
FCC Test Report

Report No.: AGC00749221001FE04

FCC ID : 2A9G2-MS8

APPLICATION PURPOSE : Original Equipment

PRODUCT DESIGNATION : Mesh Network Communication Intercom System

BRAND NAME : EJEAS

MODEL NAME : MS8, MS2, MS4, MS6, MS10, MS20, MS30, MS40

APPLICANT : Shenzhen EJEAS Intelligent Technology Co., Ltd

DATE OF ISSUE : Dec. 13, 2022

STANDARD(S) : FCC Part 15.236

REPORT VERSION : V1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd



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Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Dec. 13, 2022	Valid	Initial Release

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1. VERIFICATION OF CONFORMITY

Applicant	Shenzhen EJEAS Intelligent Technology Co., Ltd.
Address	Room 3A, B 1, Zhongxin road 9, Taoyuan Community, Dalang street, Longhua district, Shenzhen city, Guangdong province, China.
Manufacturer	Shenzhen EJEAS Intelligent Technology Co., Ltd.
Address	Room 3A, B 1, Zhongxin road 9, Taoyuan Community, Dalang street, Longhua district, Shenzhen city, Guangdong province, China.
Factory	Shenzhen EJEAS Intelligent Technology Co., Ltd.
Address	Room 3A, B 1, Zhongxin road 9, Taoyuan Community, Dalang street, Longhua district, Shenzhen city, Guangdong province, China.
Product Designation	Mesh Network Communication Intercom System
Brand Name	EJEAS
Test Model	MS8
Series Model	MS2, MS4, MS6, MS10, MS20, MS30, MS40
Declaration Difference	All the same except for the model name
Date of receipt of test item	Oct. 14, 2022
Date of test	Oct. 14, 2022 to Dec. 12, 2022
Deviation	No any deviation from the test method
Condition of Test Sample	Normal
Test Result	Pass
Report Template	AGCRT-US-LPAS/RF

We hereby certify that:

The above equipment was tested by Attestation of Global Compliance (Shenzhen) Co., Ltd. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10:2013 and the energy emitted by the sample EUT tested as described in this report is in compliance with radiated emission limits of FCC Part 15.236.

Prepared By

Thea Huang

Thea Huang
(Project Engineer)

Dec. 13, 2022

Reviewed By

Calvin Liu

Calvin Liu
(Reviewer)

Dec. 13, 2022

Approved By

Max Zhang

Max Zhang
(Authorized Officer)

Dec. 13, 2022

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2. GENERAL INFORMATION

2.1. PRODUCT DESCRIPTION

Operation Frequency	471.0MHz-486.8MHz
Maximum Radiated Power	4.825dBm
EIRP	5.645
Modulation	GFSK
Number of channels	80 Channels
Antenna Gain	0.82dBi
Antenna Designation	PCB Antenna (Met 15.203 Antenna requirement)
Hardware Version	V1.0
Software Version	V1.0
Power Supply	DC 3.7V by battery

Channel list:

Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)
01	471.0 MHz	41	479.0 MHz
02	471.2 MHz	42	479.2 MHz
03	471.4 MHz	43	479.4 MHz
04	471.6 MHz	44	479.6 MHz
05	471.8 MHz	45	479.8 MHz
06	472.0 MHz	46	480.0 MHz
07	472.2 MHz	47	480.2 MHz
08	472.4 MHz	48	480.4 MHz
09	472.6 MHz	49	480.6 MHz
10	472.8 MHz	50	480.8 MHz
11	473.0 MHz	51	481.0 MHz
12	473.2 MHz	52	481.2 MHz
13	473.4 MHz	53	481.4 MHz
14	473.6 MHz	54	481.6 MHz
15	473.8 MHz	55	481.8 MHz
16	474.0 MHz	56	482.0 MHz

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17	474.2 MHz	57	482.2 MHz
18	474.4 MHz	58	482.4 MHz
19	474.6 MHz	59	482.6 MHz
20	474.8 MHz	60	482.8 MHz
21	475.0 MHz	61	483.0 MHz
22	475.2 MHz	62	483.2 MHz
23	475.4 MHz	63	483.4 MHz
24	475.6 MHz	64	483.6 MHz
25	475.8 MHz	65	483.8 MHz
26	476.0 MHz	66	484.0 MHz
27	476.2 MHz	67	484.2 MHz
28	476.4 MHz	68	484.4 MHz
29	476.6 MHz	69	484.6 MHz
30	476.8 MHz	70	484.8 MHz
31	477.0 MHz	71	485.0 MHz
32	477.2 MHz	72	485.2 MHz
33	477.4 MHz	73	485.4 MHz
34	477.6 MHz	74	485.6 MHz
35	477.8 MHz	75	485.8 MHz
36	478.0 MHz	76	486.0 MHz
37	478.2 MHz	77	486.2 MHz
38	478.4 MHz	78	486.4 MHz
39	478.6 MHz	79	486.6 MHz
40	478.8 MHz	80	486.8 MHz

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2.2. TEST METHODOLOGY

Both conducted and radiated testing was performed according to the procedures in ANSI C63.10 (2013). Radiated testing was performed at an antenna to EUT distance 3 meters.

2.3. SPECIAL ACCESSORIES

Refer to section 5.2.

2.4. EQUIPMENT MODIFICATIONS

Not available for this EUT intended for grant.

2.5. ANTENNA REQUIREMENT

This intentional radiator is designed with a permanently attached antenna of an antenna to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

For more information of the antenna, please refer to the APPENDIX B: PHOTOGRAPHS OF EUT.

3. MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95%.

Item	Measurement Uncertainty
Uncertainty of Conducted Emission for AC Port	$U_c = \pm 2.9 \text{ dB}$
Uncertainty of Radiated Emission below 1GHz	$U_c = \pm 3.8 \text{ dB}$
Uncertainty of Radiated Emission above 1GHz	$U_c = \pm 4.9 \text{ dB}$
Uncertainty of total RF power, conducted	$U_c = \pm 0.8 \text{ dB}$
Uncertainty of spurious emissions, conducted	$U_c = \pm 2.7 \%$
Uncertainty of Occupied Channel Bandwidth	$U_c = \pm 2 \%$

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4. DESCRIPTION OF TEST MODES

NO.	TEST MODE DESCRIPTION
1	TX mode at Low channel (CH01: 471.0MHz)
2	TX mode at Middle channel (CH40: 478.8MHz)
3	TX mode at High channel(CH80: 486.8MHz)

Note: 1. For Radiated Emission, 3axis were chosen for testing for each applicable mode.

2. For Conducted Test method, a temporary antenna connector is provided by the manufacture.

3. For battery operated equipment, the equipment tests are performed using a new battery.

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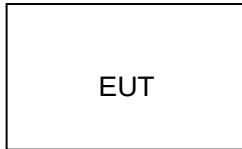
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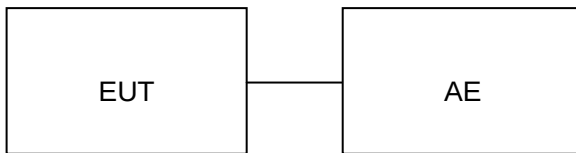
5. SYSTEM TEST CONFIGURATION

5.1. CONFIGURATION OF EUT SYSTEM

Radiated Emission Configure:



Conducted Emission Configure:



5.2 EQUIPMENT USED IN TESTED SYSTEM

Item	Equipment	Model No.	ID or Specification	Remark
1	Mesh Network Communication Intercom System	MS8	2A9G2-MS8	EUT

5.3. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§15.203	Antenna requirement	Compliant
§15.236(d)(1)	Maximum radiated power	Compliant
§15.236(f)(2)	Occupied bandwidth	Compliant
§15.236(f)(3)	Frequency stability	Compliant
§15.236(g)	Emissions within the band	Compliant
§15.236(g)	Emissions outside of this band	Compliant
15.207	Line Conducted Emission	Not applicable

Note: Wireless function is not working when charging.

