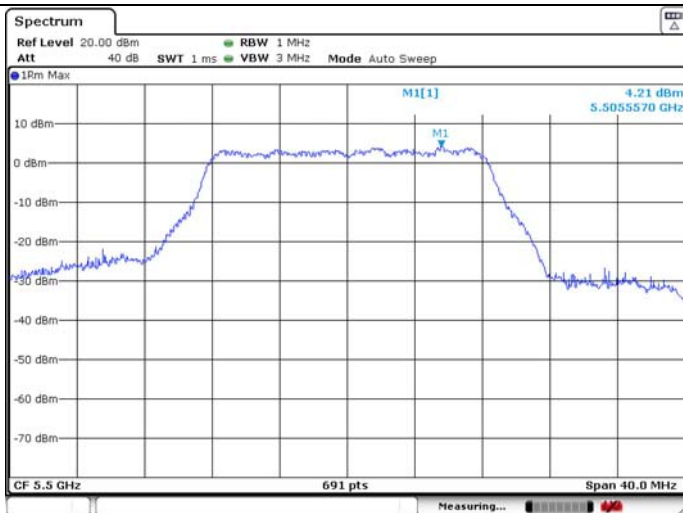
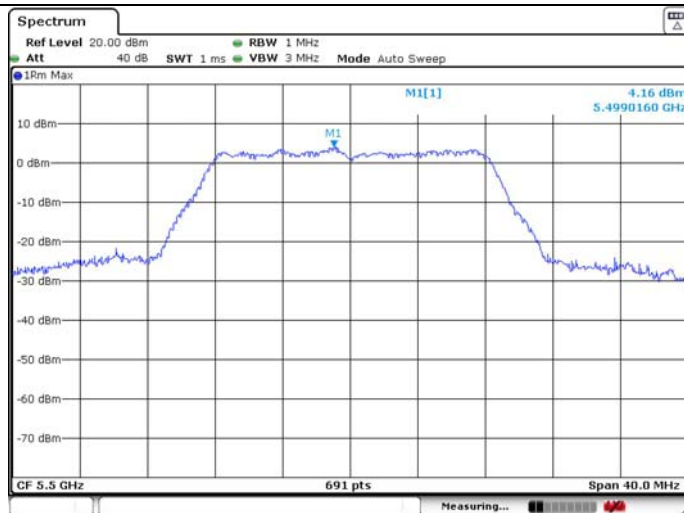


## U-NII-2C 802.11a IEEE 5500MHz

ANT 1

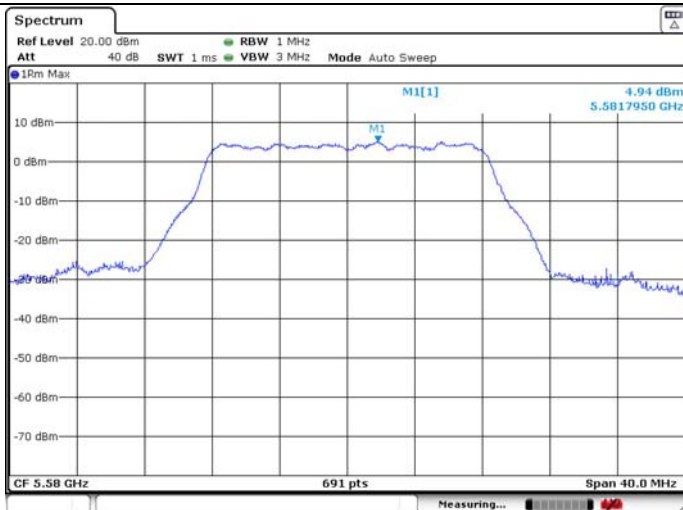


ANT 2

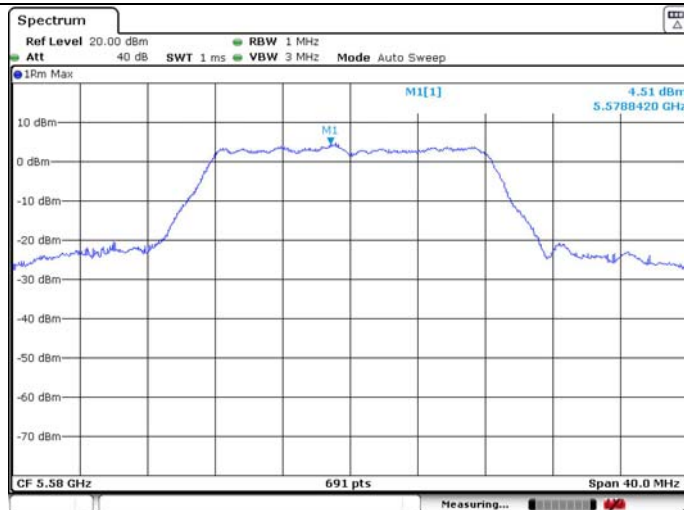


## U-NII-2C 802.11a IEEE 5580MHz

ANT 1

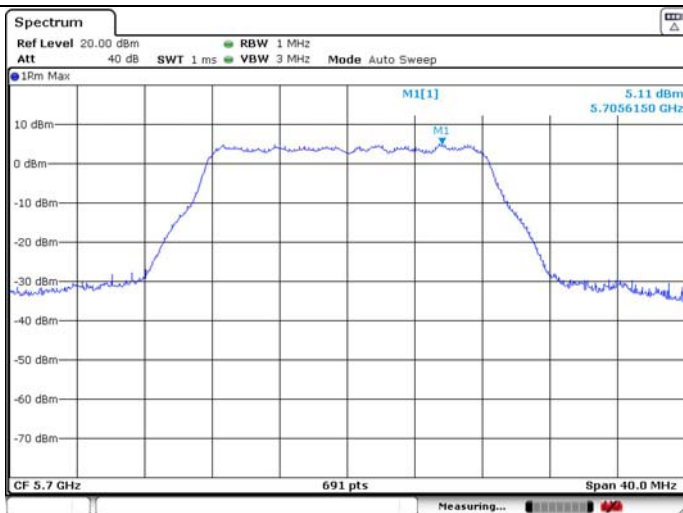


ANT 2

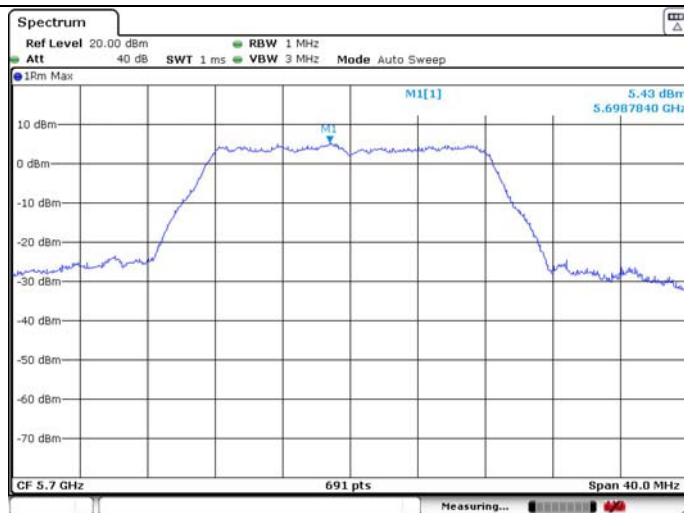


## U-NII-2C 802.11a IEEE 5700MHz

ANT 1

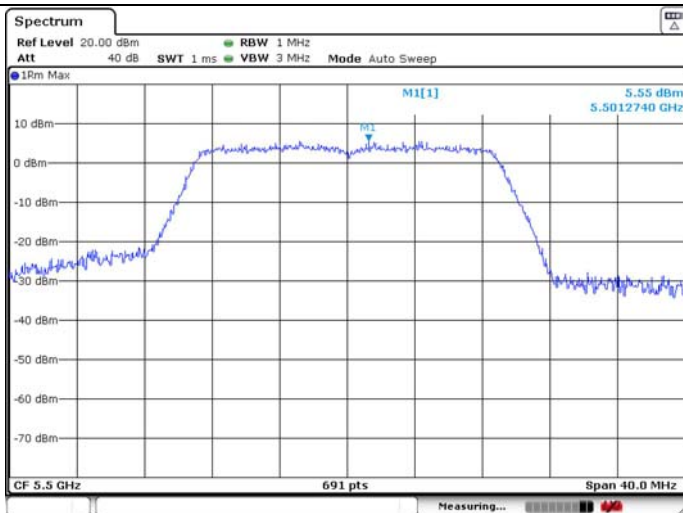


ANT 2

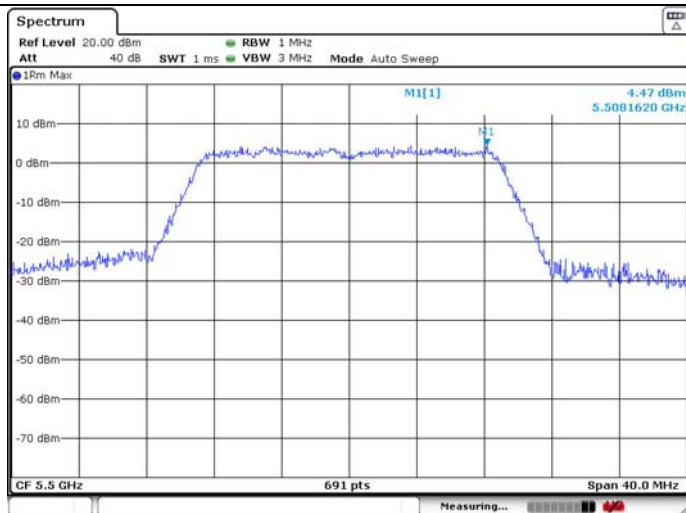


## U-NII-2C IEEE 802.11n HT20 5500MHz

ANT 1

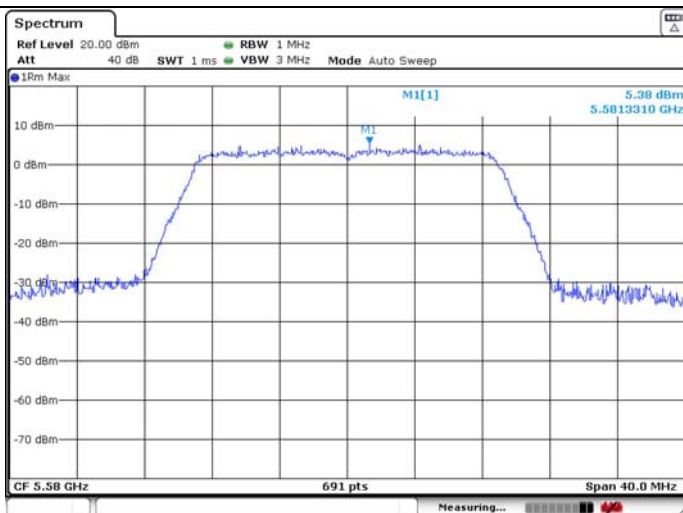


ANT 2

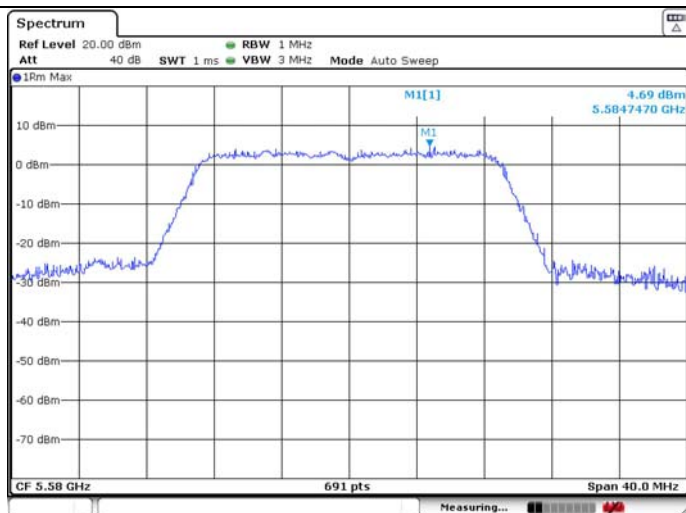


## U-NII-2C IEEE 802.11n HT20 5580MHz

ANT 1

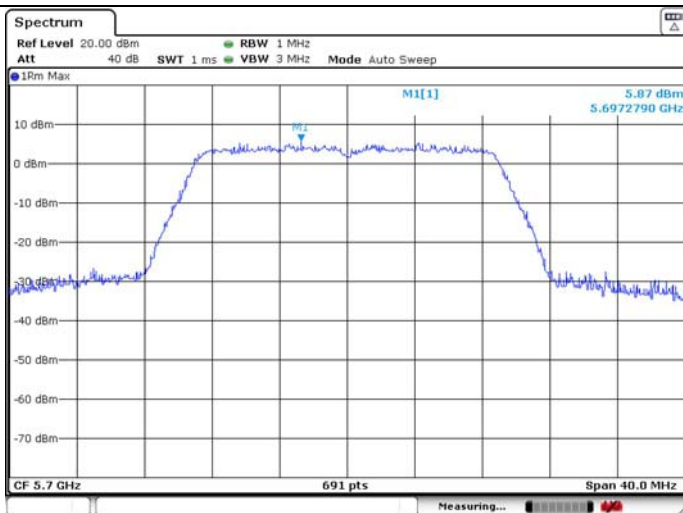


ANT 2

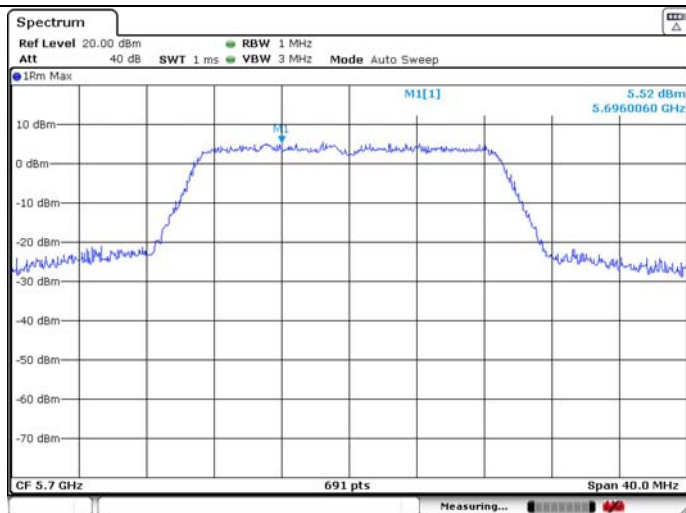


## U-NII-2C IEEE 802.11n HT20 5700MHz

ANT 1



ANT 2

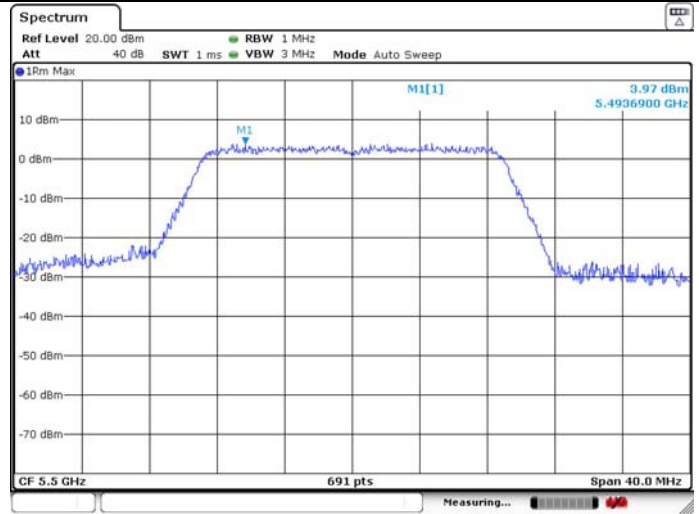


## U-NII-2C IEEE 802.11ac VHT20 5500MHz

ANT 1

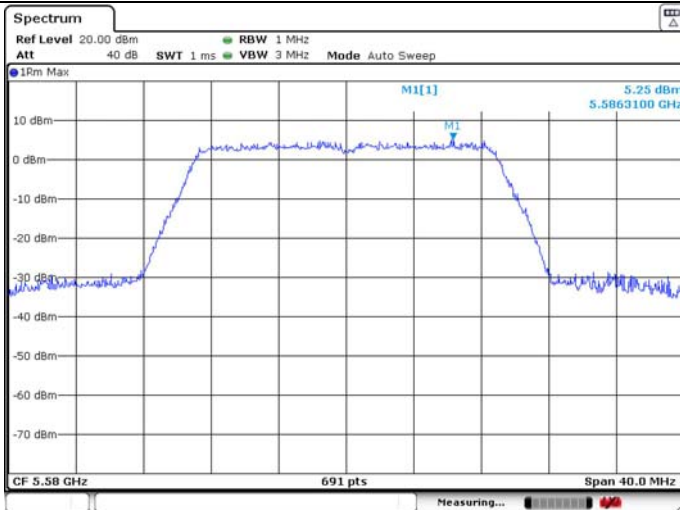


ANT 2

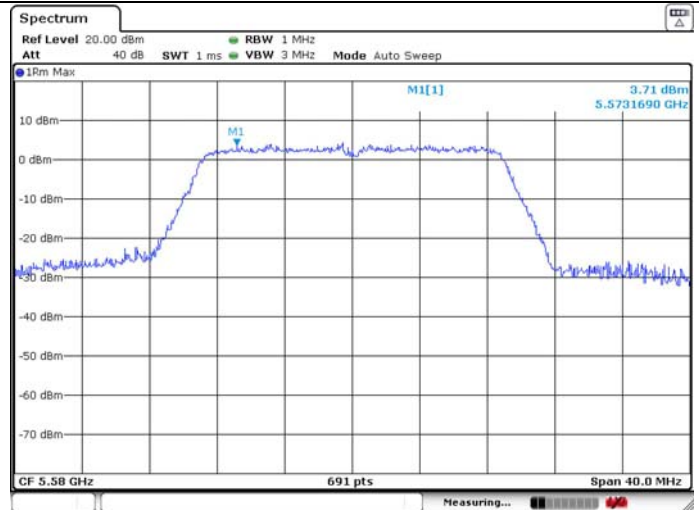


## U-NII-2C IEEE 802.11ac VHT20 5580MHz

ANT 1

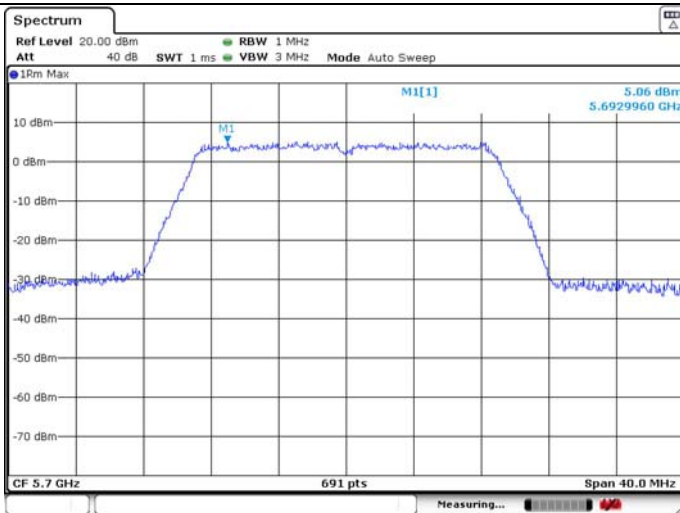


ANT 2

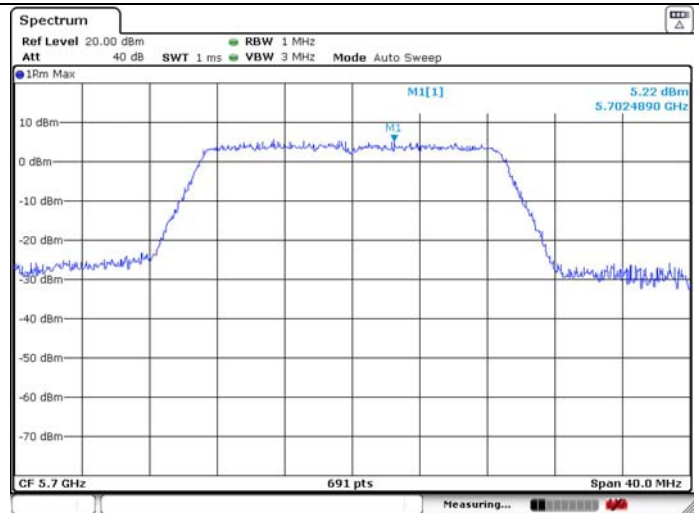


## U-NII-2C IEEE 802.11ac VHT20 5700MHz

ANT 1



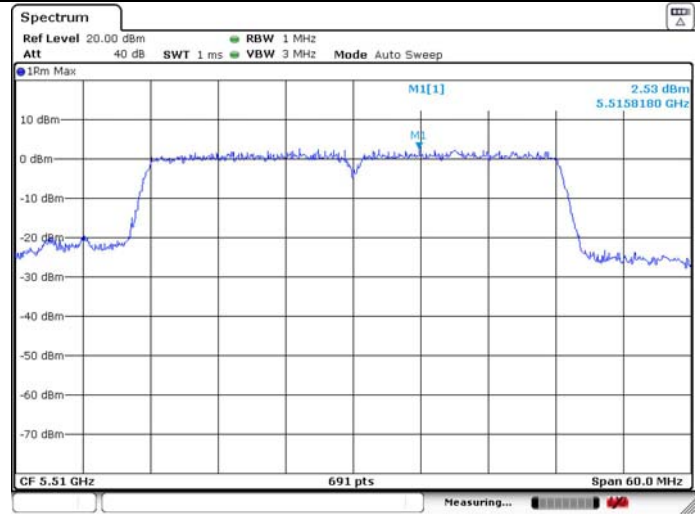
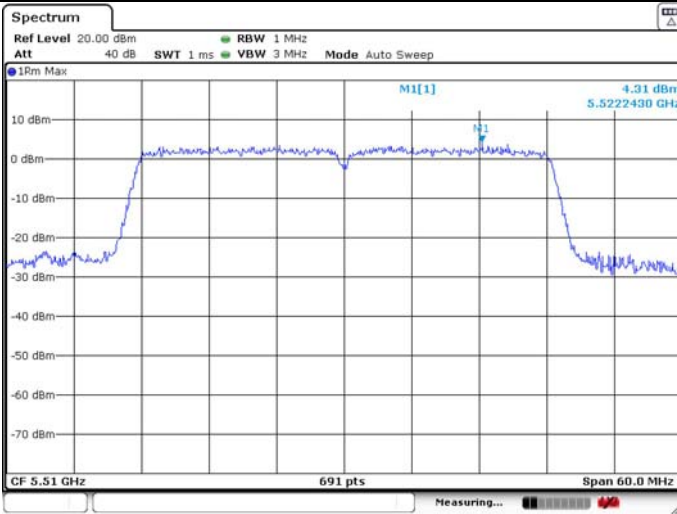
ANT 2



## U-NII-2C IEEE 802.11n HT40 5510MHz

ANT 1

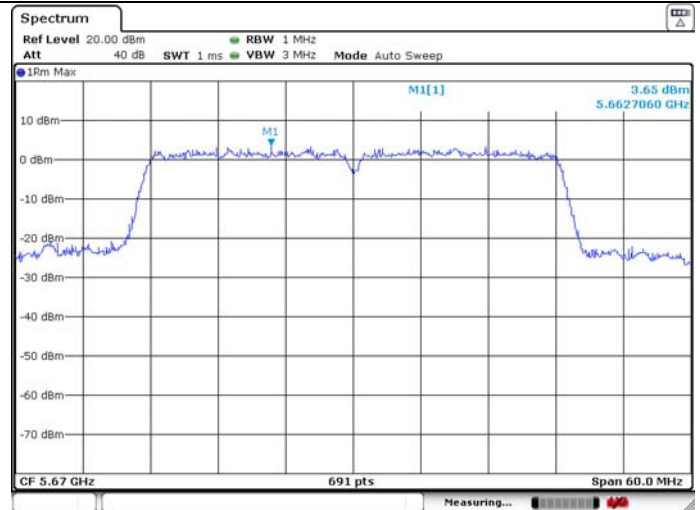
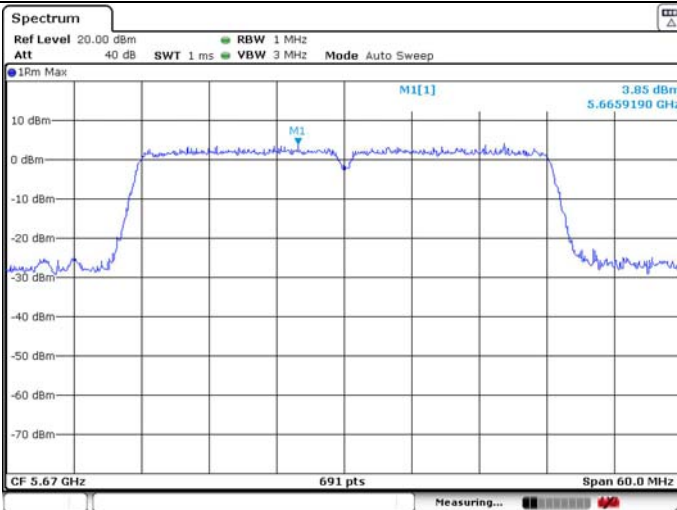
ANT 2



## U-NII-2C IEEE 802.11n HT40 5670MHz

ANT 1

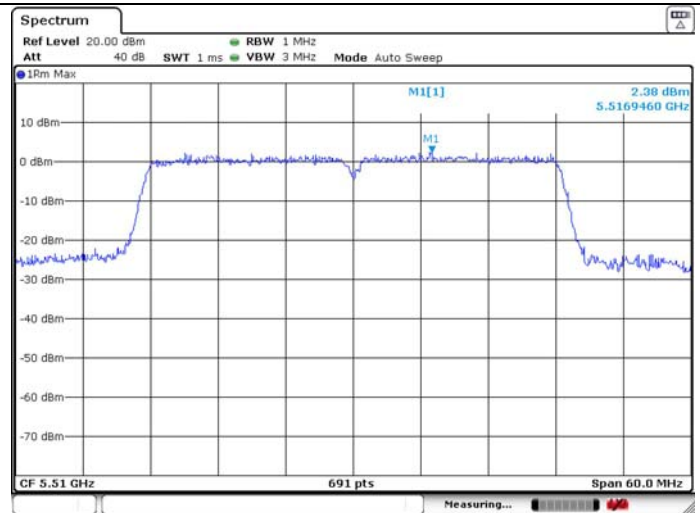
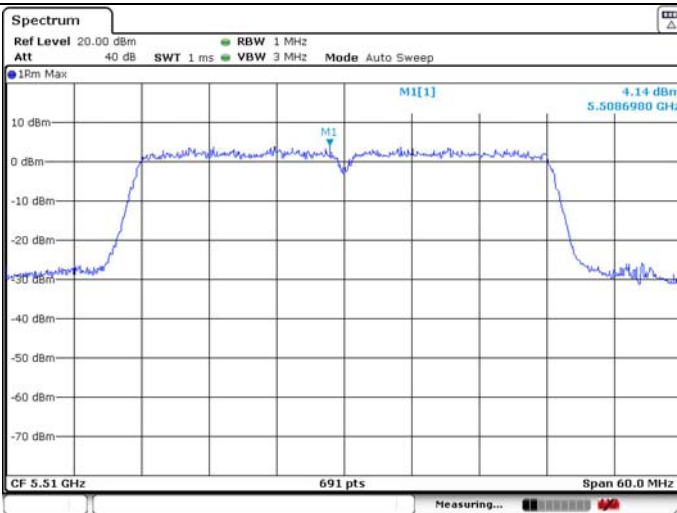
ANT 2

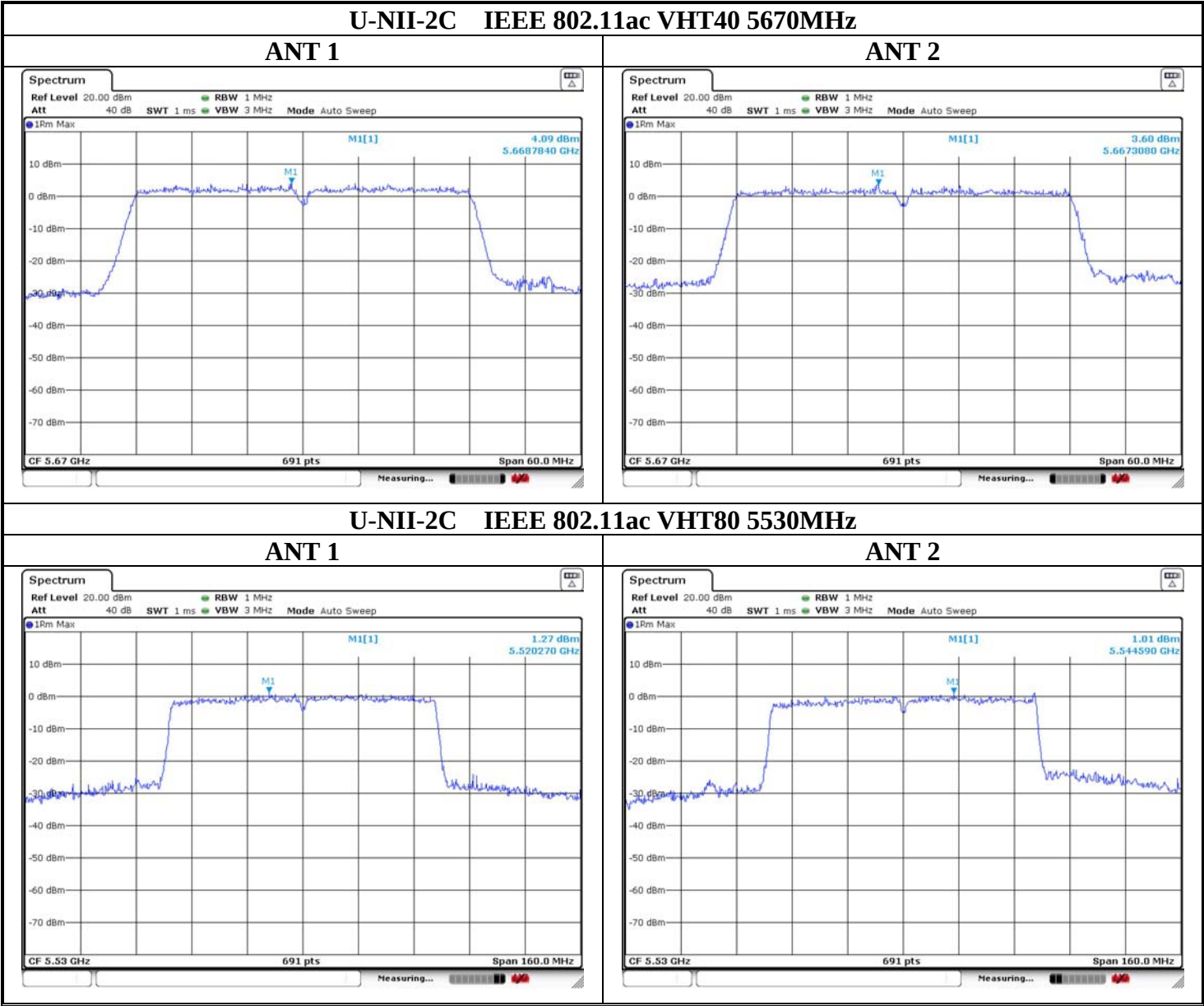


## U-NII-2C IEEE 802.11ac VHT40 5510MHz

ANT 1

ANT 2





U-NII-2C    IEEE 802.11ac VHT80 5530MHz

ANT 1

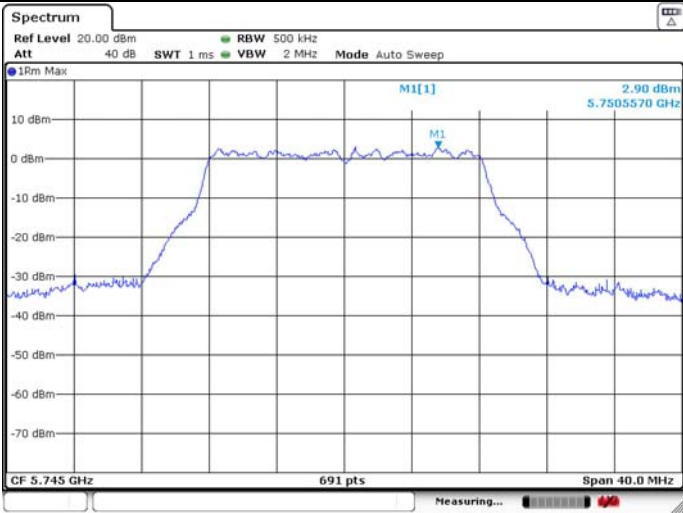
Spectrum  
Ref Level 20.00 dBm  
Att 40 dB  
RBW 1 MHz  
VBW 3 MHz  
SWT 1 ms  
Mode Auto Sweep  
M1[1] 1.27 dBm  
5.520270 GHz  
CF 5.53 GHz  
691 pts  
Span 160.0 MHz

ANT 2

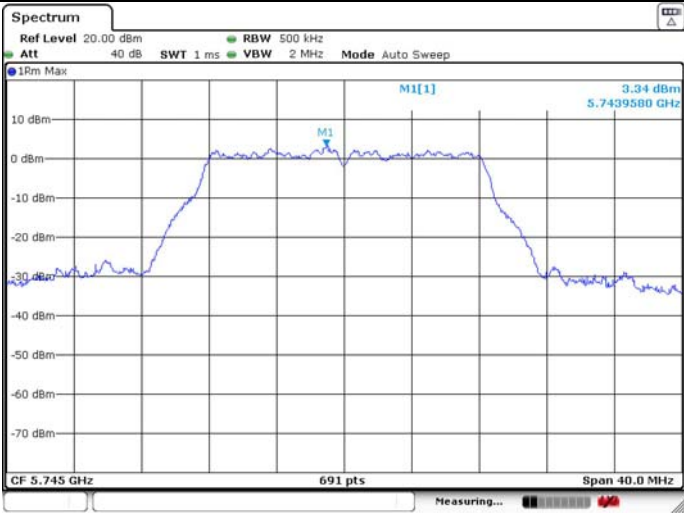
Spectrum  
Ref Level 20.00 dBm  
Att 40 dB  
RBW 1 MHz  
VBW 3 MHz  
SWT 1 ms  
Mode Auto Sweep  
M1[1] 1.01 dBm  
5.544590 GHz  
CF 5.53 GHz  
691 pts  
Span 160.0 MHz

