Prüfbericht-Nr.: *Test report no.:*	**CN23XAMH 001**	**Auftrags-Nr.:** *Order no.:*	180256997	Seite 1 von 58 *Page 1 of 58*
Kunden-Referenz-Nr.: *Client reference no.:*	N/A	**Auftragsdatum:** *Order date:*	2023.02.17	
Auftraggeber: *Client:*	Shenzhen LYF Intelligence Co., Ltd. NO.501 Building 1, Shenzhen Software Park Yuehai Street, Nanshan District, Shenzhen City, Guangdong P.R. China			
Prüfgegenstand: *Test item:*	Robotic mower			
Bezeichnung / Typ-Nr.: *Identification / Type no.:*	N1000, N2000			
Auftrags-Inhalt: *Order content:*	TÜV Rheinland – FCC & ISED Service			
Prüfgrundlage: *Test specification:*	**FCC 47 CFR Part 15.203** **FCC 47 CFR Part 15.247** **FCC Part 15, Subpart B:2021**	**RSS-247 Issue 3** **RSS-Gen Issue 5** **ICES-003 Issue 7:2020**		
Wareneingangsdatum: *Date of sample receipt:*	2023.05.22	Refer to Photo Documentation		
Prüfmuster-Nr.: *Test sample no:*	A003478075			
Prüfzeitraum: *Testing period:*	2023.06.12 - 2023.07.08			
Ort der Prüfung: *Place of testing:*	Refer to section 1.1			
Prüflaboratorium: *Testing laboratory:*	TÜV Rheinland / CCIC (Ningbo) Co., Ltd.			
Prüfergebnis*: *Test result*:*	**Pass**			
geprüft von: tested by: **Datum:** *Date:* 2023.10.30 **Stellung** / Position:	Keda Zhou Keda Zhou/PE	**genehmigt von:** *authorized by:* **Ausstelldatum:** *Issue date:* 2023.10.30 **Stellung** / Position:	Feng Liang Feng Liang/Authorizer	
Sonstiges / *Other:*	FCC ID: 2BAQQNOVABOT001 ISED: 30447-NOVABOT001			
Zustand des Prüfgegenstandes bei Anlieferung: *Condition of the test item at delivery:*	Prüfmuster vollständig und unbeschädigt *Test item complete and undamaged*			

* Legende:	1 = sehr gut	2 = gut	3 = befriedigend	4 = ausreichend	5 = mangelhaft
	P(ass) = entspricht o.g. Prüfgrundlage(n)		F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getestet
** Legend:*	*1 = very good*	*2 = good*	*3 = satisfactory*	*4 = sufficient*	*5 = poor*
	P(ass) = passed a.m. test specification(s)		*F(ail) = failed a.m. test specification(s)*	*N/A = not applicable*	*N/T = not tested*

Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.
This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.
V05

Anmerkungen
Remarks

	Alle eingesetzten Prüfmittel waren zum angegebenen Prüfzeitraum gemäß eines festgelegten Kalibrierungsprogramms unseres Prüfhauses kalibriert. Sie entsprechen den in den Prüfprogrammen hinterlegten Anforderungen. Die Rückverfolgbarkeit der eingesetzten Prüfmittel ist durch die Einhaltung der Regelungen unseres Managementsystems gegeben. Detaillierte Informationen bezüglich Prüfkonditionen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden. *The equipment used during the specified testing period was calibrated according to our test laboratory calibration program. The equipment fulfils the requirements included in the relevant standards. The traceability of the test equipment used is ensured by compliance with the regulations of our management system.* *Detailed information regarding test conditions, equipment and measurement uncertainty is available in the test laboratory and could be provided on request.*
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	Prüfklausel mit der Note * wurden an qualifizierte Unterauftragnehmer vergeben und sind unter der jeweiligen Prüfklausel des Berichts beschrieben. Abweichungen von Prüfspezifikation(en) oder Kundenanforderungen sind in der jeweiligen Prüfklausel im Bericht aufgeführt. *Test clauses with remark of * are subcontracted to qualified subcontractors and descripted under the respective test clause in the report. Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report.*
	Die Entscheidungsregel für Konformitätserklärungen basierend auf numerischen Messergebnisen in diesem Prüfbericht basiert auf der "Null-Grenzwert-Regel" und der "Einfachen Akzeptanz" gemäß ILAC G8:2019 und IEC Guide 115:2021, es sei denn, in der auf Seite 1 dieses Berichts genannten angewandten Norm ist etwas anderes festgelegt oder vom Kunden gewünscht. Dies bedeutet, dass die Messunsicherheit nicht berücksichtigt wird und daher auch nicht im Prüfbericht angegeben wird. Zu weiteren Informationen bezueglich des Risikos durch diese Entscheidungsregel siehe ILAC G8:2019. *The decision rule for statements of conformity, based on numerical measurement results, in this test report is based on the “Zero Guard Band Rule” and “Simple Acceptance” in accordance with ILAC G8:2019 and IEC Guide 115:2021, unless otherwise specified in the applied standard mentioned on Page 1 of this report or requested by the customer. This means that measurement uncertainty is not taken in account and hence also not declared in the test report. For additional information to the resulting risk based of this decision rule please refer to ILAC G8:2019.*

Test Summary

4.1.1 ANTENNA REQUIREMENT
Result:
Pass
4.1.2 6DB BANDWIDTH MEASUREMENT
Result:
Pass
4.1.3 99% EMISSION BANDWIDTH MEASUREMENT
Result:
Pass
4.1.4 MAXIMUM PEAK CONDUCTED OUTPUT POWER
Result:
Pass
4.1.5 EQUIVALENT ISOTROPICALLY RADIATED POWER
Result:
Pass
4.1.6 PEAK POWER SPECTRAL DENSITY
Result:
Pass
4.1.7 CONDUCTED SPURIOUS EMISSIONS MEASURED IN 100 KHZ BANDWIDTH
Result:
Pass
4.1.8 CONDUCTED EMISSION (AC POWER-LINE)
Result:
Pass
4.1.9 RADIATED EMISSION
Result:
Pass

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1. Test Sites

1.1 Test Facilities

Laboratory: TÜV Rheinland /CCIC (Ningbo) Co., Ltd.

1st Floor, Building 11, Scholar Innovation Park, No.1188 Zhongguan Road, Zhenhai District, Ningbo 315200 P.R. China

The tests were conducted by TÜV Rheinland/CCIC's engineer directly in the above laboratory.

1.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment, Laboratory

Kind of Equipment	Type	Serial No.	Last cal. date	Cal. due date
EMI test receiver	ESR7	101929	2022.10.31	2023.10.30
Spectrum analyzer	FSV40	101412	2022.10.31	2023.10.30
Bilog Antenna	CBL6112D	49033	2021.03.15	2024.03.14
Horn antenna	HF907	102653	2023.07.20	2026.07.19
Broad-Band Horn Antenna	BBHA 9170	899	2021.01.11	2024.01.12
Pre-amplifier	SCU-18F	180051	2022.10.31	2023.10.30
Pre-amplifier	LNPA_1840G-50	SK2021040801	2022.10.31	2023.10.30
RF control Unit	JS0806-2	22G8060598	2022.11.07	2023.11.06
Mains control unit	JS0806-4ADC	21L8060536	2022.11.04	2023.11.03

1.3 Uncertainty of Measurement

Table 2: Measurement Uncertainty

Test Item	Expanded Measurement Uncertainty (k=2)
Conducted Emission (9-150kHz)	3.70dB
Conducted Emission (150k-30MHz)	3.30dB
Occupied Channel Bandwidth	±5 %
Radiated Emission (30-1000MHz)	4.39dB
Radiated Emission (1-18GHz)	4.67dB

2. General Product Information

2.1 Product Function and Intended Use

The EUT (equipment under test) is a Robotic mower operated at 2400-2483.5MHz.

For more detail information, refer to the user's manual.

2.2 Ratings and System Details

Table 3: General Description of EUT

General Description of EUT	
Charging Voltage:	DC 28V
Internal battery Voltage:	DC 21.6V
Protection Class:	Class III
Adapter 1 Model:	GM152-2800500-1FE; 28V/5A
Adapter 2 Model:	GM95-280300-1DE; 28V/3A
Technical Specification of Bluetooth (BLE)	
Frequency Range:	2402 – 2480MHz
Modulation Type:	GFSK
Data Rate:	1Mbps
Channel:	0-39
Antenna Type:	FPC Antenna with IPEX
Antenna Gain:	3.5dBi
Technical Specification of Wi-Fi(2.4GHz)	
Frequency Range:	2412 – 2462MHz
Modulation Type:	802.11b: DSSS 802.11g/n-HT20: OFDM
Channel:	802.11b/g/n-HT20: 1-11
Data Rata:	802.11b: 11 Mbps max. 802.11g: 54 Mbps max. 802.11n-HT20: MCS7 max.
Antenna Type:	FPC Antenna with IPEX
Antenna Gain:	3.5dBi

Table 4: Channel List

Channel List for Wi-Fi 802.11b/g/n-HT20							
Ch.	Freq. (MHz)	Ch.	Freq. (MHz)	Ch.	Freq. (MHz)	Ch.	Freq. (MHz)
1	2412	5	2432	9	2452		
2	2417	6	2437	10	2457		
3	2422	7	2442	11	2462		
4	2427	8	2447				

Channel List for BLE							
Ch.	Freq. (MHz)	Ch.	Freq. (MHz)	Ch.	Freq. (MHz)	Ch.	Freq. (MHz)
0	2402	10	2422	20	2442	30	2462
1	2404	11	2424	21	2444	31	2464
2	2406	12	2426	22	2446	32	2466
3	2408	13	2428	23	2448	33	2468
4	2410	14	2430	24	2450	34	2470
5	2412	15	2432	25	2452	35	2472
6	2414	16	2434	26	2454	36	2474
7	2416	17	2436	27	2456	37	2476
8	2418	18	2438	28	2458	38	2478
9	2420	19	2440	29	2460	39	2480

2.3 Independent Operation Modes

There are some modes:
Mode A: Transmitting continuously of BLE_1MHz
1. Channel 2402MHz
2. Channel 2440MHz
3. Channel 2480MHz

Mode B: Transmitting continuously of Wi-Fi_11b
1. Channel 2412MHz
2. Channel 2432MHz
3. Channel 2462MHz

Mode C: Transmitting continuously of Wi-Fi_11g
1. Channel 2412MHz
2. Channel 2432MHz
3. Channel 2462MHz

Mode D: Transmitting continuously of Wi-Fi_11n-HT20
1. Channel 2412MHz
2. Channel 2432MHz
3. Channel 2462MHz

Mode E: Normal Working
Mode F: Charging

Refer to the user's manual for further information.