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6. TEST FACILITY

Test Site	Attestation of Global Compliance (Shenzhen) Co., Ltd
Location	1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Designation Number	CN1259
FCC Test Firm Registration Number	975832
A2LA Cert. No.	5054.02
Description	Attestation of Global Compliance (Shenzhen) Co., Ltd is accredited by A2LA

TEST EQUIPMENT OF RADIATED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
Test Receiver	R&S	ESCI	10096	Mar. 28, 2022	Mar. 27, 2023
EXA Signal Analyzer	Agilent	N9010A	MY53470504	Aug. 04, 2022	Aug. 03, 2023
Signal Analyzer	Aglient	N9020A	MY52090123	Aug. 04, 2022	Aug. 03, 2023
Attenuator	ZHINAN	E-002	N/A	Aug. 04, 2022	Aug. 03, 2024
Double-Ridged Waveguide Horn	ETS	3117	00154520	Sep. 06, 2021	Sep. 05, 2023
Double-Ridged Waveguide Horn	ETS	3117	00034609	Apr. 23, 2021	Apr. 22, 2023
Active Loop Antenna (9K-30Mhz)	ZHINAN	ZN30900C	18051	Mar. 12, 2022	Mar. 11, 2024
Preamplifier Assembly	ETS	3117PA	00225134	Sep. 01, 2022	Sep. 02, 2024
Wideband Antenna	SCHWARZBEC K	VULB9168	VULB9168-494	Jan. 08, 2021	Jan. 07, 2023
Wireless communication tester	HP	8920B	US35010161	Aug. 03, 2022	Aug. 02, 2023
Test software	Tonscend	JS32-RE	Ver. 2.5	N/A	N/A

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7. OUTPUT POWER

7.1. TEST LIMIT

The power may not exceed the following values.

471MHz-487MHz bands: 50 mW EIRP

7.2. MEASUREMENT PROCEDURE

☐ EIRP Test Method

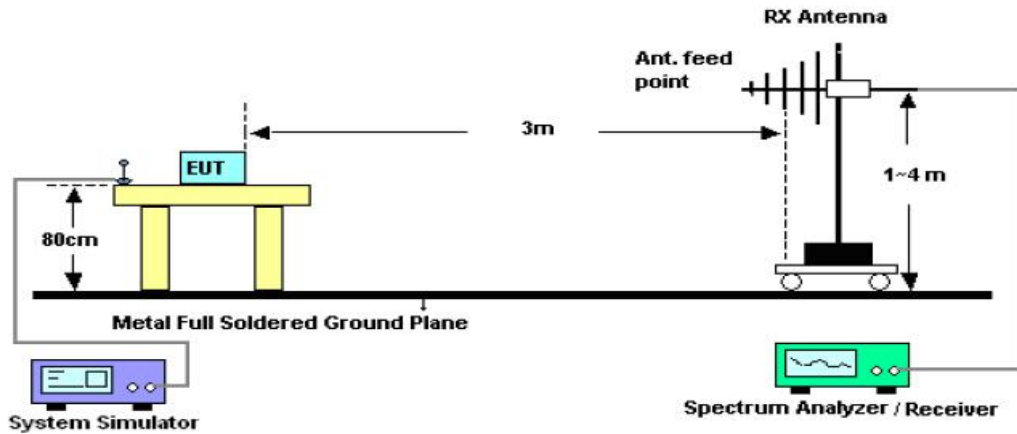
1. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
 2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
 3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
 4. For each suspected emission, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
 5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
 6. $EIRP [dBm] = E[dB(\mu V)/m] - 95.3$
- 4.7dB shall be added as an upper bound on the field strength that would be observed on a test range with a ground plane for frequencies between 30MHz and 1000MHz, or an additional 6dB shall be added for frequencies below 30 MHz.

☒ Conducted Power Test Method

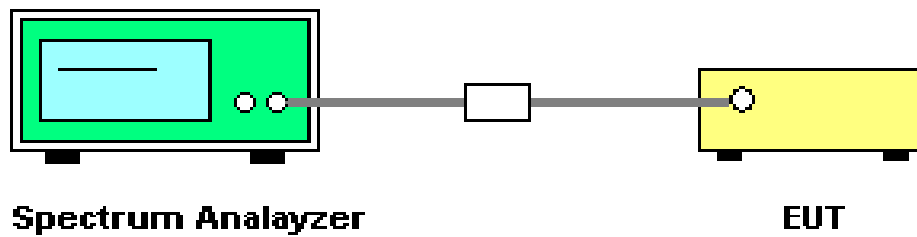
1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
2. $RBW \geq OBW$.
3. $VBW \geq 3 \times RBW$.
4. $Span \geq 2 \times OBW$.
5. Sweep time $\geq 10 \times (\text{number of points in sweep}) \times (\text{transmission symbol period})$
6. Detector function: Peak.
7. Trace: Max hold.
8. Allow trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. The indicated level is the peak output power, after any corrections for external attenuators and cables.

7.3. TEST SETUP

☐ EIRP Test Method



☒ Conducted Power Test Method



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7.4. TEST RESULT

Test Channel	Peak Power	EIRP	Limit
(MHz)	(dBm)	(dBm)	(dBm)
471.0	4.825	5.645	16.99
478.8	4.111	4.931	16.99
486.8	3.431	4.251	16.99

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8. OCCUPIED BANDWIDTH

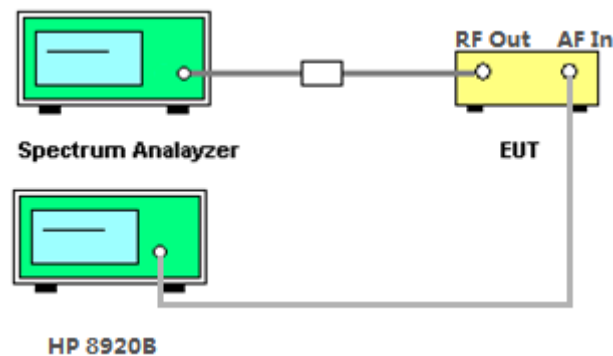
8.1. TEST LIMIT

The operating bandwidth shall not exceed 200 kHz.

8.2. MEASUREMENT PROCEDURE

1. For the occupied bandwidth measurements, the input signal shall be a 1 kHz tone. The level of the tone shall be set to the manufacturer's maximum rated input to the modulator.
2. Set the EUT Work on operation frequency.
3. Set Span = approximately 1.5 times the occupied bandwidth, centered on a channel
The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW and video bandwidth (VBW) shall be approximately three times RBW; Sweep = auto; Detector function = peak
4. Set SPA Trace 1 Max hold, then View.

