

Radiated Band Edge Result

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

3. Display the measurement of peak values.

Test Procedure:

The EUT and its simulators are placed on a turntable, which is 1.5 meter high above ground(Above 1GHz). The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bi-log antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the EUT location must be manipulated according to ANSI C63.10:2013 on radiated emission measurement. The EUT was tested in 3 orthogonal planes.

Let the EUT work in TX (Hopping off, Hopping on) modes measure it.

We select 2402MHz, 2480MHz TX frequency to transmit(Hopping off mode).

We select 2402-2480MHz TX frequency to transmit(Hopping on mode).

During the radiated emission test, the spectrum analyzer was set with the following configurations:

- 1.The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for peak measurement with peak detector at frequency above 1GHz.
- 2.The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average measurement with peak detection at frequency above 1GHz.
- 3.All modes of operation were investigated and the worst-case emissions are reported.

Non-hopping mode



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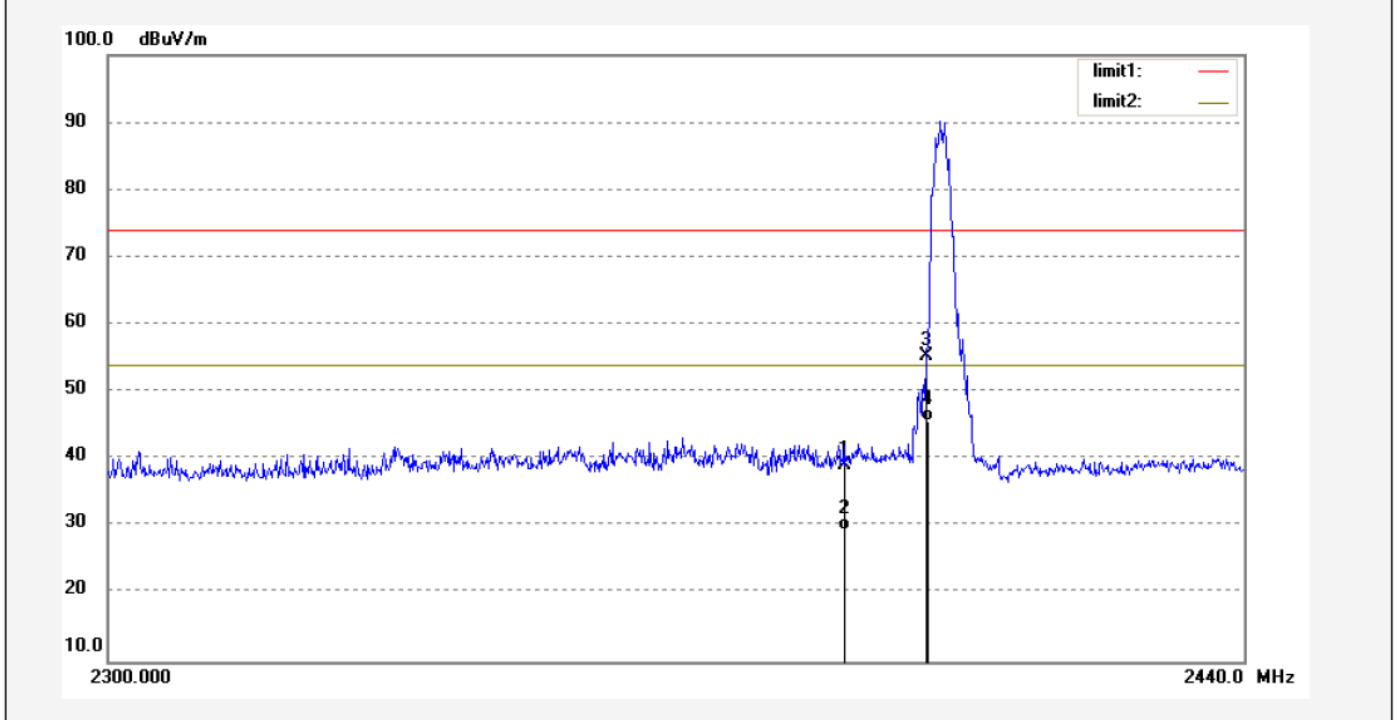
Site: 2# Chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: STAR2015 #438	Polarization: Horizontal
Standard: FCC PK	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 15/07/24/
Temp.(C)/Hum.(%) 23 C / 48 %	Time: 18/12/10
EUT: Braven 2200m Portable Bluetooth Speaker	Engineer Signature:
Mode: TX 2402MHz(GFSK)	Distance: 3m
Model: 2200m	
Manufacturer: Braven LC	

