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**ETSI EN 301 489-1 V2.2.3 (2019-11)**  
**ETSI EN 301 489-17 V3.2.4 (2020-09)**

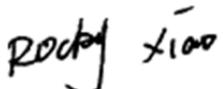
**TEST REPORT**

For

**SHENZHEN TENDA TECHNOLOGY CO.,LTD.**

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**Tested Model: RX12 Pro**  
**Multiple Model: TX12 Pro**

<b>Report Type:</b> Original Report	<b>Product Type:</b> AX3000 Dual Band Gigabit WiFi 6 Router
<b>Report Number:</b>	DG2220812-36651E-02
<b>Report Date:</b>	2022-11-03
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## GENERAL INFORMATION

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

<b>Product Name:</b>		AX3000 Dual Band Gigabit WiFi 6 Router
<b>Tested Model:</b>		RX12 Pro
<b>Multiple Model:</b>		TX12 Pro
<b>Model difference:</b>		Refer to the DOS
<b>Rated Input Voltage:</b>		12Vdc from adapter
<b>EU Adapter Information</b>	<b>Model:</b>	BN074-A18012E
	<b>Input:</b>	100-240Vac 50/60Hz 0.6A
	<b>Output:</b>	12Vdc 1.5A
<b>UK Adapter Information</b>	<b>Model:</b>	BN074-A18012B
	<b>Input:</b>	100-240Vac 50/60Hz 0.6A
	<b>Output:</b>	12Vdc 1.5A
<b>Serial Number:</b>		DG2220812-36651E-RF -S1
<b>EUT Received Date:</b>		2022.8.15
<b>EUT Received Status:</b>		Good

### Objective

This report is prepared on behalf of *SHENZHEN TENDA TECHNOLOGY CO.,LTD.* in accordance with ETSI EN 301 489-1 V2.2.3 (2019-11) ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements; Harmonised Standard for ElectroMagnetic Compatibility;

ETSI EN 301 489-17 V3.2.4 (2020-09) ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for Broadband Data Transmission Systems.

The objective is to determine the compliance of EUT with: ETSI EN 301 489-1 V2.2.3 (2019-11), ETSI EN 301 489-17 V3.2.4 (2020-09).

### Test Methodology

All measurements contained in this report were conducted with ETSI EN 301 489-1 V2.2.3 (2019-11) ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements; Harmonised Standard for ElectroMagnetic Compatibility.

### Declarations

BACL 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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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.

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## SYSTEM TEST CONFIGURATION

### Description of Test Configuration

The system was configured for testing in a typical fashion (as normally used by a typical user).

**Test mode:** Operating

*Note: The two adapters, EU Adapter and UK Adapter, are same except for the power plug-in Pins. The difference between them do not affect test results. EU Adapter was selected for fully test.*

### Equipment Modifications

No modification was made to the EUT.

### EUT Exercise Software

Software “Lantest.exe” and “Ping.exe” were used.

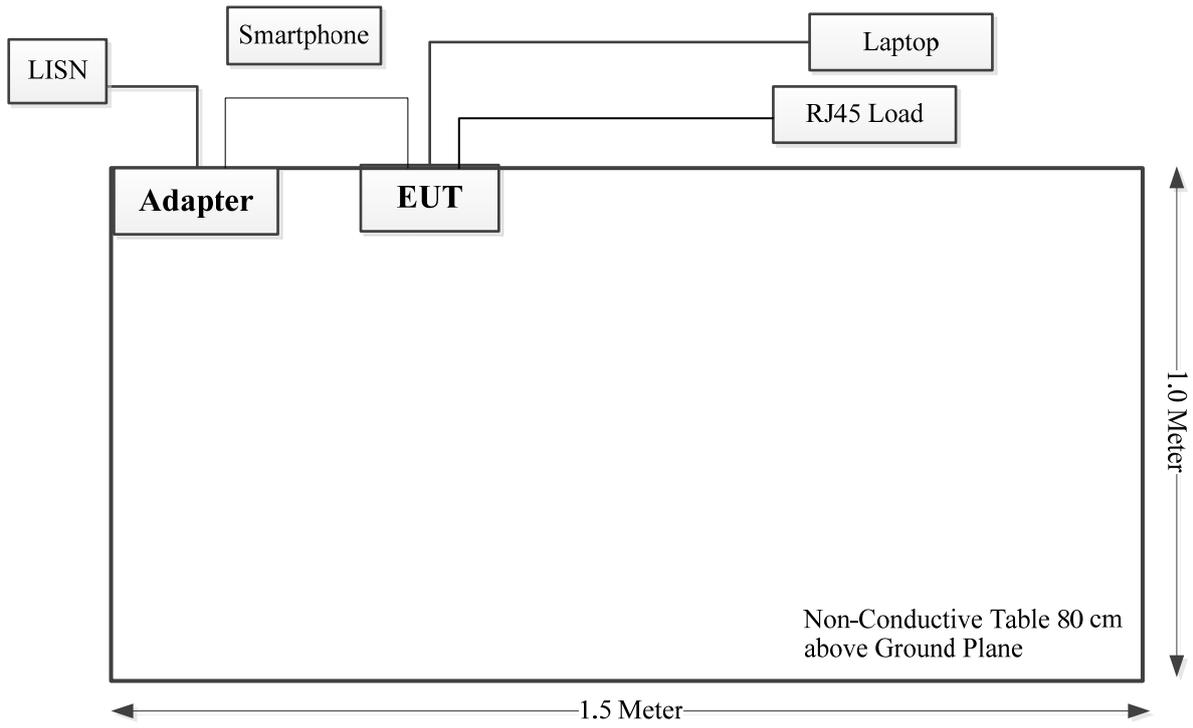
### Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
DELL	Laptop	E6410	586N3Q1
Huawei	Smartphone	EVR-AL00	A000009E3F501E
Bacl	RJ45 Load	RJ45X8	F-EM-PHRJ45X8002

### Support Cable List and Details

Cable Description	Shielding Cable	Ferrite Core	Length (m)	From Port	To
RJ45 Cable	Yes	No	1.2	EUT	Load
RJ45 Cable	Yes	No	10	EUT	Laptop
DC Cable	No	No	2	Adapter	EUT

### Block Diagram of Test Setup



**Test Equipment List**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Conducted emission					
R&S	LISN	ENV 216	101614	2021-10-26	2022-10-25
TESEQ	ISN	T800	34379	2021-10-26	2022-10-25
R&S	EMI Test Receiver	ESCI	101121	2022-07-21	2023-07-20
MICRO-COAX	Coaxial Cable	C-NJNJ-50	C-0200-01	2021-09-05	2022-09-04
R&S	Test Software	EMC32	Version 9.10.00	N/A	N/A
Radiated emissions below 1GHz					
Sunol Sciences	Antenna	JB3	A060611-1	2020-11-10	2023-11-10
R&S	EMI Test Receiver	ESR3	102453	2021-10-26	2022-10-25
Unknown	Coaxial Cable	C-NJNJ-50	C-0075-01	2022-07-19	2023-07-18
Unknown	Coaxial Cable	C-NJNJ-50	C-0400-01	2022-07-19	2023-07-18
Unknown	Coaxial Cable	C-NJNJ-50	C-1400-01	2022-07-19	2023-07-18
Sonoma	Amplifier	310N	372193	2022-07-18	2023-07-17
Farad	Test Software	EZ-EMC	V1.1.4.2	N/A	N/A
Radiated emissions above 1GHz					
ETS-Lindgren	Horn Antenna	3115	000 527 35	2021-10-12	2024-10-11
Agilent	Spectrum Analyzer	E4440A	SG43360054	2022-07-15	2023-07-14
Unknown	Coaxial Cable	C-SJSJ-50	C-0800-01	2021-09-04	2022-09-03
AH	Preamplifier	PAM-0118	469	2021-10-13	2022-10-12
Farad	Test Software	EZ-EMC	V1.1.4.2	N/A	N/A
Sinoscite	Bandstop Filters	BSF5150-5850MN -0899-003	0899003	2022-05-06	2023-05-05
E-Microwave	Band-stop Filters	OBSF-2400-2483. 5-S	OE01601525	2022-06-16	2023-06-15
Flicker & Harmonic					
EVERFINE	Harmonic & Flicker TEST ING Power Source	HFS-4000	P624486CD1411 122	2022-04-01	2023-03-31
EVERFINE	Harmonic & Flicker Measurement System	HFM3000	P630850CD1411 115	2022-06-07	2023-06-06
CS					
HP	Signal Generator	8648A	3246A00831	2021-09-11	2022-09-10
R&S	Power Amplifier	15A250	12934	N/A	N/A
Werlatone	Dual Directional Coupler	C5091-10	113192	2022-02-09	2023-02-08
HP	Power Meter	HP EPM-441A	GB37481494	2022-07-15	2023-07-14
Agilent	8482A Power sensor	8482A	US37296108	2022-07-15	2023-07-14
NARDA	Attenuator	769-6	2754	N/A	N/A
COM-POWER	CDN	M325E	521064	2022-07-15	2023-07-14
COM-POWER	CDN	T8E	581607	2022-07-15	2023-07-14
EFT & Surge & Dips					
EM TEST	Ultra Compact Generator	UCS 500N5	P1406130994	2022-04-01	2023-03-31
EM TEST	Autotransformer	MV2616	P1450144859	N/A	N/A
EM TEST	CDN	CNV508 S1	311137	2022-04-01	2023-03-31
EM TEST	EFT Clamp	N/A	300886	2022-07-15	2023-07-14

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
ESD					
HAEFELY	Electrostatic Discharge Simulator	ONYX	180786	2021-10-27	2022-10-26
RS					
AR	Antenna	ATL80M1G	0351400	N/A	N/A
AR	Antenna	ATT700M12G	0349410	N/A	N/A
HP	Signal Generator	8665B	3438a00584	2022-07-15	2023-07-14
AR	Power Amplifier	500W1000C	0353561	N/A	N/A
AR	Power Amplifier	60S1G6	0348711	N/A	N/A
PASTERNAK	Dual Directional Coupler	PE2239-30	1711	2022-07-15	2023-07-14
Agilent	EPM Series Power Meter	E4419B	MY45103907	2022-07-15	2023-07-14
Agilent	E-Series Avg Power Sensor	E9301A	MY41497625	2022-07-15	2023-07-14
Agilent	E-Series Avg Power Sensor	E9301A	MY41497628	2022-07-15	2023-07-14

\* Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

**Environmental Conditions**

Test Item:	Conducted emission	Radiated emissions below 1GHz	Radiated emissions above 1GHz	EMS & Flicker
Temperature:	26.9°C	26.3°C	26.8°C	21.6~23.6°C
Relative Humidity:	62%	46%	45%	57~61%
ATM Pressure:	99.8kPa	100.0kPa	99.8kPa	100.2kPa
Tester:	Walker Chen	Colin Yang'	Lucky Lu	Wright Lai
Test Date:	2022.08.24	2022.08.18	2022.08.20	2022.08.25

Note:

\*The relative humidity of ESD test environment is 57%.

## SUMMARY OF TEST RESULTS

SN	Rule and Clause	Description of Test	Test Result
1	EN 301 489 Clause 8.2	Enclosure of ancillary equipment measured on a stand alone basis	Compliant
2	EN 301 489 Clause 8.3	DC power input/output ports	Not applicable
3	EN 301 489 Clause 8.4	AC mains power input/output ports	Compliant
4	EN 301 489 Clause 8.5	Harmonic current emissions (AC mains input port)	Not applicable
5	EN 301 489 Clause 8.6	Voltage fluctuations and flicker (AC mains input port)	Compliant
6	EN 301 489 Clause 8.7	Wired network ports	Compliant
7	EN 301 489 Clause 9.2	Radio frequency electromagnetic fields (80 MHz to 6 000 MHz)	Compliant
8	EN 301 489 Clause 9.3	Electrostatic discharges	Compliant
9	EN 301 489 Clause 9.4	Fast transients, common mode	Compliant
10	EN 301 489 Clause 9.5	Radio frequency, common mode	Compliant
11	EN 301 489 Clause 9.6	Transients and surges in the vehicular environment	Not applicable
12	EN 301 489 Clause 9.7	Voltage dips and short interruptions	Compliant
13	EN 301 489 Clause 9.8	Surges	Compliant

**Note:**

Not Applicable: Please refer to Applicability overview tables in sections 7.1 and 7.2 of EN 301 489-1 requirements for Radio and ancillary equipment.

# 1 - ENCLOSURE OF ANCILLARY EQUIPMENT MEASURED ON A STAND ALONE BASIS

## Measurement Uncertainty

Compliance or non-compliance with a disturbance limit shall be determined in the following manner:

If  $U_{lab}$  is less than or equal to  $U_{cispr}$  of Table 1, then:

- compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.

If  $U_{lab}$  is greater than  $U_{cispr}$  of Table 1, then:

- compliance is deemed to occur if no measured disturbance level, increased by  $(U_{lab} - U_{cispr})$ , exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance level, increased by  $(U_{lab} - U_{cispr})$ , exceeds the disturbance limit.

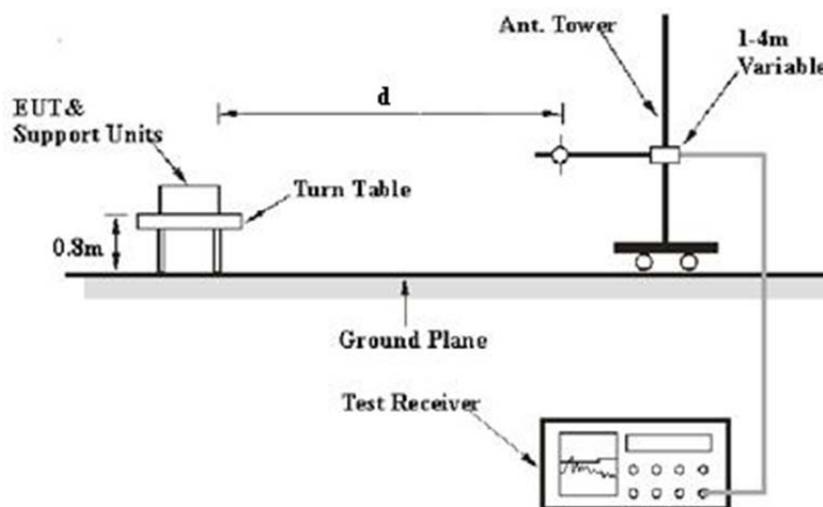
Based on CISPR 16-4-2: 2011, measurement uncertainty of radiated emission at a distance of 10m at Bay Area Compliance Laboratories Corp. (Dongguan) is:30M~200MHz: 4.55 dB for Horizontal, 4.57 dB for Vertical; 200M~1GHz: 4.66 dB for Horizontal, 4.56 dB for Vertical; measurement uncertainty of radiated emission at a distance of 3m at Bay Area Compliance Laboratories Corp. (Dongguan) is:30M~200MHz: 4.58 dB for Horizontal, 4.59 dB for Vertical; 200M~1GHz: 4.83 dB for Horizontal, 5.85 dB for Vertical; 1G~6GHz: 4.45 dB, 6G~18GHz: 5.23 dB

**Table 1 - Values of  $U_{cispr}$**

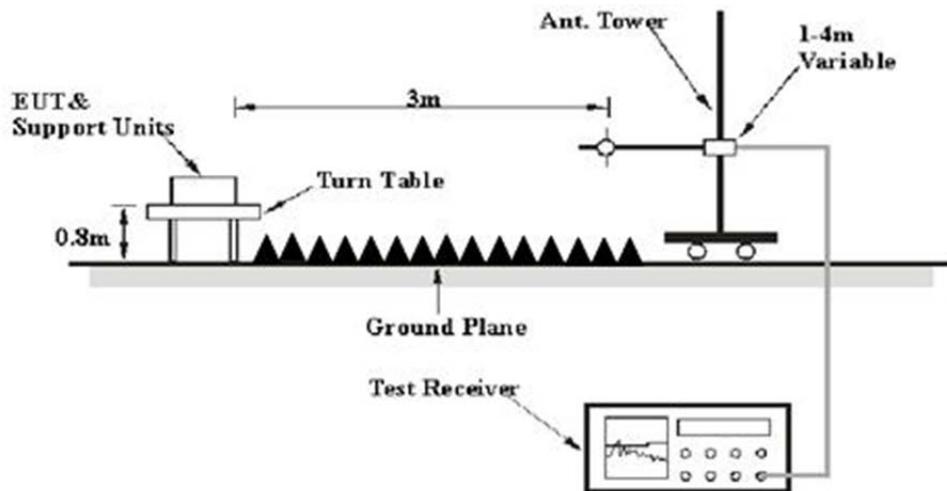
Measurement	$U_{cispr}$
Radiated disturbance (electric field strength at an OATS or in a SAC)(30 MHz to 1000 MHz)	6.3 dB
Radiated disturbance (electric field strength in a FAR)(1 GHz to 6 GHz)	5.2 dB
Radiated disturbance (electric field strength in a FAR)(6 GHz to 18 GHz)	5.5 dB

## Test System Setup

Below 1GHz:



Above 1GHz:



The radiated emission tests below 1GHz were performed in 3 meters, above 1GHz were performed in the 3 meters. The specification used was EN 55032 Class B limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40cm long in the middle. The spacing between the peripherals was 10cm.

**EMI Test Receiver Setup**

The system was investigated from 30 MHz to 6 GHz.

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

Frequency Range	RBW	Video B/W	IF B/W	Detector
30MHz - 1000 MHz	120 kHz	300 kHz	120kHz	QP
Above 1 GHz	1MHz	3 MHz	/	Peak
	1MHz	10Hz	/	Average

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

**Test Procedure**

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

All data was recorded in the Quasi-peak detection mode from 30MHz to 1GHz, Peak and average detection mode above 1GHz.

**Corrected Amplitude & Margin Calculation**

The basic equation is as follows: Result = Meter Reading+ Corrected

Note:

Corrected = Antenna Factor + Cable Loss - Amplifier Gain, or

Corrected = Antenna Factor + Cable Loss + Insertion loss of attenuator - Amplifier Gain

The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows: Margin = Limit-Result

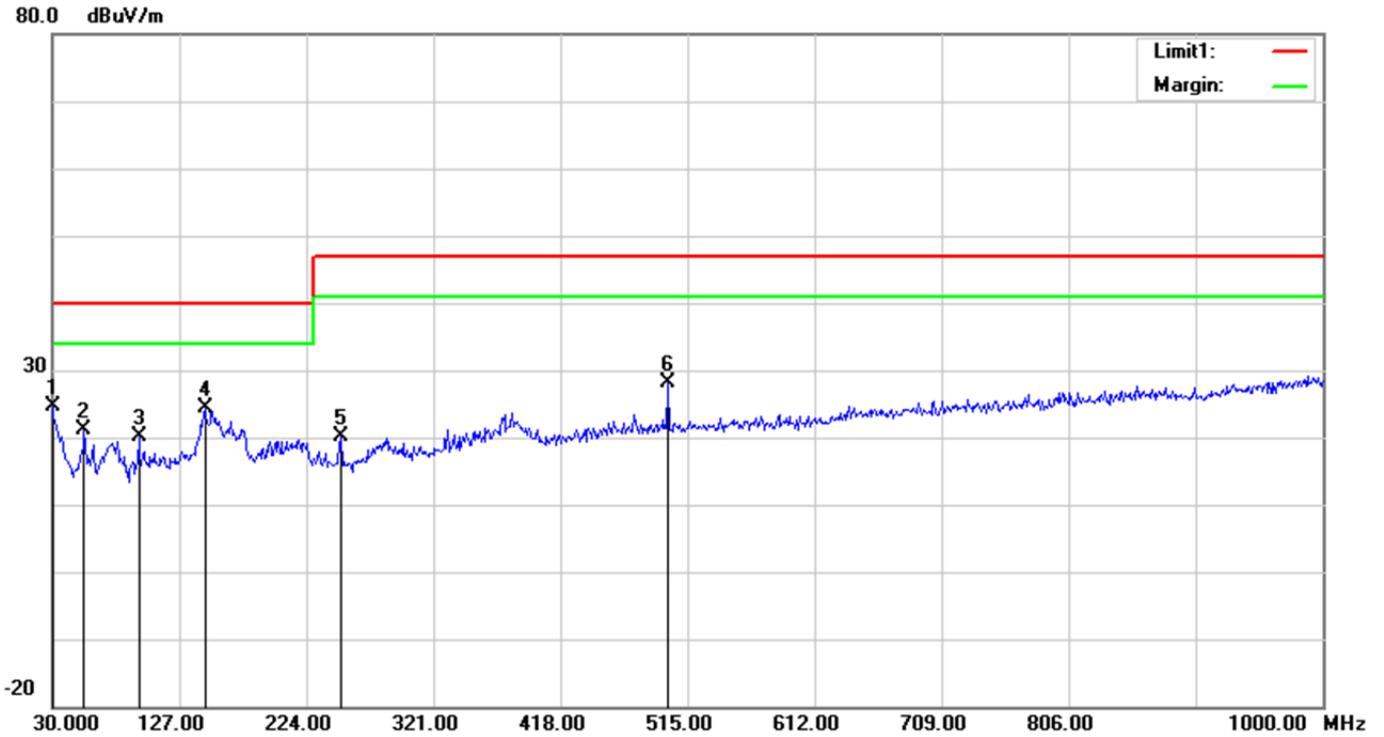
**Test Data**

Please refer to following table and plots:

**Below 1G**

**Condition:** EN 301 489 Class B 3m Radiation  
**Test Mode:** Operating  
**Note:**

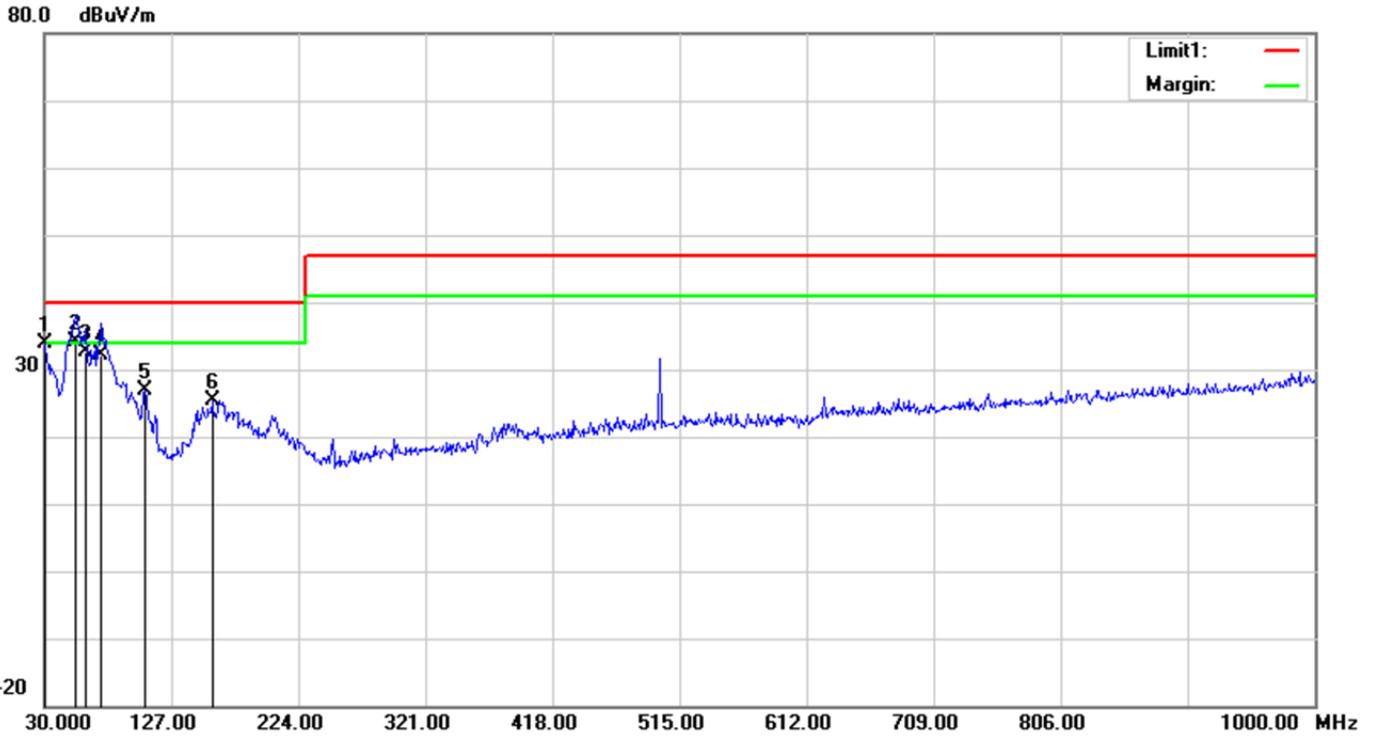
**Polarization:** Horizontal  
**Power:** AC 110V/60Hz  
**Distance:** 3m



No.	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
	(MHz)	(dBμV)		(dB/m)	(dBμV/m)	(dBμV/m)	(dB)
1	30.0000	27.90	peak	-3.34	24.56	40.00	15.44
2	54.2500	37.85	peak	-16.82	21.03	40.00	18.97
3	95.9600	35.28	peak	-15.14	20.14	40.00	19.86
4	146.4000	35.92	peak	-11.61	24.31	40.00	15.69
5	250.1900	32.44	peak	-12.23	20.21	47.00	26.79
6	500.4500	33.70	peak	-5.50	28.20	47.00	18.80

**Condition:** EN 301 489 Class B 3m Radiation  
**Test Mode:** Operating  
**Note:**

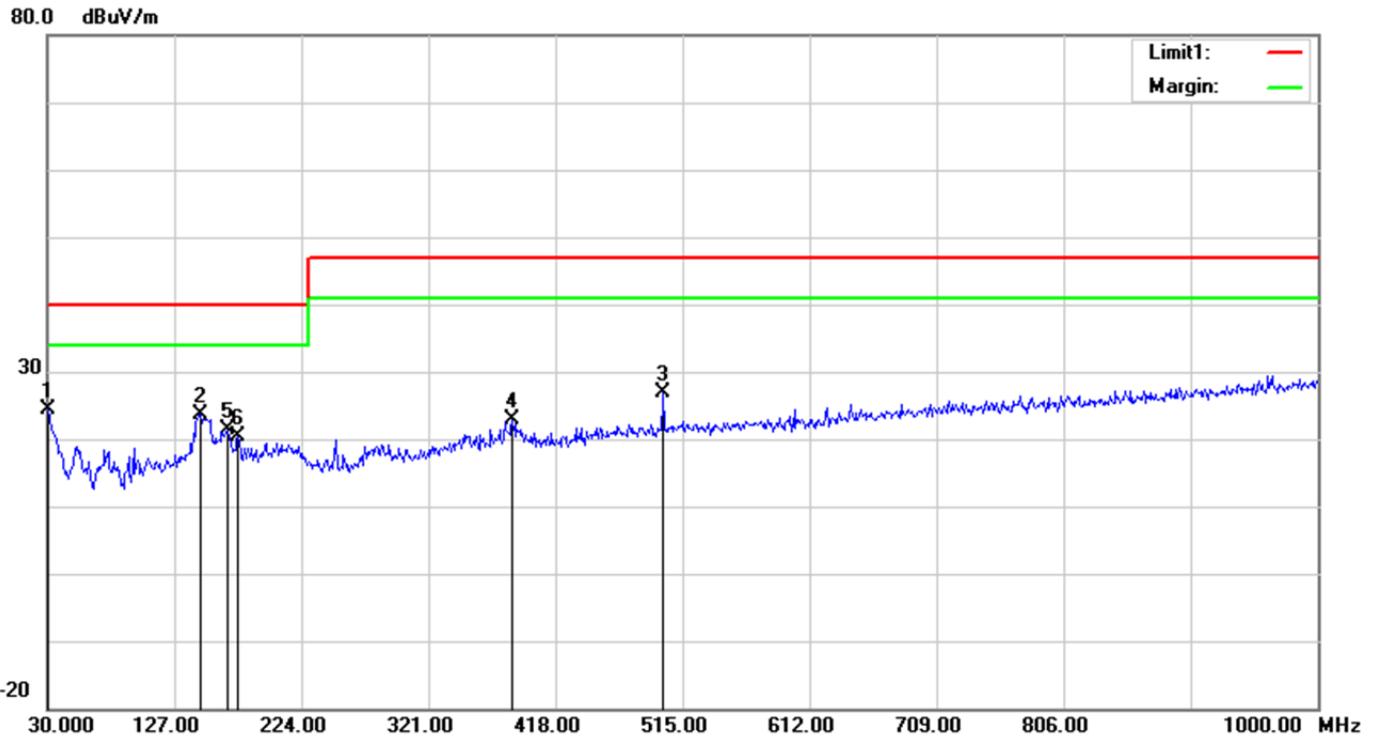
**Polarization:** Vertical  
**Power:** AC 110V/60Hz  
**Distance:** 3m



No.	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
	(MHz)	(dBμV)		(dB/m)	(dBμV/m)	(dBμV/m)	(dB)
1	30.0000	37.19	peak	-3.34	33.85	40.00	6.15
2	54.2500	50.85	QP	-16.82	34.03	40.00	5.97
3	61.0400	49.63	QP	-16.92	32.71	40.00	7.29
4	73.6500	48.63	QP	-16.54	32.09	40.00	7.91
5	106.6300	39.29	peak	-12.48	26.81	40.00	13.19
6	158.0400	37.57	peak	-12.08	25.49	40.00	14.51

**Condition:** EN 301 489 Class B 3m Radiation  
**Test Mode:** Operating  
**Note:**

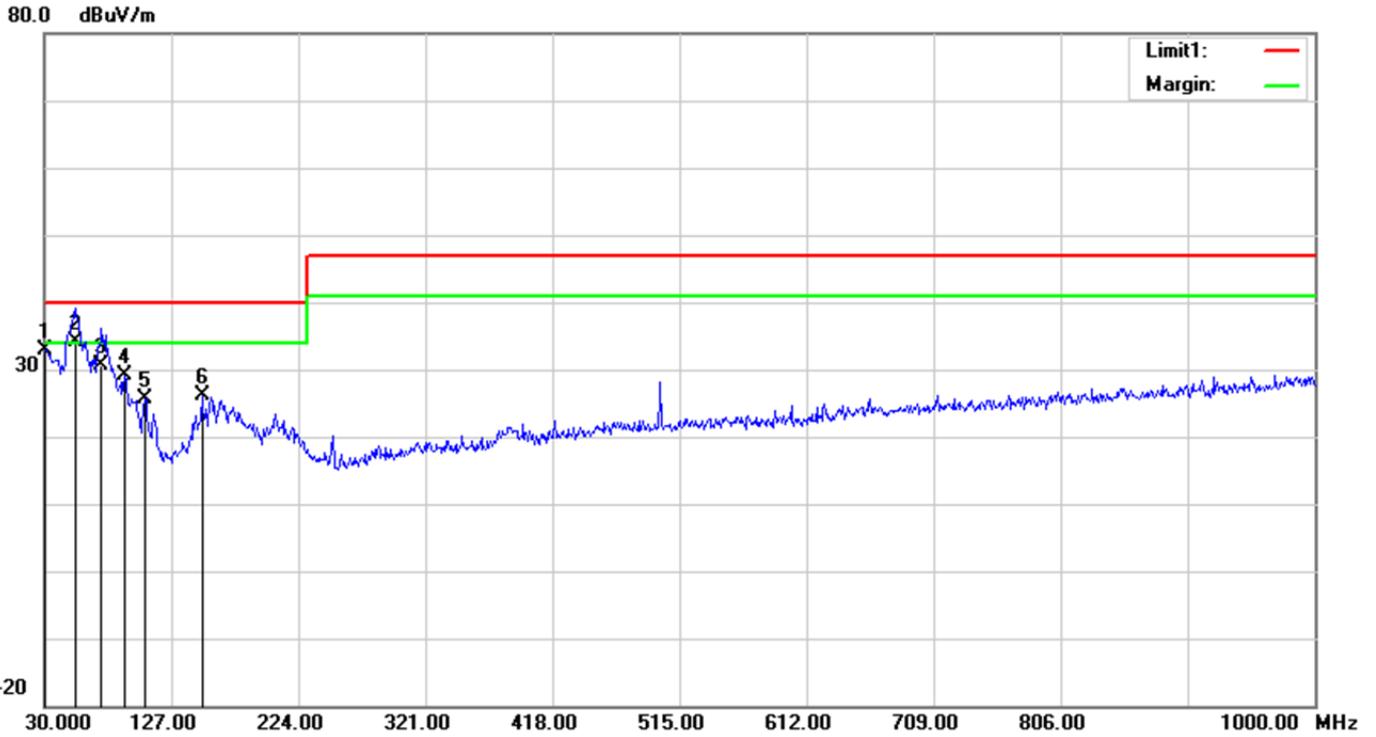
**Polarization:** Horizontal  
**Power:** AC 230V/50Hz  
**Distance:** 3m



No.	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
	(MHz)	(dBμV)		(dB/m)	(dBμV/m)	(dBμV/m)	(dB)
1	30.9700	28.38	peak	-4.02	24.36	40.00	15.64
2	146.4000	35.31	peak	-11.61	23.70	40.00	16.30
3	500.4500	32.42	peak	-5.50	26.92	47.00	20.08
4	385.0200	31.28	peak	-8.50	22.78	47.00	24.22
5	167.7400	34.02	peak	-12.62	21.40	40.00	18.60
6	175.5000	33.44	peak	-13.03	20.41	40.00	19.59

**Condition:** EN 301 489 Class B 3m Radiation  
**Test Mode:** Operating  
**Note:**

**Polarization:** Vertical  
**Power:** AC 230V/50Hz  
**Distance:** 3m

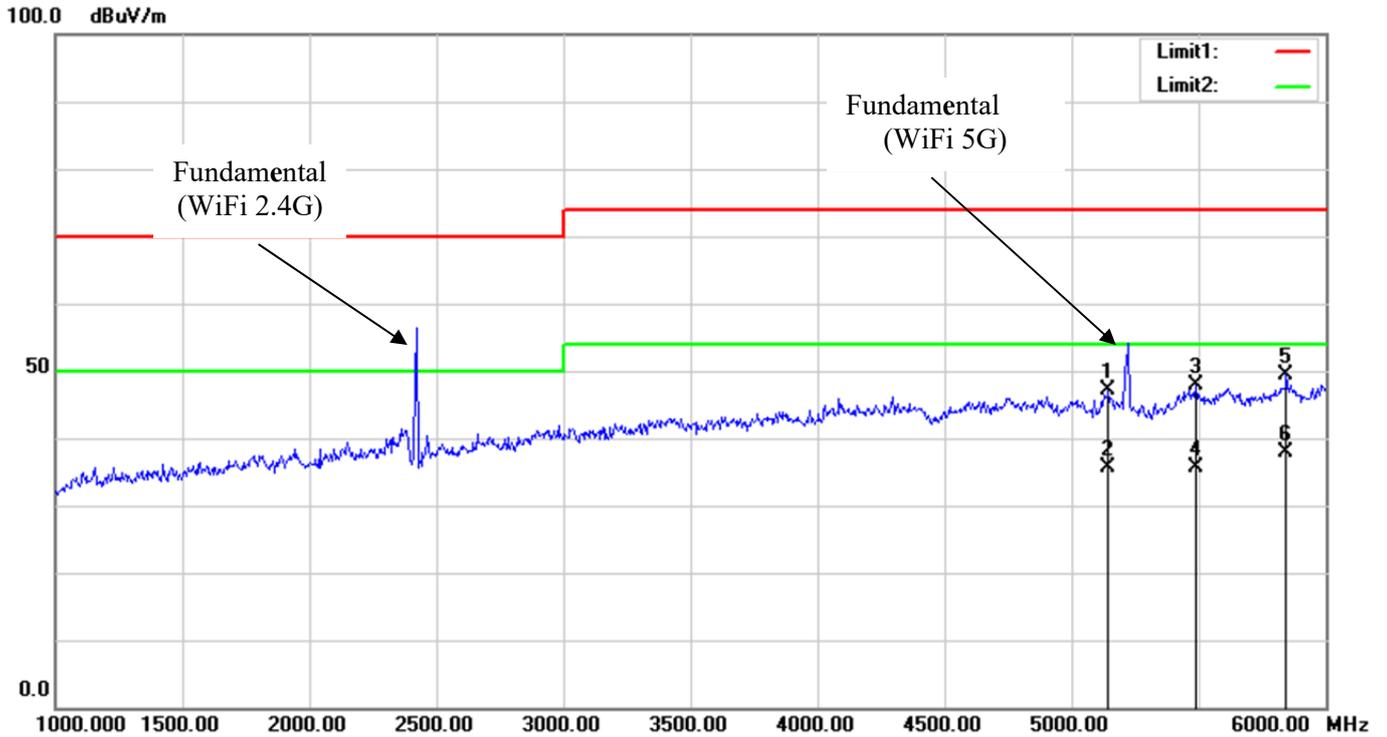


No.	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
	(MHz)	(dBμV)		(dB/m)	(dBμV/m)	(dBμV/m)	(dB)
1	30.0000	36.30	peak	-3.34	32.96	40.00	7.04
2	53.2800	50.86	QP	-16.80	34.06	40.00	5.94
3	73.6500	47.22	QP	-16.54	30.68	40.00	9.32
4	91.1100	45.45	peak	-16.40	29.05	40.00	10.95
5	106.6300	38.23	peak	-12.48	25.75	40.00	14.25
6	150.2800	37.91	peak	-11.79	26.12	40.00	13.88

**Above 1G**

**Condition:** EN 301 489 Class B  
**Test Mode:** Operating  
**Note:**

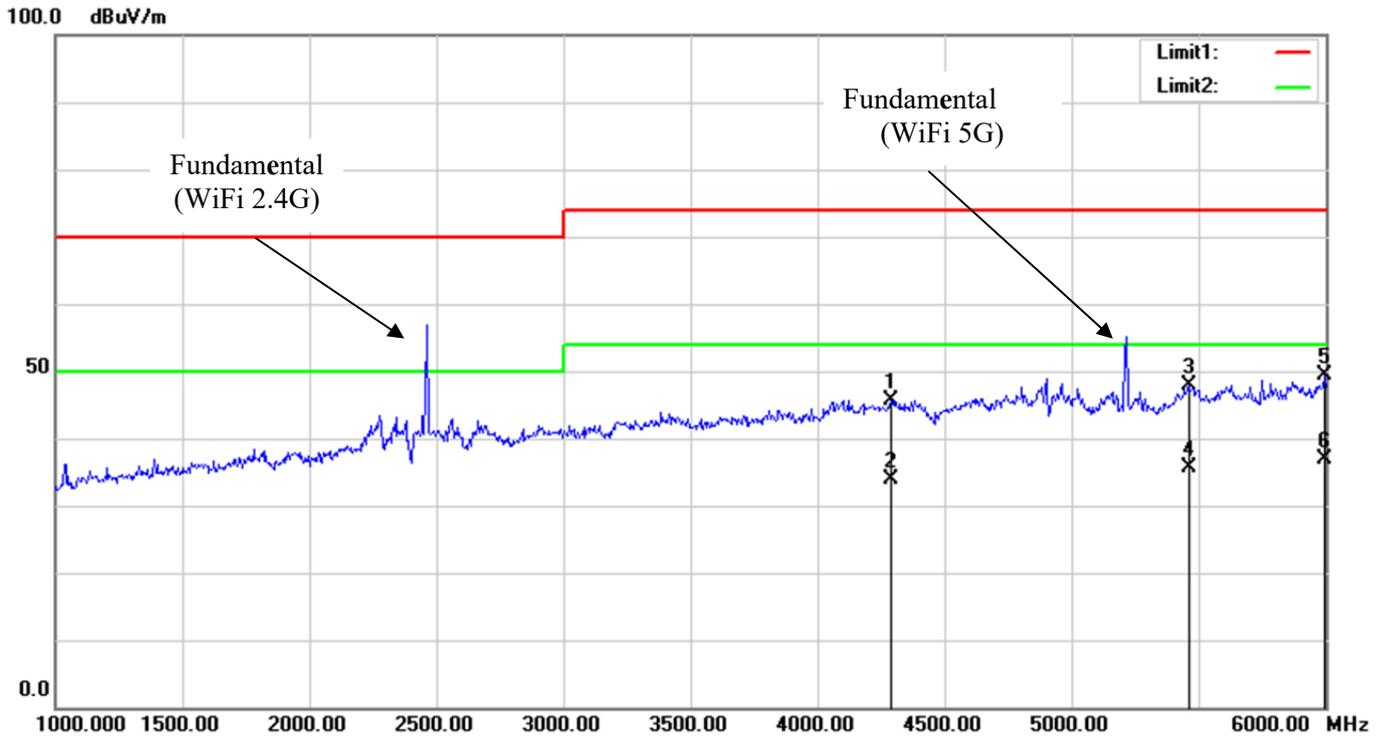
**Polarization:** Horizontal  
**Power:** AC 110V/60Hz  
**Distance:** 3m



No.	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
	(MHz)	(dBμV)		(dB/m)	(dBμV/m)	(dBμV/m)	(dB)
1	5145.000	49.22	peak	-2.07	47.15	74.00	26.85
2	5145.000	37.64	AVG	-2.07	35.57	54.00	18.43
3	5492.500	48.88	peak	-0.99	47.89	74.00	26.11
4	5492.500	36.51	AVG	-0.99	35.52	54.00	18.48
5	5847.500	49.32	peak	0.18	49.50	74.00	24.50
6	5847.500	37.62	AVG	0.18	37.80	54.00	16.20

