RF TEST REPORT

Applicant	Copeland Comfort Control Lp
FCC ID	2A4JN-OS01-SG
Product	outdoor remote sensor
Model	OS01-SG
Report No.	R2407A0862-R1
Issue Date	August 22, 2024

Eurofins TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 15C (2023)**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

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Summary of Measurement Results

Number	Test Case	Clause in FCC rules	Verdict
1	Frequency Hopping System	15.247 (g), (h)	PASS
2	Output Power	15.247(b)(2)	PASS
3	Occupied Bandwidth (20dB)	15.247(a) (1) (i)	PASS
4	Frequency Separation	15.247(a) (1) (i)	PASS
5	Time of Occupancy (Dwell Time)	15.247(a) (1) (i)	PASS
6	Band Edge Compliance	15.247(d)	PASS
7	Number of Hopping Frequency	15.247(a) (1) (i)	PASS
8	Spurious RF Conducted Emissions	15.247(d)	PASS
9	Unwanted Emissions	15.247(d)	PASS
10	Conducted Emissions	15.207	NA Note 1
Date of Testing: July 23, 2024 ~ July 31, 2024 Date of Sample Received: July 16, 2024			
Note: PASS: The EUT complies with the essential requirements in the standard. FAIL: The EUT does not comply with the essential requirements in the standard. 1. The equipment is not connected to the public network, so test items do not apply. 2. All indications of Pass/Fail in this report are opinions expressed by Eurofins TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only.			

1 Test Laboratory

1.1 Notes of the Test Report

This report shall not be reproduced in full or partial, without the written approval of **Eurofins TA Technology (Shanghai) Co., Ltd.** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein .Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above.

1.2. Test facility

FCC (Designation number: CN1179, Test Firm Registration Number: 446626)

Eurofins TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform measurements.

A2LA (Certificate Number: 3857.01)

Eurofins TA Technology (Shanghai) Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform measurement.

1.3 Testing Location

Company:	Eurofins TA Technology (Shanghai) Co., Ltd.
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2 General Description of Equipment under Test

2.1 Applicant and Manufacturer Information

Applicant	Copeland Comfort Control Lp
Applicant address	8100 West Florissant Ave, St. Louis, MO 63136, United States Of America
Manufacturer	Copeland Comfort Control Lp
Manufacturer address	8100 West Florissant Ave, St. Louis, MO 63136, United States Of America

2.2 General information

EUT Description		
Model	OS01-SG	
SN	Conducted	537900132498973
Lab internal SN	Radiated	R2407A0862/S01
Hardware Version	0059-5376 ver001	
Software Version	0170-1583v02_03	
Power Supply	Battery	
Antenna Type	PCB Antenna	
Antenna Connector	A permanently attached antenna (meet with the standard FCC Part 15.203 requirement)	
Antenna Gain	-1.84 dBi	
Test Mode(s)	Sub-G	
Modulation Type	FSK2	
Total Channel Number	67	
Channel Space	380kHz	
Max. Output Power	17.74 dBm	
Operating Frequency Range(s)	902.46 ~ 927.54 MHz	
Note: The EUT is sent from the applicant to Eurofins TA and the information of the EUT is declared by the applicant.		

3 Applied Standards

According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

Test standards:

FCC CFR47 Part 15C (2023) Radio Frequency Devices

ANSI C63.10-2013

Reference standard:

KDB 558074 D01 15.247 Meas Guidance v05r02

4 Information about the FHSS characteristics

4.1 Frequency Hopping System Requirement

Standard requirement:
(g) Frequency hopping spread spectrum systems are not required to employ all available hopping channels during each transmission. However, the system, consisting of both the transmitter and the receiver, must be designed to comply with all of the regulations in this section should the transmitter be presented with a continuous data (or information) stream. In addition, a system employing short transmission bursts must comply with the definition of a frequency hopping system and must distribute its transmissions over the minimum number of hopping channels specified in this section.
(h) The incorporation of intelligence within a frequency hopping spread spectrum system that permits the system to recognize other users within the spectrum band so that it individually and independently chooses and adapts its hop sets to avoid hopping on occupied channels is permitted. The coordination of frequency hopping systems in any other manner for the express purpose of avoiding the simultaneous occupancy of individual hopping frequencies by multiple transmitters is not permitted.

4.2 Test Configuration

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

The radiated emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in lie-down position (X axis) and the worst case was recorded.

5 Test Case Results

5.1 Power Output

Ambient condition

Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

Methods of Measurement

During the process of the testing, The EUT was connected to the spectrum analyzer and 915MHz band test set via a power splitter with a known loss. The EUT is controlled by the 915MHz band test set to ensure max power transmission with proper modulation. The peak detector is used. RBW is set to 2 MHz; VBW is set to 6 MHz. These measurements have been tested at following channels: 0, 33 and 66.

Test Setup

Limits

Rule Part 15.247 (b) (2)specifies that " For frequency hopping systems operating in the 902-928 MHz band: 1 watt for systems employing at least 50 hopping channels; and, 0.25 watts for systems employing less than 50 hopping channels, but at least 25 hopping channels."

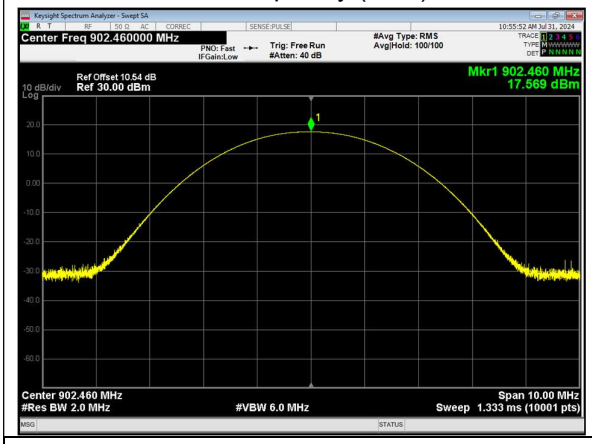
Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2, U=0.44 dB.

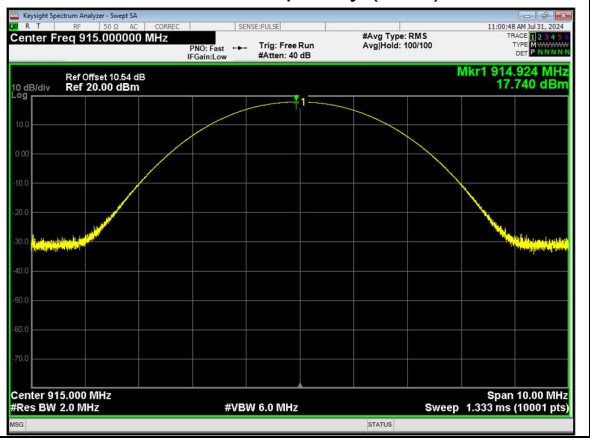
Test Results

Test Mode	Channel	Frequency (MHz)	Peak Output Power (dBm)	Limit (dBm)	Conclusion
Sub-G	0	902.46	17.57	30	PASS
	33	915	17.74	30	PASS
	66	927.54	15.98	30	PASS

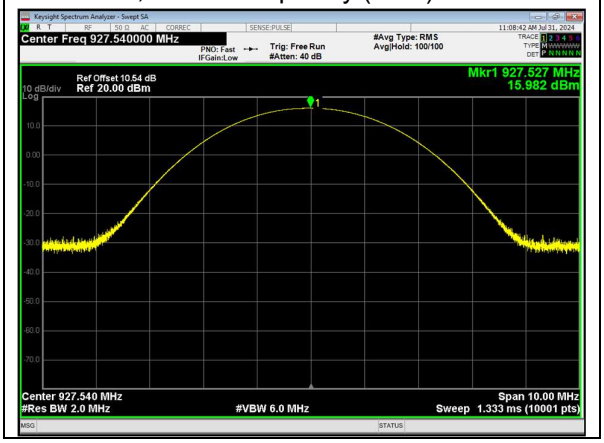
CH0, Carrier frequency (MHz): 902.46



Ch33, Carrier frequency (MHz): 915



Ch66, Carrier frequency (MHz): 927.54



5.2 Occupied Bandwidth (20dB)

Ambient condition

Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

Method of Measurement

The EUT was connected to the spectrum analyzer and Bluetooth test set via a power splitter with a known loss. The occupied bandwidth is measured using spectrum analyzer. RBW is set to 30kHz and VBW is set to 100kHz on spectrum analyzer. -20dB occupied bandwidths are recorded.

