

Prüfbericht-Nr.: <i>Test report no.:</i>	CN22LJYU 003	Auftrags-Nr.: <i>Order no.:</i>	168490719	Seite 1 von 13 Page 1 of 13
Kunden-Referenz-Nr.: <i>Client reference no.:</i>	N/A	Auftragsdatum: <i>Order date:</i>	2024-06-24	
Auftraggeber: <i>Client:</i>	Shenzhen RAKwireless Technology Co.,Ltd. Room 506, Building B, New Compark, Pingshan First Road, Taoyuan Street, Nanshan District, Shenzhen, Guangdong, P.R. China			
Prüfgegenstand: <i>Test item:</i>	WisGate			
Bezeichnung / Typ-Nr.: <i>Identification / Type no.:</i>	RAK7268C, RAK7268CV2 (Trademark: )			
Auftrags-Inhalt: <i>Order content:</i>	Test Report			
Prüfgrundlage: <i>Test specification:</i>	CFR47 FCC Part 15: Subpart B Section 15.107 CFR47 FCC Part 15: Subpart B Section 15.109 ICES-003 Issue 7 October 2020			
Wareneingangsdatum: <i>Date of sample receipt:</i>	2024-07-01	Refer to photos documents		
Prüfmuster-Nr.: <i>Test sample no.:</i>	A003755951-002			
Prüfzeitraum: <i>Testing period:</i>	2024-08-03 - 2024-08-15			
Ort der Prüfung: <i>Place of testing:</i>	Refer to section 2.1			
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüfergebnis*: <i>Test result*:</i>	Pass			
geprüft von: <i>tested by:</i>	 Hardy Suo	genehmigt von: <i>authorized by:</i>	 Lin Lin	
Datum: <i>Date:</i>	2024-08-20	Ausstellungsdatum: <i>Issue date:</i>	2024-08-20	
Stellung / Position	Sachverständige(r)/Expert	Stellung / Position	Sachverständige(r)/Expert	
Sonstiges / <i>Other:</i>	FCC ID: 2AF6B-RAK7268C This report based on previous report CN22LJYU 001 (issued by TÜV Rheinland (Shenzhen) Co., Ltd.) for adding an alternative Lora Module (MN: RAK2287X), refer to section 3.1 for details.			
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>	Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i>			
* Legende: <i>* Legend:</i>	P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet 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. <i>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.</i>				

Prüfbericht-Nr.: CN22LJYU 003
Test report no.:

Seite 2 von 13
Page 2 of 13

Anmerkungen Remarks

1	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. <i>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.</i> <i>Detailed information regarding test conditions, equipment and measurement uncertainty is available in the test laboratory and could be provided on request.</i>
2	Wie vertraglich vereinbart, wurde dieses Dokument nur digital unterzeichnet. Der TÜV Rheinland hat nicht überprüft, welche rechtlichen oder sonstigen diesbezüglichen Anforderungen für dieses Dokument gelten. Diese Überprüfung liegt in der Verantwortung des Benutzers dieses Dokuments. Auf Verlangen des Kunden kann der TÜV Rheinland die Gültigkeit der digitalen Signatur durch ein gesondertes Dokument bestätigen. Diese Anfrage ist an unseren Vertrieb zu richten. Eine Umweltgebühr für einen solchen zusätzlichen Service wird erhoben. <i>As contractually agreed, this document has been signed digitally only. TUV Rheinland has not verified and unable to verify which legal or other pertaining requirements are applicable for this document. Such verification is within the responsibility of the user of this document. Upon request by its client, TUV Rheinland can confirm the validity of the digital signature by a separate document. Such request shall be addressed to our Sales department. An environmental fee for such additional service will be charged.</i>
3	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. <i>Test clauses with remark of * are subcontracted to qualified subcontractors and described under the respective test clause in the report.</i> <i>Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report.</i>
4	Die Entscheidungsregel für Konformitätserklärungen basierend auf numerischen Messergebnissen 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 bezüglich des Risikos durch diese Entscheidungsregel siehe ILAC G8:2019. <i>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.</i>

Prüfbericht - Nr.: CN22LJYU 003
Test report no.

Seite 3 von 13
Page 3 of 13

Modification record	
CN22LJYU 001	First release
CN22LJYU 003	Adds an alternative Lora Module (MN: RAK2287X)

Prüfbericht - Nr.: CN22LJYU 003
Test report no.

Seite 4 von 13
Page 4 of 13

Test Summary

5.1 Conducted emissions
RESULT: Pass
5.2 Radiated emissions
RESULT: Pass

Contents

1	GENERAL REMARKS	6
1.1	COMPLEMENTARY MATERIALS	6
2	TEST SITES.....	6
2.1	TEST FACILITIES.....	6
2.2	LIST OF TEST AND MEASUREMENT INSTRUMENTS	6
2.3	TRACEABILITY	7
2.4	CALIBRATION	7
2.5	MEASUREMENT UNCERTAINTY	7
2.6	LOCATION OF ORIGINAL DATA	7
2.7	STATUS OF FACILITY USED FOR TESTING	7
3	GENERAL PRODUCT INFORMATION	8
3.1	PRODUCT FUNCTION AND INTENDED USE.....	8
3.2	RATINGS AND SYSTEM DETAILS	8
3.3	INDEPENDENT OPERATION MODES	8
3.4	NOISE GENERATING AND NOISE SUPPRESSING PARTS	9
3.5	SUBMITTED DOCUMENTS.....	9
4	TEST SET-UP AND OPERATION MODES	9
4.1	PRINCIPLE OF CONFIGURATION SELECTION	9
4.2	TEST OPERATION AND TEST SOFTWARE	9
4.3	SPECIAL ACCESSORIES AND AUXILIARY EQUIPMENT	9
4.4	COUNTERMEASURES TO ACHIEVE EMC COMPLIANCE	9
4.5	TEST SETUP DIAGRAM	10
5	TEST RESULTS.....	11
5.1	CONDUCTED EMISSIONS.....	11
5.2	RADIATED EMISSION	12
6	LIST OF TABLES	13

1 General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix A: Test Result.

Appendix B: Test Setup Photos.

2 Test Sites

2.1 Test Facilities

Shenzhen UnionTrust Quality and Technology Co., Ltd.

16/F, Block A, Building 6, Baoneng Science and Technology Park, Qingxiang Road No.1, Longhua New District, Shenzhen, China

A2LA Certificate Number: 4312.01

IC Registration No.: 21600, CAB identifier: CN0032

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Kind of Equipment	Manufacturer	Type	S/N	Calibrated until
Conducted Emission				
LISN	R&S	ESH2-Z5	860014/024	26-Oct-2024
Receiver	R&S	ESR7	101181	26-Oct-2024
Pulse Limiter	R&S	ESH3-Z2	0357.8810.54	26-Oct-2024
Shielding room	ETS-Lindgren	843	Euroshiedpn-CT001270-1246	4-Nov-2024
Test Software	EZ-EMC	EZ-CON	Software Version: EMC-CON 3A1.1	
Radiated Disturbances				
3m Chamber & Accessory Equipment	ETS-Lindgren	3m	Euroshiedpn-CT001270-1317	10-Nov-2026
Broadband Antenna	ETS-Lindgren	3142E	00201566	29-Oct-2024
6dB Attenuator	Talent	RA6A5-N-18	18103001	29-Oct-2024
Pre-amplifier	HP	8447F	2805A02960	30-Oct-2024
Receiver	ROHDE & SCHWARZ	ESIB26	100114	26-Oct-2024
Double-Ridged Waveguide Horn Antenna (Pre-amplifier)	ETS-LINDGREN	3117-PA	00201541	31-Mar-2025
Pre-amplifier	ETS-Lindgren	00118385	00201874	30-Oct-2024

Prüfbericht - Nr.: CN22LJYU 003
Test report no.

