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# FCC Test Report

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Report No.: AGC02157211205FE05A

**FCC ID** : 2AL9Y-PHONEP300  
**APPLICATION PURPOSE** : Class II Equipment  
**PRODUCT DESIGNATION** : VoIP Phone  
**BRAND NAME** : Sangoma  
**MODEL NAME** : P370, P330  
**APPLICANT** : Sangoma Technologies Corp.  
**DATE OF ISSUE** : Feb. 11, 2022  
**STANDARD(S)** : FCC Part 15.247  
**TEST PROCEDURE(S)**  
**REPORT VERSION** : V1.0

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### REPORT REVISE RECORD

| Report Version | Revise Time | Issued Date   | Valid Version | Notes           |
|----------------|-------------|---------------|---------------|-----------------|
| V1.0           | /           | Feb. 11, 2022 | Valid         | Initial Release |

**Note:**

The original test report Ref. No. AGC02157211205FE05 dated Jan. 22, 2022, was modified on Feb. 11, 2022 to include the following changes:

- Increase the series models;
- The Radiated Emission and Line Conduction Emission tests of the series model have been updated.

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## 1. VERIFICATION OF CONFORMITY

|                                  |                                                                                                  |
|----------------------------------|--------------------------------------------------------------------------------------------------|
| <b>Applicant</b>                 | Sangoma Technologies Corp.                                                                       |
| <b>Address</b>                   | 100 Renfrew Drive, Suite 100, Markham ON, L3R 9R6, Canada                                        |
| <b>manufacturer</b>              | Sangoma Technologies Corp.                                                                       |
| <b>Address</b>                   | 100 Renfrew Drive, Suite 100, Markham ON, L3R 9R6, Canada                                        |
| <b>Factory</b>                   | Victory Telecom (Huizhou) LTD.                                                                   |
| <b>Address</b>                   | JiangBei85HaoXiaoQu, XiaoJinKouTown, HuiZhouCity, GuangDong, China                               |
| <b>Product Designation</b>       | VoIP Phone                                                                                       |
| <b>Brand Name</b>                | Sangoma                                                                                          |
| <b>Test Model</b>                | P370                                                                                             |
| <b>Series Model</b>              | P330                                                                                             |
| <b>Declaration of Difference</b> | P370 is 7" color TFT with touch screen, and P330 is 4.3" TFT LCD display with traditional keypad |
| <b>Date of test</b>              | Dec. 23, 2021 to Feb. 11, 2022                                                                   |
| <b>Deviation</b>                 | No any deviation from the test method                                                            |
| <b>Condition of Test Sample</b>  | Normal                                                                                           |
| <b>Test Result</b>               | Pass                                                                                             |
| <b>Report Template</b>           | AGCRT-US-BGN/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 Rules Part 15.247.

Prepared By

*Eder zhan*

Eder Zhan  
(Project Engineer)

Feb. 11, 2022

Reviewed By

*Calvin Liu*

Calvin Liu  
(Reviewer)

Feb. 11, 2022

Approved By

*Max Zhang*

Max Zhang  
(Authorized Officer)

Feb. 11, 2022

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## 2. GENERAL INFORMATION

### 2.1. PRODUCT DESCRIPTION

The EUT is designed as “VoIP Phone”. It is designed by way of utilizing the DSSS and OFDM technology to achieve the system operation.

A major technical description of EUT is described as following

|                               |                                                                                         |
|-------------------------------|-----------------------------------------------------------------------------------------|
| <b>Equipment Type</b>         | WLAN 2.4G                                                                               |
| <b>Frequency Band</b>         | 2400MHz ~ 2483.5MHz                                                                     |
| <b>Operation Frequency</b>    | 2412MHz ~ 2462MHz                                                                       |
| <b>Output Power (Average)</b> | IEEE 802.11b:13.51dBm; IEEE 802.11g:10.34dBm;<br>IEEE 802.11n(HT20):10.06dBm            |
| <b>Output Power (Peak)</b>    | IEEE 802.11b:15.84dBm; IEEE 802.11g:18.28dBm;<br>IEEE 802.11n(HT20):17.94dBm            |
| <b>Modulation</b>             | 802.11b:DQPSK, DBPSK, CCK<br>802.11g/n: 64-QAM, 16-QAM, QPSK, BPSK                      |
| <b>Data Rate</b>              | 802.11b: 1/2/5.5/11Mbps<br>802.11g: 6/9/12/18/24/36/48/54Mbps<br>802.11n: up to 300Mbps |
| <b>Number of channels</b>     | 11                                                                                      |
| <b>Hardware Version</b>       | V5                                                                                      |
| <b>Software Version</b>       | master_DEV                                                                              |
| <b>Antenna Designation</b>    | PCB antenna (Comply with requirements of the FCC part 15.203)                           |
| <b>Antenna Gain</b>           | 2dBi                                                                                    |
| <b>Power Supply</b>           | DC 12V by adapter or DC 47V by POE                                                      |

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## 2.2. TABLE OF CARRIER FREQUENCIES

| Frequency Band | Channel Number | Frequency |
|----------------|----------------|-----------|
| 2400~2483.5MHZ | 1              | 2412 MHZ  |
|                | 2              | 2417 MHZ  |
|                | 3              | 2422 MHZ  |
|                | 4              | 2427 MHZ  |
|                | 5              | 2432 MHZ  |
|                | 6              | 2437 MHZ  |
|                | 7              | 2442 MHZ  |
|                | 8              | 2447 MHZ  |
|                | 9              | 2452 MHZ  |
|                | 10             | 2457 MHZ  |
|                | 11             | 2462 MHZ  |

Note: For 20MHZ bandwidth system use Channel 1 to Channel 11.