2.4 Noise Generating and Noise Suppressing Parts

Refer to the Circuit Diagram for further information.

2.5 Submitted Documents

Circuit diagram, label, user manual etc.

3. Test Set-up and Operation Modes

3.1 Principle of Configuration Selection

Radio Spectrum: The equipment under test (EUT) was configured at its highest power output in order to measure its highest possible radiation and conducted level. The test modes were adapted accordingly in reference to the instructions for use.

Emission: The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

3.2 Test Operation and Test Software

During testing, Channel & Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power was selected according to the instruction given by the manufacturer. The setting of the RF output power expected by the customer shall be fixed on the firmware of the final end product.

All testing were performed according to the procedures in ANSI C63.10: 2013.

Test Software EMC32 V10.30 was used in the radiated emission test.

More details refer to the related paragraph of this report.

3.3 Special Accessories and Auxiliary Equipment

None.

3.4 Countermeasures to Achieve ERM Compliance

The test sample which has been tested contained the noise suppression parts as described in the Circuit Diagram. No additional measures were employed to achieve compliance.

3.5 Test set-up

Diagram of Measurement Configuration for Radiation Test (Below 1GHz)

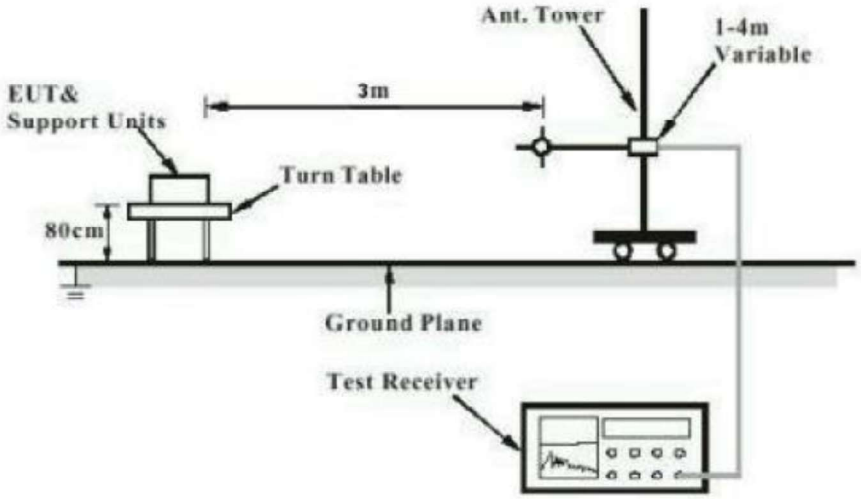


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)

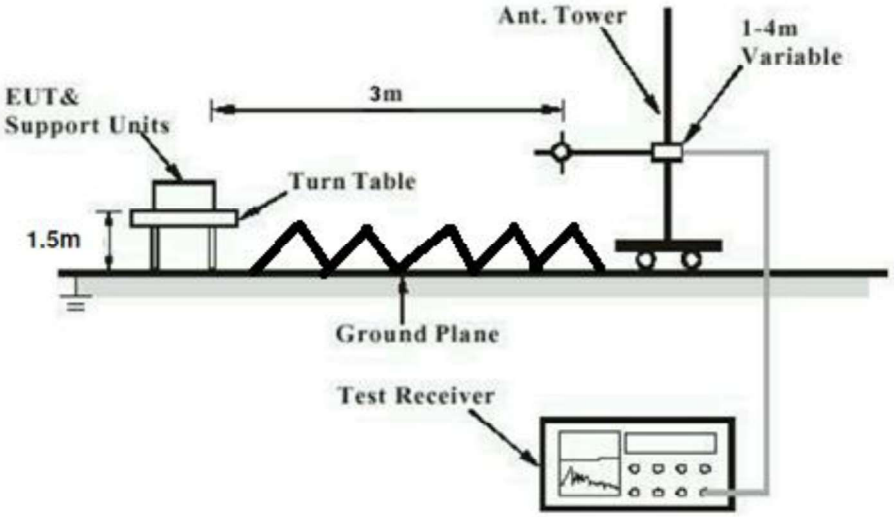
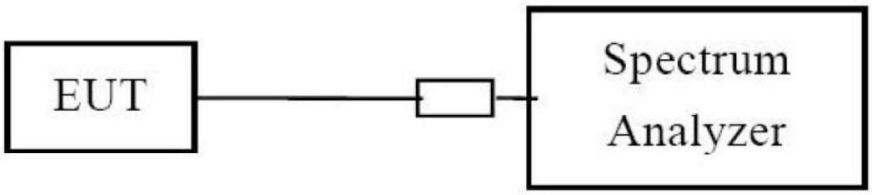


Diagram of Measurement Configuration for Conducted Transmitter Measurement



4. Test Results

4.1 Transmitter Requirement & Test Suites

4.1.1 Antenna Requirement

Result: **Pass**

Test Specification

Test standard	:	FCC 47 CFR Part 15.203 RSS-Gen Issue 5
Limit	:	FCC: the use of antennas with directional gains that do not exceed 6 dBi RSS: Use of approved antennas only

According to the manufacturer declared, the EUT has an integral antenna (FPC antenna, Antenna Gain: 3.5dBi), and no consideration of replacement. Therefore, the EUT is considered sufficient to comply with the provision.

Refer to EUT Photo for further details.

4.1.2 6dB Bandwidth Measurement

Result: **Pass**

Test Specification

Test standard	:	FCC 47 CFR Part 15.247 (a)(2) RSS-247 Issue 3, Clause5.2(a)
Basic standard	:	ANSI C63.10: 2013, Clause 11.8
Limits	:	At least 500kHz
Kind of test site	:	Shielded Room

Test Setup

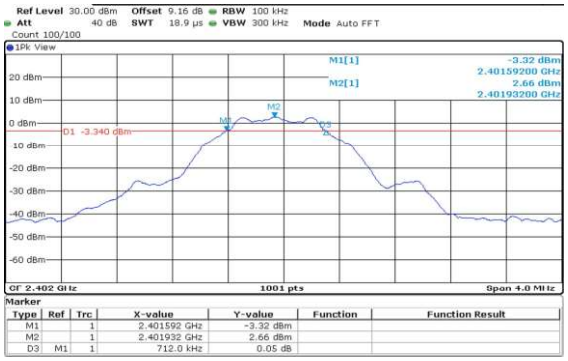
Date of testing	:	2023.06.12-2023.07.08
Input voltage	:	DC 21.6V
Operational mode	:	Refer to below table
Temperature	:	23°C
Relative humidity	:	56%
Atmospheric pressure	:	101.2 kPa

Table 5: Test result of 6dB Bandwidth

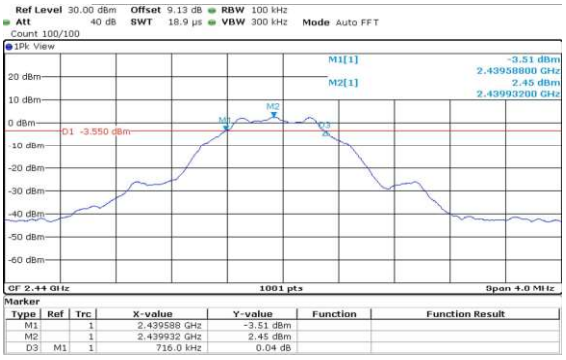
Mode	Bandwidth (kHz)	Limit (kHz)	Verdict
A.1	712	≥500	Pass
A.2	716	≥500	Pass
A.3	704	≥500	Pass
B.1	10040	≥500	Pass
B.2	8040	≥500	Pass
B.3	8080	≥500	Pass
C.1	15120	≥500	Pass
C.2	15440	≥500	Pass
C.3	15080	≥500	Pass
D.1	16760	≥500	Pass
D.2	13240	≥500	Pass
D.3	15080	≥500	Pass