Seite 7 von 13
Page 7 of 13

Multi device Controller	ETS-Lindgren	7006-001	00160105	N/A
Test Software	Audix	e3	Software Version: 9.160323	

2.3 Traceability

All measurement equipment calibrations are traceable to NIM (National Institute of Metrology) or where calibration is performed in other countries, to equivalent nationally recognized standards organizations.

2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

2.5 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements as below table

No.	Item	Measurement Uncertainty
1	Conducted emission 9kHz-150kHz	± 3.2 dB
2	Conducted emission 150kHz-30MHz	± 2.7 dB
3	Radiated emission 30MHz-1GHz	± 4.6 dB
4	Radiated emission 1GHz-18GHz	± 4.4 dB
Remark: 95% Confidence Levels, k=2.		

2.6 Location of Original Data

The original copies of all test data taken during actual testing were at this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Shenzhen) file for certification follow-up purposes.

2.7 Status of Facility Used for Testing

The Shenzhen UnionTrust Quality and Technology Co., Ltd. facility located at 16/F, Block A, Building 6, Baoneng Science and Technology Park, Qingxiang Road No.1, Longhua New District, Shenzhen, China is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

3 General Product Information

3.1 Product Function and Intended Use

The EUT is a WisGate which supports Lora, 2.4GHz Wi-Fi and LTE wireless technologies.

Contains FCC ID: XMR201807EG95NA, 2AF6B-RAK634, 2AF6B-RAK2287X.

The model RAK7268C is identical with model RAK7268CV2 except non-radio related Flash chip U2 (on the wifi module): 16MB and 32MB, and this two Flash chip are pin to pin only the storage space is different.

This report based on previous CN22LJYU 001 (issued by TÜV Rheinland (Shenzhen) Co., Ltd.) for adding an alternative Lora module (MN: RAK2287X), additional EMC tests were re-performed on model RAK7268CV2 with new Lora module (MN: RAK2287X). Refer to report previous CN22LJYU 001 for original test data with original Lora module (MN: RAK5146).

For details refer to the User Manual, Technical Description and Circuit Diagram.

3.2 Ratings and System Details

Table 2: Technical Specification of EUT

General Information of EUT	Value
Kind of Equipment:	WisGate
Type Designation:	RAK7268C, RAK7268CV2
Operating Voltage:	DC 12V via AC/DC Adapter or DC 37 ~ 57V via POE adapter
Testing Voltage:	AC 120V, 60Hz (Power supply to AC/DC Adapter or POE adapter)
Operating Temperature Range:	-30 °C ~ +45 °C
AC/DC Adapter information:	Model #1: AD-0241200200US-1 Model #2: PSY1202000US Model #3: PSYC1202000 Rating for all models: Input: AC 100-240V, 50/60Hz, 0.6A Max Output: DC 12.0V, 2A 24.0W Note: Model #2 is identical with model # 3 except the type of plug.

3.3 Independent Operation Modes

The basic operation modes are:

A. On, On, WIFI link + LTE link + Lora link, powered by AC/DC Adapter

B. On, On, WIFI link + LTE link + Lora link, powered by POE adapter

3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

3.5 Submitted Documents

- Block Diagram
- Photo Document
- Schematics
- User Manual

4 Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

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.

4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5. All testing were performed according to the procedures in ANSI C63.4: 2014.

According to clause 3.1, all test were applied on model RAK7268CV2.

4.3 Special Accessories and Auxiliary Equipment

Table 3: List of Accessories and Auxiliary Equipment

Description	Manufacturer	Model	S/N	Remark
Portable Laptop	Lenovo	ThinkPad T480	10Q67059	N/A
POE Adapter	RAK	GRT-POE20-480050	N/A	Input: AC 100V~240V, 50/60Hz, 0.5A Max Output: DC 48V, 0.5A, 24W

4.4 Countermeasures to Achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Technical Construction File (TCF). No additional measures were employed to achieve compliance.

4.5 Test Setup Diagram

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

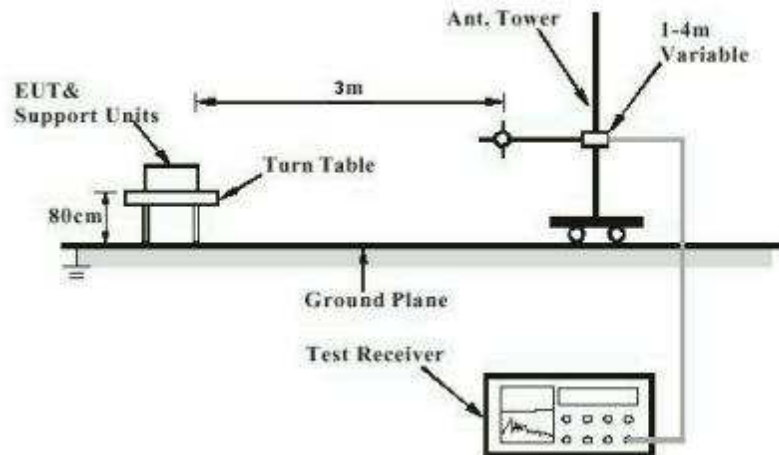


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)

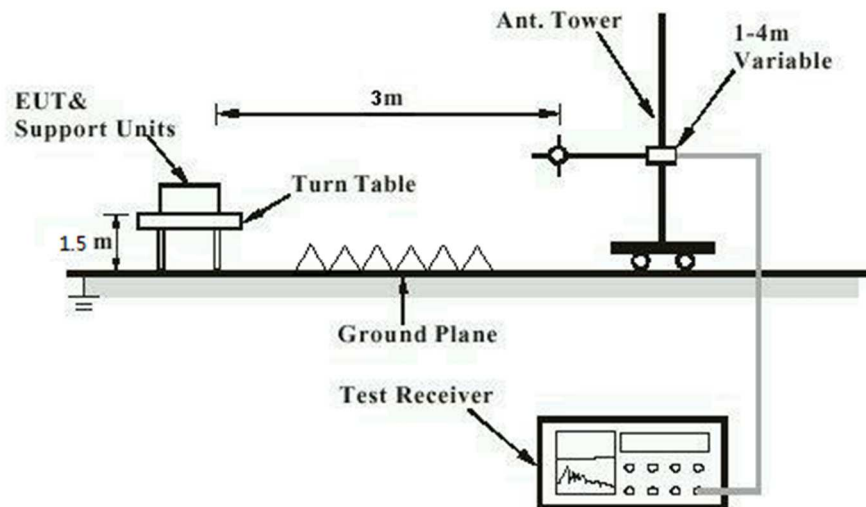
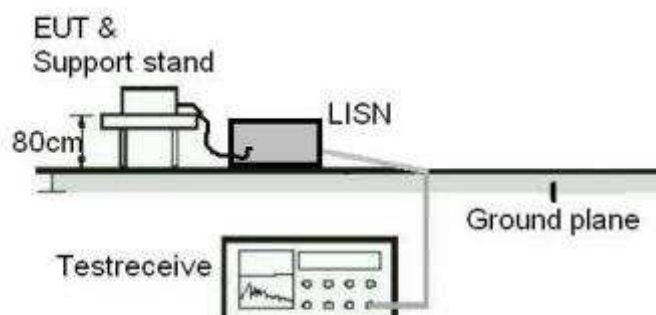