Note: Report NO.:ATE20151559

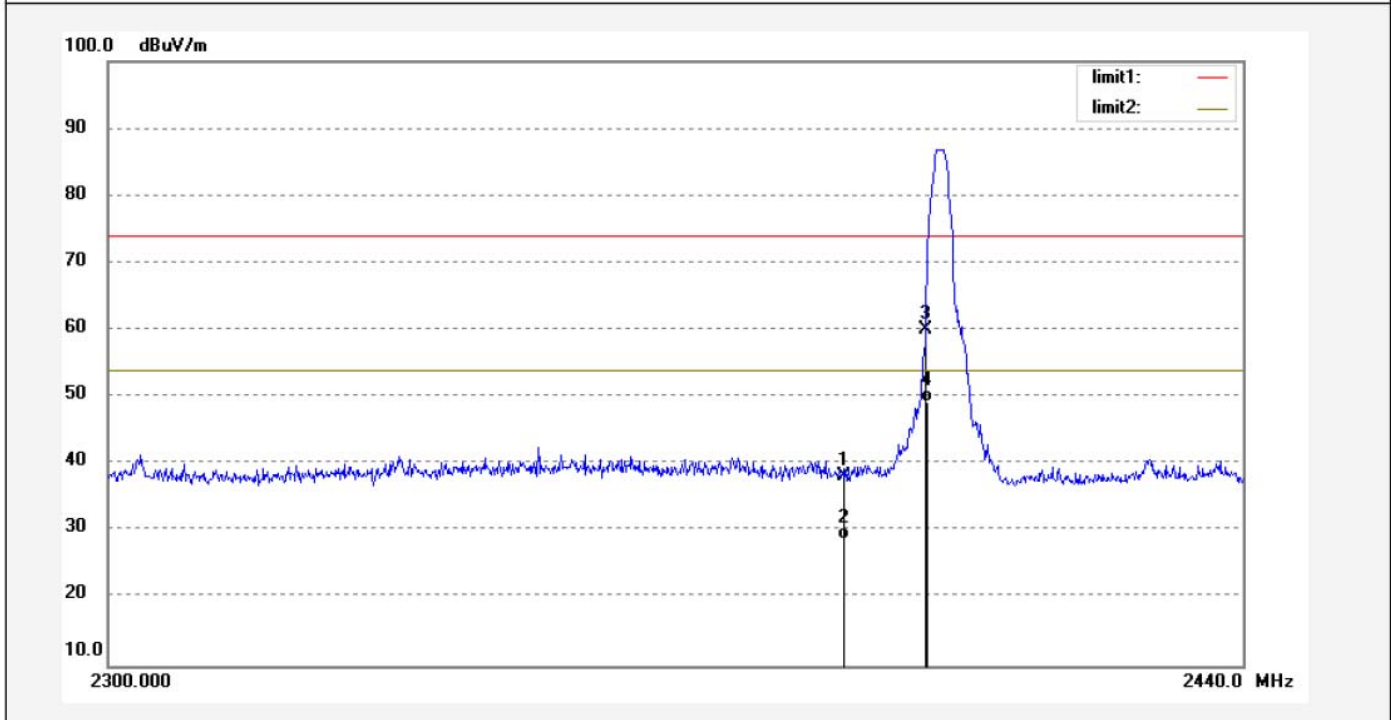


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	46.68	-7.53	39.15	74.00	-34.85	peak			
2	2390.000	36.97	-7.53	29.44	54.00	-24.56	peak			
3	2400.000	62.85	-7.46	55.39	74.00	-18.61	peak			
4	2400.000	53.16	-7.46	45.70	54.00	-8.30	peak			

Note: Average measurement with peak detection at No.2&4

Job No.: STAR2015 #437	Polarization: Vertical
Standard: FCC PK	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 15/07/24/
Temp.(C)/Hum.(%) 23 C / 48 %	Time: 18/10/02
EUT: Braven 2200m Portable Bluetooth Speaker	Engineer Signature:
Mode: TX 2402MHz(GFSK)	Distance: 3m
Model: 2200m	
Manufacturer: Braven LC	