Test Setup

Limits

No specific occupied bandwidth requirements in part 15.247(a) (1) (i).
For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

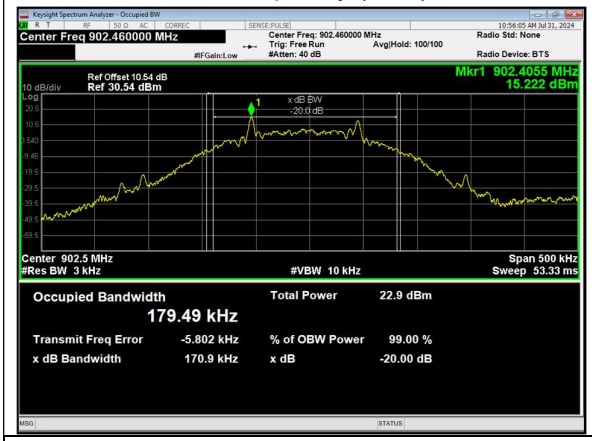
Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2, U=936 Hz.

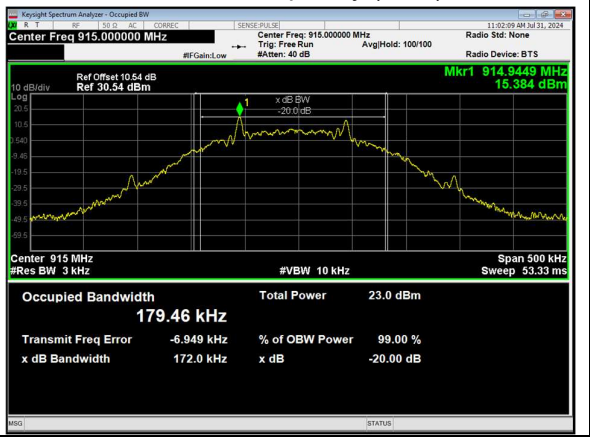
Test Results

Test Mode	Channel	Frequency (MHz)	99% bandwidth(MHz)	20dB Bandwidth(MHz)
Sub-G	0	902.46	0.180	0.171
	33	915	0.180	0.172
	66	927.54	0.179	0.172

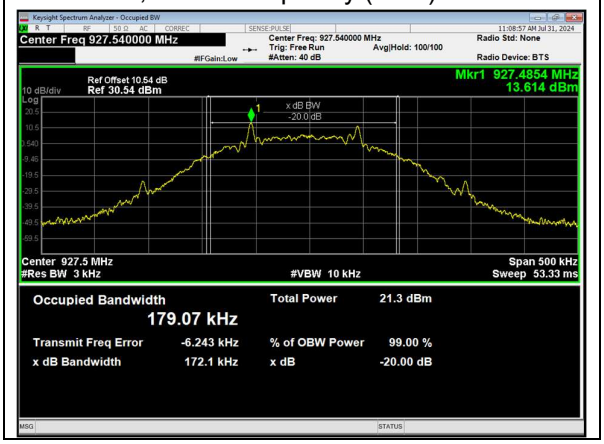
CH0, Carrier frequency (MHz): 902.46



CH33, Carrier frequency (MHz): 915



CH66, Carrier frequency (MHz): 927.54



5.3 Frequency Separation

Ambient condition

Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

Method of Measurement

The EUT was connected to the spectrum analyzer and Bluetooth test set via a power splitter with a known loss. RBW is set to 30 kHz and VBW is set to 100 kHz on spectrum analyzer. Set EUT on Hopping on mode.

Test setup

Limits

Rule Part 15.247(a)(1) (i) specifies that “For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz. ”

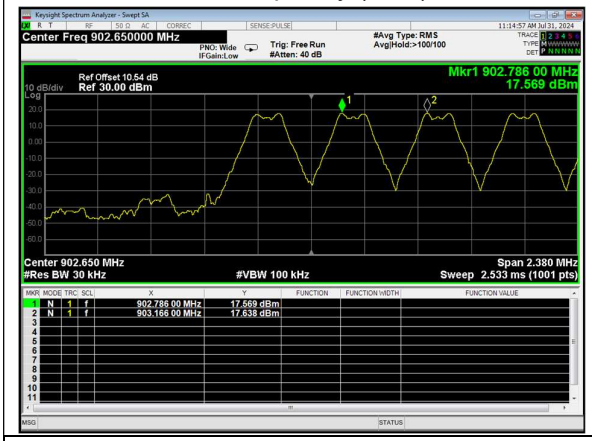
Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2, U=936 Hz.

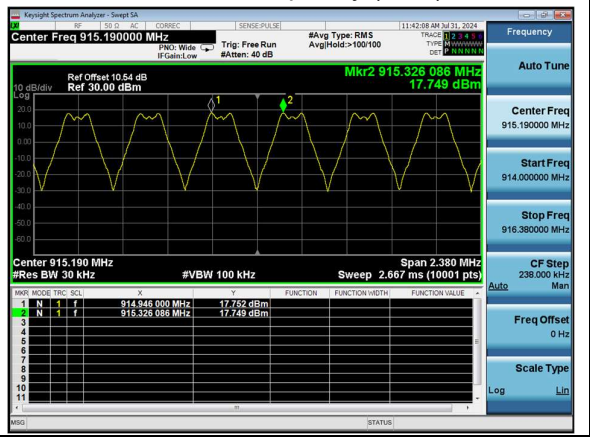
Test Results:

Test Mode	Carrier frequency (MHz)	Carrier frequency separation(MHz)	Limit (MHz)	Conclusion
Sub-G	902.46	0.380	0.171	PASS
	915	0.380	0.172	PASS
	927.54	0.372	0.172	PASS
Note: The limit is 20 dB Bandwidth.				

CH0, Carrier frequency (MHz): 902.46



CH33, Carrier frequency (MHz): 915



CH66, Carrier frequency (MHz):927.54

5.4 Time of Occupancy (Dwell Time)

Ambient condition

Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

Methods of Measurement

The EUT was connected to the spectrum analyzer and Model 900MHz test set via a power splitter with a known loss. RBW100 KHz, VBW300 KHz. The dwell time is calculated by:
Dwell time = Average Transmit Time/ Channel (ms)*Number of Hops in 20s

Test Setup

Limits

Rule Part15.247(a) (1) (i) specifies that " For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period."

Dwell time	≤ 400ms

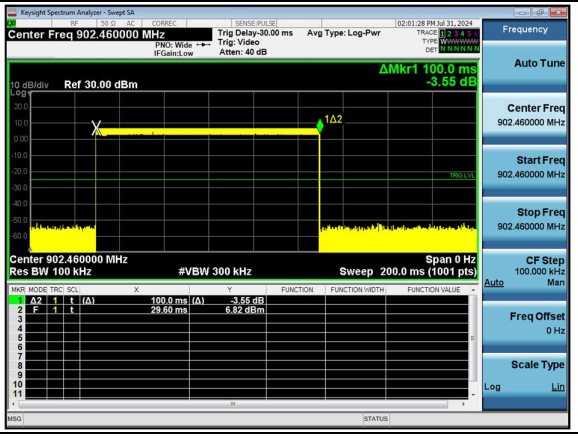
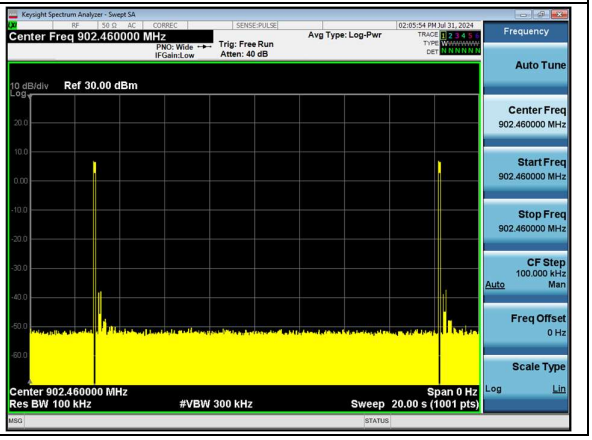
Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2.

Requirements	Uncertainty
Dwell Time	U=0.70ms

Test Results:

Test Mode	Range (MHz)	Average Transmit Time/ Channel (ms)	Number of Hops in 20s	Dwell time (ms)	Limit (ms)	Conclusion
Sub-G	902.46-927.54	100	2	200	400	PASS
Note: Dwell time = Average Transmit Time/ Channel (ms)*Number of Hops in 20s						

CH0, Carrier frequency (MHz): 902.46-927.54	
	

5.5 Band Edge Compliance

Ambient condition

Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

Method of Measurement

The EUT was connected to the spectrum analyzer and Bluetooth test set via a power splitter with a known loss. The lowest and highest channels were measured. The peak detector is used. RBW is set to 100 kHz and VBW is set to 300 kHz on spectrum analyzer. EUT test for Hopping On mode and Hopping Off mode.

Test Setup

Limits

Rule Part 15.247(d) specifies that “In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.”