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### 2.3. IEEE 802.11N MODULATION SCHEME

| MCS Index | Nss | Modulation | R   | NBPSC | NCBPS |       | NDBPS |       | Data rate(Mbps) |       |
|-----------|-----|------------|-----|-------|-------|-------|-------|-------|-----------------|-------|
|           |     |            |     |       |       |       |       |       | 800nsGI         |       |
|           |     |            |     |       | 20MHz | 40MHz | 20MHz | 40MHz | 20MHz           | 40MHz |
| 0         | 1   | BPSK       | 1/2 | 1     | 52    | 108   | 26    | 54    | 6.5             | 13.5  |
| 1         | 1   | QPSK       | 1/2 | 2     | 104   | 216   | 52    | 108   | 13.0            | 27.0  |
| 2         | 1   | QPSK       | 3/4 | 2     | 104   | 216   | 78    | 162   | 19.5            | 40.5  |
| 3         | 1   | 16-QAM     | 1/2 | 4     | 208   | 432   | 104   | 216   | 26.0            | 54.0  |
| 4         | 1   | 16-QAM     | 3/4 | 4     | 208   | 432   | 156   | 324   | 39.0            | 81.0  |
| 5         | 1   | 64-QAM     | 2/3 | 6     | 312   | 648   | 208   | 432   | 52.0            | 108.0 |
| 6         | 1   | 64-QAM     | 3/4 | 6     | 312   | 648   | 234   | 489   | 58.5            | 121.5 |
| 7         | 1   | 64-QAM     | 5/6 | 6     | 312   | 648   | 260   | 540   | 65.0            | 135.0 |

| Symbol | Explanation                             |
|--------|-----------------------------------------|
| NSS    | Number of spatial streams               |
| R      | Code rate                               |
| NBPSC  | Number of coded bits per single carrier |
| NCBPS  | Number of coded bits per symbol         |
| NDBPS  | Number of data bits per symbol          |
| GI     | Guard interval                          |

### 2.4. RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: 2AL9Y-PHONEP300** filing to comply with the FCC Part 15 requirements.

### 2.5. TEST METHODOLOGY

KDB 558074 D01 15.247 Meas Guidance v05: Guidance for compliance measurements on Digital transmission system, frequency hopping spread spectrum system, and hybrid system devices operating under section 15.247 of the FCC rules  
ANSI C63.10:2013: American National Standard for Testing Unlicensed Wireless Devices

### 2.6. SPECIAL ACCESSORIES

Refer to section 5.2.

### 2.7. EQUIPMENT MODIFICATIONS

Not available for this EUT intended for grant.

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## 2.8. 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.

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### 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 | $U_c = \pm 3.1 \text{ dB}$ |
| Uncertainty of Radiated Emission below 1GHz   | $U_c = \pm 4.0 \text{ dB}$ |
| Uncertainty of Radiated Emission above 1GHz   | $U_c = \pm 4.8 \text{ dB}$ |
| Uncertainty of total RF power, conducted      | $U_c = \pm 0.8 \text{ dB}$ |
| Uncertainty of RF power density, conducted    | $U_c = \pm 2.6 \text{ dB}$ |
| Uncertainty of spurious emissions, conducted  | $U_c = \pm 2 \%$           |
| Uncertainty of Occupied Channel Bandwidth     | $U_c = \pm 2 \%$           |

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#### 4. DESCRIPTION OF TEST MODES

| NO.                                                                                                                                                                                                                                                                               | TEST MODE DESCRIPTION            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|
| 1                                                                                                                                                                                                                                                                                 | Low channel transmitting (TX)    |
| 2                                                                                                                                                                                                                                                                                 | Middle channel transmitting (TX) |
| 3                                                                                                                                                                                                                                                                                 | High channel transmitting (TX)   |
| <b>Note:</b><br>Transmit by 802.11b with Data rate (1/2/5.5/11)<br>Transmit by 802.11g with Data rate (6/9/12/18/24/36/48/54)<br>Transmit by 802.11n (20MHz) with Data rate (6.5/13/19.5/26/39/52/58.5/65)<br>The test channel for 20MHZ bandwidth system is channel 1, 6 and 11. |                                  |

#### **Note:**

1. The EUT has been set to operate continuously on the lowest, middle and highest operation frequency Individually, and the EUT is operating at its maximum duty cycle>or equal 98%
2. All modes under which configure applicable have been tested and the worst mode test data recording in the test report, if no other mode data.
3. The test software is the WL Command which can set the EUT into the individual test modes.

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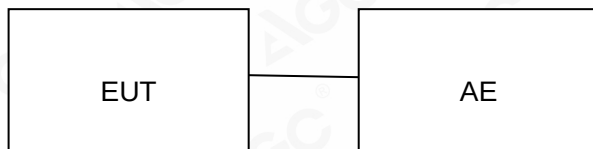
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## 5. SYSTEM TEST CONFIGURATION

### 5.1. CONFIGURATION OF EUT SYSTEM

Configure:



### 5.2. EQUIPMENT USED IN EUT SYSTEM

| Item | Equipment  | Model No.        | ID or Specification                               | Remark |
|------|------------|------------------|---------------------------------------------------|--------|
| 1    | VoIP Phone | P370             | 2AL9Y-PHONEP300                                   | EUT    |
| 2    | Adapter    | HP18A-1201500-AU | Input:100-240v, 50/60Hz, 0.5A<br>Output:12V, 1.5A | AE     |

### 5.3. SUMMARY OF TEST RESULTS

| FCC RULES | DESCRIPTION OF TEST      | RESULT    |
|-----------|--------------------------|-----------|
| §15.209   | Radiated Emission        | Compliant |
| §15.207   | Line Conduction Emission | Compliant |

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## 6. TEST FACILITY

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

### TEST EQUIPMENT OF CONDUCTED EMISSION TEST

| Equipment     | Manufacturer | Model            | S/N    | Cal. Date     | Cal. Due      |
|---------------|--------------|------------------|--------|---------------|---------------|
| TEST RECEIVER | R&S          | ESPI             | 101206 | May 15, 2021  | May 14, 2022  |
| LISN          | R&S          | ESH2-Z5          | 100086 | Jun. 09, 2021 | Jun. 08, 2022 |
| Test software | R&S          | ES-K1(Ver.V1.71) | N/A    | N/A           | N/A           |

