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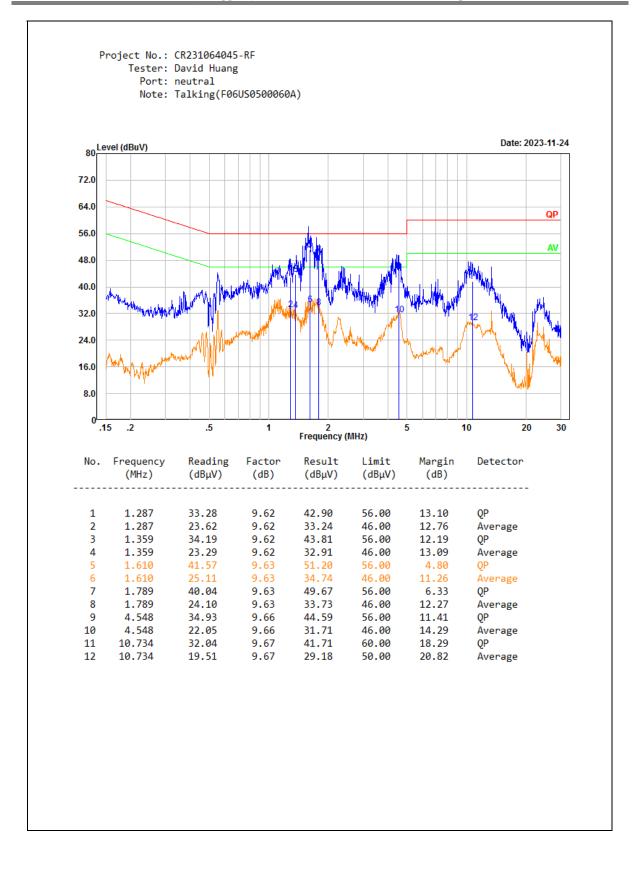
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#### For Adapter F06US0500060A



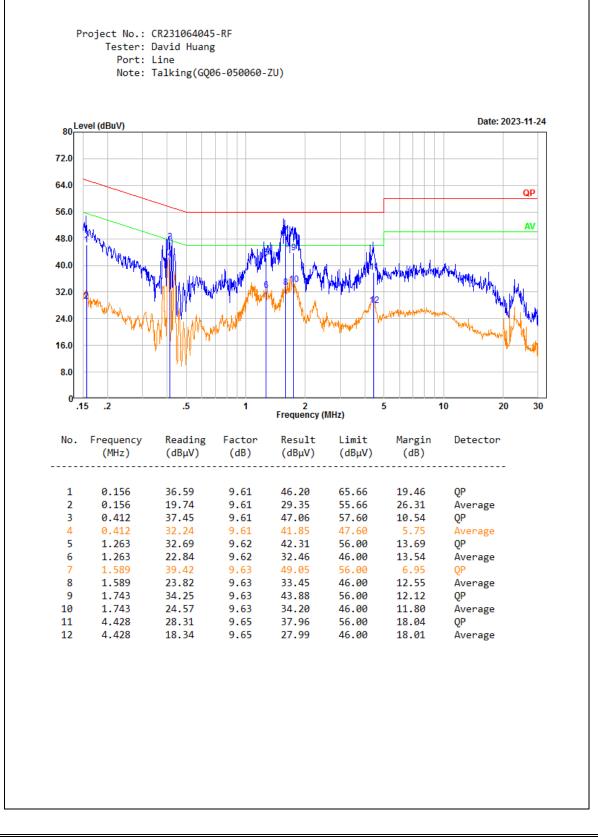
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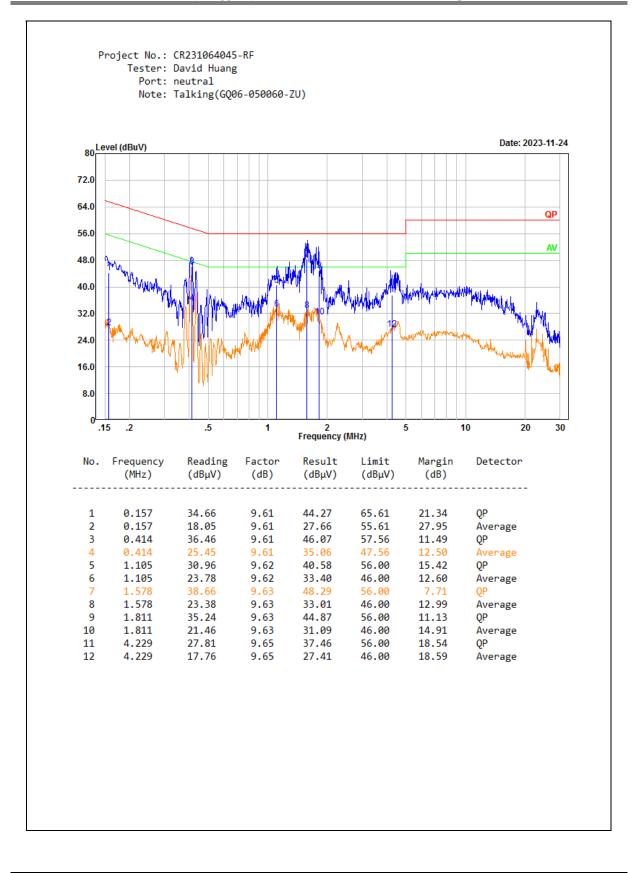
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#### For Adapter GQ06-050060-ZU