Figure 1: 6dB Bandwidth Measurement

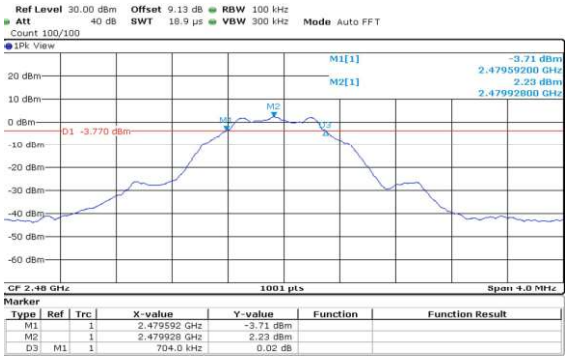
A.1



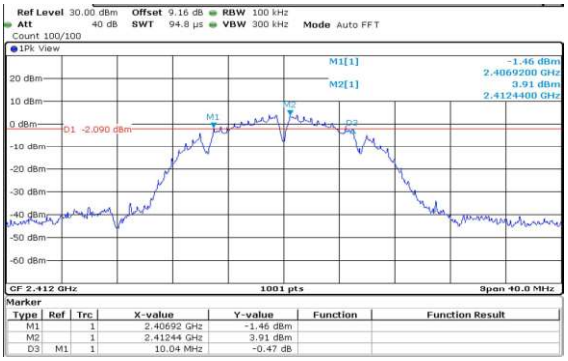
A.2



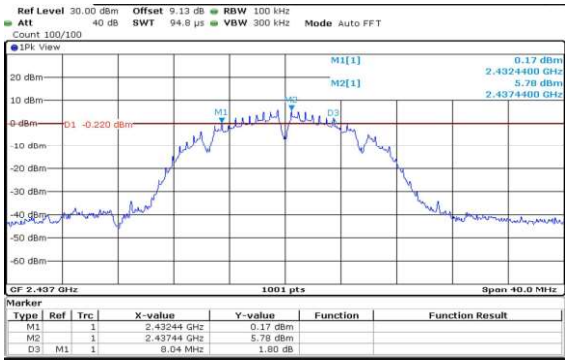
A.3



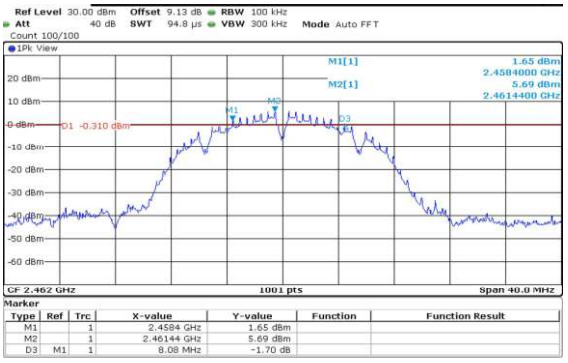
B.1



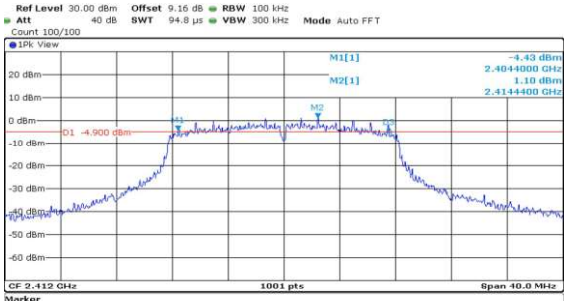
B.2



B.3



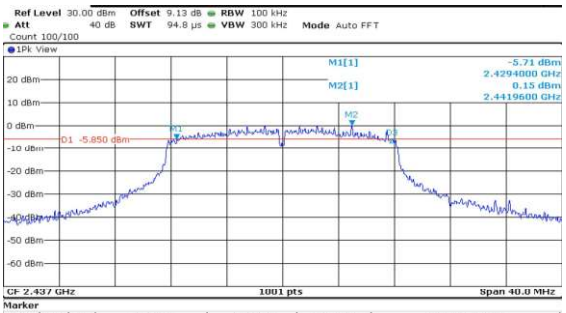
C.1



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.4044 GHz	-4.43 dBm		
M2		1	2.41444 GHz	1.10 dBm		
D3	M1	1	15.12 MHz	1.41 dB		

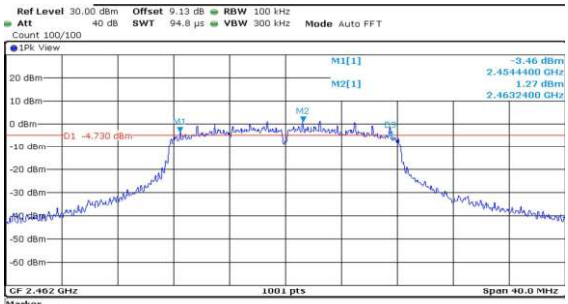
C.2



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.4294 GHz	-5.71 dBm		
M2		1	2.44196 GHz	0.15 dBm		
D3	M1	1	15.44 MHz	0.31 dB		

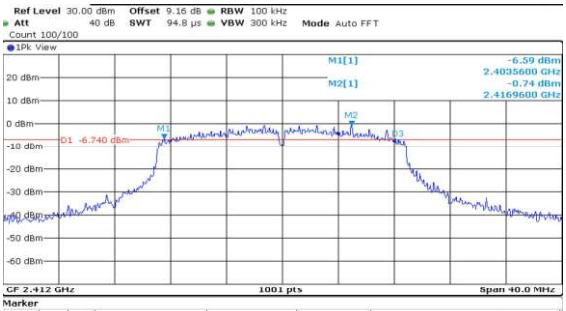
C.3



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.45444 GHz	-3.46 dBm		
M2		1	2.46324 GHz	1.27 dBm		
D3	M1	1	15.08 MHz	0.49 dB		

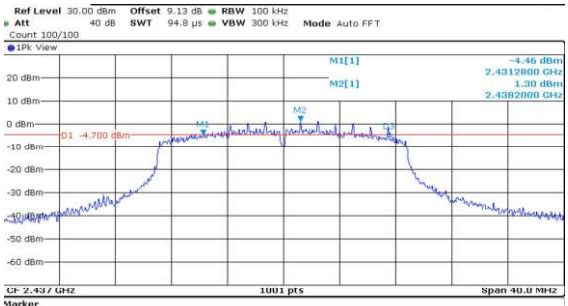
D.1



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40356 GHz	-6.59 dBm		
M2		1	2.41696 GHz	-0.74 dBm		
D3	M1	1	16.76 MHz	-0.15 dB		

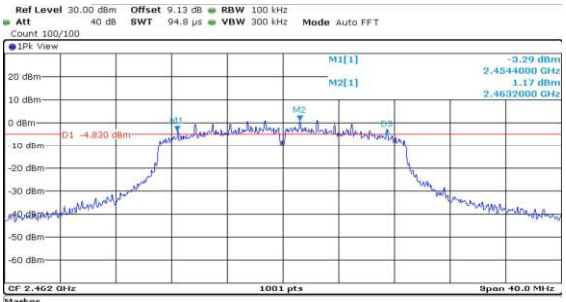
D.2



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.43128 GHz	-4.46 dBm		
M2		1	2.4382 GHz	1.30 dBm		
D3	M1	1	13.24 MHz	0.99 dB		

D.3



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.4544 GHz	-3.29 dBm		
M2		1	2.4632 GHz	1.17 dBm		
D3	M1	1	15.08 MHz	0.37 dB		

4.1.3 99% Emission Bandwidth Measurement

Result: **Pass**

Test Specification

Test standard	:	RSS-Gen Issue 5, Clause 6.7
Basic standard	:	ANSI C63.10: 2013, Clause 6.9.3
Kind of test site	:	Shielded Room

Test Setup

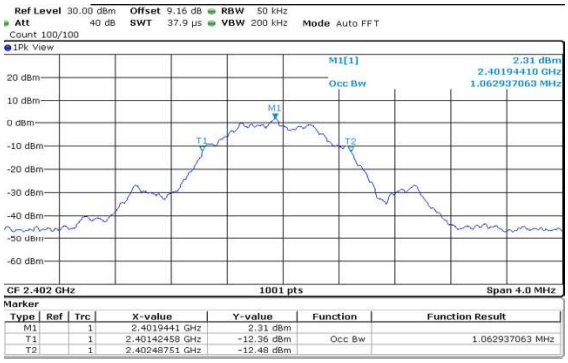
Date of testing	:	2023.06.12-2023.07.08
Input voltage	:	DC 21.6V
Operational mode	:	Refer to below table
Temperature	:	23°C
Relative humidity	:	56%
Atmospheric pressure	:	101.2 kPa

Table 6: Test result 99% Emission Bandwidth

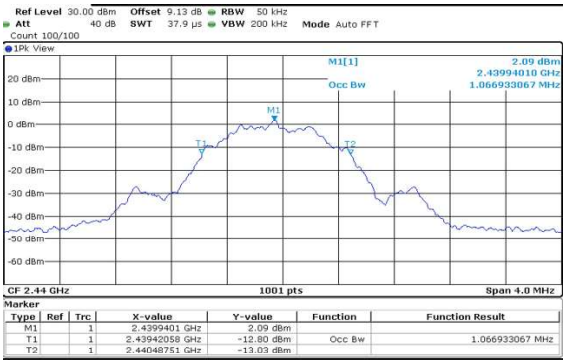
Mode	Bandwidth (MHz)	Limit (MHz)	Verdict
A.1	1.063	N/A	Pass
A.2	1.067	N/A	Pass
A.3	1.063	N/A	Pass
B.1	14.026	N/A	Pass
B.2	14.026	N/A	Pass
B.3	13.986	N/A	Pass
C.1	17.023	N/A	Pass
C.2	17.103	N/A	Pass
C.3	17.023	N/A	Pass
D.1	17.982	N/A	Pass
D.2	18.022	N/A	Pass
D.3	18.022	N/A	Pass