### TEST EQUIPMENT OF RADIATED EMISSION TEST

| Equipment                      | Manufacturer   | Model               | S/N        | Cal. Date     | Cal. Due      |
|--------------------------------|----------------|---------------------|------------|---------------|---------------|
| TEST RECEIVER                  | R&S            | ESCI                | 10096      | May 15, 2021  | May 14, 2022  |
| EXA Signal Analyzer            | Aglient        | N9010A              | MY53470504 | Nov. 17, 2021 | Nov. 16, 2022 |
| Power sensor                   | Aglient        | U2021XA             | MY54110007 | Jun. 07, 2021 | Jun. 06, 2022 |
| 2.4GHz Fliter                  | Micro-tronics  | 087                 | N/A        | Mar. 23, 2020 | Mar. 22, 2022 |
| Attenuator                     | Weinachel Corp | 58-30-33            | N/A        | Sep. 03, 2020 | Sep. 02, 2022 |
| Horn antenna                   | SCHWARZBECK    | BBHA 9170           | #768       | Oct. 31, 2021 | Oct. 30, 2023 |
| Active loop antenna (9K-30MHz) | ZHINAN         | ZN30900C            | 00034609   | May 22, 2020  | May 21, 2022  |
| Double-Ridged Waveguide Horn   | ETS LINDGREN   | 3117                | 00034609   | Apr. 23, 2021 | Apr. 22, 2022 |
| Broadband Preamplifier         | ETS LINDGREN   | 3117PA              | 00225134   | Sep. 03, 2020 | Sep. 02, 2022 |
| ANTENNA                        | SCHWARZBECK    | VULB9168            | D69250     | Jan. 08, 2021 | Jan. 07, 2023 |
| Test software                  | FARA           | EZ-EMC (Ver RA-03A) | N/A        | N/A           | N/A           |

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## 7. RADIATED EMISSION

### 7.1. MEASUREMENT PROCEDURE

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. For emissions above 1GHz, use 1MHz RBW and 3MHz VBW for peak reading. Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum values.
8. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High - Low scan is not required in this case.

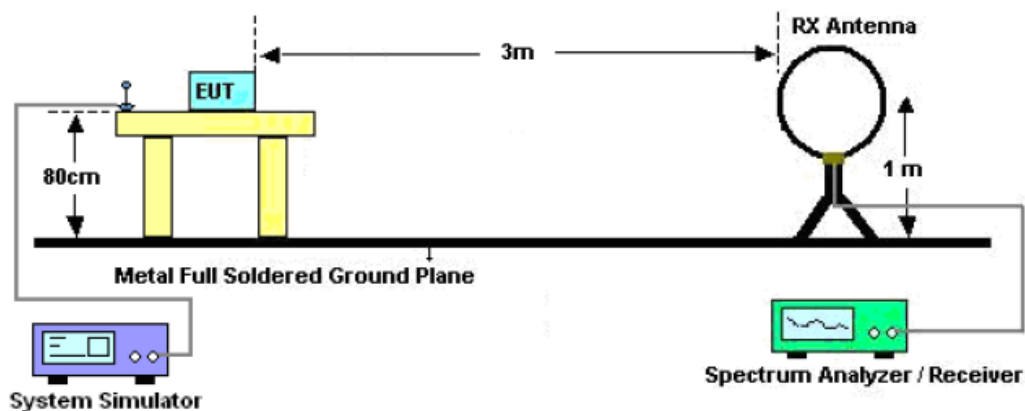
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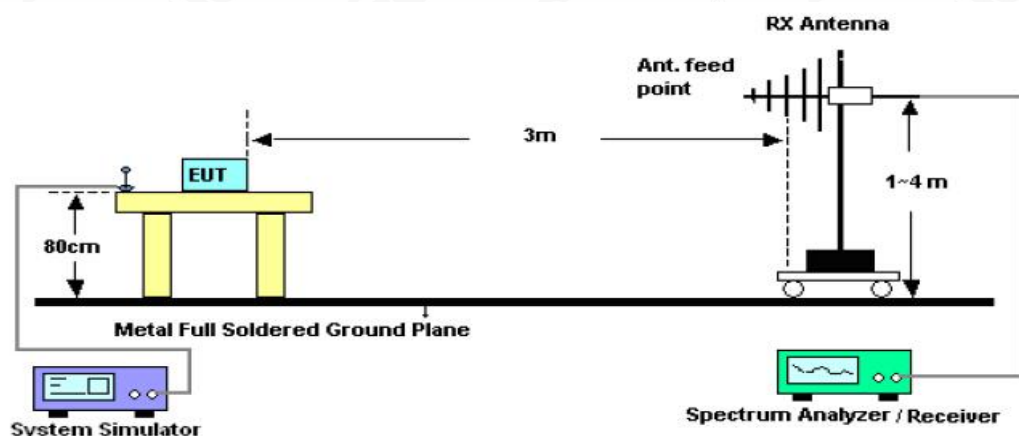


## 7.2. TEST SETUP

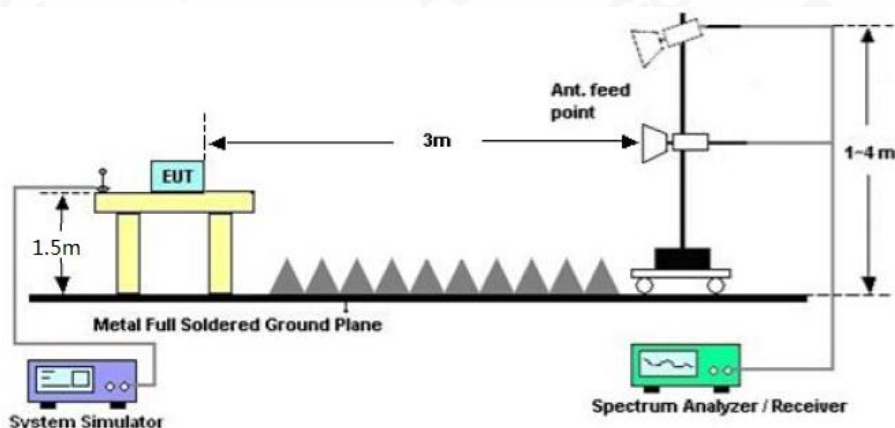
### Radiated Emission Test-Setup Frequency Below 30MHz