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# **4.2 Radiation Spurious Emissions**

Serial Number:	2CYP-2	Test Date:	2023/11/18~ 2023/11/21
Test Site:	966-1, 966-2	Test Mode:	Talking
Tester:	Carl Xue, Mack Huang	Test Result:	Pass

# **Environmental Conditions:**

Temperature: (°C)	25~25.2	Relative Humidity: (%)	52~53	ATM Pressure: (kPa)	101.3~101.8
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### **Test Equipment List and Details:**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Sunol Sciences	Antenna	JB6	A082520-6	2023/9/18	2026/9/17
R&S	EMI Test Receiver	ESR3	102724	2023/3/31	2024/3/30
TIMES MICROWAVE	Coaxial Cable	LMR-600- UltraFlex	C-0470-02	2023/7/16	2024/7/15
TIMES MICROWAVE	Coaxial Cable	LMR-600- UltraFlex	C-0780-01	2023/7/16	2024/7/15
Sonoma	Amplifier	310N	186165	2023/7/16	2024/7/15
Audix	Test Software	E3	201021 (V9)	N/A	N/A
АН	Double Ridge Guide Horn Antenna	SAS-571	1394	2023/2/22	2026/2/21
R&S	Spectrum Analyzer	FSV40	101591	2023/3/31	2024/3/30
MICRO-COAX	Coaxial Cable	UFA210A-1- 1200-70U300	217423-008	2023/8/6	2024/8/5
MICRO-COAX	Coaxial Cable	UFA210A-1- 2362-300300	235780-001	2023/8/6	2024/8/5
Mini	Pre-amplifier	ZVA-183-S+	5969001149	2023/11/8	2024/11/7
Audix	Test Software	E3	201021 (V9)	N/A	N/A
E-Microwave	Band Rejection Filter	2400-2483.5MHz	OE01902424	2023/8/6	2024/8/5
Mini Circuits	High Pass Filter	VHF-6010+	31119	2023/8/6	2024/8/5

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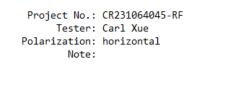
### Test Data:

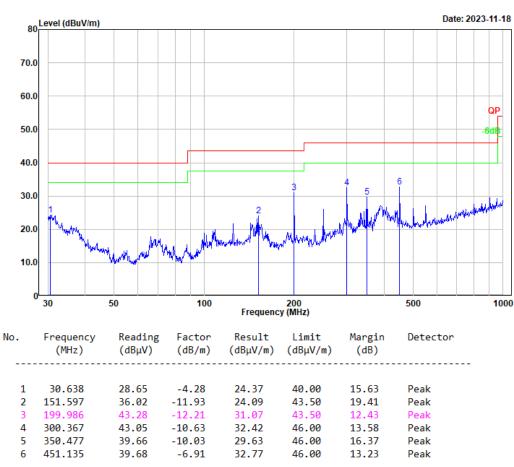
Please refer to the below table and plots.

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#### 1) 30MHz-1GHz:

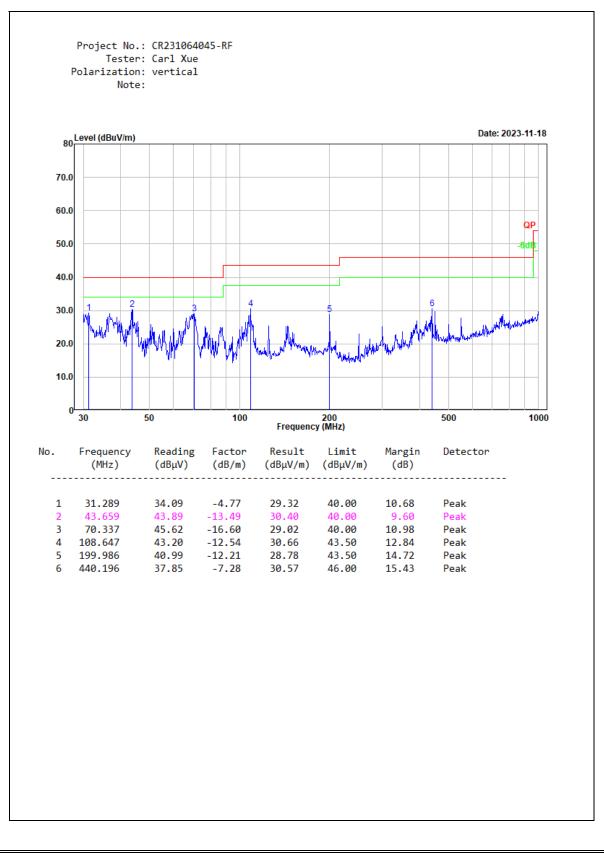
For Adapter DCT06W050060US-D0





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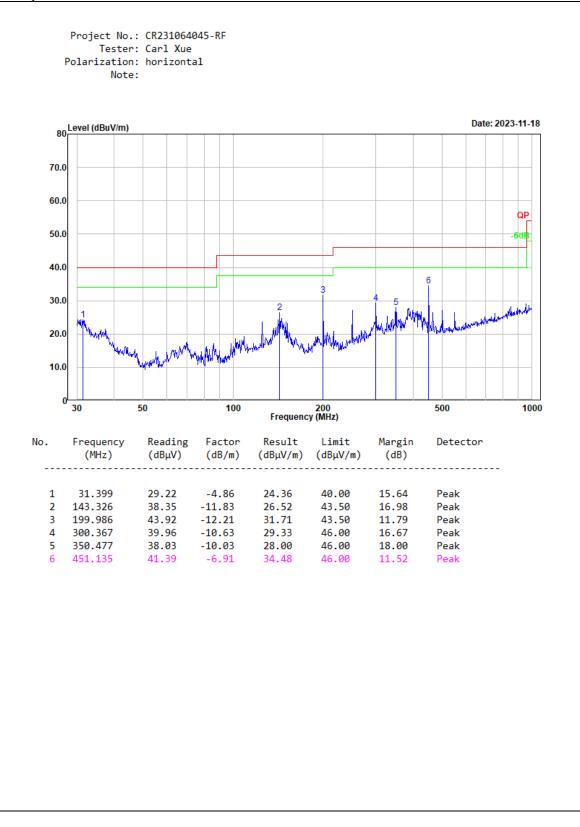
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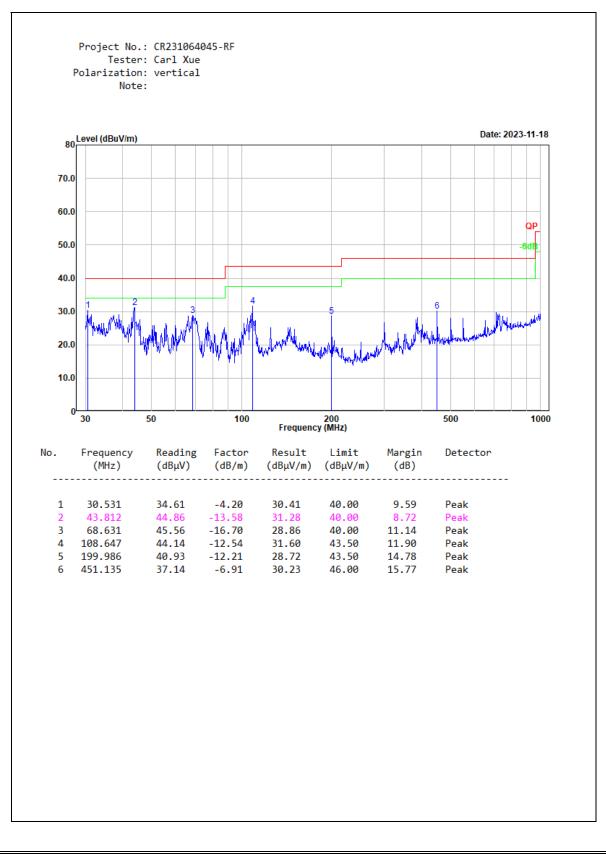
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#### For Adapter F06US0500060A