Figure 2: 99% Emission Bandwidth Measurement

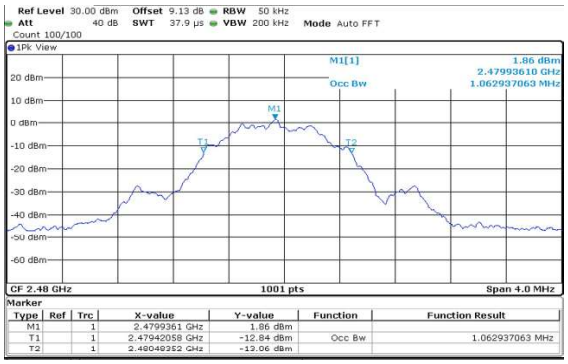
A.1



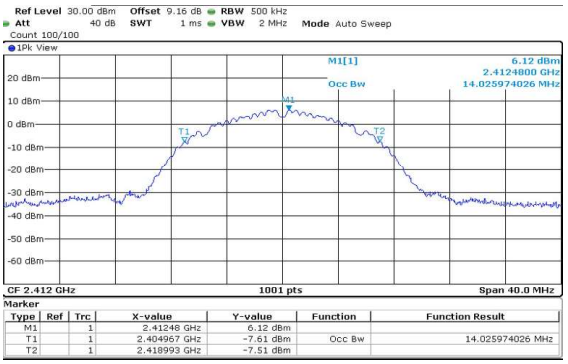
A.2



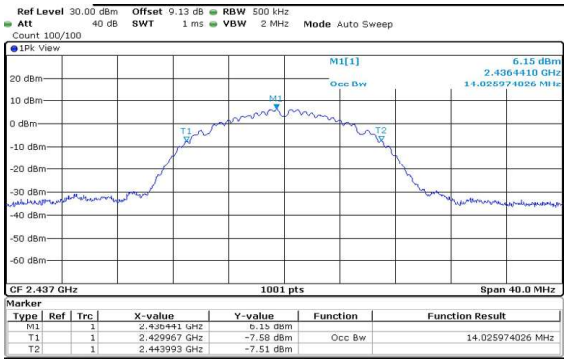
A.3



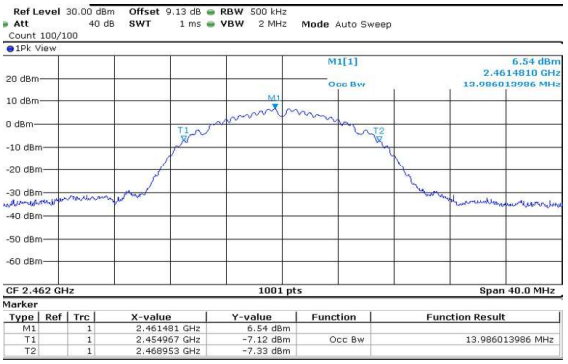
B.1



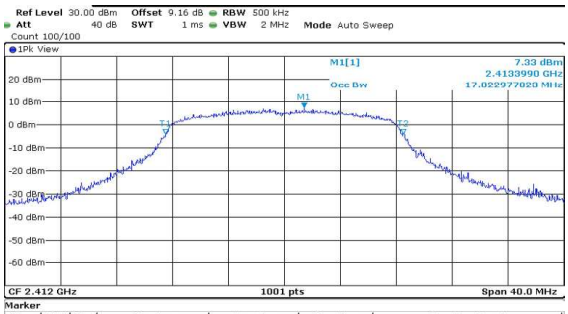
B.2



B.3



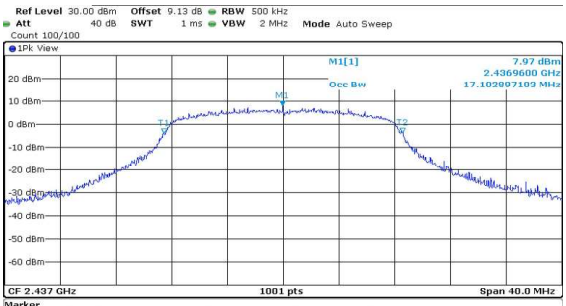
C.1



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.413399 GHz	7.33 dBm		
T1		1	2.4034885 GHz	-4.13 dBm	Occ Bw	17.022977023 MHz
T2		1	2.4205115 GHz	-4.08 dBm		

C.2



Marker

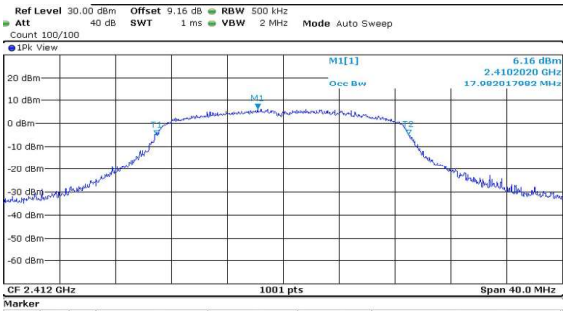
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.43690 GHz	7.97 dBm		
T1		1	2.4284486 GHz	-4.09 dBm	Occ Bw	17.102897103 MHz
T2		1	2.4455514 GHz	-3.73 dBm		

C.3

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.460561 GHz	7.46 dBm		
T1		1	2.4534486 GHz	-3.27 dBm	Occ Bw	17.022977023 MHz
T2		1	2.4704715 GHz	-4.27 dBm		

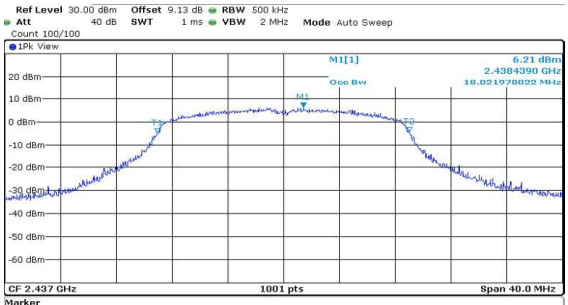
D.1



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.410202 GHz	6.16 dBm		
T1		1	2.402969 GHz	-5.08 dBm	Occ Bw	17.982017982 MHz
T2		1	2.420951 GHz	-4.73 dBm		

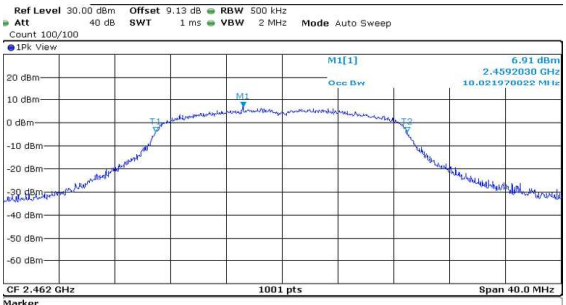
D.2



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.438439 GHz	6.21 dBm		
T1		1	2.427969 GHz	-4.95 dBm	Occ Bw	18.021978022 MHz
T2		1	2.445991 GHz	-4.35 dBm		

D.3



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.459203 GHz	6.91 dBm		
T1		1	2.4529291 GHz	-3.98 dBm	Occ Bw	18.021978022 MHz
T2		1	2.470951 GHz	-4.10 dBm		

4.1.4 Maximum Peak Conducted Output Power

Result: **Pass**

Test Specification

Test standard	:	FCC 47 CFR Part 15.247 (b)(3) RSS-247 Issue 3, Clause 5.4(d)
Basic standard	:	ANSI C63.10: 2013, Clause 11.9.1
Limits	:	Not more than 1Watt(30dBm)
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	2023.06.12-2023.07.08
Input voltage	:	DC 21.6V
Operational mode	:	Refer to below table
Temperature	:	23°C
Relative humidity	:	56%
Atmospheric pressure	:	101.2 kPa

Table 7: Test result of Maximum Peak Output Power

Mode	Peak Output Power (dBm)	Limit (dBm)	Verdict
A.1	3.45	≤30	Pass
A.2	3.26	≤30	Pass
A.3	3.02	≤30	Pass
B.1	13.83	≤30	Pass
B.2	13.84	≤30	Pass
B.3	13.97	≤30	Pass
C.1	12.16	≤30	Pass
C.2	12.34	≤30	Pass
C.3	12.31	≤30	Pass
D.1	11.59	≤30	Pass
D.2	11.71	≤30	Pass
D.3	11.76	≤30	Pass

4.1.5 Equivalent Isotropically Radiated Power

Result: **Pass**

Test Specification

Test standard	:	RSS-247 Issue 3, Clause 5.4(d)
Basic standard	:	ANSI C63.10: 2013, Clause 9.5
Limits	:	Not more than 4Watt(36dBm)
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	2023.06.12-2023.07.08
Input voltage	:	DC 21.6V
Operational mode	:	Refer to below table
Temperature	:	23°C
Relative humidity	:	56%
Atmospheric pressure	:	101.2 kPa

Table 8: Test result of E.I.R.P.

Mode	Peak Output Power (dBm)	Antenna Gain (dBi)	E.I.R.P. (dBm)	Limit (dBm)	Verdict
A.1	3.45	3.5	6.95	≤36	Pass
A.2	3.26	3.5	6.76	≤36	Pass
A.3	3.02	3.5	6.52	≤36	Pass
B.1	13.83	3.5	17.33	≤36	Pass
B.2	13.84	3.5	17.34	≤36	Pass
B.3	13.97	3.5	17.47	≤36	Pass
C.1	12.16	3.5	15.66	≤36	Pass
C.2	12.34	3.5	15.84	≤36	Pass
C.3	12.31	3.5	15.81	≤36	Pass
D.1	11.59	3.5	15.09	≤36	Pass
D.2	11.71	3.5	15.21	≤36	Pass
D.3	11.76	3.5	15.26	≤36	Pass

4.1.6 Peak Power Spectral Density

Result: **Pass**

Test Specification

Test standard	:	FCC 47 CFR Part 15.247 (e) RSS-247 Issue 3, Clause5.2(b)
Basic standard	:	ANSI C63.10: 2013, Clause 11.10.2
Limits	:	Not more than 8 dBm in any 3 kHz band
Kind of test site	:	Shielded Room

Test Setup

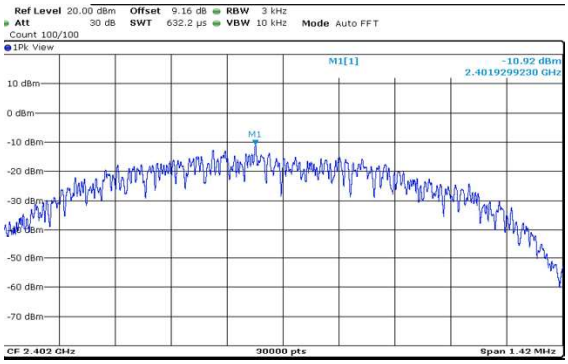
Date of testing	:	2023.06.12-2023.07.08
Input voltage	:	DC 21.6V
Operational mode	:	Refer to below table
Temperature	:	23°C
Relative humidity	:	56%
Atmospheric pressure	:	101.2 kPa

Table 9: Test result of Peak Power Spectral Density

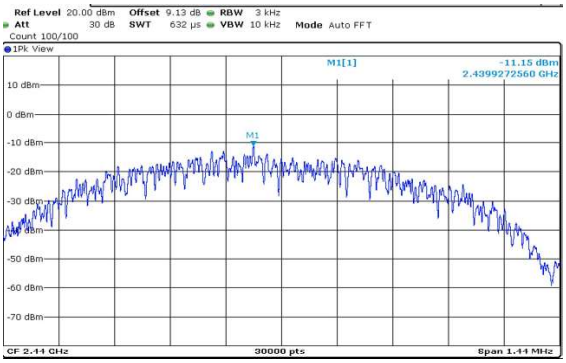
Mode	Peak Power Spectral Density (dBm/3KHz)	Limit (dBm/3KHz)	Verdict
A.1	-10.92	≤30	Pass
A.2	-11.15	≤30	Pass
A.3	-11.38	≤30	Pass
B.1	-17.29	≤30	Pass
B.2	-17.35	≤30	Pass
B.3	-16.98	≤30	Pass
C.1	-21.29	≤30	Pass
C.2	-20.72	≤30	Pass
C.3	-21.10	≤30	Pass
D.1	-21.11	≤30	Pass
D.2	-21.04	≤30	Pass
D.3	-21.08	≤30	Pass