Measurement Uncertainty

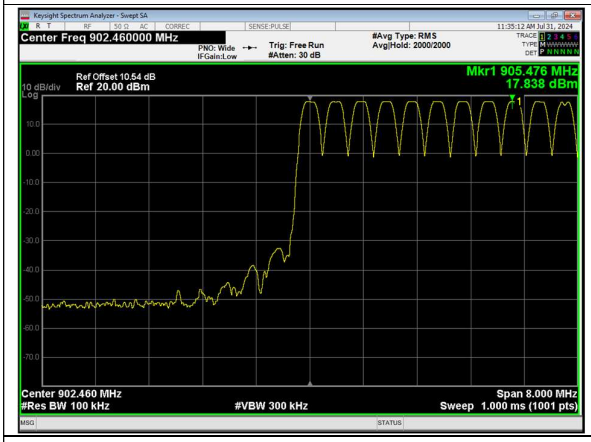
The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 1.96.

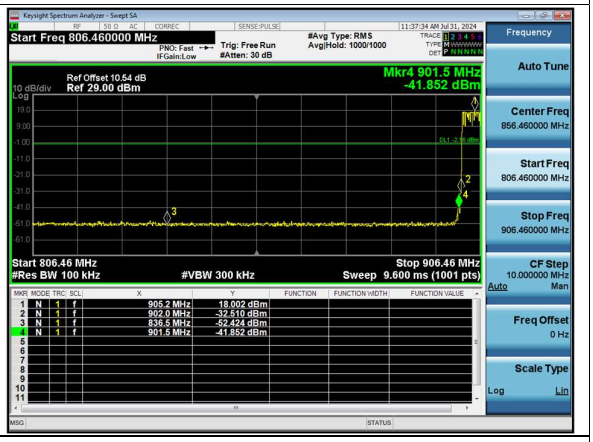
Frequency	Uncertainty
2GHz-3GHz	1.407 dB

Test Results

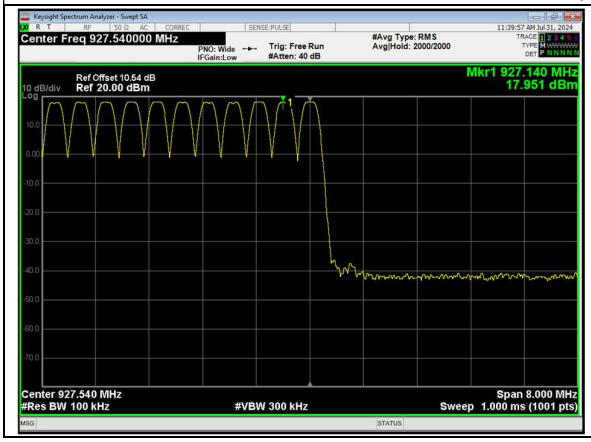
Hopping On

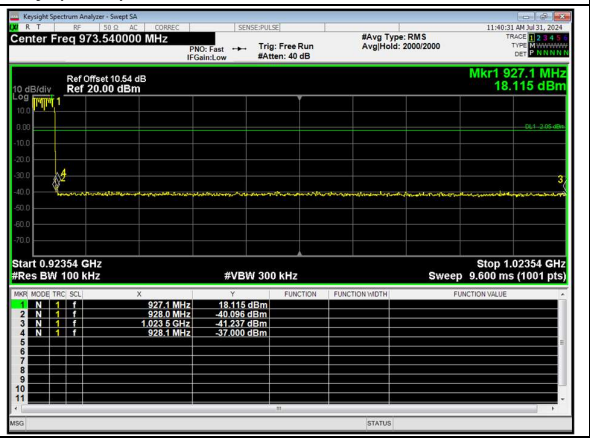
CH0, Carrier frequency (MHz): 902.46





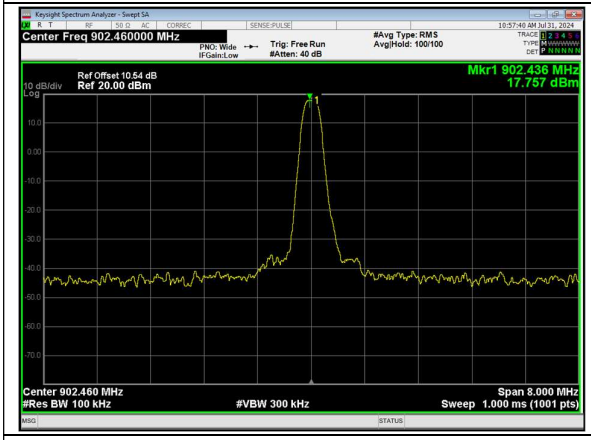
CH66, Carrier frequency (MHz): 927.54

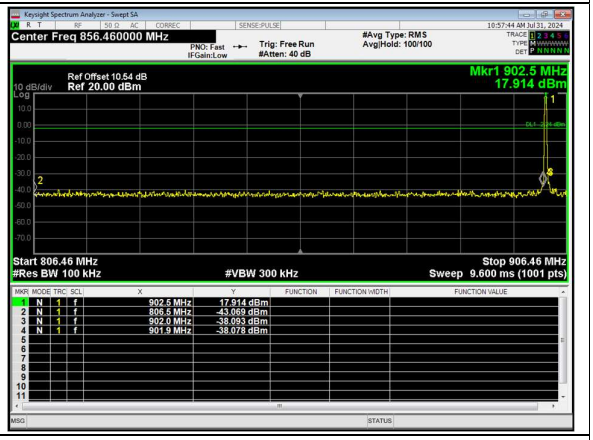




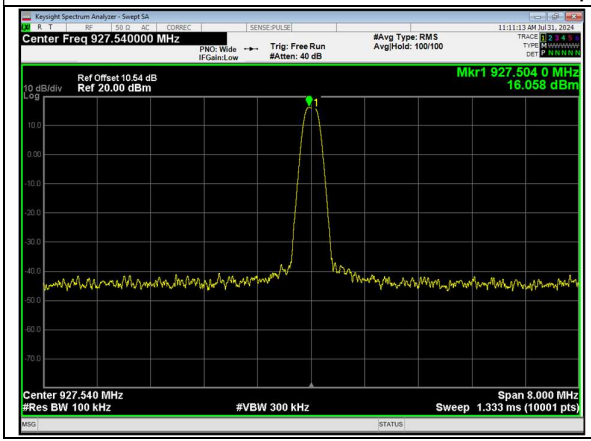
Hopping Off

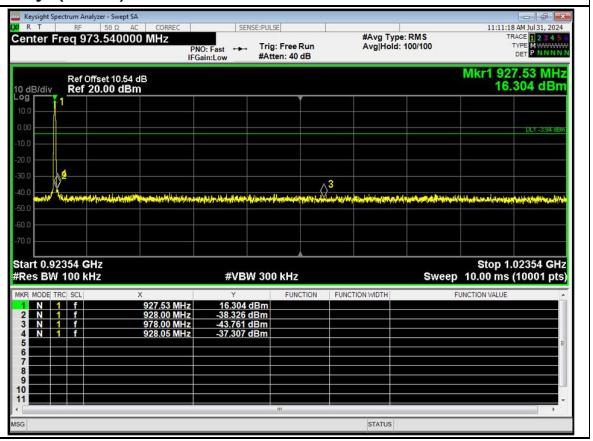
CH0, Carrier frequency (MHz): 902.46





CH66, Carrier frequency (MHz): 927.54





5.6 Number of hopping Frequency

Ambient condition

Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

Method of Measurement

The EUT was connected to the spectrum analyzer and Bluetooth test set via a power splitter with a known loss. RBW is set to 100kHz and VBW is set to 300kHz on spectrum analyzer. Set EUT on Hopping on mode.

Test setup

Limits

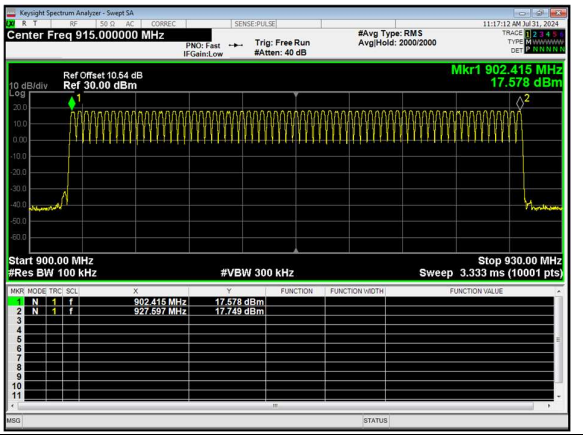
Rule Part 15.247(a) (1) (i)
For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period.