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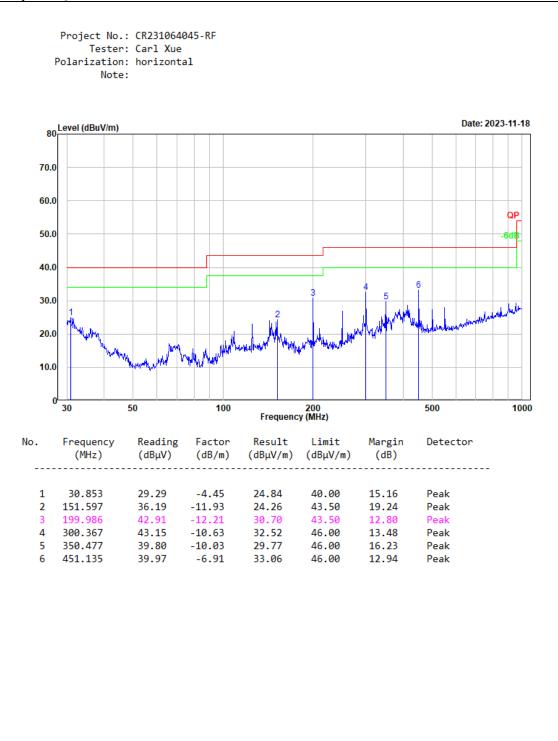
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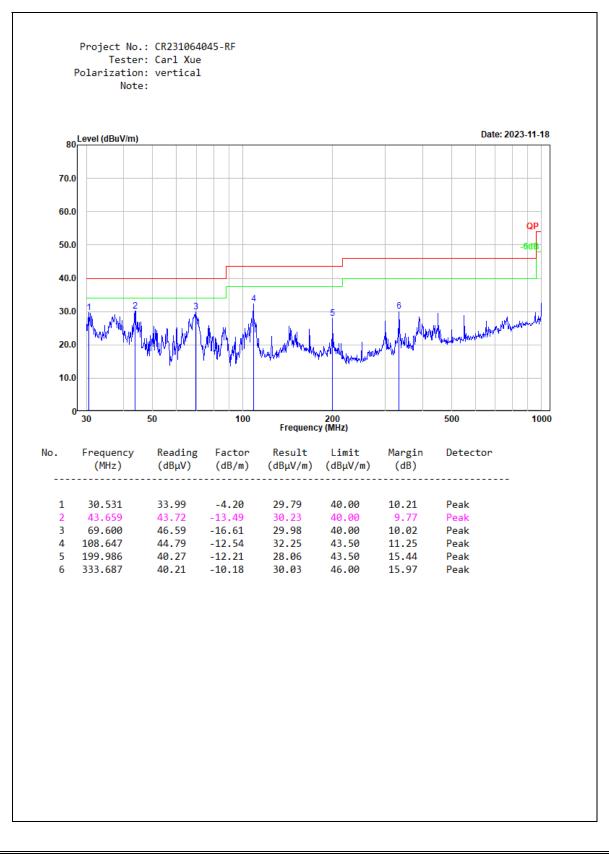
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#### For Adapter GQ06-050060-ZU



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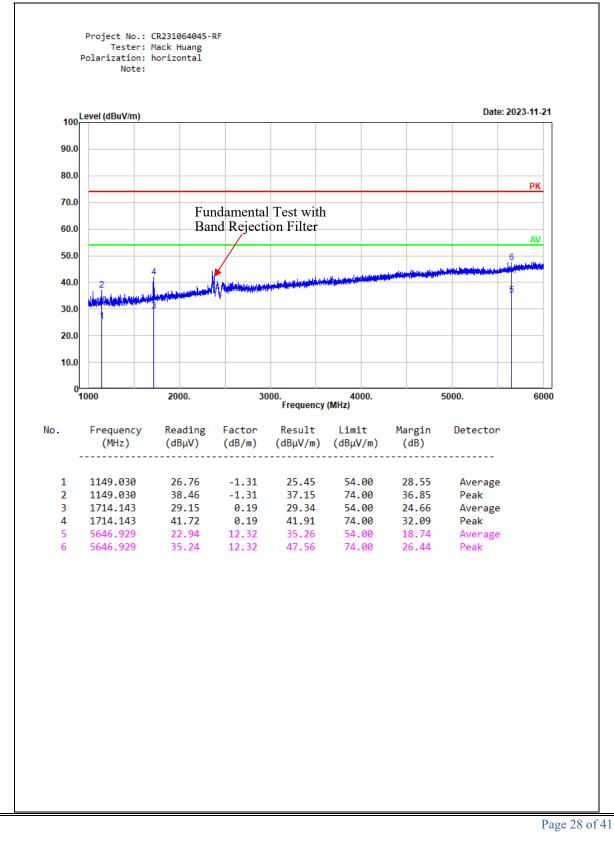


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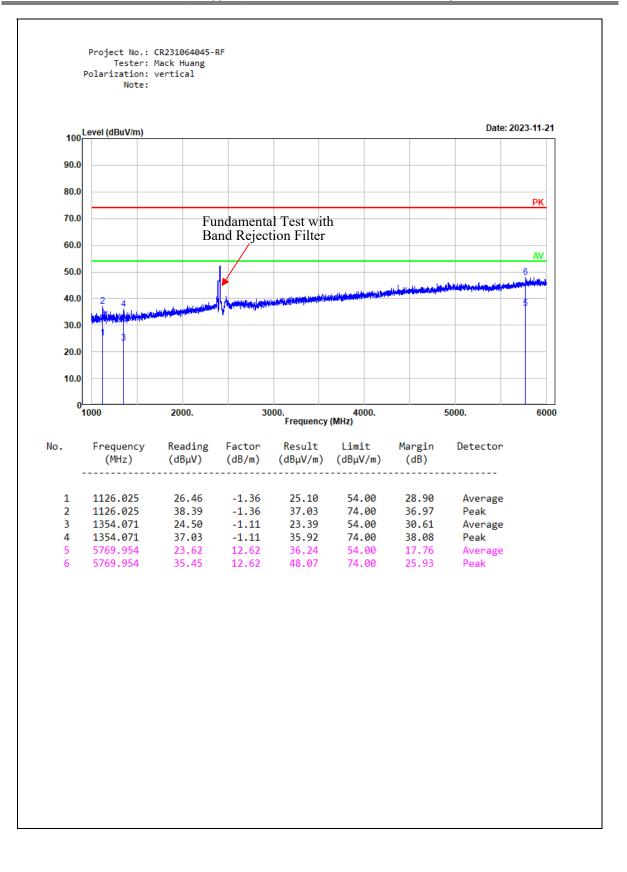
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# 2) Above 1GHz