**Condition:** EN 301 489 Class B  
**Test Mode:** Operating  
**Note:**

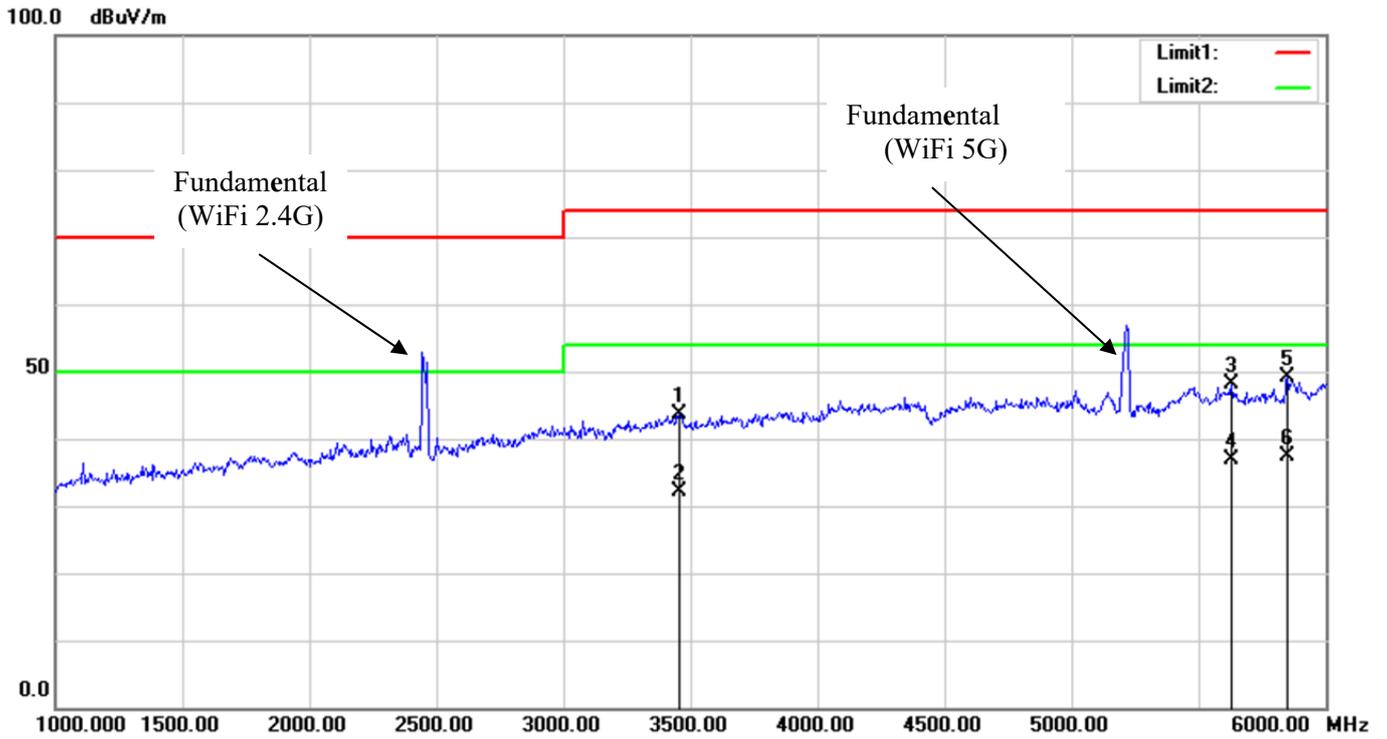
**Polarization:** Vertical  
**Power:** AC 110V/60Hz  
**Distance:** 3m



No.	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
	(MHz)	(dBμV)		(dB/m)	(dBμV/m)	(dBμV/m)	(dB)
1	4292.500	49.41	peak	-3.79	45.62	74.00	28.38
2	4292.500	37.62	AVG	-3.79	33.83	54.00	20.17
3	5462.500	48.72	peak	-0.84	47.88	74.00	26.12
4	5462.500	36.41	AVG	-0.84	35.57	54.00	18.43
5	5995.000	49.67	peak	-0.40	49.27	74.00	24.73
6	5995.000	37.26	AVG	-0.40	36.86	54.00	17.14

**Condition:** EN 301 489 Class B  
**Test Mode:** Operating  
**Note:**

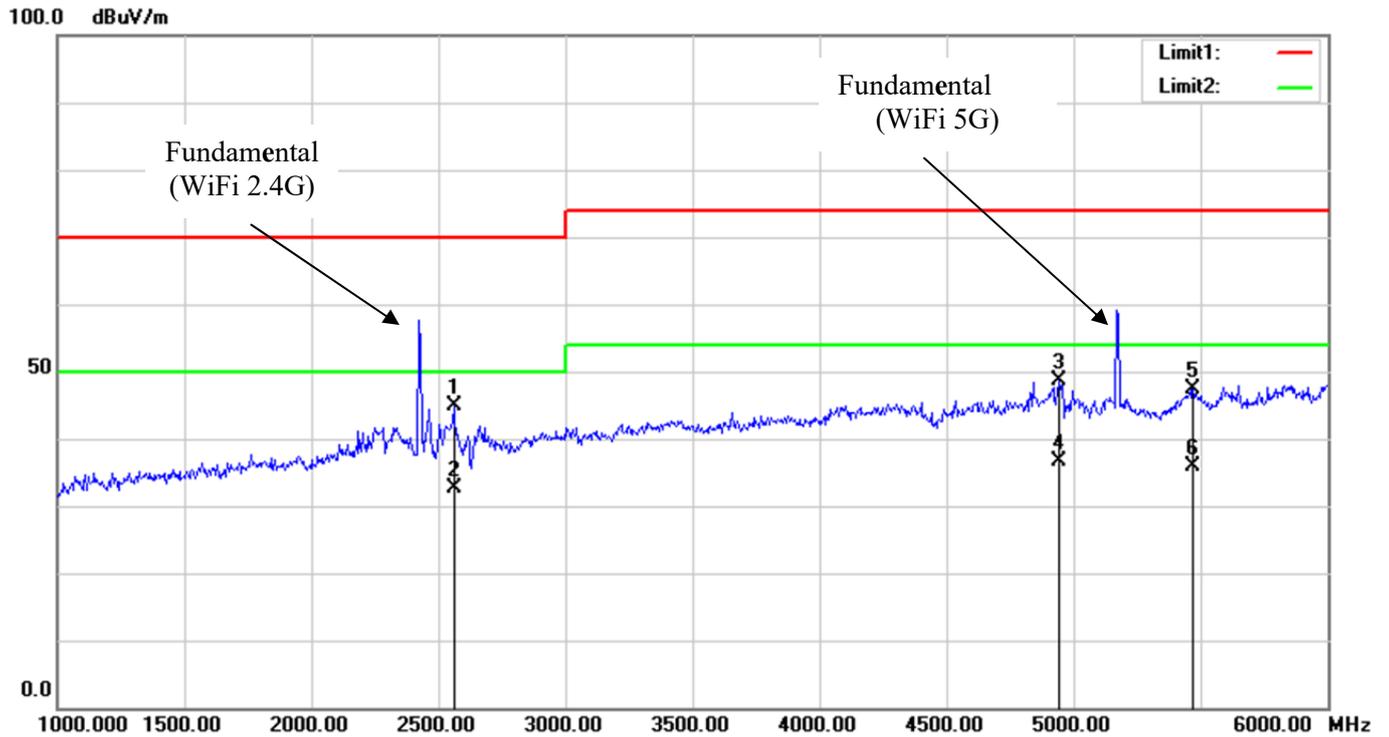
**Polarization:** Horizontal  
**Power:** AC 230V/50Hz  
**Distance:** 3m



No.	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
	(MHz)	(dBμV)		(dB/m)	(dBμV/m)	(dBμV/m)	(dB)
1	3455.000	49.31	peak	-5.75	43.56	74.00	30.44
2	3455.000	37.80	AVG	-5.75	32.05	54.00	21.95
3	5632.500	49.02	peak	-0.83	48.19	74.00	25.81
4	5632.500	37.62	AVG	-0.83	36.79	54.00	17.21
5	5850.000	49.00	peak	0.21	49.21	74.00	24.79
6	5850.000	37.20	AVG	0.21	37.41	54.00	16.59

**Condition:** EN 301 489 Class B  
**Test Mode:** Operating  
**Note:**

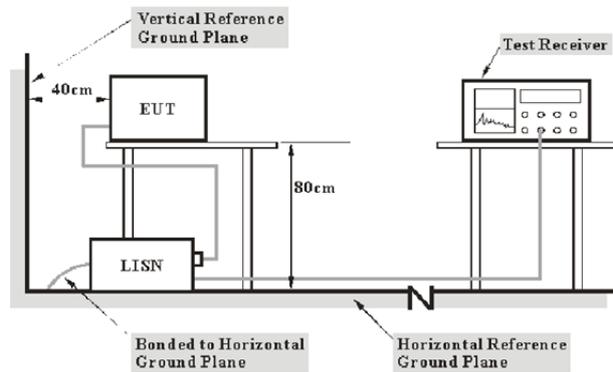
**Polarization:** Vertical  
**Power:** AC 230V/50Hz  
**Distance:** 3m



No.	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
	(MHz)	(dB $\mu$ V)		(dB/m)	(dB $\mu$ V/m)	(dB $\mu$ V/m)	(dB)
1	2560.000	54.86	peak	-9.91	44.95	70.00	25.05
2	2560.000	42.62	AVG	-9.91	32.71	50.00	17.29
3	4945.000	52.10	peak	-3.40	48.70	74.00	25.30
4	4945.000	40.10	AVG	-3.40	36.70	54.00	17.30
5	5470.000	48.33	peak	-0.88	47.45	74.00	26.55
6	5470.000	36.85	AVG	-0.88	35.97	54.00	18.03

### 3 - AC MAINS POWER INPUT/OUTPUT PORTS

#### Test System 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 EN 301 489-1 measurement procedures. The specification used was with the EN 301 489-1 limits.

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

The spacing between the peripherals was 10cm.

The adapter was connected to AC230V/50Hz power source.

#### EMI Test Receiver Setup

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

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

#### Test Procedure

During the conducted emissions test, the adapter was connected to the main 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.

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

#### Corrected Amplitude & Margin Calculation

The basic equation is as follows: Result (QuasiPeak or Average) = Meter Reading + Corr.

Note:

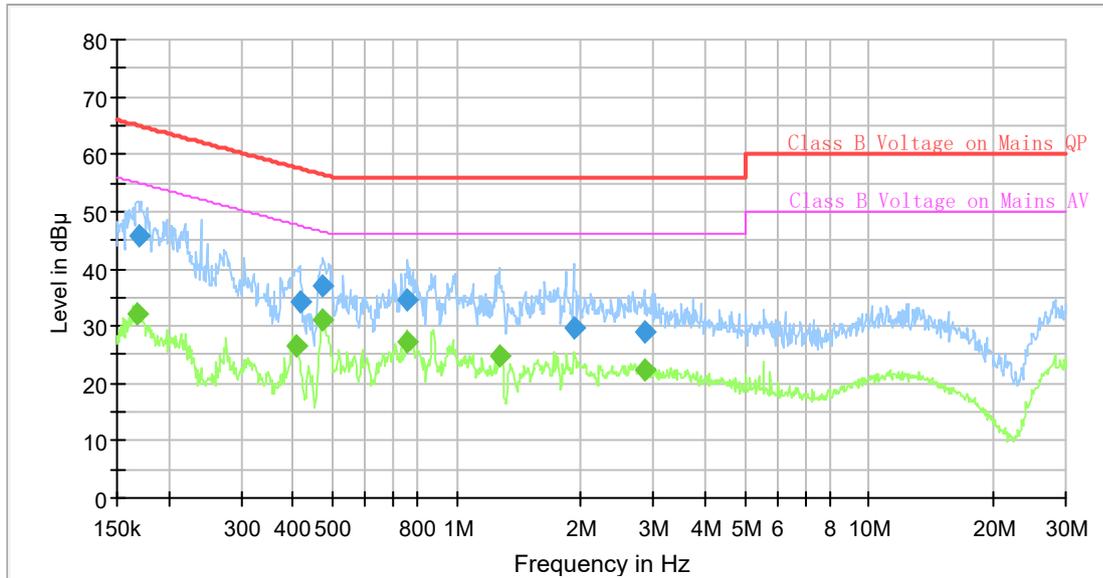
Corr. = Cable loss + Factor of coupling device

The “Margin” column of the following data tables indicates the degree of compliance within the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows: Margin = Limit -Result

**Test Data**

Please refer to following table and plots:

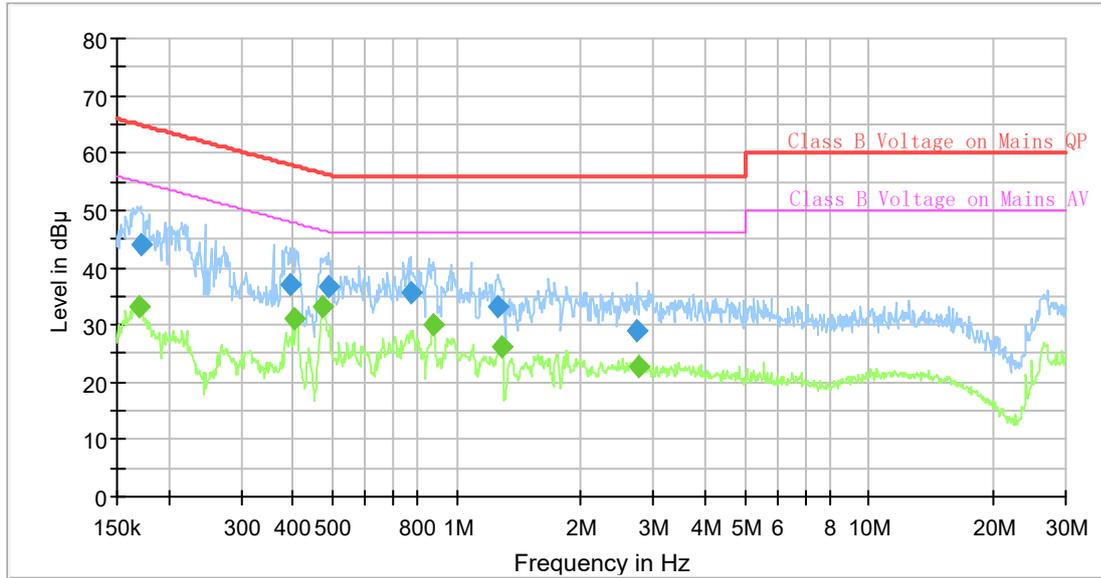
Port: L  
 Test Mode: Operating  
 Power Source: AC 110V/60Hz  
 Note:



**Final Result**

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Bandwidth (kHz)	Line	Corr. (dB)
0.167396	---	32.24	55.09	22.85	9.000	L1	9.6
0.169074	45.77	---	65.01	19.24	9.000	L1	9.6
0.408761	---	26.69	47.67	20.98	9.000	L1	9.6
0.416998	34.20	---	57.51	23.31	9.000	L1	9.6
0.474735	37.13	---	56.43	19.30	9.000	L1	9.6
0.474735	---	31.10	46.43	15.33	9.000	L1	9.6
0.754910	---	27.34	46.00	18.66	9.000	L1	9.7
0.758685	34.54	---	56.00	21.46	9.000	L1	9.7
1.268136	---	24.88	46.00	21.12	9.000	L1	9.7
1.918443	29.72	---	56.00	26.28	9.000	L1	9.7
2.844905	29.15	---	56.00	26.85	9.000	L1	9.7
2.873425	---	22.48	46.00	23.52	9.000	L1	9.7

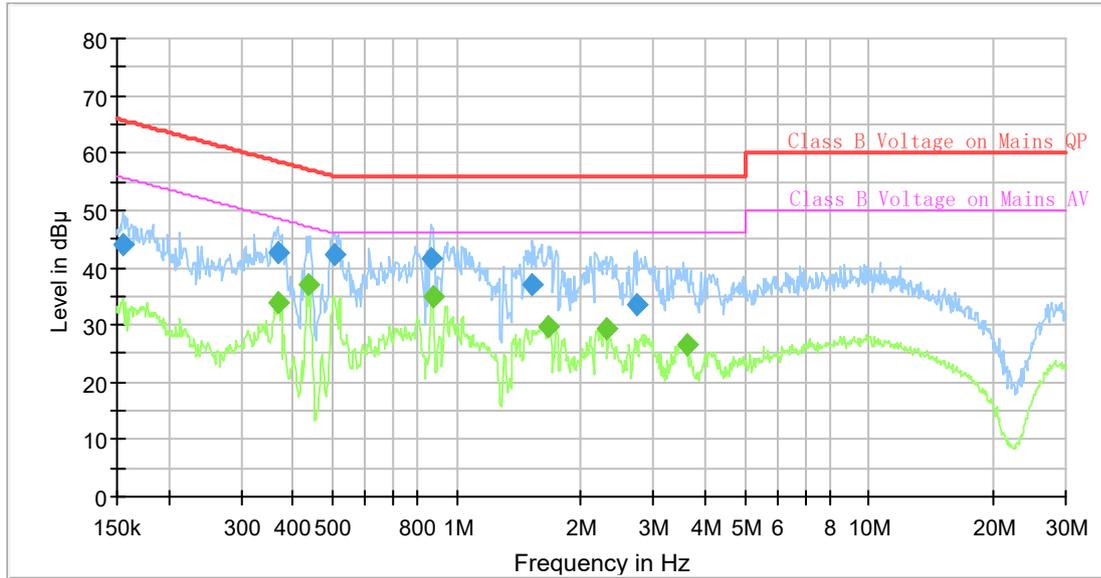
Port: N  
 Test Mode: Operating  
 Power Source: AC 110V/60Hz  
 Note:



**Final Result**

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Bandwidth (kHz)	Line	Corr. (dB)
0.169919	---	33.11	54.96	21.85	9.000	N	9.6
0.171623	44.09	---	64.88	20.79	9.000	N	9.6
0.394736	37.12	---	57.96	20.84	9.000	N	9.6
0.402691	---	30.97	47.80	16.83	9.000	N	9.6
0.472373	---	33.07	46.47	13.40	9.000	N	9.6
0.486723	36.64	---	56.22	19.58	9.000	N	9.6
0.773973	35.70	---	56.00	20.30	9.000	N	9.6
0.872391	---	29.99	46.00	16.01	9.000	N	9.6
1.261826	33.16	---	56.00	22.84	9.000	N	9.6
1.280849	---	26.04	46.00	19.96	9.000	N	9.6
2.747295	29.10	---	56.00	26.90	9.000	N	9.6
2.774836	---	22.74	46.00	23.26	9.000	N	9.6

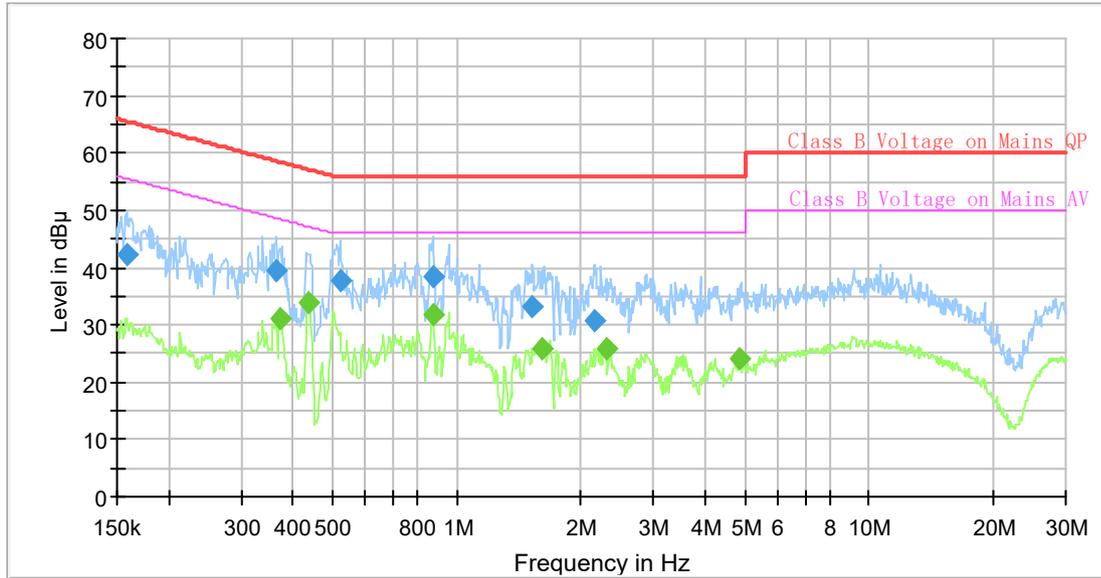
Port: L  
 Test Mode: Operating  
 Power Source: AC 230V/50Hz  
 Note:



### Final Result

Frequency (MHz)	QuasiPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Bandwidth (kHz)	Line	Corr. (dB)
0.155329	44.15	---	65.71	21.56	9.000	L1	9.6
0.368114	---	33.99	48.54	14.55	9.000	L1	9.6
0.368114	42.57	---	58.54	15.97	9.000	L1	9.6
0.438323	---	37.10	47.09	9.99	9.000	L1	9.6
0.504016	42.15	---	56.00	13.85	9.000	L1	9.6
0.863732	41.52	---	56.00	14.48	9.000	L1	9.7
0.872391	---	34.89	46.00	11.11	9.000	L1	9.7
1.525141	37.11	---	56.00	18.89	9.000	L1	9.7
1.668396	---	29.62	46.00	16.38	9.000	L1	9.7
2.295763	---	29.37	46.00	16.63	9.000	L1	9.7
2.747295	33.60	---	56.00	22.40	9.000	L1	9.7
3.614420	---	26.72	46.00	19.28	9.000	L1	9.7

Port: N  
 Test Mode: Operating  
 Power Source: AC 230V/50Hz  
 Note:

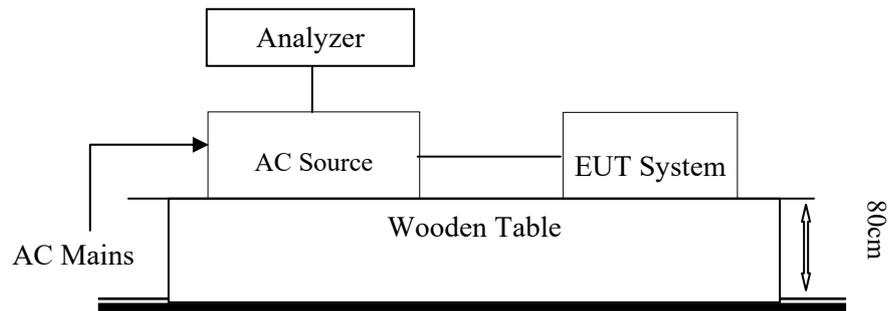


**Final Result**

Frequency (MHz)	QuasiPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Bandwidth (kHz)	Line	Corr. (dB)
0.158459	42.11	---	65.54	23.43	9.000	N	9.6
0.366283	39.51	---	58.58	19.07	9.000	N	9.6
0.373663	---	31.06	48.42	17.36	9.000	N	9.6
0.438323	---	33.77	47.09	13.32	9.000	N	9.6
0.521923	37.57	---	56.00	18.43	9.000	N	9.6
0.872391	---	31.87	46.00	14.13	9.000	N	9.6
0.872391	38.52	---	56.00	17.48	9.000	N	9.6
1.525141	33.22	---	56.00	22.78	9.000	N	9.6
1.619208	---	25.94	46.00	20.06	9.000	N	9.6
2.151633	30.86	---	56.00	25.14	9.000	N	9.6
2.295763	---	25.91	46.00	20.09	9.000	N	9.6
4.875311	---	24.18	46.00	21.82	9.000	N	9.6

## 5 - VOLTAGE FLUCTUATIONS AND FLICKER (AC MAINS INPUT PORT)

### Test System Setup



### Test Standard

EN 61000-3-3:2013+A1:2019+A2:2021

### Flicker Test Limits:

The limits shall be applicable to voltage fluctuations and flicker at the supply terminals of the equipment under test, measured or calculated according to clause 4 under test conditions described in clause 6 and annex A. Tests made to prove compliance with the limits are considered to be type tests.

The following limits apply:

- the value of Pst shall not be greater than 1,0;
- the value of Plt shall not be greater than 0,65;
- the value of d(t) during a voltage change shall not exceed 3,3 % for more than 500 ms;
- the relative steady-state voltage change, dc, shall not exceed 3,3 %;
- the maximum relative voltage change dmax, shall not exceed
  - a) 4 % without additional conditions;
  - b) 6 % for equipment which is:
    - switched manually, or
    - switched automatically more frequently than twice per day, and also has either a delayed restart (the delay being not less than a few tens of seconds), or manual restart, after a power supply interruption.

Note: The cycling frequency will be further limited by the Pst and Plt limit. For example: a dmax of 6 % producing a rectangular voltage change characteristic twice per hour will give a Plt of about 0,65.

- c) 7 % for equipment which is
  - attended whilst in use (for example: hair dryers, vacuum cleaners, kitchen equipment such as mixers, garden equipment such as lawn mowers, portable tools such as electric drills), or
  - switched on automatically, or is intended to be switched on manually, no more than twice per day, and also has either a delayed restart (the delay being not less than a few tens of seconds) or manual restart, after a power supply interruption.

In the case of equipment having several separately controlled circuits in accordance with 6.6, limits b) and c) shall apply only if there is a delayed or manual restart after a power supply interruption; for all equipment with automatic switching which is energized immediately on restoration of supply after a power supply interruption, limits a) shall apply; for all equipment with manual switching, limits b) or c) shall apply depending on the rate of switching. Pst and Plt requirements shall not be applied to voltage changes caused by manual switching. The limits shall not be applied to voltage changes associated with emergency switching or emergency interruptions.

**Test Data**

*Please refer to following tables:*

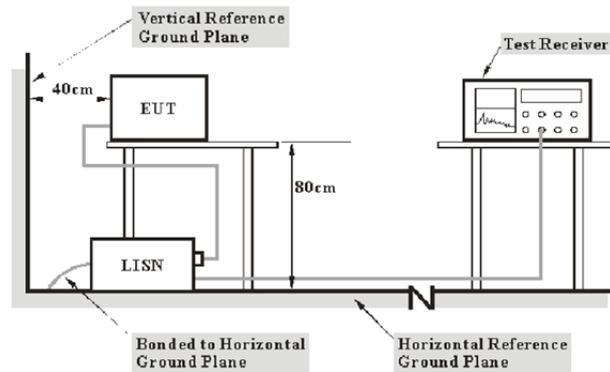
Short time (Pst): 10 min  
 Observation time: 120 min (12 Flicker measurement)  
 Test Mode: Operating  
 Power Source: AC 230V/50Hz  
 Test Result: PASS

**Maximum Flicker results**

	<b>EUT values</b>	<b>Limit</b>	<b>Result</b>
Pst	0.028	1.00	PASS
Plt	0.028	0.65	PASS
dc [%]	0.017	3.30	PASS
dmax [%]	0.421	4.00	PASS
dt [s]	0.000	0.50	PASS

## 6 - WIRED NETWORK PORTS

### Test System Setup



Note: 1. Support units were connected to second LISN.  
 2. Both of LISNs (AMN) 80 cm from EUT and at the least 30 cm from other units and other metal planes support units.

The setup of EUT is according with per EN 301 489-1 measurement procedures. The specification used was with the EN 301 489-1 limits.

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

The spacing between the peripherals was 10cm.

### EMI Test Receiver Setup

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

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

### Test Procedure

During the conducted emissions test, the adapter was connected to the main 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.

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

### Corrected Amplitude & Margin Calculation

The basic equation is as follows: Result (QuasiPeak or Average) = Meter Reading + Corr.

Note:

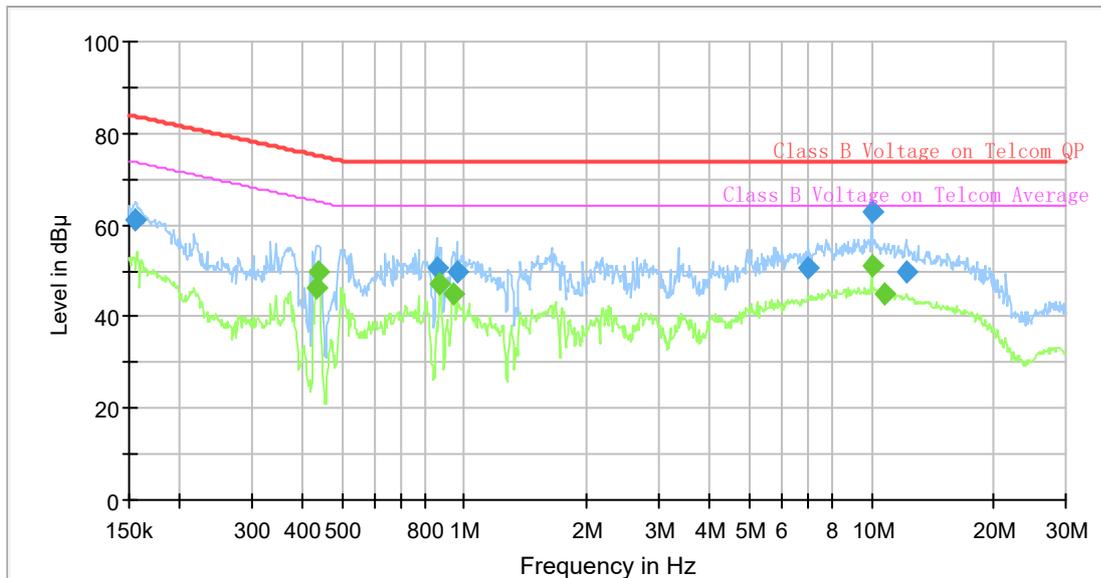
Corr. = Cable loss + Factor of coupling device

The "Margin" column of the following data tables indicates the degree of compliance within the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows: Margin = Limit -Result

### Test Data

Please refer to following table and plots:

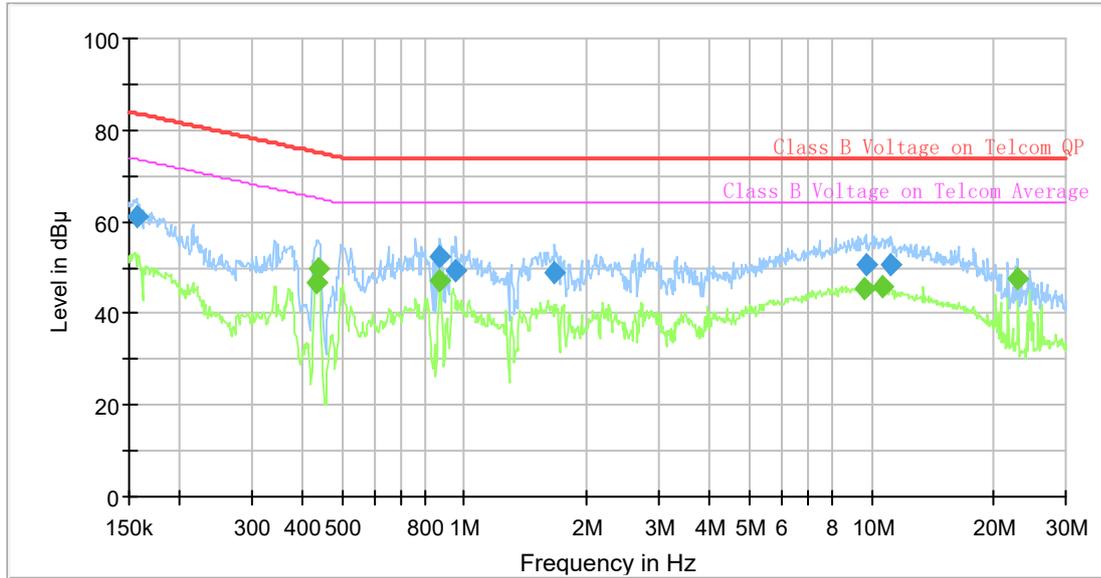
Port: LAN  
 Test Mode: 10Mbps  
 Power Source: AC 230V/50Hz  
 Note:



### Final Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Bandwidth (kHz)	Line	Corr. (dB)
0.155329	61.18	---	83.71	22.53	9.000	Signal	10.2
0.431814	---	46.47	65.22	18.75	9.000	Signal	9.8
0.436143	---	49.97	65.13	15.16	9.000	Signal	9.8
0.855159	50.54	---	74.00	23.46	9.000	Signal	9.7
0.868051	---	47.28	64.00	16.72	9.000	Signal	9.7
0.935483	---	44.79	64.00	19.21	9.000	Signal	9.7
0.959105	49.66	---	74.00	24.34	9.000	Signal	9.7
6.981662	50.57	---	74.00	23.43	9.000	Signal	9.6
9.998049	62.81	---	74.00	11.19	9.000	Signal	9.6
9.998049	---	51.19	64.00	12.81	9.000	Signal	9.6
10.721119	---	45.18	64.00	18.82	9.000	Signal	9.6
12.144836	49.63	---	74.00	24.37	9.000	Signal	9.6

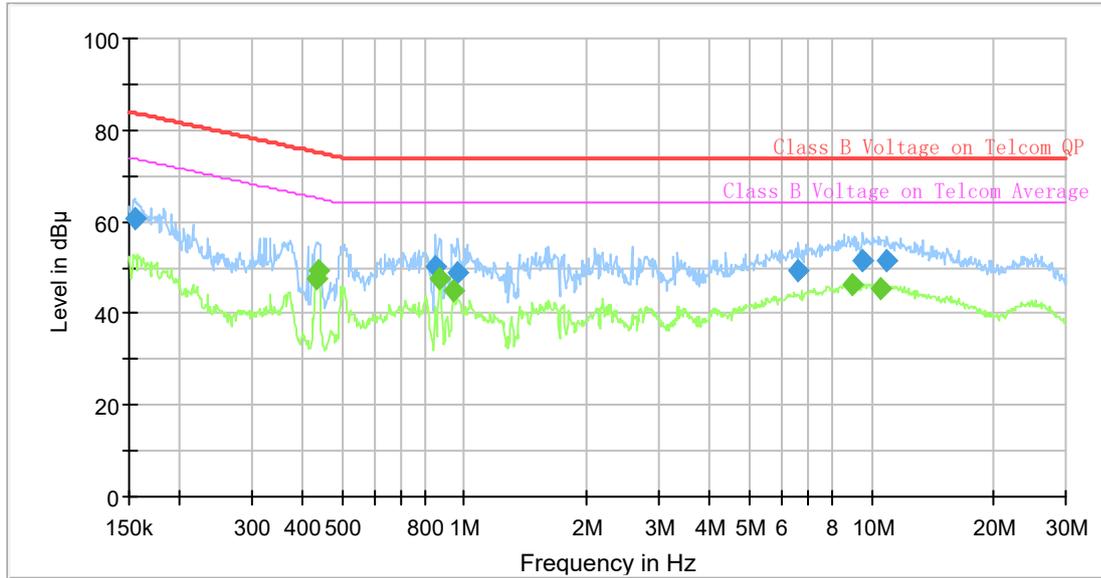
Port: LAN  
 Test Mode: 100Mbps  
 Power Source: AC 230V/50Hz  
 Note:



**Final Result**

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Bandwidth (kHz)	Line	Corr. (dB)
0.156106	61.11	---	83.67	22.56	9.000	Signal	10.2
0.431814	---	46.58	65.22	18.64	9.000	Signal	9.8
0.436143	---	49.82	65.13	15.31	9.000	Signal	9.8
0.868051	52.44	---	74.00	21.56	9.000	Signal	9.7
0.868051	---	47.05	64.00	16.95	9.000	Signal	9.7
0.954334	49.29	---	74.00	24.71	9.000	Signal	9.7
1.668396	49.06	---	74.00	24.94	9.000	Signal	9.6
9.606977	---	45.42	64.00	18.58	9.000	Signal	9.6
9.655012	50.81	---	74.00	23.19	9.000	Signal	9.6
10.614707	---	45.78	64.00	18.22	9.000	Signal	9.6
11.157544	50.71	---	74.00	23.29	9.000	Signal	9.6
22.881343	---	47.76	64.00	16.24	9.000	Signal	9.7

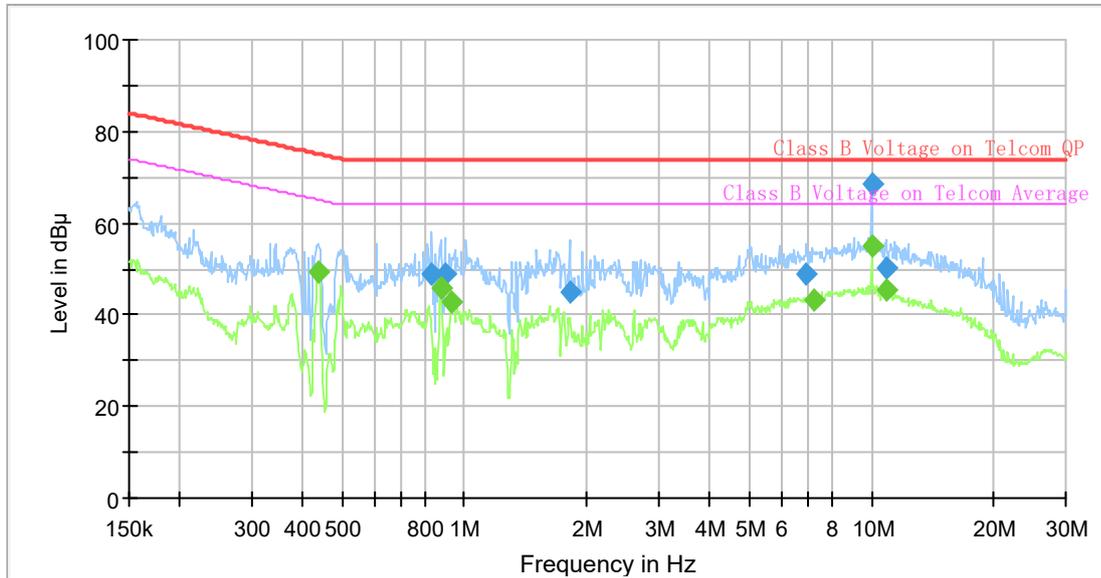
Port: LAN  
 Test Mode: 1000Mbps  
 Power Source: AC 230V/50Hz  
 Note:



**Final Result**

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Bandwidth (kHz)	Line	Corr. (dB)
0.154557	60.69	---	83.75	23.06	9.000	Signal	10.2
0.431814	---	47.48	65.22	17.74	9.000	Signal	9.8
0.436143	---	49.39	65.13	15.74	9.000	Signal	9.8
0.850904	50.17	---	74.00	23.83	9.000	Signal	9.7
0.868051	---	47.49	64.00	16.51	9.000	Signal	9.7
0.940160	---	45.16	64.00	18.84	9.000	Signal	9.7
0.963901	48.84	---	74.00	25.16	9.000	Signal	9.7
6.608945	49.27	---	74.00	24.73	9.000	Signal	9.6
9.003844	---	46.29	64.00	17.71	9.000	Signal	9.6
9.511623	51.58	---	74.00	22.42	9.000	Signal	9.6
10.457065	---	45.57	64.00	18.43	9.000	Signal	9.6
10.937155	51.45	---	74.00	22.55	9.000	Signal	9.6

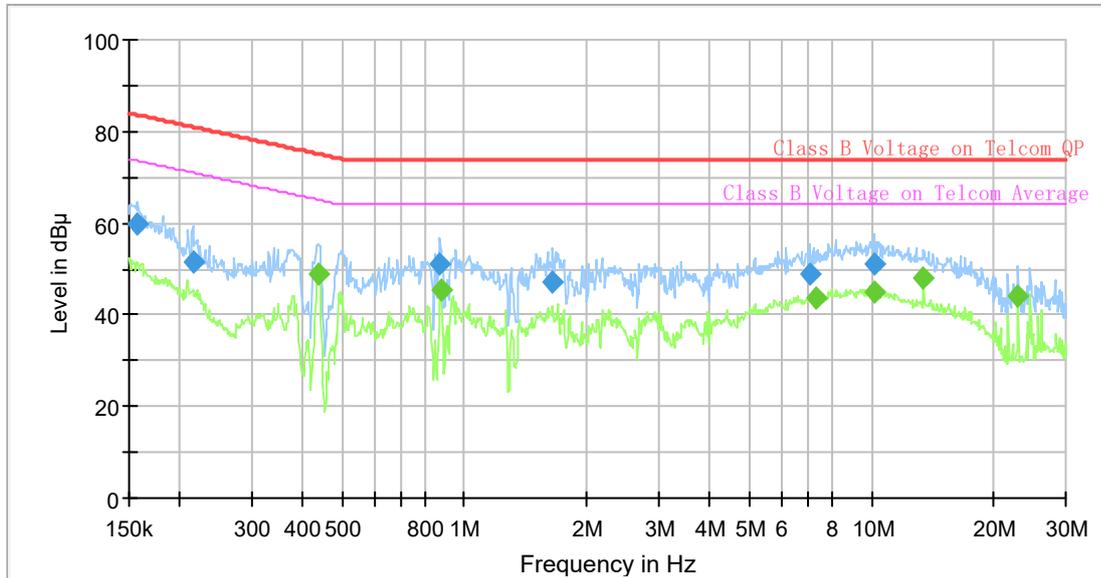
Port: WAN  
 Test Mode: 10Mbps  
 Power Source: AC 230V/50Hz  
 Note:



### Final Result

Frequency (MHz)	QuasiPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Bandwidth (kHz)	Line	Corr. (dB)
0.438323	---	49.26	65.09	15.83	9.000	Signal	9.8
0.829947	49.12	---	74.00	24.88	9.000	Signal	9.7
0.876753	---	45.69	64.00	18.31	9.000	Signal	9.7
0.894420	48.74	---	74.00	25.26	9.000	Signal	9.7
0.930829	---	42.66	64.00	21.34	9.000	Signal	9.7
1.816026	45.19	---	74.00	28.81	9.000	Signal	9.6
6.912365	49.05	---	74.00	24.95	9.000	Signal	9.6
7.193747	---	43.30	64.00	20.70	9.000	Signal	9.6
9.998049	68.50	---	74.00	5.50	9.000	Signal	9.6
9.998049	---	54.88	64.00	9.12	9.000	Signal	9.6
10.882741	50.30	---	74.00	23.70	9.000	Signal	9.6
10.937155	---	45.22	64.00	18.78	9.000	Signal	9.6

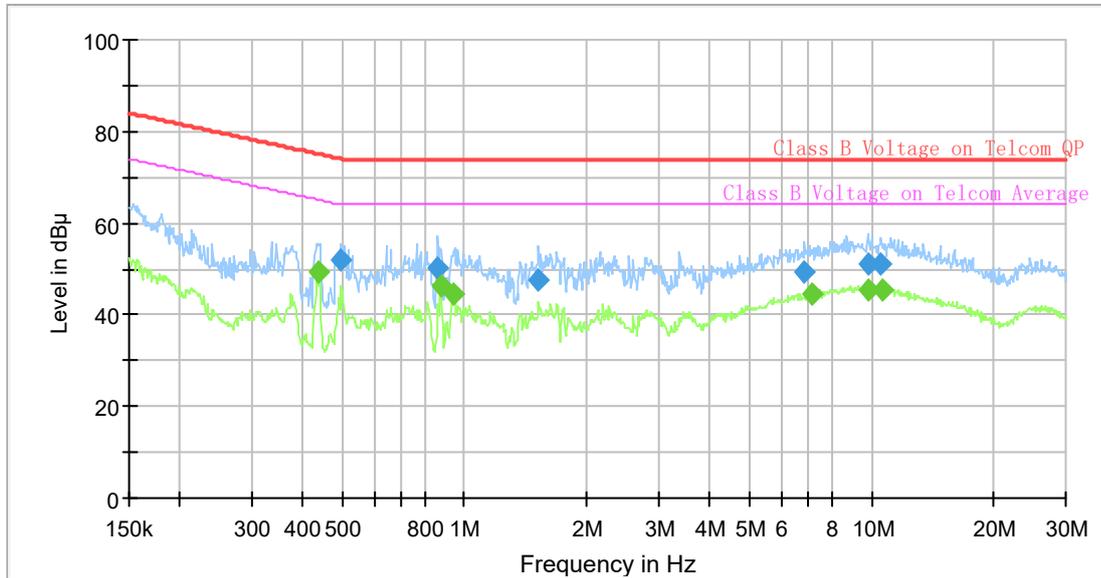
Port: WAN  
 Test Mode: 100Mbps  
 Power Source: AC 230V/50Hz  
 Note:



### Final Result

Frequency (MHz)	QuasiPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Bandwidth (kHz)	Line	Corr. (dB)
0.157671	59.82	---	83.59	23.77	9.000	Signal	10.2
0.214807	51.69	---	81.02	29.33	9.000	Signal	10.0
0.438323	---	49.06	65.09	16.03	9.000	Signal	9.8
0.868051	51.31	---	74.00	22.69	9.000	Signal	9.7
0.876753	---	45.57	64.00	18.43	9.000	Signal	9.7
1.643618	47.25	---	74.00	26.75	9.000	Signal	9.6
7.051653	48.92	---	74.00	25.08	9.000	Signal	9.6
7.265865	---	43.45	64.00	20.55	9.000	Signal	9.6
10.148771	---	45.13	64.00	18.87	9.000	Signal	9.6
10.148771	50.91	---	74.00	23.09	9.000	Signal	9.6
13.418776	---	48.14	64.00	15.86	9.000	Signal	9.6
22.881343	---	44.27	64.00	19.73	9.000	Signal	9.7

Port: WAN  
 Test Mode: 1000Mbps  
 Power Source: AC 230V/50Hz  
 Note:

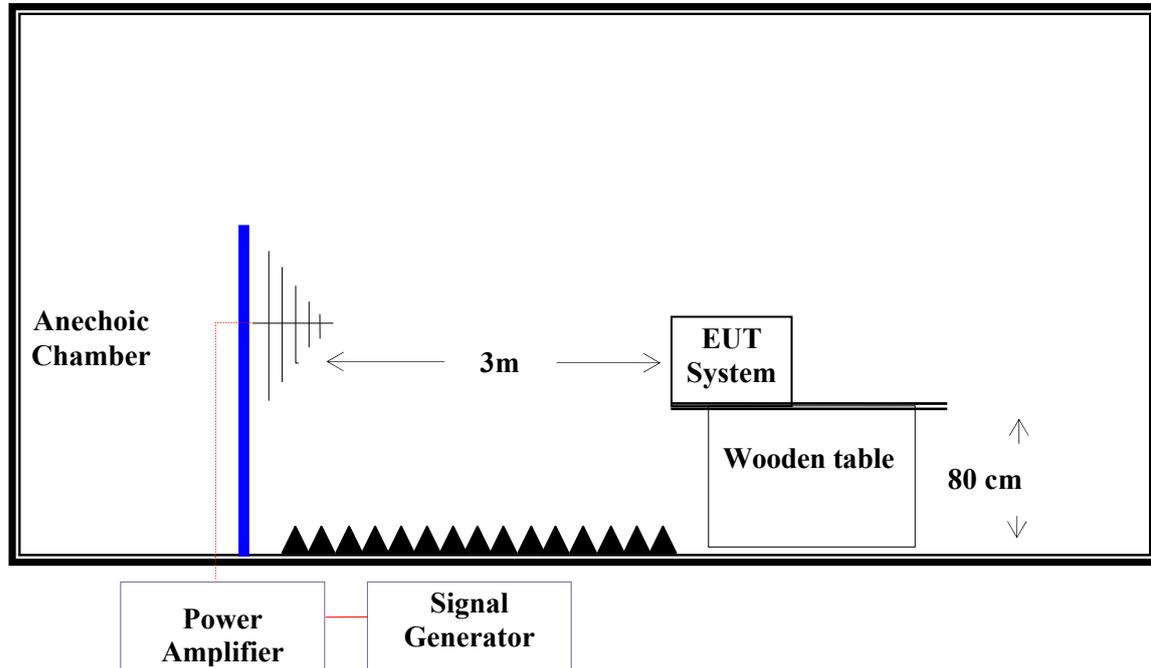


### Final Result

Frequency (MHz)	QuasiPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Bandwidth (kHz)	Line	Corr. (dB)
0.436143	---	49.23	65.13	15.90	9.000	Signal	9.8
0.499013	52.00	---	74.02	22.02	9.000	Signal	9.8
0.859435	50.29	---	74.00	23.71	9.000	Signal	9.7
0.872391	---	46.08	64.00	17.92	9.000	Signal	9.7
0.935483	---	44.54	64.00	19.46	9.000	Signal	9.7
1.517553	47.50	---	74.00	26.50	9.000	Signal	9.6
6.843757	49.43	---	74.00	24.57	9.000	Signal	9.6
7.157958	---	44.49	64.00	19.51	9.000	Signal	9.6
9.800563	51.24	---	74.00	22.76	9.000	Signal	9.6
9.800563	---	45.60	64.00	18.40	9.000	Signal	9.6
10.561897	51.05	---	74.00	22.95	9.000	Signal	9.6
10.667780	---	45.47	64.00	18.53	9.000	Signal	9.6

## 7 - RADIO FREQUENCY ELECTROMAGNETIC FIELDS (80 MHZ TO 6 000 MHZ)

### Test System Setup



### Test Level

Level	Field Strength V/m
1.	1
2.	3
3.	10
X.	Special

### Performance Criterion: A

#### General Performance Criteria:

- The apparatus shall continue to operate as intended during and after the test. The manufacturer specifies some minimum performance level. The performance level may be specified by the manufacture as a permissible loss of performance.
- The apparatus shall continue to operate as intended after the test. This indicates that the EUT does not need to function at normal performance levels during the test, but must recover. Again some minimal performance is defined by the manufacture. No change in operating state or loss or data is permitted.
- Temporary loss of function is allowed. Operation of the EUT may stop as long as it is either automatically reset or can be manually restored by operation of the controls.
- The apparatus is broken, cannot be normal operated.

**Test Procedure**

The EUT and its simulators are placed on a turn table which is 0.8 meter above the ground. The EUT is set 3 meters away from the antenna which is mounted on an antenna tower. Both horizontal and vertical polarizations of the antenna are set on test. Each of the four sides of EUT must be faced this antenna and measured individually.

A CCD camera and a laptop were used to monitor the EUT.

**Test Data**

*Please refer to following tables:*

Condition of Test	Remarks
Field Strength	3 V/m (Test Level 2)
RF Signal	1 kHz, 80% AM, sine wave
Sweep Frequency Step	1%, logarithmic
Dwell Time	1 Sec

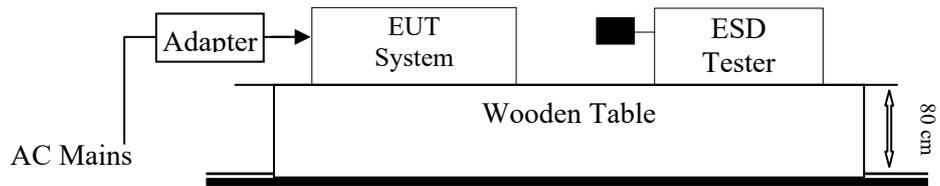
Test Mode: Operating

Frequency Range (MHz)	Front Side		Rear Side		Left Side		Right Side	
	VERT	HORI	VERT	HORI	VERT	HORI	VERT	HORI
80-1000	A	A	A	A	A	A	A	A
1000-6000	A	A	A	A	A	A	A	A

Note: "A" stand for, during test, operate as intended no loss of function, no degradation of performance, no unintentional transmissions and after test, no degradation of performance, no loss of function, no loss of stored data or user programmable functions.

## 8 – ELECTROSTATIC DISCHARGES

### Test System Setup



Remark: ■ is the tip of the electrode

EN61000-4-2 specifies that a tabletop EUT shall be placed on a non-conducting table which is 80 centimeters above a ground reference plane and that floor mounted equipment shall be placed on a insulating support approximately 10 centimeters above a ground plane. During the tests, the EUT is positioned over a ground reference plane in conformance with this requirement.

For tabletop equipment, a 1.6 by 0.8-meter metal sheet (HCP) is placed on the table and connected to the ground plane via a metal strap with two 470 k Ohms resistors in series. The EUT and attached cables are isolated from this metal sheet by 0.5-millimeter thick insulating material. A Vertical Coupling Plane (VCP) grounded on the ground plane through the same configuration as in the HCP is used.

### Test Level

Level	Test Voltage Contact Discharge (±kV)	Test Voltage Air Discharge (±kV)
1.	2	2
2.	4	4
3.	6	8
4.	8	15
X.	Special	Special

Test Level 3 for Air Discharge at ±8 kV

Test Level 2 for Direct Discharge at ±4 kV

### Performance criterion: B

### Test Procedure

#### Air Discharge:

This test is done on a non-conductive surface. The round discharge tip of the discharge electrode shall be approached as fast as possible to touch the EUT. After each discharge, the discharge electrode shall be removed from the EUT.

The generator is then re-triggered for a new single discharge and repeated 10 times for each pre-selected test point.

This procedure shall be repeated until all the air discharge completed.

#### Contact Discharge:

All the procedure shall be same as Section 8.3.1 of EN 61000-4-2, except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

#### Indirect discharge for horizontal coupling plane

At least 50 single discharges shall be applied to the horizontal coupling plane, at points on each side of the EUT. The discharge electrode positions vertically at a distance of 0.1m from the EUT and with the discharge electrode touching the coupling plane.

#### Indirect discharge for vertical coupling plane

At least 50 single discharges shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, is placed parallel to, and positioned at a distance of 0.1m from the EUT.

Discharges shall be applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.

**Test Data**

Please refer to following tables:

**Test Mode: Operating**

**Note:**

**Table 1: Electrostatic Discharge Immunity (Air Discharge)**

Test Points Location	Test Level							
	-2 kV	+2 kV	-4 kV	+4 kV	-8 kV	+8 kV	-15 kV	+15 kV
Non-metallic Shell	A	A	A	A	A	A	/	/
RJ45 Port	A	A	A	A	A	A	/	/
DC Port	A	A	A	A	A	A	/	/
Seam	A	A	A	A	A	A	/	/
Antenna	A	A	A	A	A	A	/	/
Button	A	A	A	A	A	A	/	/
Adapter	A	A	A	A	A	A	/	/

**Table 2: Electrostatic Discharge Immunity (Direct Contact)**

Test Points Location	Test Level							
	-2 kV	+2 kV	-4 kV	+4 kV	-6 kV	+6 kV	-8 kV	+8 kV
/	/	/	/	/	/	/	/	/

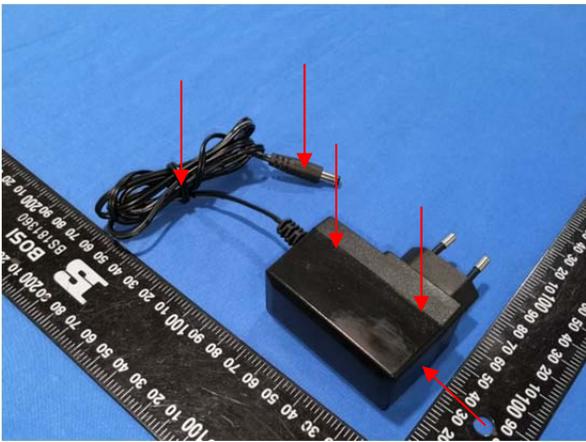
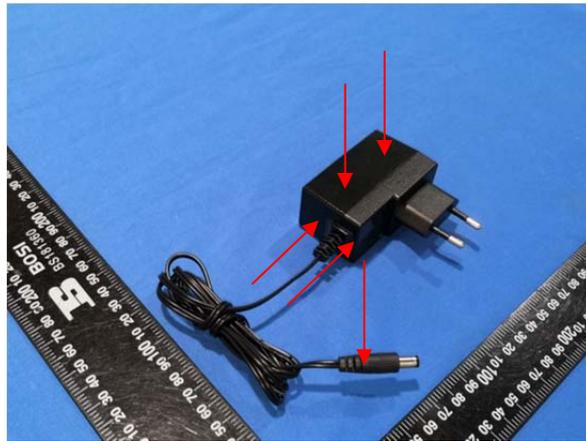
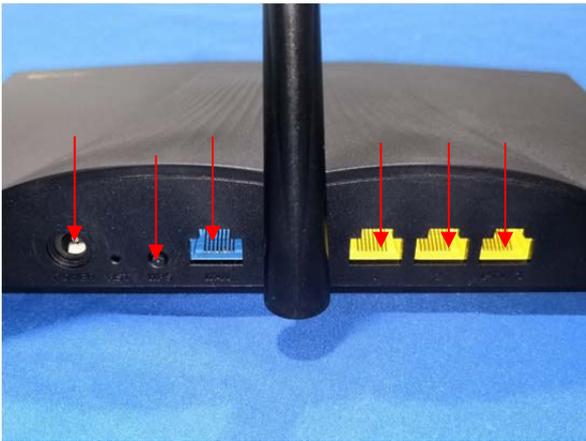
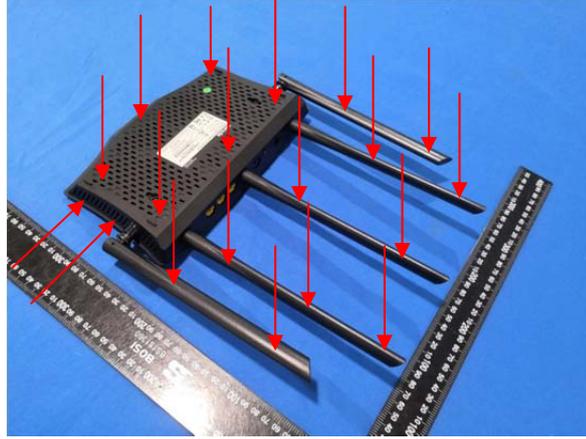
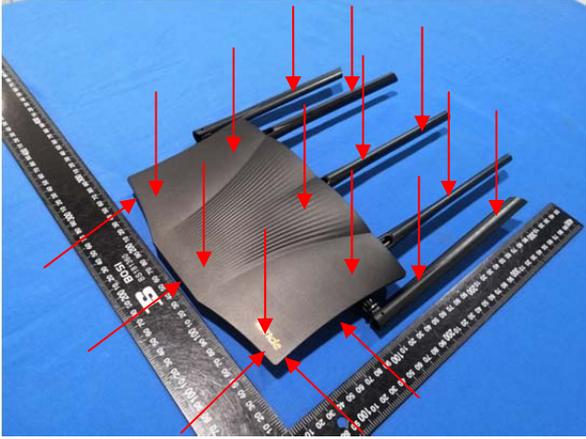
**Table 3: Electrostatic Discharge Immunity (Indirect Contact HCP)**

Test Points Location	Test Level							
	-2 kV	+2 kV	-4 kV	+4 kV	-6 kV	+6 kV	-8 kV	+8 kV
Front Side	A	A	A	A	/	/	/	/
Back Side	A	A	A	A	/	/	/	/
Left Side	A	A	A	A	/	/	/	/
Right Side	A	A	A	A	/	/	/	/

**Table 4: Electrostatic Discharge Immunity (Indirect Contact VCP)**

Test Points Location	Test Level							
	-2 kV	+2 kV	-4 kV	+4 kV	-6 kV	+6 kV	-8 kV	+8 kV
Front Side	A	A	A	A	/	/	/	/
Back Side	A	A	A	A	/	/	/	/
Left Side	A	A	A	A	/	/	/	/
Right Side	A	A	A	A	/	/	/	/

ESD Location Photo



Air Discharge:

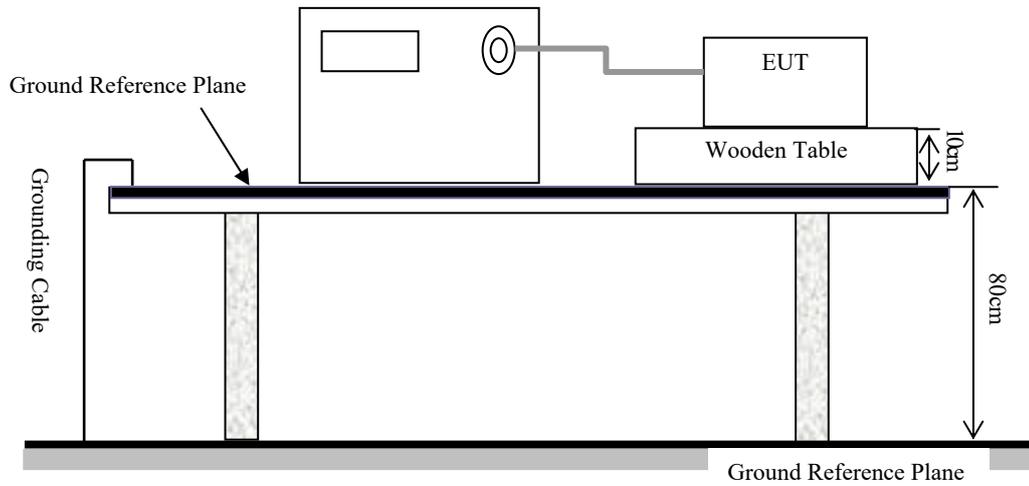


Direct Contact:



## 9 - FAST TRANSIENTS, COMMON MODE

### Test System Setup



### Test Level

Open Circuit Output Test Voltage $\pm 10\%$		
Level	On Power Supply Lines	On I/O (Input/Output) Signal data and control lines
1	0.5 kV	0.25 kV
2	1 kV	0.5 kV
3	2 kV	1 kV
4	4 kV	2 kV
X	Special	Special

### Performance Criterion: B

### Test Procedure

The EUT was arranged for Power Line Coupling and for I/O Line Coupling through a capacitive clamp, where applicable. (Note: The I/O coupling test using a capacitive clamp is performed on the I/O interface cables that are longer in length than 3 meters.) A metal ground plane 2.4 meter by 2.0 meter was placed between the floor and the table and is connected to the earth by a 2.0 meter ground rod. The ground rod is connected to the test facility's electrical earth.