8.3. TEST SET-UP



8.4. MEASUREMENT RESULTS

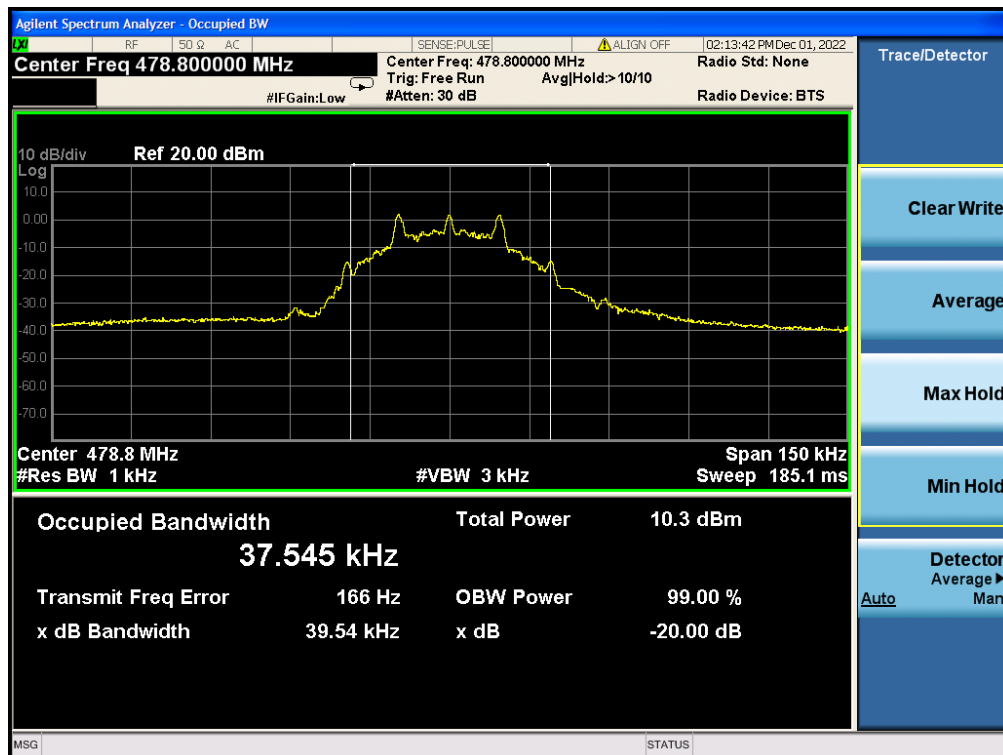
Test Channel (MHz)	-20dBc EBW (kHz)	99% OBW (kHz)	Limit (kHz)
471.0MHz	39.55	37.551	200
478.8MHz	39.54	37.545	200
486.8MHz	39.63	38.242	200

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TEST PLOT OF BANDWIDTH

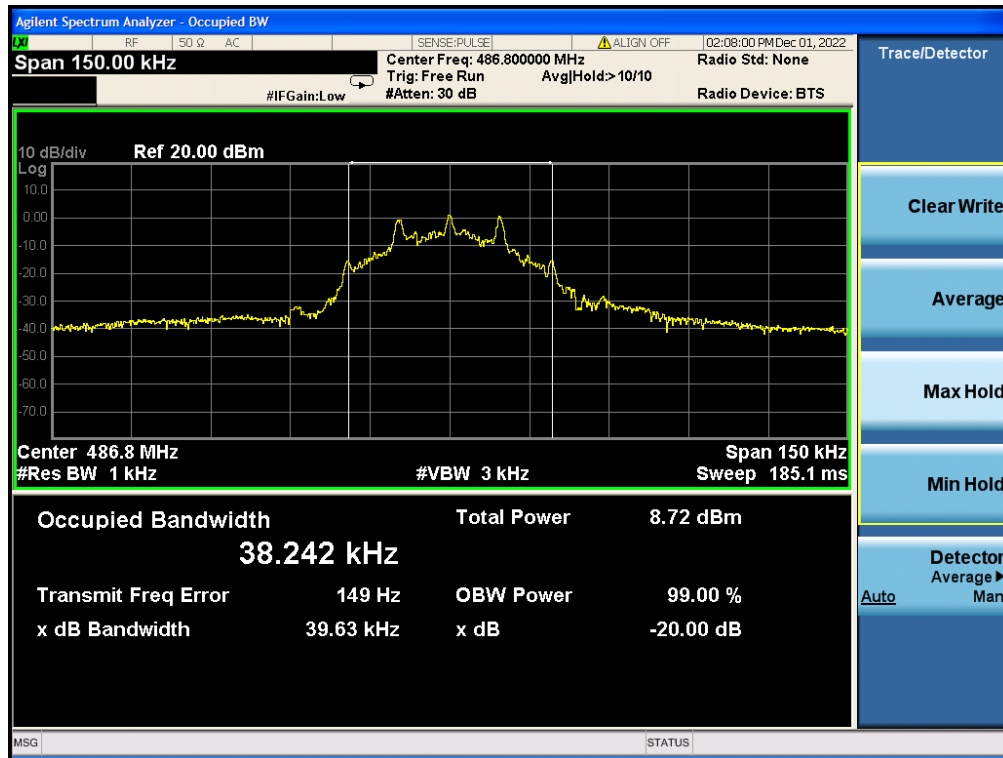


TEST PLOT OF BANDWIDTH



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TEST PLOT OF BANDWIDTH



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9. FREQUENCY STABILITY

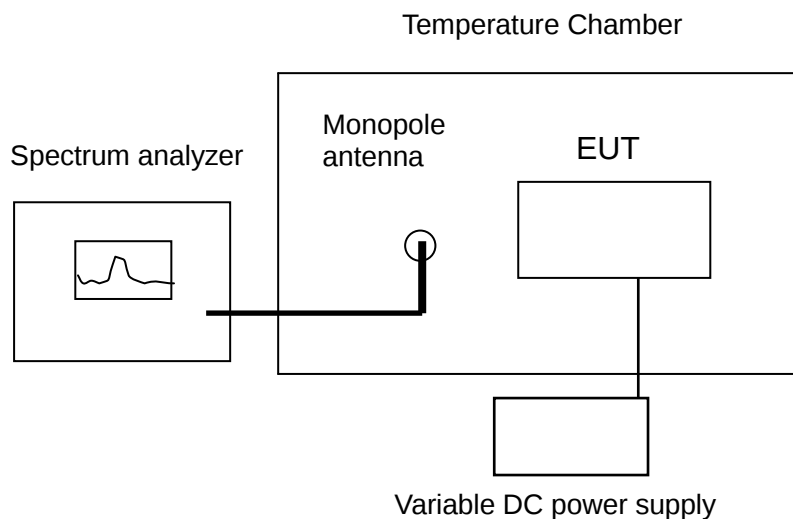
9.1. TEST LIMIT

The frequency tolerance of the carrier signal shall be maintained within $\pm 0.005\%$ of the operating frequency over a temperature variation of -30 degrees to $+50$ degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.

9.2. MEASUREMENT PROCEDURE

1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
2. Set the EUT Work on the operation frequency.
3. Set SPA Centre Frequency = Operation Frequency, RBW= 1 KHz, VBW $\geq 3 \times$ RBW.
4. Set SPA Trace 1 Max hold, then View.
5. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value
6. The f_c is declaring of channel frequency. Then the frequency error formula is $(f_c - f)/f_c \times 10^6$ ppm and the limit is less than ± 50 ppm.
7. Extreme temperature rule is $-30^\circ\text{C} \sim 50^\circ\text{C}$.