For Adapter DCT06W050060US-D0 1-6GHz



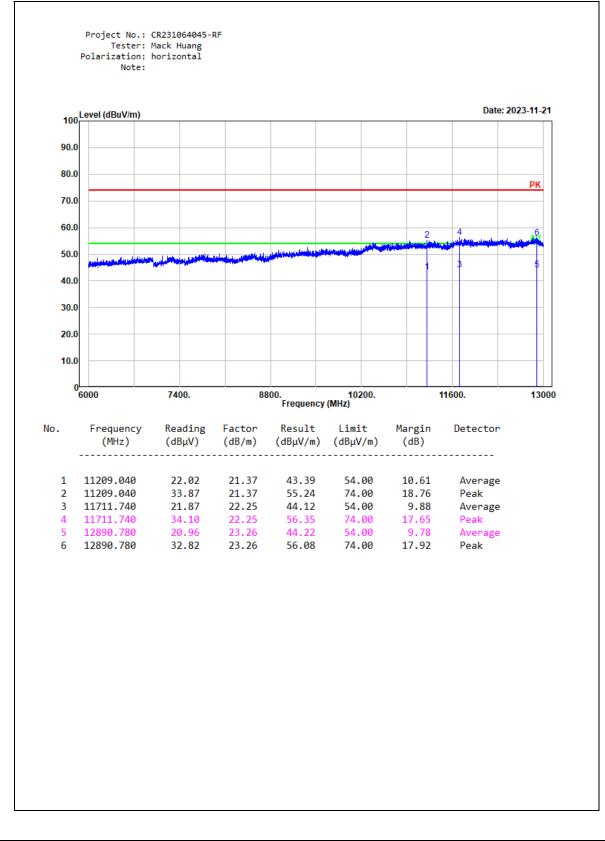
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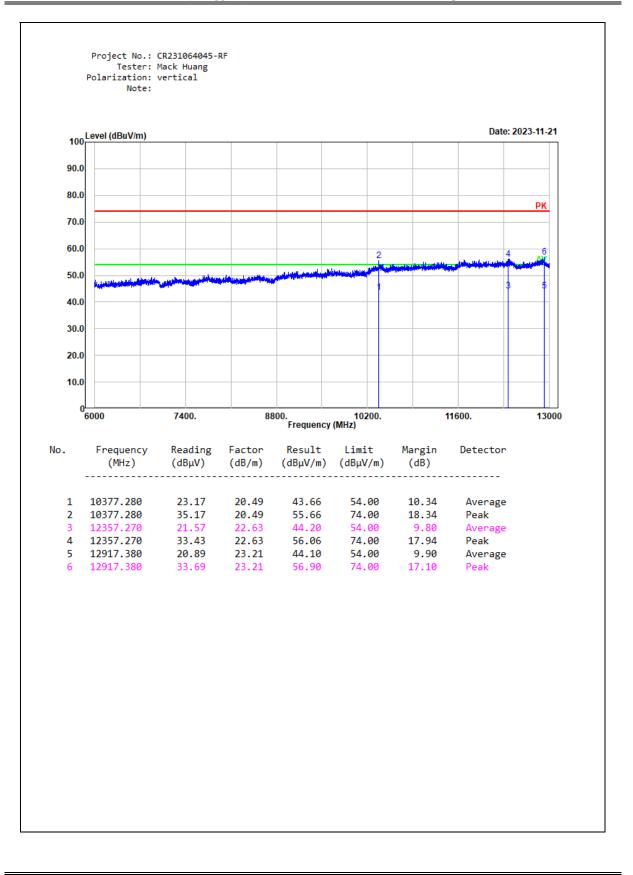
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#### 6-13GHz