Frequency Band	20 dB Bandwidth of the hopping channel	Hopping Number
902~928	⩽250kHz	⩾50 channels
	⩾250 kHz	⩾25 channels

Test Results:

Test Mode	Range(MHz)	Number of hopping channels	Limits	conclusion
Sub-G	902.46-927.54	67	⩾50 channels	PASS

902.46 MHz ~ 927.54 MHz



5.7 Spurious RF Conducted Emissions

Ambient condition

Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

Method of Measurement

The EUT was connected to the spectrum analyzer and Bluetooth test set via a power splitter with a known loss. The spectrum analyzer scans from 30MHz to the 10th harmonic of the carrier. The peak detector is used. Set RBW 100kHz and VBW 300 kHz, Sweep is set to AUTO.
The test is in transmitting mode.

Test setup

Limits

Rule Part 15.247(d) pacifies that “In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power.”

Test Mode	Carrier frequency (MHz)	Reference value (dBm)	Limit
Model 900MHz	902.46	17.54	-2.46
	915	17.71	-2.29
	927.54	15.95	-4.05

Measurement Uncertainty

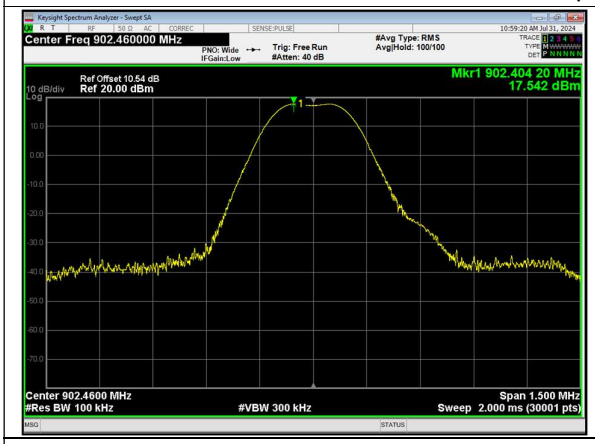
The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 1.96.

Frequency	Uncertainty
100kHz-2GHz	0.684 dB
2GHz-26GHz	1.407 dB

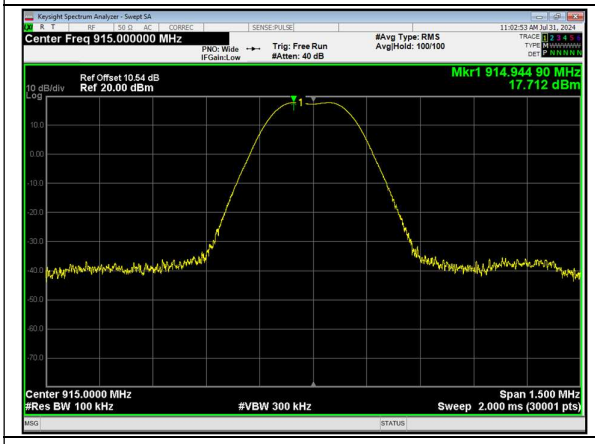
Test Results:

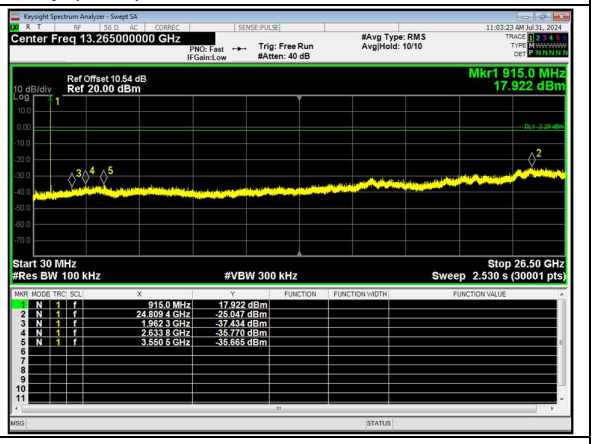
The signal beyond the limit is carrier.

CH0, Carrier frequency (MHz): 902.46

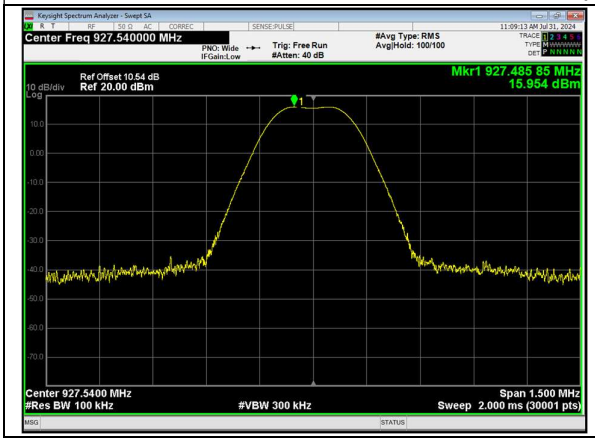


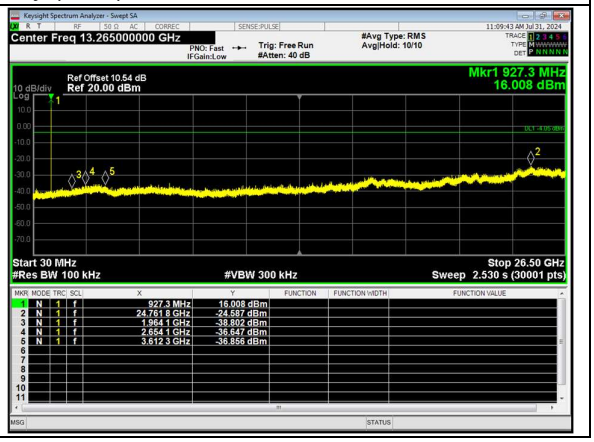
CH33, Carrier frequency (MHz): 915





CH66, Carrier frequency (MHz): 927.54





5.8 Unwanted Emission

Ambient condition

Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

Method of Measurement

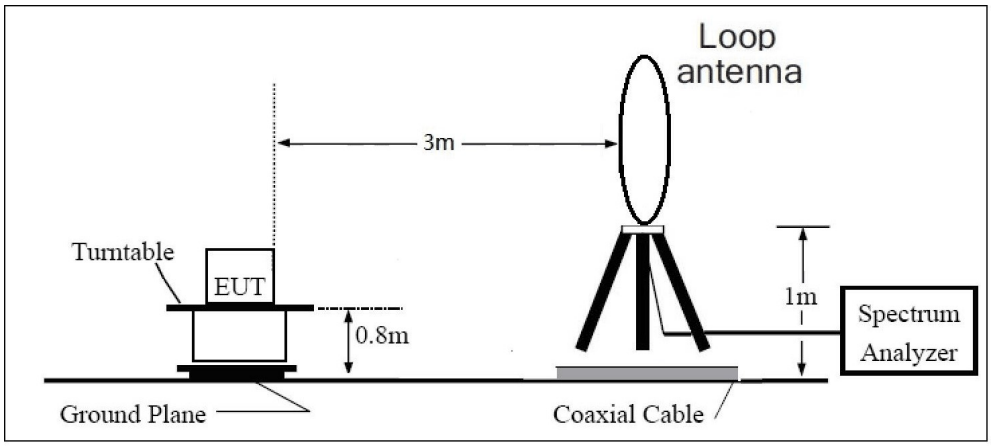
The test set-up was made in accordance to the general provisions of ANSI C63.10. The Equipment Under Test (EUT) was set up on a non-conductive table in the semi-anechoic chamber. The test was performed at the distance of 3 m between the EUT and the receiving antenna. The radiated emissions measurements were made in a typical installation configuration.
Sweep the whole frequency band through the range from 9 kHz to the 10th harmonic of the carrier, and the emissions less than 20 dB below the permissible value are reported.
During the test, below 30MHz, the center of the loop shall be 1 meters; above 30MHz, the height of receive antenna shall be moved from 1 to 4 meters, and the antenna shall be performed under horizontal and vertical polarization. The turntable shall be rotated from 0 to 360 degrees for detecting the maximum of radiated spurious signal level. The measurements shall be repeated with orthogonal polarization of the test antenna. The data of cable loss and antenna factor has been calibrated in full testing frequency range before the testing.
Set the spectrum analyzer in the following:
9kHz~150 kHz
RBW=200Hz, VBW=1kHz/ Sweep=AUTO
150 kHz~30MHz
RBW=9KHz, VBW=30KHz,/ Sweep=AUTO
Below 1GHz
RBW=100kHz / VBW=300kHz / Sweep=AUTO
Above 1GHz
(a) PEAK: RBW=1MHz VBW=3MHz/ Sweep=AUTO
(b) AVERAGE: RBW=1MHz / VBW=3MHz / Sweep=AUTO
detector; The measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.
The dwell time per channel of the hopping signal is less than 100 ms, then the reading obtained with the 10 Hz VBW may be further adjusted by a “duty cycle correction factor”, derived from 20log(dwell time/100 ms), in an effort to demonstrate compliance with the 15.209 limit.
If the emission is pulsed, modify the unit for continuous operation; use the settings shown above, then correct the reading by subtracting the peak- average correction factor, derived form the appropriate duty cycle calculation.
This setting method can refer to **KDB 558074 D01.**

This mode was measured in the following mode: EUT with cradle and EUT without cradle. The worst emission was found in EUT with cradle mode and the worst case was recorded.