U-NII-3 IEEE 802.11a 5745MHz

ANT 1

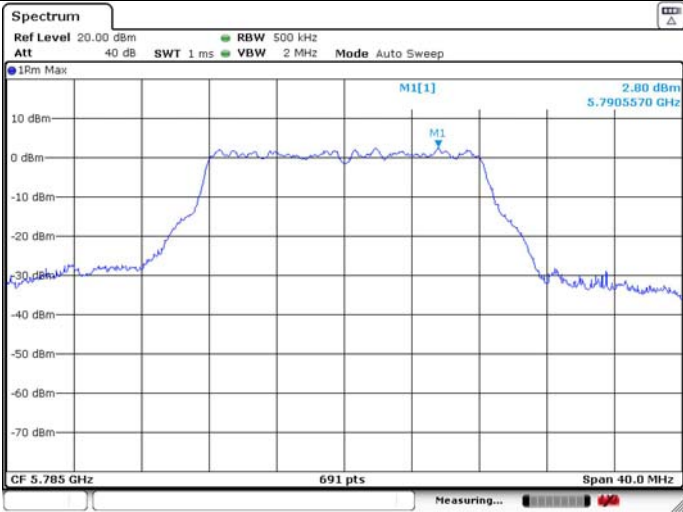


ANT 2

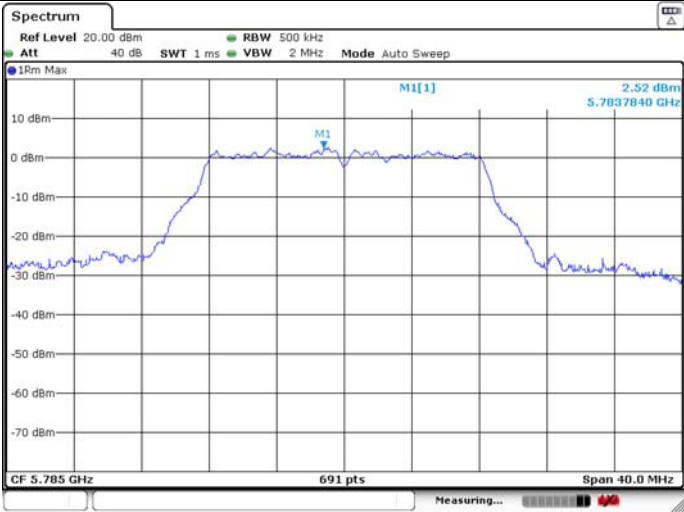


U-NII-3 IEEE 802.11a 5785MHz

ANT 1

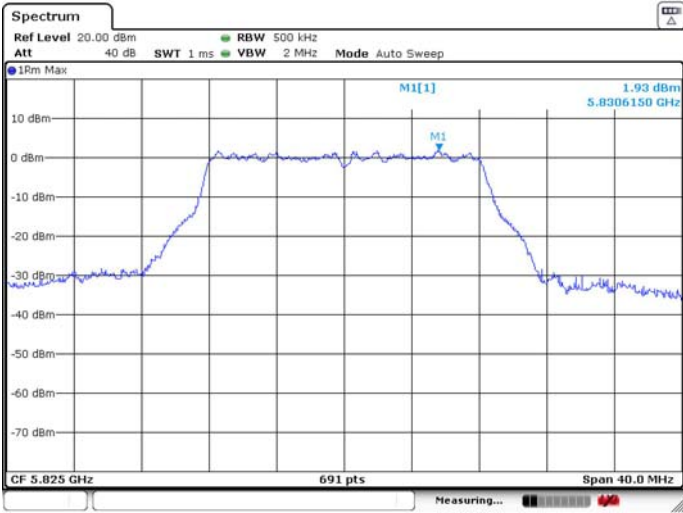


ANT 2

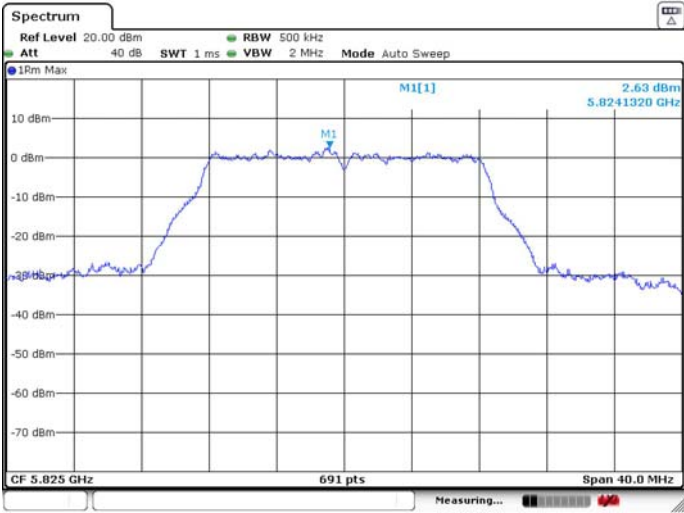


U-NII-3 IEEE 802.11a 5825MHz

ANT 1



ANT 2

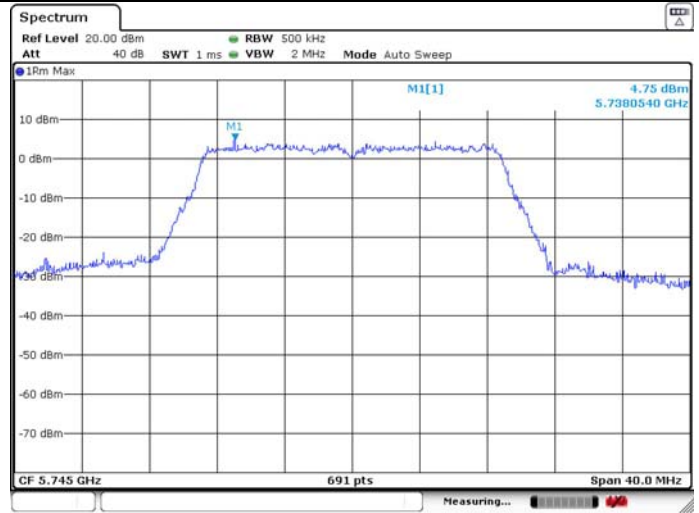


## U-NII-3 IEEE 802.11n HT20 5745MHz

ANT 1

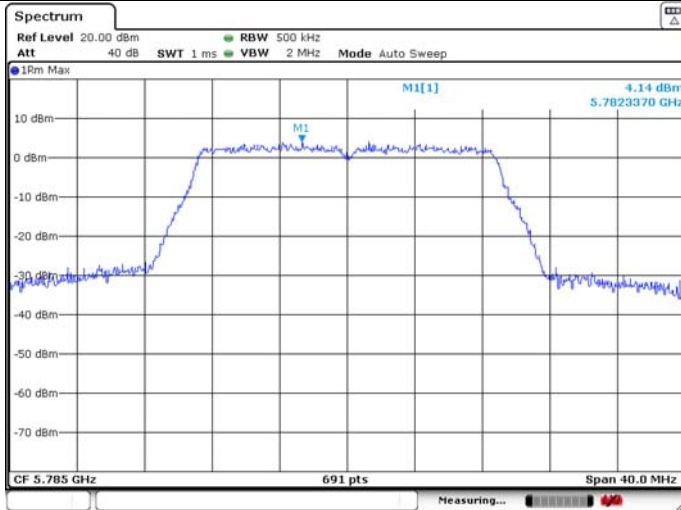


ANT 2

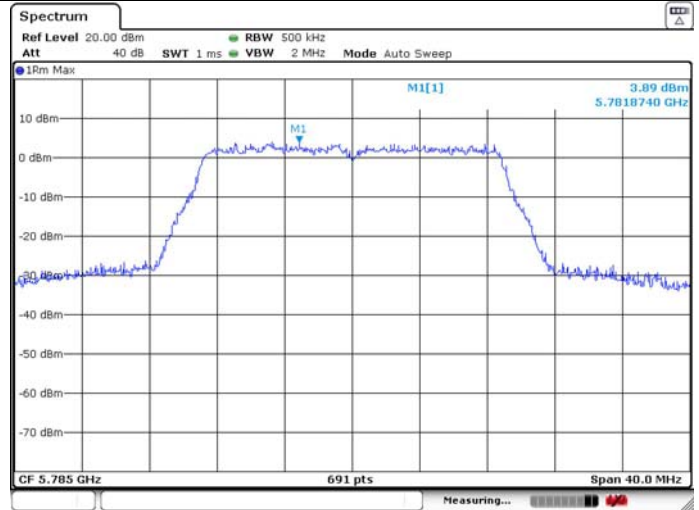


## U-NII-3 IEEE 802.11n HT20 5785MHz

ANT 1

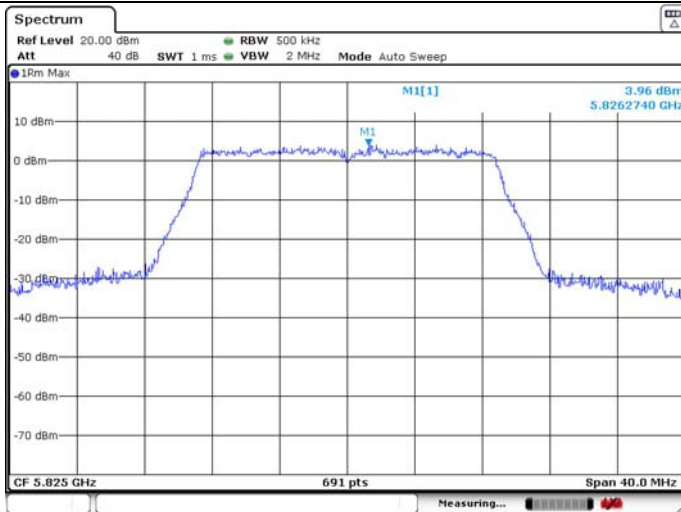


ANT 2

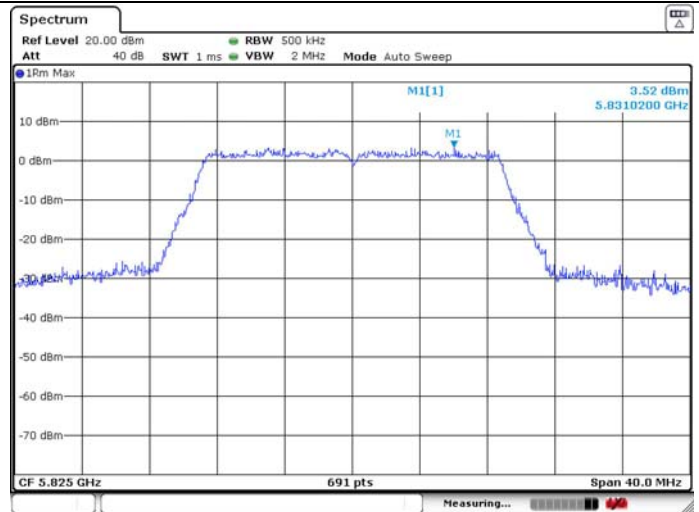


## U-NII-3 IEEE 802.11n HT20 5825MHz

ANT 1

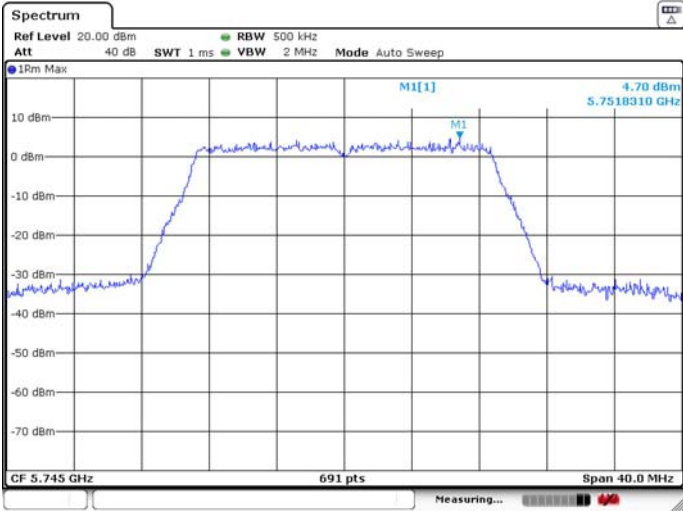


ANT 2

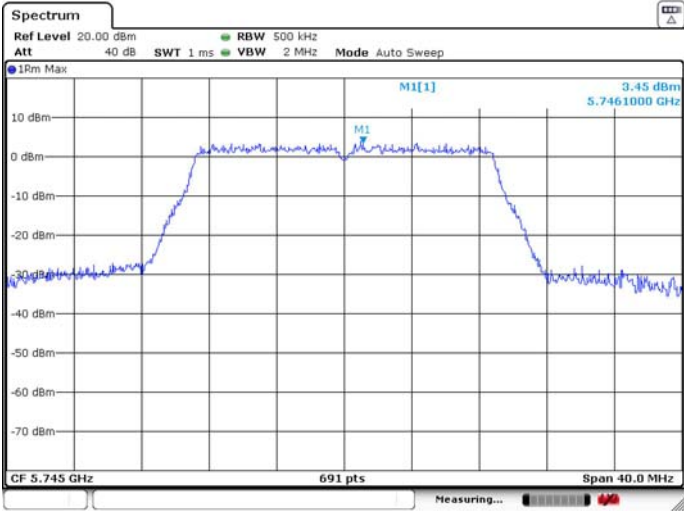


U-NII-3 IEEE 802.11ac VHT20 5745MHz

ANT 1

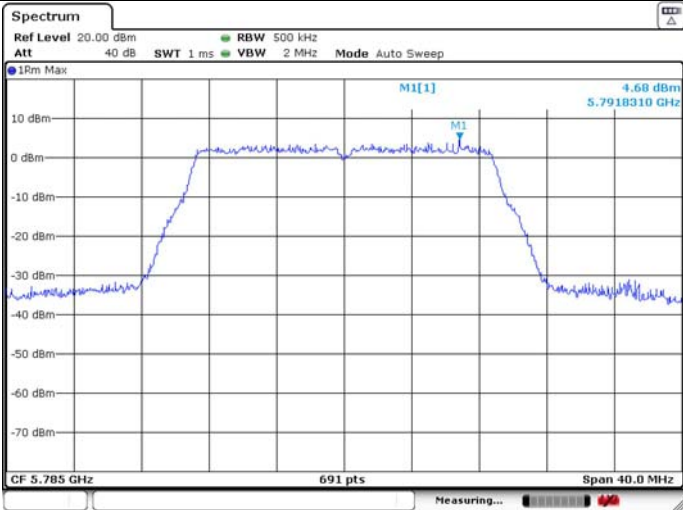


ANT 2

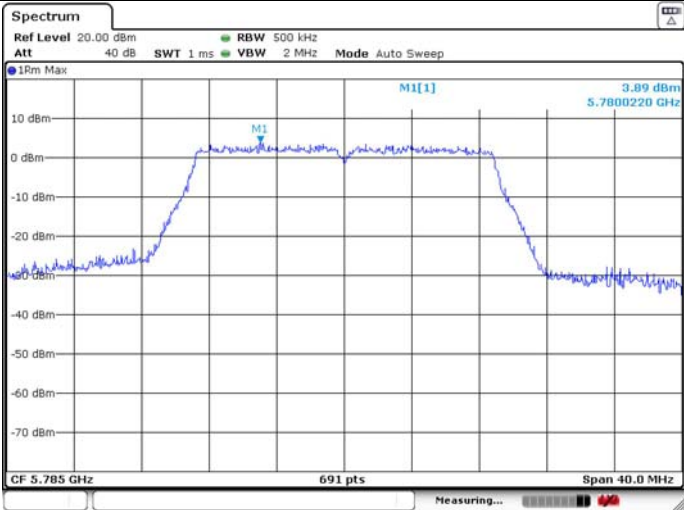


U-NII-3 IEEE 802.11ac VHT20 5785MHz

ANT 1

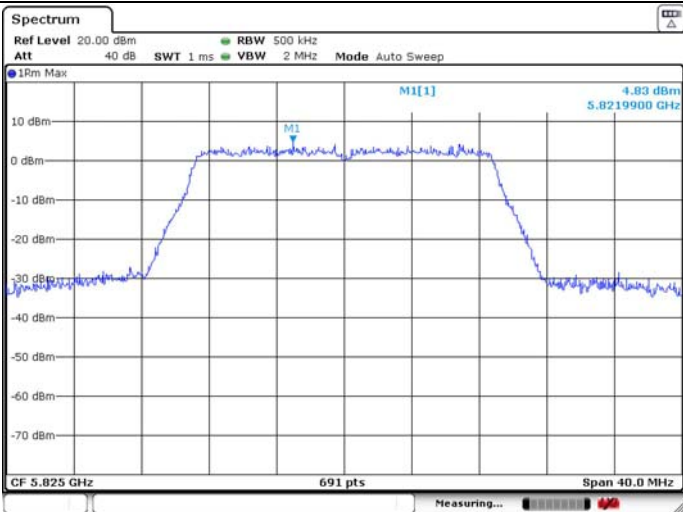


ANT 2

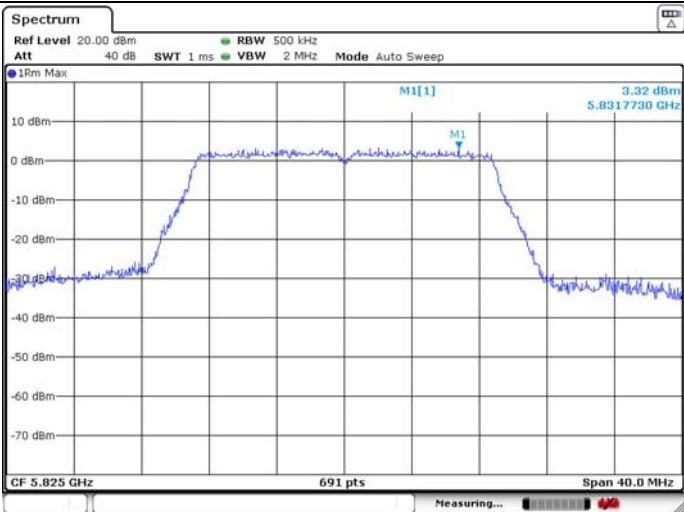


U-NII-3 IEEE 802.11ac VHT20 5825MHz

ANT 1

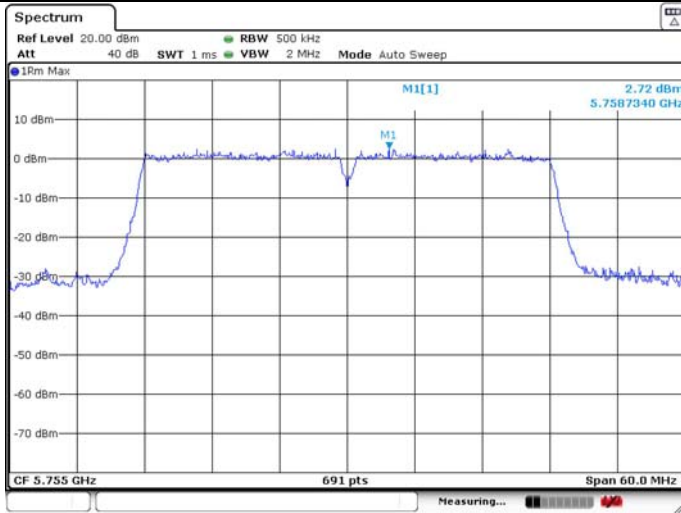


ANT 2

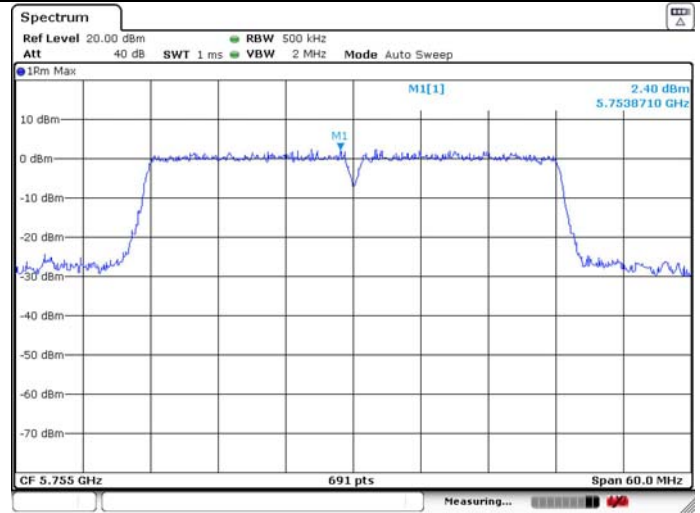


## U-NII-3 IEEE 802.11n HT40 5755MHz

ANT 1

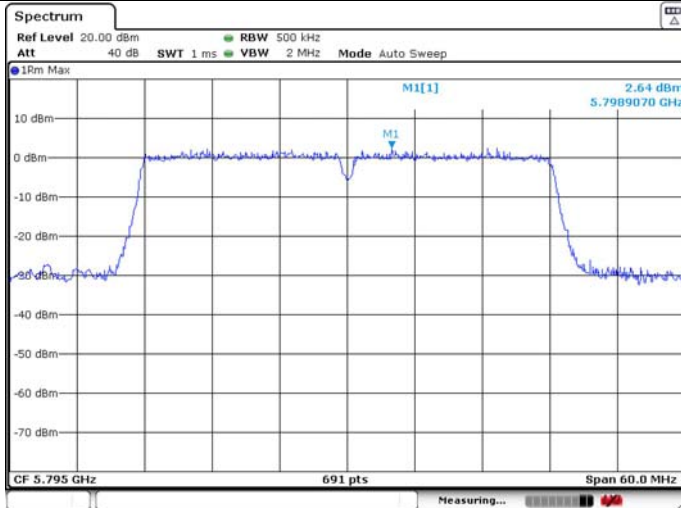


ANT 2

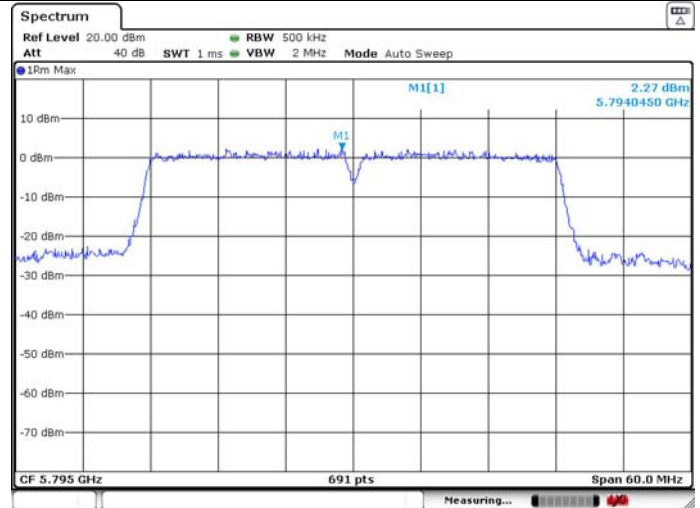


## U-NII-3 IEEE 802.11n HT40 5795MHz

ANT 1

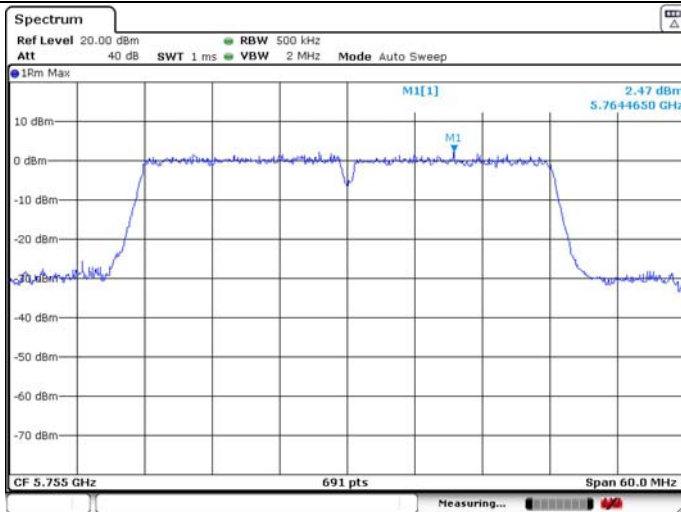


ANT 2

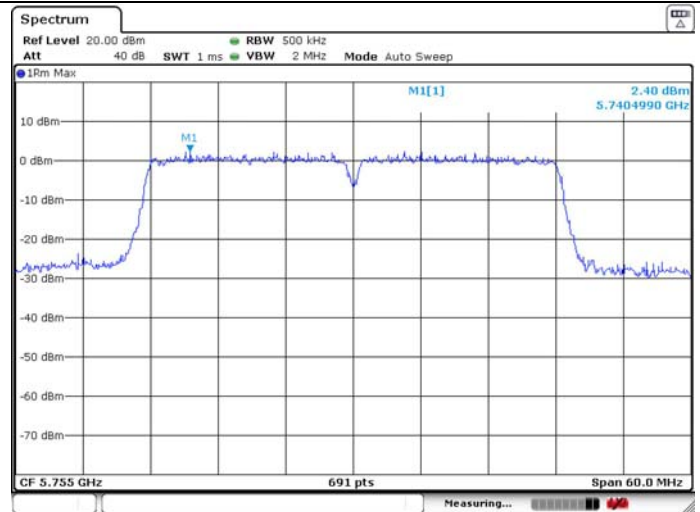


## U-NII-3 IEEE 802.11ac VHT40 5755MHz

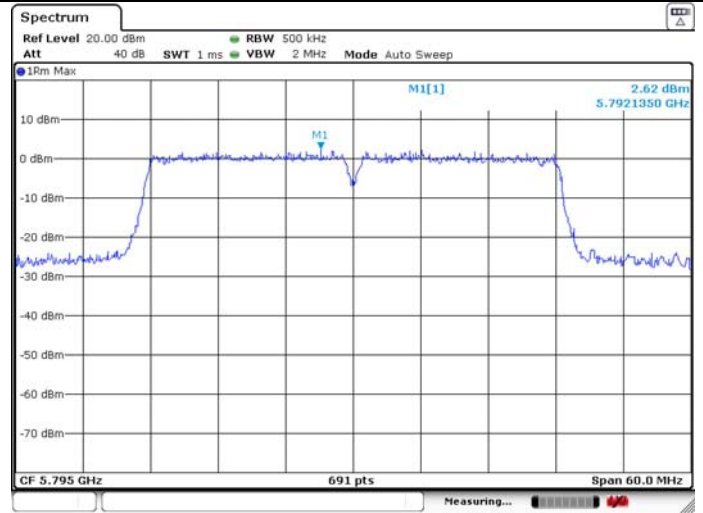
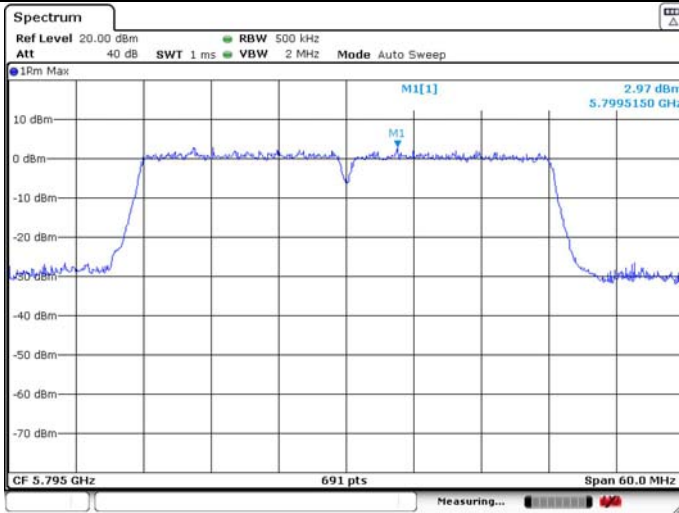
ANT 1



ANT 2



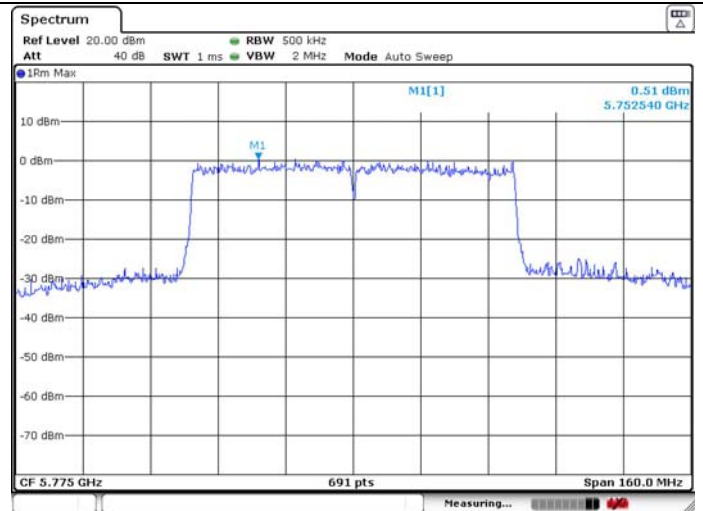
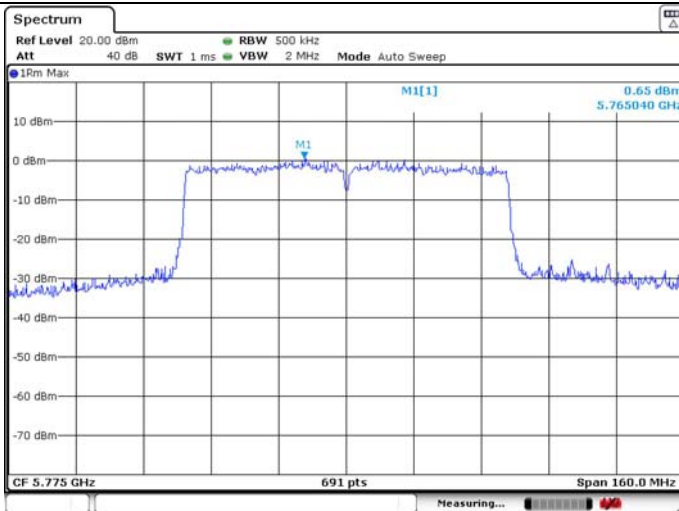
## ANT 2



**U-NII-3 IEEE 802.11ac VHT80 5775MHz**

**ANT 1**

**ANT 2**



## 6. UNWANTED EMISSIONS AND BAND EDGE

### 6.1. Limit

The maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

- (1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (4) For transmitters operating in the 5.725-5.85 GHz band: All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

The unwanted emissions which fall in Restricted bands shall not exceed the field strength levels specified in the following table:

15.209 Radiated emission limits

| Frequency (MHz) | Field Strength( $\mu$ V/m) | Distance(m) |
|-----------------|----------------------------|-------------|
| 0.009-0.490     | 2400/F(kHz)                | 300         |
| 0.490-1.705     | 24000/F(kHz)               | 30          |
| 1.705-30        | 30                         | 30          |
| 30-88           | 100                        | 3           |
| 88-216          | 150                        | 3           |
| 216-960         | 200                        | 3           |
| Above 960       | 500                        | 3           |

15.205 Restricted frequency band

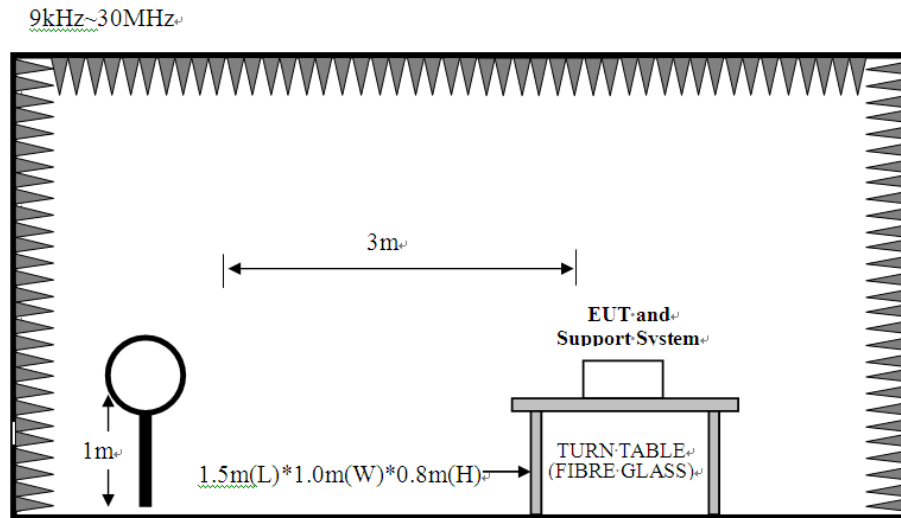
| MHz                        | MHz                   | MHz             | GHz              |
|----------------------------|-----------------------|-----------------|------------------|
| 0.090 - 0.110              | 16.42 - 16.423        | 399.9 - 410     | 4.5 - 5.15       |
| <sup>1</sup> 0.495 - 0.505 | 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     | ( <sup>2</sup> ) |

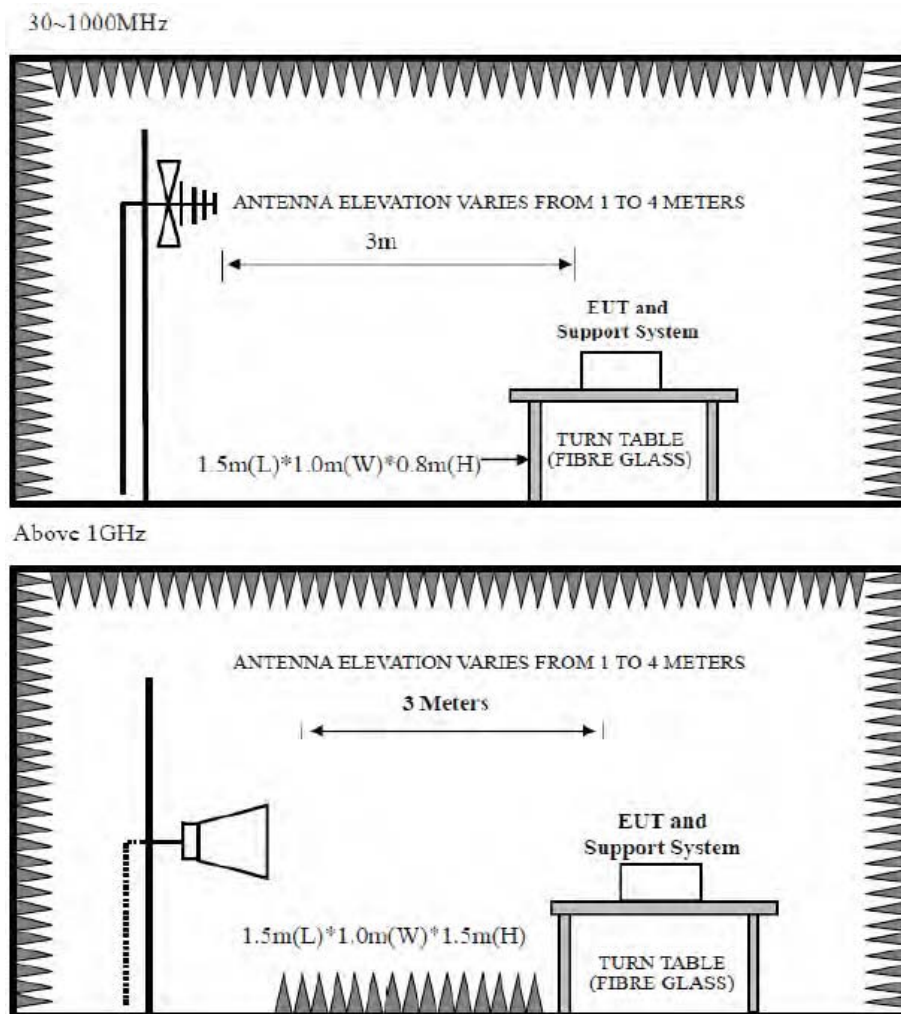
Note:

1.  $\text{dB}\mu\text{V/m} = 20 \log(\mu\text{V/m})$
2. Above 1GHz the formula is used to convert the EIRP to field strength  

$$E[\text{dB}\mu\text{V/m}] = \text{EIRP}[\text{dBm}] - 20 \log(d[\text{m}]) + 104.77,$$
 where E is field strength and d is distance at which the field strength limit is specified in the applicable requirements.  
 for example, 3m field strength( $\text{dB}\mu\text{V/m}$ )= $\text{EIRP} - 20 \log(3) + 104.77 = \text{EIRP} + 95.2$

## 6.2. Test Setup





### 6.3. Spectrum Analyzer Setting

For 9KHz-150KHz

| Spectrum Parameters | Setting                                 |
|---------------------|-----------------------------------------|
| RBW                 | 300Hz(for Peak&AVG)/CISPR 200Hz(for QP) |
| VBW                 | 300Hz(for Peak&AVG)/CISPR 200Hz(for QP) |
| Start frequency     | 9KHz                                    |
| Stop frequency      | 150KHz                                  |
| Sweep Time          | Auto                                    |
| Detector            | PEAK/QP/AVG                             |
| Trace Mode          | Max Hold                                |

Note : For 9KHz-90KHz&110KHz-150KHz,the detector is average,other frequency is CISPR QP detector.

For 150KHz-30MHz

| Spectrum Parameters | Setting  |
|---------------------|----------|
| RBW                 | 9KHz     |
| VBW                 | 9KHz     |
| Start frequency     | 150KHz   |
| Stop frequency      | 30MHz    |
| Sweep Time          | Auto     |
| Detector            | QP       |
| Trace Mode          | Max Hold |

Note : For 150KHz-490KHz,the detector is average,other frequency is CISPR QP detector.

## For 30MHz-1GHz

| Spectrum Parameters | Setting  |
|---------------------|----------|
| RBW                 | 120KHz   |
| VBW                 | 300KHz   |
| Start frequency     | 30MHz    |
| Stop frequency      | 1GHz     |
| Sweep Time          | Auto     |
| Detector            | QP       |
| Trace Mode          | Max Hold |

## For Above 1GHz

| Spectrum Parameters | Setting          |                                                                                                                            |
|---------------------|------------------|----------------------------------------------------------------------------------------------------------------------------|
| RBW                 | 1MHz             |                                                                                                                            |
| VBW                 | PEAK Measurement | AVG Measurement                                                                                                            |
|                     | 3MHz             | Duty cycle $\geq 98\%$ , VBW=10Hz<br>Duty cycle $< 98\%$ , VBW $\geq 1/T$<br>Video bandwidth mode=RMS<br>(power averaging) |
| Start frequency     | 1GHz             |                                                                                                                            |
| Stop frequency      | 25GHz            |                                                                                                                            |
| Sweep Time          | Auto             |                                                                                                                            |
| Detector            | PEAK             |                                                                                                                            |
| Trace Mode          | Max Hold         |                                                                                                                            |

Note : T is the on-time time of the duty cycle, when EUT transmit continuously with maximum output power, unit is seconds. reference section 2.7 for the on-time time.

#### 6.4. Test Procedure

- EUT was placed on a turn table, which is 0.8 meter high above ground for below 1GHz test, and which is 1.5 meter high above ground for above 1GHz test.
- EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower.
- Set the EUT transmit continuously with maximum output power.
- The turn table can rotate 360 degrees to determine the position of the maximum emission level.
- The antenna can be moved up and down between 1 meter and 4 meters to find out the maximum emission level. Both horizontal and vertical polarization of the antenna are set on test.
- Spectrum analyzer setting parameters in accordance with section 6.3.
- Repeat above procedures until all channels were measured.
- Record the results in the test report.