Note: Report NO.:ATE20151559



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	45.86	-7.53	38.33	74.00	-35.67	peak			
2	2390.000	36.22	-7.53	28.69	54.00	-25.31	peak			
3	2400.000	67.51	-7.46	60.05	74.00	-13.95	peak			
4	2400.000	56.79	-7.46	49.33	54.00	-4.67	peak			

Note: Average measurement with peak detection at No.2&4

Job No.: STAR2015 #439

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Braven 2200m Portable Bluetooth Speaker

Mode: TX 2480MHz(GFSK)

Model: 2200m

Manufacturer: Braven LC

Polarization: Horizontal

Power Source: AC 120V/60Hz

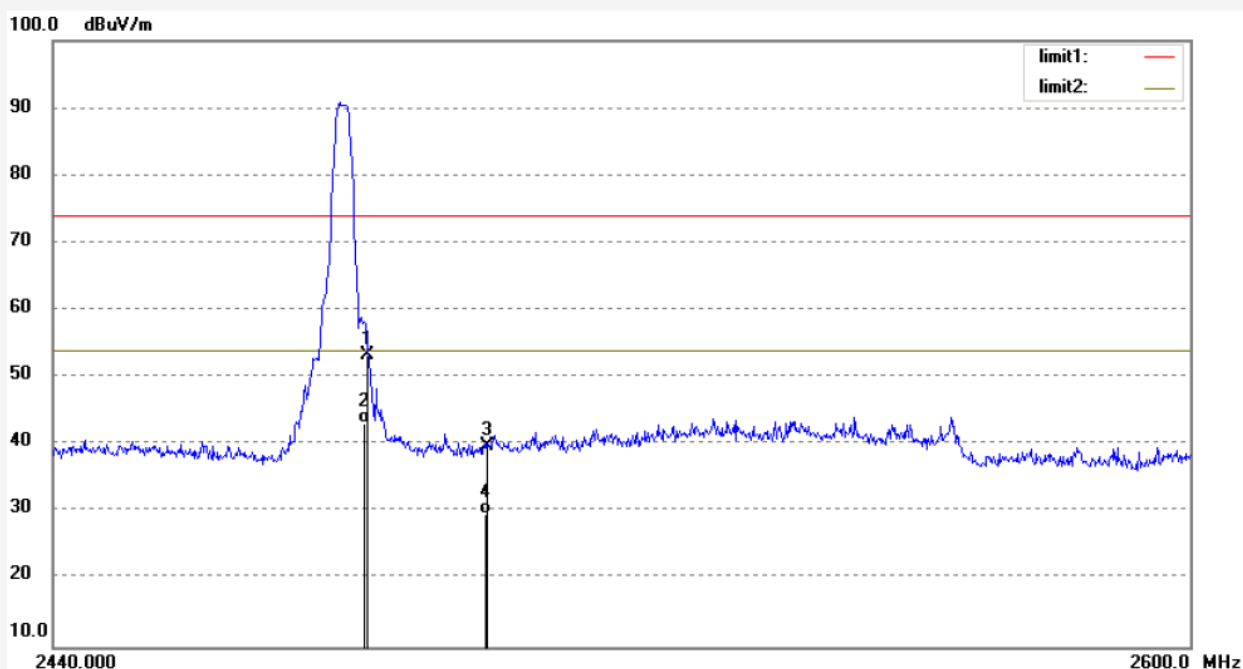
Date: 15/07/24/

Time: 18/14/18

Engineer Signature:

Distance: 3m

Note: Report NO.:ATE20151559



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	60.78	-7.37	53.41	74.00	-20.59	peak			
2	2483.500	50.67	-7.37	43.30	54.00	-10.70	peak			
3	2500.000	47.31	-7.40	39.91	74.00	-34.09	peak			
4	2500.000	36.98	-7.40	29.58	54.00	-24.42	peak			

Note: Average measurement with peak detection at No.2&4

Job No.: STAR2015 #440

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Braven 2200m Portable Bluetooth Speaker

Mode: TX 2480MHz(GFSK)