Diagram of Measurement Configuration for Mains Conduction Measurement



5 Test Results

5.1 Conducted Emissions

RESULT: Pass

Test Specification

Test standard	: FCC Part 15.107(a)
	: ICES-003 Issue 7, Clause 3.2.1
Basic standard	: ANSI C63.4: 2014
Frequency range	: 150KHz - 30MHz
Classification	: Class B
Limit	: FCC Part 15.107(a) & ICES-003 Table 1
Kind of test site	: Shielded Room

Test Setup

Date of testing	: 2024-08-03 - 2024-08-15
Input voltage	: AC 120V, 60Hz
Operation mode	: A, B
Earthing	: Not Connected
Ambient temperature	: Refer to test data
Relative humidity	: Refer to test data
Atmospheric pressure	: 101 kPa

For the measurement records, refer to appendix A.

Prüfbericht - Nr.: CN22LJYU 003
Test report no.

Seite 12 von 13
Page 12 of 13

5.2 Radiated Emission

RESULT:

Pass

Test Specification

Test standard	: FCC Part 15.109(a) ICES-003 Issue 7, Clause 3.2.2
Basic standard	: ANSI C63.4: 2014
Frequency range	: 30MHz to 5 th highest fundamental frequency
Classification	: Class B
Limit	: FCC Part 15.109(a) ICES-003 Table 2 & Table 4
Kind of test site	: 3m Semi-anechoic Chamber & 3m Full-anechoic Chamber

Test Setup

Date of testing	: 2024-08-03 - 2024-08-15
Input voltage	: AC 120V, 60Hz
Operation mode	: A, B
Earthing	: Not Connected
Ambient temperature	: Refer to test data
Relative humidity	: Refer to test data
Atmospheric pressure	: 101 kPa

For the measurement records, refer to appendix A.

Remark 1: The limit of below radiated emission test data is from FCC part 15.109, it also meet the limit of ICES-003 issue 7.

Remark 2: The host (RAK7268CV2) has been evaluated according to module: LoRa Concentrator Module with C2PC (FCC ID: 2AF6B-RAK2287X) procedure in test report CN22LJYU 004, and the Radiated Spurious Emissions was carried out within frequency range 9 kHz to the fifth harmonics, refer to CN22LJYU 004 for details of measurement results.

6 List of Tables

Table 1: List of Test and Measurement Equipment.....	6
Table 2: Technical Specification of EUT	8
Table 3: List of Accessories and Auxiliary Equipment.....	9

Appendix A

Test Results

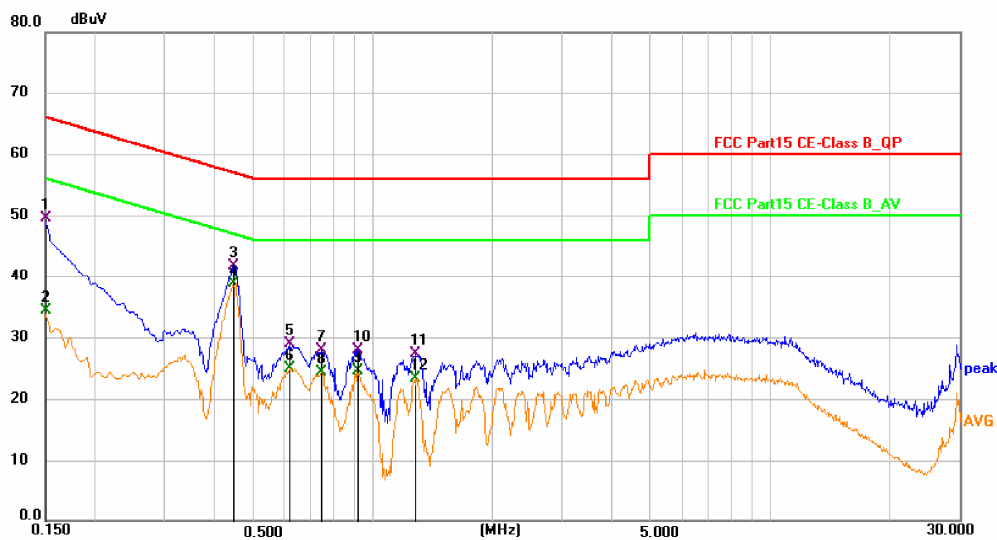
1 APPENDIX A.1: TEST PLOTS OF CONDUCTED EMISSIONS 2
 2 APPENDIX A.2: TEST PLOTS OF RADIATED EMISSIONS, BELOW 1GHZ..... 6
 3 APPENDIX A.3: TEST PLOTS OF RADIATED EMISSIONS, ABOVE 1GHZ..... 10

1 Appendix A.1: Test Plots of Conducted Emissions

Site LAB Phase: **L1** Temperature: 24.4 °C
Limit: FCC Part15 CE-Class B_QP Power: AC120/60Hz Humidity: 53.6 %RH
EUT: WisGate Air Pressure: 99.6 kpa
M/N: RAK7268CV2
Mode: Test Mode 1:On,2.4G WIFI link+WCDMA link+Lora link,powered by AC/DC Adapter
Note:

Conducted Emission Measurement

24072912929_RAK7268CV2_NEW Data :#1 Date: 2024/8/3 Time: 18:59:49



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1500	39.28	10.20	49.48	66.00	-16.52	QP	P	
2	0.1500	24.07	10.20	34.27	56.00	-21.73	AVG	P	
3	0.4470	31.47	10.15	41.62	56.93	-15.31	QP	P	
4 *	0.4470	28.54	10.15	38.69	46.93	-8.24	AVG	P	
5	0.6180	18.67	10.20	28.87	56.00	-27.13	QP	P	
6	0.6180	14.75	10.20	24.95	46.00	-21.05	AVG	P	
7	0.7440	17.76	10.22	27.98	56.00	-28.02	QP	P	
8	0.7440	14.05	10.22	24.27	46.00	-21.73	AVG	P	
9	0.9194	14.19	10.31	24.50	46.00	-21.50	AVG	P	
10	0.9194	17.63	10.31	27.94	56.00	-28.06	QP	P	
11	1.2884	16.92	10.31	27.23	56.00	-28.77	QP	P	
12	1.2884	13.05	10.31	23.36	46.00	-22.64	AVG	P	