## 6.5. Test Result

## Radiated Emissions Below 1GHz

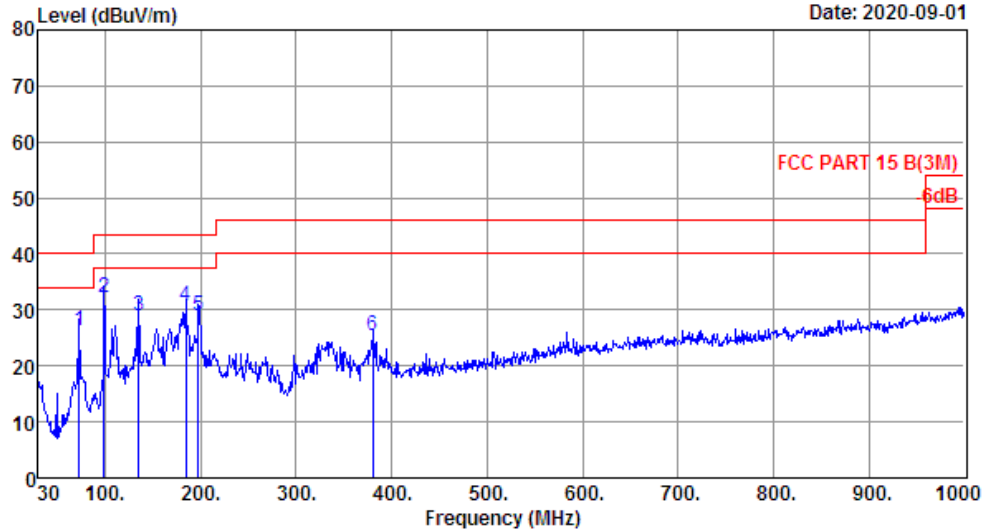
EST Technology

Chilingxiang, Qishantou, Santun,  
Houjie, Dongguan, Guangdong, China  
Tel: +86-769-83081888  
Fax: +86-769-83081878

Data: 357

File: \\Emc-966-1\test data\2020\RF\Z\ZhaoYang.EM6 (358)

Date: 2020-09-01



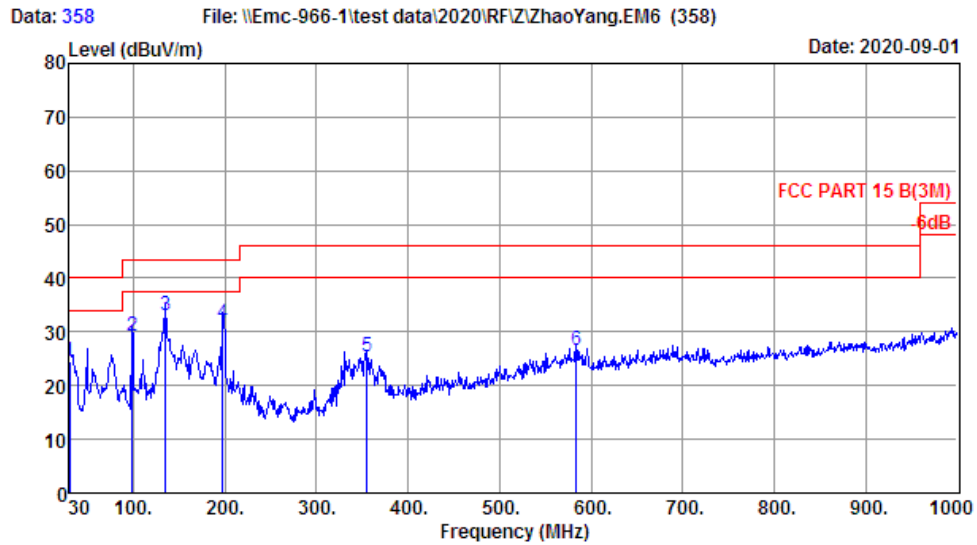
Site no. : 1# 966 Chamber Data no. : 357  
 Dis. / Ant. : 3m 37062 Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15 B(3M)  
 Env. / Ins. : Temp:24.8';Humi:51%;Press:101.52kPa  
 Engineer : Pablo  
 EUT : Halo Smart Speaker  
 Power : DC 16V From Adapter Input AC 120V/60Hz  
 M/N : HSP3100G  
 Test Mode : TX Mode

|   | Freq.<br>(MHz) | ANT<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|-------------------------|-----------------------|-------------------|-------------------------------|-------------------|----------------|--------|
| 1 | 72.680         | 6.62                    | 0.57                  | 19.20             | 26.39                         | 40.00             | 13.61          | QP     |
| 2 | 98.870         | 9.66                    | 0.85                  | 21.65             | 32.16                         | 43.50             | 11.34          | QP     |
| 3 | 134.760        | 11.60                   | 0.99                  | 16.24             | 28.83                         | 43.50             | 14.67          | QP     |
| 4 | 184.230        | 9.26                    | 1.22                  | 20.33             | 30.81                         | 43.50             | 12.69          | QP     |
| 5 | 197.810        | 8.56                    | 1.26                  | 19.22             | 29.04                         | 43.50             | 14.46          | QP     |
| 6 | 380.170        | 15.80                   | 2.18                  | 7.44              | 25.42                         | 46.00             | 20.58          | QP     |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. Margin= Limit - Emission Level.  
 3. The emission levels that are 20dB below the official limit are not reported.

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Site no. : 1# 966 Chamber Data no. : 358  
Dis. / Ant. : 3m 37062 Ant. pol. : VERTICAL  
Limit : FCC PART 15 B(3M)  
Env. / Ins. : Temp:24.8';Humi:51%;Press:101.52kPa  
Engineer : Pablo  
EUT : Halo Smart Speaker  
Power : DC 16V From Adapter Input AC 120V/60Hz  
M/N : HSP3100G  
Test Mode : TX Mode

|   | Freq.<br>(MHz) | ANT<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|-------------------------|-----------------------|-------------------|-------------------------------|-------------------|----------------|--------|
| 1 | 30.000         | 18.40                   | 0.14                  | 5.82              | 24.36                         | 40.00             | 15.64          | QP     |
| 2 | 98.870         | 9.66                    | 0.85                  | 18.61             | 29.12                         | 43.50             | 14.38          | QP     |
| 3 | 134.760        | 11.60                   | 0.99                  | 20.61             | 33.20                         | 43.50             | 10.30          | QP     |
| 4 | 197.810        | 8.56                    | 1.26                  | 21.72             | 31.54                         | 43.50             | 11.96          | QP     |
| 5 | 354.950        | 15.30                   | 2.13                  | 7.98              | 25.41                         | 46.00             | 20.59          | QP     |
| 6 | 583.870        | 20.12                   | 2.94                  | 3.59              | 26.65                         | 46.00             | 19.35          | QP     |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
2. Margin= Limit - Emission Level.  
3. The emission levels that are 20dB below the official limit are not reported.

## Note:

1. The amplitude of 9KHz to 30MHz spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.
2. All channels had been pre-test, only the worst case was reported.

## Radiated Emissions Above 1G

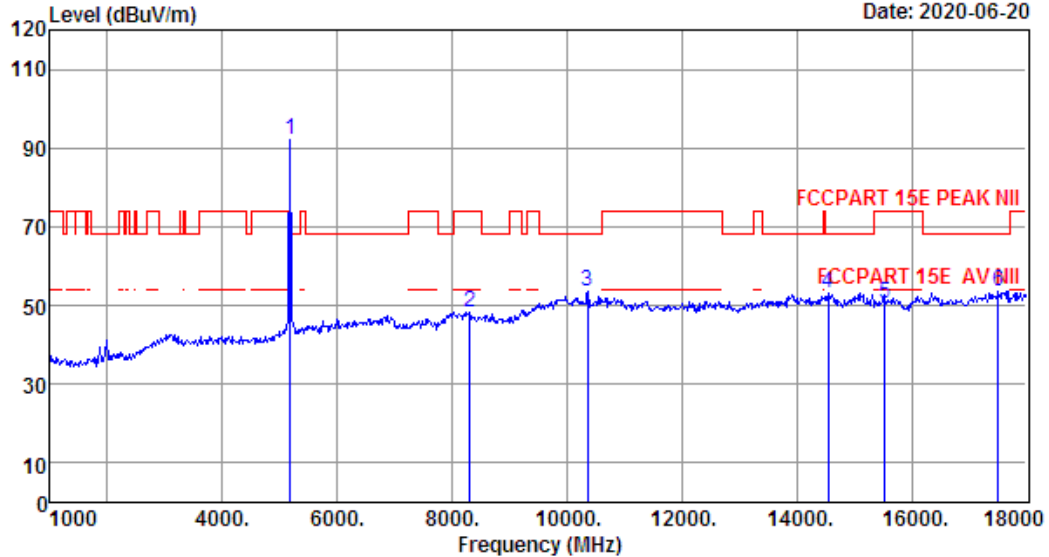
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Data: 63

File: \\Emc-966-1\test data\2020\RF\Z\ZHAOYANG\H3P3100G.EM6 (268)

Date: 2020-06-20



Site no. : 1# 966 Chamber Data no. : 63  
Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : VERTICAL  
Limit : FCCPART 15E PEAK NII  
Env. / Ins. : Temp:27.3';Humi:54%;Press:101.52kPa  
Engineer : Carlos  
EUT : Halo Smart Speaker  
Power : AC 120V/60Hz  
M/N : HSP3100G  
Test Mode : IEEE 802.11ac VHT20 TX 5180MHz  
ANT 1+ANT 2

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBUV) | Emission<br>Level<br>(dBUV/m) | Limits<br>(dBUV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 5182.00        | 32.20                    | 3.52                  | 34.63                 | 91.06             | 92.15                         | 68.20              | -23.95         | Peak   |
| 2 | 8310.00        | 36.90                    | 5.43                  | 34.75                 | 40.85             | 48.43                         | 74.00              | 25.57          | Peak   |
| 3 | 10360.00       | 39.27                    | 5.99                  | 34.31                 | 42.76             | 53.71                         | 68.20              | 14.49          | Peak   |
| 4 | 14549.00       | 40.99                    | 6.89                  | 34.46                 | 39.55             | 52.97                         | 68.20              | 15.23          | Peak   |
| 5 | 15540.00       | 40.31                    | 6.46                  | 34.39                 | 37.97             | 50.35                         | 74.00              | 23.65          | Peak   |
| 6 | 17507.00       | 44.97                    | 7.92                  | 34.35                 | 35.13             | 53.67                         | 68.20              | 14.53          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
2. Margin= Limit - Emission Level.  
3. The emission levels that are 20dB below the official limit are not reported.

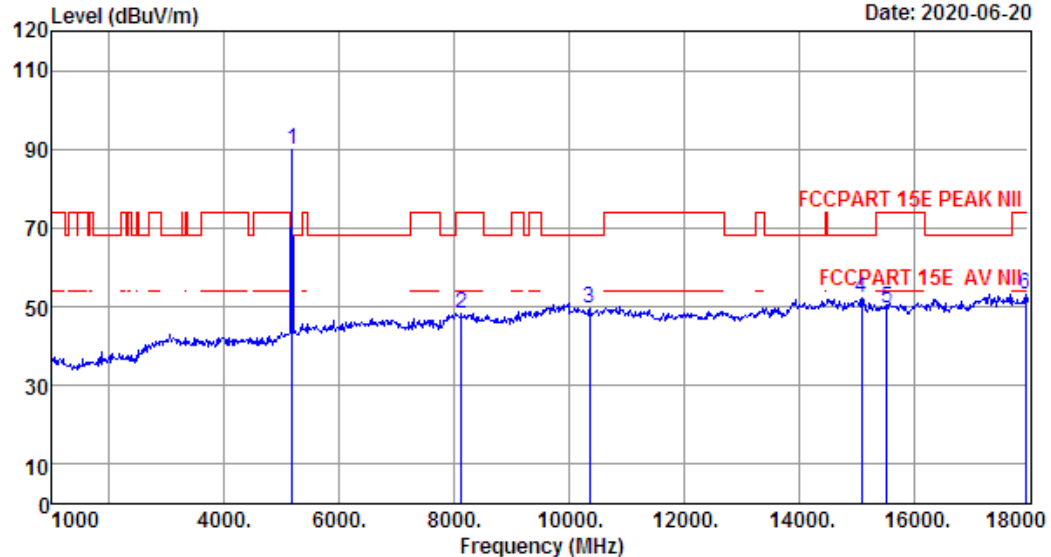
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Data: 64

File: \\Emc-966-1\test data\2020\RF\Z\ZHAOYANG\H3P3100G.EM6 (268)

Date: 2020-06-20



Site no. : 1# 966 Chamber Data no. : 64  
 Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : HORIZONTAL  
 Limit : FCCPART 15E PEAK NII  
 Env. / Ins. : Temp:27.3';Humi:54%;Press:101.52kPa  
 Engineer : Carlos  
 EUT : Halo Smart Speaker  
 Power : AC 120V/60Hz  
 M/N : HSP3100G  
 Test Mode : IEEE 802.11ac VHT20 TX 5180MHz  
 ANT 1+ANT 2

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 5180.00        | 32.20                    | 3.52                  | 34.63                 | 88.72             | 89.81                         | 68.20              | -21.61         | Peak   |
| 2 | 8123.00        | 36.90                    | 5.67                  | 34.84                 | 40.75             | 48.48                         | 74.00              | 25.52          | Peak   |
| 3 | 10360.00       | 39.27                    | 5.99                  | 34.31                 | 38.69             | 49.64                         | 68.20              | 18.56          | Peak   |
| 4 | 15093.00       | 40.81                    | 6.74                  | 34.57                 | 39.35             | 52.33                         | 68.20              | 15.87          | Peak   |
| 5 | 15540.00       | 40.31                    | 6.46                  | 34.39                 | 37.14             | 49.52                         | 74.00              | 24.48          | Peak   |
| 6 | 17949.00       | 48.49                    | 8.21                  | 34.31                 | 30.77             | 53.16                         | 74.00              | 20.84          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. Margin= Limit - Emission Level.  
 3. The emission levels that are 20dB below the official limit are not reported.

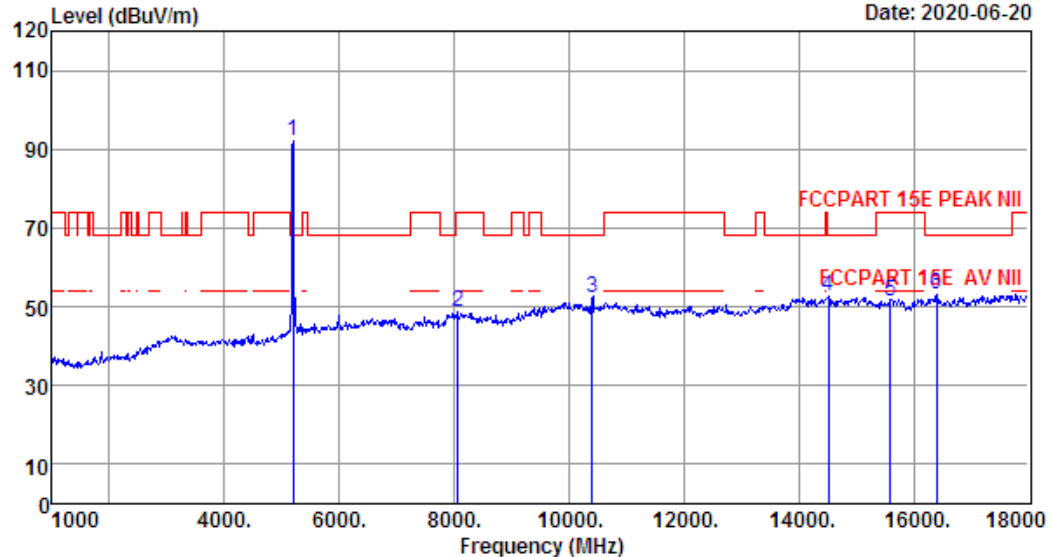
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Data: 65

File: \\Emc-966-1\test data\2020\RF\Z\ZHAOYANG\H3P3100G.EM6 (268)

Date: 2020-06-20



Site no. : 1# 966 Chamber Data no. : 65  
Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : VERTICAL  
Limit : FCCPART 15E PEAK NII  
Env. / Ins. : Temp:27.3';Humi:54%;Press:101.52kPa  
Engineer : Carlos  
EUT : Halo Smart Speaker  
Power : AC 120V/60Hz  
M/N : HSP3100G  
Test Mode : IEEE 802.11ac VHT20 TX 5200MHz  
ANT 1+ANT 2

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 5200.00        | 32.24                    | 3.53                  | 34.62                 | 90.85             | 92.00                         | 68.20              | -23.80         | Peak   |
| 2 | 8072.00        | 36.90                    | 5.73                  | 34.87                 | 41.03             | 48.79                         | 74.00              | 25.21          | Peak   |
| 3 | 10400.00       | 39.31                    | 5.99                  | 34.32                 | 41.46             | 52.44                         | 68.20              | 15.76          | Peak   |
| 4 | 14515.00       | 41.00                    | 6.90                  | 34.45                 | 39.35             | 52.80                         | 68.20              | 15.40          | Peak   |
| 5 | 15600.00       | 40.24                    | 6.53                  | 34.36                 | 38.74             | 51.15                         | 74.00              | 22.85          | Peak   |
| 6 | 16402.00       | 40.25                    | 7.08                  | 34.28                 | 40.02             | 53.07                         | 68.20              | 15.13          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
2. Margin= Limit - Emission Level.  
3. The emission levels that are 20dB below the official limit are not reported.

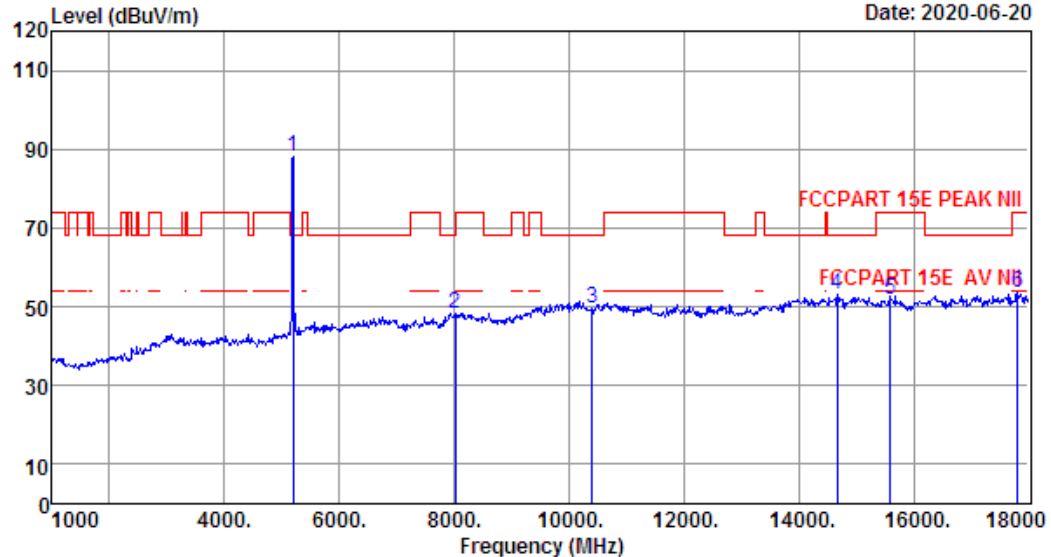
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Data: 66

File: \\Emc-966-1\test data\2020\RF\Z\ZHAOYANG\H3P3100G.EM6 (268)

Date: 2020-06-20



Site no. : 1# 966 Chamber Data no. : 66  
Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : HORIZONTAL  
Limit : FCCPART 15E PEAK NII  
Env. / Ins. : Temp:27.3';Humi:54%;Press:101.52kPa  
Engineer : Carlos  
EUT : Halo Smart Speaker  
Power : AC 120V/60Hz  
M/N : HSP3100G  
Test Mode : IEEE 802.11ac VHT20 TX 5200MHz  
ANT 1+ANT 2

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 5200.00        | 32.24                    | 3.53                  | 34.62                 | 87.11             | 88.26                         | 68.20              | -20.06         | Peak   |
| 2 | 8021.00        | 36.90                    | 5.80                  | 34.89                 | 40.55             | 48.36                         | 68.20              | 19.84          | Peak   |
| 3 | 10400.00       | 39.31                    | 5.99                  | 34.32                 | 38.50             | 49.48                         | 68.20              | 18.72          | Peak   |
| 4 | 14668.00       | 40.97                    | 6.87                  | 34.50                 | 39.61             | 52.95                         | 68.20              | 15.25          | Peak   |
| 5 | 15600.00       | 40.24                    | 6.53                  | 34.36                 | 39.59             | 52.00                         | 74.00              | 22.00          | Peak   |
| 6 | 17813.00       | 47.41                    | 8.12                  | 34.32                 | 32.35             | 53.56                         | 74.00              | 20.44          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
2. Margin= Limit - Emission Level.  
3. The emission levels that are 20dB below the official limit are not reported.

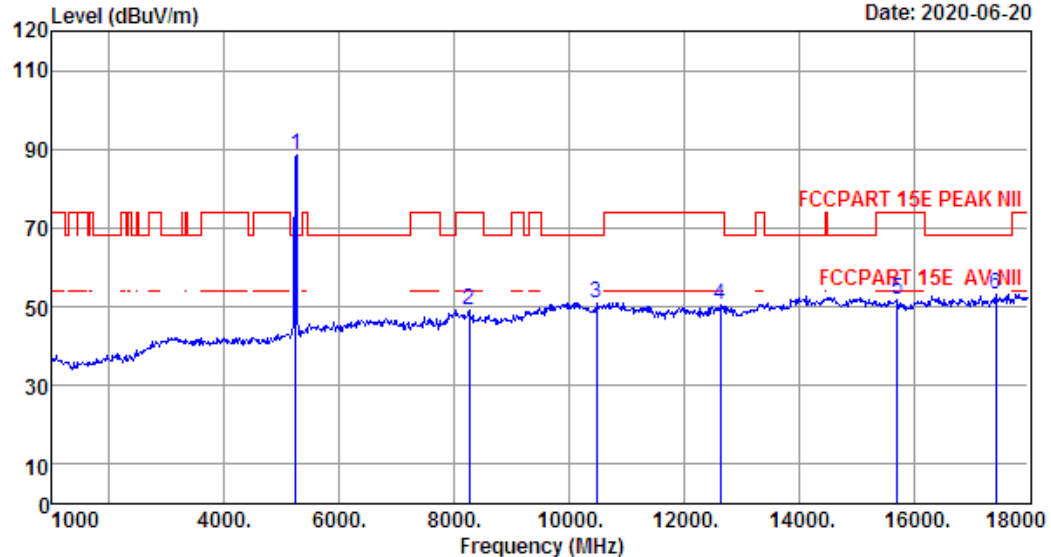
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Data: 67

File: \\Emc-966-1\test data\2020\RF\Z\ZHAOYANG\H3P3100G.EM6 (268)

Date: 2020-06-20



Site no. : 1# 966 Chamber Data no. : 67  
Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : HORIZONTAL  
Limit : FCCPART 15E PEAK NII  
Env. / Ins. : Temp:27.3';Humi:54%;Press:101.52kPa  
Engineer : Carlos  
EUT : Halo Smart Speaker  
Power : AC 120V/60Hz  
M/N : HSP3100G  
Test Mode : IEEE 802.11ac VHT20 TX 5240MHz  
ANT 1+ANT 2

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 5240.00        | 32.31                    | 3.55                  | 34.61                 | 87.15             | 88.40                         | 68.20              | -20.20         | Peak   |
| 2 | 8259.00        | 36.90                    | 5.49                  | 34.77                 | 41.50             | 49.12                         | 74.00              | 24.88          | Peak   |
| 3 | 10480.00       | 39.39                    | 6.02                  | 34.35                 | 39.66             | 50.72                         | 68.20              | 17.48          | Peak   |
| 4 | 12628.00       | 39.59                    | 6.23                  | 34.55                 | 39.22             | 50.49                         | 74.00              | 23.51          | Peak   |
| 5 | 15720.00       | 40.10                    | 6.65                  | 34.31                 | 39.49             | 51.93                         | 74.00              | 22.07          | Peak   |
| 6 | 17439.00       | 44.43                    | 7.85                  | 34.36                 | 35.24             | 53.16                         | 68.20              | 15.04          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
2. Margin= Limit - Emission Level.  
3. The emission levels that are 20dB below the official limit are not reported.

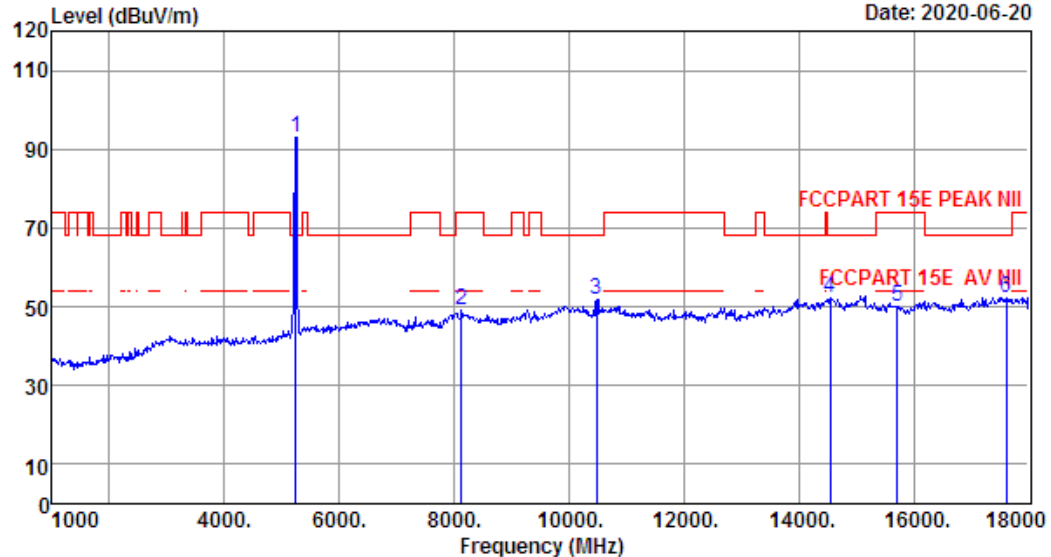
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Data: 68

File: \\Emc-966-1\test data\2020\RF\Z\ZHAOYANG\H3P3100G.EM6 (268)

Date: 2020-06-20



Site no. : 1# 966 Chamber Data no. : 68  
Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : VERTICAL  
Limit : FCCPART 15E PEAK NII  
Env. / Ins. : Temp:27.3';Humi:54%;Press:101.52kPa  
Engineer : Carlos  
EUT : Halo Smart Speaker  
Power : AC 120V/60Hz  
M/N : HSP3100G  
Test Mode : IEEE 802.11ac VHT20 TX 5240MHz  
ANT 1+ANT 2

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 5240.00        | 32.31                    | 3.55                  | 34.61                 | 91.95             | 93.20                         | 68.20              | -25.00         | Peak   |
| 2 | 8123.00        | 36.90                    | 5.67                  | 34.84                 | 41.59             | 49.32                         | 74.00              | 24.68          | Peak   |
| 3 | 10480.00       | 39.39                    | 6.02                  | 34.35                 | 40.72             | 51.78                         | 68.20              | 16.42          | Peak   |
| 4 | 14549.00       | 40.99                    | 6.89                  | 34.46                 | 39.01             | 52.43                         | 68.20              | 15.77          | Peak   |
| 5 | 15720.00       | 40.10                    | 6.65                  | 34.31                 | 37.39             | 49.83                         | 74.00              | 24.17          | Peak   |
| 6 | 17609.00       | 45.78                    | 7.99                  | 34.34                 | 32.92             | 52.35                         | 68.20              | 15.85          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
2. Margin= Limit - Emission Level.  
3. The emission levels that are 20dB below the official limit are not reported.

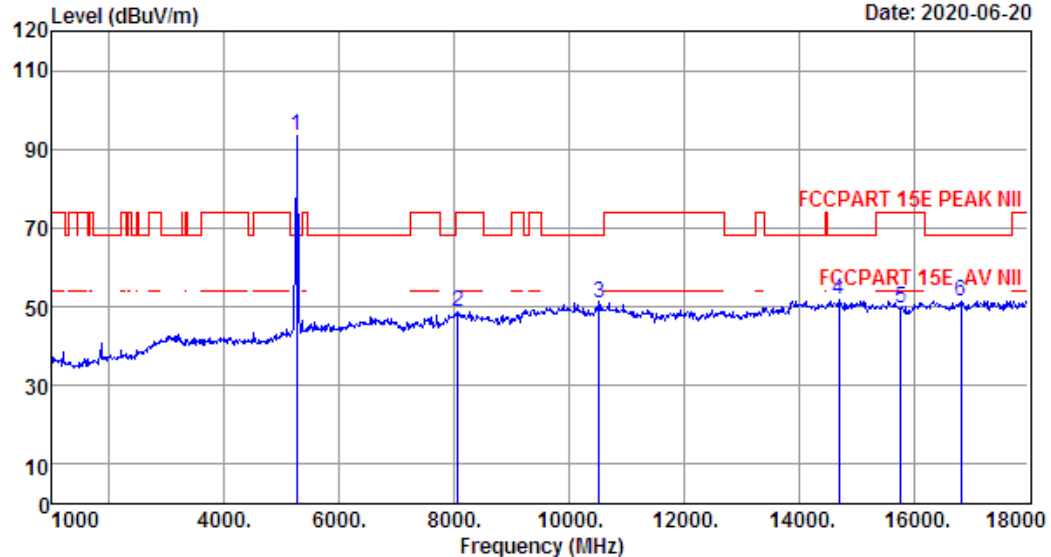
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Data: 69

File: \\Emc-966-1\test data\2020\RF\Z\ZHAOYANG\H3P3100G.EM6 (268)

Date: 2020-06-20



Site no. : 1# 966 Chamber Data no. : 69  
Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : VERTICAL  
Limit : FCCPART 15E PEAK NII  
Env. / Ins. : Temp:27.3';Humi:54%;Press:101.52kPa  
Engineer : Carlos  
EUT : Halo Smart Speaker  
Power : AC 120V/60Hz  
M/N : HSP3100G  
Test Mode : IEEE 802.11ac VHT20 TX 5260MHz  
ANT 1+ANT 2

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 5260.00        | 32.39                    | 3.57                  | 34.59                 | 92.18             | 93.55                         | 68.20              | -25.35         | Peak   |
| 2 | 8072.00        | 36.90                    | 5.73                  | 34.87                 | 40.83             | 48.59                         | 74.00              | 25.41          | Peak   |
| 3 | 10520.00       | 39.43                    | 6.02                  | 34.36                 | 39.70             | 50.79                         | 68.20              | 17.41          | Peak   |
| 4 | 14702.00       | 40.96                    | 6.86                  | 34.51                 | 38.40             | 51.71                         | 68.20              | 16.49          | Peak   |
| 5 | 15780.00       | 40.05                    | 6.69                  | 34.29                 | 37.11             | 49.56                         | 74.00              | 24.44          | Peak   |
| 6 | 16827.00       | 40.71                    | 7.32                  | 34.37                 | 37.88             | 51.54                         | 68.20              | 16.66          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
2. Margin= Limit - Emission Level.  
3. The emission levels that are 20dB below the official limit are not reported.

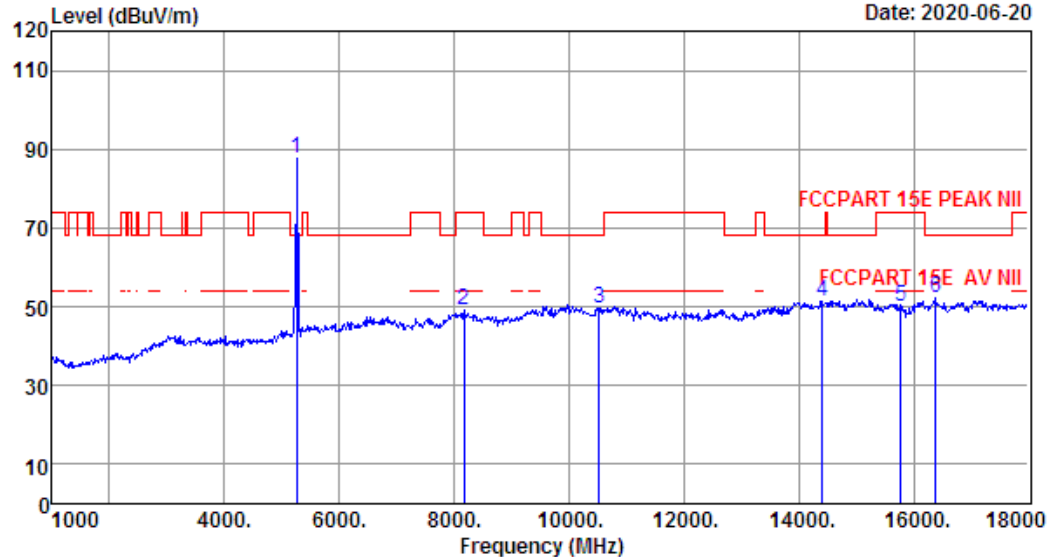
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Data: 70

File: \\Emc-966-1\test data\2020\RF\Z\ZHAOYANG\H3P3100G.EM6 (268)

Date: 2020-06-20



Site no. : 1# 966 Chamber Data no. : 70  
Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : HORIZONTAL  
Limit : FCCPART 15E PEAK NII  
Env. / Ins. : Temp:27.3';Humi:54%;Press:101.52kPa  
Engineer : Carlos  
EUT : Halo Smart Speaker  
Power : AC 120V/60Hz  
M/N : HSP3100G  
Test Mode : IEEE 802.11ac VHT20 TX 5260MHz  
ANT 1+ANT 2

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 5260.00        | 32.39                    | 3.57                  | 34.59                 | 86.42             | 87.79                         | 68.20              | -19.59         | Peak   |
| 2 | 8174.00        | 36.90                    | 5.60                  | 34.82                 | 41.49             | 49.17                         | 74.00              | 24.83          | Peak   |
| 3 | 10520.00       | 39.43                    | 6.02                  | 34.36                 | 38.29             | 49.38                         | 68.20              | 18.82          | Peak   |
| 4 | 14413.00       | 41.02                    | 6.84                  | 34.42                 | 38.09             | 51.53                         | 68.20              | 16.67          | Peak   |
| 5 | 15780.00       | 40.05                    | 6.69                  | 34.29                 | 37.60             | 50.05                         | 74.00              | 23.95          | Peak   |
| 6 | 16385.00       | 40.23                    | 7.07                  | 34.28                 | 39.15             | 52.17                         | 68.20              | 16.03          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
2. Margin= Limit - Emission Level.  
3. The emission levels that are 20dB below the official limit are not reported.

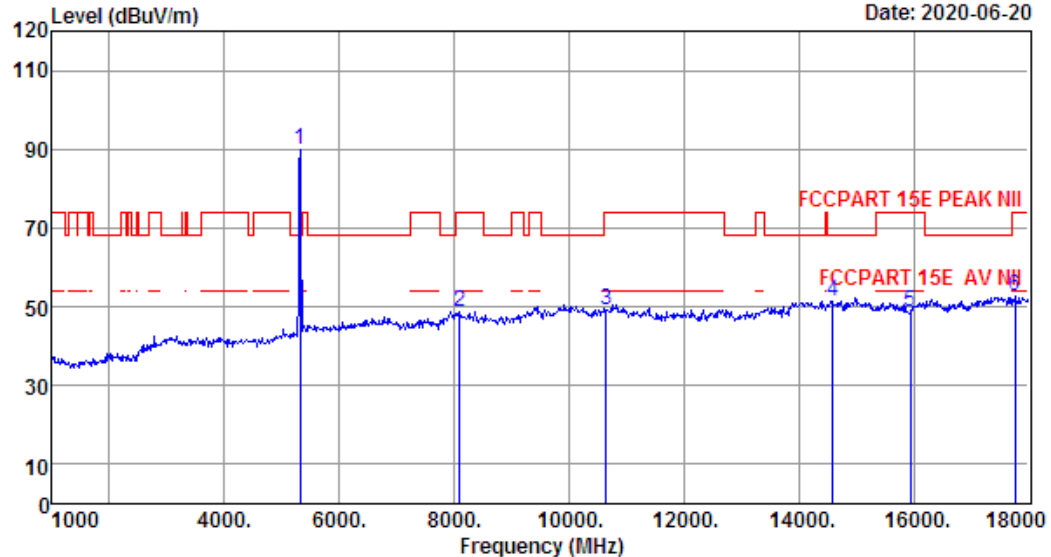
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Data: 71

File: \\Emc-966-1\test data\2020\RF\Z\ZHAOYANG\H3P3100G.EM6 (268)

Date: 2020-06-20



Site no. : 1# 966 Chamber Data no. : 71  
 Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : HORIZONTAL  
 Limit : FCCPART 15E PEAK NII  
 Env. / Ins. : Temp:27.3';Humi:54%;Press:101.52kPa  
 Engineer : Carlos  
 EUT : Halo Smart Speaker  
 Power : AC 120V/60Hz  
 M/N : HSP3100G  
 Test Mode : IEEE 802.11ac VHT20 TX 5320MHz  
 ANT 1+ANT 2

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 5320.00        | 32.50                    | 3.60                  | 34.57                 | 88.33             | 89.86                         | 68.20              | -21.66         | Peak   |
| 2 | 8089.00        | 36.90                    | 5.71                  | 34.86                 | 41.17             | 48.92                         | 74.00              | 25.08          | Peak   |
| 3 | 10640.00       | 39.54                    | 6.04                  | 34.39                 | 37.86             | 49.05                         | 74.00              | 24.95          | Peak   |
| 4 | 14600.00       | 40.98                    | 6.88                  | 34.48                 | 38.18             | 51.56                         | 68.20              | 16.64          | Peak   |
| 5 | 15940.00       | 39.86                    | 6.86                  | 34.22                 | 36.17             | 48.67                         | 74.00              | 25.33          | Peak   |
| 6 | 17762.00       | 47.00                    | 8.09                  | 34.32                 | 31.73             | 52.50                         | 74.00              | 21.50          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. Margin= Limit - Emission Level.  
 3. The emission levels that are 20dB below the official limit are not reported.