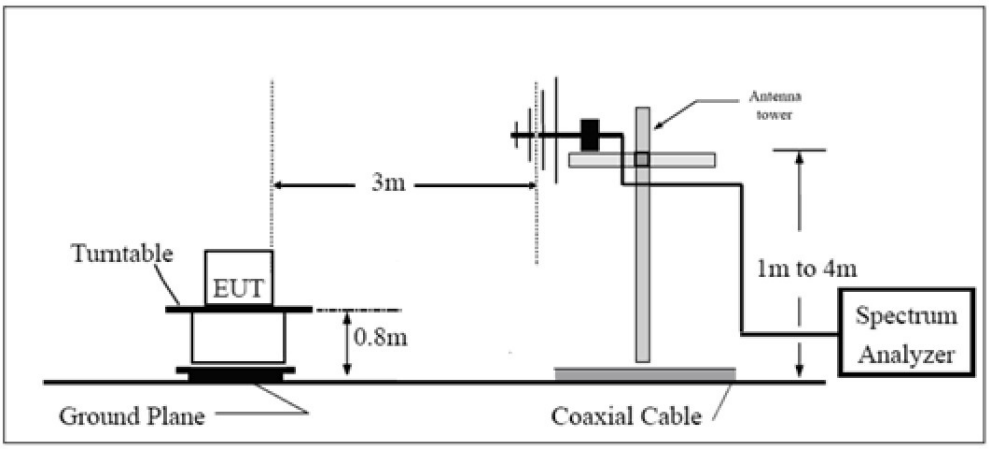
The test is in transmitting mode.

Test setup

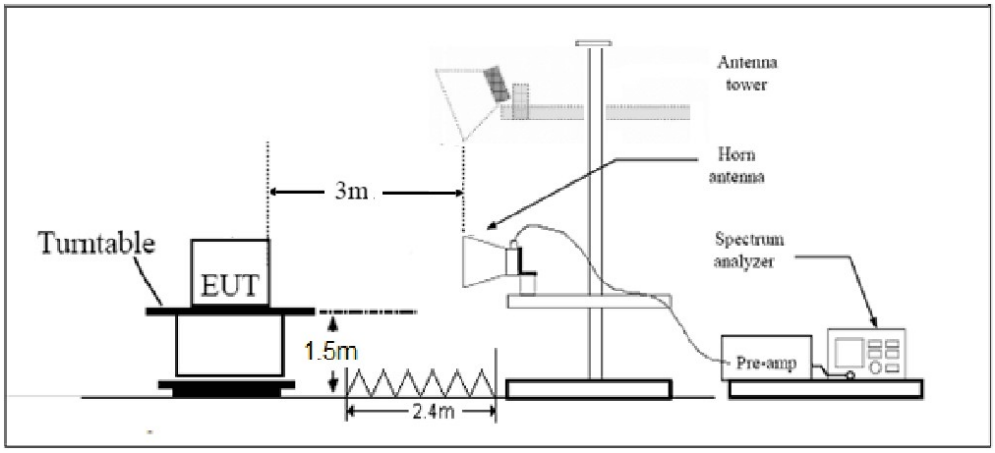
9kHz~ 30MHz



30MHz~ 1GHz



Above 1GHz



Note: Area side:2.4mX3.6m

Limits

Rule Part 15.247(d) specifies that “In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).”

Limit in restricted band

Frequency of emission (MHz)	Field strength(μV/m)	Field strength(dBμV/m)
0.009–0.490	2400/F(kHz)	/
0.490–1.705	24000/F(kHz)	/
1.705–30.0	30	/
30-88	100	40
88-216	150	43.5
216-960	200	46
Above960	500	54

§15.35(b)

There is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.

Peak Limit=74dBμV/m

Average Limit=54dBμV/m

Spurious Radiated Emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
[1] 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	([2])
13.36-13.41			

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 1.96.

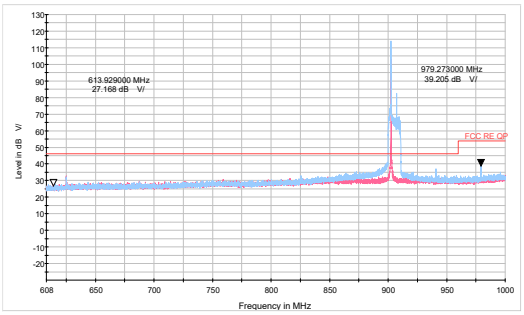
Frequency	Uncertainty
9KHz-30MHz	3.55 dB
30MHz-200MHz	4.17 dB
200MHz-1GHz	4.84 dB
1-18GHz	4.35 dB

Test Results:

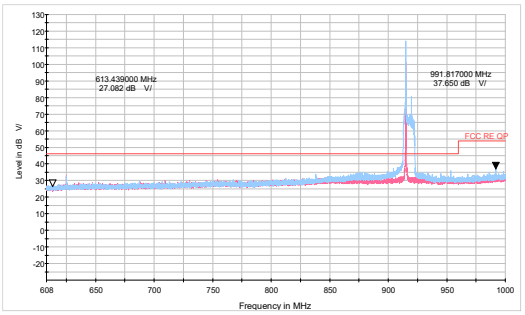
A symbol (dB V/) in the test plot below means (dBμV/m)

The signal beyond the limit is carrier.