9.3. TEST SET-UP



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9.4. TEST RESULT

Operating frequency: 471.0MHz

Voltage vs. Frequency Stability (Test Temperature: 20°C)

Voltage(V)	Measurement Frequency (MHz)	Max. Deviation (ppm)	Limit(ppm)	Conclusion
3.15	471.009	+40.3	±50	PASS
3.7	471.019			
4.26	471.015			

Temperature vs. Frequency Stability (Test Voltage: 3.7V)

Temperature	Measurement Frequency (MHz)	Max. Deviation (ppm)	Limit(ppm)	Conclusion
-30°C	471.010	+45	±50	PASS
-20°C	471.008			
-10°C	471.016			
0°C	471.018			
10°C	471.022			
20°C	471.015			
30°C	471.017			
40°C	471.013			
50°C	471.009			

Operating frequency: 478.8MHz

Voltage vs. Frequency Stability (Test Temperature: 20°C)

Voltage(V)	Measurement Frequency (MHz)	Max. Deviation (ppm)	Limit(ppm)	Conclusion
3.15	478.781	-31.2	±50	PASS
3.7	478.785			
4.26	478.779			

Temperature vs. Frequency Stability (Test Voltage: 3.7V)

Temperature	Measurement Frequency (MHz)	Max. Deviation (ppm)	Limit(ppm)	Conclusion
-30°C	478.791	-14.6	±50	PASS
-20°C	478.788			
-10°C	478.779			
0°C	478.784			
10°C	478.795			
20°C	478.787			
30°C	478.793			
40°C	478.778			
50°C	478.791			

Operating frequency: 486.8MHz

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Voltage vs. Frequency Stability (Test Temperature: 20°C)

Voltage(V)	Measurement Frequency (MHz)	Max. Deviation (ppm)	Limit(ppm)	Conclusion
3.15	486.814	+43.1	±50	PASS
3.7	486.809			
4.26	486.821			

Temperature vs. Frequency Stability (Test Voltage: 3.7V)

Temperature	Measurement Frequency (MHz)	Max. Deviation (ppm)	Limit(ppm)	Conclusion
-30°C	486.807	+45.2	±50	PASS
-20°C	486.811			
-10°C	486.817			
0°C	486.822			
10°C	486.819			
20°C	486.817			
30°C	486.820			
40°C	486.808			
50°C	486.815			

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10. EMISSIONS WITHIN THE BAND AND OUTSIDE THE BAND

10.1. TEST LIMIT

Emissions within the band from one megahertz below to one megahertz above the carrier frequency shall comply with the emission mask in §8.3 of ETSI EN 300 422-1 V1.4.2 (2011-08).

Emissions outside of this band shall comply with the limits specified in section 8.4 of ETSI EN 300 422-1 V1.4.2 (2011-08).

10.2. MEASUREMENT PROCEDURE

Emission outside the band:

1. The EUT was placed on the top of the turntable 0.8 or 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emission, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. $EIRP [dBm] = E[dB(\mu V)/m] - 95.2$

The following table is the setting of spectrum analyzer and receiver.

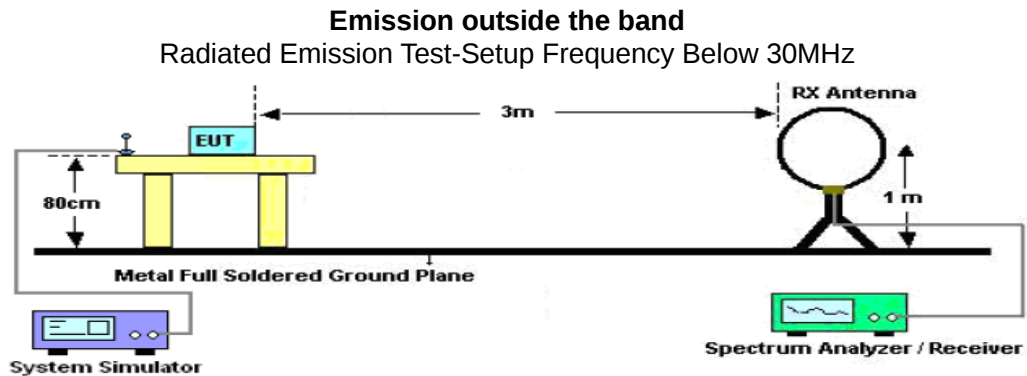
Spectrum Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP
Start ~Stop Frequency	1000MHz~6000MHz/RB 1MHz for QP

Emission within the band:

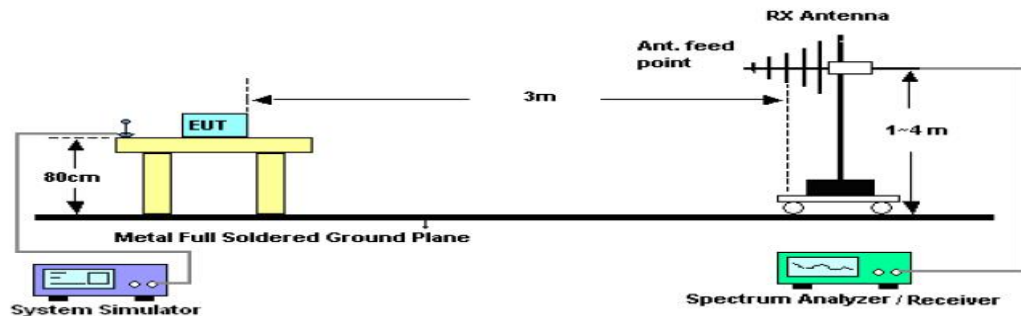
- ☒ Method of Measurement for Analogue Systems in ETSI EN 300 422-1 Subclass 8.3.1
☐ Method of Measurement for Digital Systems in ETSI EN 300 422-1 Subclass 8.3.2

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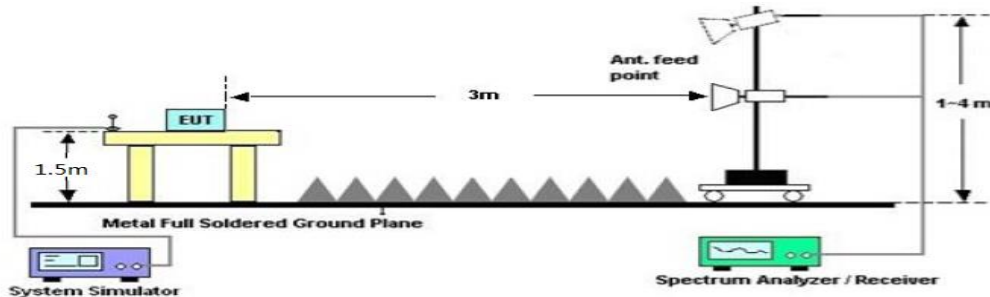
10.3. TEST SETUP