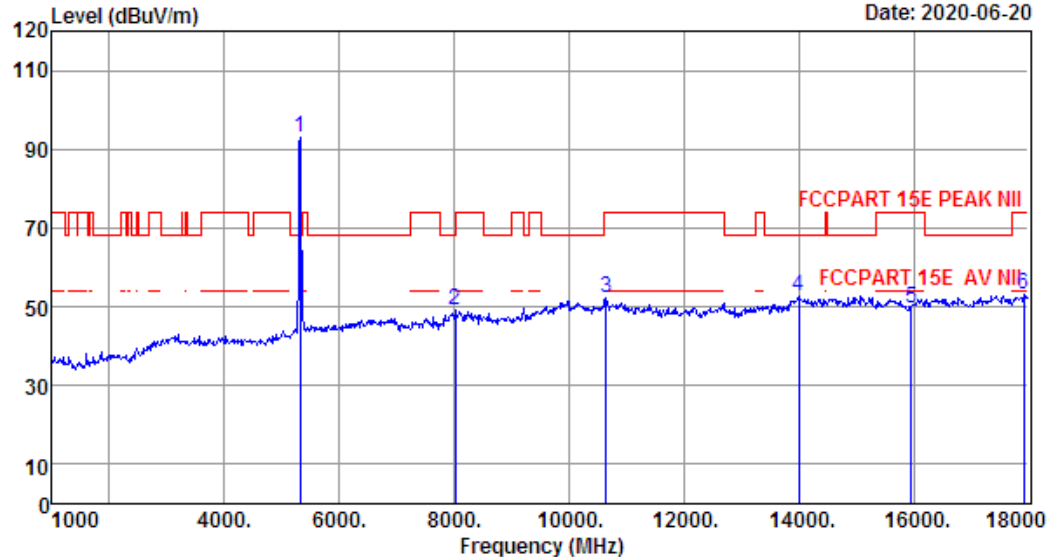
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Data: 72

File: \\Emc-966-1\test data\2020\RF\Z\ZHAOYANG\H3P3100G.EM6 (268)

Date: 2020-06-20



Site no. : 1# 966 Chamber Data no. : 72  
Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : VERTICAL  
Limit : FCCPART 15E PEAK NII  
Env. / Ins. : Temp:27.3';Humi:54%;Press:101.52kPa  
Engineer : Carlos  
EUT : Halo Smart Speaker  
Power : AC 120V/60Hz  
M/N : HSP3100G  
Test Mode : IEEE 802.11ac VHT20 TX 5320MHz  
ANT 1+ANT 2

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 5320.00        | 32.50                    | 3.60                  | 34.57                 | 91.68             | 93.21                         | 68.20              | -25.01         | Peak   |
| 2 | 8021.00        | 36.90                    | 5.80                  | 34.89                 | 41.21             | 49.02                         | 68.20              | 19.18          | Peak   |
| 3 | 10640.00       | 39.54                    | 6.04                  | 34.39                 | 40.86             | 52.05                         | 74.00              | 21.95          | Peak   |
| 4 | 14005.00       | 41.10                    | 6.53                  | 34.30                 | 39.15             | 52.48                         | 68.20              | 15.72          | Peak   |
| 5 | 15960.00       | 39.84                    | 6.88                  | 34.21                 | 37.16             | 49.67                         | 74.00              | 24.33          | Peak   |
| 6 | 17915.00       | 48.22                    | 8.18                  | 34.31                 | 30.93             | 53.02                         | 74.00              | 20.98          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
2. Margin= Limit - Emission Level.  
3. The emission levels that are 20dB below the official limit are not reported.

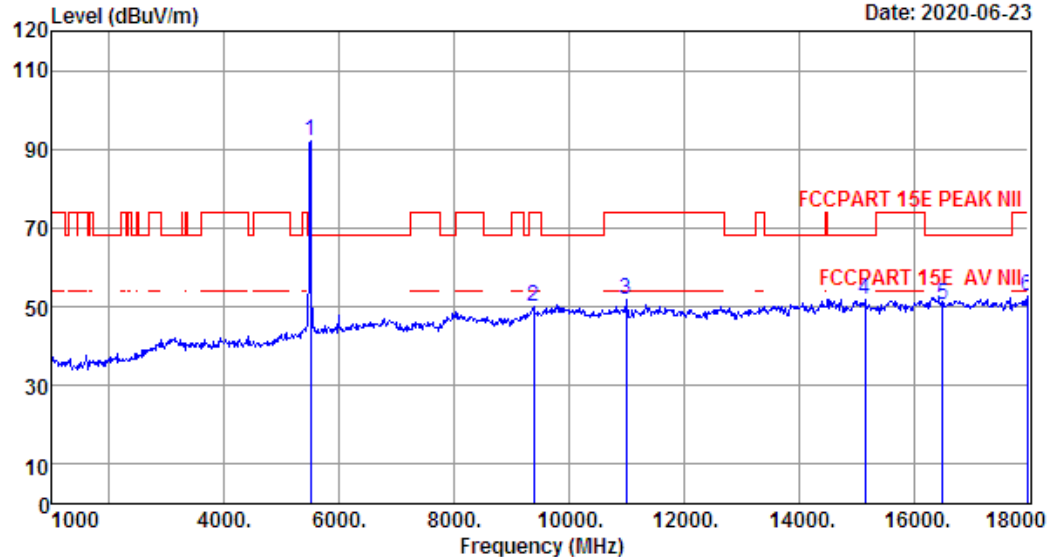
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Data: 73

File: \\Emc-966-1\test data\2020\RF\Z\ZHAOYANG\H3P3100G.EM6 (268)

Date: 2020-06-23



Site no. : 1# 966 Chamber Data no. : 73  
Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : VERTICAL  
Limit : FCCPART 15E PEAK NII  
Env. / Ins. : Temp:27.3';Humi:54%;Press:101.52kPa  
Engineer : Carlos  
EUT : Halo Smart Speaker  
Power : AC 120V/60Hz  
M/N : HSP3100G  
Test Mode : IEEE 802.11ac VHT20 TX 5500MHz  
ANT 1+ANT 2

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 5500.00        | 32.90                    | 3.71                  | 34.50                 | 90.13             | 92.24                         | 68.20              | -24.04         | Peak   |
| 2 | 9381.00        | 37.66                    | 5.45                  | 34.32                 | 41.37             | 50.16                         | 74.00              | 23.84          | Peak   |
| 3 | 11000.00       | 39.90                    | 6.11                  | 34.50                 | 40.13             | 51.64                         | 74.00              | 22.36          | Peak   |
| 4 | 15161.00       | 40.73                    | 6.69                  | 34.54                 | 39.13             | 52.01                         | 68.20              | 16.19          | Peak   |
| 5 | 16500.00       | 40.36                    | 7.12                  | 34.30                 | 37.30             | 50.48                         | 68.20              | 17.72          | Peak   |
| 6 | 17983.00       | 48.76                    | 8.23                  | 34.30                 | 30.18             | 52.87                         | 74.00              | 21.13          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
2. Margin= Limit - Emission Level.  
3. The emission levels that are 20dB below the official limit are not reported.

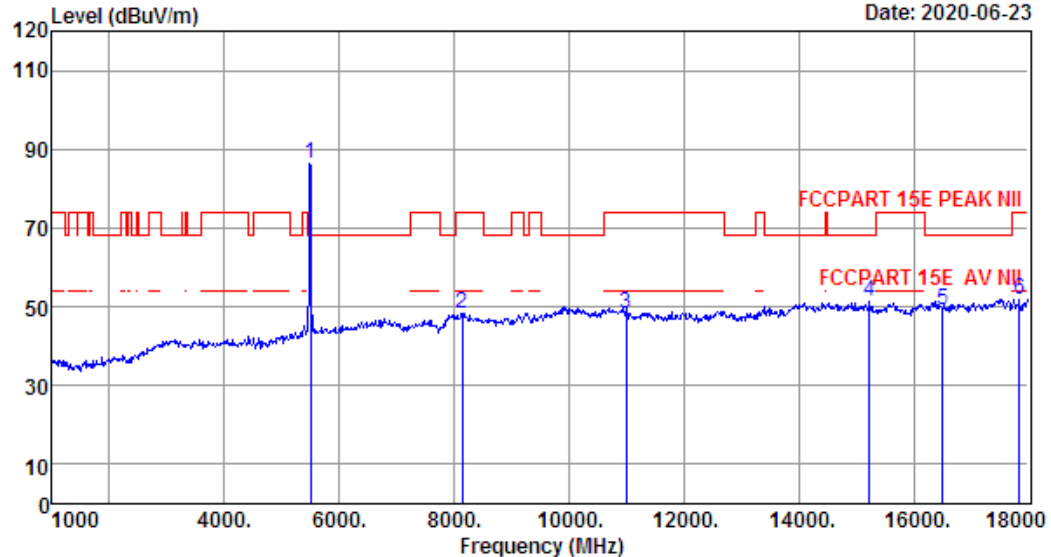
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Data: 74

File: \\Emc-966-1\test data\2020\RF\Z\ZHAOYANG\H3P3100G.EM6 (268)

Date: 2020-06-23



Site no. : 1# 966 Chamber Data no. : 74  
Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : HORIZONTAL  
Limit : FCCPART 15E PEAK NII  
Env. / Ins. : Temp:27.3';Humi:54%;Press:101.52kPa  
Engineer : Carlos  
EUT : Halo Smart Speaker  
Power : AC 120V/60Hz  
M/N : HSP3100G  
Test Mode : IEEE 802.11ac VHT20 TX 5500MHz  
ANT 1+ANT 2

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 5500.00        | 32.90                    | 3.71                  | 34.50                 | 84.25             | 86.36                         | 68.20              | -18.16         | Peak   |
| 2 | 8140.00        | 36.90                    | 5.65                  | 34.83                 | 40.71             | 48.43                         | 74.00              | 25.57          | Peak   |
| 3 | 11000.00       | 39.90                    | 6.11                  | 34.50                 | 36.73             | 48.24                         | 74.00              | 25.76          | Peak   |
| 4 | 15229.00       | 40.65                    | 6.64                  | 34.51                 | 38.41             | 51.19                         | 68.20              | 17.01          | Peak   |
| 5 | 16504.00       | 40.36                    | 7.12                  | 34.30                 | 36.06             | 49.24                         | 68.20              | 18.96          | Peak   |
| 6 | 17847.00       | 47.68                    | 8.14                  | 34.32                 | 30.35             | 51.85                         | 74.00              | 22.15          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
2. Margin= Limit - Emission Level.  
3. The emission levels that are 20dB below the official limit are not reported.

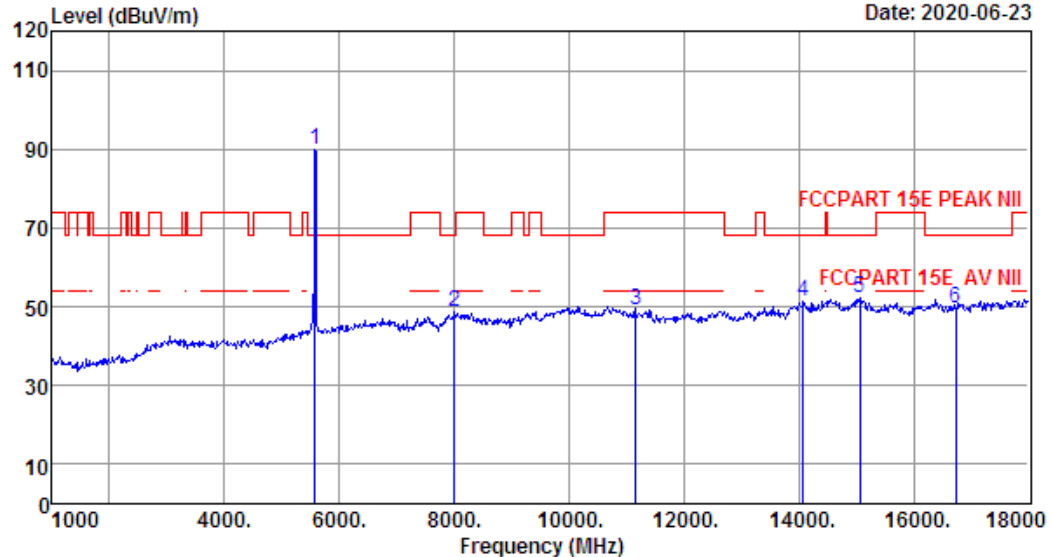
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Data: 75

File: \\Emc-966-1\test data\2020\RF\Z\ZHAOYANG\H3P3100G.EM6 (268)

Date: 2020-06-23



Site no. : 1# 966 Chamber Data no. : 75  
Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : VERTICAL  
Limit : FCCPART 15E PEAK NII  
Env. / Ins. : Temp:27.3';Humi:54%;Press:101.52kPa  
Engineer : Carlos  
EUT : Halo Smart Speaker  
Power : AC 120V/60Hz  
M/N : HSP3100G  
Test Mode : IEEE 802.11ac VHT20 TX 5580MHz  
ANT 1+ANT 2

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 5580.00        | 32.89                    | 3.79                  | 34.47                 | 87.76             | 89.97                         | 68.20              | -21.77         | Peak   |
| 2 | 8004.00        | 36.90                    | 5.82                  | 34.90                 | 40.73             | 48.55                         | 68.20              | 19.65          | Peak   |
| 3 | 11160.00       | 39.90                    | 6.12                  | 34.55                 | 37.87             | 49.34                         | 74.00              | 24.66          | Peak   |
| 4 | 14073.00       | 41.09                    | 6.58                  | 34.32                 | 38.23             | 51.58                         | 68.20              | 16.62          | Peak   |
| 5 | 15059.00       | 40.84                    | 6.77                  | 34.58                 | 39.14             | 52.17                         | 68.20              | 16.03          | Peak   |
| 6 | 16740.00       | 40.62                    | 7.26                  | 34.35                 | 36.16             | 49.69                         | 68.20              | 18.51          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
2. Margin= Limit - Emission Level.  
3. The emission levels that are 20dB below the official limit are not reported.

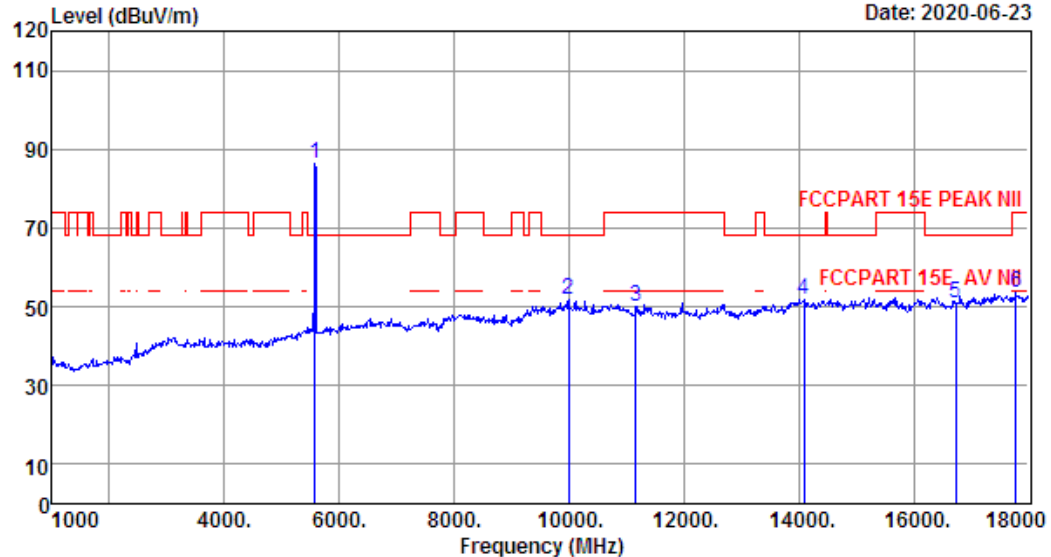
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Data: 76

File: \\Emc-966-1\test data\2020\RF\Z\ZHAOYANG\H3P3100G.EM6 (268)

Date: 2020-06-23



Site no. : 1# 966 Chamber Data no. : 76  
Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : HORIZONTAL  
Limit : FCCPART 15E PEAK NII  
Env. / Ins. : Temp:27.3';Humi:54%;Press:101.52kPa  
Engineer : Carlos  
EUT : Halo Smart Speaker  
Power : AC 120V/60Hz  
M/N : HSP3100G  
Test Mode : IEEE 802.11ac VHT20 TX 5580MHz  
ANT 1+ANT 2

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 5580.00        | 32.89                    | 3.79                  | 34.47                 | 84.28             | 86.49                         | 68.20              | -18.29         | Peak   |
| 2 | 9993.00        | 38.90                    | 5.89                  | 34.20                 | 41.19             | 51.78                         | 68.20              | 16.42          | Peak   |
| 3 | 11160.00       | 39.90                    | 6.12                  | 34.55                 | 38.35             | 49.82                         | 74.00              | 24.18          | Peak   |
| 4 | 14090.00       | 41.08                    | 6.59                  | 34.33                 | 38.54             | 51.88                         | 68.20              | 16.32          | Peak   |
| 5 | 16740.00       | 40.62                    | 7.26                  | 34.35                 | 37.54             | 51.07                         | 68.20              | 17.13          | Peak   |
| 6 | 17779.00       | 47.14                    | 8.10                  | 34.32                 | 32.59             | 53.51                         | 74.00              | 20.49          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
2. Margin= Limit - Emission Level.  
3. The emission levels that are 20dB below the official limit are not reported.

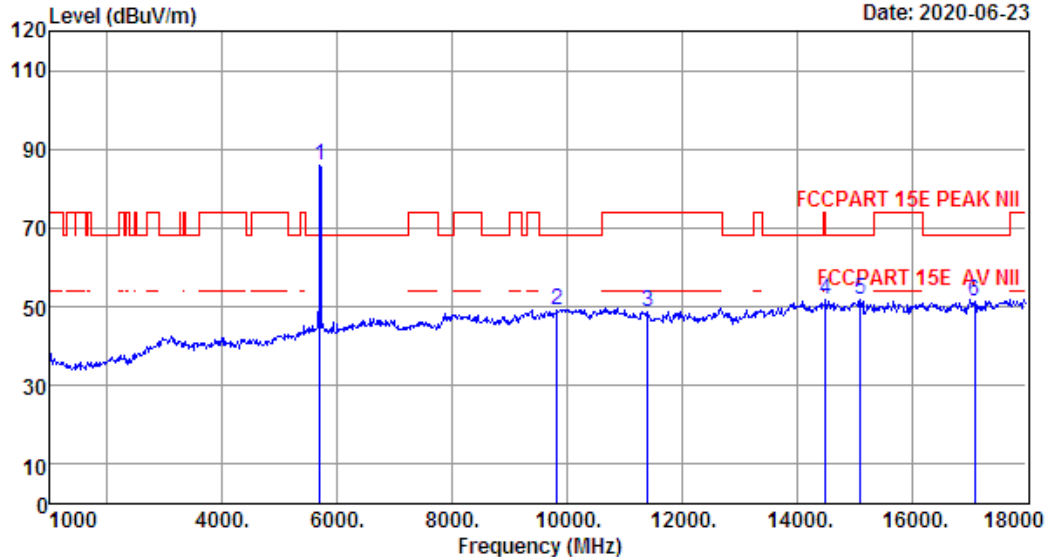
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Data: 77

File: \\Emc-966-1\test data\2020\RF\Z\ZHAOYANG\H3P3100G.EM6 (268)

Date: 2020-06-23



Site no. : 1# 966 Chamber Data no. : 77  
 Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : HORIZONTAL  
 Limit : FCCPART 15E PEAK NII  
 Env. / Ins. : Temp:27.3';Humi:54%;Press:101.52kPa  
 Engineer : Carlos  
 EUT : Halo Smart Speaker  
 Power : AC 120V/60Hz  
 M/N : HSP3100G  
 Test Mode : IEEE 802.11ac VHT20 TX 5700MHz  
 ANT 1+ANT 2

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 5700.00        | 32.86                    | 3.94                  | 34.42                 | 83.31             | 85.69                         | 68.20              | -17.49         | Peak   |
| 2 | 9823.00        | 38.56                    | 5.76                  | 34.23                 | 39.19             | 49.28                         | 68.20              | 18.92          | Peak   |
| 3 | 11400.00       | 39.90                    | 6.14                  | 34.62                 | 37.41             | 48.83                         | 74.00              | 25.17          | Peak   |
| 4 | 14498.00       | 41.00                    | 6.90                  | 34.45                 | 38.16             | 51.61                         | 74.00              | 22.39          | Peak   |
| 5 | 15110.00       | 40.79                    | 6.73                  | 34.56                 | 38.84             | 51.80                         | 68.20              | 16.40          | Peak   |
| 6 | 17100.00       | 41.71                    | 7.52                  | 34.39                 | 36.43             | 51.27                         | 68.20              | 16.93          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. Margin= Limit - Emission Level.  
 3. The emission levels that are 20dB below the official limit are not reported.

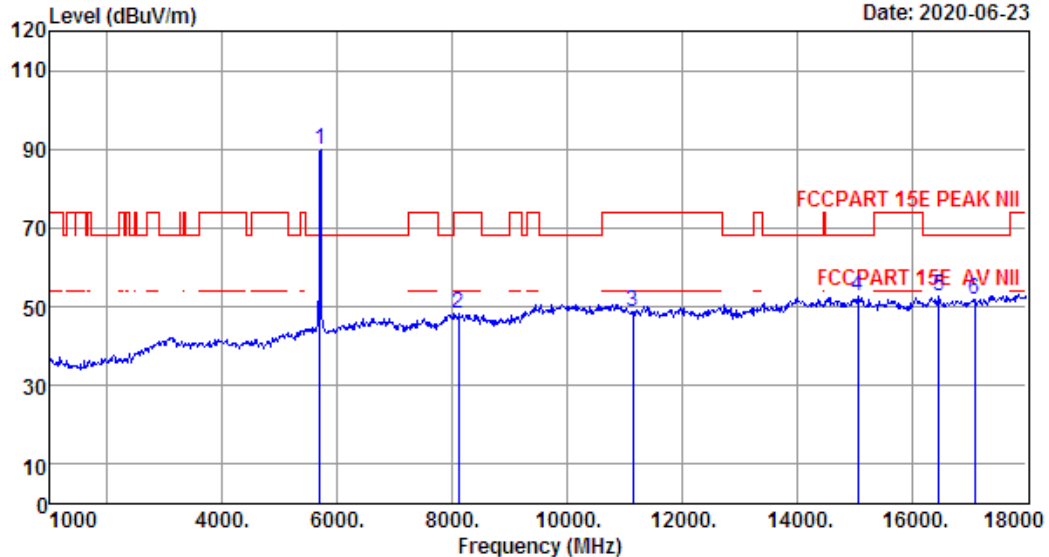
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Data: 78

File: \\Emc-966-1\test data\2020\RF\Z\ZHAOYANG\H3P3100G.EM6 (268)

Date: 2020-06-23



Site no. : 1# 966 Chamber Data no. : 78  
Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : VERTICAL  
Limit : FCCPART 15E PEAK NII  
Env. / Ins. : Temp:27.3';Humi:54%;Press:101.52kPa  
Engineer : Carlos  
EUT : Halo Smart Speaker  
Power : AC 120V/60Hz  
M/N : HSP3100G  
Test Mode : IEEE 802.11ac VHT20 TX 5700MHz  
ANT 1+ANT 2

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 5700.00        | 32.86                    | 3.94                  | 34.42                 | 87.63             | 90.01                         | 68.20              | -21.81         | Peak   |
| 2 | 8106.00        | 36.90                    | 5.69                  | 34.85                 | 40.32             | 48.06                         | 74.00              | 25.94          | Peak   |
| 3 | 11140.00       | 39.90                    | 6.12                  | 34.54                 | 37.31             | 48.79                         | 74.00              | 25.21          | Peak   |
| 4 | 15059.00       | 40.84                    | 6.77                  | 34.58                 | 39.74             | 52.77                         | 68.20              | 15.43          | Peak   |
| 5 | 16470.00       | 40.32                    | 7.11                  | 34.29                 | 39.40             | 52.54                         | 68.20              | 15.66          | Peak   |
| 6 | 17100.00       | 41.71                    | 7.52                  | 34.39                 | 37.12             | 51.96                         | 68.20              | 16.24          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
2. Margin= Limit - Emission Level.  
3. The emission levels that are 20dB below the official limit are not reported.

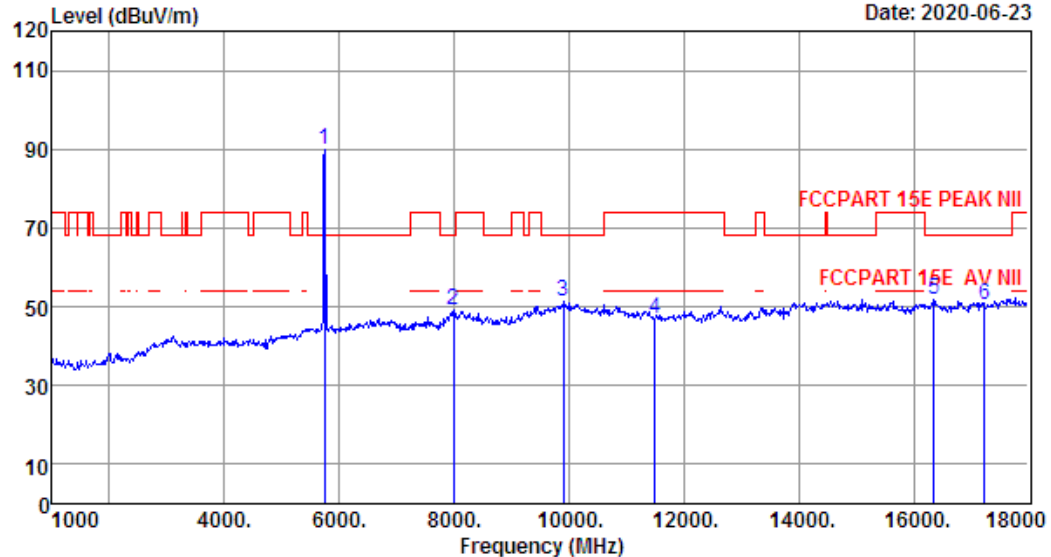
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Data: 79

File: \\Emc-966-1\test data\2020\RF\Z\ZHAOYANG\H3P3100G.EM6 (268)

Date: 2020-06-23



Site no. : 1# 966 Chamber Data no. : 79  
Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : VERTICAL  
Limit : FCCPART 15E PEAK NII  
Env. / Ins. : Temp:27.3';Humi:54%;Press:101.52kPa  
Engineer : Carlos  
EUT : Halo Smart Speaker  
Power : AC 120V/60Hz  
M/N : HSP3100G  
Test Mode : IEEE 802.11ac VHT20 TX 5745MHz  
ANT 1+ANT 2

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 5745.00        | 32.85                    | 4.00                  | 34.40                 | 87.22             | 89.67                         | 68.20              | -21.47         | Peak   |
| 2 | 7987.00        | 36.90                    | 5.80                  | 34.90                 | 41.53             | 49.33                         | 68.20              | 18.87          | Peak   |
| 3 | 9908.00        | 38.73                    | 5.82                  | 34.22                 | 41.02             | 51.35                         | 68.20              | 16.85          | Peak   |
| 4 | 11490.00       | 39.90                    | 6.15                  | 34.65                 | 35.64             | 47.04                         | 74.00              | 26.96          | Peak   |
| 5 | 16351.00       | 40.19                    | 7.06                  | 34.27                 | 38.89             | 51.87                         | 68.20              | 16.33          | Peak   |
| 6 | 17235.00       | 42.80                    | 7.65                  | 34.38                 | 34.48             | 50.55                         | 68.20              | 17.65          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
2. Margin= Limit - Emission Level.  
3. The emission levels that are 20dB below the official limit are not reported.

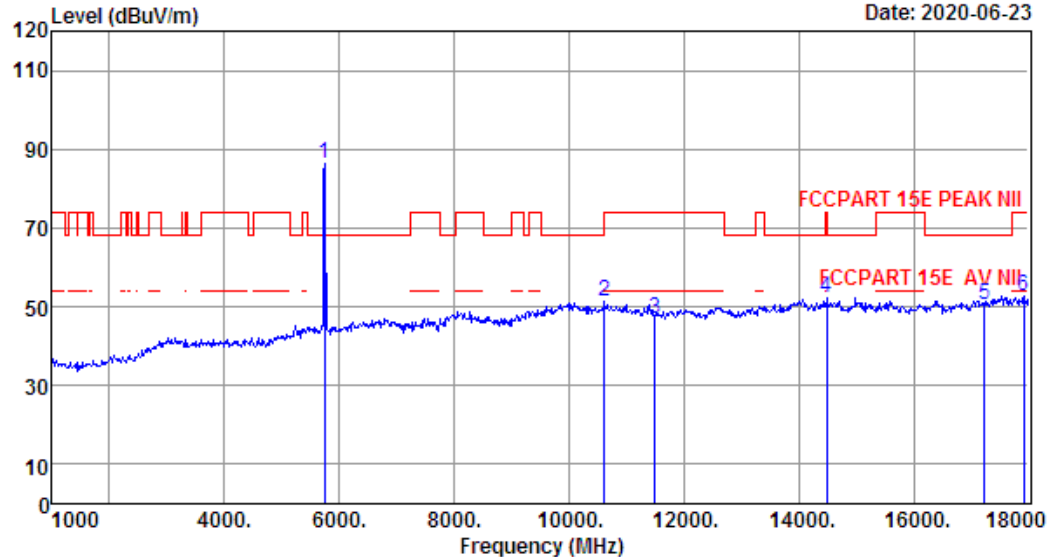
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Data: 80

File: \\Emc-966-1\test data\2020\RF\Z\ZHAOYANG\H3P3100G.EM6 (268)

Date: 2020-06-23



Site no. : 1# 966 Chamber Data no. : 80  
Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : HORIZONTAL  
Limit : FCCPART 15E PEAK NII  
Env. / Ins. : Temp:27.3';Humi:54%;Press:101.52kPa  
Engineer : Carlos  
EUT : Halo Smart Speaker  
Power : AC 120V/60Hz  
M/N : HSP3100G  
Test Mode : IEEE 802.11ac VHT20 TX 5745MHz  
ANT 1+ANT 2

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 5745.00        | 32.85                    | 4.00                  | 34.40                 | 83.89             | 86.34                         | 68.20              | -18.14         | Peak   |
| 2 | 10622.00       | 39.53                    | 6.04                  | 34.39                 | 40.08             | 51.26                         | 74.00              | 22.74          | Peak   |
| 3 | 11490.00       | 39.90                    | 6.15                  | 34.65                 | 35.75             | 47.15                         | 74.00              | 26.85          | Peak   |
| 4 | 14481.00       | 41.01                    | 6.89                  | 34.44                 | 38.86             | 52.32                         | 74.00              | 21.68          | Peak   |
| 5 | 17235.00       | 42.80                    | 7.65                  | 34.38                 | 34.57             | 50.64                         | 68.20              | 17.56          | Peak   |
| 6 | 17915.00       | 48.22                    | 8.18                  | 34.31                 | 30.66             | 52.75                         | 74.00              | 21.25          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
2. Margin= Limit - Emission Level.  
3. The emission levels that are 20dB below the official limit are not reported.

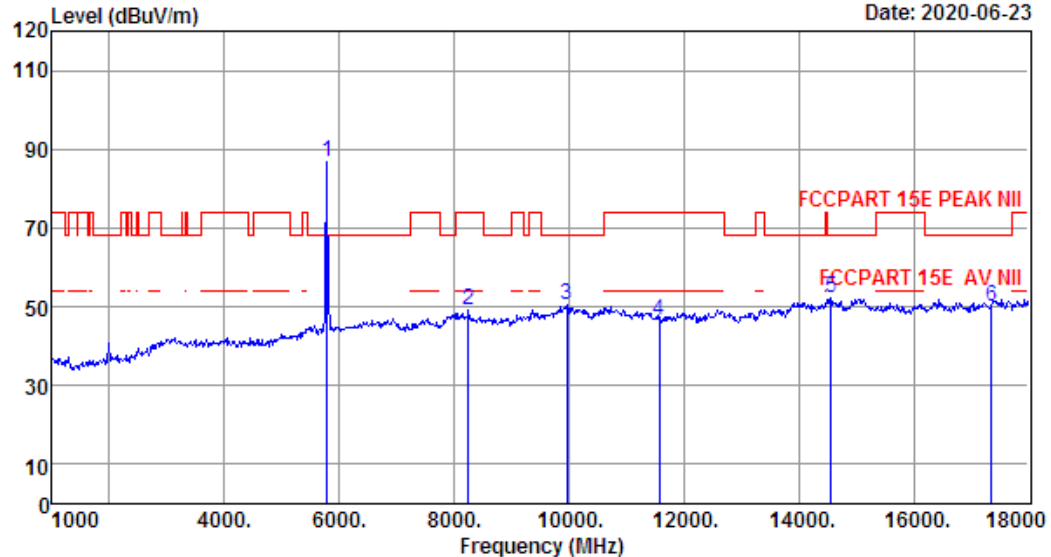
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Data: 81

File: \\Emc-966-1\test data\2020\RF\Z\ZHAOYANG\H3P3100G.EM6 (268)

Date: 2020-06-23



Site no. : 1# 966 Chamber Data no. : 81  
Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : VERTICAL  
Limit : FCCPART 15E PEAK NII  
Env. / Ins. : Temp:27.3';Humi:54%;Press:101.52kPa  
Engineer : Carlos  
EUT : Halo Smart Speaker  
Power : AC 120V/60Hz  
M/N : HSP3100G  
Test Mode : IEEE 802.11ac VHT20 TX 5785MHz  
ANT 1+ANT 2

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 5785.00        | 32.84                    | 4.05                  | 34.39                 | 84.50             | 87.00                         | 68.20              | -18.80         | Peak   |
| 2 | 8242.00        | 36.90                    | 5.52                  | 34.78                 | 41.31             | 48.95                         | 74.00              | 25.05          | Peak   |
| 3 | 9959.00        | 38.83                    | 5.86                  | 34.21                 | 39.95             | 50.43                         | 68.20              | 17.77          | Peak   |
| 4 | 11570.00       | 39.90                    | 6.12                  | 34.67                 | 35.09             | 46.44                         | 74.00              | 27.56          | Peak   |
| 5 | 14566.00       | 40.99                    | 6.89                  | 34.47                 | 38.75             | 52.16                         | 68.20              | 16.04          | Peak   |
| 6 | 17355.00       | 43.75                    | 7.77                  | 34.36                 | 33.06             | 50.22                         | 68.20              | 17.98          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
2. Margin= Limit - Emission Level.  
3. The emission levels that are 20dB below the official  
limit are not reported.