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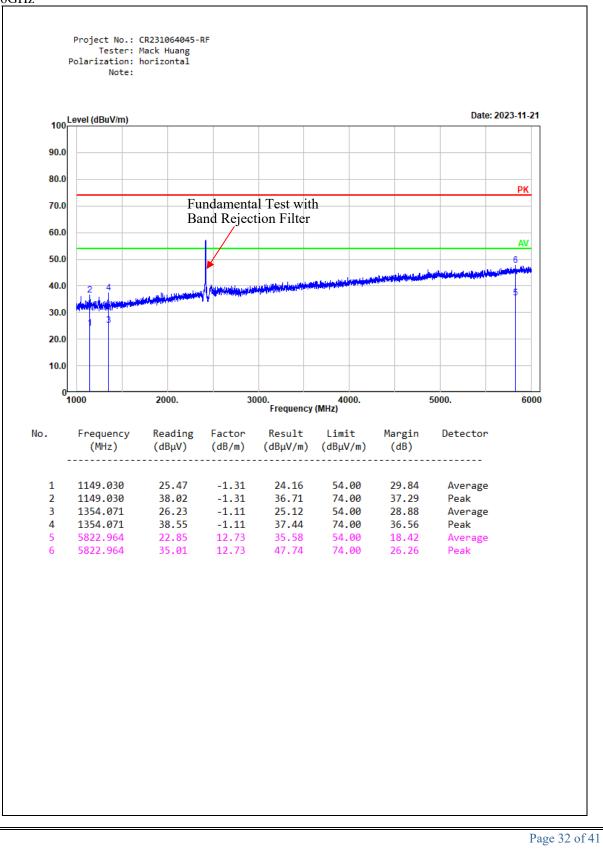


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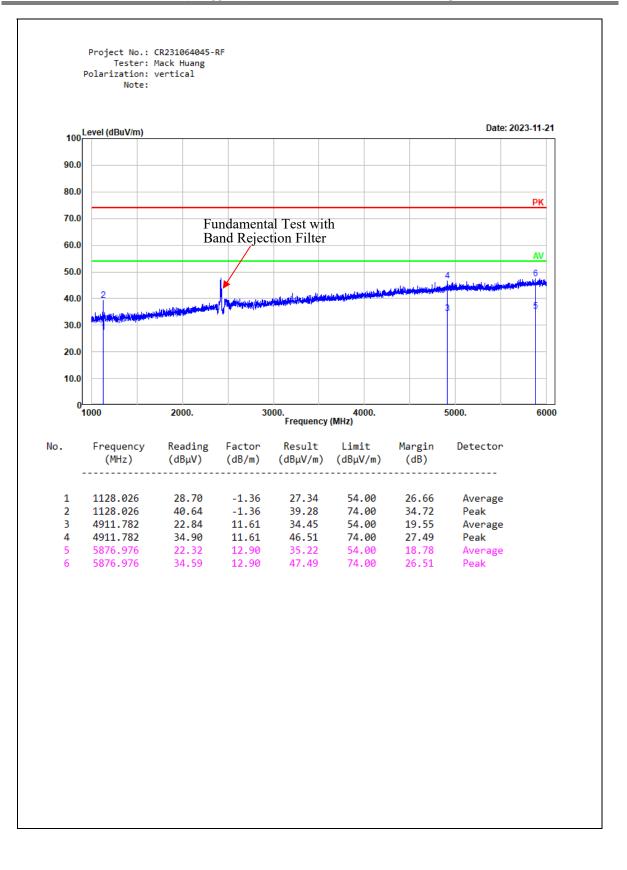
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### For Adapter F06US0500060A