**Test Data**

*Please refer to following tables:*

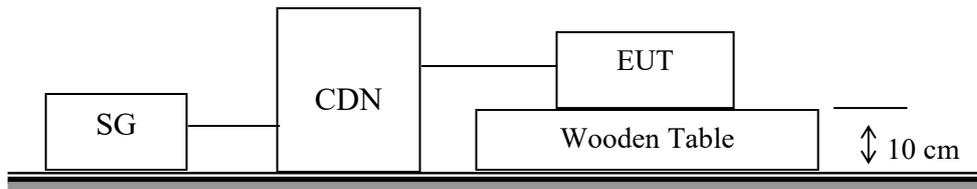
**Test Mode: Operating**

**Note:**

Test Points		Test Level (kV)							
		+0.5	-0.5	+1.0	-1.0	+2.0	-2.0	+4.0	-4.0
AC_mains power input ports	L	A	A	A	A	/	/	/	/
	N	A	A	A	A	/	/	/	/
	Earth	/	/	/	/	/	/	/	/
	L+N	A	A	A	A	/	/	/	/
	L + Earth	/	/	/	/	/	/	/	/
	N + Earth	/	/	/	/	/	/	/	/
	L+N+Earth	/	/	/	/	/	/	/	/
Signal ports	RJ45	A	A	/	/	/	/	/	/

## 10 - RADIO FREQUENCY, COMMON MODE

### Test System Setup



### Test Level

Level	Voltage Level (r.m.s.) ( $U_0$ )
1	1
2	3
3	10
X	Special

### Performance Criterion: A

### Test Procedure

- 1) Let the EUT work in test mode and test it.
- 2) The EUT are placed on an insulating support 0.1 m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane about 0.3 m from EUT. Cables between CDN and EUT are as short as possible, and their height above the ground reference plane shall be between 30 and 50 mm (where possible).
- 3) The disturbance signal described below is injected to EUT through CDN.
- 4) The EUT operates within its operational mode(s) under intended climatic conditions after power on.
- 5) The frequency range is swept from 150 kHz to 80 MHz using 3V signal level, and with the disturbance signal 80% amplitude modulated with a 1 kHz sine wave.
- 6) Where the frequency is swept incrementally, the step size shall not exceed 1 % of the preceding frequency value. The dwell time of the amplitude modulated carrier at each frequency shall not be less than the time necessary for the EUT to be exercised and to respond, but shall in no case be less than 0.5 s.
- 7) Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion.

**Test Data**

Please refer to following tables:

**Test Mode: Operating**

**Note:**

**Table 1: AC mains power input port**

Frequency range: 150 kHz to 80 MHz  
 ■ Modulated: Amplitude 80%, 1kHz sine wave    □ Unmodulated    □ Other:  
 Severity Level: 3 V Unmodulated, r.m.s

Level	Voltage Level (e.m.f.) U <sub>0</sub>	Pass	Fail
1	1	/	/
2	3	A	/
3	10	/	/
X	Special	/	/

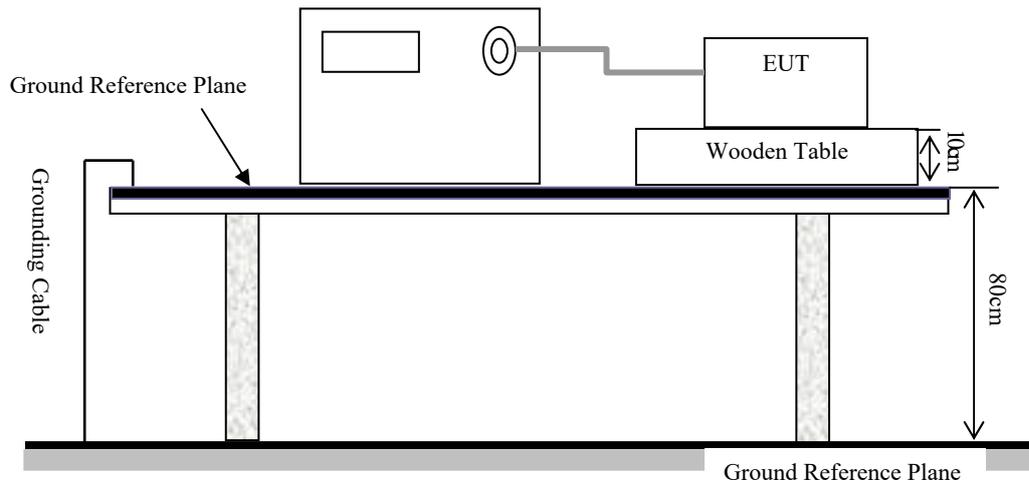
**Table 2: Signal Port : RJ45**

Frequency range: 150 kHz to 80 MHz  
 ■ Modulated: Amplitude 80%, 1kHz sine wave    □ Unmodulated    □ Other:  
 Severity Level: 3 V Unmodulated, r.m.s

Level	Voltage Level (e.m.f.) U <sub>0</sub>	Pass	Fail
1	1	/	/
2	3	A	/
3	10	/	/
X	Special	/	/

## 12 - VOLTAGE DIPS AND SHORT INTERRUPTIONS

### Test System Setup



### Test Level and Performance Criterion

Test Level	Voltage dip and short interruptions (%) Residual	Duration (in period)	Performance criterion
1	0	0.5	B
2	0	1	B
3	70	25	C
4	0	250	C

### Test Procedure

- 1) The interruption is introduced at selected phase angles with specified duration.
- 2) Record any degradation of performance.

### Test Data

Please refer to following tables:

**Test Mode: Operating**

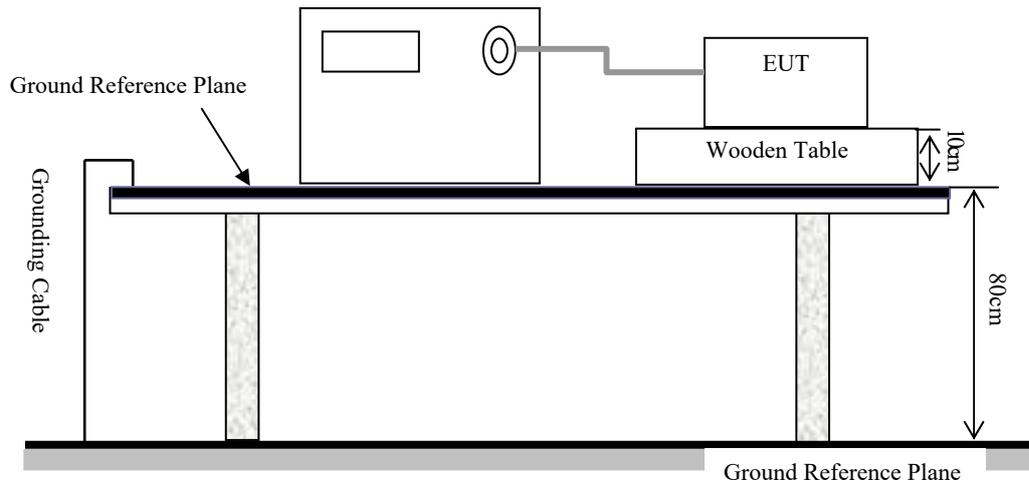
B indicates that the power supply of the EUT was interrupted during the test, and the EUT was restarted. After the test, it can automatically return to normal use.

**Table 1: Voltage Dips/Interruptions Test**

U2 (% Reduction)	Td (Periods)	Phase Angle	N	Result
100	0.5	0/90/180/270	3	A
100	1	0/90/180/270	3	A
30	25	0/90/180/270	3	A
100	250	0/90/180/270	3	B

### 13 - SURGES

#### Test System Setup



#### Test Level

Level	Open Circuit Output Test Voltage ±10%
1	0.5 kV
2	1 kV
3	2 kV
4	4 kV
X	Special

#### Performance Criterion: B

#### Test Procedure

- 1) For line to line coupling mode, provide a 0.5 kV 1.2/50us voltage surge (at open-circuit condition).
- 2) At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are conducted during test.
- 3) Different phase angles are done individually.
- 4) Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

**Test Data**

*Please refer to following tables:*

**Test Mode: Operating**

**Note:**

**Table 1: \_\_\_\_\_ AC \_\_\_\_\_ mains power input port**

Level	Voltage	Poll	Path	Pass	Fail
1	0.5kV	±	Line-Line	A	/
2	1kV	±	Line-Line	A	/
3	2kV	±	/	/	/
4	4kV	±	/	/	/

**Table 2: \_\_\_\_\_ RJ45 \_\_\_\_\_ I/O Circuit and Lines**

Level	Voltage	Poll	Path	Pass	Fail
1	0.5kV	±	Line-Ground	A	/
2	1kV	±	Line-Ground	A	/
3	2kV	±	Line-Ground	/	/

# EXHIBITA - EUT PHOTOGRAPHS

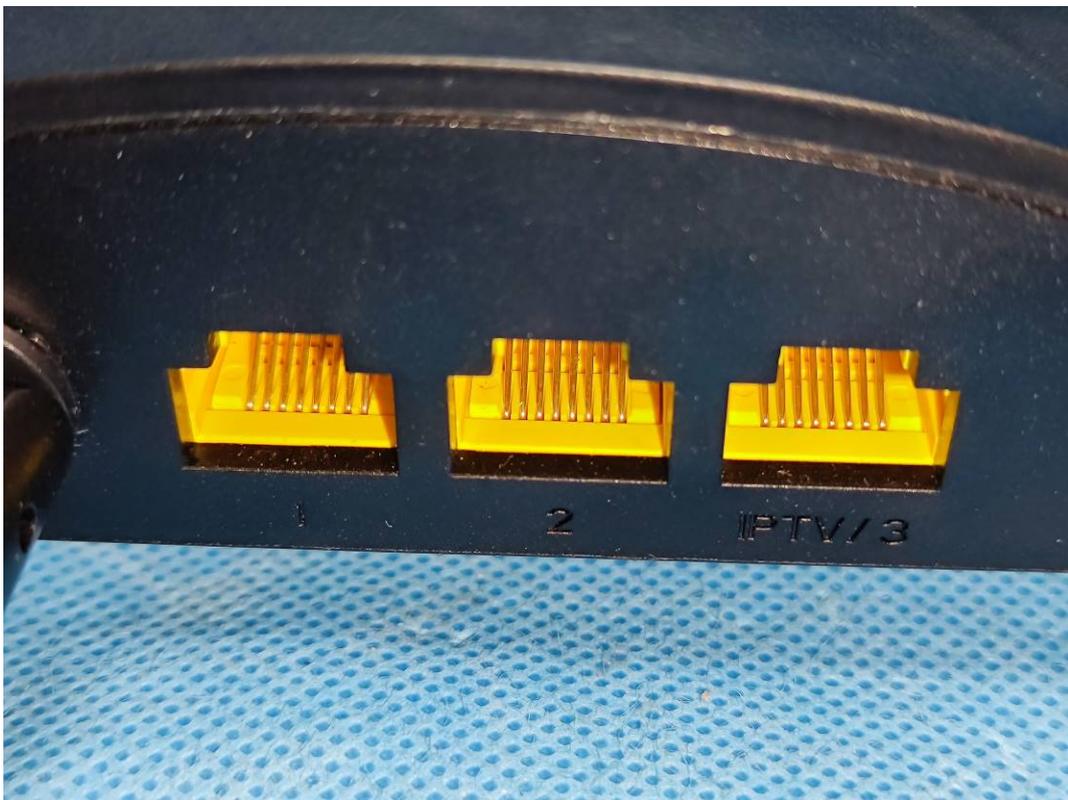
## RX12 Pro



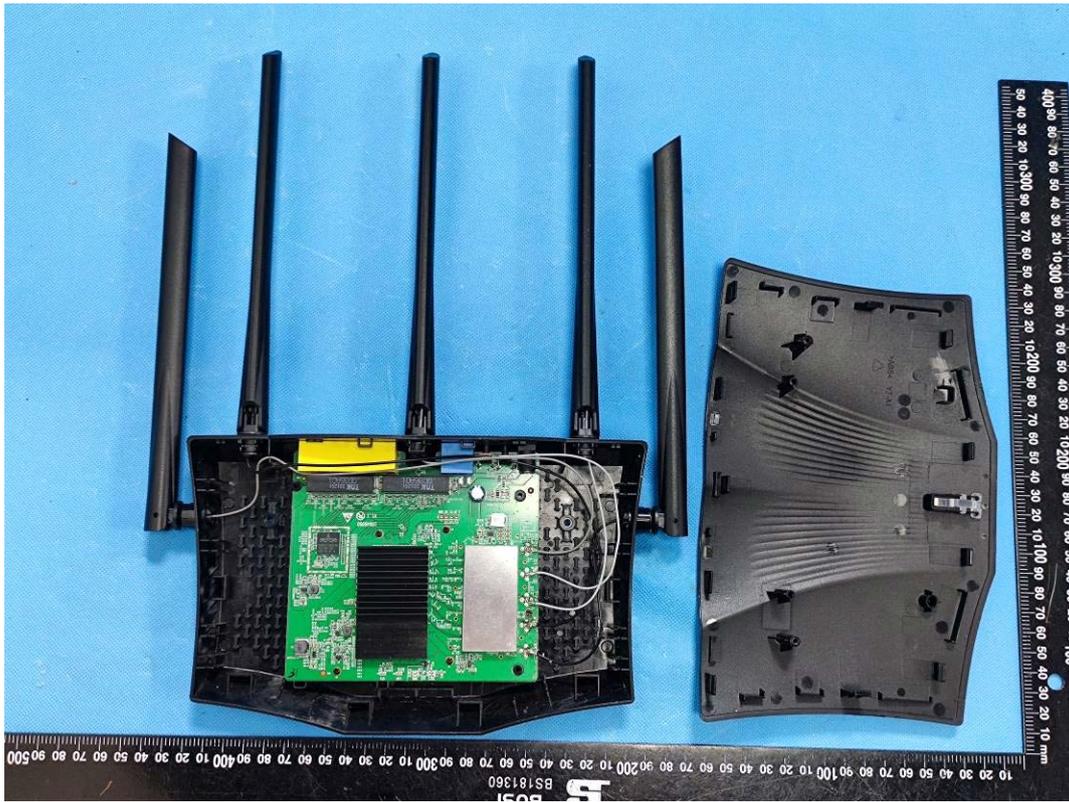






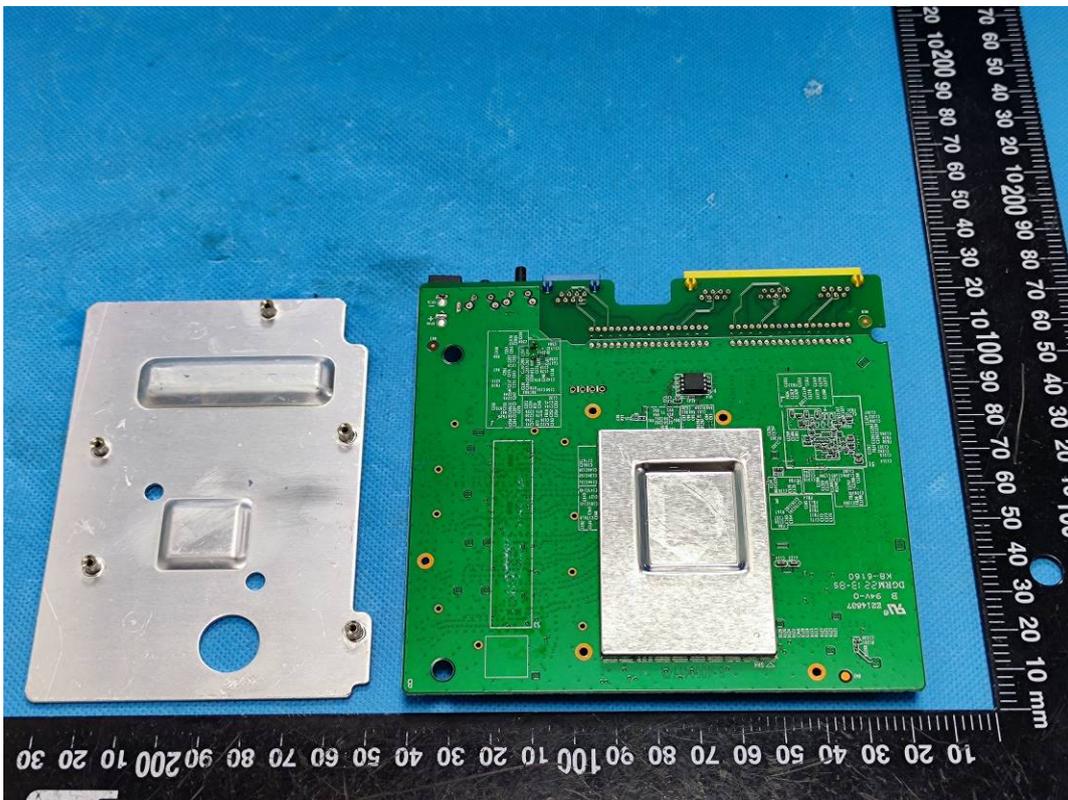


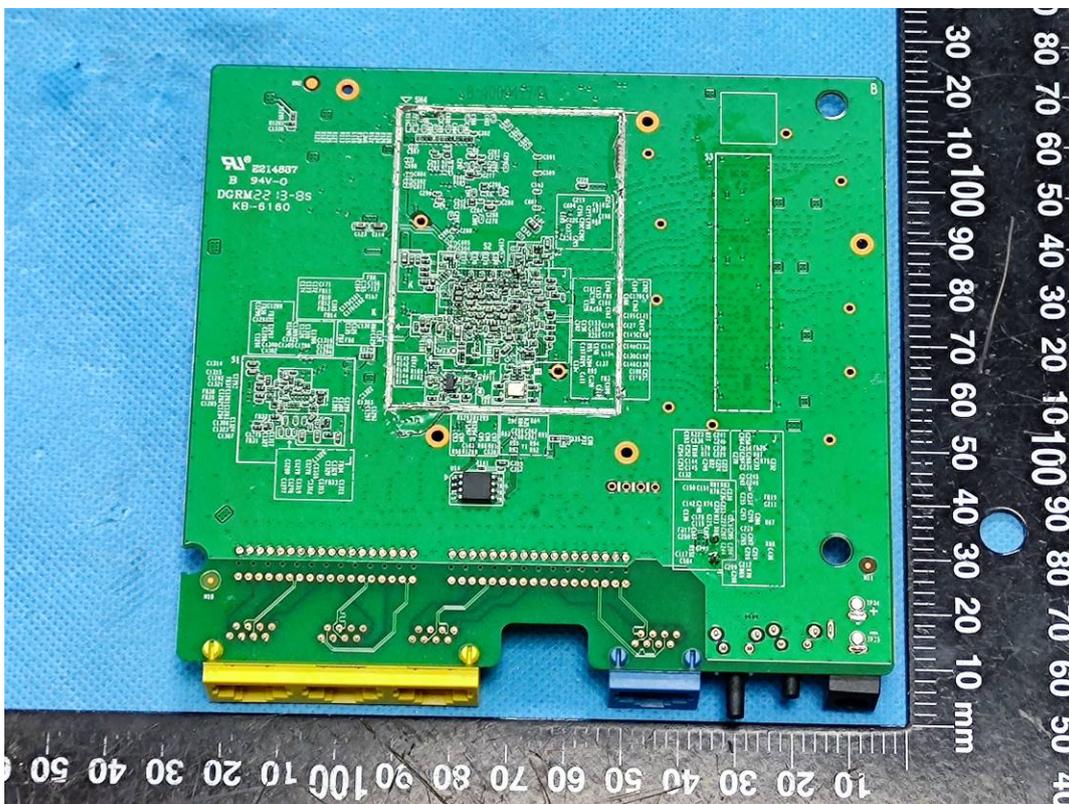
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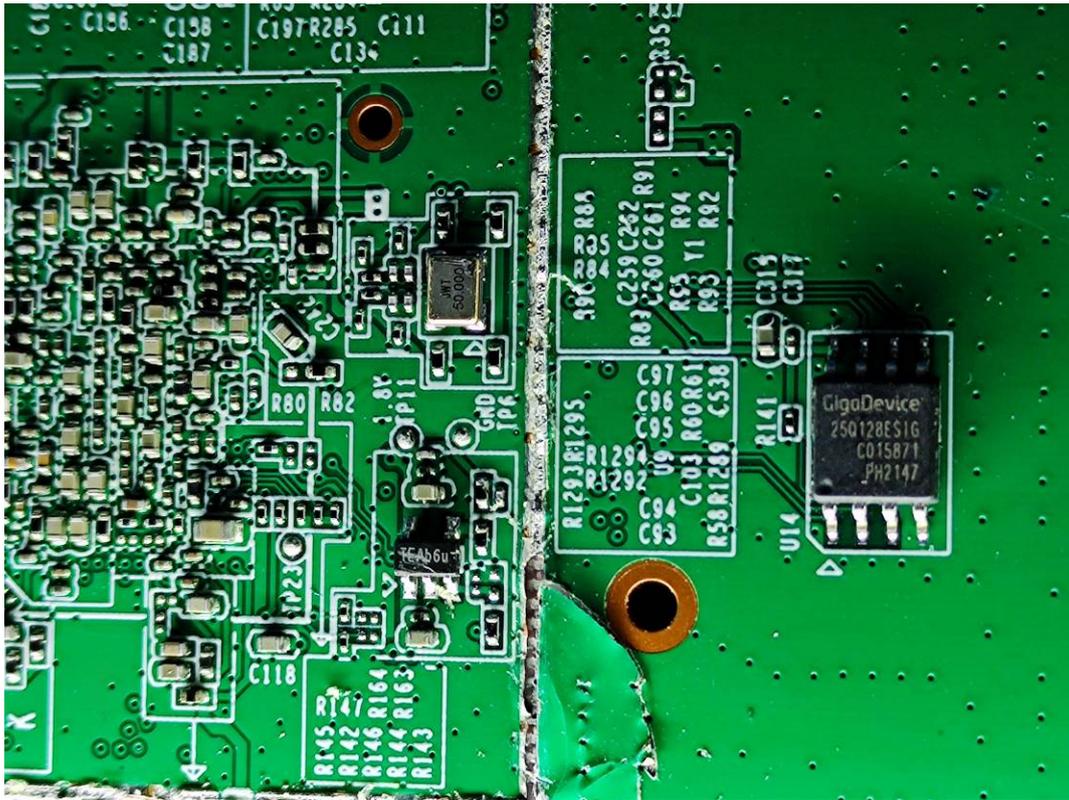