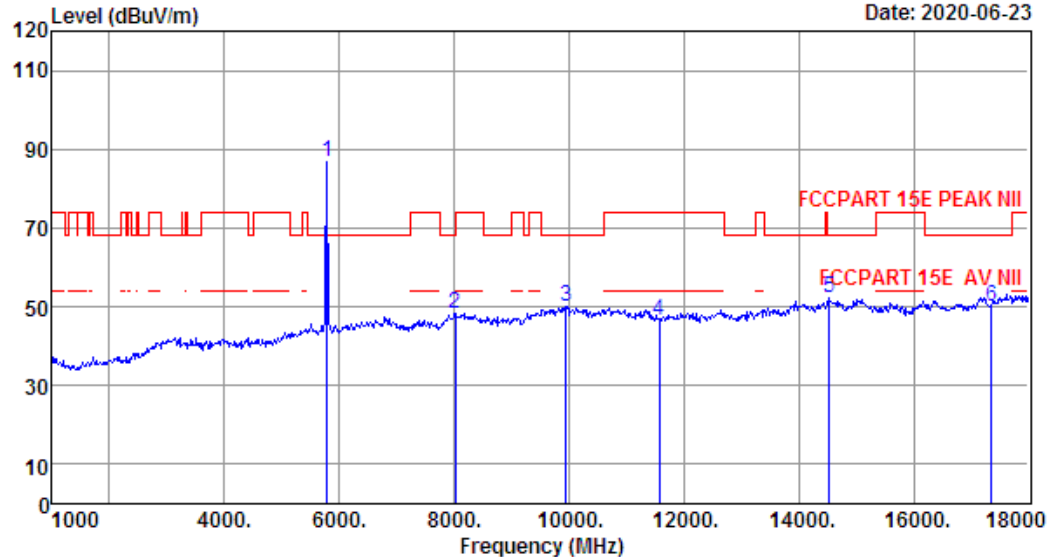
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Data: 82

File: \\Emc-966-1\test data\2020\RF\Z\ZHAOYANG\H3P3100G.EM6 (268)

Date: 2020-06-23



Site no. : 1# 966 Chamber Data no. : 82  
 Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : HORIZONTAL  
 Limit : FCCPART 15E PEAK NII  
 Env. / Ins. : Temp:27.3';Humi:54%;Press:101.52kPa  
 Engineer : Carlos  
 EUT : Halo Smart Speaker  
 Power : AC 120V/60Hz  
 M/N : HSP3100G  
 Test Mode : IEEE 802.11ac VHT20 TX 5785MHz  
 ANT 1+ANT 2

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 5785.00        | 32.84                    | 4.05                  | 34.39                 | 84.31             | 86.81                         | 68.20              | -18.61         | Peak   |
| 2 | 8021.00        | 36.90                    | 5.80                  | 34.89                 | 40.43             | 48.24                         | 68.20              | 19.96          | Peak   |
| 3 | 9942.00        | 38.80                    | 5.85                  | 34.21                 | 39.81             | 50.25                         | 68.20              | 17.95          | Peak   |
| 4 | 11570.00       | 39.90                    | 6.12                  | 34.67                 | 35.27             | 46.62                         | 74.00              | 27.38          | Peak   |
| 5 | 14532.00       | 40.99                    | 6.89                  | 34.46                 | 38.82             | 52.24                         | 68.20              | 15.96          | Peak   |
| 6 | 17355.00       | 43.75                    | 7.77                  | 34.36                 | 33.10             | 50.26                         | 68.20              | 17.94          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. Margin= Limit - Emission Level.  
 3. The emission levels that are 20dB below the official limit are not reported.

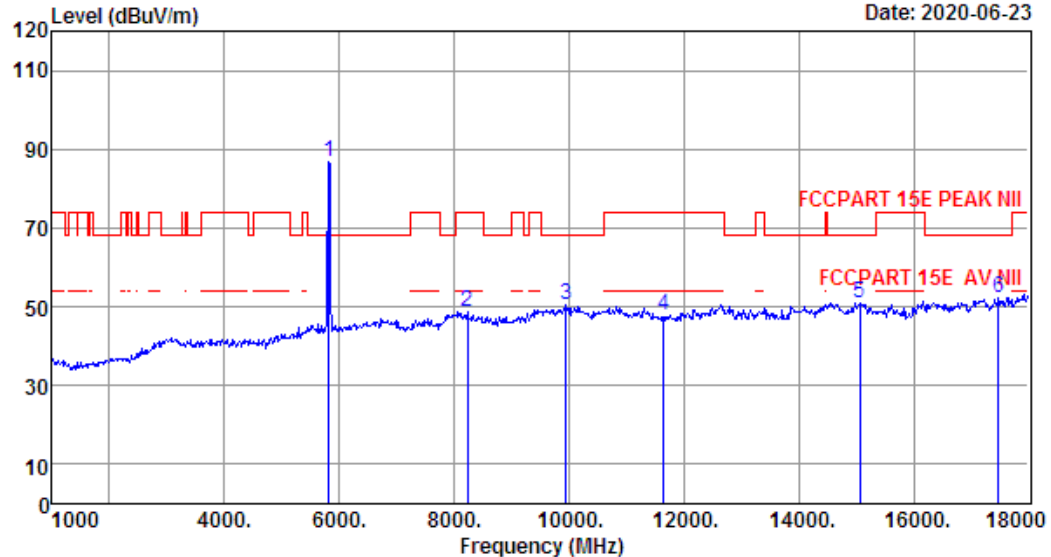
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Data: 83

File: \\Emc-966-1\test data\2020\RF\Z\ZHAOYANG\H3P3100G.EM6 (268)

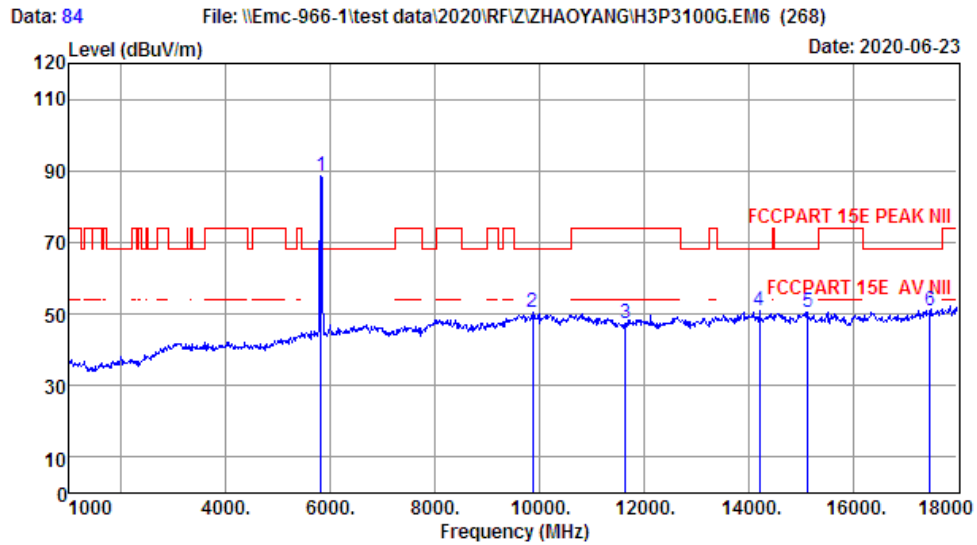
Date: 2020-06-23



Site no. : 1# 966 Chamber Data no. : 83  
 Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : HORIZONTAL  
 Limit : FCCPART 15E PEAK NII  
 Env. / Ins. : Temp:27.3';Humi:54%;Press:101.52kPa  
 Engineer : Carlos  
 EUT : Halo Smart Speaker  
 Power : AC 120V/60Hz  
 M/N : HSP3100G  
 Test Mode : IEEE 802.11ac VHT20 TX 5825MHz  
 ANT 1+ANT 2

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 5825.00        | 32.83                    | 4.11                  | 34.37                 | 84.37             | 86.94                         | 68.20              | -18.74         | Peak   |
| 2 | 8225.00        | 36.90                    | 5.54                  | 34.79                 | 41.04             | 48.69                         | 74.00              | 25.31          | Peak   |
| 3 | 9942.00        | 38.80                    | 5.85                  | 34.21                 | 39.89             | 50.33                         | 68.20              | 17.87          | Peak   |
| 4 | 11650.00       | 39.90                    | 6.08                  | 34.69                 | 36.51             | 47.80                         | 74.00              | 26.20          | Peak   |
| 5 | 15059.00       | 40.84                    | 6.77                  | 34.58                 | 37.88             | 50.91                         | 68.20              | 17.29          | Peak   |
| 6 | 17475.00       | 44.70                    | 7.89                  | 34.35                 | 33.82             | 52.06                         | 68.20              | 16.14          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. Margin= Limit - Emission Level.  
 3. The emission levels that are 20dB below the official limit are not reported.



Site no. : 1# 966 Chamber Data no. : 84  
 Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : VERTICAL  
 Limit : FCCPART 15E PEAK NII  
 Env. / Ins. : Temp:27.3';Humi:54%;Press:101.52kPa  
 Engineer : Carlos  
 EUT : Halo Smart Speaker  
 Power : AC 120V/60Hz  
 M/N : HSP3100G  
 Test Mode : IEEE 802.11ac VHT20 TX 5825MHz  
 ANT 1+ANT 2

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 5825.00        | 32.83                    | 4.11                  | 34.37                 | 85.84             | 88.41                         | 68.20              | -20.21         | Peak   |
| 2 | 9874.00        | 38.66                    | 5.80                  | 34.22                 | 40.32             | 50.56                         | 68.20              | 17.64          | Peak   |
| 3 | 11650.00       | 39.90                    | 6.08                  | 34.69                 | 36.30             | 47.59                         | 74.00              | 26.41          | Peak   |
| 4 | 14209.00       | 41.06                    | 6.68                  | 34.36                 | 37.39             | 50.77                         | 68.20              | 17.43          | Peak   |
| 5 | 15144.00       | 40.75                    | 6.71                  | 34.54                 | 37.51             | 50.43                         | 68.20              | 17.77          | Peak   |
| 6 | 17475.00       | 44.70                    | 7.89                  | 34.35                 | 32.71             | 50.95                         | 68.20              | 17.25          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. Margin= Limit - Emission Level.  
 3. The emission levels that are 20dB below the official limit are not reported.

## Note:

1. The amplitude of 18GHz to 40GHz spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.
2. All test mode had been pre-test, only Low/Middle/High Channel of the worst case modulation mode was reported

## Band Edge

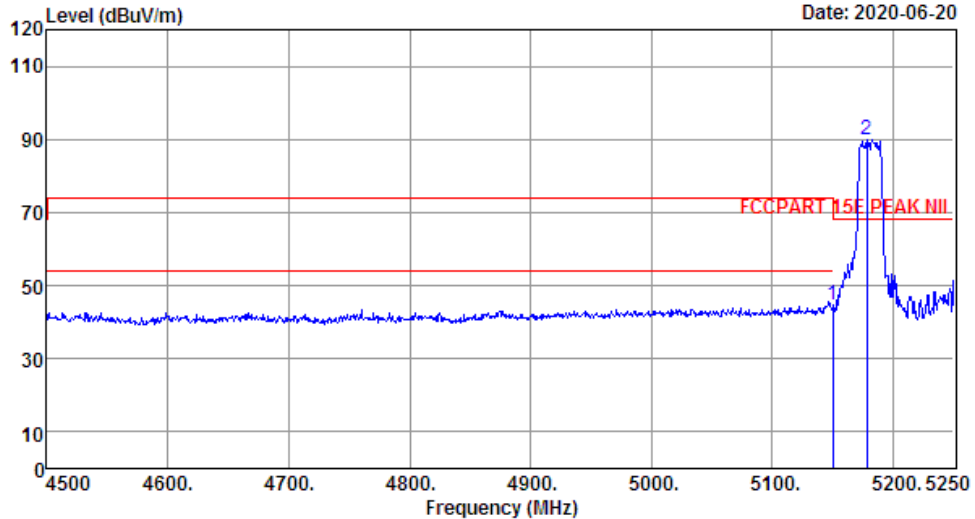
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Data: 85

File: \\Emc-966-1\test data\2020\RF\Z\ZHAOYANG\H3P3100G.EM6 (268)

Date: 2020-06-20



Site no. : 1# 966 Chamber      Data no. : 85  
 Dis. / Ant. : 3m 9120D 1-18G      Ant. pol. : HORIZONTAL  
 Limit : FCCPART 15E PEAK NII  
 Env. / Ins. : Temp:27.3'; Humi:54%; Press:101.52kPa  
 Engineer : Carlos  
 EUT : Halo Smart Speaker  
 Power : AC 120V/60Hz  
 M/N : HSP3100G  
 Test Mode : IEEE 802.11ac VHT20 TX 5180MHz  
               ANT 1+ANT 2

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 5150.00        | 32.13                    | 3.50                  | 34.64                 | 43.57             | 44.56                         | 68.20              | 23.64          | Peak   |
| 2 | 5178.00        | 32.20                    | 3.52                  | 34.63                 | 88.88             | 89.97                         | 68.20              | -21.77         | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. Margin= Limit - Emission Level.  
 3. The emission levels that are 20dB below the official limit are not reported.

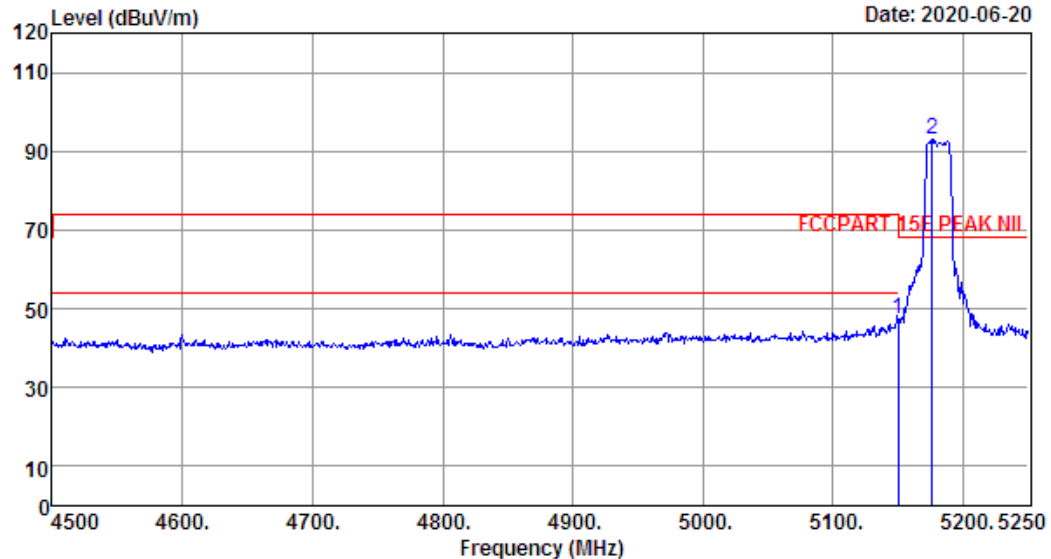
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Data: 86

File: \\Emc-966-1\test data\2020\RF\Z\ZHAOYANG\H3P3100G.EM6 (268)

Date: 2020-06-20



Site no. : 1# 966 Chamber Data no. : 86  
 Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : VERTICAL  
 Limit : FCCPART 15E PEAK NII  
 Env. / Ins. : Temp:27.3';Humi:54%;Press:101.52kPa  
 Engineer : Carlos  
 EUT : Halo Smart Speaker  
 Power : AC 120V/60Hz  
 M/N : HSP3100G  
 Test Mode : IEEE 802.11ac VHT20 TX 5180MHz  
 ANT 1+ANT 2

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 5150.00        | 32.13                    | 3.50                  | 34.64                 | 46.25             | 47.24                         | 68.20              | 20.96          | Peak   |
| 2 | 5175.75        | 32.20                    | 3.52                  | 34.63                 | 91.89             | 92.98                         | 68.20              | -24.78         | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. Margin= Limit - Emission Level.  
 3. The emission levels that are 20dB below the official limit are not reported.

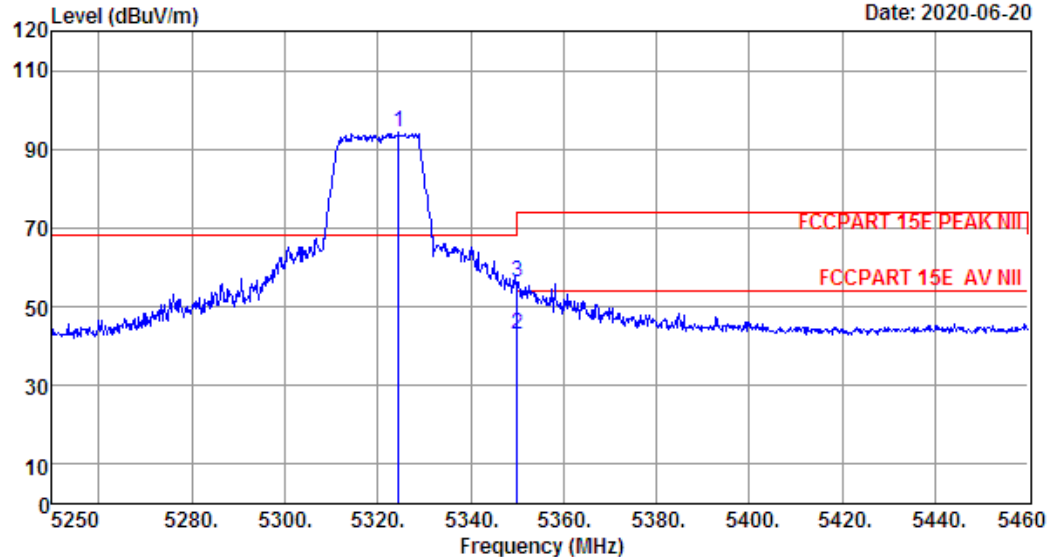
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Data: 87

File: \\Emc-966-1\test data\2020\RF\Z\ZHAOYANG\H3P3100G.EM6 (268)

Date: 2020-06-20



Site no. : 1# 966 Chamber Data no. : 87  
 Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : VERTICAL  
 Limit : FCCPART 15E PEAK NII  
 Env. / Ins. : Temp:27.3';Humi:54%;Press:101.52kPa  
 Engineer : Carlos  
 EUT : Halo Smart Speaker  
 Power : AC 120V/60Hz  
 M/N : HSP3100G  
 Test Mode : IEEE 802.11ac VHT20 TX 5320MHz  
 ANT 1+ANT 2

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark  |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|---------|
| 1 | 5324.55        | 32.50                    | 3.60                  | 34.57                 | 92.70             | 94.23                         | 68.20              | -26.03         | Peak    |
| 2 | 5350.00        | 32.57                    | 3.62                  | 34.56                 | 41.50             | 43.13                         | 54.00              | 10.87          | Average |
| 3 | 5350.00        | 32.57                    | 3.62                  | 34.56                 | 54.56             | 56.19                         | 68.20              | 12.01          | Peak    |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. Margin= Limit - Emission Level.  
 3. The emission levels that are 20dB below the official limit are not reported.

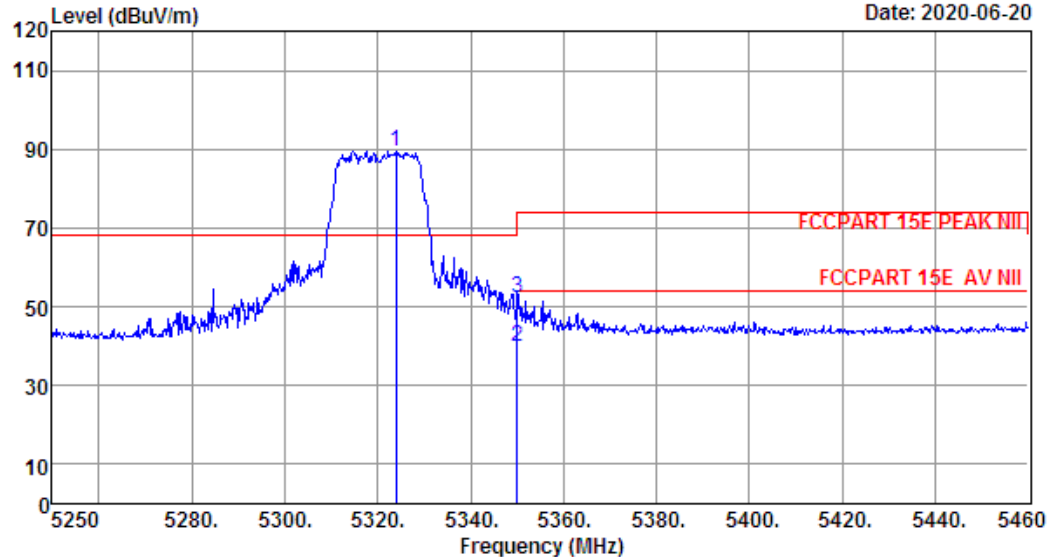
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Data: 88

File: \\Emc-966-1\test data\2020\RF\Z\ZHAOYANG\H3P3100G.EM6 (268)

Date: 2020-06-20



Site no. : 1# 966 Chamber Data no. : 88  
 Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : HORIZONTAL  
 Limit : FCCPART 15E PEAK NII  
 Env. / Ins. : Temp:27.3';Humi:54%;Press:101.52kPa  
 Engineer : Carlos  
 EUT : Halo Smart Speaker  
 Power : AC 120V/60Hz  
 M/N : HSP3100G  
 Test Mode : IEEE 802.11ac VHT20 TX 5320MHz  
 ANT 1+ANT 2

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark  |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|---------|
| 1 | 5323.92        | 32.50                    | 3.60                  | 34.57                 | 88.13             | 89.66                         | 68.20              | -21.46         | Peak    |
| 2 | 5350.00        | 32.57                    | 3.62                  | 34.56                 | 38.43             | 40.06                         | 54.00              | 13.94          | Average |
| 3 | 5350.00        | 32.57                    | 3.62                  | 34.56                 | 50.83             | 52.46                         | 68.20              | 15.74          | Peak    |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. Margin= Limit - Emission Level.  
 3. The emission levels that are 20dB below the official limit are not reported.

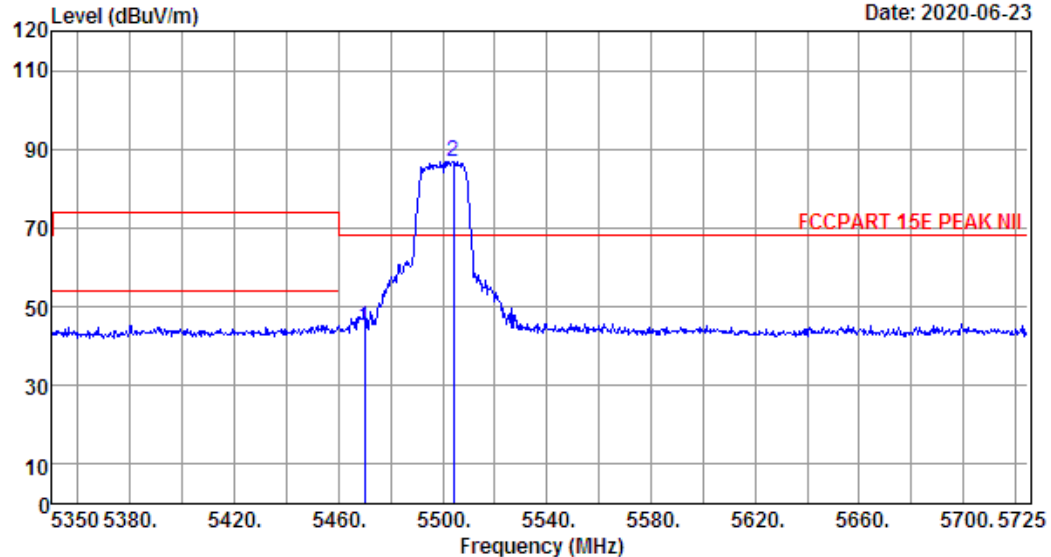
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Data: 89

File: \\Emc-966-1\test data\2020\RF\Z\ZHAOYANG\H3P3100G.EM6 (268)

Date: 2020-06-23



Site no. : 1# 966 Chamber Data no. : 89  
 Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : HORIZONTAL  
 Limit : FCCPART 15E PEAK NII  
 Env. / Ins. : Temp:27.3';Humi:54%;Press:101.52kPa  
 Engineer : Carlos  
 EUT : Halo Smart Speaker  
 Power : AC 120V/60Hz  
 M/N : HSP3100G  
 Test Mode : IEEE 802.11ac VHT20 TX 5500MHz  
 ANT 1+ANT 2

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 5470.00        | 32.83                    | 3.69                  | 34.51                 | 42.89             | 44.90                         | 68.20              | 23.30          | Peak   |
| 2 | 5504.13        | 32.90                    | 3.71                  | 34.50                 | 84.78             | 86.89                         | 68.20              | -18.69         | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. Margin= Limit - Emission Level.  
 3. The emission levels that are 20dB below the official limit are not reported.

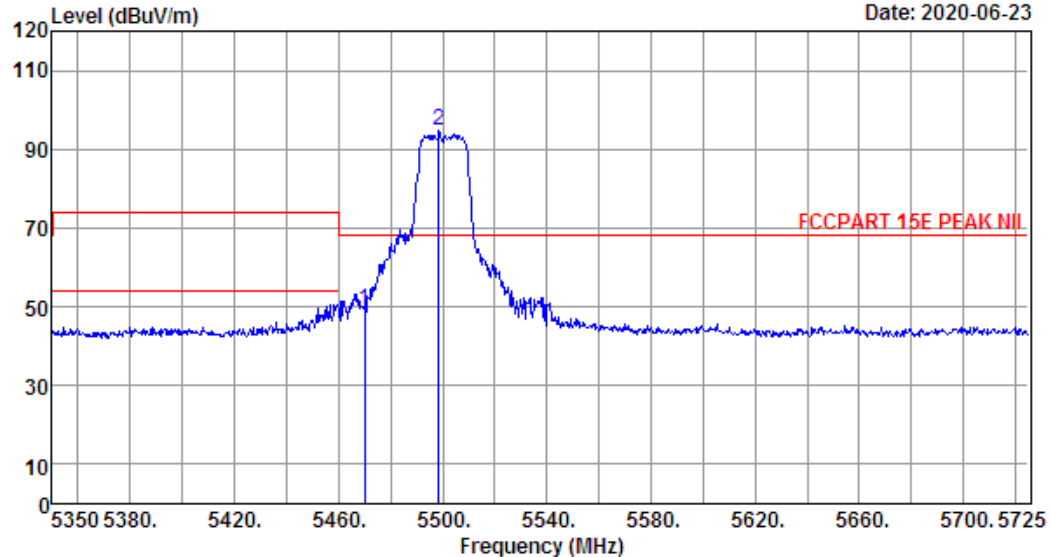
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Data: 90

File: \\Emc-966-1\test data\2020\RF\Z\ZHAOYANG\H3P3100G.EM6 (268)

Date: 2020-06-23



Site no. : 1# 966 Chamber Data no. : 90  
Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : VERTICAL  
Limit : FCCPART 15E PEAK NII  
Env. / Ins. : Temp:27.3';Humi:54%;Press:101.52kPa  
Engineer : Carlos  
EUT : Halo Smart Speaker  
Power : AC 120V/60Hz  
M/N : HSP3100G  
Test Mode : IEEE 802.11ac VHT20 TX 5500MHz  
ANT 1+ANT 2

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 5470.00        | 0.00                     | 3.69                  | 34.51                 | 79.77             | 48.95                         | 68.20              | 19.25          | Peak   |
| 2 | 5498.50        | 32.90                    | 3.71                  | 34.50                 | 92.47             | 94.58                         | 68.20              | -26.38         | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
2. Margin= Limit - Emission Level.  
3. The emission levels that are 20dB below the official limit are not reported.

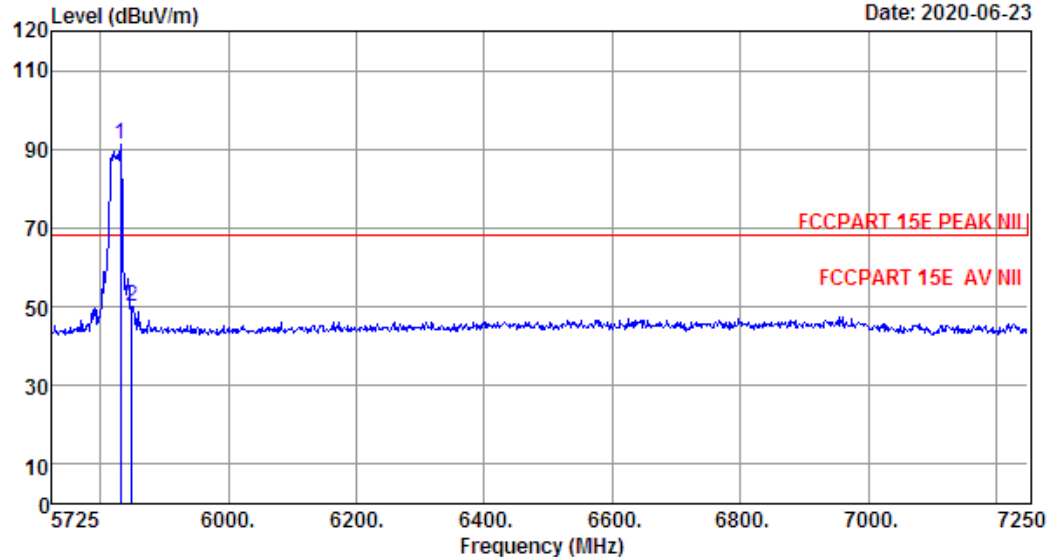
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Data: 91

File: \\Emc-966-1\test data\2020\RF\Z\ZHAOYANG\H3P3100G.EM6 (268)

Date: 2020-06-23



Site no. : 1# 966 Chamber Data no. : 91  
Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : VERTICAL  
Limit : FCCPART 15E PEAK NII  
Env. / Ins. : Temp:27.3';Humi:54%;Press:101.52kPa  
Engineer : Carlos  
EUT : Halo Smart Speaker  
Power : AC 120V/60Hz  
M/N : HSP3100G  
Test Mode : IEEE 802.11ac VHT20 TX 5825MHz  
ANT 1+ANT 2

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 5831.75        | 32.83                    | 4.11                  | 34.37                 | 88.71             | 91.28                         | 68.20              | -23.08         | Peak   |
| 2 | 5850.00        | 32.83                    | 4.13                  | 34.36                 | 47.29             | 49.89                         | 68.20              | 18.31          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
2. Margin= Limit - Emission Level.  
3. The emission levels that are 20dB below the official limit are not reported.

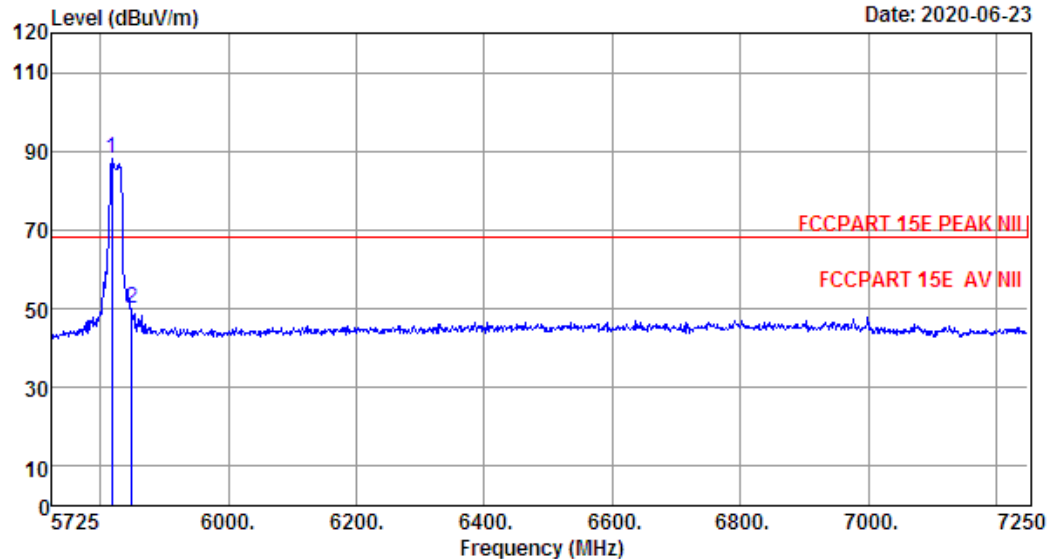
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Data: 92

File: \\Emc-966-1\test data\2020\RF\Z\ZHAOYANG\H3P3100G.EM6 (268)

Date: 2020-06-23

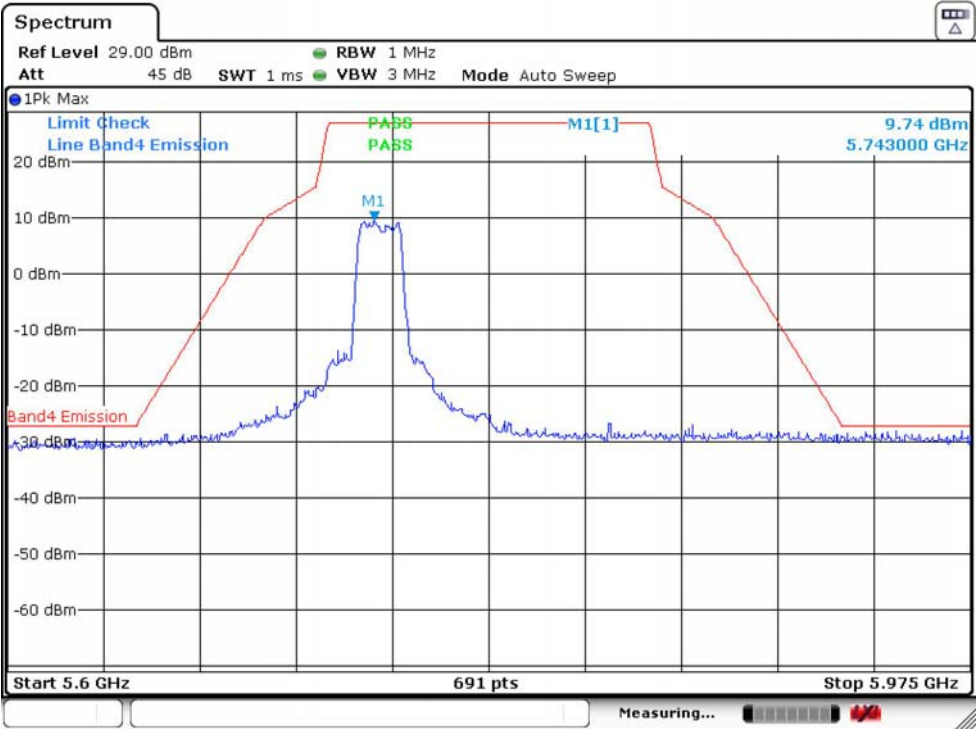


Site no. : 1# 966 Chamber Data no. : 92  
Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : HORIZONTAL  
Limit : FCCPART 15E PEAK NII  
Env. / Ins. : Temp:27.3';Humi:54%;Press:101.52kPa  
Engineer : Carlos  
EUT : Halo Smart Speaker  
Power : AC 120V/60Hz  
M/N : HSP3100G  
Test Mode : IEEE 802.11ac VHT20 TX 5825MHz  
ANT 1+ANT 2

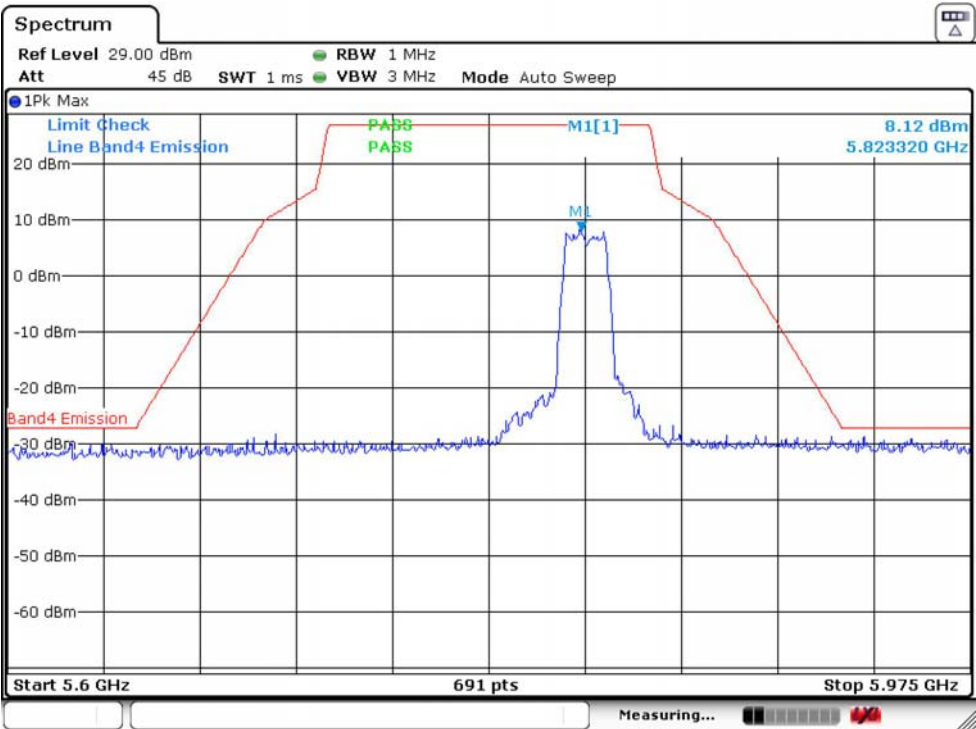
|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 5818.03        | 32.84                    | 4.09                  | 34.37                 | 85.63             | 88.19                         | 68.20              | -19.99         | Peak   |
| 2 | 5850.05        | 32.83                    | 4.13                  | 34.36                 | 47.54             | 50.14                         | 68.20              | 18.06          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
2. Margin= Limit - Emission Level.  
3. The emission levels that are 20dB below the official limit are not reported.