Figure 3: Peak Power Spectral Density Measurement

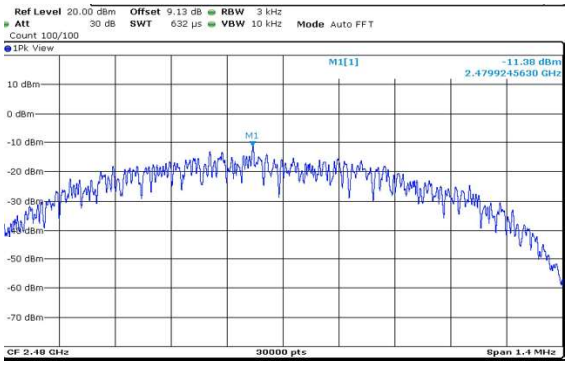
A.1



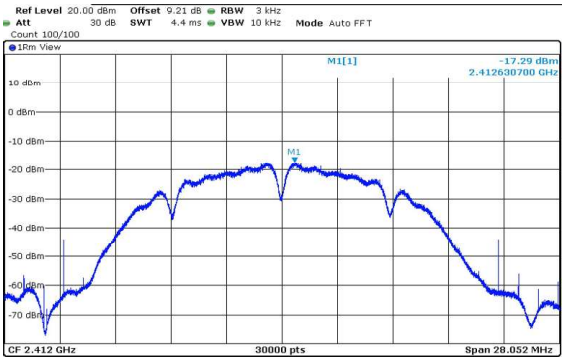
A.2



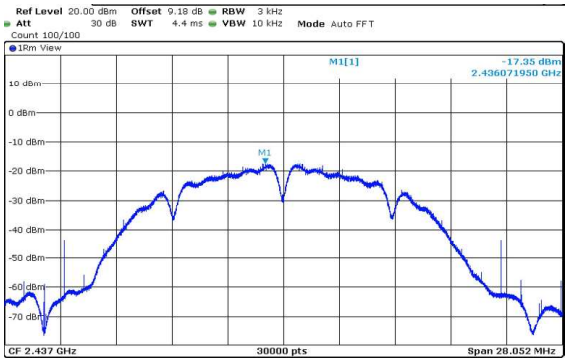
A.3



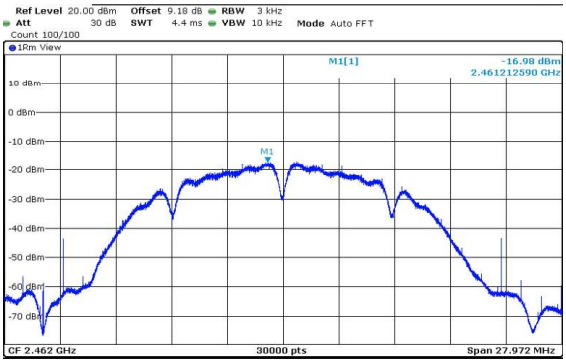
B.1



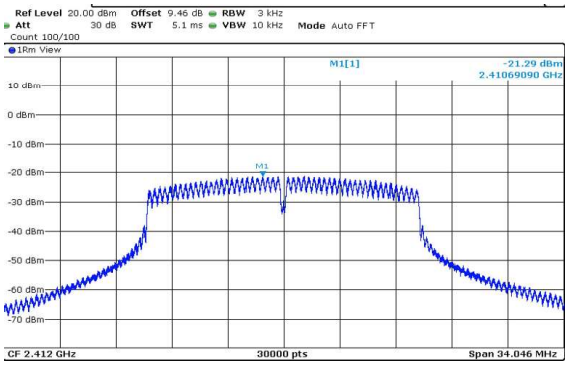
B.2



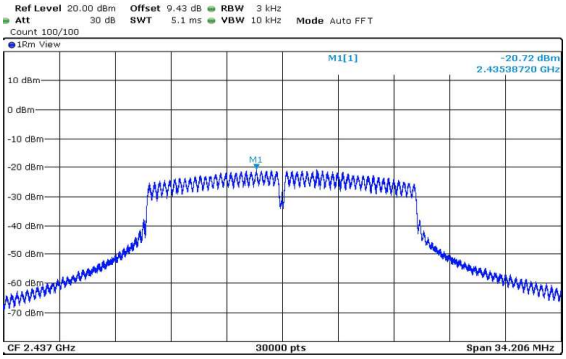
B.3



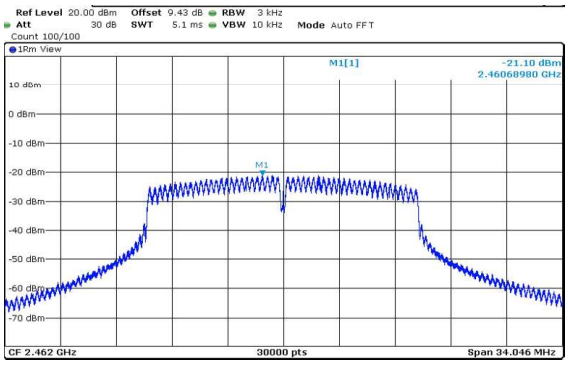
C.1



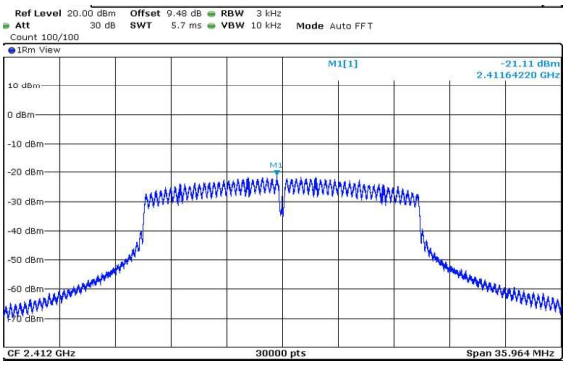
C.2



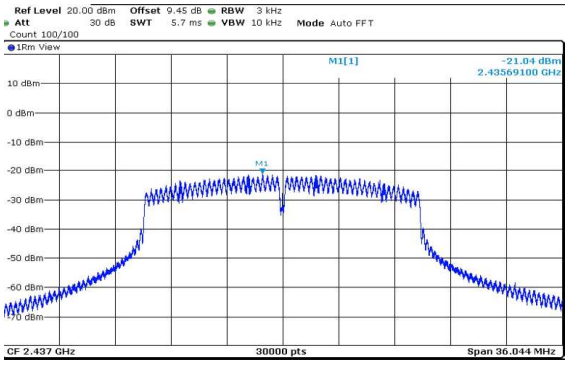
C.3



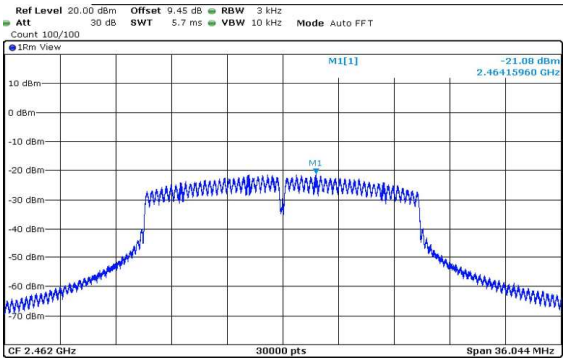
D.1



D.2



D.3



4.1.7 Conducted Spurious Emissions Measured in 100 kHz Bandwidth

Result: **Pass**

Test Specification		
Test standard	:	FCC 47 CFR Part 15.247 (d) RSS-247 Issue 3, Clause 5.5
Basic standard	:	ANSI C63.10: 2013, Clause 11.11
Limits	:	20dB (below that in the 100kHz bandwidth within the band that contains the highest level of the desired power)
Kind of test site	:	Shielded Room

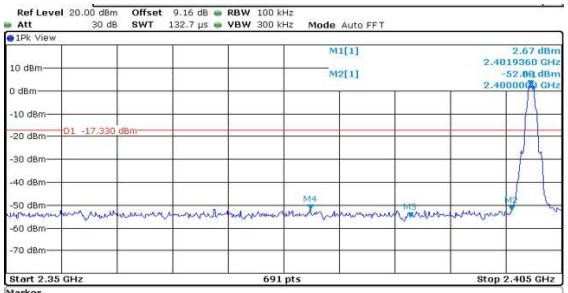
Test Setup

Date of testing	:	2023.06.12-2023.07.08
Input voltage	:	DC 21.6V
Operational mode	:	A.1, A.2, A.3, B.1, B.2, B.3, C.1, C.2, C.3, D.1, D.2, D.3
Temperature	:	23°C
Relative humidity	:	56%
Atmospheric pressure	:	101.2 kPa

All emissions are more than 20dB below fundamental, compliance is achieved as well.