1-<u>6GHz</u>



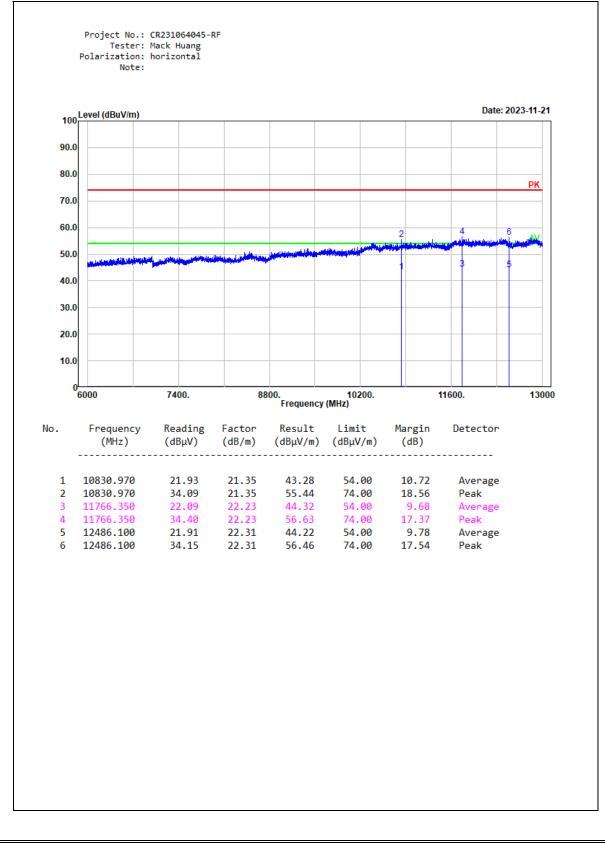
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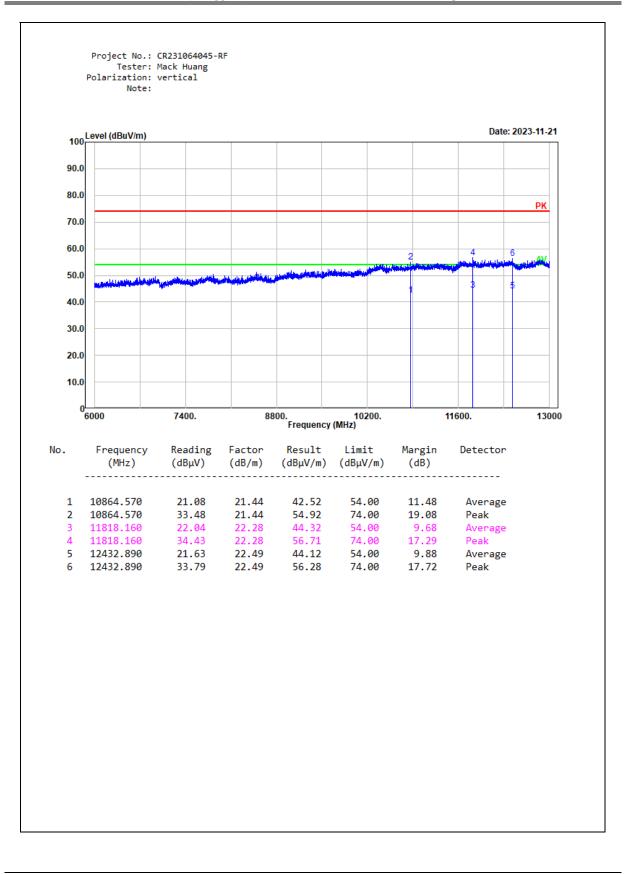
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#### 6-13GHz



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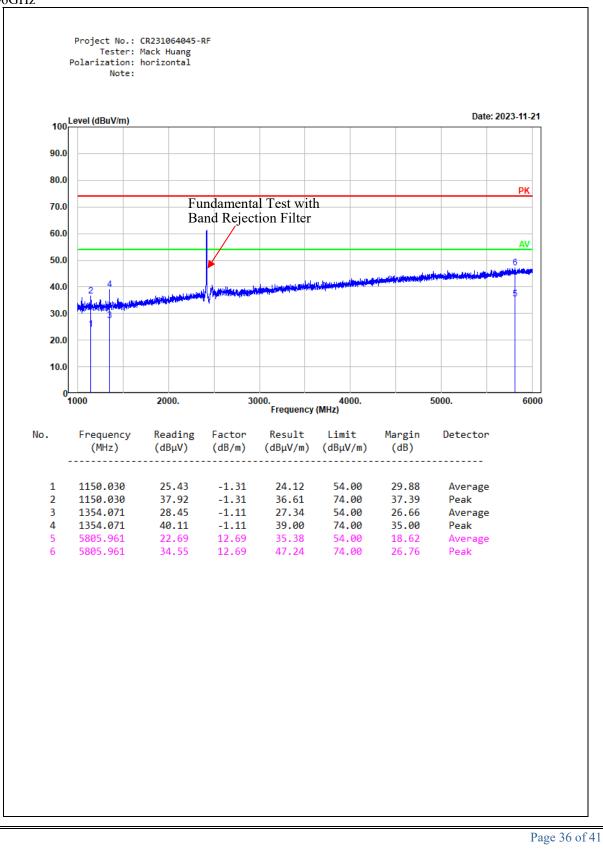


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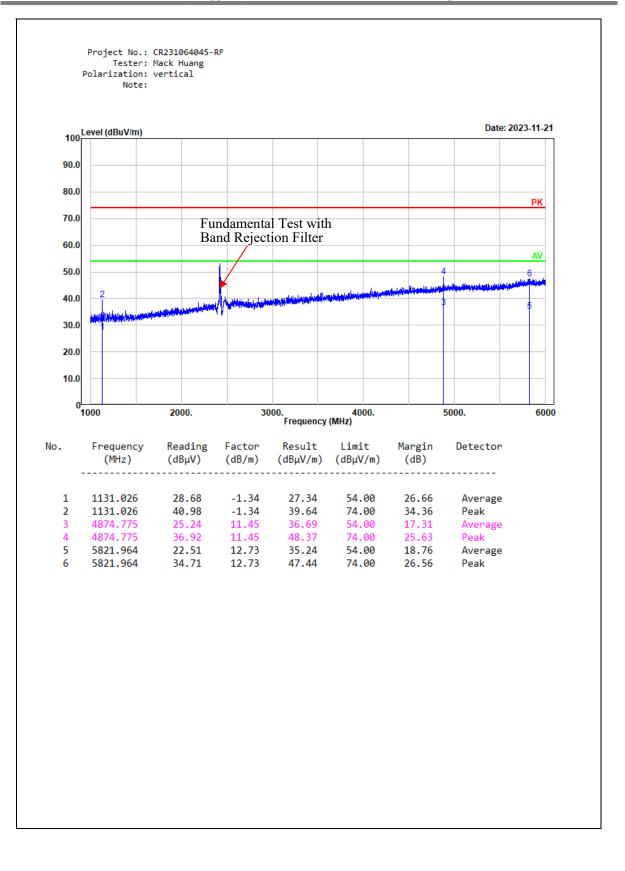
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#### For Adapter GQ06-050060-ZU