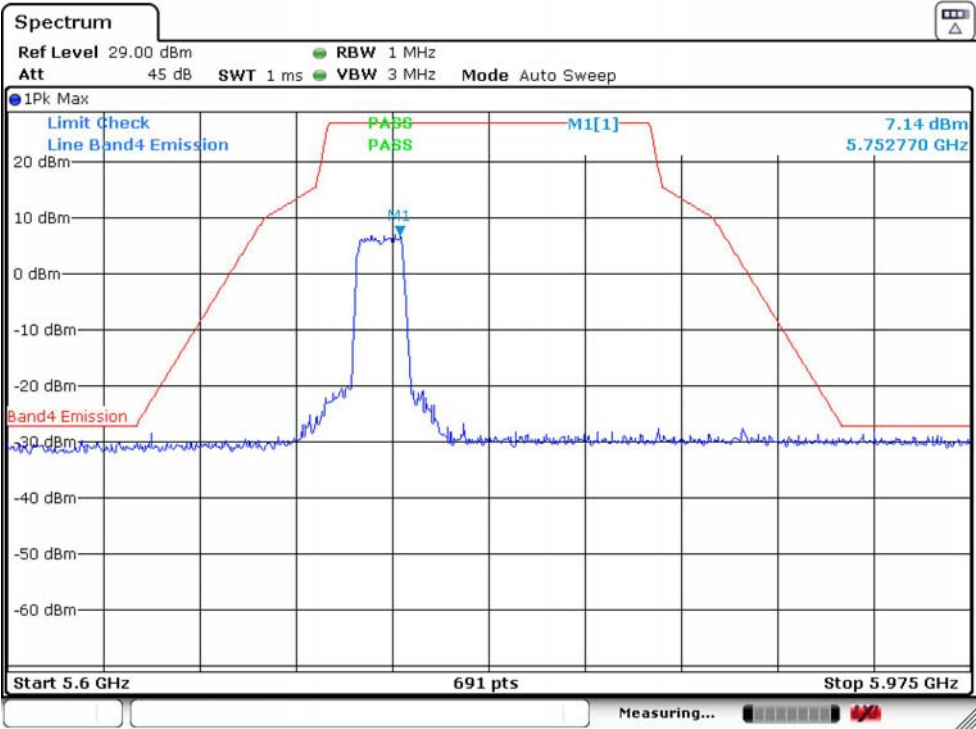
IEEE 802.11a 5745MHzMHz



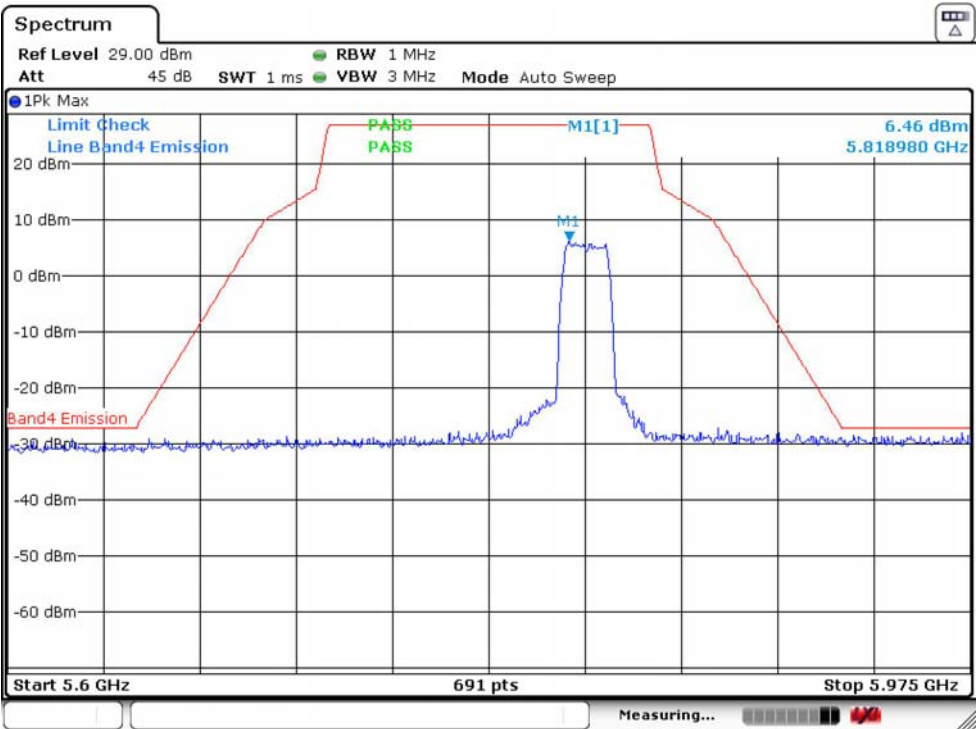
IEEE 802.11a 5825MHzMHz



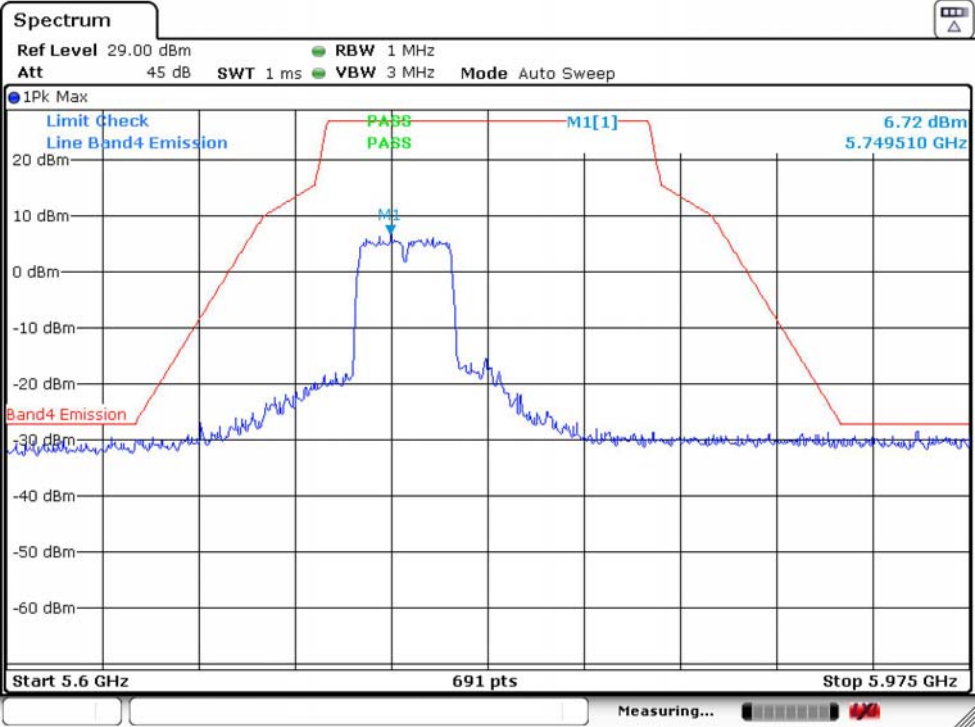
IEEE 802.11n HT20 5745MHz



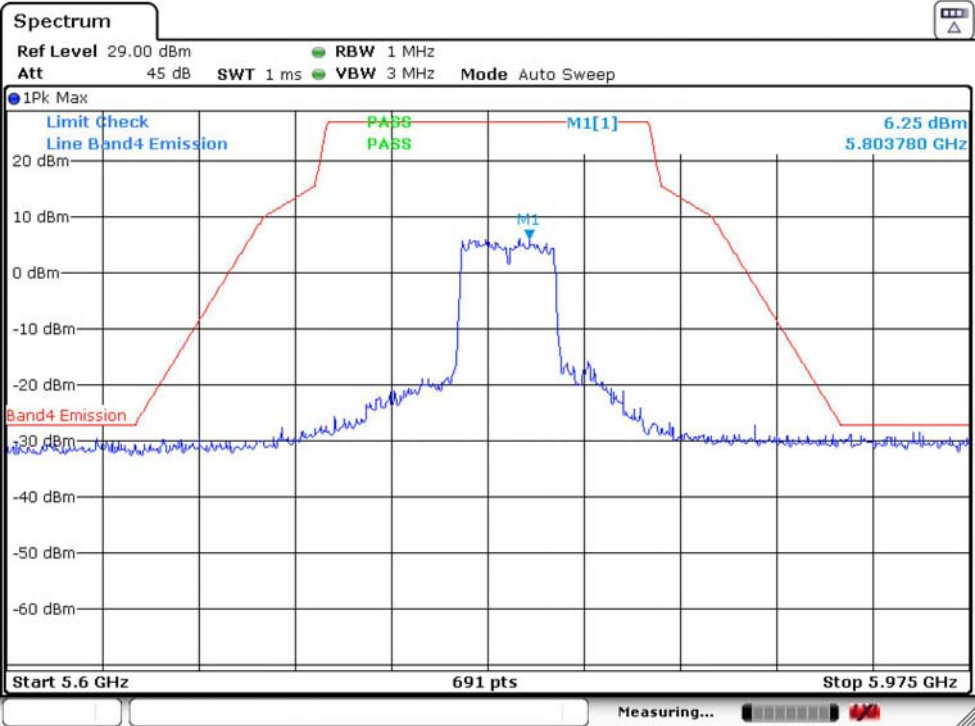
IEEE 802.11n HT20 5825MHz



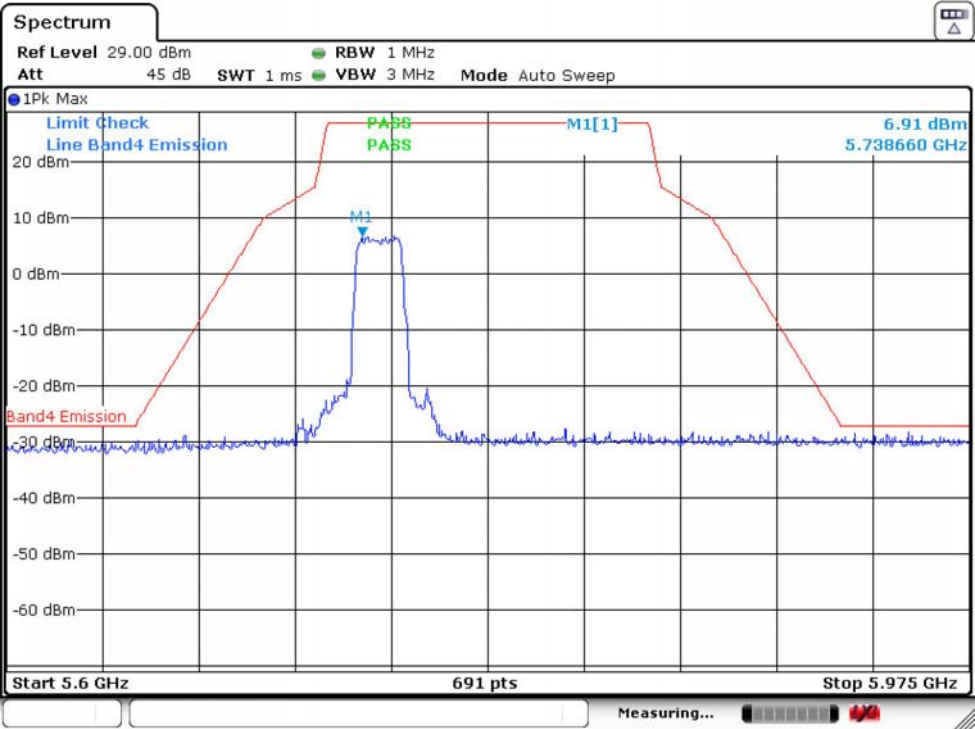
IEEE 802.11n HT40 5755MHz



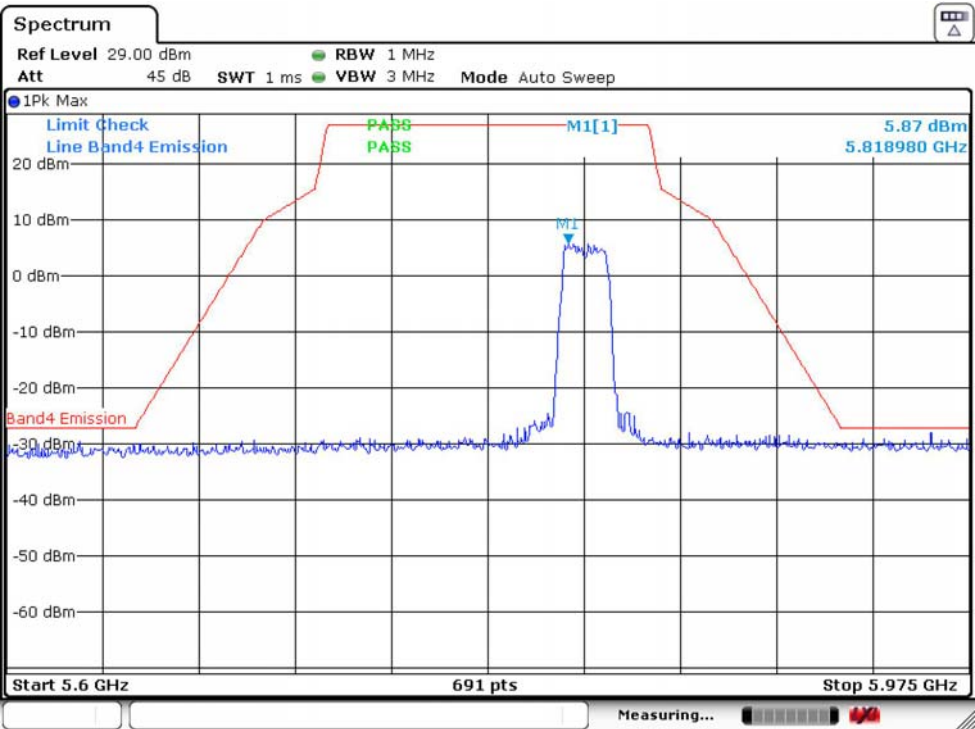
IEEE 802.11n HT40 5795MHz



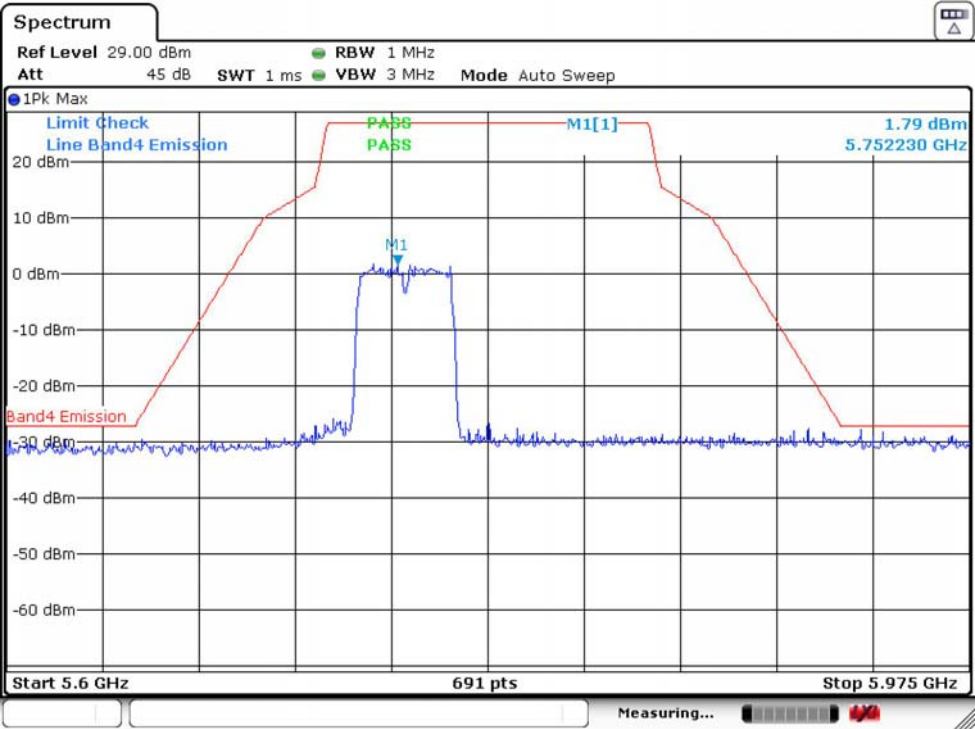
IEEE 802.11ac VHT20 5745MHz



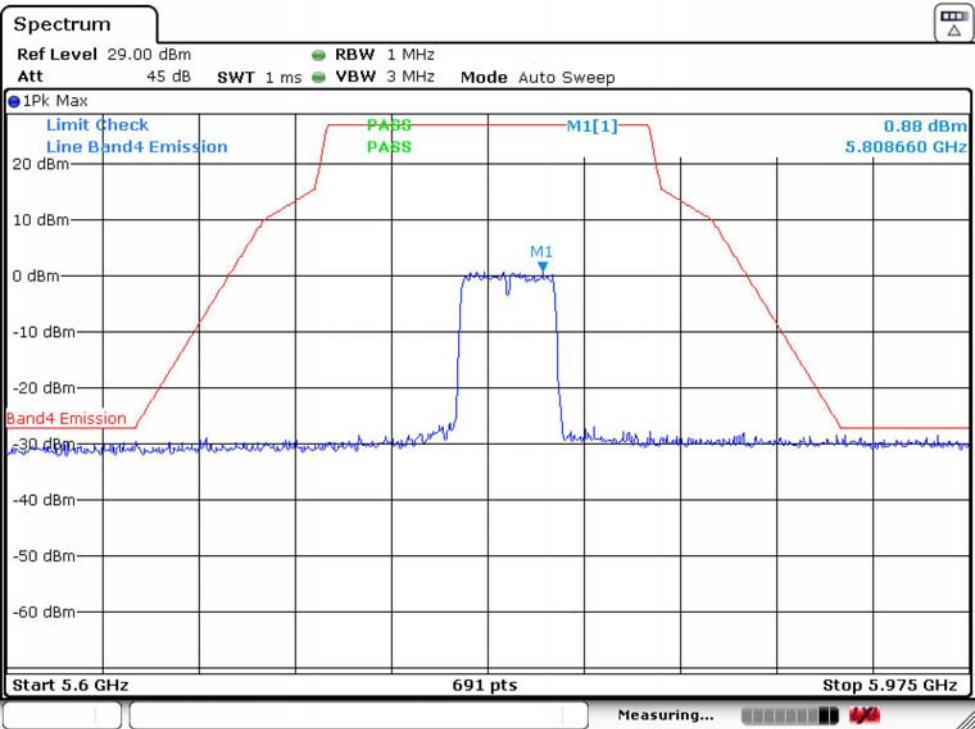
IEEE 802.11ac VHT20 5825MHz



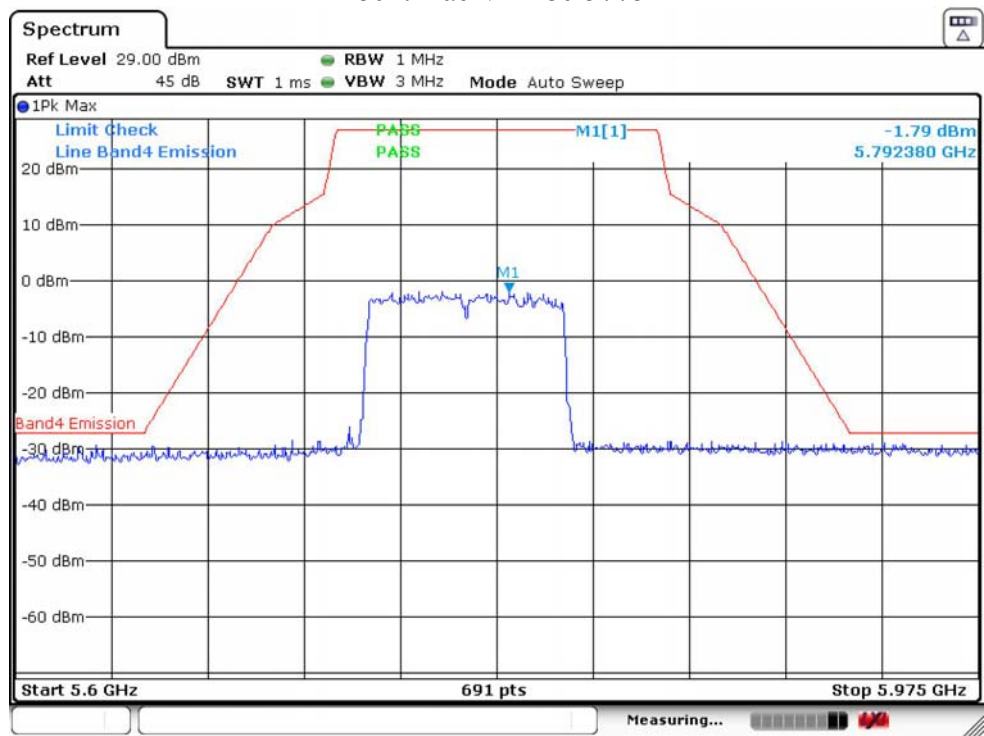
IEEE 802.11ac VHT40 5755MHz



IEEE 802.11ac VHT40 5795MHz



IEEE 802.11ac VHT80 5775MHz



All modulations are all tested ,only worse case is reported

**18000MHz-40000MHz**

Pass

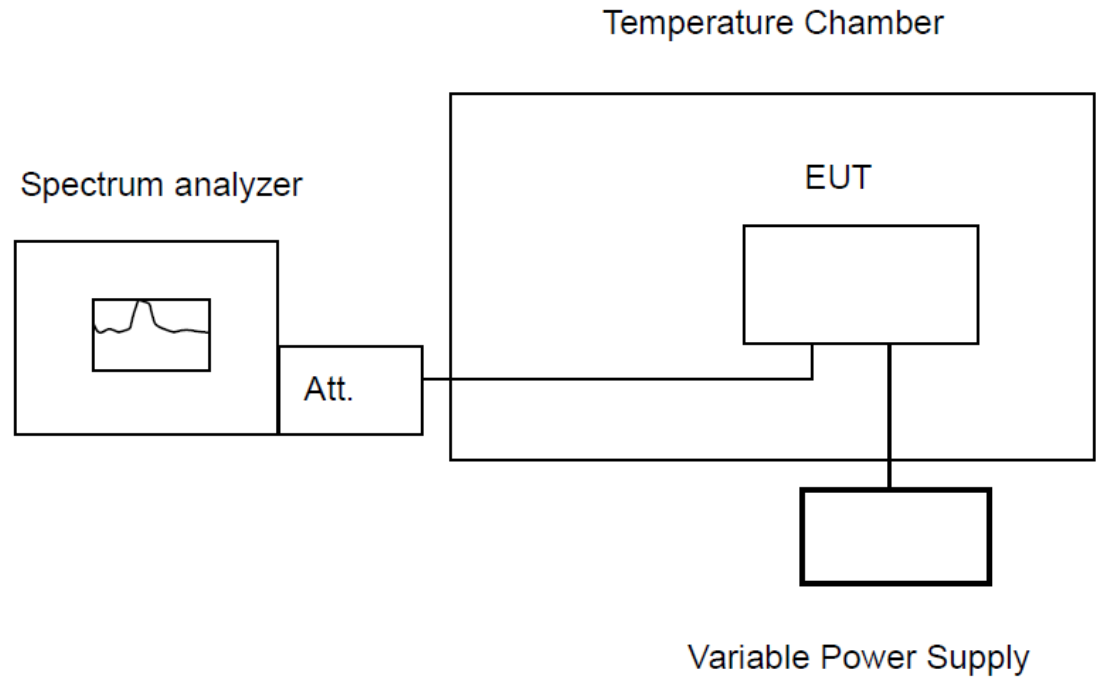
Note: The amplitude of spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.

7. FREQUENCY STABILITY

7.1. Limit

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the operational description.

7.2. Test Setup



7.3. Spectrum Analyzer Setting

| Spectrum Parameters | Setting  |
|---------------------|----------|
| RBW                 | 10KHz    |
| VBW                 | 10KHz    |
| Span                | 200KHz   |
| Sweep Time          | Auto     |
| Detector            | PEAK     |
| Trace Mode          | Max Hold |

## 7.4. Test Procedure

### **For measurement frequency stability under temperature variation :**

- a. Supply the EUT with a nominal ac voltage or install a new or fully charged battery in the EUT.
- b. Turn the EUT OFF and place it inside the environmental temperature chamber.
- c. Connect EUT antenna terminal to the spectrum analyzer with RF cable.
- d. Spectrum analyzer setting parameters in accordance with section 7.3.
- e. Set the temperature control on the chamber to the Specified temperature and allow the oscillator heater and the chamber temperature to stabilize.
- f. Turn the EUT ON with the rated voltage, and the EUT transmit continuously with maximum output power.
- g. Record the operating frequency at startup, and at 2 minutes, 5 minutes, and 10 minutes after the EUT is energized.
- h. Repeat step d through step f to measured the temperature form  $-20^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$  in  $10^{\circ}\text{C}$  steps.

### **For frequency stability under voltage variation:**

- a. Supply the EUT with a nominal ac voltage or install a new or fully charged battery in the EUT.
- b. Turn the EUT OFF and place it inside the environmental temperature chamber.
- c. Connect EUT antenna terminal to the spectrum analyzer with RF cable.
- d. Spectrum analyzer setting parameters in accordance with section 7.3.
- e. Unless otherwise specified, set the temperature control on the chamber to the ambient room temperature ( $+15^{\circ}\text{C}$  to  $+25^{\circ}\text{C}$ ) and allow the oscillator heater and the chamber temperature to stabilize.
- f. Turn the EUT ON with the rated voltage, and the EUT transmit continuously with maximum output power.
- g. Record the operating frequency.
- h. Repeat step d through step f to measured the varied from 85% to 115% of the rated voltage.

## 7.5. Test Result

| Frequency (MHz) | Voltage (V)                    | Temperature (°C) | Time (minutes) | Measurement Value (MHz) | Frequency Error (ppm) |
|-----------------|--------------------------------|------------------|----------------|-------------------------|-----------------------|
| 5180            | 120                            | 50               | 0              | 5179.9840020            | -3.09                 |
|                 |                                |                  | 2              | 5179.9840090            | -3.09                 |
|                 |                                |                  | 5              | 5179.9840040            | -3.09                 |
|                 |                                |                  | 10             | 5179.9840000            | -3.09                 |
|                 | 120                            | 40               | 0              | 5179.9840080            | -3.09                 |
|                 |                                |                  | 2              | 5179.9840060            | -3.09                 |
|                 |                                |                  | 5              | 5179.9840070            | -3.09                 |
|                 |                                |                  | 10             | 5179.9840010            | -3.09                 |
|                 | 120                            | 30               | 0              | 5179.9840070            | -3.09                 |
|                 |                                |                  | 2              | 5179.9840000            | -3.09                 |
|                 |                                |                  | 5              | 5179.9840040            | -3.09                 |
|                 |                                |                  | 10             | 5179.9840080            | -3.09                 |
|                 | 120                            | 20               | 0              | 5179.9840080            | -3.09                 |
|                 |                                |                  | 2              | 5179.9840020            | -3.09                 |
|                 |                                |                  | 5              | 5179.9840030            | -3.09                 |
|                 |                                |                  | 10             | 5179.9840090            | -3.09                 |
|                 | 120                            | 10               | 0              | 5179.9840060            | -3.09                 |
|                 |                                |                  | 2              | 5179.9840090            | -3.09                 |
|                 |                                |                  | 5              | 5179.9840060            | -3.09                 |
|                 |                                |                  | 10             | 5179.9840030            | -3.09                 |
|                 | 120                            | 0                | 0              | 5179.9840090            | -3.09                 |
|                 |                                |                  | 2              | 5179.9840000            | -3.09                 |
|                 |                                |                  | 5              | 5179.9840000            | -3.09                 |
|                 |                                |                  | 10             | 5179.9840010            | -3.09                 |
|                 | 120                            | -10              | 0              | 5179.9840040            | -3.09                 |
|                 |                                |                  | 2              | 5179.9840000            | -3.09                 |
|                 |                                |                  | 5              | 5179.9840090            | -3.09                 |
|                 |                                |                  | 10             | 5179.9840080            | -3.09                 |
|                 | 120                            | -20              | 0              | 5179.9840070            | -3.09                 |
|                 |                                |                  | 2              | 5179.9840070            | -3.09                 |
|                 |                                |                  | 5              | 5179.9840050            | -3.09                 |
|                 |                                |                  | 10             | 5179.9840020            | -3.09                 |
|                 | 120                            | 20               | /              | 5179.9840040            | -3.09                 |
|                 | 102                            | 20               | /              | 5179.9840070            | -3.09                 |
|                 | 138                            | 20               | /              | 5179.9840080            | -3.09                 |
|                 | <b>MAX Frquency Error(ppm)</b> |                  |                |                         | <b>-3.09</b>          |

| Frequency (MHz)         | Voltage (V) | Temperature (°C) | Time (minutes) | Measurement Value (MHz) | Frequency Error (ppm) |
|-------------------------|-------------|------------------|----------------|-------------------------|-----------------------|
| 5320                    | 120         | 50               | 0              | 5319.9810070            | -3.57                 |
|                         |             |                  | 2              | 5319.9810060            | -3.57                 |
|                         |             |                  | 5              | 5319.9810070            | -3.57                 |
|                         |             |                  | 10             | 5319.9810070            | -3.57                 |
|                         | 120         | 40               | 0              | 5319.9810070            | -3.57                 |
|                         |             |                  | 2              | 5319.9810070            | -3.57                 |
|                         |             |                  | 5              | 5319.9810000            | -3.57                 |
|                         |             |                  | 10             | 5319.9810060            | -3.57                 |
|                         | 120         | 30               | 0              | 5319.9810000            | -3.57                 |
|                         |             |                  | 2              | 5319.9810030            | -3.57                 |
|                         |             |                  | 5              | 5319.9810000            | -3.57                 |
|                         |             |                  | 10             | 5319.9810020            | -3.57                 |
|                         | 120         | 20               | 0              | 5319.9810090            | -3.57                 |
|                         |             |                  | 2              | 5319.9810000            | -3.57                 |
|                         |             |                  | 5              | 5319.9810000            | -3.57                 |
|                         |             |                  | 10             | 5319.9810010            | -3.57                 |
|                         | 120         | 10               | 0              | 5319.9810080            | -3.57                 |
|                         |             |                  | 2              | 5319.9810040            | -3.57                 |
|                         |             |                  | 5              | 5319.9810000            | -3.57                 |
|                         |             |                  | 10             | 5319.9810030            | -3.57                 |
|                         | 120         | 0                | 0              | 5319.9810050            | -3.57                 |
|                         |             |                  | 2              | 5319.9810020            | -3.57                 |
|                         |             |                  | 5              | 5319.9810060            | -3.57                 |
|                         |             |                  | 10             | 5319.9810020            | -3.57                 |
|                         | 120         | -10              | 0              | 5319.9810050            | -3.57                 |
|                         |             |                  | 2              | 5319.9810070            | -3.57                 |
|                         |             |                  | 5              | 5319.9810080            | -3.57                 |
|                         |             |                  | 10             | 5319.9810080            | -3.57                 |
|                         | 120         | -20              | 0              | 5319.9810020            | -3.57                 |
|                         |             |                  | 2              | 5319.9810040            | -3.57                 |
|                         |             |                  | 5              | 5319.9810030            | -3.57                 |
|                         |             |                  | 10             | 5319.9810000            | -3.57                 |
|                         | 120         | 20               | /              | 5319.9810090            | -3.57                 |
|                         | 102         | 20               | /              | 5319.9810030            | -3.57                 |
|                         | 138         | 20               | /              | 5319.9810010            | -3.57                 |
| MAX Frquency Error(ppm) |             |                  |                |                         | -3.57                 |

| Frequency (MHz) | Voltage (V)             | Temperature (°C) | Time (minutes) | Measurement Value (MHz) | Frequency Error (ppm) |
|-----------------|-------------------------|------------------|----------------|-------------------------|-----------------------|
| 5500            | 120                     | 50               | 0              | 5499.9830040            | -3.09                 |
|                 |                         |                  | 2              | 5499.9830070            | -3.09                 |
|                 |                         |                  | 5              | 5499.9830020            | -3.09                 |
|                 |                         |                  | 10             | 5499.9830040            | -3.09                 |
|                 | 120                     | 40               | 0              | 5499.9830000            | -3.09                 |
|                 |                         |                  | 2              | 5499.9830050            | -3.09                 |
|                 |                         |                  | 5              | 5499.9830090            | -3.09                 |
|                 |                         |                  | 10             | 5499.9830030            | -3.09                 |
|                 | 120                     | 30               | 0              | 5499.9830080            | -3.09                 |
|                 |                         |                  | 2              | 5499.9830020            | -3.09                 |
|                 |                         |                  | 5              | 5499.9830050            | -3.09                 |
|                 |                         |                  | 10             | 5499.9830010            | -3.09                 |
|                 | 120                     | 20               | 0              | 5499.9830080            | -3.09                 |
|                 |                         |                  | 2              | 5499.9830000            | -3.09                 |
|                 |                         |                  | 5              | 5499.9830070            | -3.09                 |
|                 |                         |                  | 10             | 5499.9830070            | -3.09                 |
|                 | 120                     | 10               | 0              | 5499.9830000            | -3.09                 |
|                 |                         |                  | 2              | 5499.9830000            | -3.09                 |
|                 |                         |                  | 5              | 5499.9830080            | -3.09                 |
|                 |                         |                  | 10             | 5499.9830060            | -3.09                 |
|                 | 120                     | 0                | 0              | 5499.9830070            | -3.09                 |
|                 |                         |                  | 2              | 5499.9830090            | -3.09                 |
|                 |                         |                  | 5              | 5499.9830030            | -3.09                 |
|                 |                         |                  | 10             | 5499.9830020            | -3.09                 |
|                 | 120                     | -10              | 0              | 5499.9830060            | -3.09                 |
|                 |                         |                  | 2              | 5499.9830090            | -3.09                 |
|                 |                         |                  | 5              | 5499.9830040            | -3.09                 |
|                 |                         |                  | 10             | 5499.9830000            | -3.09                 |
|                 | 120                     | -20              | 0              | 5499.9830060            | -3.09                 |
|                 |                         |                  | 2              | 5499.9830090            | -3.09                 |
|                 |                         |                  | 5              | 5499.9830030            | -3.09                 |
|                 |                         |                  | 10             | 5499.9830080            | -3.09                 |
|                 | 120                     | 20               | /              | 5499.9830060            | -3.09                 |
|                 | 102                     | 20               | /              | 5499.9830020            | -3.09                 |
|                 | 138                     | 20               | /              | 5499.9830090            | -3.09                 |
|                 | MAX Frquency Error(ppm) |                  |                |                         |                       |

| Frequency (MHz) | Voltage (V)             | Temperature (°C) | Time (minutes) | Measurement Value (MHz) | Frequency Error (ppm) |
|-----------------|-------------------------|------------------|----------------|-------------------------|-----------------------|
| 5745            | 120                     | 50               | 0              | 5744.9830050            | -2.96                 |
|                 |                         |                  | 2              | 5744.9830000            | -2.96                 |
|                 |                         |                  | 5              | 5744.9830090            | -2.96                 |
|                 |                         |                  | 10             | 5744.9830050            | -2.96                 |
|                 | 120                     | 40               | 0              | 5744.9830070            | -2.96                 |
|                 |                         |                  | 2              | 5744.9830020            | -2.96                 |
|                 |                         |                  | 5              | 5744.9830050            | -2.96                 |
|                 |                         |                  | 10             | 5744.9830050            | -2.96                 |
|                 | 120                     | 30               | 0              | 5744.9830070            | -2.96                 |
|                 |                         |                  | 2              | 5744.9830000            | -2.96                 |
|                 |                         |                  | 5              | 5744.9830030            | -2.96                 |
|                 |                         |                  | 10             | 5744.9830040            | -2.96                 |
|                 | 120                     | 20               | 0              | 5744.9830020            | -2.96                 |
|                 |                         |                  | 2              | 5744.9830000            | -2.96                 |
|                 |                         |                  | 5              | 5744.9830050            | -2.96                 |
|                 |                         |                  | 10             | 5744.9830090            | -2.96                 |
|                 | 120                     | 10               | 0              | 5744.9830090            | -2.96                 |
|                 |                         |                  | 2              | 5744.9830000            | -2.96                 |
|                 |                         |                  | 5              | 5744.9830000            | -2.96                 |
|                 |                         |                  | 10             | 5744.9830030            | -2.96                 |
|                 | 120                     | 0                | 0              | 5744.9830070            | -2.96                 |
|                 |                         |                  | 2              | 5744.9830040            | -2.96                 |
|                 |                         |                  | 5              | 5744.9830030            | -2.96                 |
|                 |                         |                  | 10             | 5744.9830060            | -2.96                 |
|                 | 120                     | -10              | 0              | 5744.9830050            | -2.96                 |
|                 |                         |                  | 2              | 5744.9830000            | -2.96                 |
|                 |                         |                  | 5              | 5744.9830080            | -2.96                 |
|                 |                         |                  | 10             | 5744.9830080            | -2.96                 |
|                 | 120                     | -20              | 0              | 5744.9830050            | -2.96                 |
|                 |                         |                  | 2              | 5744.9830010            | -2.96                 |
|                 |                         |                  | 5              | 5744.9830070            | -2.96                 |
|                 |                         |                  | 10             | 5744.9830060            | -2.96                 |
|                 | 120                     | 20               | /              | 5744.9830090            | -2.96                 |
|                 | 102                     | 20               | /              | 5744.9830000            | -2.96                 |
|                 | 138                     | 20               | /              | 5744.9830040            | -2.96                 |
|                 | MAX Frquency Error(ppm) |                  |                |                         |                       |