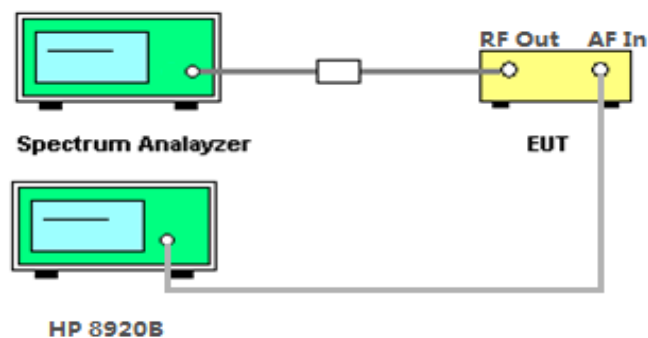
RADIATED EMISSION TEST SETUP 30MHz-1000MHz



RADIATED EMISSION TEST SETUP ABOVE 1000MHz



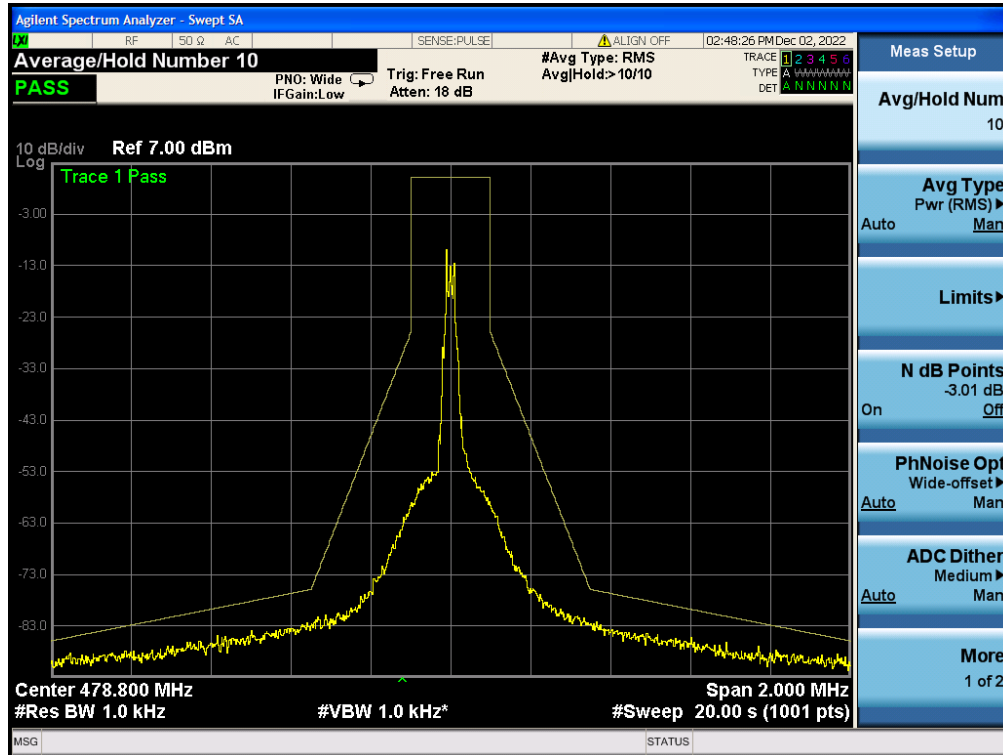
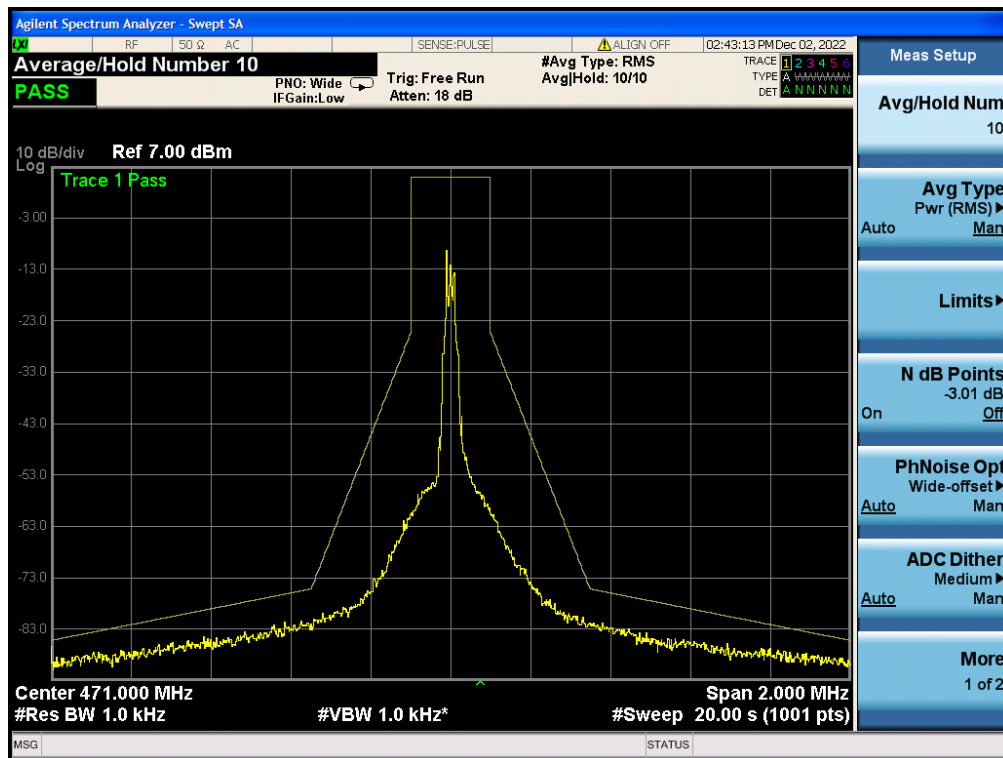
Emission within the band



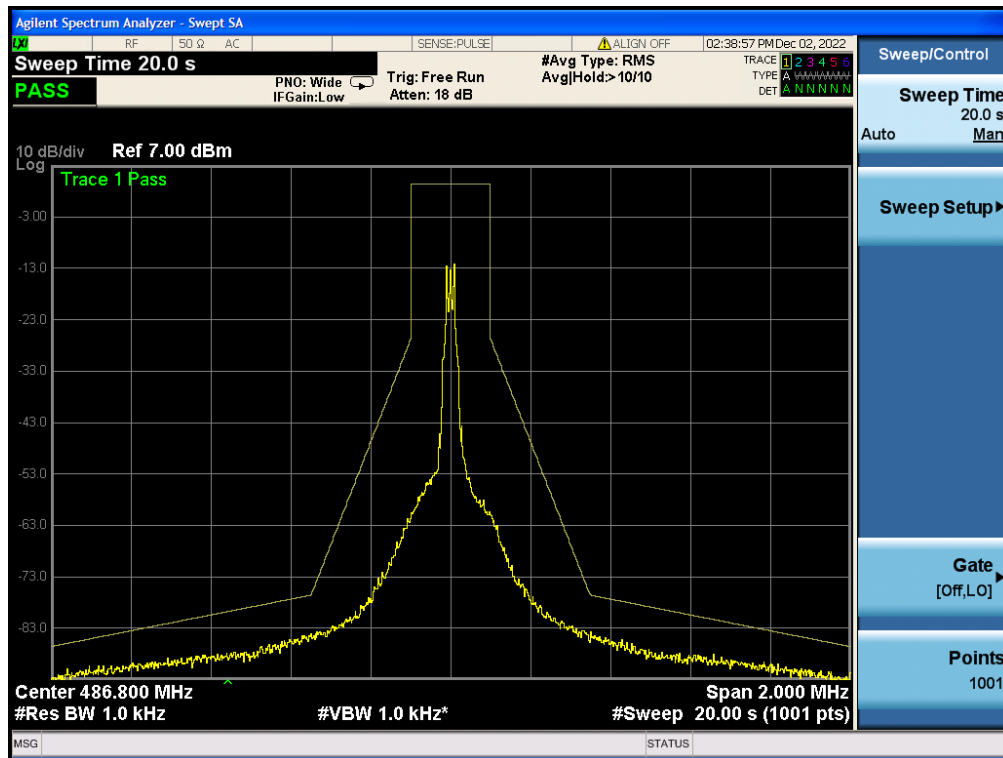
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10.4. TEST RESULT

Emission within the band



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Note: 1.The manufacturer declared that the channel bandwidth is 200KHz.