### RADIATED EMISSION TEST SETUP 30MHz-1000MHz



### RADIATED EMISSION TEST SETUP ABOVE 1000MHz



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### 7.3. LIMITS AND MEASUREMENT RESULT

15.209(a) Limit in the below table has to be followed

| Frequencies<br>(MHz) | Field Strength<br>(microvolts/meter) | Measurement Distance<br>(meters) |
|----------------------|--------------------------------------|----------------------------------|
| 0.009~0.490          | 2400/F(kHz)                          | 300                              |
| 0.490~1.705          | 24000/F(kHz)                         | 30                               |
| 1.705~30.0           | 30                                   | 30                               |
| 30~88                | 100                                  | 3                                |
| 88~216               | 150                                  | 3                                |
| 216~960              | 200                                  | 3                                |
| Above 960            | 500                                  | 3                                |

Note: All modes were tested for restricted band radiated emission, the test records reported below are the worst result compared to other modes.

### 7.4. TEST RESULT

#### Radiated emission below 30MHz

The amplitude of spurious emissions from 9kHz to 30MHz which are attenuated more than 20 dB below the permissible value need not be reported.

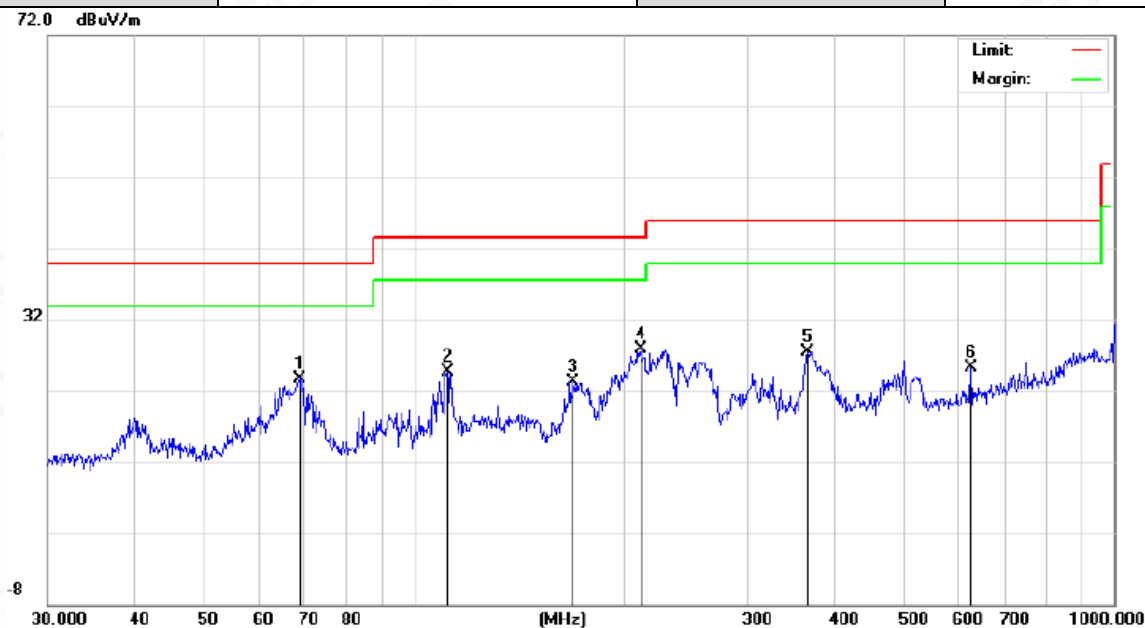
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### Radiated emission from 30MHz to 1000MHz

|             |                                     |                   |                |
|-------------|-------------------------------------|-------------------|----------------|
| EUT         | VoIP Phone                          | Model Name        | P330           |
| Temperature | 25°C                                | Relative Humidity | 58%            |
| Pressure    | 960hPa                              | Test Voltage      | Normal Voltage |
| Test Mode   | 802.11b with data rate 1<br>2412MHz | Antenna           | Horizontal     |



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|
| 1   |     | 68.6310      | 11.78                    | 12.02                   | 23.80                      | 40.00           | -16.20     | peak     |
| 2   |     | 111.7379     | 13.17                    | 11.60                   | 24.77                      | 43.50           | -18.73     | peak     |
| 3   |     | 169.0054     | 13.11                    | 10.21                   | 23.32                      | 43.50           | -20.18     | peak     |
| 4   | *   | 210.7860     | 19.91                    | 8.08                    | 27.99                      | 43.50           | -15.51     | peak     |
| 5   |     | 365.5391     | 12.53                    | 14.91                   | 27.44                      | 46.00           | -18.56     | peak     |
| 6   |     | 625.0779     | 8.00                     | 17.25                   | 25.25                      | 46.00           | -20.75     | peak     |