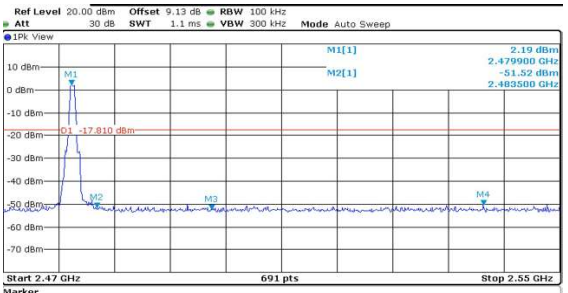
Figure 4: Band Edge

A.1



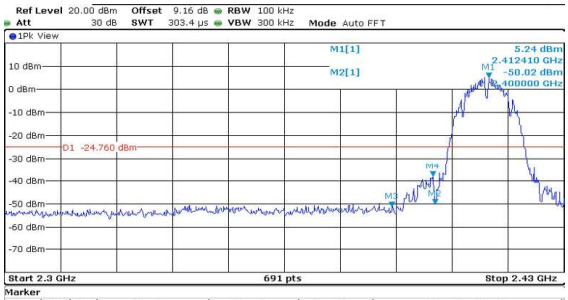
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.401936 GHz	2.67 dBm		
M2		1	2.4 GHz	-52.08 dBm		
M3		1	2.39 GHz	-55.22 dBm		
M4		1	2.380130 GHz	-51.00 dBm		

A.3



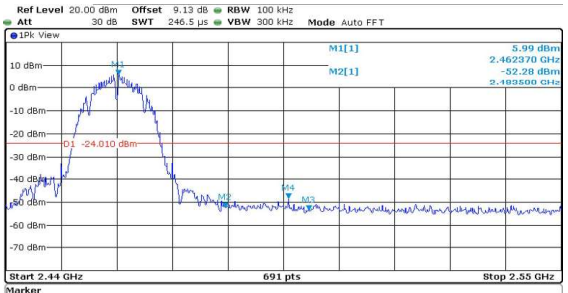
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.4799 GHz	2.19 dBm		
M2		1	2.4835 GHz	-51.52 dBm		
M3		1	2.5 GHz	-52.32 dBm		
M4		1	2.538986 GHz	-50.19 dBm		

B.1



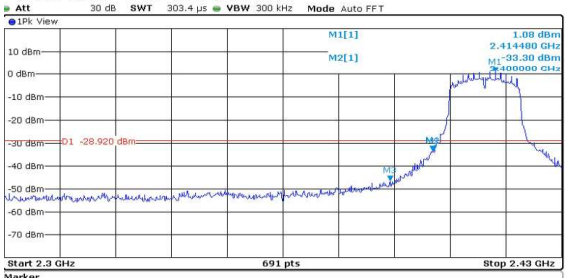
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.41241 GHz	5.24 dBm		
M2		1	2.4 GHz	-50.02 dBm		
M3		1	2.39 GHz	-51.24 dBm		
M4		1	2.399478 GHz	-37.99 dBm		

B.3



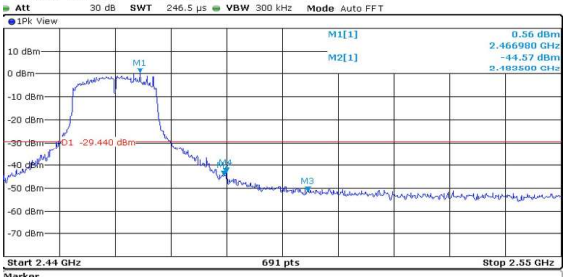
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.46237 GHz	5.99 dBm		
M2		1	2.4835 GHz	-52.28 dBm		
M3		1	2.5 GHz	-53.46 dBm		
M4		1	2.495957 GHz	-48.39 dBm		

C.1



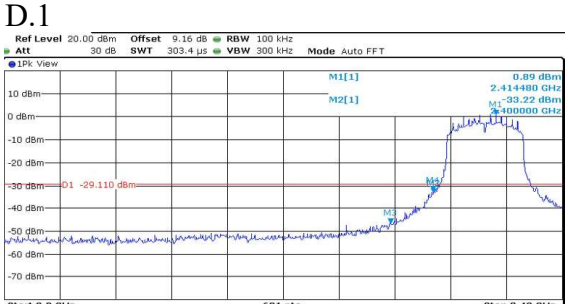
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.41448 GHz	1.08 dBm		
M2		1	2.4 GHz	-33.30 dBm		
M3		1	2.39 GHz	-46.39 dBm		
M4		1	2.399855 GHz	-33.14 dBm		

C.3



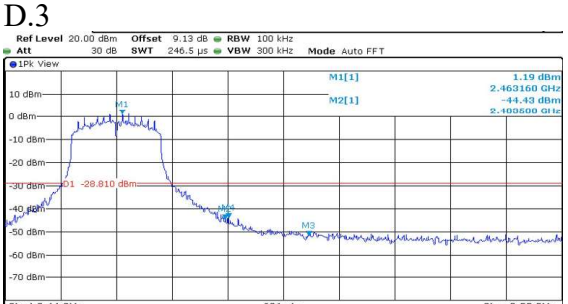
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.46698 GHz	0.56 dBm		
M2		1	2.4835 GHz	-44.57 dBm		
M3		1	2.5 GHz	-51.53 dBm		
M4		1	2.483841 GHz	-43.37 dBm		

D.1



Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.41448 GHz	0.89 dBm		
M2		1	2.4 GHz	-33.22 dBm		
M3		1	2.39 GHz	-46.54 dBm		
M4		1	2.399855 GHz	-31.88 dBm		

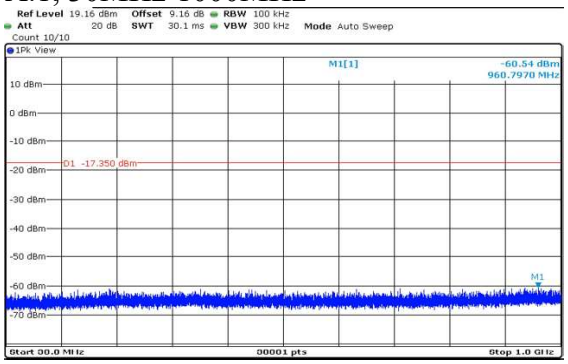
D.3



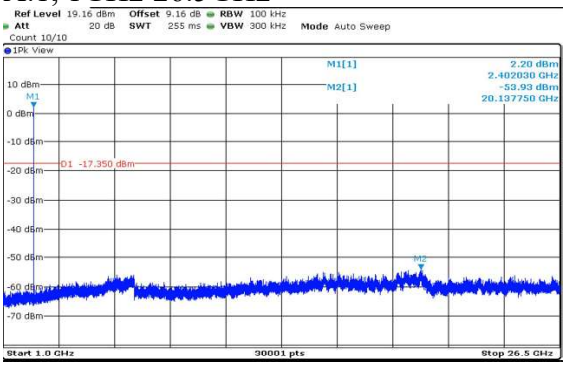
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.46316 GHz	1.19 dBm		
M2		1	2.4835 GHz	-44.43 dBm		
M3		1	2.5 GHz	-51.78 dBm		
M4		1	2.484159 GHz	-43.88 dBm		