2.The carrier power is the ref level, and the factor had been edited in the “Input Correction” of the Spectrum Analyzer.

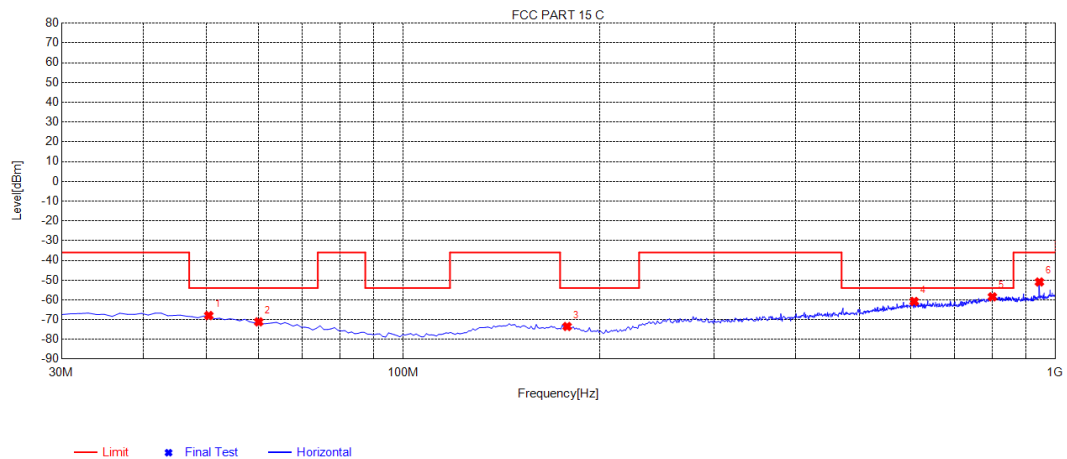
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CH01

Emission outside the band 30-1000MHz

EUT	Mesh Network Communication Intercom System	Model Name	MS8
Temperature	21 °C	Relative Humidity	52%
Pressure	986 hPa	Test Voltage	Normal
Test Mode	Transmitting at 471.0MHz	Polarization	Horizontal



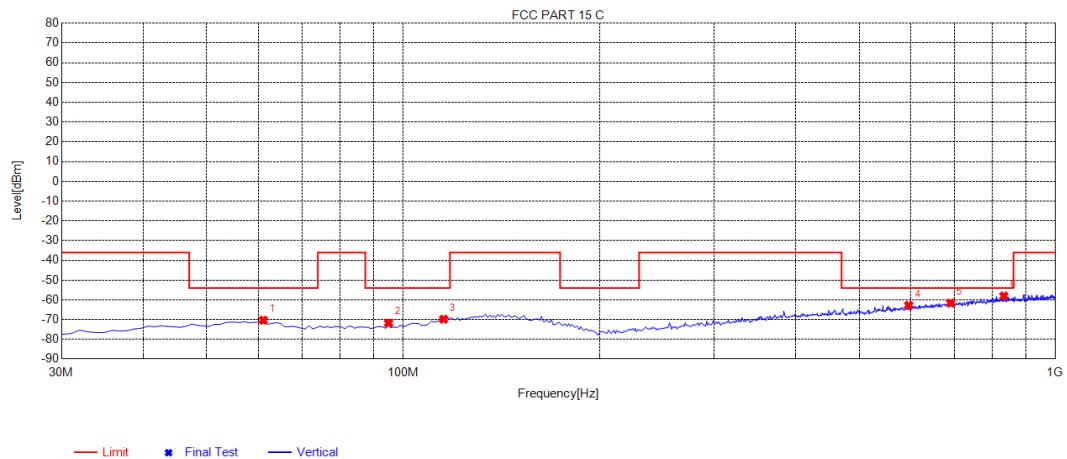
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	50.37	-101.47	-67.92	-54.00	13.92	33.55	278	Horizontal
2	60.07	-101.88	-71.12	-54.00	17.12	30.76	278	Horizontal
3	178.41	-102.98	-73.46	-54.00	19.46	29.52	270	Horizontal
4	607.15	-100.66	-60.79	-54.00	6.79	39.87	297	Horizontal
5	800.18	-101.87	-58.45	-54.00	4.45	43.42	142	Horizontal
6	944.71	-94.86	-50.95	-36.00	14.95	43.91	1	Horizontal

RESULT: PASS

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EUT	Mesh Network Communication Intercom System	Model Name	MS8
Temperature	21°C	Relative Humidity	52%
Pressure	986 hPa	Test Voltage	Normal
Test Mode	Transmitting at 471.0MHz	Polarization	Vertical



NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	61.04	-101.32	-70.30	-54.00	16.30	31.02	324	Vertical
2	94.99	-100.50	-71.79	-54.00	17.79	28.71	199	Vertical
3	115.36	-101.97	-69.80	-54.00	15.80	32.17	351	Vertical
4	595.51	-101.37	-62.76	-54.00	8.76	38.61	262	Vertical
5	690.57	-101.93	-61.63	-54.00	7.63	40.30	0	Vertical
6	833.16	-100.72	-58.04	-54.00	4.04	42.68	61	Vertical

RESULT: PASS

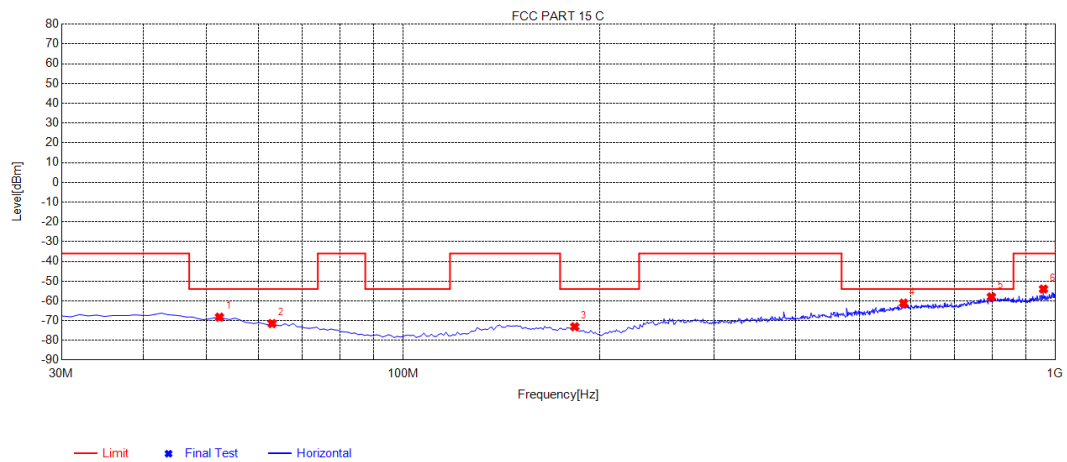
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CH40