Antenna



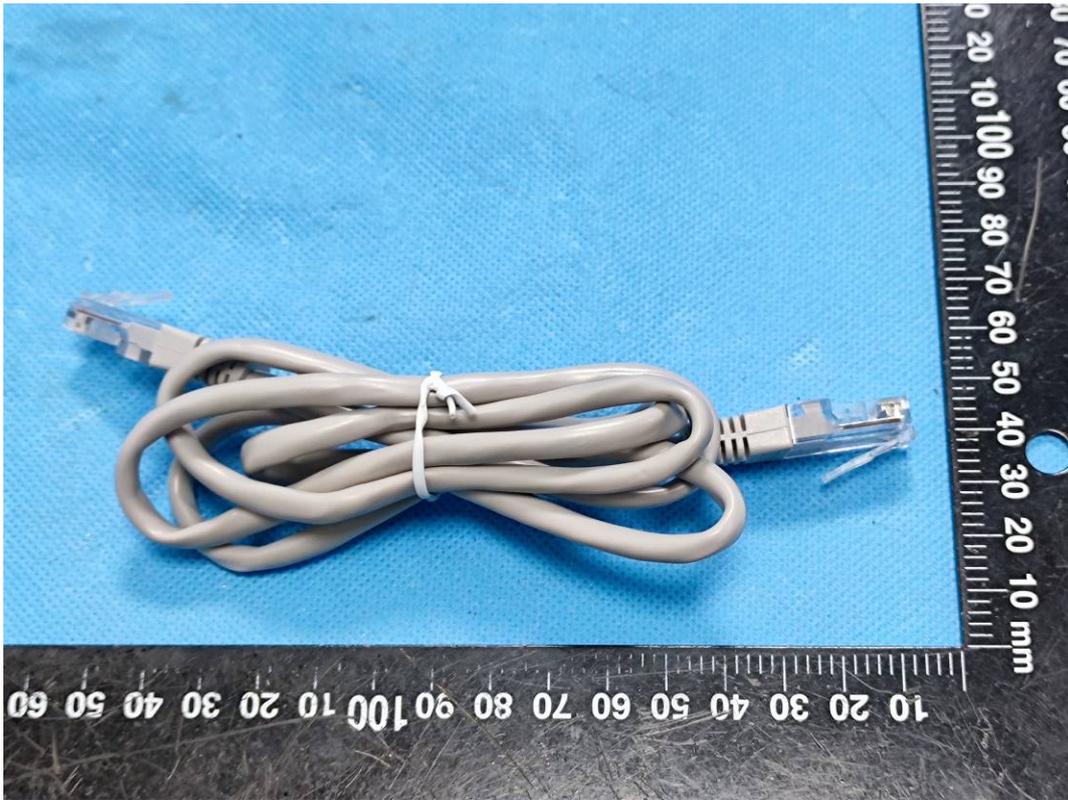


Chip

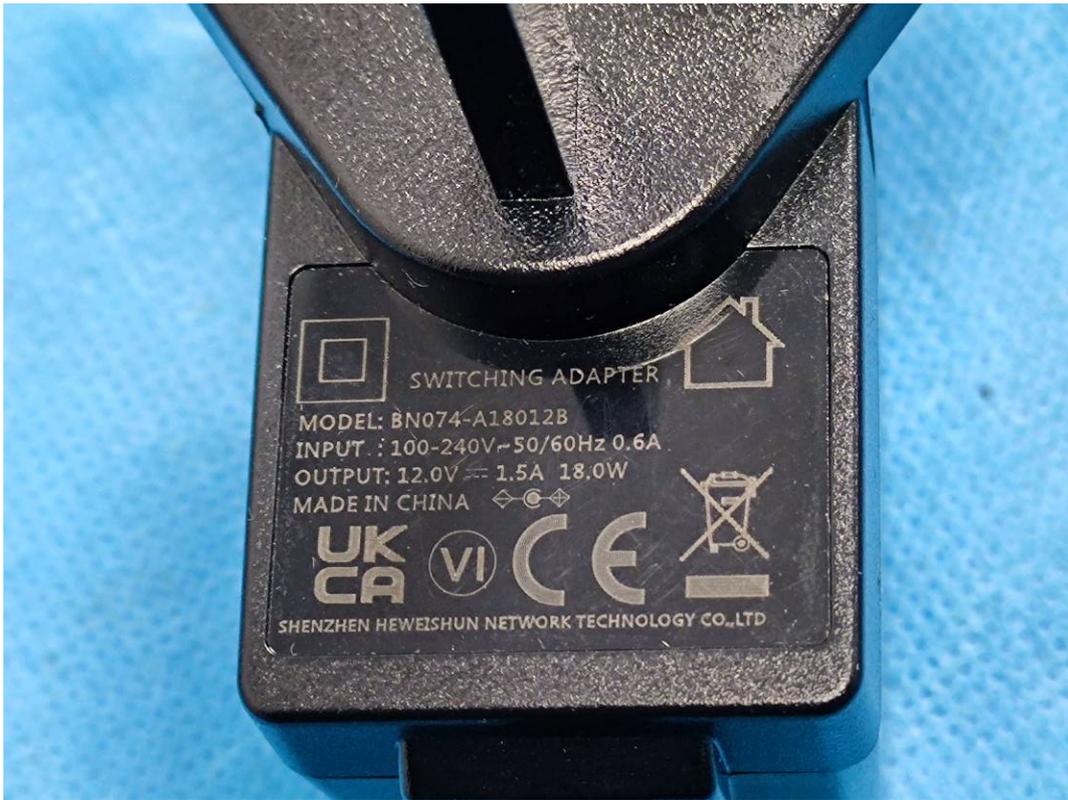














**TX12 Pro**

EUT





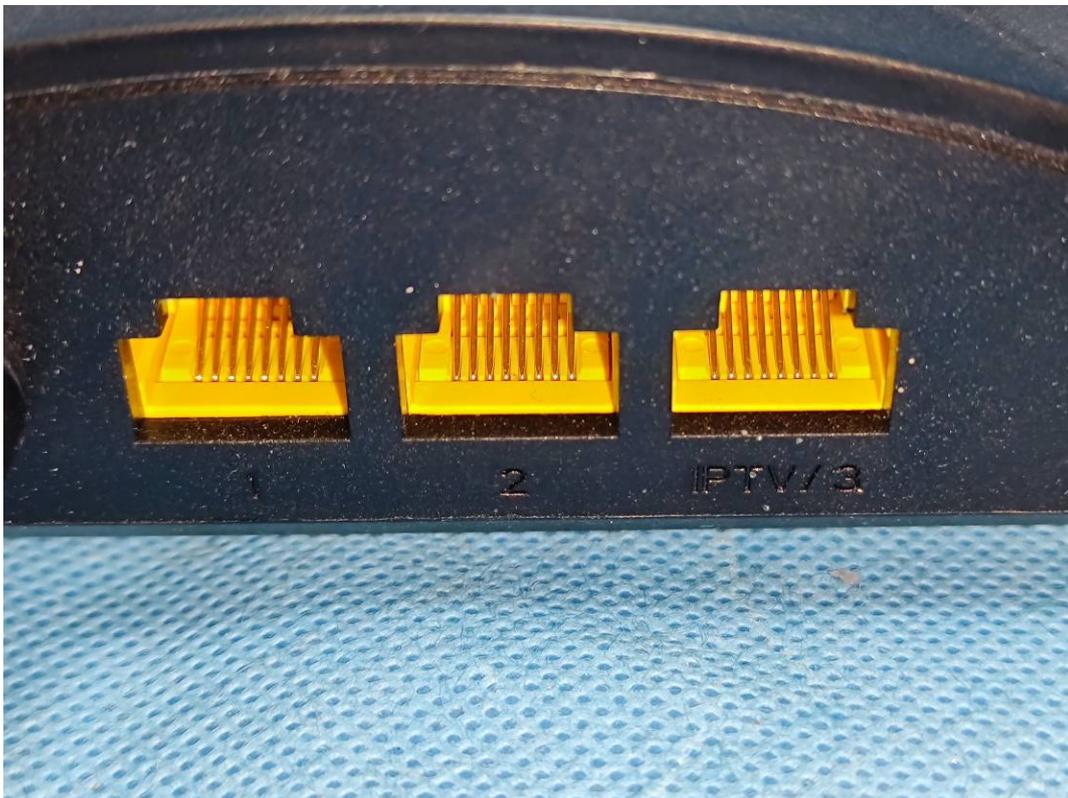




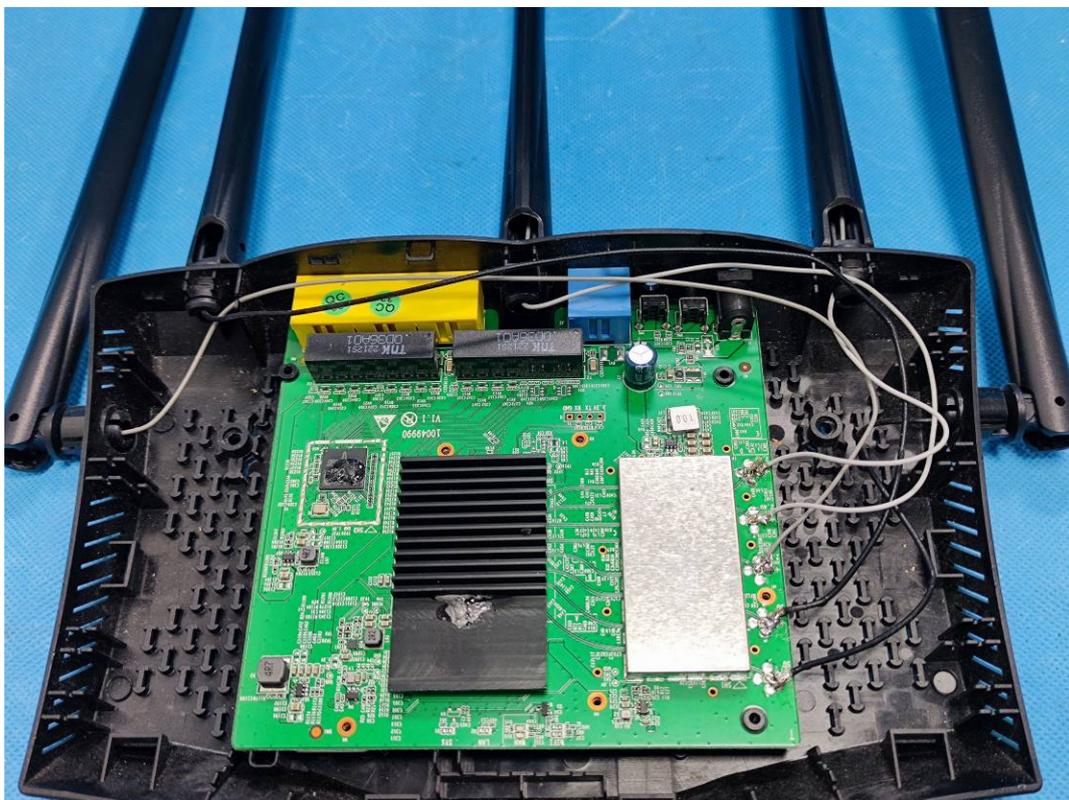
Port



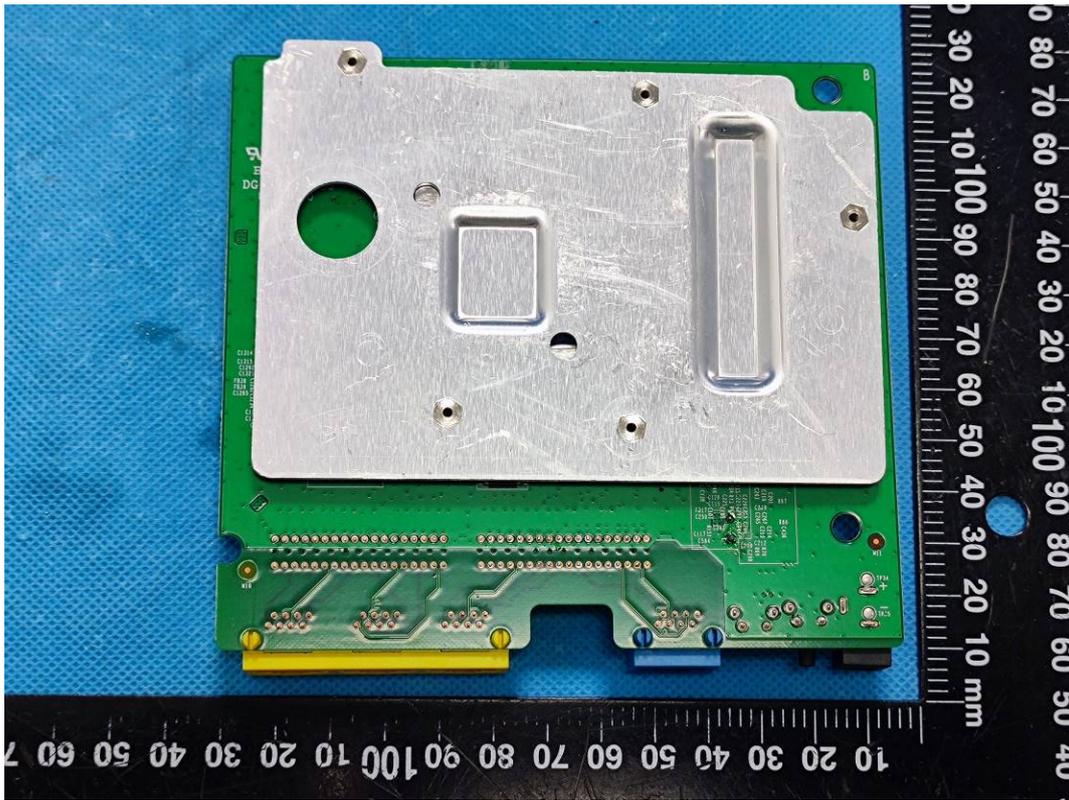
Port

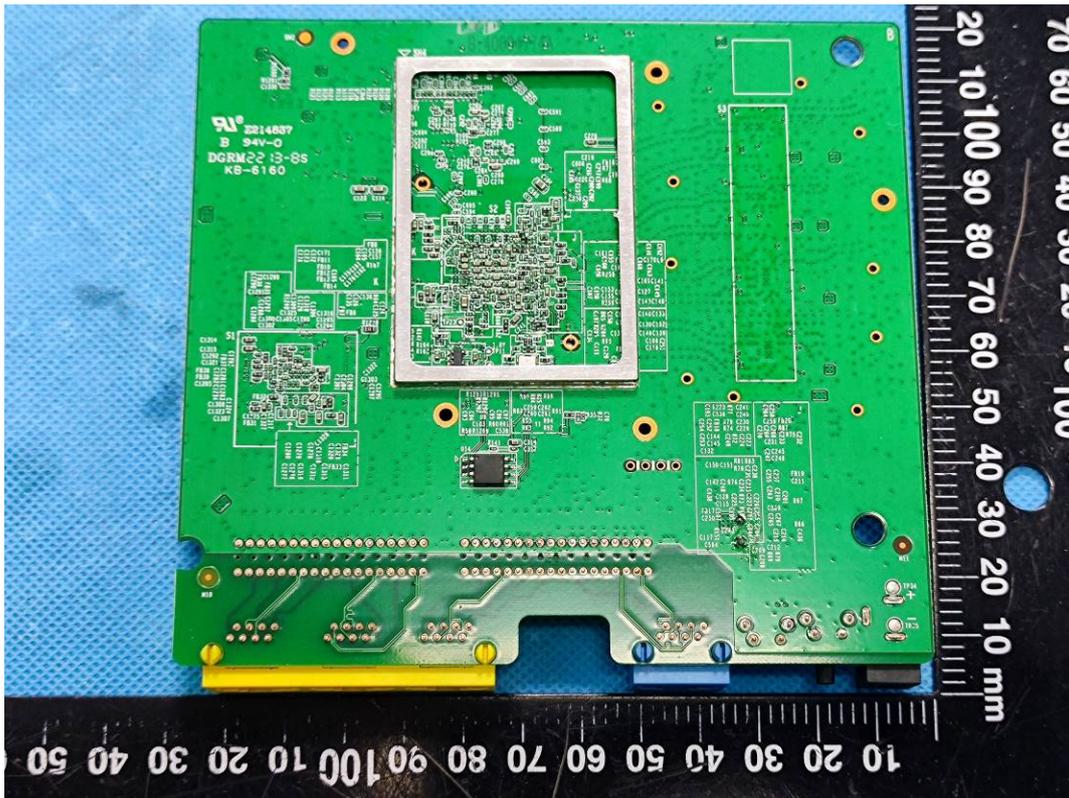


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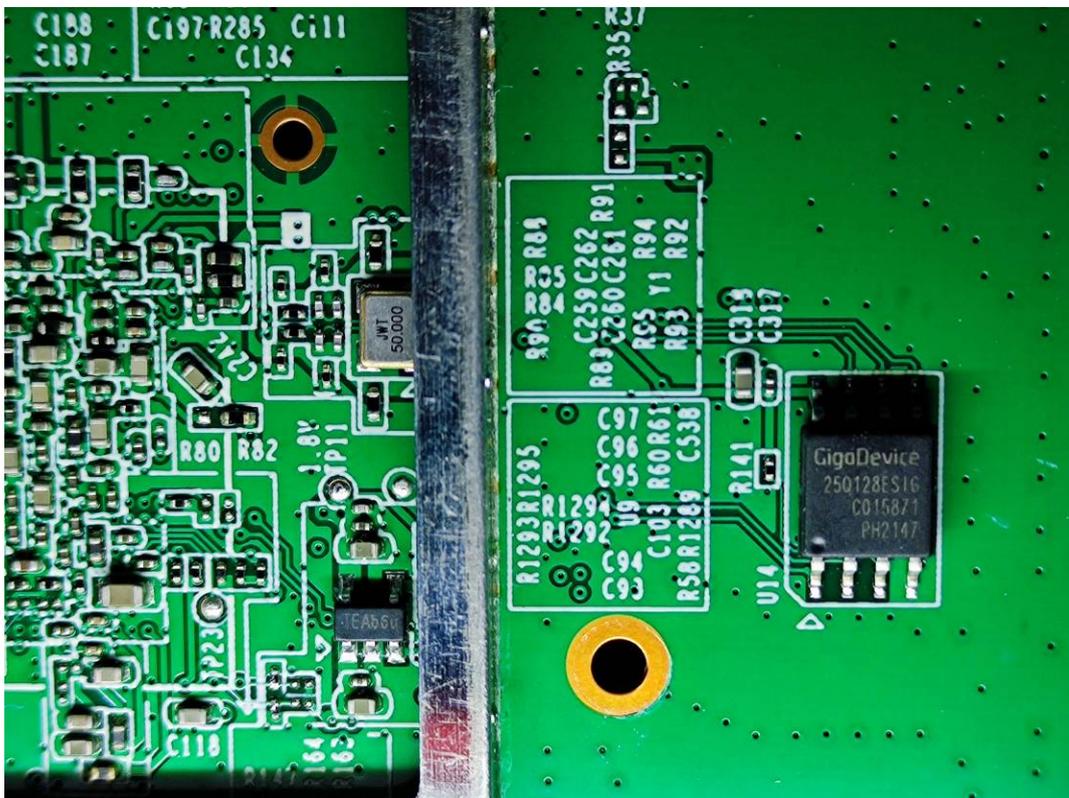