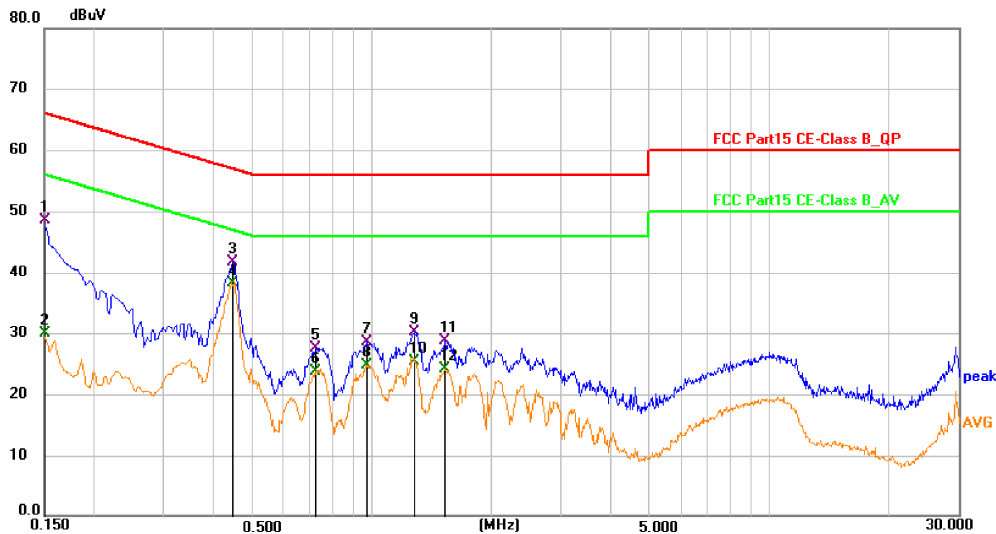
*:Maximum data x:Over limit !:over margin

Site: LAB
Limit: FCC Part15 CE-Class B_QP
EUT: WisGate
M/N: RAK7268CV2
Mode: Test Mode 1:On,2.4G WIFI link+WCDMA link+Lora link,powered by AC/DC Adapter
Note:

Phase: **N**
Power: AC120/60Hz
Temperature: 24.4 °C
Humidity: 53.6 %RH
Air Pressure: 99.6 kpa

Conducted Emission Measurement

24072912929_RAK7268CV2_NEW Data :#2 Date: 2024/8/3 Time: 19:01:19



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1500	38.40	10.19	48.59	66.00	-17.41	QP	P	
2	0.1500	19.67	10.19	29.86	56.00	-26.14	AVG	P	
3	0.4470	31.42	10.23	41.65	56.93	-15.28	QP	P	
4 *	0.4470	27.95	10.23	38.18	46.93	-8.75	AVG	P	
5	0.7215	17.28	10.24	27.52	56.00	-28.48	QP	P	
6	0.7215	13.48	10.24	23.72	46.00	-22.28	AVG	P	
7	0.9780	18.25	10.17	28.42	56.00	-27.58	QP	P	
8	0.9780	14.49	10.17	24.66	46.00	-21.34	AVG	P	
9	1.2795	19.83	10.20	30.03	56.00	-25.97	QP	P	
10	1.2795	15.15	10.20	25.35	46.00	-20.65	AVG	P	
11	1.5315	18.43	10.25	28.68	56.00	-27.32	QP	P	
12	1.5315	13.81	10.25	24.06	46.00	-21.94	AVG	P	

*:Maximum data x:Over limit !:over margin

24072912929_RAK7268CV2_NEWData :#2

Page: 1

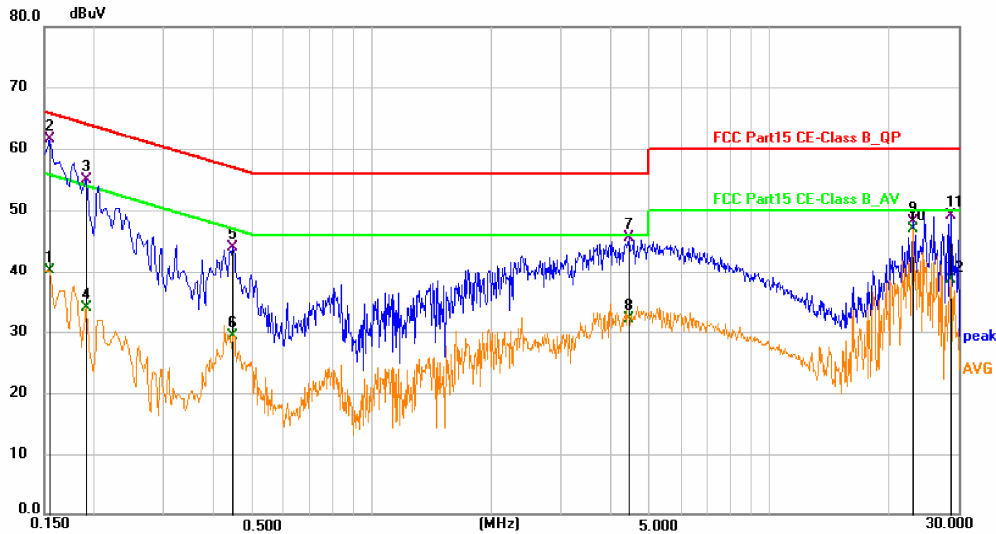
Engineer Signature: linson

Site: LAB
Limit: FCC Part15 CE-Class B_QP
EUT: WisGate
M/N: RAK7268CV2
Mode: Test Mode 2:On,2.4G WIFI link+LTE link+Lora link,powered by POE Adapter
Note:

Phase: **N**
Power: AC120/60Hz
Temperature: 23.1 °C
Humidity: 58.1 %RH
Air Pressure: 99.3 kpa

Conducted Emission Measurement

24072912929_RAK7268CV2_NEW Data :#3 Date: 2024/8/15 Time: 15:46:39



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1544	29.92	10.18	40.10	55.76	-15.66	AVG	P	
2	0.1545	51.25	10.18	61.43	65.75	-4.32	QP	P	
3	0.1905	44.80	10.07	54.87	64.01	-9.14	QP	P	
4	0.1905	23.74	10.07	33.81	54.01	-20.20	AVG	P	
5	0.4470	33.64	10.23	43.87	56.93	-13.06	QP	P	
6	0.4470	19.13	10.23	29.36	46.93	-17.57	AVG	P	
7	4.4340	35.28	10.27	45.55	56.00	-10.45	QP	P	
8	4.4340	21.91	10.27	32.18	46.00	-13.82	AVG	P	
9	23.1270	37.42	10.77	48.19	60.00	-11.81	QP	P	
10 *	23.1270	36.08	10.77	46.85	50.00	-3.15	AVG	P	
11	28.6844	38.19	10.87	49.06	60.00	-10.94	QP	P	
12	28.6844	27.57	10.87	38.44	50.00	-11.56	AVG	P	