1-6GHz



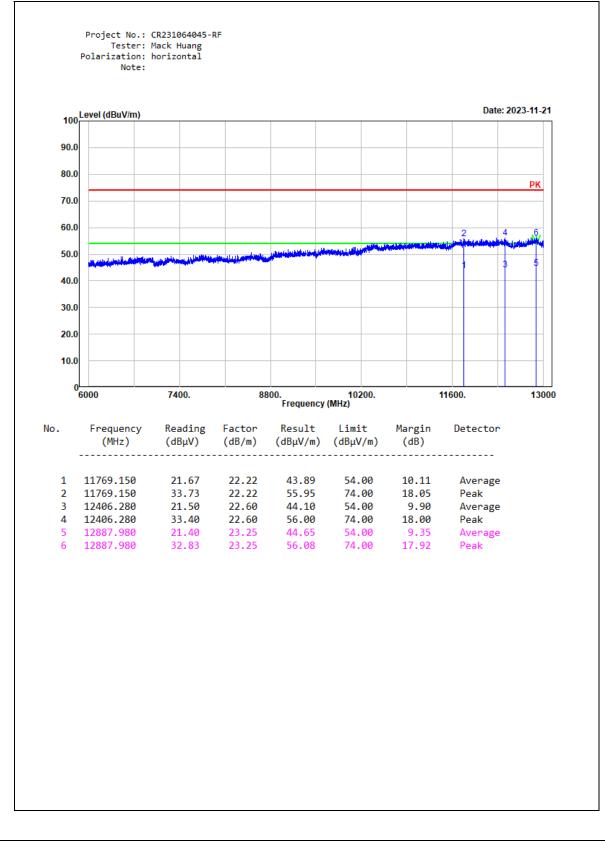
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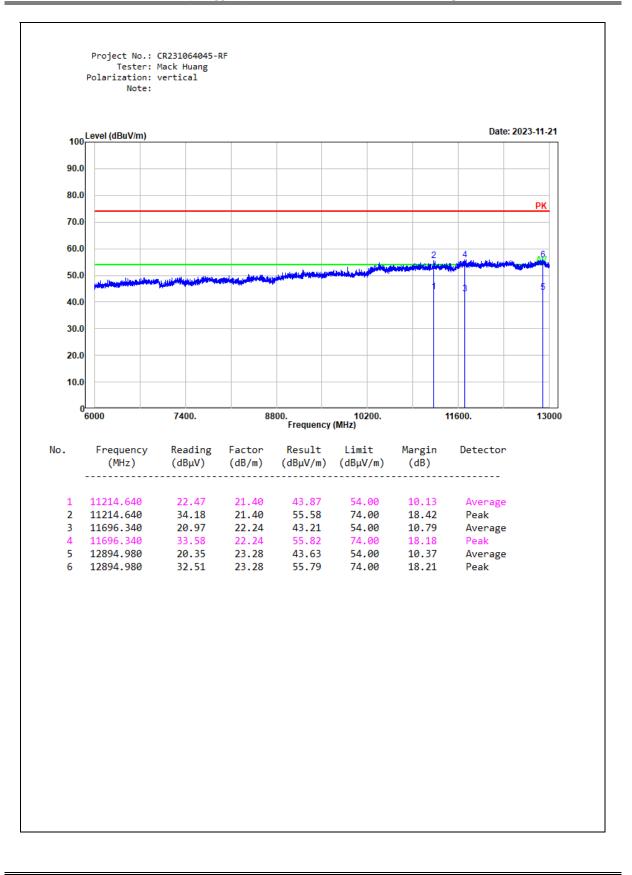
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#### 6-13GHz



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# **5. EUT PHOTOGRAPHS**

Please refer to the attachment CR231064045-EXP EUT EXTERNAL PHOTOGRAPHS and CR231064045-INP EUT INTERNAL PHOTOGRAPHS.

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# 6. TEST SETUP PHOTOGRAPHS

Please refer to the attachment CR231064045-00A-TSP TEST SETUP PHOTOGRAPHS.

===== END OF REPORT =====