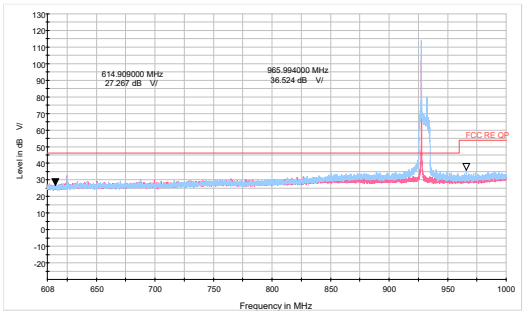
Channel 0: 902.46MHz



Channel 33: 915MHz



Channel 66: 927.54MHz



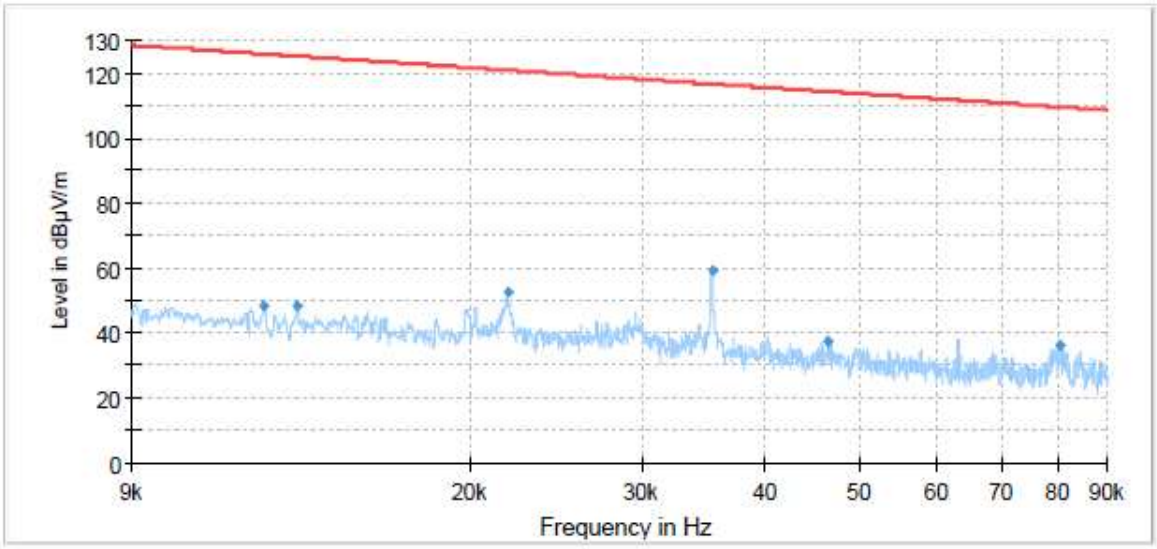
Result of RE

Test result

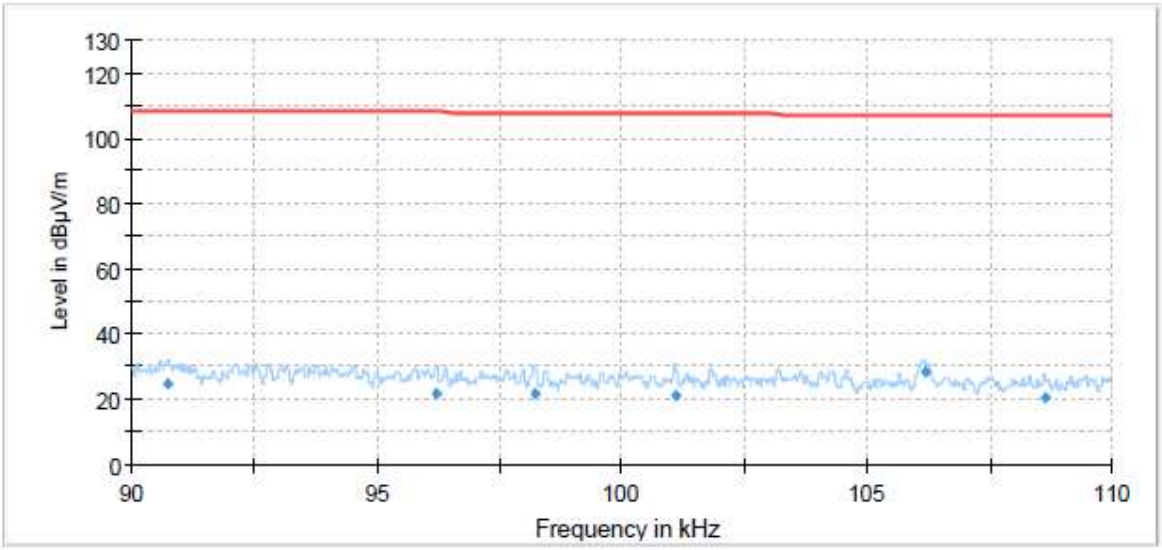
Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier.

The following graphs display the maximum values of horizontal and vertical by software.
For above 1GHz, Blue trace uses the peak detection, Green trace uses the average detection.

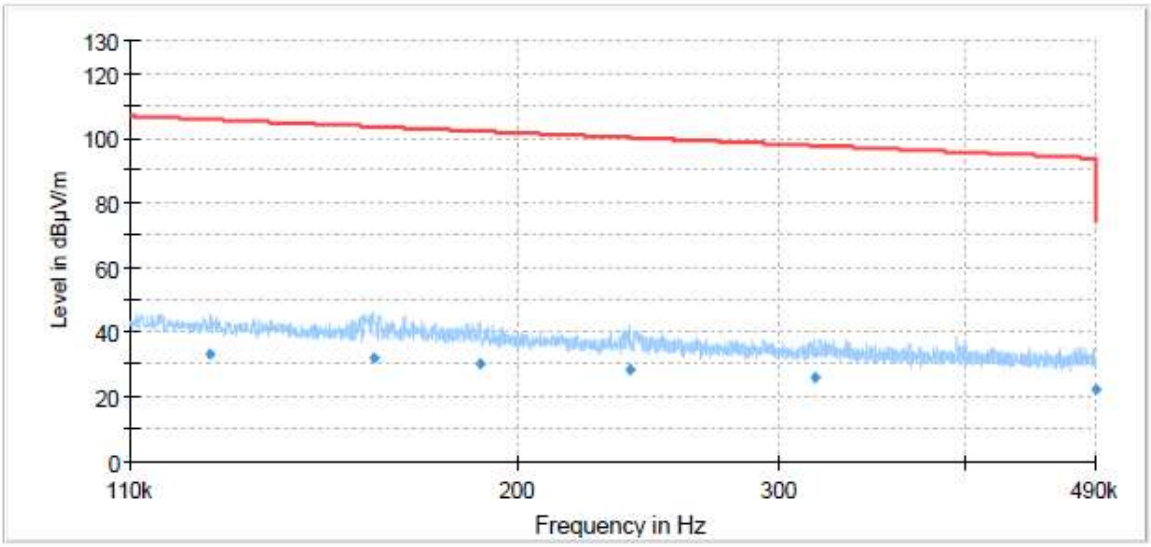
Continuous TX mode:



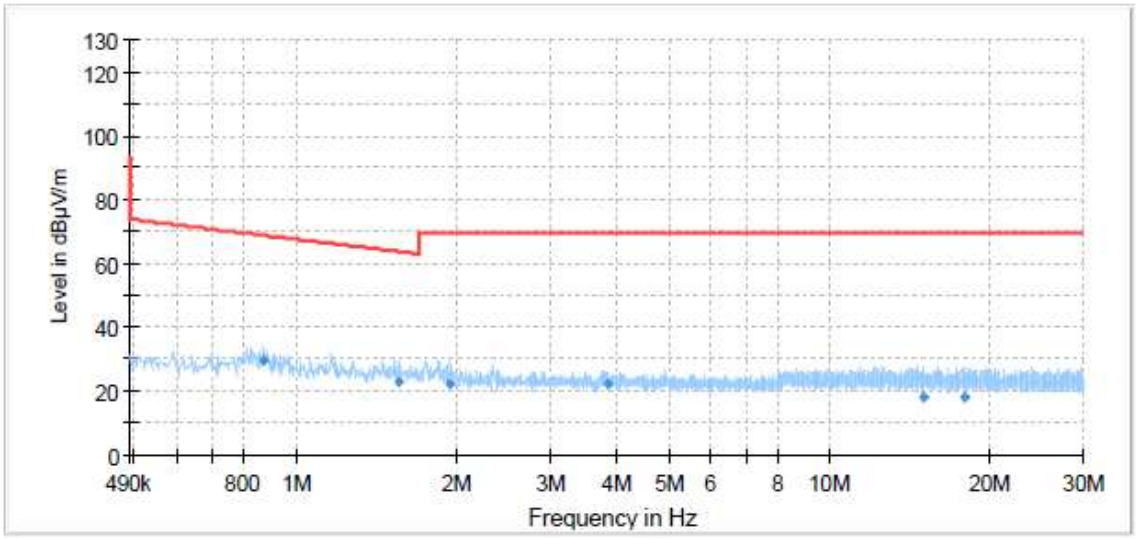
Radiates Emission from 9kHz to 90kHz



Radiates Emission from 90kHz to 110kHz

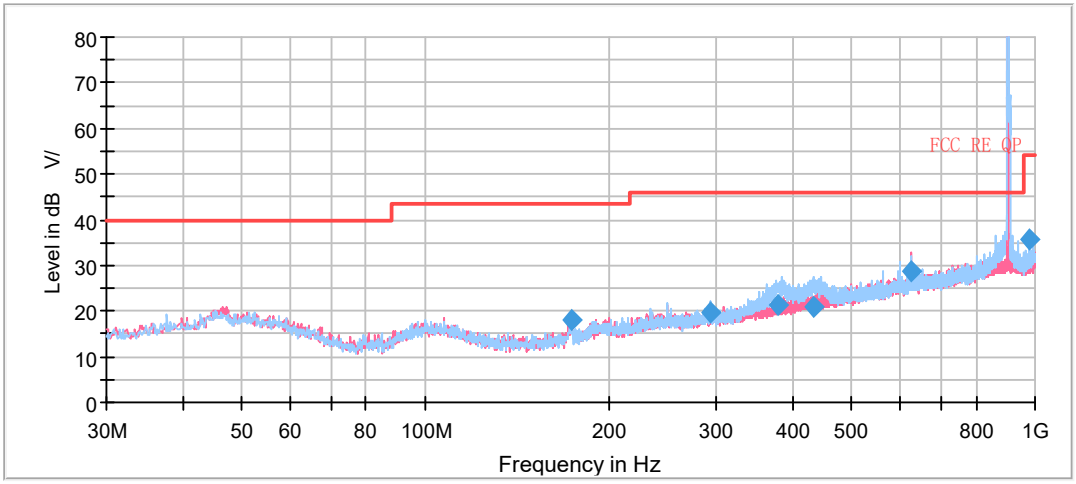


Radiates Emission from 110kHz to 490kHz



Radiates Emission from 490kHz to 30MHz

CH0: 902.46MHz



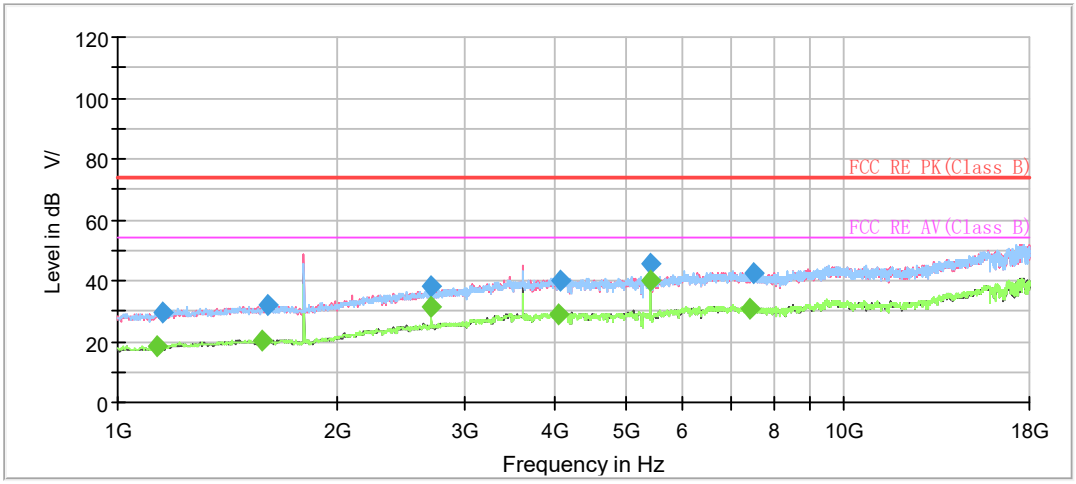
Note: The signal beyond the limit is carrier.