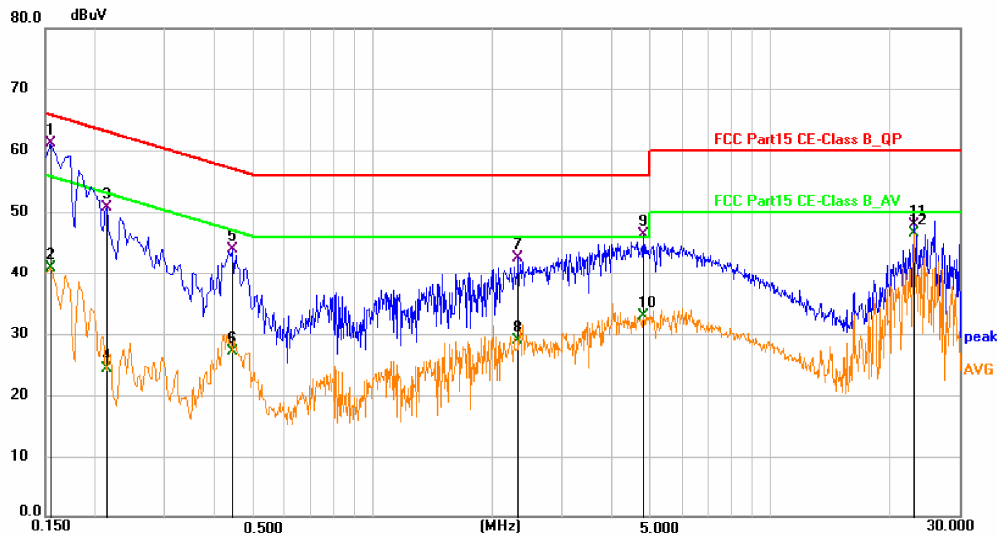
*:Maximum data x:Over limit !:over margin

Site LAB
Limit: FCC Part15 CE-Class B_QP
EUT: WisGate
M/N: RAK7268CV2
Mode: Test Mode 2:On,2.4G WIFI link+LTE link+Lora link,powered by POE Adapter
Note:

Phase: **L1**
Power: AC120/60Hz
Temperature: 23.1 °C
Humidity: 58.1 %RH
Air Pressure: 99.3 kpa

Conducted Emission Measurement

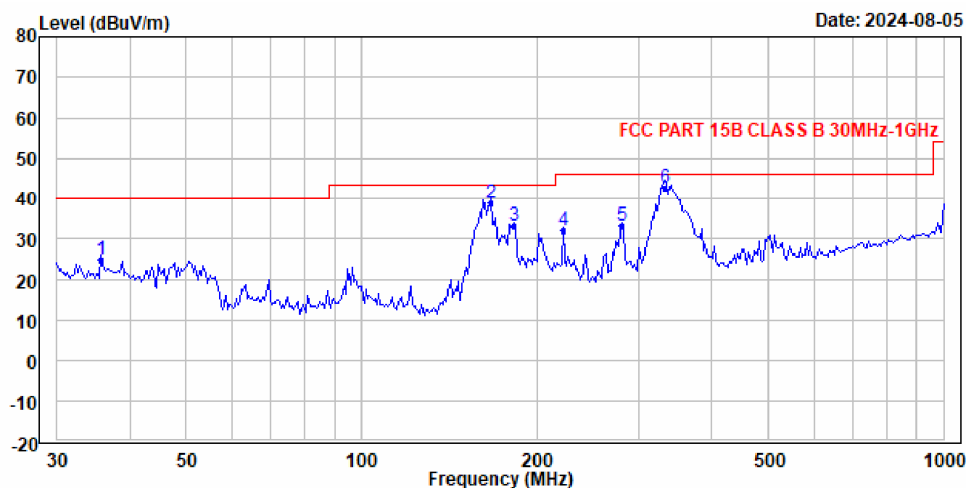
24072912929_RAK7268CV2_NEW Data :#4 Date: 2024/8/15 Time: 15:48:41



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1545	50.84	10.20	61.04	65.75	-4.71	QP	P	
2	0.1545	30.61	10.20	40.81	55.75	-14.94	AVG	P	
3	0.2130	40.60	10.17	50.77	63.09	-12.32	QP	P	
4	0.2130	14.12	10.17	24.29	53.09	-28.80	AVG	P	
5	0.4425	33.73	10.15	43.88	57.01	-13.13	QP	P	
6	0.4425	17.05	10.15	27.20	47.01	-19.81	AVG	P	
7	2.3280	32.30	10.24	42.54	56.00	-13.46	QP	P	
8	2.3280	18.75	10.24	28.99	46.00	-17.01	AVG	P	
9	4.8210	36.10	10.23	46.33	56.00	-9.67	QP	P	
10	4.8210	22.62	10.23	32.85	46.00	-13.15	AVG	P	
11	23.1270	37.07	10.81	47.88	60.00	-12.12	QP	P	
12 *	23.1270	35.61	10.81	46.42	50.00	-3.58	AVG	P	

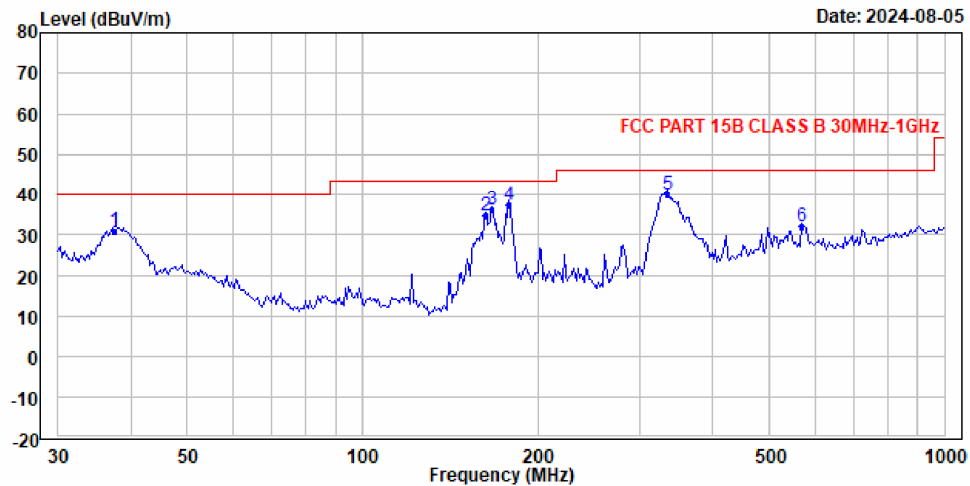
*:Maximum data x:Over limit !:over margin