## 8. AC POWER LINE CONDUCTED EMISSIONS

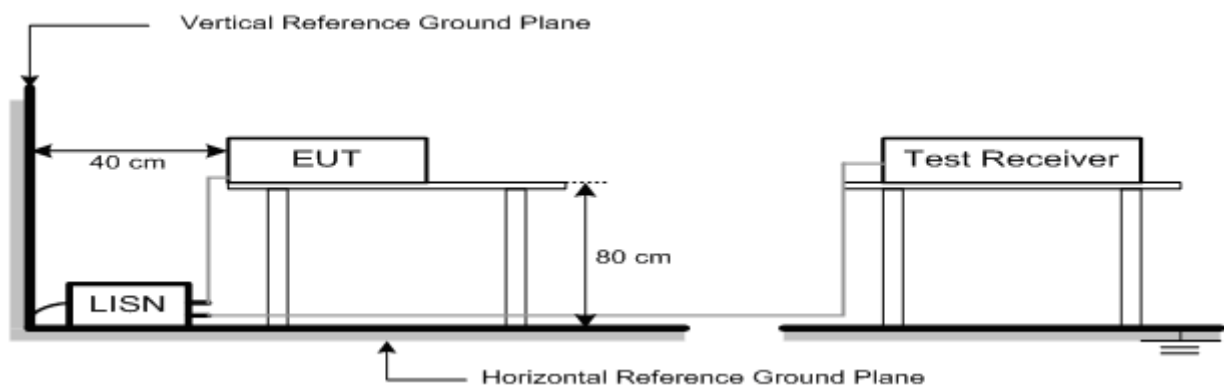
### 8.1. Limit

| Frequency |   |        | Maximum RF Line Voltage          |                               |
|-----------|---|--------|----------------------------------|-------------------------------|
|           |   |        | Quasi-Peak Level<br>dB( $\mu$ V) | Average Level<br>dB( $\mu$ V) |
| 150kHz    | ~ | 500kHz | 66 ~ 56*                         | 56 ~ 46*                      |
| 500kHz    | ~ | 5MHz   | 56                               | 46                            |
| 5MHz      | ~ | 30MHz  | 60                               | 50                            |

Notes:

1. \* Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

### 8.2. Test Setup



### 8.3. Spectrum Analyzer Setting

| Spectrum Parameters | Setting  |
|---------------------|----------|
| RBW                 | 9KHz     |
| VBW                 | 9KHz     |
| Start frequency     | 150KHz   |
| Stop frequency      | 30MHz    |
| Sweep Time          | Auto     |
| Detector            | QP/AVG   |
| Trace Mode          | Max Hold |

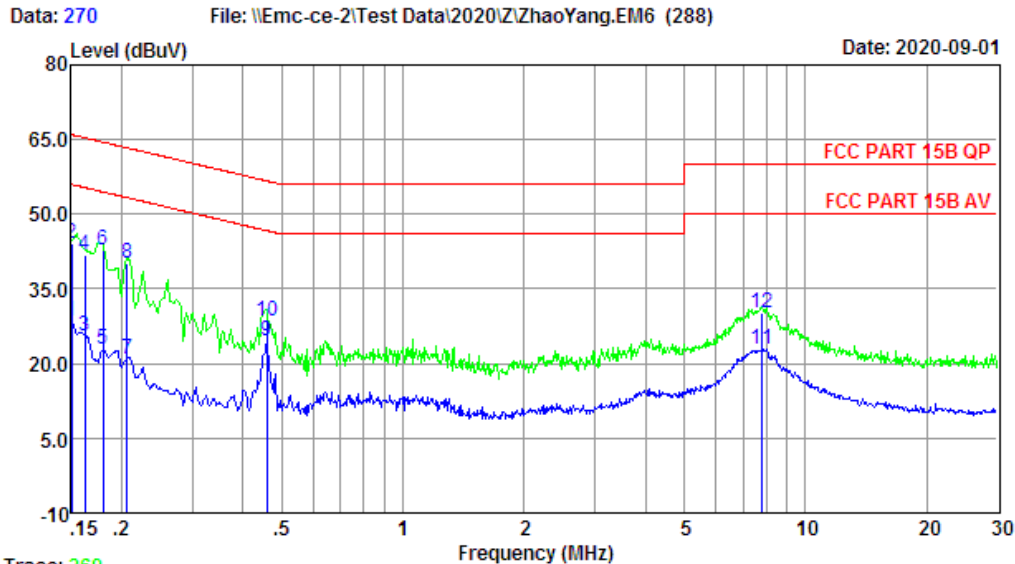
### 8.4. Test Procedure

- a. The EUT was placed on a non-metallic table, 80cm above the ground plane.
- b. The EUT Power connected to the power mains through a line impedance stabilization network.
- c. Provides a 50 ohm coupling impedance for the EUT (Please refer the block diagram of the test setup and photographs).
- d. Set the EUT transmit continuously with maximum output power.
- e. Spectrum analyzer setting parameters in accordance with section 8.3.
- f. The AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.10: 2013 on Conducted Emission Test.
- g. Record the results in the test report.

## 8.5. Test Result

EST Technology

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Houjie, Dongguan, Guangdong, China  
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Fax: +86-769-83081878



Site no : 2#CE Shield Room Data no. : 270  
Env. / Ins. : Temp:25.4°C Humi:50% Press:101.50kPa LINE Phase : NEUTRAL  
Limit : FCC PART 15B QP  
Engineer : YYB  
EUT : Halo Smart Speaker  
Power : DC 16V From Adapter Input AC 120V/60Hz  
M/N : HSP3100G  
Test Mode : TX Mode

|    | Freq.<br>(MHz) | LISN<br>Factor<br>(dB) | Cable<br>Loss<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV) | Limits<br>(dBuV) | Margin<br>(dB) | Remark  |
|----|----------------|------------------------|-----------------------|-------------------|-----------------------------|------------------|----------------|---------|
| 1  | 0.15           | 9.64                   | 9.69                  | 9.24              | 28.57                       | 56.00            | 27.43          | Average |
| 2  | 0.15           | 9.64                   | 9.69                  | 24.79             | 44.12                       | 66.00            | 21.88          | QP      |
| 3  | 0.16           | 9.64                   | 9.69                  | 6.34              | 25.67                       | 55.34            | 29.67          | Average |
| 4  | 0.16           | 9.64                   | 9.69                  | 22.59             | 41.92                       | 65.34            | 23.42          | QP      |
| 5  | 0.18           | 9.65                   | 9.77                  | 3.50              | 22.92                       | 54.50            | 31.58          | Average |
| 6  | 0.18           | 9.65                   | 9.77                  | 23.24             | 42.66                       | 64.50            | 21.84          | QP      |
| 7  | 0.21           | 9.65                   | 9.84                  | 1.56              | 21.05                       | 53.36            | 32.31          | Average |
| 8  | 0.21           | 9.65                   | 9.84                  | 20.75             | 40.24                       | 63.36            | 23.12          | QP      |
| 9  | 0.46           | 9.69                   | 9.92                  | 4.79              | 24.40                       | 46.71            | 22.31          | Average |
| 10 | 0.46           | 9.69                   | 9.92                  | 8.92              | 28.53                       | 56.71            | 28.18          | QP      |
| 11 | 7.77           | 9.63                   | 10.04                 | 3.31              | 22.98                       | 50.00            | 27.02          | Average |
| 12 | 7.77           | 9.63                   | 10.04                 | 10.53             | 30.20                       | 60.00            | 29.80          | QP      |

Remarks: 1. Emission Level= LISN Factor + Cable Loss + Reading.  
2. Margin= Limit - Emission Level.  
3. If the average limit is met when using a quasi-peak detector,  
the EUT shall be deemed to meet both limits and measurement  
with average detector is unnecessary.

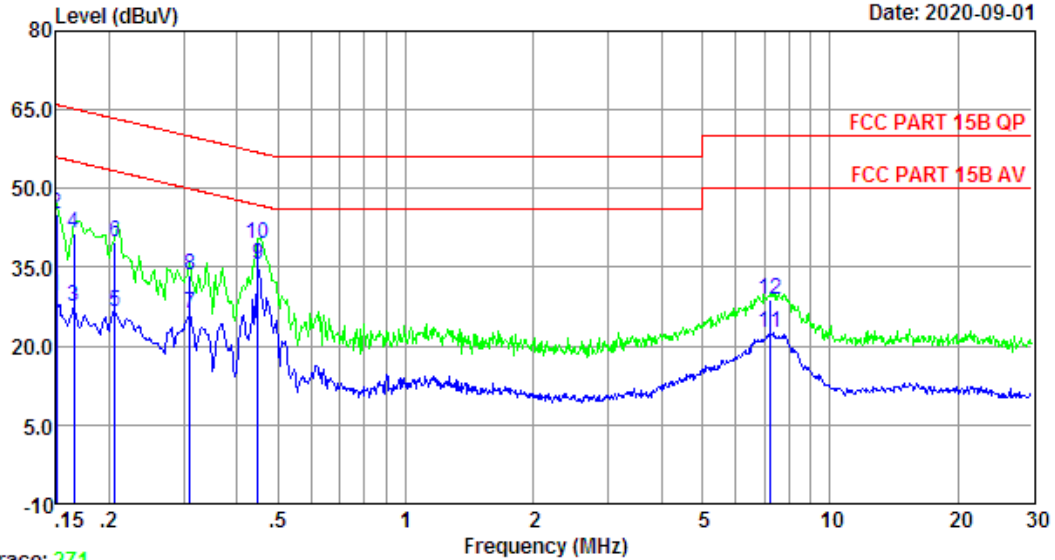
## EST Technology

Chilingxiang, Qishantou, Santun,  
Houjie, Dongguan, Guangdong, China  
Tel: +86-769-83081888  
Fax: +86-769-83081878

Data: 272

File: \\Emc-ce-2\Test Data\2020\Z\ZhaoYang.EM6 (288)

Date: 2020-09-01



Trace: 271

Site no : 2#CE Shield Room Data no. : 272  
 Env. / Ins. : Temp:25.4℃ Humi:50% Press:101.50kPa LINE Phase : LINE  
 Limit : FCC PART 15B QP  
 Engineer : YYB  
 EUT : Halo Smart Speaker  
 Power : DC 16V From Adapter Input AC 120V/60Hz  
 M/N : HSP3100G  
 Test Mode : TX Mode

|    | Freq.<br>(MHz) | LISN<br>Factor<br>(dB) | Cable<br>Loss<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV) | Limits<br>(dBuV) | Margin<br>(dB) | Remark  |
|----|----------------|------------------------|-----------------------|-------------------|-----------------------------|------------------|----------------|---------|
| 1  | 0.15           | 9.68                   | 9.69                  | 10.15             | 29.52                       | 56.00            | 26.48          | Average |
| 2  | 0.15           | 9.68                   | 9.69                  | 25.63             | 45.00                       | 66.00            | 21.00          | QP      |
| 3  | 0.17           | 9.68                   | 9.69                  | 8.09              | 27.46                       | 55.21            | 27.75          | Average |
| 4  | 0.17           | 9.68                   | 9.69                  | 22.12             | 41.49                       | 65.21            | 23.72          | QP      |
| 5  | 0.21           | 9.70                   | 9.84                  | 7.07              | 26.61                       | 53.36            | 26.75          | Average |
| 6  | 0.21           | 9.70                   | 9.84                  | 20.14             | 39.68                       | 63.36            | 23.68          | QP      |
| 7  | 0.31           | 9.73                   | 9.92                  | 6.41              | 26.06                       | 49.97            | 23.91          | Average |
| 8  | 0.31           | 9.73                   | 9.92                  | 13.80             | 33.45                       | 59.97            | 26.52          | QP      |
| 9  | 0.45           | 9.77                   | 9.92                  | 15.87             | 35.56                       | 46.89            | 11.33          | Average |
| 10 | 0.45           | 9.77                   | 9.92                  | 19.70             | 39.39                       | 56.89            | 17.50          | QP      |
| 11 | 7.25           | 10.40                  | 10.04                 | 1.96              | 22.40                       | 50.00            | 27.60          | Average |
| 12 | 7.25           | 10.40                  | 10.04                 | 8.43              | 28.87                       | 60.00            | 31.13          | QP      |

Remarks: 1. Emission Level= LISN Factor + Cable Loss + Reading.  
 2. Margin= Limit - Emission Level.  
 3. If the average limit is met when using a quasi-peak detector,  
 the EUT shall be deemed to meet both limits and measurement  
 with average detector is unnecessary.

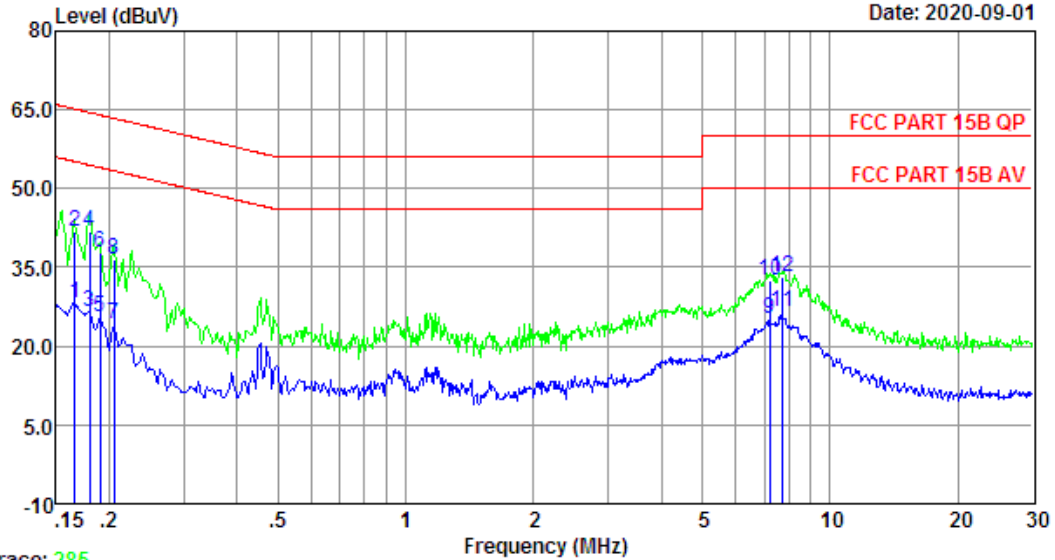
## EST Technology

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Houjie, Dongguan, Guangdong, China  
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Fax: +86-769-83081878

Data: 286

File: \\Emc-ce-2\Test Data\2020\Z\ZhaoYang.EM6 (288)

Date: 2020-09-01



Trace: 285

Site no : 2#CE Shield Room Data no. : 286  
 Env. / Ins. : Temp:25.4℃ Humi:50% Press:101.50kPa LINE Phase : NEUTRAL  
 Limit : FCC PART 15B QP  
 Engineer : YYB  
 EUT : Halo Smart Speaker  
 Power : DC 16V From Adapter Input AC 240V/60Hz  
 M/N : HSP3100G  
 Test Mode : TX Mode

|    | Freq.<br>(MHz) | LISN<br>Factor<br>(dB) | Cable<br>Loss<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV) | Limits<br>(dBuV) | Margin<br>(dB) | Remark  |
|----|----------------|------------------------|-----------------------|-------------------|-----------------------------|------------------|----------------|---------|
| 1  | 0.17           | 9.64                   | 9.69                  | 8.94              | 28.27                       | 55.16            | 26.89          | Average |
| 2  | 0.17           | 9.64                   | 9.69                  | 22.51             | 41.84                       | 65.16            | 23.32          | QP      |
| 3  | 0.18           | 9.65                   | 9.77                  | 7.16              | 26.58                       | 54.50            | 27.92          | Average |
| 4  | 0.18           | 9.65                   | 9.77                  | 22.30             | 41.72                       | 64.50            | 22.78          | QP      |
| 5  | 0.19           | 9.65                   | 9.77                  | 6.03              | 25.45                       | 54.02            | 28.57          | Average |
| 6  | 0.19           | 9.65                   | 9.77                  | 18.24             | 37.66                       | 64.02            | 26.36          | QP      |
| 7  | 0.21           | 9.65                   | 9.84                  | 4.71              | 24.20                       | 53.40            | 29.20          | Average |
| 8  | 0.21           | 9.65                   | 9.84                  | 17.04             | 36.53                       | 63.40            | 26.87          | QP      |
| 9  | 7.21           | 9.57                   | 10.04                 | 5.64              | 25.25                       | 50.00            | 24.75          | Average |
| 10 | 7.21           | 9.57                   | 10.04                 | 12.80             | 32.41                       | 60.00            | 27.59          | QP      |
| 11 | 7.69           | 9.62                   | 10.04                 | 6.92              | 26.58                       | 50.00            | 23.42          | Average |
| 12 | 7.69           | 9.62                   | 10.04                 | 13.44             | 33.10                       | 60.00            | 26.90          | QP      |

Remarks: 1. Emission Level= LISN Factor + Cable Loss + Reading.  
 2. Margin= Limit - Emission Level.  
 3. If the average limit is met when using a quasi-peak detector,  
 the EUT shall be deemed to meet both limits and measurement  
 with average detector is unnecessary.

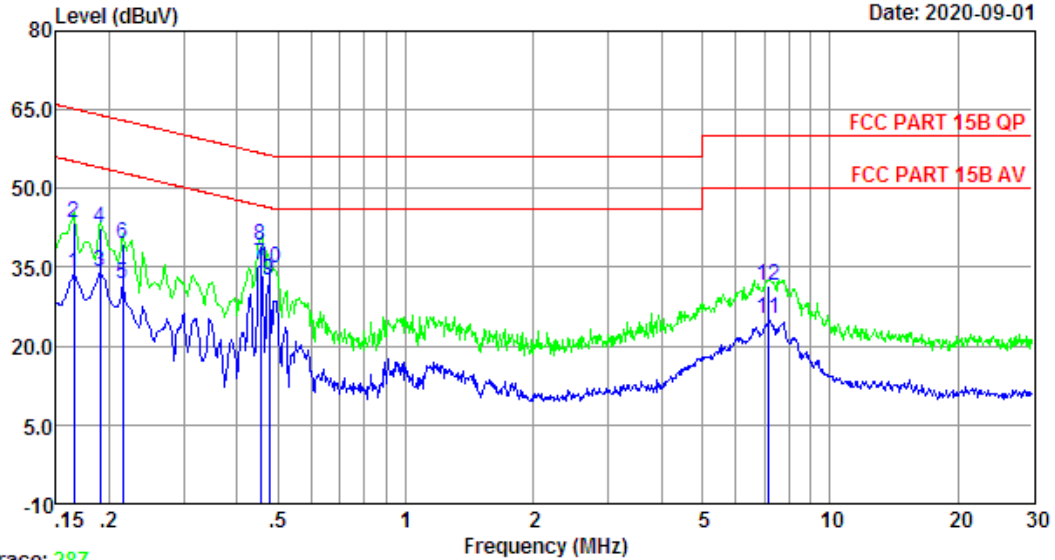
## EST Technology

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Data: 288

File: \\Emc-ce-2\Test Data\2020\Z\ZhaoYang.EM6 (288)

Date: 2020-09-01



Trace: 287

Site no : 2#CE Shield Room Data no. : 288  
 Env. / Ins. : Temp:25.4℃ Humi:50% Press:101.50kPa LINE Phase : LINE  
 Limit : FCC PART 15B QP  
 Engineer : YYB  
 EUT : Halo Smart Speaker  
 Power : DC 16V From Adapter Input AC 240V/60Hz  
 M/N : HSP3100G  
 Test Mode : TX Mode

|    | Freq.<br>(MHz) | LISN<br>Factor<br>(dB) | Cable<br>Loss<br>(dB) | Reading<br>(dBUV) | Emission<br>Level<br>(dBUV) | Limits<br>(dBUV) | Margin<br>(dB) | Remark  |
|----|----------------|------------------------|-----------------------|-------------------|-----------------------------|------------------|----------------|---------|
| 1  | 0.17           | 9.68                   | 9.69                  | 14.63             | 34.00                       | 55.21            | 21.21          | Average |
| 2  | 0.17           | 9.68                   | 9.69                  | 23.95             | 43.32                       | 65.21            | 21.89          | QP      |
| 3  | 0.19           | 9.69                   | 9.77                  | 14.59             | 34.05                       | 54.02            | 19.97          | Average |
| 4  | 0.19           | 9.69                   | 9.77                  | 22.95             | 42.41                       | 64.02            | 21.61          | QP      |
| 5  | 0.22           | 9.70                   | 9.84                  | 12.16             | 31.70                       | 53.01            | 21.31          | Average |
| 6  | 0.22           | 9.70                   | 9.84                  | 19.93             | 39.47                       | 63.01            | 23.54          | QP      |
| 7  | 0.45           | 9.77                   | 9.92                  | 15.93             | 35.62                       | 46.80            | 11.18          | Average |
| 8  | 0.45           | 9.77                   | 9.92                  | 19.56             | 39.25                       | 56.80            | 17.55          | QP      |
| 9  | 0.48           | 9.78                   | 9.92                  | 12.84             | 32.54                       | 46.41            | 13.87          | Average |
| 10 | 0.48           | 9.78                   | 9.92                  | 15.19             | 34.89                       | 56.41            | 21.52          | QP      |
| 11 | 7.18           | 10.42                  | 10.03                 | 4.68              | 25.13                       | 50.00            | 24.87          | Average |
| 12 | 7.18           | 10.42                  | 10.03                 | 11.03             | 31.48                       | 60.00            | 28.52          | QP      |

Remarks: 1. Emission Level= LISN Factor + Cable Loss + Reading.  
 2. Margin= Limit - Emission Level.  
 3. If the average limit is met when using a quasi-peak detector,  
 the EUT shall be deemed to meet both limits and measurement  
 with average detector is unnecessary.

## 9. ANTENNA REQUIREMENTS

### 9.1. Limit

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §§15.211, 15.213, 15.217, 15.219, 15.221, or §15.236. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

### 9.2. Test Result

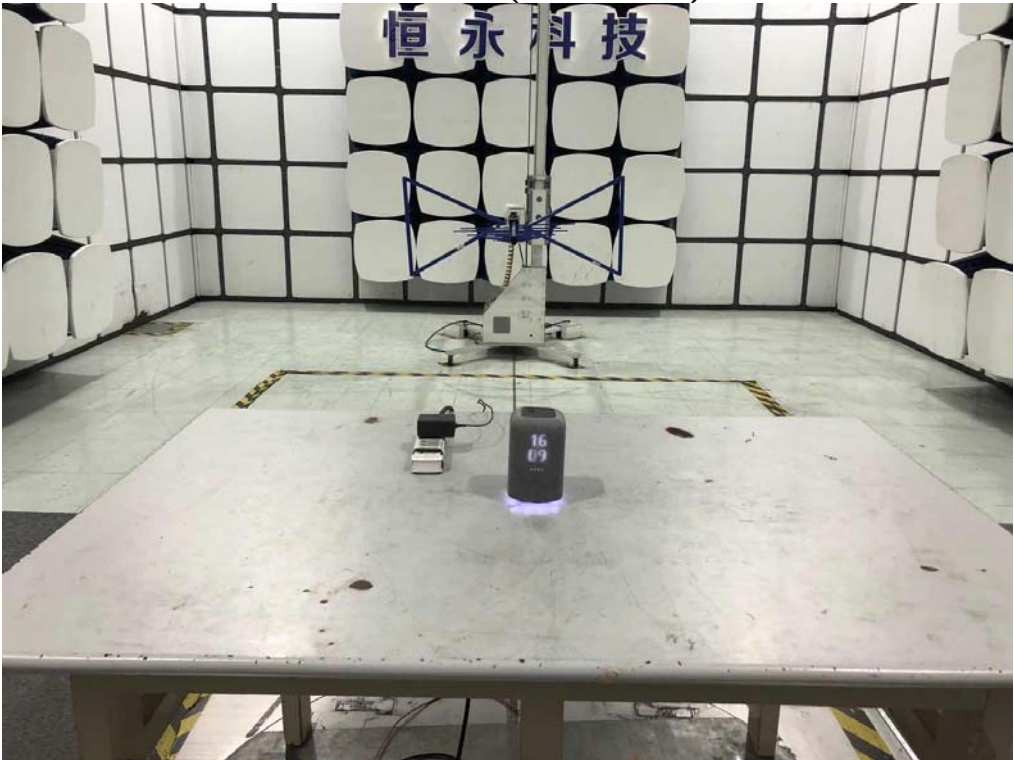
The antennas used for this product is internal antenna ,so compliance with antenna requirements.  
( Please refer to the EUT photo for details)

10. TEST SETUP PHOTO

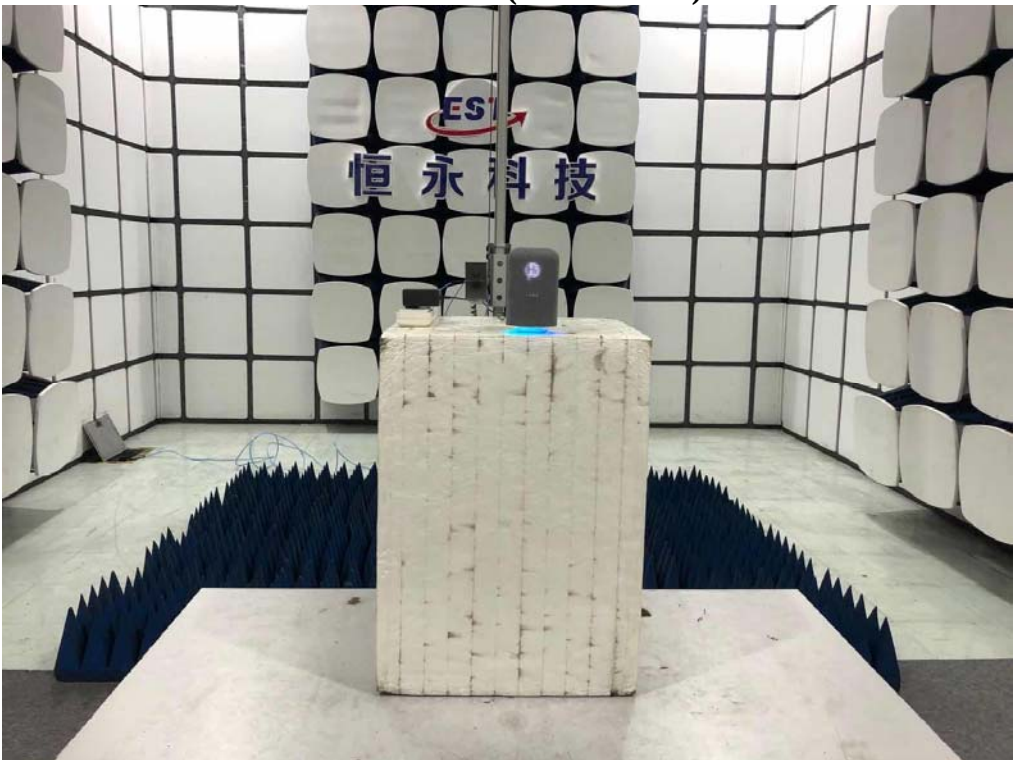
Conducted Test



Radiated Test (Below 1GHz)



Radiated Test (Above 1GHz)



11. EUT PHOTO

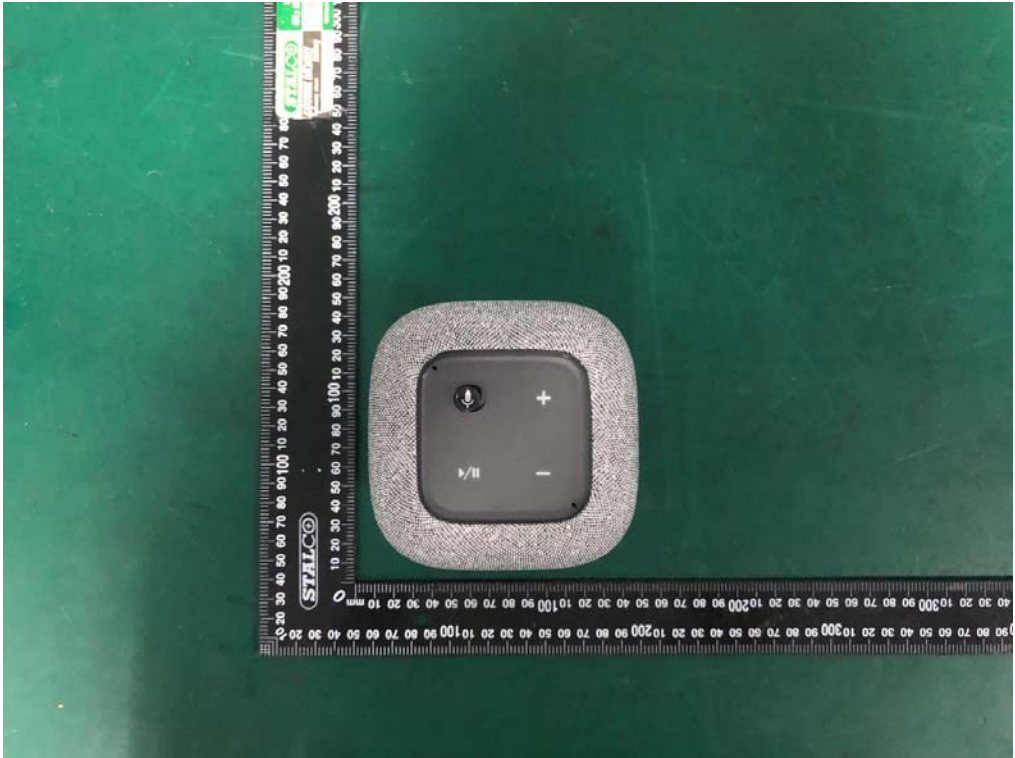
External Photos  
M/N: HSP3100G



External Photos  
M/N: HSP3100G



External Photos  
M/N: HSP3100G



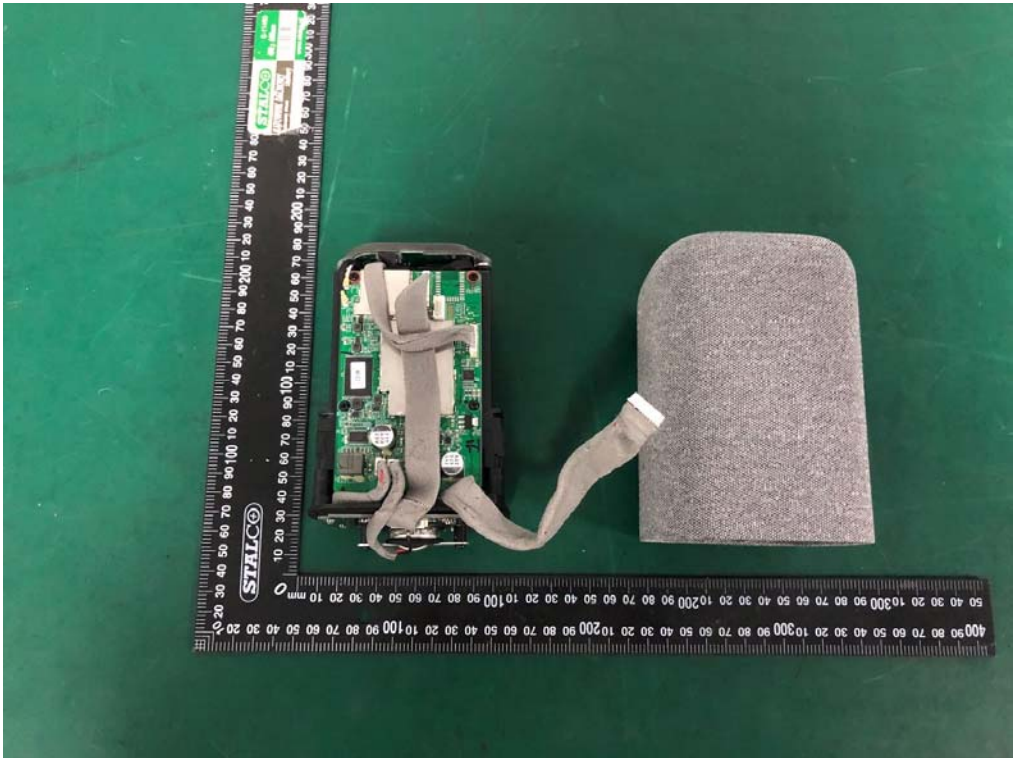
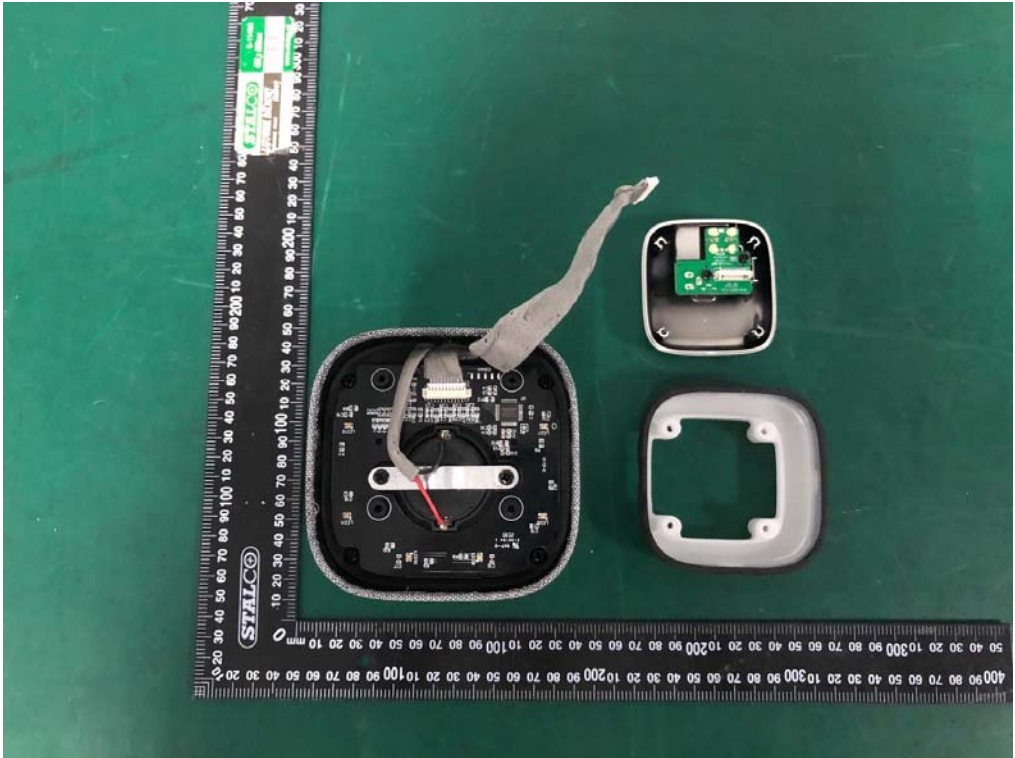
External Photos  
M/N: HSP3100G