Figure 5: Conducted Spurious Emission

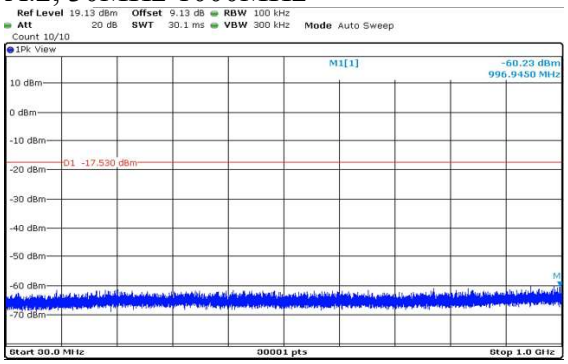
A.1, 30MHz-1000MHz



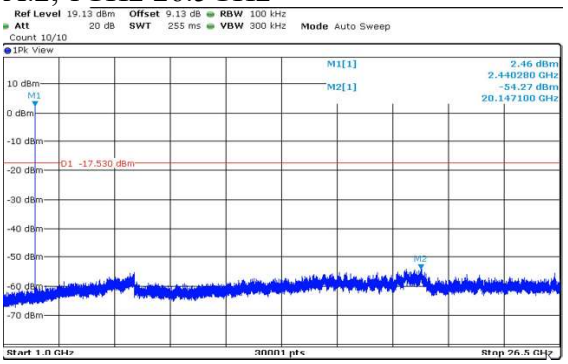
A.1, 1GHz-26.5GHz



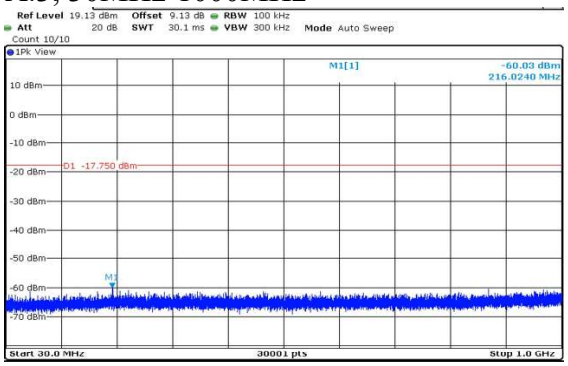
A.2, 30MHz-1000MHz



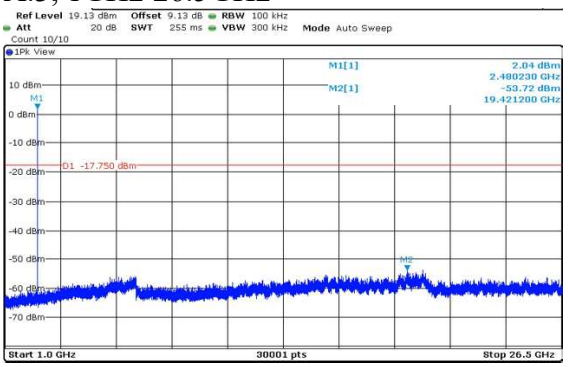
A.2, 1GHz-26.5GHz



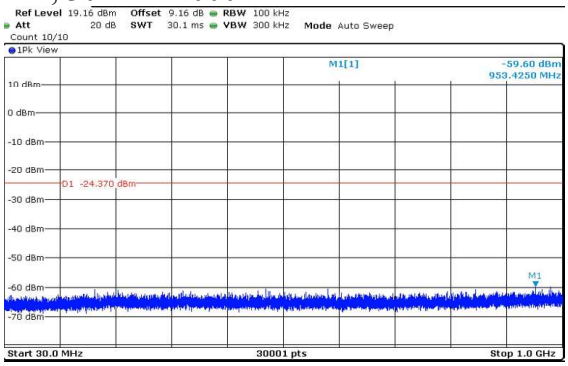
A.3, 30MHz-1000MHz



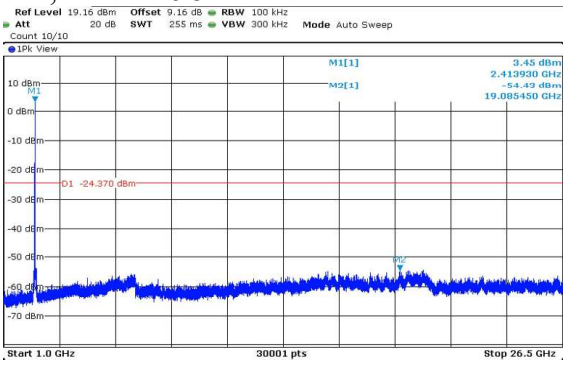
A.3, 1GHz-26.5GHz



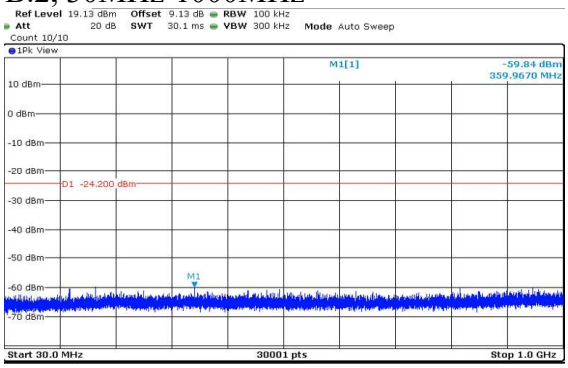
B.1, 30MHz-1000MHz



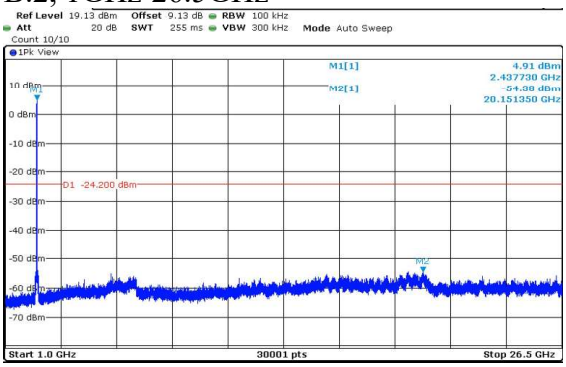
B.1, 1GHz-26.5GHz



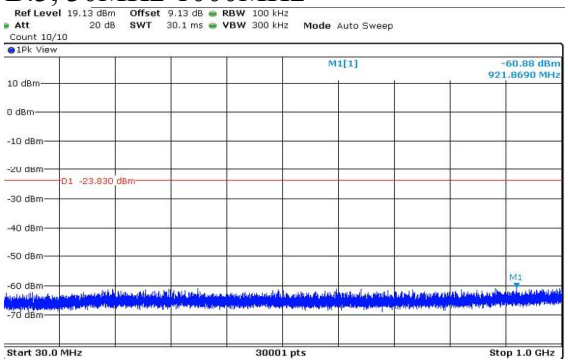
B.2, 30MHz-1000MHz



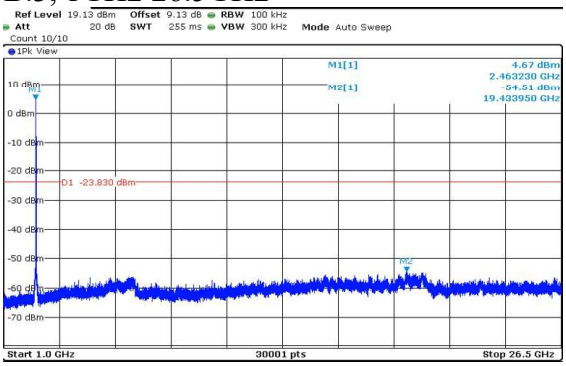
B.2, 1GHz-26.5GHz



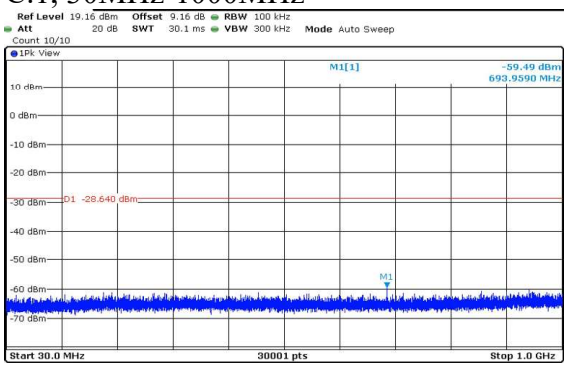
B.3, 30MHz-1000MHz



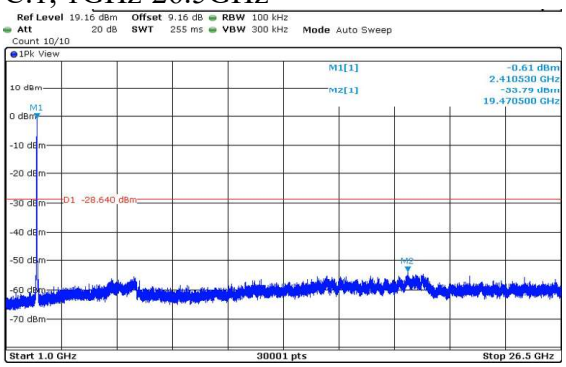
B.3, 1GHz-26.5GHz



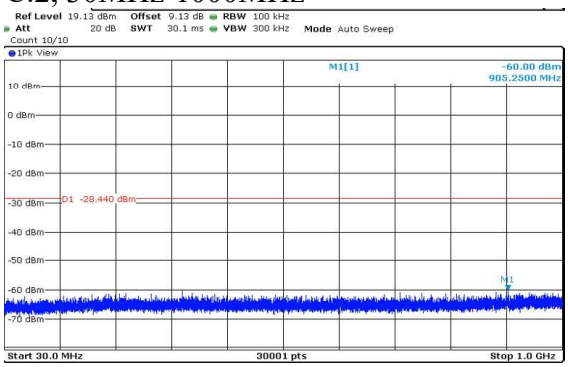
C.1, 30MHz-1000MHz



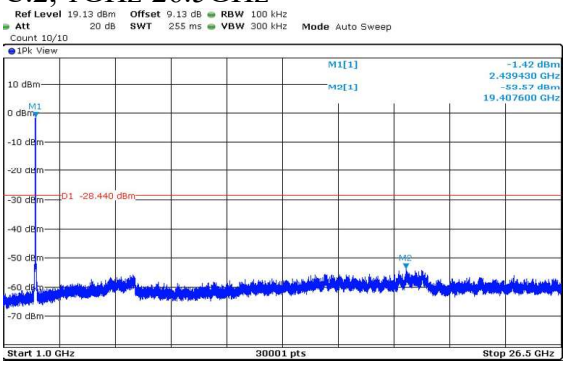
C.1, 1GHz-26.5GHz



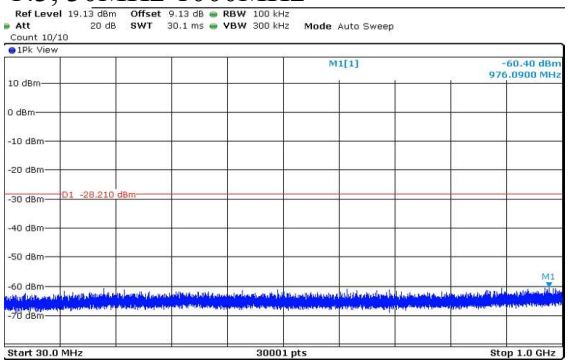
C.2, 30MHz-1000MHz



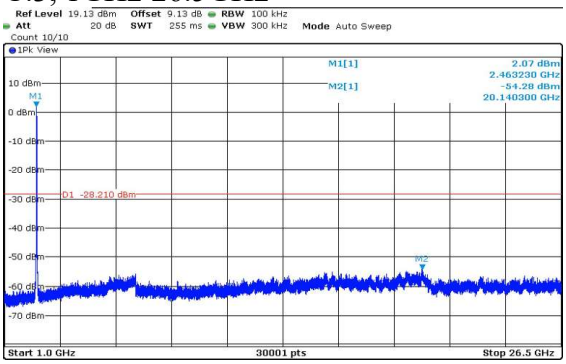
C.2, 1GHz-26.5GHz



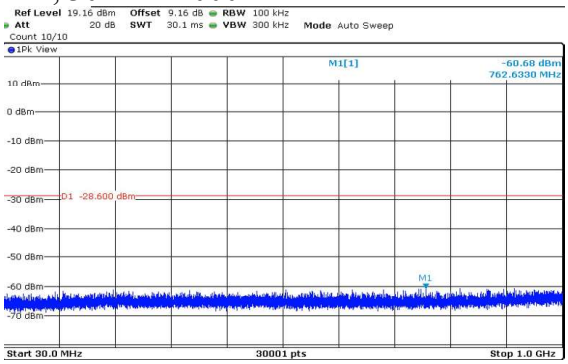
C.3, 30MHz-1000MHz



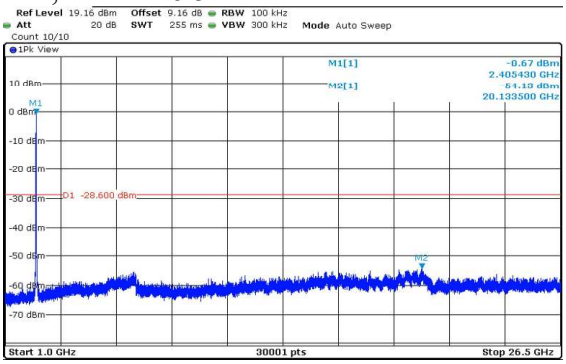
C.3, 1GHz-26.5GHz



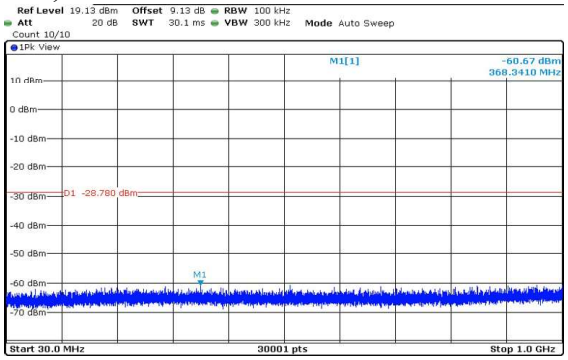
D.1, 30MHz-1000MHz



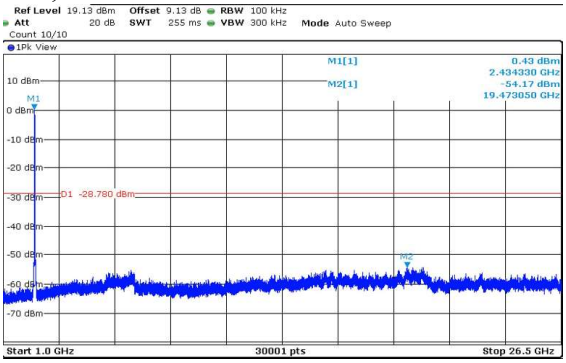
D.1, 1GHz-26.5GHz



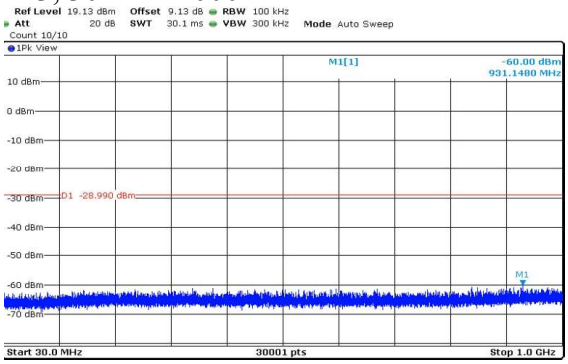
D.2, 30MHz-1000MHz



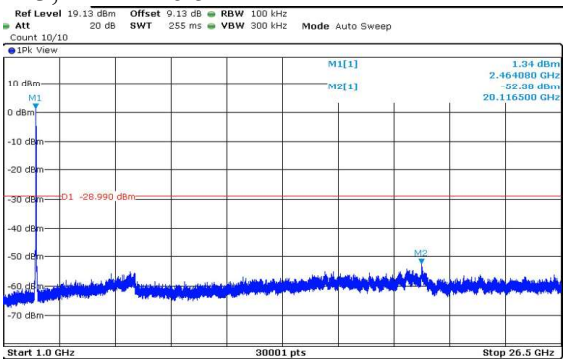
D.2, 1GHz-26.5GHz



D.3, 30MHz-1000MHz



D.3, 1GHz-26.5GHz



4.1.8 Conducted Emission (AC power-line)

Result: **Pass**

Test Specification		
Test standard	:	CFR47 FCC Part 15.107 CFR47 FCC Part 15.207 ICES-003 Issue 7:2020 RSS-Gen Issue 5, Clause 8.8
Basic standard	:	ANSI C63.10: 2013, Clause 6.2
Port	:	Mains
Frequency range	:	0.15 – 30MHz
Limits	:	CFR47 FCC Part 15.107/CFR47 FCC Part 15.207 ICES-003 Issue 7:2020, table 1/RSS-Gen Issue 5, table 4
Kind of test site	:	Shielding Room

Test Setup

Date of testing	:	2023.06.12-2023.07.08
Input voltage	:	AC 120V
Operational mode	:	F
Temperature	:	21°C
Relative humidity	:	63%
Atmospheric pressure	:	101.2 kPa

The measurement setup was made according to ANSI C63.4:2014 in a shielded room.

The measurement equipment like test receivers, quasi-peak detector and artificial mains network (AMN) are in compliance with ANSI C63.4:2014 and CISPR 16-1 series standards.