2 Appendix A.2: Test Plots of Radiated Emissions, below 1GHz



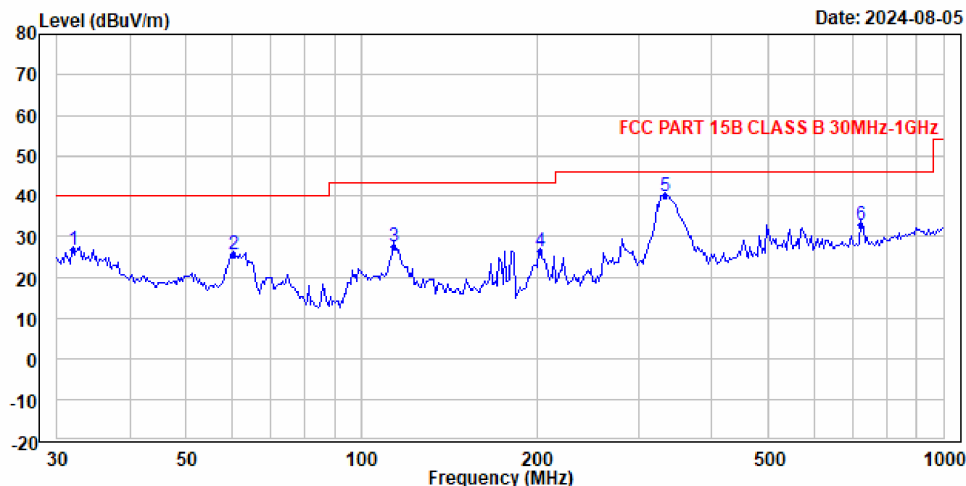
Condition : 3m Horizontal
Temp.(C)/Hum.(%): 25.6(C)/55.7(%)
Press : 100.4kpa
Product : WisGate
Model No. : RAK7268CV2
Power Rating : AC 120V/60Hz
Test Engineer : Bowie
Test Mode : Test Mode 1: On, 2.4G WIFI link + LTE link + Lora link, powered
Remark :

	Freq	Level	Read Level	Ant Factor	Aux Factor	Cable Loss	Preamp Factor	Limit Line	Over Limit	Remark
	MHz	dBuV/m	dBuV	dB/m	dB	dB	dB	dBuV/m	dB	
1	35.762	24.84	31.57	21.40	0.00	0.77	28.90	40.00	-15.16	QP
2	166.639	38.94	51.52	15.09	0.00	1.30	28.97	43.50	-4.56	QP
3	182.579	33.06	44.88	15.80	0.00	1.36	28.98	43.50	-10.44	QP
4	222.281	31.97	42.81	16.70	0.00	1.48	29.02	46.00	-14.03	QP
5	280.294	33.14	42.80	17.81	0.00	1.61	29.08	46.00	-12.86	QP
6 PP	331.786	42.57	50.13	19.84	0.00	1.73	29.13	46.00	-3.43	QP



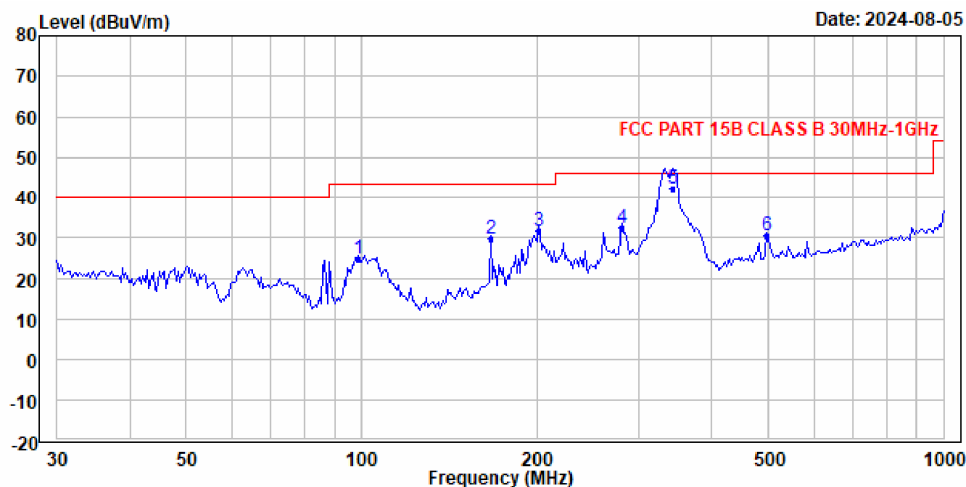
Condition : 3m Vertical
Temp.(C)/Hum.(%) : 25.6(C)/55.7(%)
Press : 100.4kpa
Product : WisGate
Model No. : RAK7268CV2
Power Rating : AC 120V/60Hz
Test Engineer : Bowie
Test Mode : Test Mode 1: On, 2.4G WIFI link + LTE link + Lora link, powered
Remark :

	Freq	Level	Read Level	Ant Factor	Aux Factor	Cable Loss	Preamp Factor	Limit Line	Over Limit	Remark
	MHz	dBuV/m	dBuV	dB/m	dB	dB	dB	dBuV/m	dB	
1	37.565	31.03	38.18	20.93	0.00	0.82	28.90	40.00	-8.97	QP
2	163.162	34.66	48.10	14.23	0.00	1.29	28.96	43.50	-8.84	QP
3	166.639	36.09	48.67	15.09	0.00	1.30	28.97	43.50	-7.41	QP
4	178.770	37.37	49.18	15.82	0.00	1.35	28.98	43.50	-6.13	QP
5 PP	334.126	40.04	47.55	19.88	0.00	1.74	29.13	46.00	-5.96	QP
6	569.969	31.94	33.38	25.80	0.00	2.21	29.45	46.00	-14.06	QP



Condition : 3m Vertical
Temp.(C)/Hum.(%) : 25.6(C)/55.7(%)
Press : 100.4kpa
Product : WisGate
Model No. : RAK7268CV2
Power Rating : AC 120V/60Hz
Test Engineer : Bowie
Test Mode : Test Mode 2: On, 2.4G WIFI link + LTE link + Lora link, powers
Remark :

	Freq	Level	Read Level	Ant Factor	Aux Factor	Cable Loss	Preamp Factor	Limit Line	Over Limit	Remark
	MHz	dBuV/m	dBuV	dB/m	dB	dB	dB	dBuV/m	dB	
1	31.959	26.67	32.79	22.11	0.00	0.67	28.90	40.00	-13.33	QP
2	60.153	25.47	42.35	11.18	0.00	0.84	28.90	40.00	-14.53	QP
3	114.018	27.50	43.01	12.30	0.00	1.10	28.91	43.50	-16.00	QP
4	202.875	26.21	37.23	16.54	0.00	1.44	29.00	43.50	-17.29	QP
5 PP	331.786	39.94	47.50	19.84	0.00	1.73	29.13	46.00	-6.06	QP
6	723.793	32.82	30.83	28.88	0.00	2.42	29.31	46.00	-13.18	QP

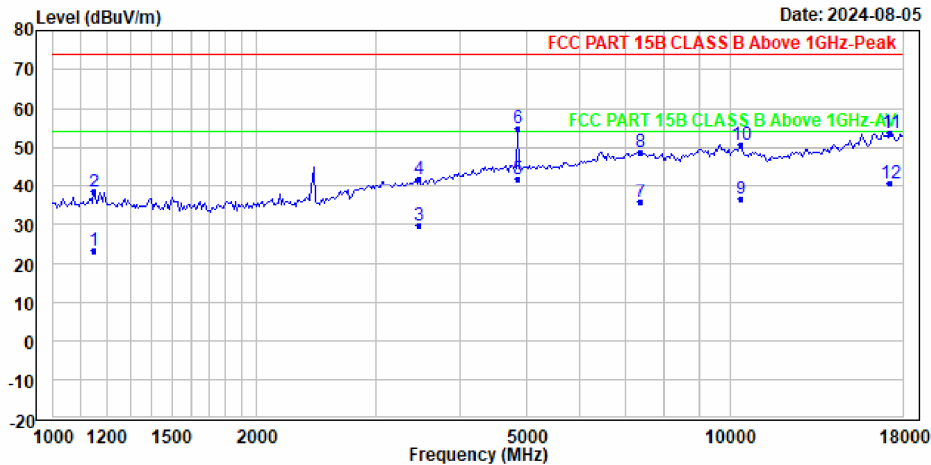


Condition : 3m Horizontal
Temp.(C)/Hum.(%) : 25.6(C)/55.7(%)
Press : 100.4kpa
Product : WisGate
Model No. : RAK7268CV2
Power Rating : AC 120V/60Hz
Test Engineer : Bowie
Test Mode : Test Mode 2: On, 2.4G WIFI link + LTE link + Lora link, powered
Remark :