Emission outside the band 30-1000MHz

EUT	Mesh Network Communication Intercom System	Model Name	MS8
Temperature	21°C	Relative Humidity	52%
Pressure	986 hPa	Test Voltage	Normal
Test Mode	Transmitting at 478.8MHz	Polarization	Horizontal



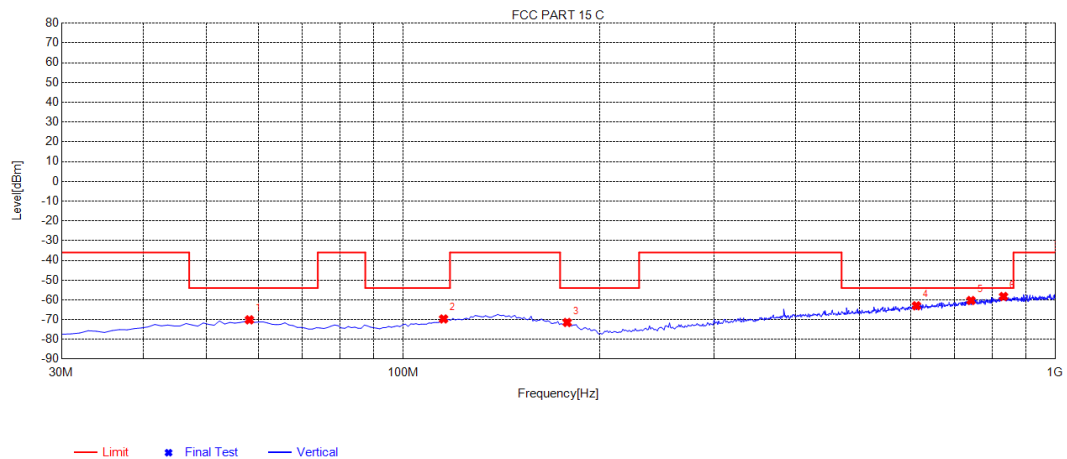
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	52.31	-101.21	-68.22	-54.00	14.22	32.99	1	Horizontal
2	62.98	-101.58	-71.46	-54.00	17.46	30.12	318	Horizontal
3	183.26	-102.18	-73.07	-54.00	19.07	29.11	1	Horizontal
4	584.84	-100.46	-61.14	-54.00	7.14	39.32	336	Horizontal
5	797.27	-101.29	-57.96	-54.00	3.96	43.33	54	Horizontal
6	958.29	-98.23	-54.03	-36.00	18.03	44.20	9	Horizontal

RESULT: PASS

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EUT	Mesh Network Communication Intercom System	Model Name	MS8
Temperature	21°C	Relative Humidity	52%
Pressure	986 hPa	Test Voltage	Normal
Test Mode	Transmitting at 478.8MHz	Polarization	Vertical



NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	58.13	-101.18	-70.09	-54.00	16.09	31.09	61	Vertical
2	115.36	-101.81	-69.64	-54.00	15.64	32.17	105	Vertical
3	178.41	-102.18	-71.44	-54.00	17.44	30.74	0	Vertical
4	612	-101.91	-62.99	-54.00	8.99	38.92	61	Vertical
5	741.98	-101.58	-60.31	-54.00	6.31	41.27	259	Vertical
6	832.19	-100.96	-58.29	-54.00	4.29	42.67	351	Vertical

RESULT: PASS

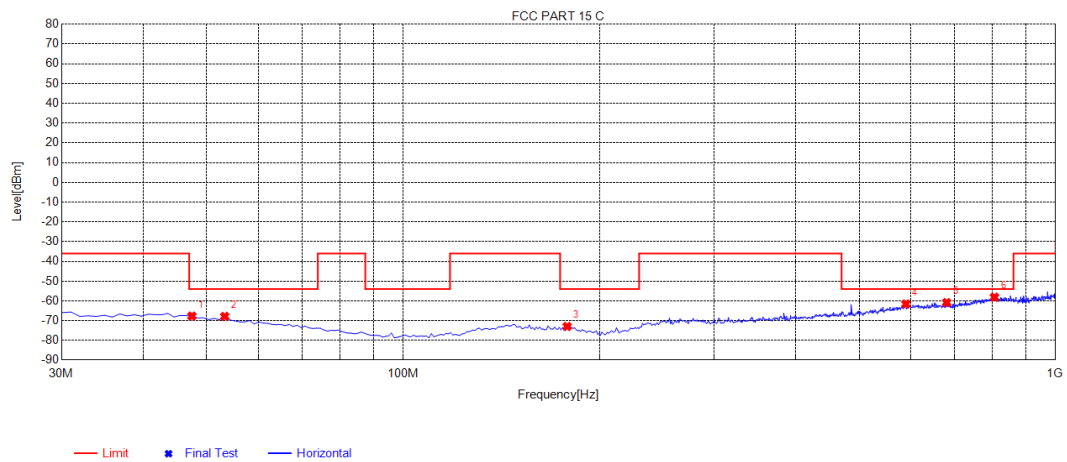
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CH80

Emission outside the band 30-1000MHz

EUT	Mesh Network Communication Intercom System	Model Name	MS8
Temperature	21°C	Relative Humidity	52%
Pressure	986 hPa	Test Voltage	Normal
Test Mode	Transmitting at 486.8MHz	Polarization	Horizontal



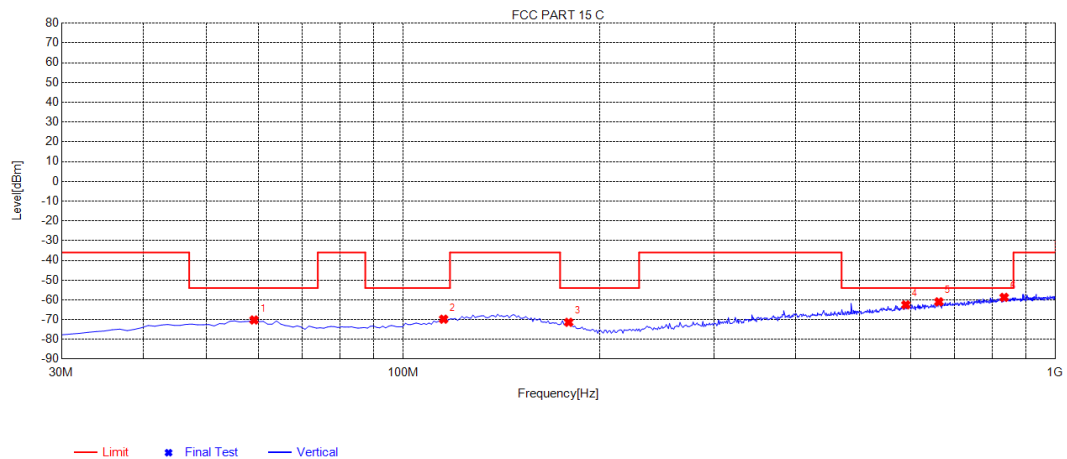
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	47.46	-101.69	-67.69	-54.00	13.69	34.00	164	Horizontal
2	53.28	-100.57	-67.85	-54.00	13.85	32.72	239	Horizontal
3	178.41	-102.46	-72.94	-54.00	18.94	29.52	108	Horizontal
4	589.69	-101.05	-61.56	-54.00	7.56	39.49	1	Horizontal
5	680.87	-100.92	-60.85	-54.00	6.85	40.07	360	Horizontal
6	806	-101.52	-58.13	-54.00	4.13	43.39	360	Horizontal