Model: 2200m

Manufacturer: Braven LC

Polarization: Vertical

Power Source: AC 120V/60Hz

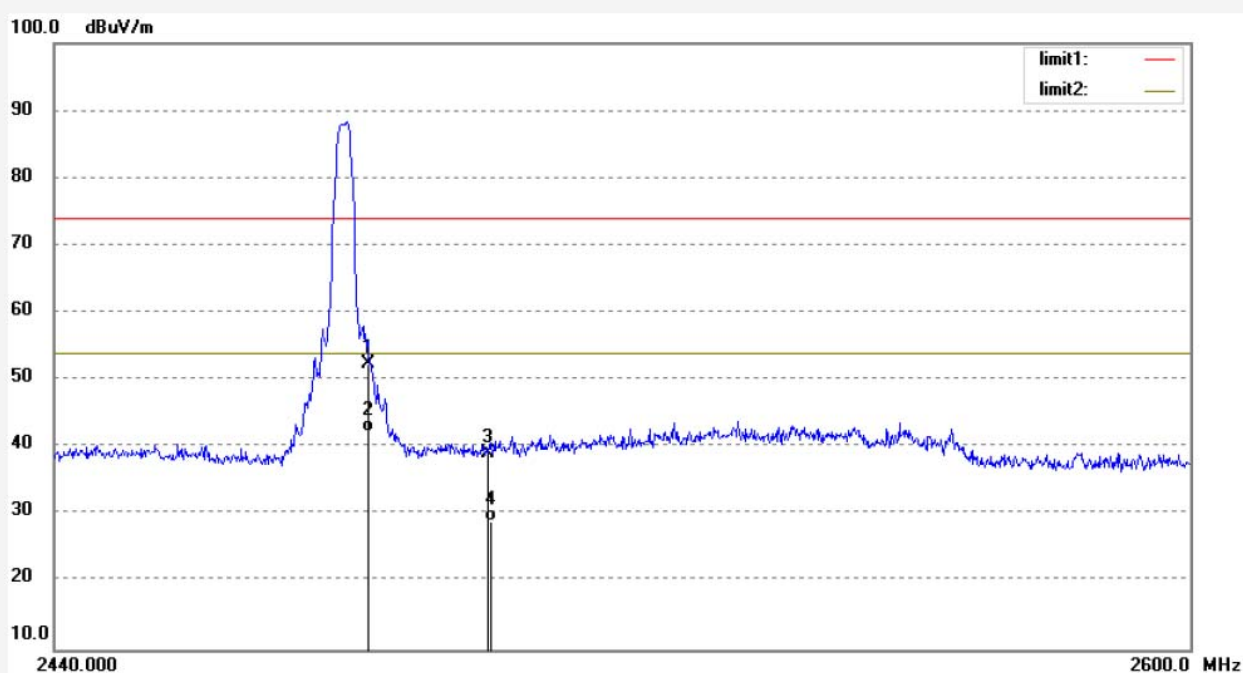
Date: 15/07/24/

Time: 18/15/42

Engineer Signature:

Distance: 3m

Note: Report NO.:ATE20151559



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	59.76	-7.37	52.39	74.00	-21.61	peak			
2	2483.500	49.67	-7.37	42.30	54.00	-11.70	peak			
3	2500.000	46.51	-7.40	39.11	74.00	-34.89	peak			
4	2500.000	36.33	-7.40	28.93	54.00	-25.07	peak			

Note: Average measurement with peak detection at No.2&4

Job No.: STAR2015 #444

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Braven 2200m Portable Bluetooth Speaker

Mode: TX 2402MHz(PI/4DQPSK)