	Freq	Level	Read Level	Ant Factor	Aux Factor	Cable Loss	Preamp Factor	Limit Line	Over Limit	Remark
	MHz	dBuV/m	dBuV	dB/m	dB	dB	dB	dBuV/m	dB	
1	99.069	24.69	40.73	11.81	0.00	1.05	28.90	43.50	-18.81	QP
2	166.639	29.65	42.23	15.09	0.00	1.30	28.97	43.50	-13.85	QP
3	201.454	31.77	42.77	16.57	0.00	1.43	29.00	43.50	-11.73	QP
4	280.294	32.60	42.26	17.81	0.00	1.61	29.08	46.00	-13.40	QP
5 PP	343.651	42.23	49.32	20.29	0.00	1.76	29.14	46.00	-3.77	QP
6	498.730	30.46	33.00	24.75	0.00	2.06	29.35	46.00	-15.54	QP

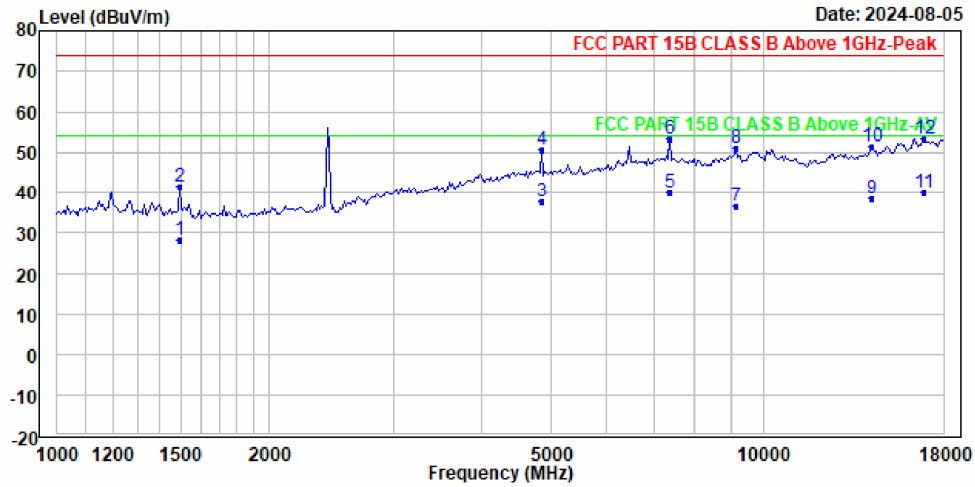
3 Appendix A.3: Test Plots of Radiated Emissions, above 1GHz

Note: Testing was carried out within frequency range 30MHz to the 5th harmonics. The measurement results above 18GHz were greater than 20dB below the limit, so only record the test result within the 30MHz to 18GHz.



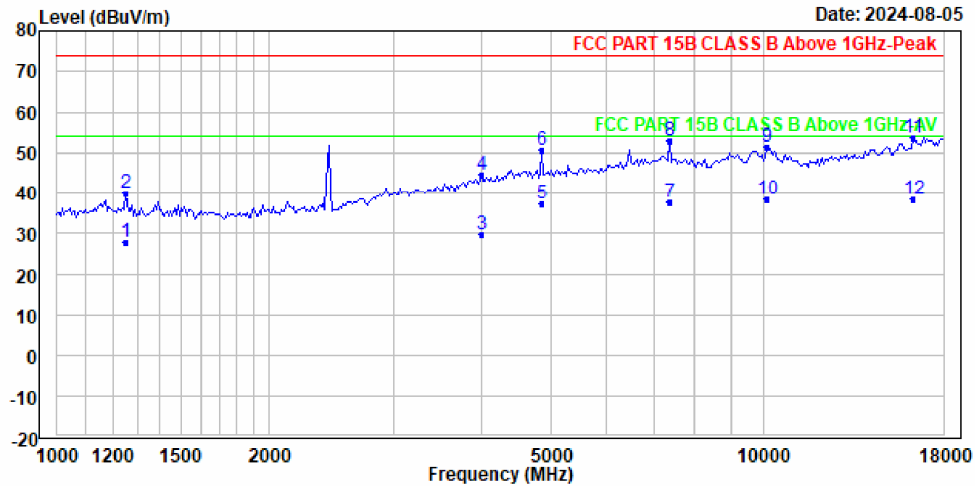
Condition : 3m Horizontal
Temp.(C)/Hum.(%): 25.6(C)/55.7(%)
Press : 100.4kpa
Product : WisGate
Model No. : RAK7268CV2
Power Rating : AC 120V/60Hz
Test Engineer : Bowie
Test Mode : Test Mode 1: On, 2.4G WIFI link + WCDMA link + Lora link, power
Remark :

	Freq	Level	Read Level	Ant Factor	Aux Factor	Cable Loss	Preamp Factor	Limit Line	Over Limit	Remark
	MHz	dBuV/m	dBuV	dB/m	dB	dB	dB	dBuV/m	dB	
1	1149.142	23.22	36.19	28.93	0.00	4.58	46.48	54.00	-30.78	Average
2	1149.142	38.37	51.34	28.93	0.00	4.58	46.48	74.00	-35.63	Peak
3	3474.153	29.82	35.09	32.73	0.00	8.55	46.55	54.00	-24.18	Average
4	3474.153	41.95	47.22	32.73	0.00	8.55	46.55	74.00	-32.05	Peak
5 PP	4861.298	41.81	43.86	34.47	0.00	9.35	45.87	54.00	-12.19	Average
6 PK	4861.298	54.94	56.99	34.47	0.00	9.35	45.87	74.00	-19.06	Peak
7	7376.898	35.71	34.40	36.50	0.00	10.39	45.58	54.00	-18.29	Average
8	7376.898	48.84	47.53	36.50	0.00	10.39	45.58	74.00	-25.16	Peak
9	10382.280	36.64	33.26	38.49	0.00	11.93	47.04	54.00	-17.36	Average
10	10382.280	50.78	47.40	38.49	0.00	11.93	47.04	74.00	-23.22	Peak
11	17284.770	53.84	44.78	41.69	0.00	14.00	46.63	74.00	-20.16	Peak
12	17284.770	40.71	31.65	41.69	0.00	14.00	46.63	54.00	-13.29	Average