The tested object was set-up on a wooden table. The EUT was set 0.8m away from the AMN. The cord longer than necessary to be connected to the AMN was folded forth and back parallel so as to form a bundle with a length between 0.3m and 0.4m.

The disturbance voltage test was performed on the neutral line and phase line of the power supply of the EUT respectively.

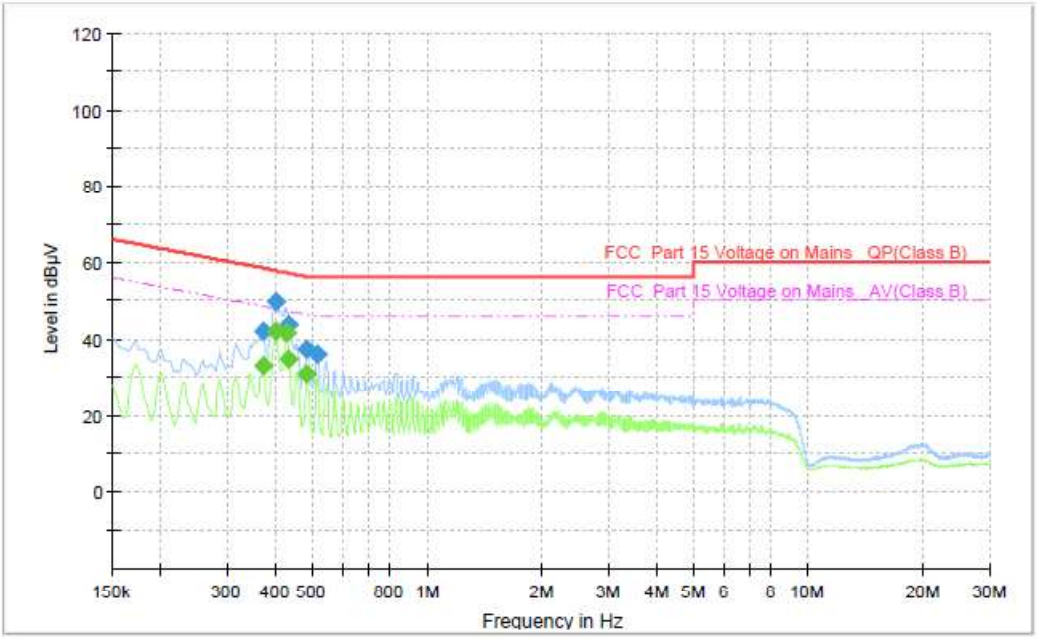
Before measurement, a survey was made to determine in which state the maximum disturbance was obtained. And the measurement was made in the state the maximum disturbance was obtained.

The following figures and tables were those measured by an automatic measuring system. Both Quasi Peak and Average Value were measured. Quasi-Peak and Average Value were measured and listed respectively where they had a maximum in previous scanning survey. In the Figures, "•" means Quasi-Peak Value and Average Value which were measured in final measurement.

The measurement result is calculated based on the following formula by the test software:

Emission Level = Reading level + Correction (LISN factor + cable loss)

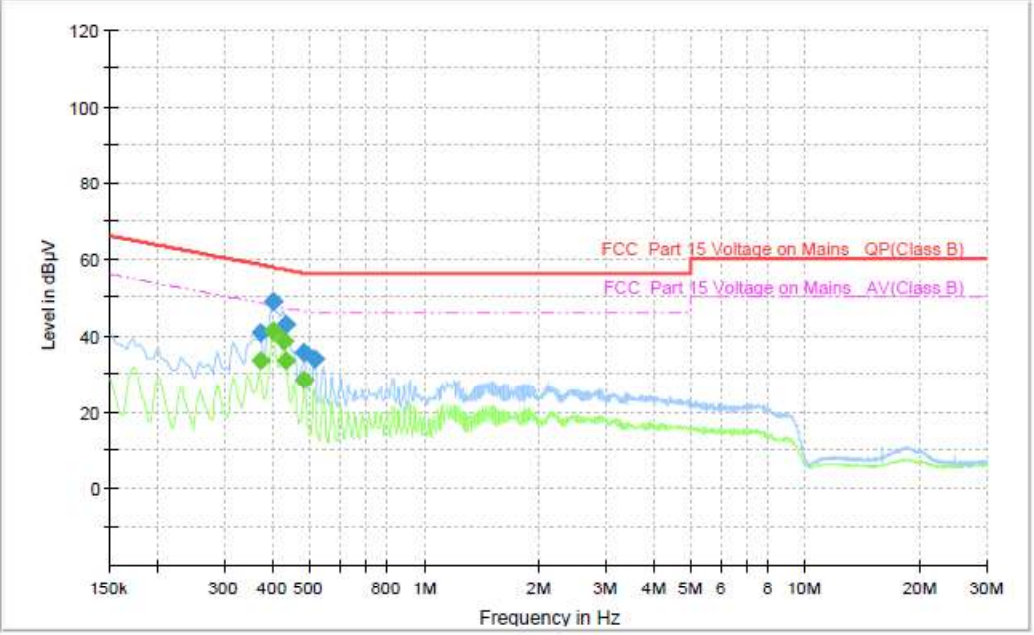
Figure 6: Spectral Diagrams, Conducted Emission, 150KHz - 30MHz, L, Adapter 1



Final Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.370500	---	32.95	48.49	15.54	1000.0	9.000	L1	ON	9.6
0.370500	41.94	---	58.49	16.55	1000.0	9.000	L1	ON	9.6
0.399750	---	42.20	47.86	5.66	1000.0	9.000	L1	ON	9.6
0.399750	49.84	---	57.86	8.02	1000.0	9.000	L1	ON	9.6
0.426750	---	41.57	47.32	5.74	1000.0	9.000	L1	ON	9.6
0.433500	43.79	---	57.19	13.40	1000.0	9.000	L1	ON	9.6
0.433500	---	34.96	47.19	12.23	1000.0	9.000	L1	ON	9.6
0.485250	37.42	---	56.25	18.83	1000.0	9.000	L1	ON	9.6
0.485250	---	30.86	46.25	15.39	1000.0	9.000	L1	ON	9.6
0.514500	35.91	---	56.00	20.09	1000.0	9.000	L1	ON	9.6

Figure 7: Spectral Diagrams, Conducted Emission, 150KHz - 30MHz, N, Adapter 1



Final Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.370500	---	33.67	48.49	14.82	1000.0	9.000	N	ON	9.6
0.370500	40.78	---	58.49	17.71	1000.0	9.000	N	ON	9.6
0.399750	---	41.01	47.86	6.85	1000.0	9.000	N	ON	9.6
0.399750	48.94	---	57.86	8.92	1000.0	9.000	N	ON	9.6
0.426750	---	38.85	47.32	8.46	1000.0	9.000	N	ON	9.6
0.433500	42.81	---	57.19	14.37	1000.0	9.000	N	ON	9.6
0.433500	---	33.66	47.19	13.53	1000.0	9.000	N	ON	9.6
0.485250	35.72	---	56.25	20.53	1000.0	9.000	N	ON	9.6
0.485250	---	28.43	46.25	17.82	1000.0	9.000	N	ON	9.6
0.514500	33.81	---	56.00	22.19	1000.0	9.000	N	ON	9.6