Radiates Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)
173.635000	18.09	43.50	25.41	175.0	H	300.0	19.7
293.350000	19.72	46.00	26.28	110.0	H	252.0	20.8
380.211250	21.32	46.00	24.68	100.0	H	80.0	22.7
434.081250	20.96	46.00	25.04	100.0	H	92.0	23.8
625.095000	28.68	46.00	17.32	125.0	V	107.0	27.6
979.266250	35.73	54.00	18.27	100.0	H	233.0	30.8

Remark: 1. Correction Factor = Antenna factor + Insertion loss (cable loss + amplifier gain)

2. Margin = Limit – Quasi-Peak

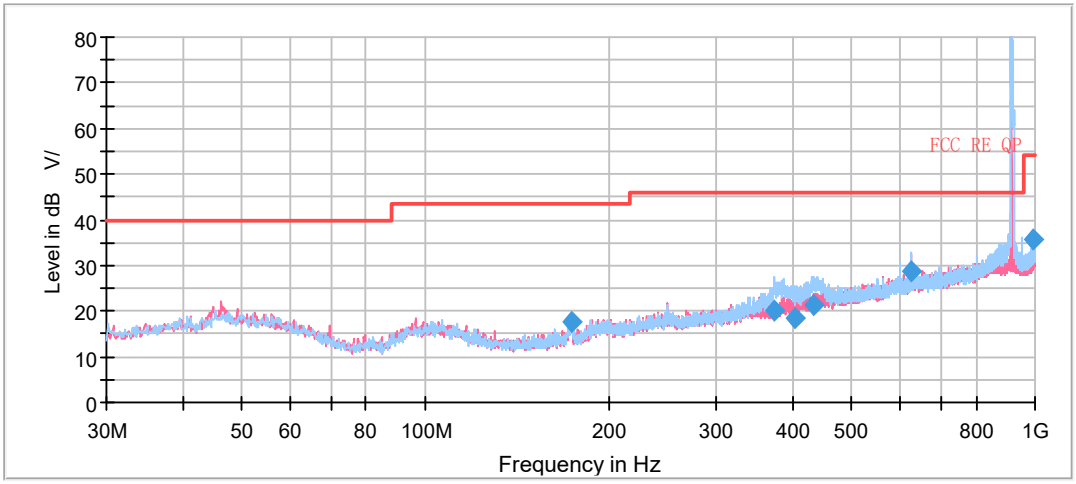


Radiates Emission from 1GHz to 18GHz

Frequency (MHz)	MaxPeak (dB µV/m)	Average (dB µV/m)	Limit (dB µV/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1132.680000	---	18.34	54.00	35.66	500.0	100.0	H	103.0	-19.8
1152.577500	29.37	---	74.00	44.63	500.0	100.0	V	41.0	-19.8
1578.401250	---	20.36	54.00	33.64	500.0	200.0	H	283.0	-16.6
1604.730000	32.09	---	74.00	41.91	500.0	200.0	H	63.0	-16.3
2707.293750	---	31.23	54.00	22.77	500.0	100.0	H	13.0	-11.6
2707.367500	38.11	---	74.00	35.89	500.0	200.0	V	154.0	-11.6
4040.867500	---	29.17	54.00	24.83	500.0	100.0	H	179.0	-6.7
4058.665000	40.27	---	74.00	33.73	500.0	200.0	V	88.0	-6.6
5414.728750	---	39.78	54.00	14.22	500.0	100.0	V	92.0	-4.9
5414.866250	45.33	---	74.00	28.67	500.0	100.0	H	45.0	-4.9
7424.577500	---	30.83	54.00	23.17	500.0	100.0	H	71.0	-2.8
7522.590000	42.65	---	74.00	31.35	500.0	200.0	V	192.0	-3.0

Remark: 1. Correction Factor = Antenna factor + Insertion loss (cable loss + amplifier gain)
2. Margin = Limit –MAX Peak/ Average

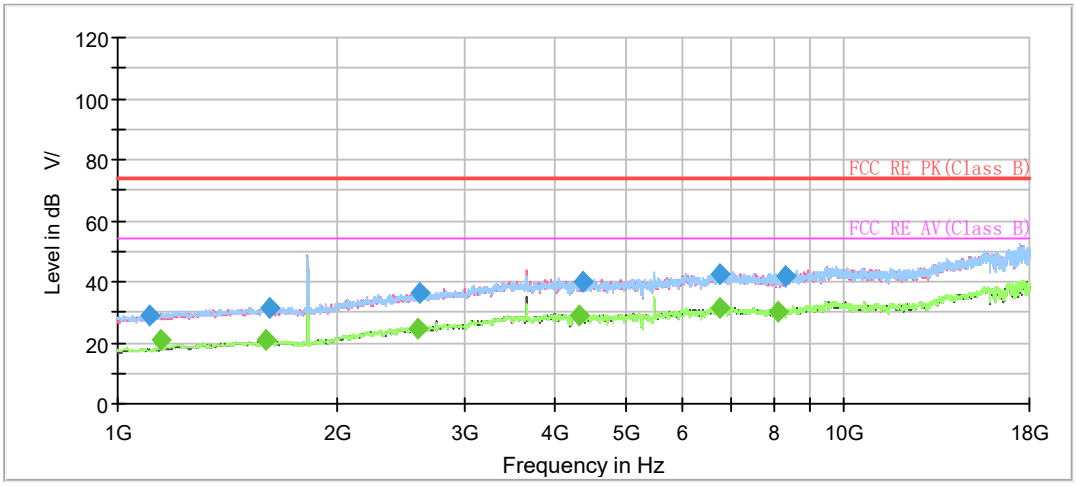
CH33: 915MHz



Note: The signal beyond the limit is carrier.
Radiates Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)
173.271250	17.80	43.50	25.70	1000.0	109.0	V	1.0
373.495000	20.17	46.00	25.83	1000.0	100.0	H	270.0
402.726250	18.41	46.00	27.59	1000.0	100.0	H	85.0
434.650000	21.29	46.00	24.71	1000.0	100.0	H	102.0
625.096250	28.59	46.00	17.41	1000.0	207.0	V	45.0
991.796250	35.69	54.00	18.31	1000.0	100.0	H	253.0

Remark: 1. Correction Factor = Antenna factor + Insertion loss (cable loss + amplifier gain)
2. Margin = Limit – Quasi-Peak

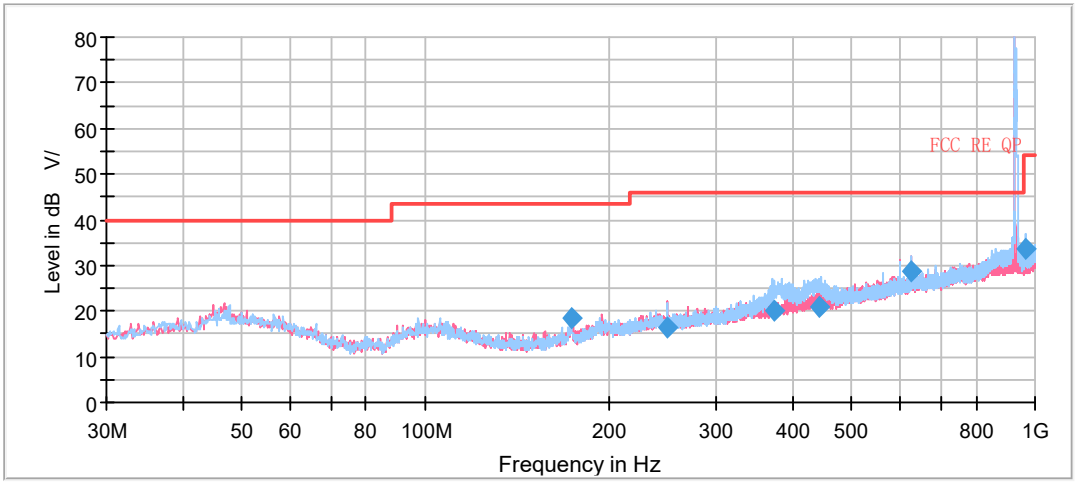


Radiates Emission from 1GHz to 18GHz

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1108.971250	29.10	---	74.00	44.90	500.0	100.0	H	139.0	-20.0
1145.407500	---	20.87	54.00	33.13	500.0	200.0	H	0.0	-19.8
1601.450000	---	20.69	54.00	33.31	500.0	200.0	V	4.0	-16.3
1615.032500	31.52	---	74.00	42.48	500.0	200.0	V	51.0	-16.3
2589.087500	---	24.80	54.00	29.20	500.0	200.0	V	150.0	-12.0
2603.135000	36.09	---	74.00	37.91	500.0	200.0	V	15.0	-12.0
4319.556250	---	28.87	54.00	25.13	500.0	100.0	V	180.0	-6.4
4364.916250	40.12	---	74.00	33.88	500.0	200.0	H	338.0	-6.5
6738.781250	---	31.09	54.00	22.91	500.0	100.0	V	315.0	-3.5
6748.445000	42.39	---	74.00	31.61	500.0	200.0	V	139.0	-3.5
8130.193750	---	30.41	54.00	23.59	500.0	100.0	V	196.0	-2.5
8327.761250	42.05	---	74.00	31.95	500.0	200.0	H	301.0	-2.4