Model: 2200m

Manufacturer: Braven LC

Polarization: Horizontal

Power Source: AC 120V/60Hz

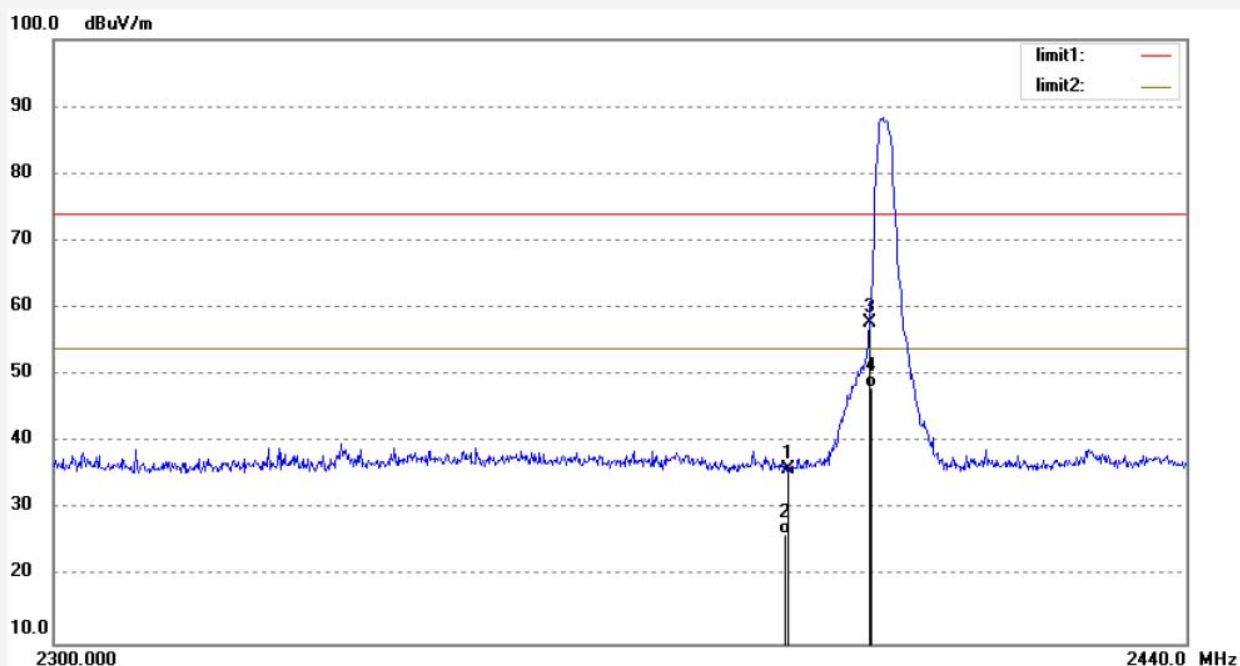
Date: 15/07/24/

Time: 18/25/30

Engineer Signature:

Distance: 3m

Note: Report NO.:ATE20151559



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	43.53	-7.53	36.00	74.00	-38.00	peak			
2	2390.000	33.76	-7.53	26.23	54.00	-27.77	peak			
3	2400.000	65.33	-7.46	57.87	74.00	-16.13	peak			
4	2400.000	55.64	-7.46	48.18	54.00	-5.82	peak			

Note: Average measurement with peak detection at No.2&4

Job No.: STAR2015 #443

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Braven 2200m Portable Bluetooth Speaker

Mode: TX 2402MHz(PI/4DQPSK)