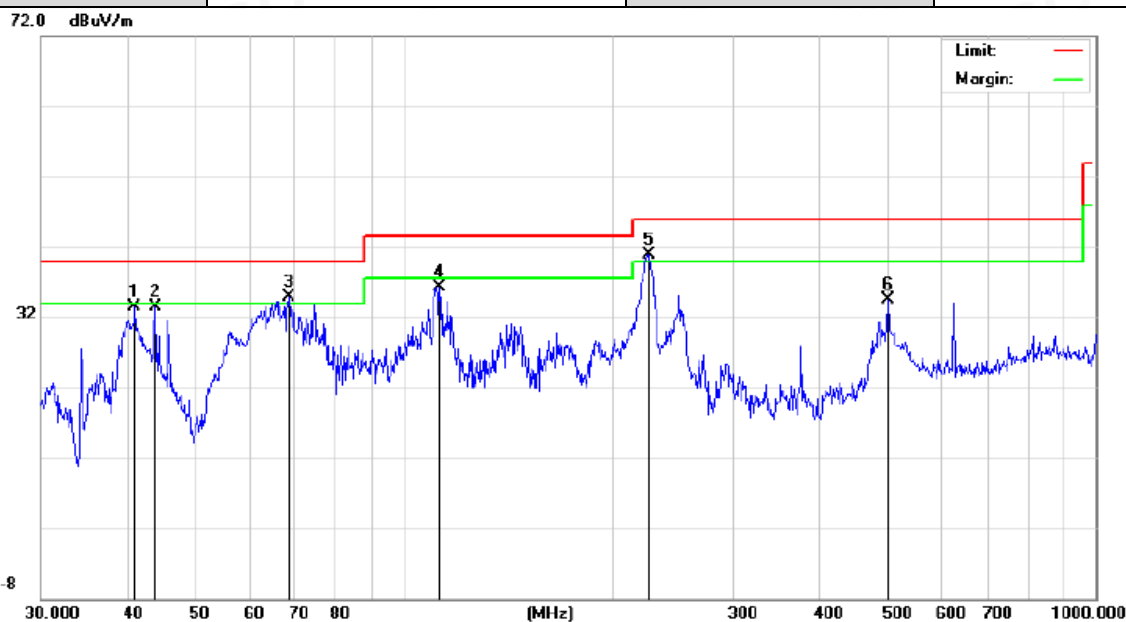
**RESULT: PASS**

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|             |                                     |                   |                |
|-------------|-------------------------------------|-------------------|----------------|
| EUT         | VoIP Phone                          | Model Name        | P330           |
| Temperature | 25°C                                | Relative Humidity | 58%            |
| Pressure    | 960hPa                              | Test Voltage      | Normal Voltage |
| Test Mode   | 802.11b with data rate 1<br>2412MHz | Antenna           | Vertical       |



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|
| 1   |     | 40.9881      | 23.57                    | 9.92                    | 33.49                      | 40.00           | -6.51      | peak     |
| 2   |     | 43.8119      | 24.16                    | 9.43                    | 33.59                      | 40.00           | -6.41      | peak     |
| 3   | *   | 68.3907      | 22.77                    | 12.07                   | 34.84                      | 40.00           | -5.16      | peak     |
| 4   |     | 112.9196     | 25.15                    | 11.21                   | 36.36                      | 43.50           | -7.14      | peak     |
| 5   | !   | 226.0994     | 29.54                    | 11.28                   | 40.82                      | 46.00           | -5.18      | peak     |
| 6   |     | 501.1788     | 17.45                    | 17.02                   | 34.47                      | 46.00           | -11.53     | peak     |

## RESULT: PASS

**Note:** 1. Factor=Antenna Factor + Cable loss, Margin=Measurement-Limit.

2. The "Factor" value can be calculated automatically by software of measurement system.

3. All test modes had been pre-tested. The 802.11b at low channel is the worst case and recorded in the report.

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### Radiated emission above 1GHz

|                    |                                  |                          |                |
|--------------------|----------------------------------|--------------------------|----------------|
| <b>EUT</b>         | VoIP Phone                       | <b>Model Name</b>        | P330           |
| <b>Temperature</b> | 25°C                             | <b>Relative Humidity</b> | 58%            |
| <b>Pressure</b>    | 960hPa                           | <b>Test Voltage</b>      | Normal Voltage |
| <b>Test Mode</b>   | 802.11b with data rate 1 2412MHz | <b>Antenna</b>           | Horizontal     |

| Frequency<br>(MHz) | Meter Reading<br>(dBμV) | Factor<br>(dB) | Emission Level<br>(dBμV/m) | Limits<br>(dBμV/m) | Margin<br>(dB) | Value Type |
|--------------------|-------------------------|----------------|----------------------------|--------------------|----------------|------------|
| 4824.000           | 56.43                   | 0.08           | 56.51                      | 74                 | -17.49         | peak       |
| 4824.000           | 45.81                   | 0.08           | 45.89                      | 54                 | -8.11          | AVG        |
| 7236.000           | 52.18                   | 2.21           | 54.39                      | 74                 | -19.61         | peak       |
| 7236.000           | 42.57                   | 2.21           | 44.78                      | 54                 | -9.22          | AVG        |
|                    |                         |                |                            |                    |                |            |
|                    |                         |                |                            |                    |                |            |

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

|                    |                                  |                          |                |
|--------------------|----------------------------------|--------------------------|----------------|
| <b>EUT</b>         | VoIP Phone                       | <b>Model Name</b>        | P330           |
| <b>Temperature</b> | 25°C                             | <b>Relative Humidity</b> | 58%            |
| <b>Pressure</b>    | 960hPa                           | <b>Test Voltage</b>      | Normal Voltage |
| <b>Test Mode</b>   | 802.11b with data rate 1 2412MHz | <b>Antenna</b>           | Vertical       |

| Frequency<br>(MHz) | Meter Reading<br>(dBμV) | Factor<br>(dB) | Emission Level<br>(dBμV/m) | Limits<br>(dBμV/m) | Margin<br>(dB) | Value Type |
|--------------------|-------------------------|----------------|----------------------------|--------------------|----------------|------------|
| 4824.000           | 56.87                   | 0.08           | 56.95                      | 74                 | -17.05         | peak       |
| 4824.000           | 45.97                   | 0.08           | 46.05                      | 54                 | -7.95          | AVG        |
| 7236.000           | 52.34                   | 2.21           | 54.55                      | 74                 | -19.45         | peak       |
| 7236.000           | 41.58                   | 2.21           | 43.79                      | 54                 | -10.21         | AVG        |
|                    |                         |                |                            |                    |                |            |
|                    |                         |                |                            |                    |                |            |