Remark: 1. Correction Factor = Antenna factor + Insertion loss (cable loss + amplifier gain)
2. Margin = Limit –MAX Peak/ Average

CH0: 927.54MHz



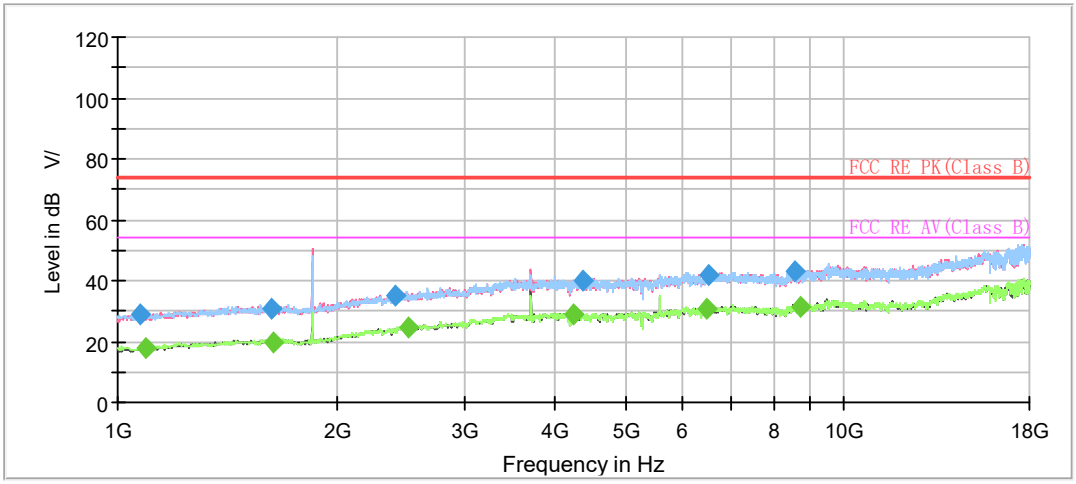
Note: The signal beyond the limit is carrier.

Radiates Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)
173.965000	18.36	43.50	25.14	1000.0	206.0	V	273.0
250.027500	16.49	46.00	29.51	1000.0	225.0	V	283.0
372.282500	19.95	46.00	26.05	1000.0	100.0	H	82.0
442.093750	21.10	46.00	24.90	1000.0	100.0	H	94.0
625.095000	28.54	46.00	17.46	1000.0	207.0	V	167.0
965.930000	33.68	54.00	20.32	1000.0	100.0	H	55.0

Remark: 1. Correction Factor = Antenna factor + Insertion loss (cable loss + amplifier gain)

2. Margin = Limit – Quasi-Peak



Radiates Emission from 1GHz to 18GHz

Frequency (MHz)	MaxPeak (dB µV/m)	Average (dB µV/m)	Limit (dB µV/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1071.625000	28.98	---	74.00	45.02	500.0	100.0	H	0.0	-20.3
1093.530000	---	17.96	54.00	36.04	500.0	100.0	H	146.0	-20.1
1632.697500	31.01	---	74.00	42.99	500.0	100.0	V	268.0	-16.2
1641.496250	---	19.98	54.00	34.02	500.0	200.0	V	129.0	-16.2
2411.770000	34.95	---	74.00	39.05	500.0	200.0	V	249.0	-12.5
2507.557500	---	24.84	54.00	29.16	500.0	100.0	H	355.0	-12.1
4251.513750	---	28.65	54.00	25.35	500.0	200.0	H	87.0	-6.5
4362.822500	40.17	---	74.00	33.83	500.0	100.0	H	328.0	-6.5
6486.535000	---	30.62	54.00	23.38	500.0	200.0	V	249.0	-3.8
6493.150000	42.10	---	74.00	31.90	500.0	100.0	V	317.0	-3.8
8568.446250	42.83	---	74.00	31.17	500.0	200.0	V	129.0	-1.8
8704.441250	---	31.57	54.00	22.43	500.0	200.0	H	271.0	-1.5

Remark: 1. Correction Factor = Antenna factor + Insertion loss (cable loss + amplifier gain)
2. Margin = Limit –MAX Peak/ Average

5.9 Conducted Emission

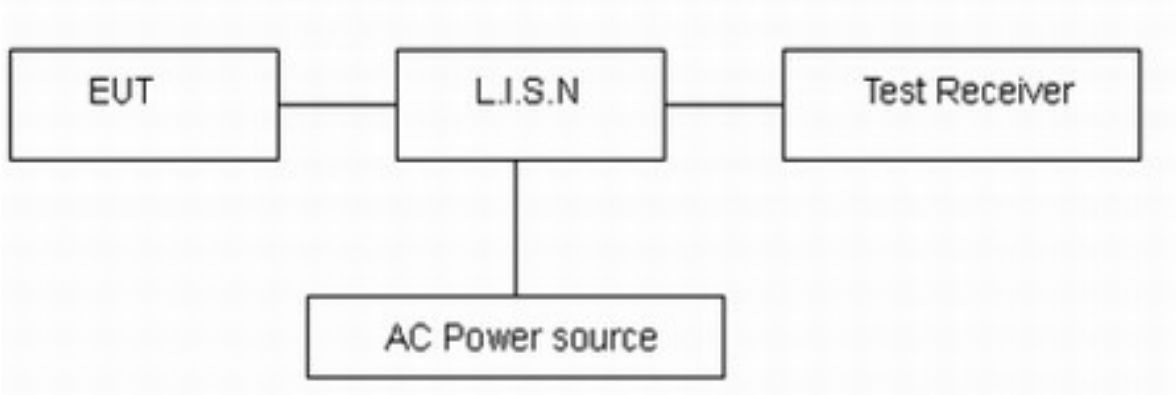
Ambient condition

Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

Methods of Measurement

The EUT is placed on a non-metallic table of 80cm height above the horizontal metal reference ground plane. During the test, the EUT was operating in its typical mode. The test method is according to ANSI C63.10. Connect the AC power line of the EUT to the L.I.S.N. Use EMI receiver to detect the average and Quasi-peak value. RBW is set to 9 kHz, VBW is set to 30kHz.The measurement result should include both L line and N line.
The test is in transmitting mode.

Test Setup



Note: AC Power source is used to 110V/60Hz.

Limits

Frequency (MHz)	Conducted Limits(dBμV)	
	Quasi-peak	Average
0.15 - 0.5	66 to 56 *	56 to 46*
0.5 - 5	56	46
5 - 30	60	50
*: Decreases with the logarithm of the frequency.		

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 1.96, U=2.69 dB.

Test Results:

The equipment doesn’t connect to public network, therefore this requirement does not apply.

6 Main Test Instruments

Name	Manufacturer	Type	Serial Number	Calibration Date	Expiration Date
Signal Analyzer	KEYSIGHT	N9020A	MY51330870	2024-05-07	2025-05-06
Radiates Emission					
EMI Test Receiver	R&S	ESR	102389	2024-05-07	2025-05-06
Signal Analyzer	R&S	FSV40	101186	2024-05-07	2025-05-06
Loop Antenna	SCHWARZBECK	FMZB1519	1519-047	2023-04-16	2026-04-15
TRILOG Broadband Antenna	SCHWARZBECK	VULB 9163	1023	2023-07-14	2026-07-13
Horn Antenna	R&S	HF907	102723	2021-07-24	2024-07-23
Amplifier	R&S	SCU18	10034	2024-05-08	2025-05-07
Software	R&S	EMC32	9.26.01	/	/

ANNEX A: The EUT Appearance

The EUT Appearance are submitted separately.

ANNEX B: Test Setup Photos

The Test Setup Photos are submitted separately.

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