RESULT: PASS

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EUT	Mesh Network Communication Intercom System	Model Name	MS8
Temperature	21°C	Relative Humidity	52%
Pressure	986 hPa	Test Voltage	Normal
Test Mode	Transmitting at 486.8MHz	Polarization	Vertical



NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	59.1	-101.41	-70.17	-54.00	16.17	31.24	194	Vertical
2	115.36	-101.93	-69.76	-54.00	15.76	32.17	334	Vertical
3	179.38	-101.96	-71.34	-54.00	17.34	30.62	175	Vertical
4	589.69	-100.98	-62.51	-54.00	8.51	38.47	82	Vertical
5	662.44	-100.79	-60.98	-54.00	6.98	39.81	9	Vertical
6	834.13	-101.41	-58.72	-54.00	4.72	42.69	351	Vertical

RESULT: PASS

Note: Factor=Antenna Factor + Cable loss, Margin=Level-Limit.

The “Factor” value can be calculated automatically by software of measurement system.

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Emission outside the band above 1000MHz

EUT	Mesh Network Communication Intercom System	Model Name	MS8
Temperature	21°C	Relative Humidity	52%
Pressure	986 hPa	Test Voltage	Normal
Test Mode	Transmitting at 471.0MHz	Polarization	Horizontal/Vertical

Frequency (MHz)	Meter Reading (dBm)	Factor (dB)	Emission Level (dBm)	Limits (dBm)	Margin (dB)	Value Type
942.000	-36.24	-5.08	-41.32	-30	-11.32	Horizontal
942.000	-35.76	-5.08	-40.84	-30	-10.84	Vertical
1413.000	-33.61	-4.87	-38.48	-30	-8.48	Horizontal
1413.000	-33.24	-4.87	-38.11	-30	-8.11	Vertical
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

EUT	Mesh Network Communication Intercom System	Model Name	MS8
Temperature	21°C	Relative Humidity	52%
Pressure	986 hPa	Test Voltage	Normal
Test Mode	Transmitting at 478.8MHz	Polarization	Horizontal/Vertical

Frequency (MHz)	Meter Reading (dBm)	Factor (dB)	Emission Level (dBm)	Limits (dBm)	Margin (dB)	Value Type
957.600	-36.87	-5.08	-41.95	-30	-11.95	Horizontal
957.600	-35.14	-5.08	-40.22	-30	-10.22	Vertical
1436.400	-33.96	-4.87	-38.83	-30	-8.83	Horizontal
1436.400	-33.54	-4.87	-38.41	-30	-8.41	Vertical
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

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EUT	Mesh Network Communication Intercom System	Model Name	MS8
Temperature	21°C	Relative Humidity	52%
Pressure	986 Pa	Test Voltage	Normal
Test Mode	Transmitting at 486.8MHz	Polarization	Horizontal/Vertical

Frequency (MHz)	Meter Reading (dBm)	Factor (dB)	Emission Level (dBm)	Limits (dBm)	Margin (dB)	Value Type
973.600	-36.75	-5.08	-41.83	-30	-11.83	Horizontal
973.600	-35.11	-5.08	-40.19	-30	-10.19	Vertical
1460.400	-33.45	-4.87	-38.32	-30	-8.32	Horizontal
1460.400	-33.75	-4.87	-38.62	-30	-8.62	Vertical
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

RESULT: PASS

Note: Other emissions from 1G to 6 GHz are considered as ambient noise. No recording in the test report.
The “Factor” value can be calculated automatically by software of measurement system.

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11. LINE CONDUCTED EMISSION TEST

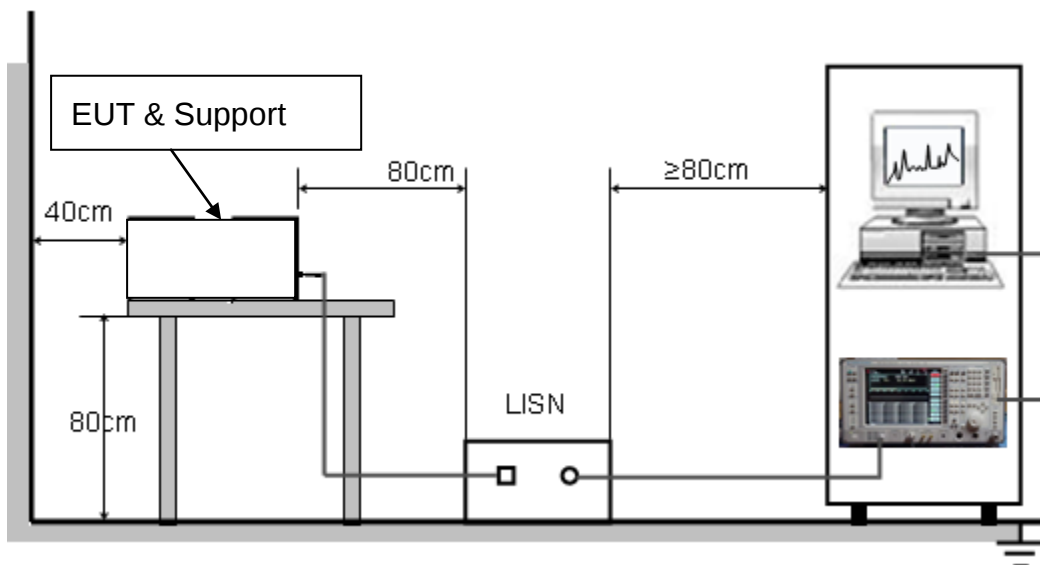
11.1. LIMITS OF LINE CONDUCTED EMISSION TEST

Frequency	Maximum RF Line Voltage	
	Q.P. (dB μ V)	Average (dB μ V)
150kHz~500kHz	66-56	56-46
500kHz~5MHz	56	46
5MHz~30MHz	60	50

Note: 1. The lower limit shall apply at the transition frequency.

2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50MHz.

11.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST



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11.3. PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST

1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
2. Support equipment, if needed, was placed as per ANSI C63.10.
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
4. All support equipment received AC120V/60Hz power from a LISN, if any.
5. The EUT received DC 5V power from adapter which received AC120V/60Hz power from a LISN.
6. The test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7. Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.
8. During the above scans, the emissions were maximized by cable manipulation.
9. The test mode(s) were scanned during the preliminary test.

Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

11.4. FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST

1. EUT and support equipment was set up on the test bench as per step 2 of the preliminary test.
2. A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less -2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.
3. The test data of the worst case condition(s) was reported on the Summary Data page.

11.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST

N/A

Note: Wireless function is not working when charging.

APPENDIX A: PHOTOGRAPHS OF TEST SETUP

Refer to the Report No.: AGC00749221001AP02

APPENDIX B: PHOTOGRAPHS OF EUT

Refer to the Report No.: AGC00749221001AP03

-----END OF REPORT-----

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