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

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|                    |                                     |                          |                |
|--------------------|-------------------------------------|--------------------------|----------------|
| <b>EUT</b>         | VoIP Phone                          | <b>Model Name</b>        | P330           |
| <b>Temperature</b> | 25°C                                | <b>Relative Humidity</b> | 58%            |
| <b>Pressure</b>    | 960hPa                              | <b>Test Voltage</b>      | Normal Voltage |
| <b>Test Mode</b>   | 802.11b with date rate 1<br>2437MHz | <b>Antenna</b>           | Horizontal     |

| Frequency<br>(MHz) | Meter Reading<br>(dBμV) | Factor<br>(dB) | Emission Level<br>(dBμV/m) | Limits<br>(dBμV/m) | Margin<br>(dB) | Value Type |
|--------------------|-------------------------|----------------|----------------------------|--------------------|----------------|------------|
| 4874.000           | 56.64                   | 0.14           | 56.78                      | 74                 | -17.22         | peak       |
| 4874.000           | 46.28                   | 0.14           | 46.42                      | 54                 | -7.58          | AVG        |
| 7311.000           | 51.26                   | 2.36           | 53.62                      | 74                 | -20.38         | peak       |
| 7311.000           | 42.28                   | 2.36           | 44.64                      | 54                 | -9.36          | AVG        |
|                    |                         |                |                            |                    |                |            |
|                    |                         |                |                            |                    |                |            |

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

|                    |                                     |                          |                |
|--------------------|-------------------------------------|--------------------------|----------------|
| <b>EUT</b>         | VoIP Phone                          | <b>Model Name</b>        | P330           |
| <b>Temperature</b> | 25°C                                | <b>Relative Humidity</b> | 58%            |
| <b>Pressure</b>    | 960hPa                              | <b>Test Voltage</b>      | Normal Voltage |
| <b>Test Mode</b>   | 802.11b with date rate 1<br>2437MHz | <b>Antenna</b>           | Vertical       |

| Frequency<br>(MHz) | Meter Reading<br>(dBμV) | Factor<br>(dB) | Emission Level<br>(dBμV/m) | Limits<br>(dBμV/m) | Margin<br>(dB) | Value Type |
|--------------------|-------------------------|----------------|----------------------------|--------------------|----------------|------------|
| 4874.000           | 55.93                   | 0.14           | 56.07                      | 74                 | -17.93         | peak       |
| 4874.000           | 46.12                   | 0.14           | 46.26                      | 54                 | -7.74          | AVG        |
| 7311.000           | 51.27                   | 2.36           | 53.63                      | 74                 | -20.37         | peak       |
| 7311.000           | 41.03                   | 2.36           | 43.39                      | 54                 | -10.61         | AVG        |
|                    |                         |                |                            |                    |                |            |
|                    |                         |                |                            |                    |                |            |

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

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|                    |                                     |                          |                |
|--------------------|-------------------------------------|--------------------------|----------------|
| <b>EUT</b>         | VoIP Phone                          | <b>Model Name</b>        | P330           |
| <b>Temperature</b> | 25°C                                | <b>Relative Humidity</b> | 58%            |
| <b>Pressure</b>    | 960hPa                              | <b>Test Voltage</b>      | Normal Voltage |
| <b>Test Mode</b>   | 802.11b with date rate 1<br>2462MHz | <b>Antenna</b>           | Horizontal     |

| Frequency<br>(MHz)                                    | Meter Reading<br>(dBμV) | Factor<br>(dB) | Emission Level<br>(dBμV/m) | Limits<br>(dBμV/m) | Margin<br>(dB) | Value Type |
|-------------------------------------------------------|-------------------------|----------------|----------------------------|--------------------|----------------|------------|
| 4924.000                                              | 56.27                   | 0.22           | 56.49                      | 74                 | -17.51         | peak       |
| 4924.000                                              | 45.31                   | 0.22           | 45.53                      | 54                 | -8.47          | AVG        |
| 7386.000                                              | 50.27                   | 2.64           | 52.91                      | 74                 | -21.09         | peak       |
| 7386.000                                              | 41.06                   | 2.64           | 43.7                       | 54                 | -10.3          | AVG        |
|                                                       |                         |                |                            |                    |                |            |
|                                                       |                         |                |                            |                    |                |            |
| Remark:                                               |                         |                |                            |                    |                |            |
| Factor = Antenna Factor + Cable Loss – Pre-amplifier. |                         |                |                            |                    |                |            |

|                    |                                     |                          |                |
|--------------------|-------------------------------------|--------------------------|----------------|
| <b>EUT</b>         | VoIP Phone                          | <b>Model Name</b>        | P330           |
| <b>Temperature</b> | 25°C                                | <b>Relative Humidity</b> | 58%            |
| <b>Pressure</b>    | 960hPa                              | <b>Test Voltage</b>      | Normal Voltage |
| <b>Test Mode</b>   | 802.11b with date rate 1<br>2462MHz | <b>Antenna</b>           | Vertical       |

| Frequency<br>(MHz)                                    | Meter Reading<br>(dBμV) | Factor<br>(dB) | Emission Level<br>(dBμV/m) | Limits<br>(dBμV/m) | Margin<br>(dB) | Value Type |
|-------------------------------------------------------|-------------------------|----------------|----------------------------|--------------------|----------------|------------|
| 4924.000                                              | 56.37                   | 0.22           | 56.59                      | 74                 | -17.41         | peak       |
| 4924.000                                              | 45.28                   | 0.22           | 45.5                       | 54                 | -8.5           | AVG        |
| 7386.000                                              | 51.34                   | 2.64           | 53.98                      | 74                 | -20.02         | peak       |
| 7386.000                                              | 42.16                   | 2.64           | 44.8                       | 54                 | -9.2           | AVG        |
|                                                       |                         |                |                            |                    |                |            |
|                                                       |                         |                |                            |                    |                |            |
| Remark:                                               |                         |                |                            |                    |                |            |
| Factor = Antenna Factor + Cable Loss – Pre-amplifier. |                         |                |                            |                    |                |            |

## RESULT: PASS

### Note:

The amplitude of other spurious emissions from 1G to 25 GHz which are attenuated more than 20 dB below the permissible value need not be reported.