Chip





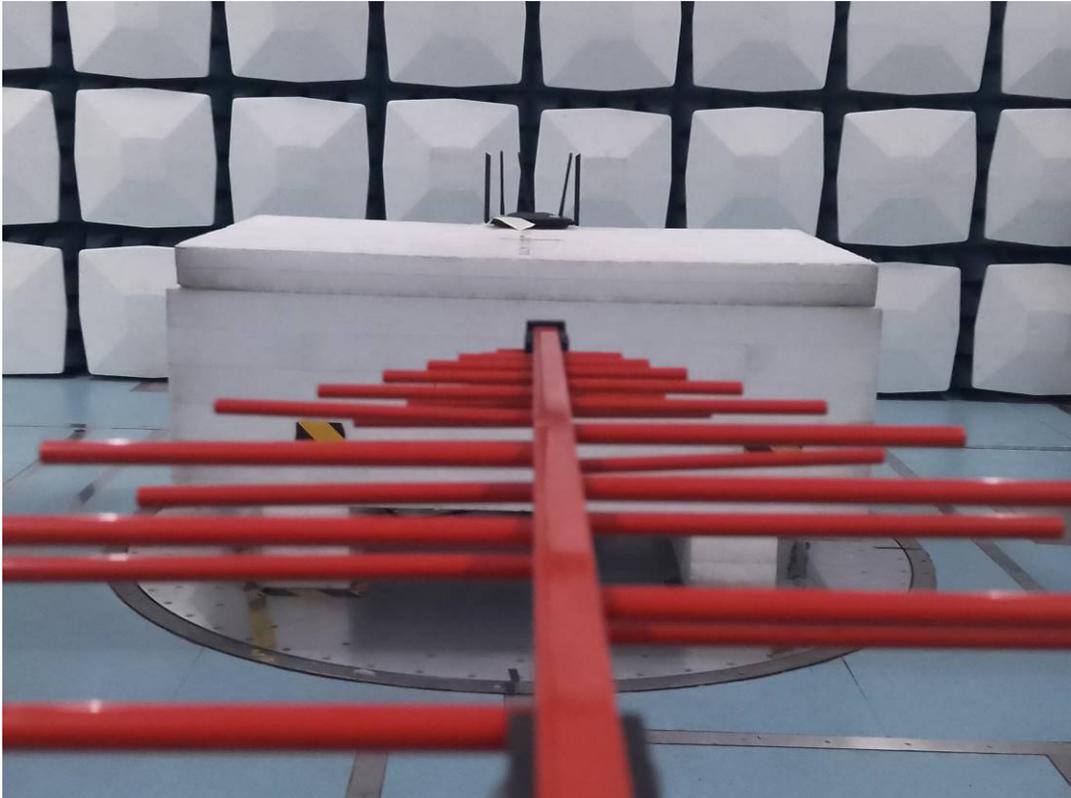




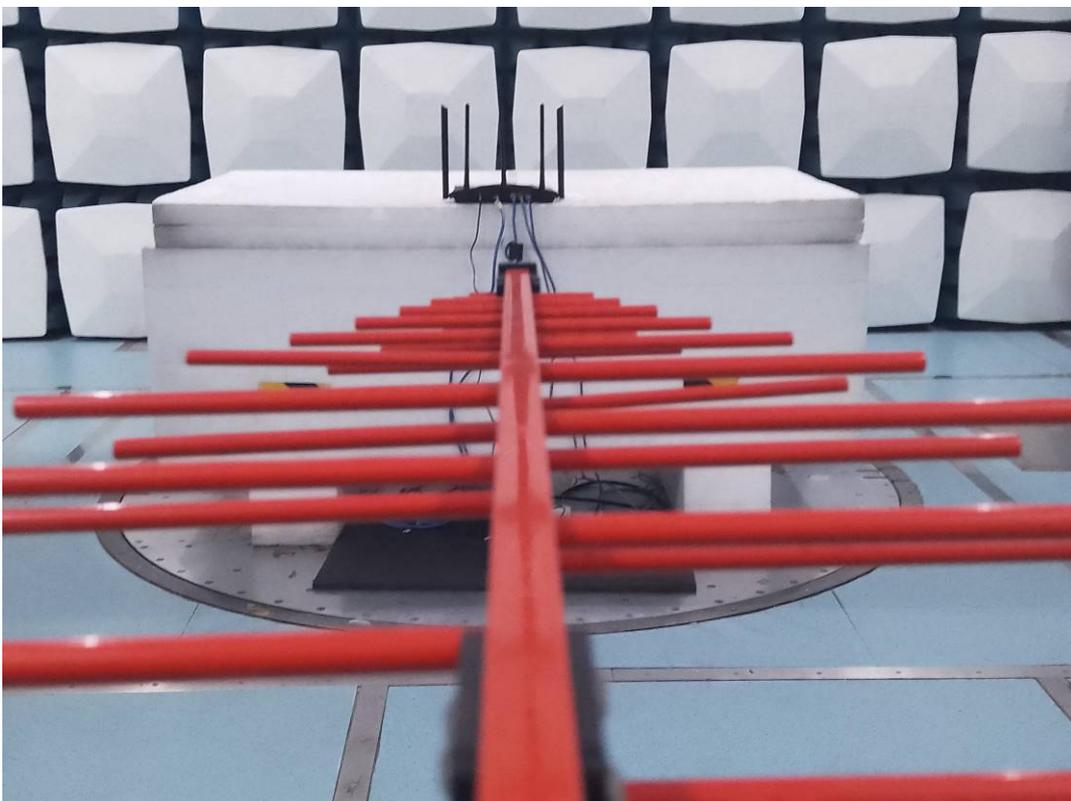
**EXHIBITB - TEST SETUP PHOTOGRAPHS**

RE

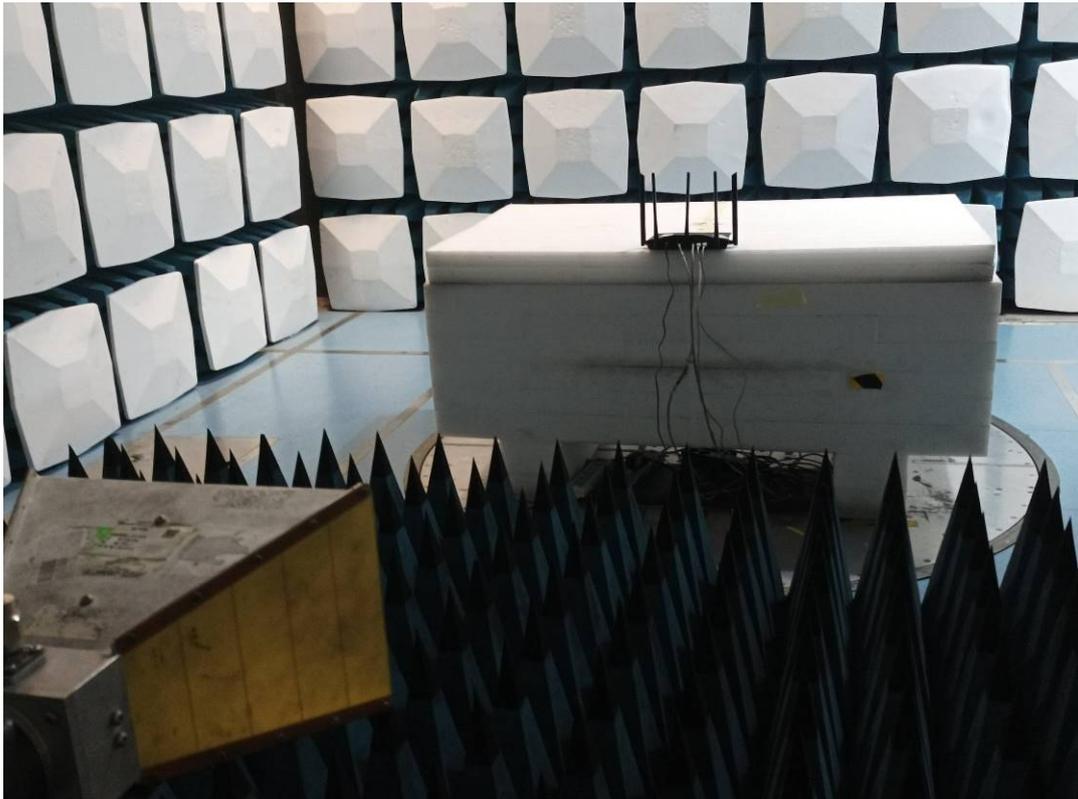
RE Below 1GHz front View



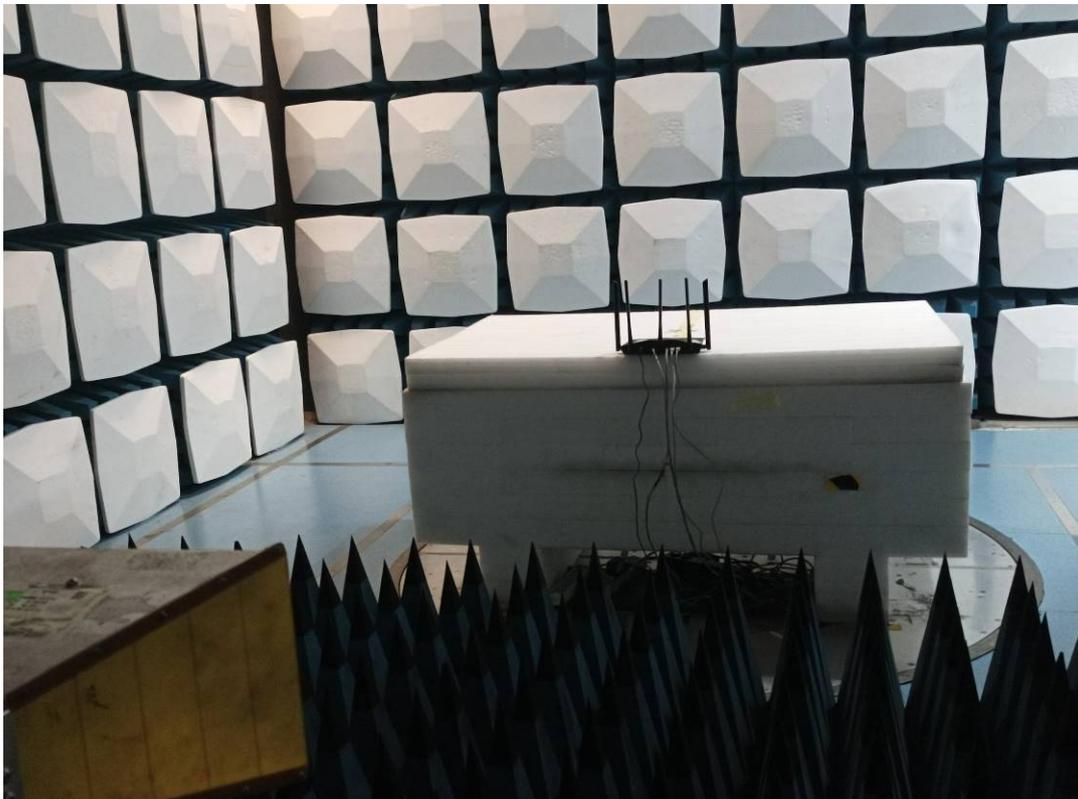
RE Below 1GHz rear View



RE Above 1GHz front View



RE Above 1GHz rear View



**CE\_AC**

CE front View



CE side View



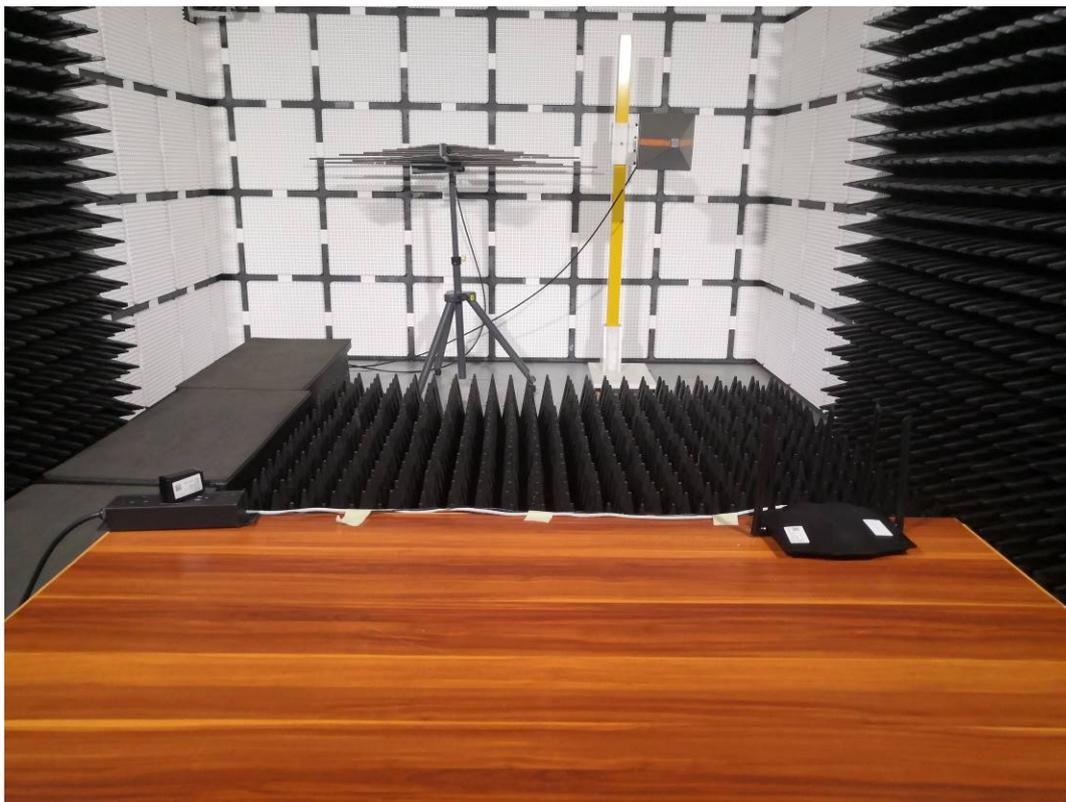
**Flicker**

Test Setup Photo View



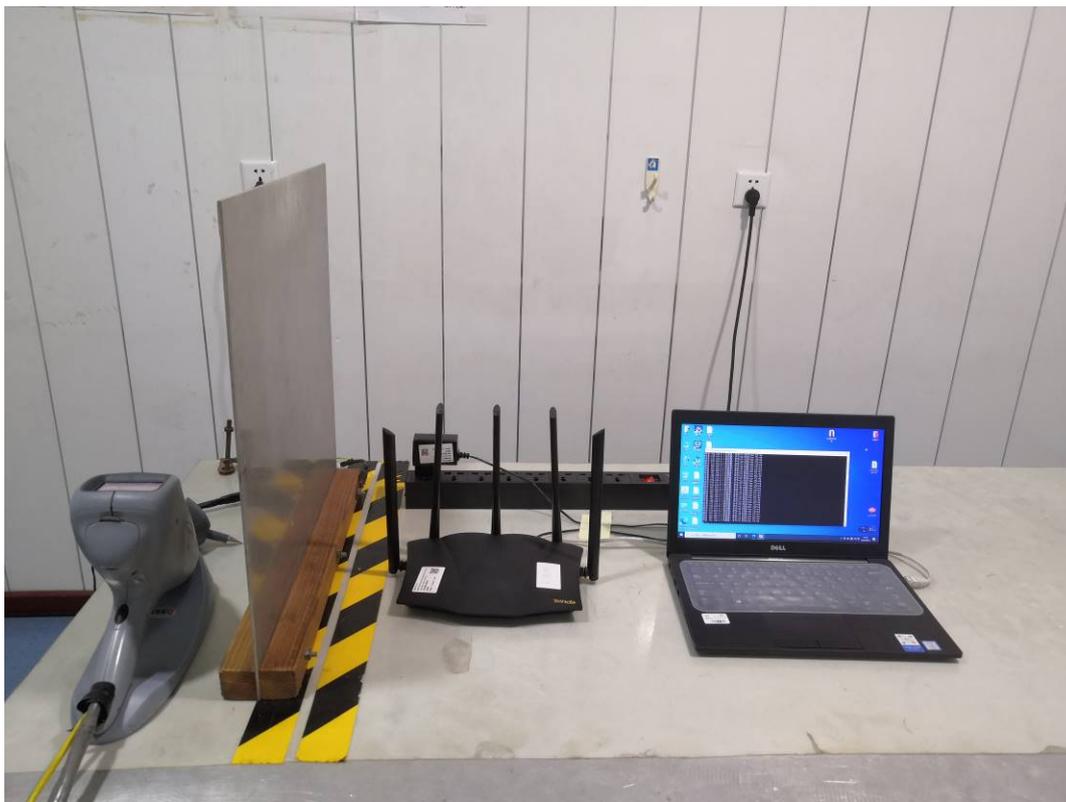
RS

Test Setup Photo View



**ESD**

Test Setup Photo View

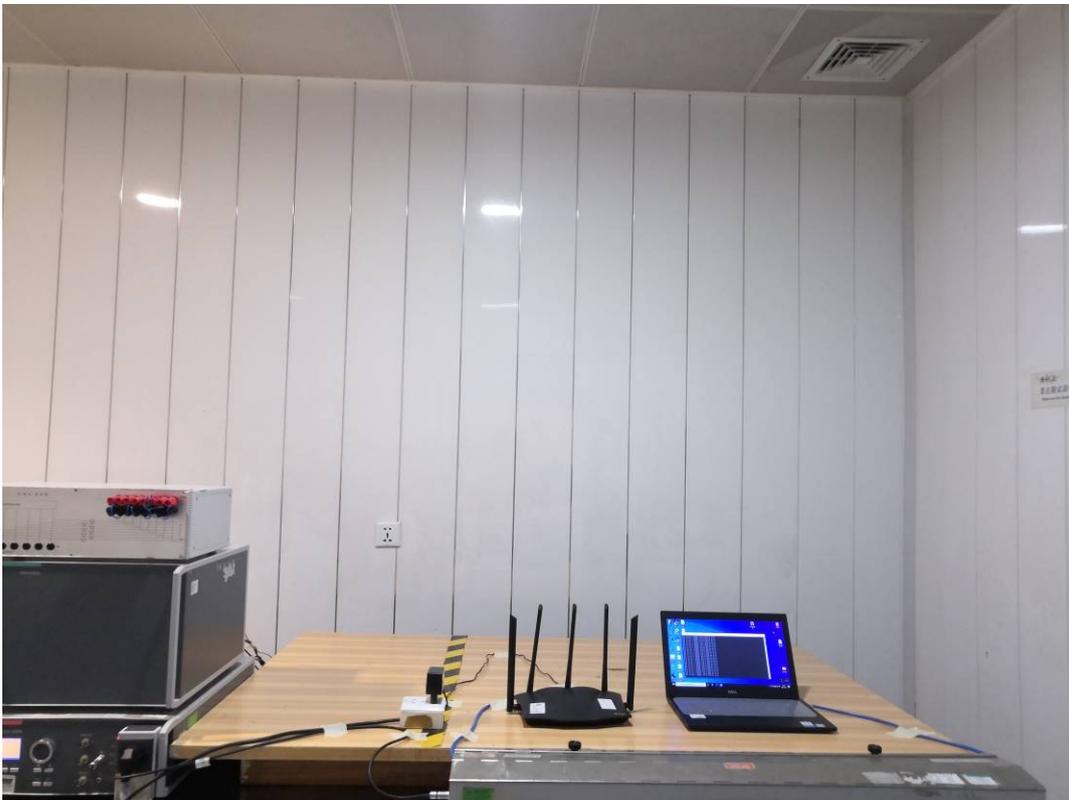


**EFT**

AC Port Test Setup Photo



RJ45 Port Test Setup Photo



**Dips**

AC Port Test Setup Photo



**Surge**

AC Port Test Setup Photo



RJ45 Port Test Setup Photo



CS

AC Port Test Setup Photo



RJ45 Port Test Setup Photo



## **DECLARATION OF SIMILARITY LETTER**

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SHENZHEN TENDA TECHNOLOGY CO.,LTD.

Add: 6-8 Floor, Tower E3, No. 1001, Zhongshanyuan Road, Nanshan District, Shenzhen, China.  
518052

Tel: 86-755-27657098 Fax: 866-755-27657178

E-mail: cert@tenda.cn

### **DECLARATION OF SIMILARITY**

Date: 2022-08-16

To whom it may concern

Dear Sir or Madam:

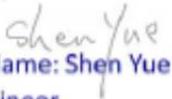
We, SHENZHEN TENDA TECHNOLOGY CO.,LTD., hereby declare that the product: AX3000 Dual Band Gigabit WiFi 6 Router, model: TX12 Pro are electrically identical with the model: RX12 Pro which was tested by BACL(Dongguan) with the same electromagnetic emissions and electromagnetic compatibility characteristics.

A description of the differences between those models and that are declared similar are as follows:  
They are the same product, and just the different model name. the rest are the same.  
The detail information, please check the reports.

Please contact me should there be need for any additional clarification or information.

Best Regards,

Signature:

  
Printed Name: Shen Yue  
Title: Engineer

**\*\*\*\*\*END OF REPORT\*\*\*\*\***