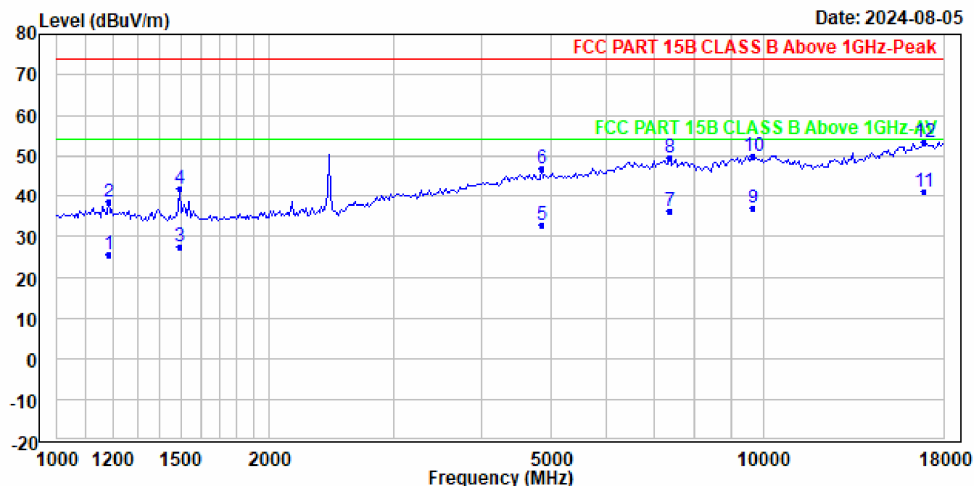
Condition : 3m Vertical
Temp.(C)/Hum.(%): 25.6(C)/55.7(%)
Press : 100.4kpa
Product : WisGate
Model No. : RAK7268CV2
Power Rating : AC 120V/60Hz
Test Engineer : Bowie
Test Mode : Test Mode 1: On, 2.4G WIFI link + WCDMA link + Lora link, power
Remark :

	Freq	Level	Read Level	Ant Factor	Aux Factor	Cable Loss	Preamplifier	Limit Line	Over Limit	Remark
	MHz	dBuV/m	dBuV	dB/m	dB	dB	dB	dBuV/m	dB	
1	1491.333	28.28	41.36	28.32	0.00	5.49	46.89	54.00	-25.72	Average
2	1491.333	41.42	54.50	28.32	0.00	5.49	46.89	74.00	-32.58	Peak
3	4861.298	37.68	39.73	34.47	0.00	9.35	45.87	54.00	-16.32	Average
4	4861.298	50.81	52.86	34.47	0.00	9.35	45.87	74.00	-23.19	Peak
5 PP	7376.898	40.25	38.94	36.50	0.00	10.39	45.58	54.00	-13.75	Average
6 PK	7376.898	53.38	52.07	36.50	0.00	10.39	45.58	74.00	-20.62	Peak
7	9140.082	36.82	33.96	36.80	0.00	11.38	45.32	54.00	-17.18	Average
8	9140.082	50.96	48.10	36.80	0.00	11.38	45.32	74.00	-23.04	Peak
9	14277.410	38.51	30.97	40.19	0.00	13.06	45.71	54.00	-15.49	Average
10	14277.410	51.65	44.11	40.19	0.00	13.06	45.71	74.00	-22.35	Peak
11	16888.890	40.24	31.74	41.73	0.00	13.97	47.20	54.00	-13.76	Average
12	16888.890	53.37	44.87	41.73	0.00	13.97	47.20	74.00	-20.63	Peak



Condition : 3m Vertical
Temp.(C)/Hum.(%) : 25.6(C)/55.7(%)
Press : 100.4kpa
Product : WisGate
Model No. : RAK7268CV2
Power Rating : AC 120V/60Hz
Test Engineer : Bowie
Test Mode : Test Mode 2: On, 2.4G WIFI link + LTE link + Lora link, powered
Remark :

	Freq	Level	Read Level	Ant Factor	Aux Factor	Cable Loss	Preamp Factor	Limit Line	Over Limit	Remark
	MHz	dBuV/m	dBuV	dB/m	dB	dB	dB	dBuV/m	dB	
1	1253.451	28.08	41.08	28.74	0.00	4.86	46.60	54.00	-25.92	Average
2	1253.451	40.20	53.20	28.74	0.00	4.86	46.60	74.00	-33.80	Peak
3	3992.296	29.65	32.58	33.78	0.00	9.00	45.71	54.00	-24.35	Average
4	3992.296	44.81	47.74	33.78	0.00	9.00	45.71	74.00	-29.19	Peak
5	4861.298	37.52	39.57	34.47	0.00	9.35	45.87	54.00	-16.48	Average
6	4861.298	50.65	52.70	34.47	0.00	9.35	45.87	74.00	-23.35	Peak
7	7376.898	37.80	36.49	36.50	0.00	10.39	45.58	54.00	-16.20	Average
8	7376.898	52.95	51.64	36.50	0.00	10.39	45.58	74.00	-21.05	Peak
9	10144.500	51.62	48.27	38.06	0.00	11.99	46.70	74.00	-22.38	Peak
10	10144.500	38.48	35.13	38.06	0.00	11.99	46.70	54.00	-15.52	Average
11	PK16312.020	53.68	46.00	41.35	0.00	13.57	47.24	74.00	-20.32	Peak
12	PP16312.020	38.53	30.85	41.35	0.00	13.57	47.24	54.00	-15.47	Average



Condition : 3m Horizontal
 Temp.(C)/Hum.(%): 25.6(C)/55.7(%)
 Press : 100.4kpa
 Product : WisGate
 Model No. : RAK7268CV2
 Power Rating : AC 120V/60Hz
 Test Engineer : Bowie
 Test Mode : Test Mode 2: On, 2.4G WIFI link + LTE link + Lora link, powered
 Remark :

	Freq	Level	Read Level	Ant Factor	Aux Factor	Cable Loss	Preamplifier	Limit Line	Over Limit	Remark
	MHz	dBuV/m	dBuV	dB/m	dB	dB	dB	dBuV/m	dB	
1	1182.910	25.52	38.50	28.87	0.00	4.67	46.52	54.00	-28.48	Average
2	1182.910	38.65	51.63	28.87	0.00	4.67	46.52	74.00	-35.35	Peak
3	1491.333	27.69	40.77	28.32	0.00	5.49	46.89	54.00	-26.31	Average
4	1491.333	41.83	54.91	28.32	0.00	5.49	46.89	74.00	-32.17	Peak
5	4861.298	32.97	35.02	34.47	0.00	9.35	45.87	54.00	-21.03	Average
6	4861.298	47.11	49.16	34.47	0.00	9.35	45.87	74.00	-26.89	Peak
7	7376.898	36.27	34.96	36.50	0.00	10.39	45.58	54.00	-17.73	Average
8	7376.898	49.40	48.09	36.50	0.00	10.39	45.58	74.00	-24.60	Peak
9	9685.139	37.00	33.84	37.49	0.00	11.79	46.12	54.00	-17.00	Average
10	9685.139	50.14	46.98	37.49	0.00	11.79	46.12	74.00	-23.86	Peak
11	PP16888.890	41.16	32.66	41.73	0.00	13.97	47.20	54.00	-12.84	Average
12	PK16888.890	53.28	44.78	41.73	0.00	13.97	47.20	74.00	-20.72	Peak