Factor = Antenna Factor + Cable loss - Amplifier gain, Over=Measure-Limit.

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

All test modes had been pre-tested. The 802.11b mode is the worst case and recorded in the report.

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## 8. LINE CONDUCTED EMISSION TEST

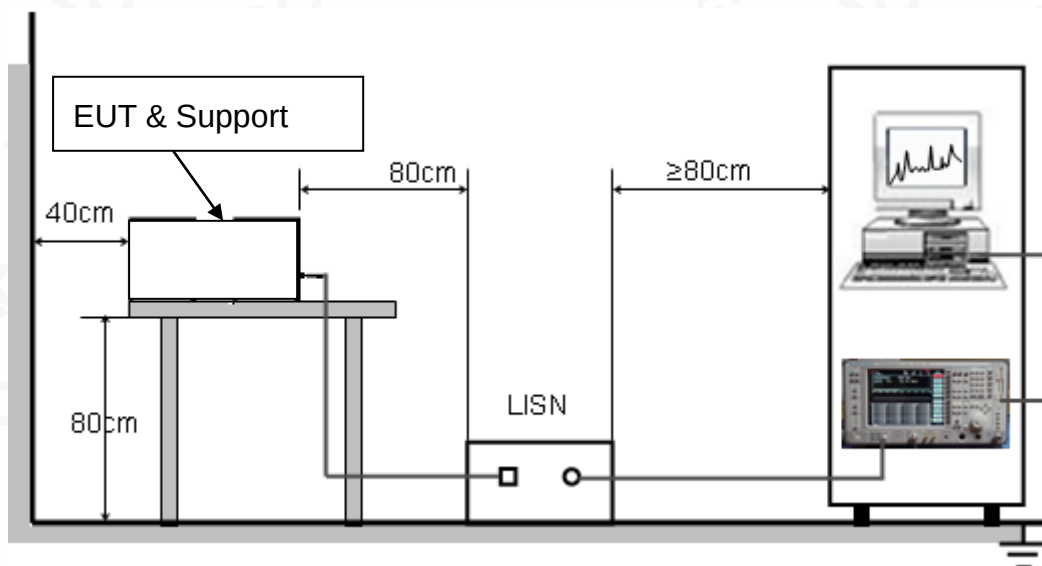
### 8.1. LIMITS OF LINE CONDUCTED EMISSION TEST

| Frequency     | Maximum RF Line Voltage |                |
|---------------|-------------------------|----------------|
|               | Q.P (dBμV)              | Average (dBμV) |
| 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 0.50 MHz.

### 8.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST



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### 8.3. 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 12V 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.

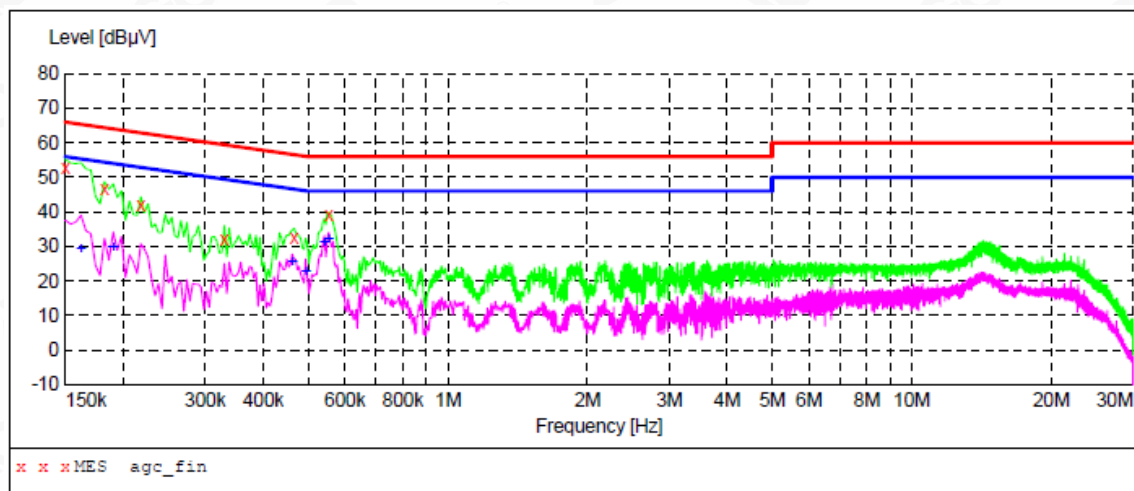
### 12.4. FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST

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 was reported on the Summary Data page.