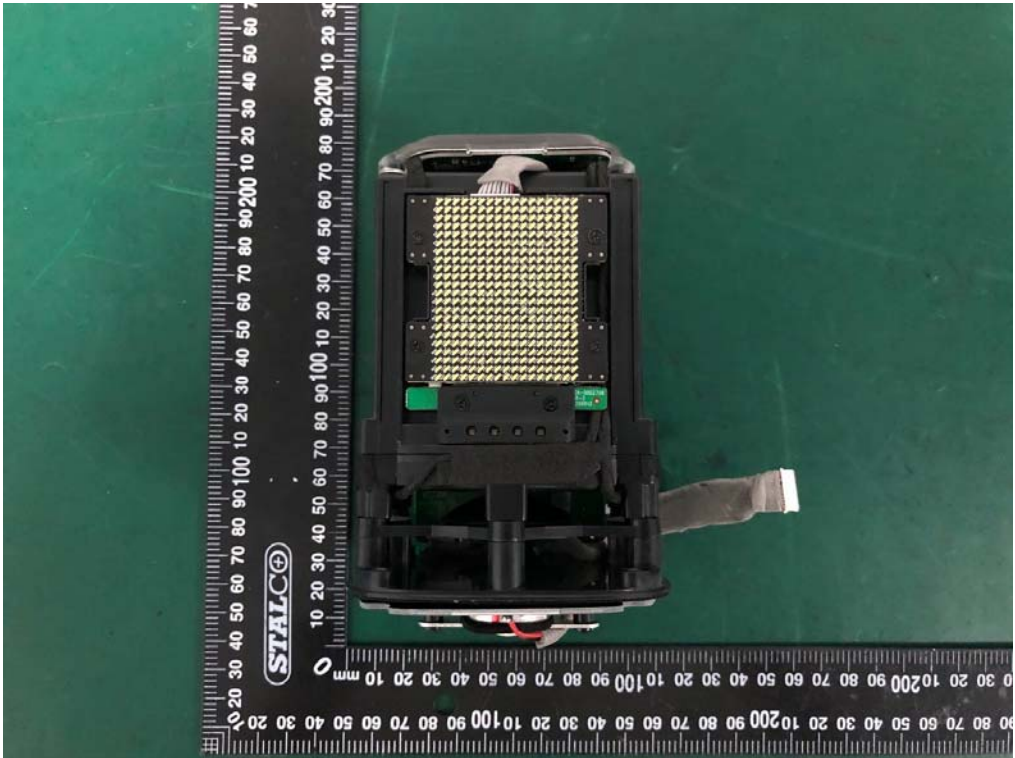
External Photos  
M/N: HSP3100G



Internal Photos  
M/N: HSP3100G



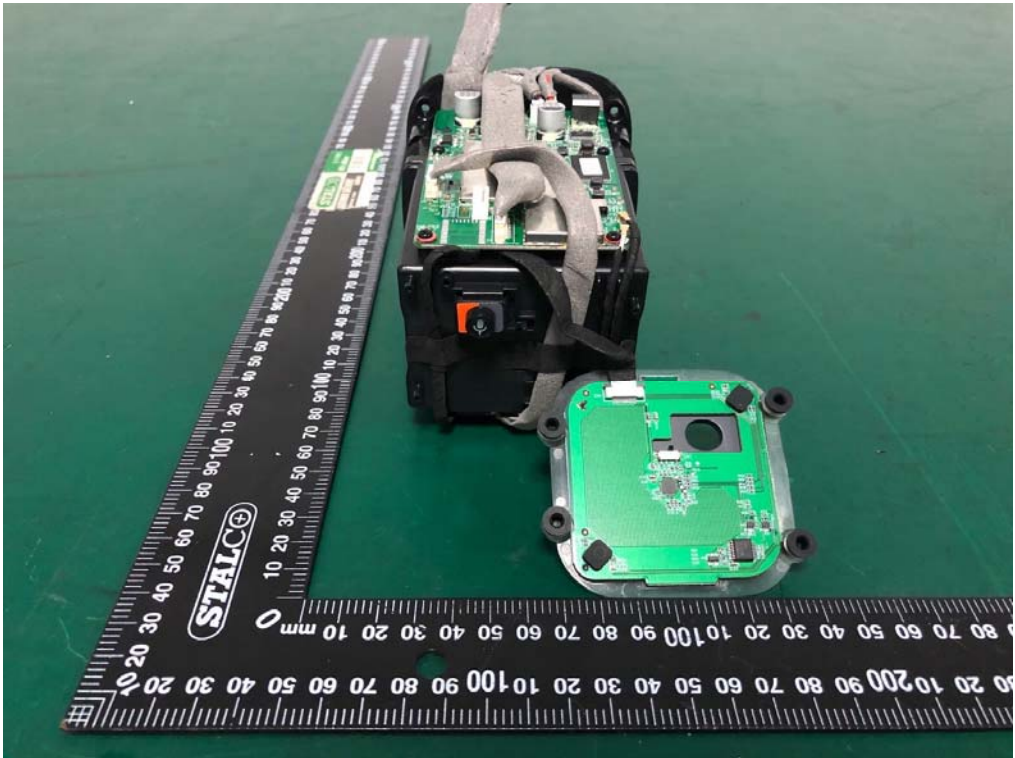
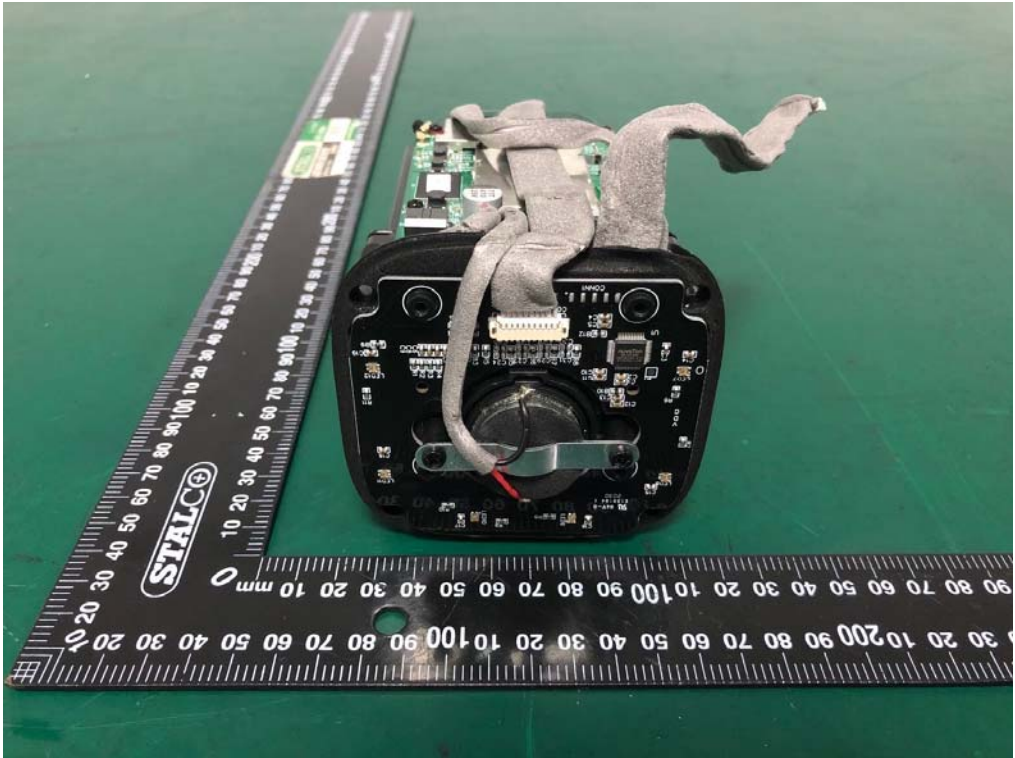
Internal Photos  
M/N: HSP3100G



Internal Photos  
M/N: HSP3100G



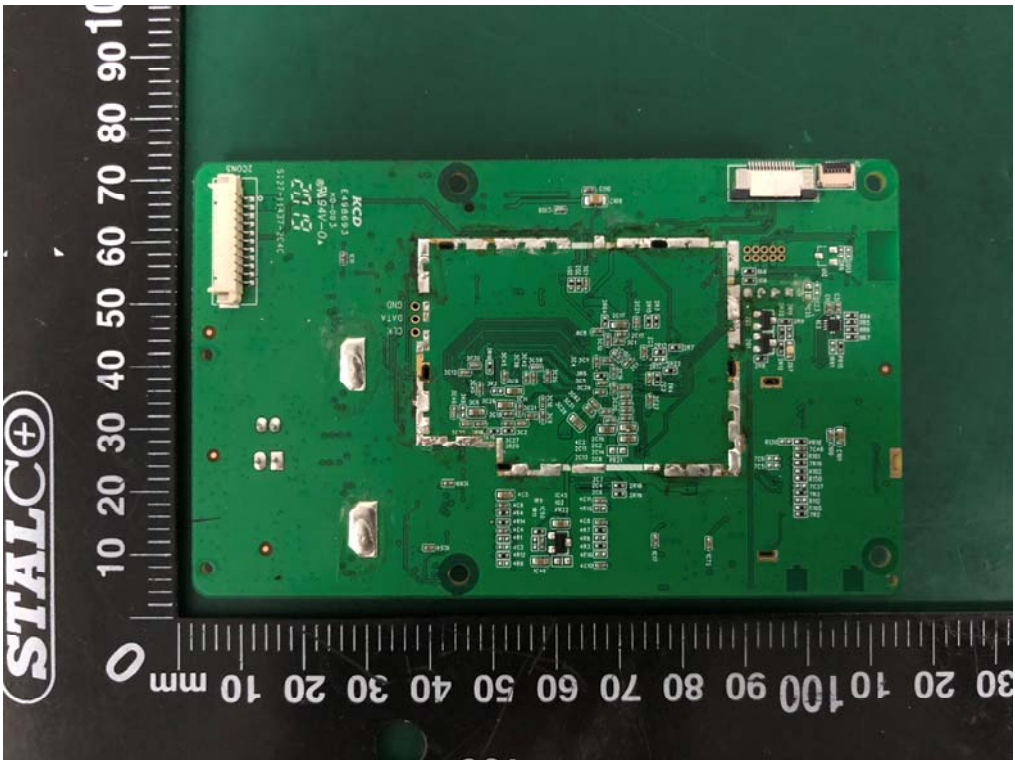
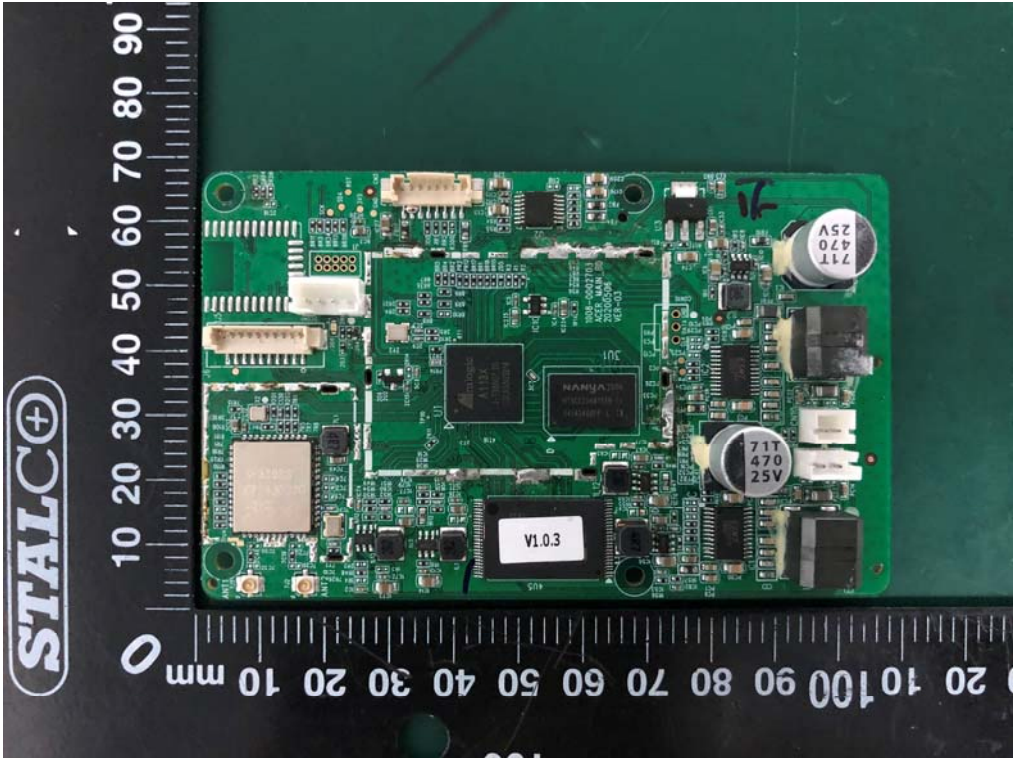
Internal Photos  
M/N: HSP3100G



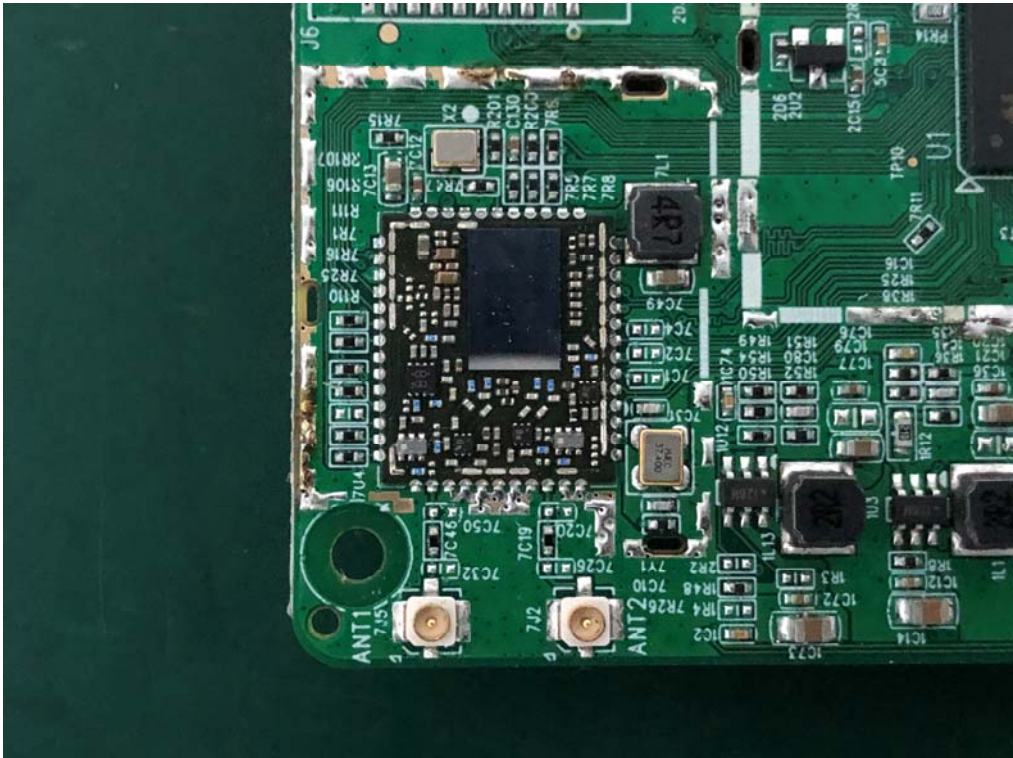
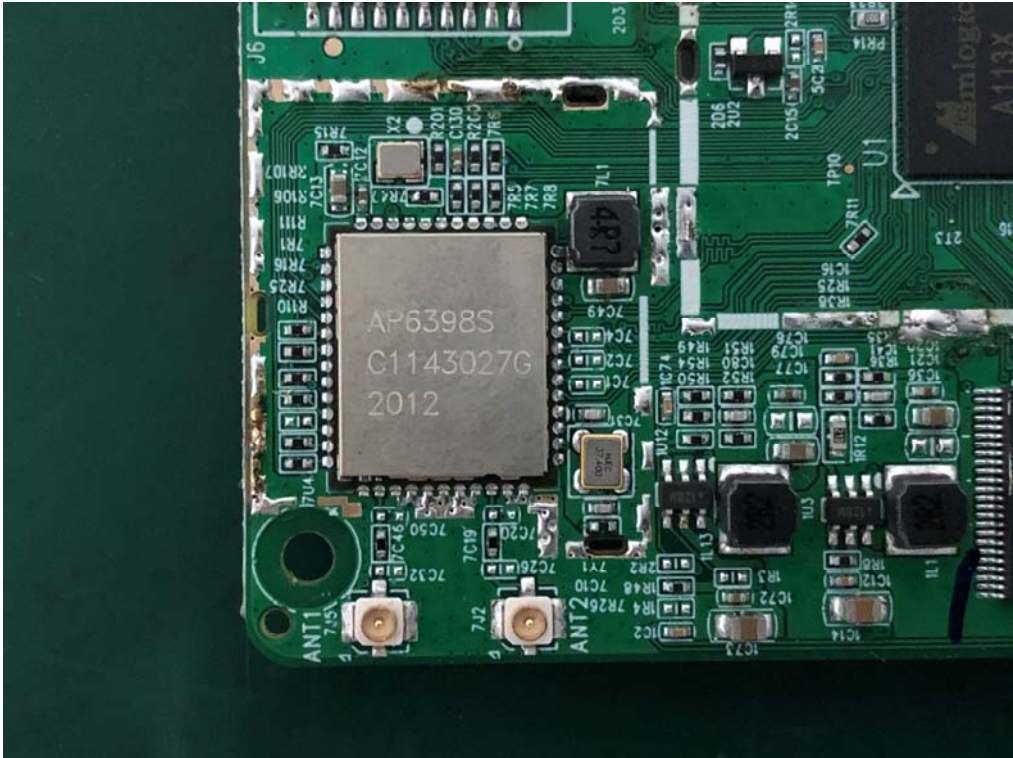
Internal Photos  
M/N: HSP3100G



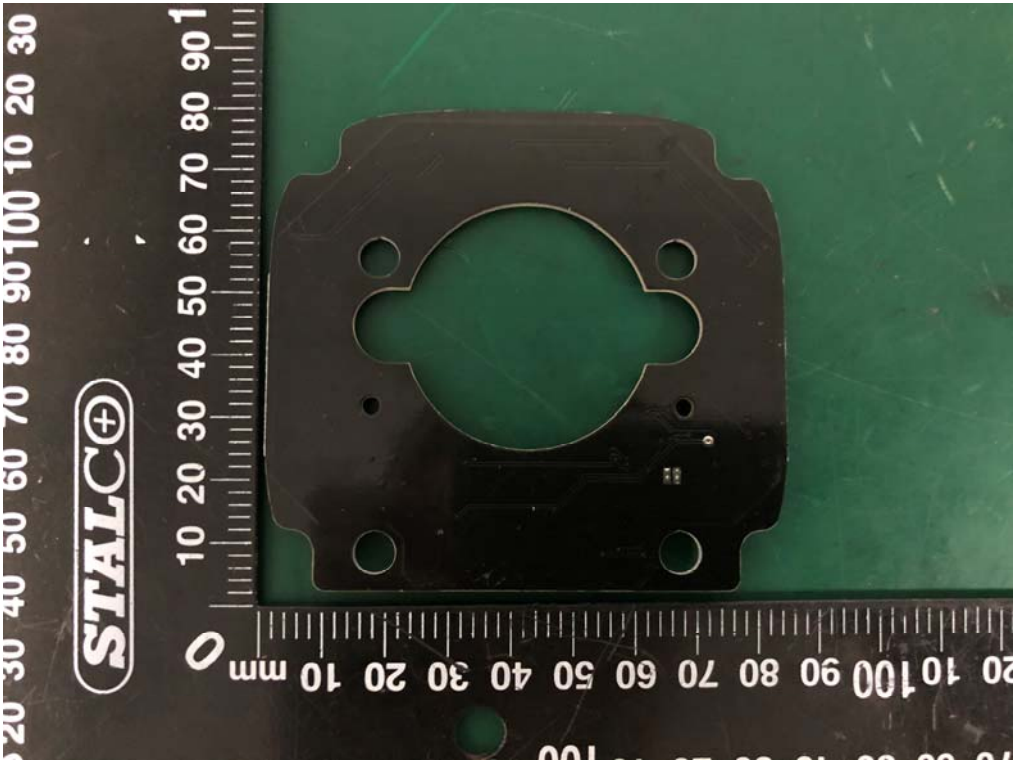
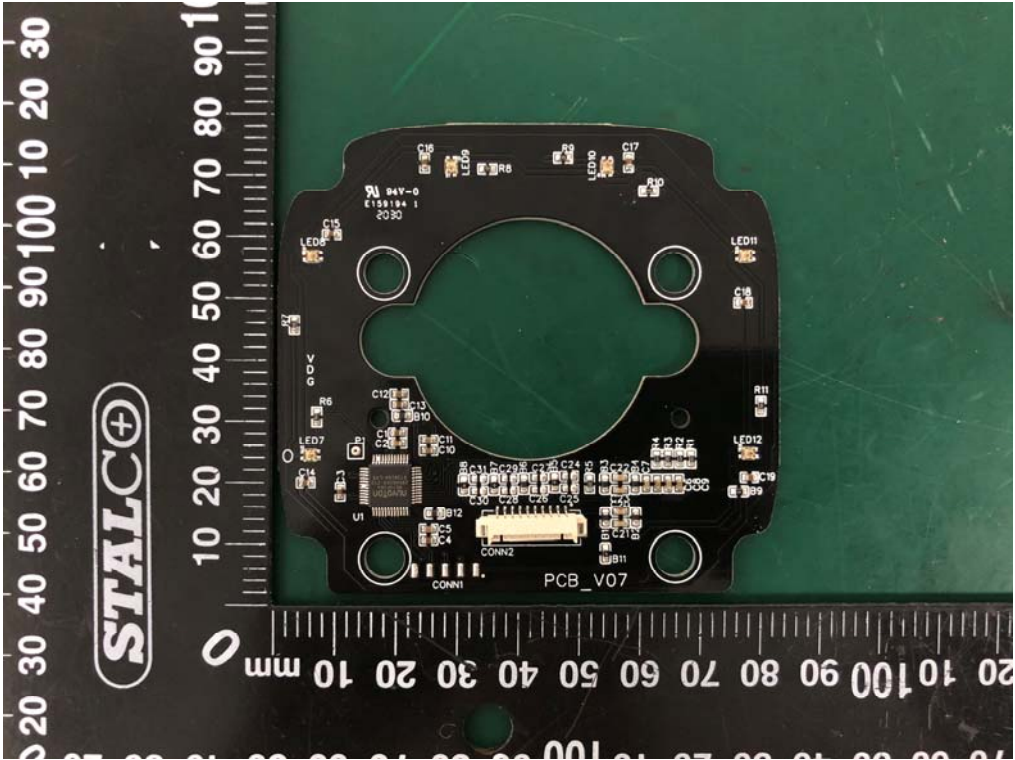
Internal Photos  
M/N: HSP3100G



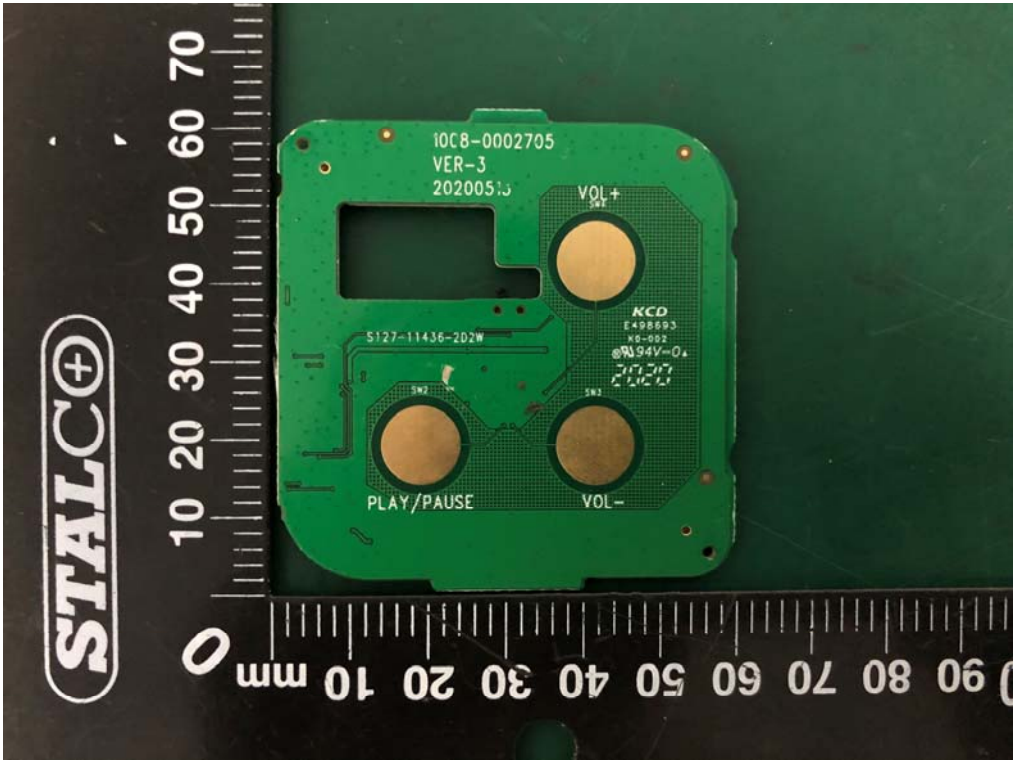
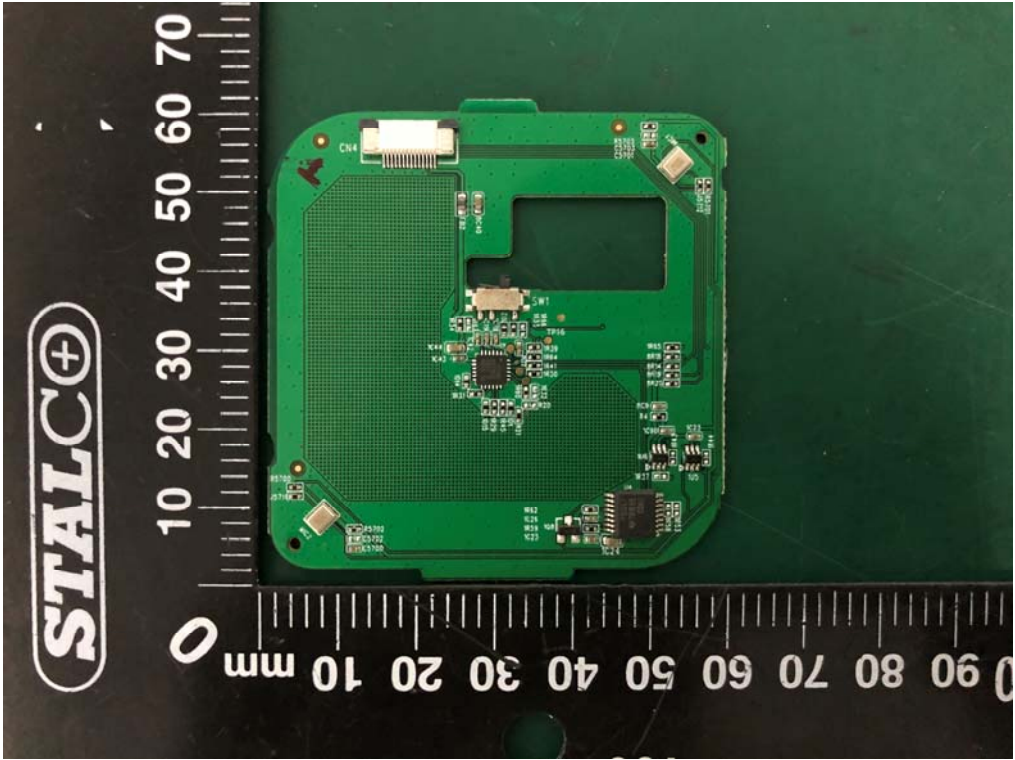
Internal Photos  
M/N: HSP3100G



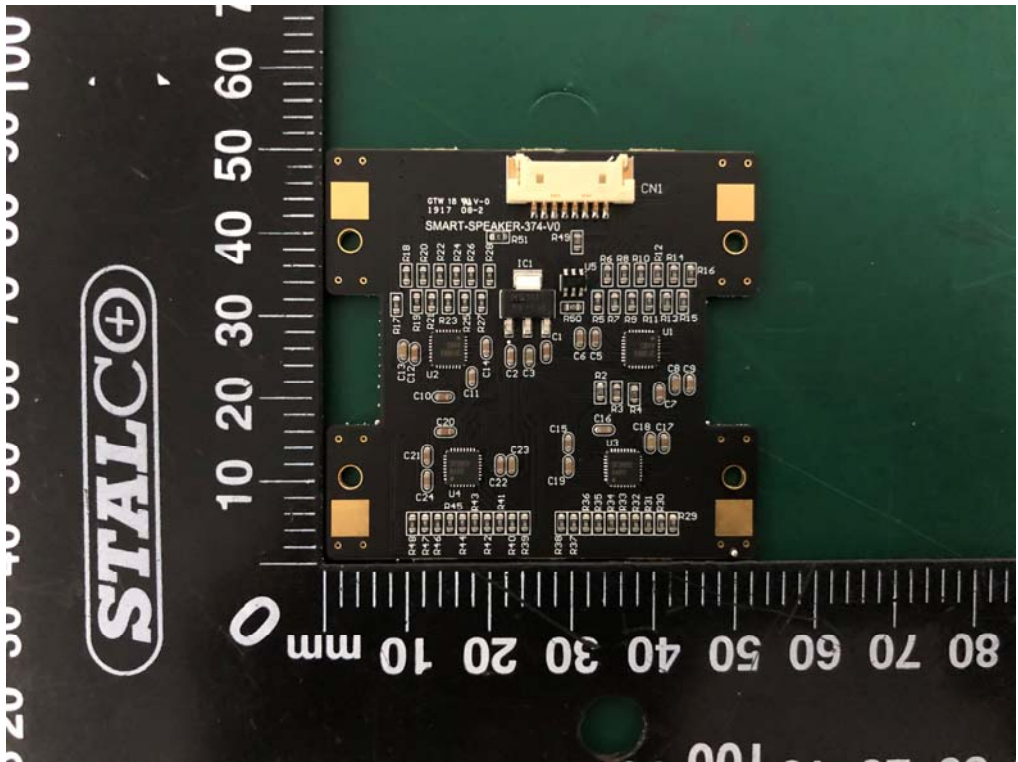
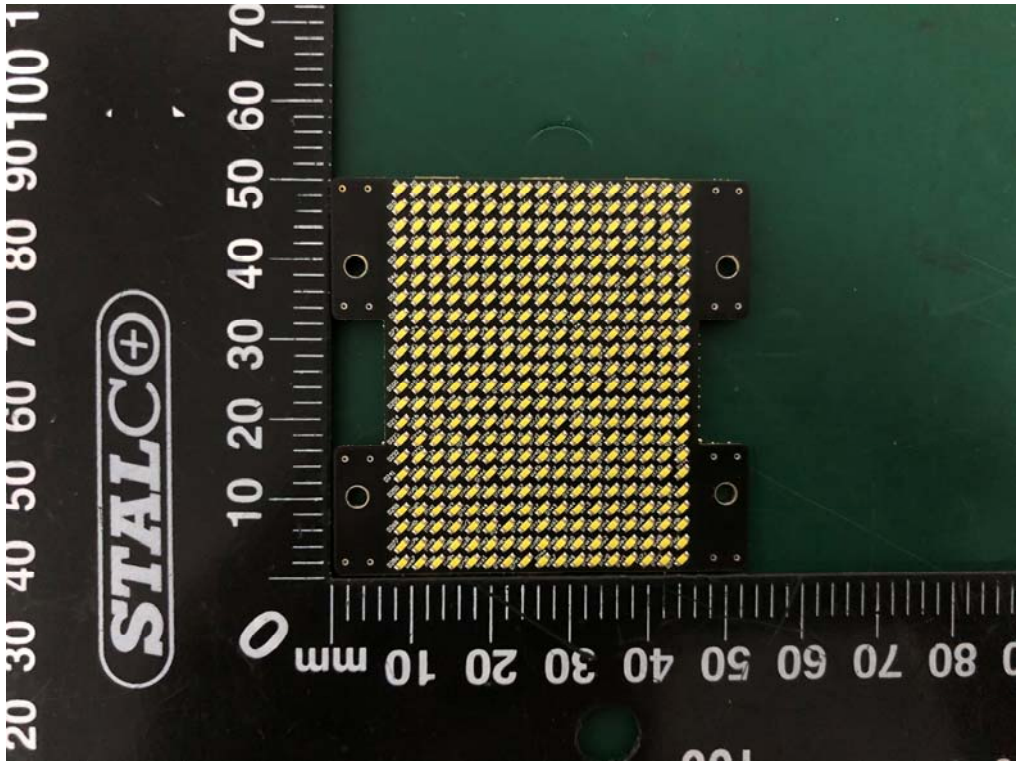
Internal Photos  
M/N: HSP3100G



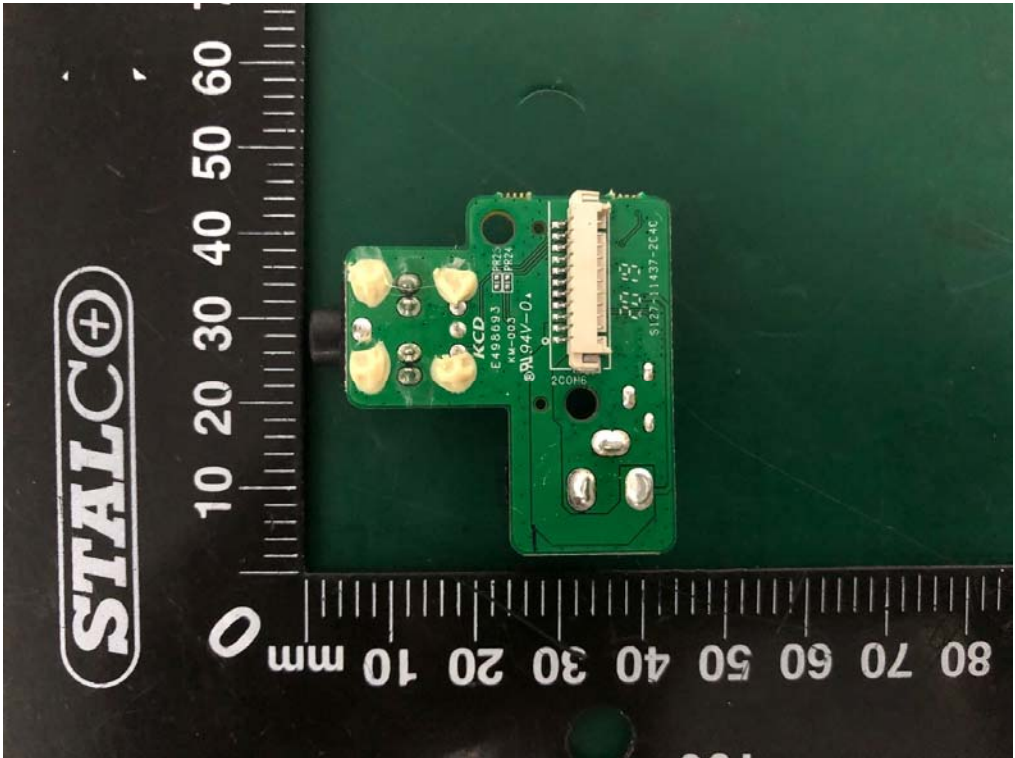
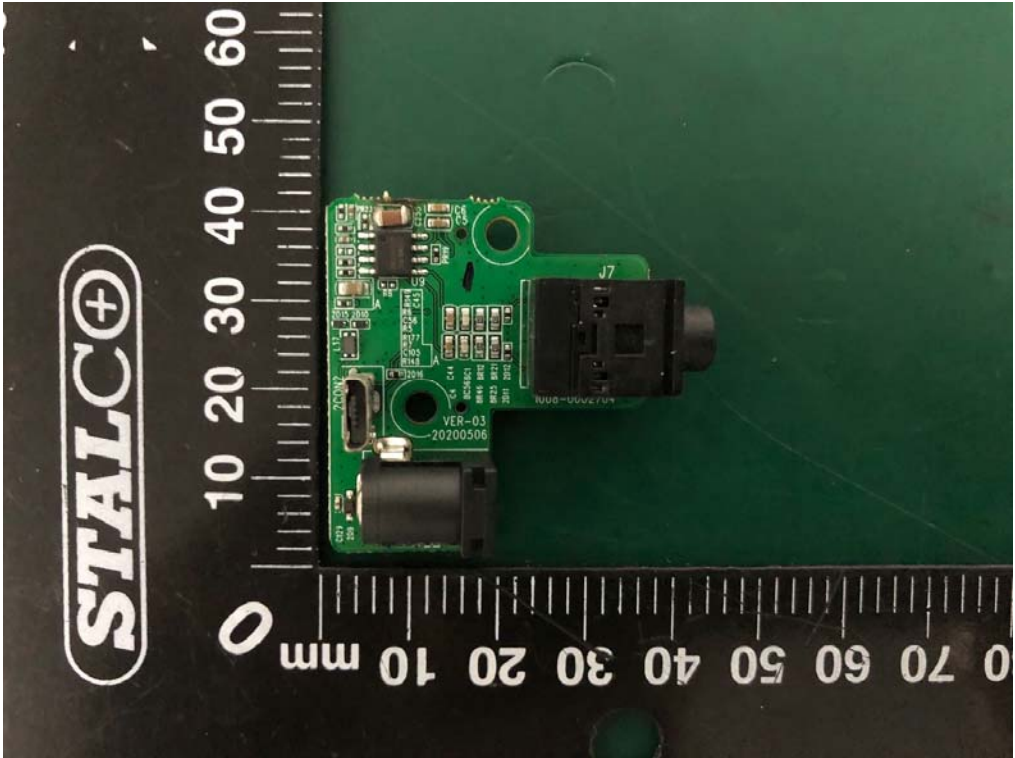
Internal Photos  
M/N: HSP3100G



Internal Photos  
M/N: HSP3100G



Internal Photos  
M/N: HSP3100G



End of Test Report