## 12.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST

### Line Conducted Emission Test Line 1-L



#### MEASUREMENT RESULT: "agc\_fin"

2021/12/24 11:53

| Frequency<br>MHz | Level<br>dBμV | Transd<br>dB | Limit<br>dBμV | Margin<br>dB | Detector | Line |
|------------------|---------------|--------------|---------------|--------------|----------|------|
| 0.150000         | 52.90         | 6.9          | 66            | 13.1         | QP       | L1   |
| 0.182000         | 46.60         | 6.7          | 64            | 17.8         | QP       | L1   |
| 0.218000         | 41.90         | 6.4          | 63            | 21.0         | QP       | L1   |
| 0.330000         | 31.90         | 5.9          | 60            | 27.6         | QP       | L1   |
| 0.466000         | 32.60         | 5.5          | 57            | 24.0         | QP       | L1   |
| 0.554000         | 38.90         | 5.4          | 56            | 17.1         | QP       | L1   |

#### MEASUREMENT RESULT: "agc\_fin2"

2021/12/24 11:53

| Frequency<br>MHz | Level<br>dBμV | Transd<br>dB | Limit<br>dBμV | Margin<br>dB | Detector | Line |
|------------------|---------------|--------------|---------------|--------------|----------|------|
| 0.162000         | 29.20         | 6.8          | 55            | 26.2         | AV       | L1   |
| 0.190000         | 29.90         | 6.6          | 54            | 24.1         | AV       | L1   |
| 0.462000         | 25.50         | 5.5          | 47            | 21.2         | AV       | L1   |
| 0.494000         | 22.50         | 5.4          | 46            | 23.6         | AV       | L1   |
| 0.542000         | 30.90         | 5.4          | 46            | 15.1         | AV       | L1   |
| 0.554000         | 31.90         | 5.4          | 46            | 14.1         | AV       | L1   |

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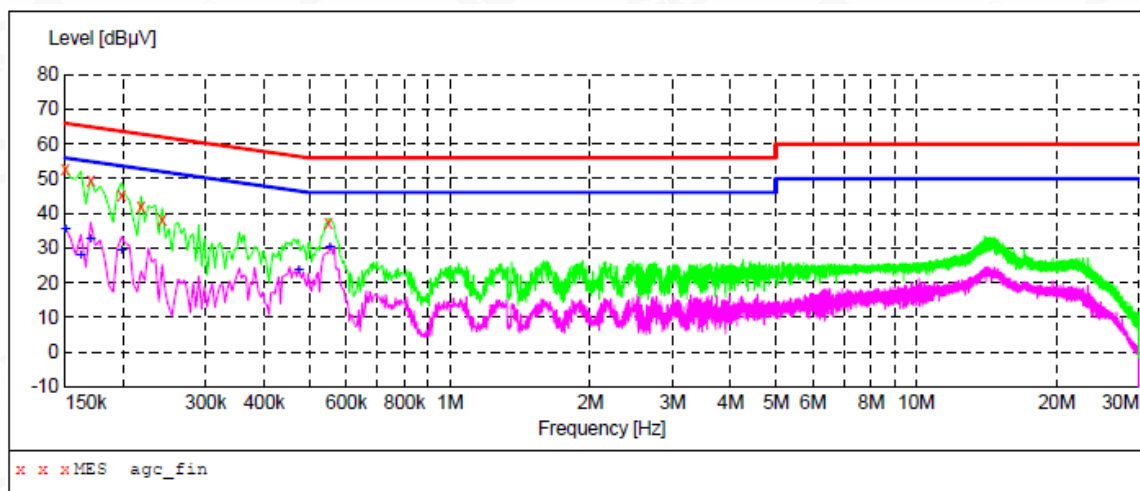
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### Line Conducted Emission Test Line 2-N



#### MEASUREMENT RESULT: "agc\_fin"

2021/12/24 11:56

| Frequency<br>MHz | Level<br>dBμV | Transd<br>dB | Limit<br>dBμV | Margin<br>dB | Detector | Line |
|------------------|---------------|--------------|---------------|--------------|----------|------|
| 0.150000         | 52.90         | 6.9          | 66            | 13.1         | QP       | N    |
| 0.170000         | 49.40         | 6.8          | 65            | 15.6         | QP       | N    |
| 0.198000         | 45.30         | 6.6          | 64            | 18.4         | QP       | N    |
| 0.218000         | 41.90         | 6.4          | 63            | 21.0         | QP       | N    |
| 0.242000         | 38.00         | 6.3          | 62            | 24.0         | QP       | N    |
| 0.550000         | 37.20         | 5.4          | 56            | 18.8         | QP       | N    |

#### MEASUREMENT RESULT: "agc\_fin2"

2021/12/24 11:56

| Frequency<br>MHz | Level<br>dBμV | Transd<br>dB | Limit<br>dBμV | Margin<br>dB | Detector | Line |
|------------------|---------------|--------------|---------------|--------------|----------|------|
| 0.150000         | 35.40         | 6.9          | 56            | 20.6         | AV       | N    |
| 0.162000         | 27.60         | 6.8          | 55            | 27.8         | AV       | N    |
| 0.170000         | 32.30         | 6.8          | 55            | 22.7         | AV       | N    |
| 0.198000         | 29.40         | 6.6          | 54            | 24.3         | AV       | N    |
| 0.474000         | 23.60         | 5.5          | 46            | 22.8         | AV       | N    |
| 0.554000         | 30.20         | 5.4          | 46            | 15.8         | AV       | N    |

### RESULT: PASS

**Note:** All test modes had been pre-tested. The 802.11b at low channel is the worst case and recorded in the report.

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## APPENDIX A: PHOTOGRAPHS OF TEST SETUP

Refer to the Report No.: AGC02157211206AP01

## APPENDIX B: PHOTOGRAPHS OF EUT

Refer to the Report No.: AGC02157211206AP02

----END OF REPORT----

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8. The Company is not responsible for recalling the electronic version of the original report when any revision is made to them. The Client assumes the responsibility to providing the revised version to any interested party who uses them.
9. Subject to the variable length of retention time for test data and report stored hereinto as otherwise specifically required by individual accreditation authorities, the Company will only keep the supporting test data and information of the test report for a period of six years. The data and information will be disposed of after the aforementioned retention period has elapsed. Under no circumstances shall we provide any data and information which has been disposed of after retention period. Under no circumstances shall we be liable for damage of any kind, including (but not limited to) compensatory damages, lost profits, lost data, or any form of special, incidental, indirect, consequential or punitive damages of any kind, whether based on breach of contract of warranty, tort (including negligence), product liability or otherwise, even if we are informed in advance of the possibility of such damages.

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