Model: 2200m

Manufacturer: Braven LC

Polarization: Vertical

Power Source: AC 120V/60Hz

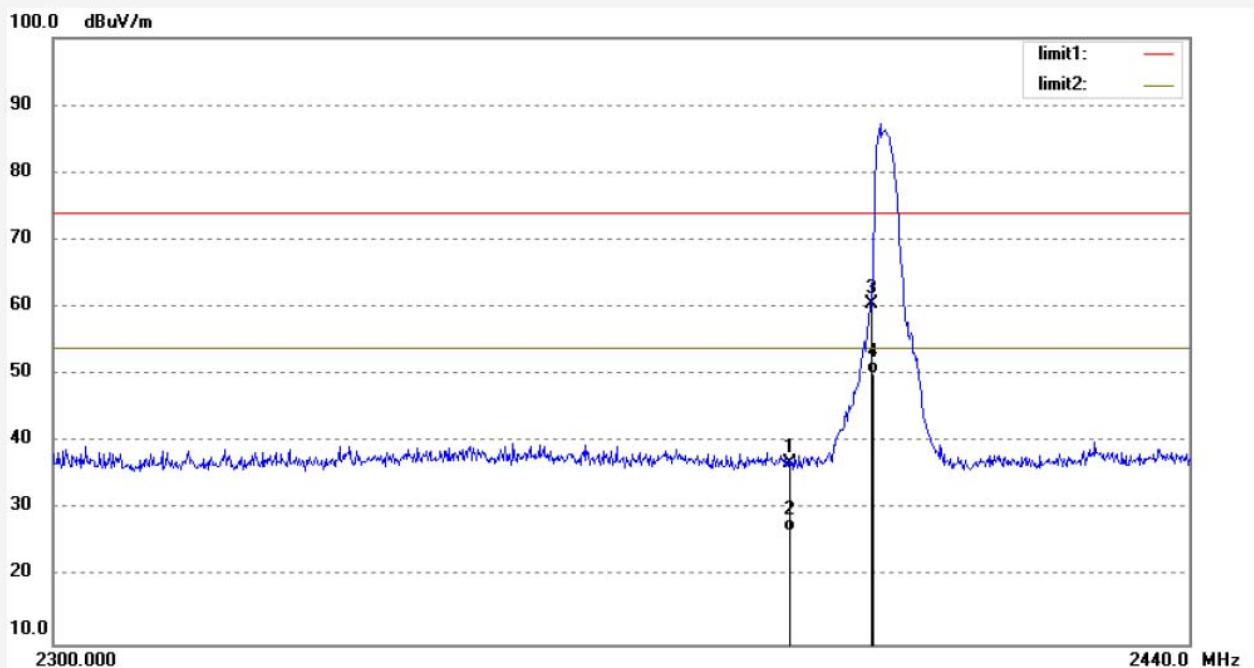
Date: 15/07/24/

Time: 18/22/26

Engineer Signature:

Distance: 3m

Note: Report NO.:ATE20151559



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	44.51	-7.53	36.98	74.00	-37.02	peak			
2	2390.000	34.28	-7.53	26.75	54.00	-27.25	peak			
3	2400.000	67.99	-7.46	60.53	74.00	-13.47	peak			
4	2400.000	57.64	-7.46	50.18	54.00	-3.82	peak			

Note: Average measurement with peak detection at No.2&4



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Job No.: STAR2015 #441

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Braven 2200m Portable Bluetooth Speaker

Mode: TX 2480MHz(PI/4DQPSK)

Model: 2200m

Manufacturer: Braven LC

Polarization: Horizontal

Power Source: AC 120V/60Hz

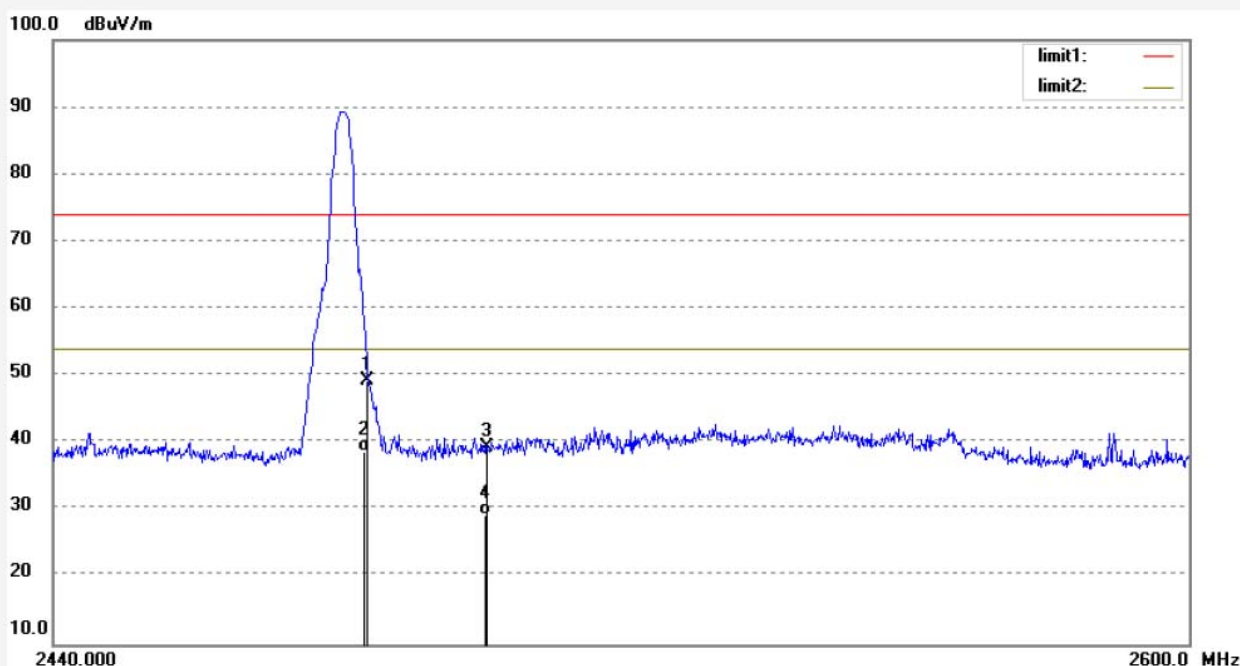
Date: 15/07/24/

Time: 18/18/18

Engineer Signature:

Distance: 3m

Note: Report NO.:ATE20151559



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	56.61	-7.37	49.24	74.00	-24.76	peak			
2	2483.500	46.13	-7.37	38.76	54.00	-15.24	peak			
3	2500.000	46.87	-7.40	39.47	74.00	-34.53	peak			
4	2500.000	36.72	-7.40	29.32	54.00	-24.68	peak			

Note: Average measurement with peak detection at No.2&4

Job No.: STAR2015 #442

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Braven 2200m Portable Bluetooth Speaker

Mode: TX 2480MHz(PI/4DQPSK)

Model: 2200m

Manufacturer: Braven LC

Polarization: Vertical

Power Source: AC 120V/60Hz

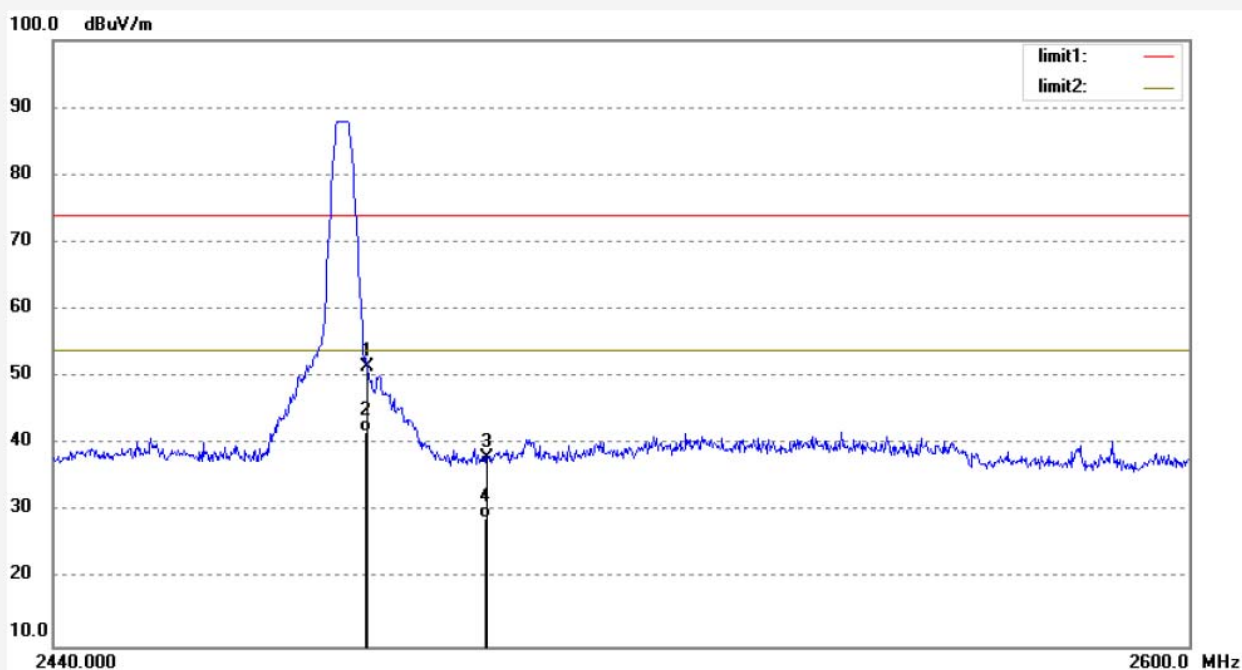
Date: 15/07/24/

Time: 18/19/35

Engineer Signature:

Distance: 3m

Note: Report NO.:ATE20151559



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	58.83	-7.37	51.46	74.00	-22.54	peak			
2	2483.500	49.30	-7.37	41.93	54.00	-12.07	peak			
3	2500.000	45.36	-7.40	37.96	74.00	-36.04	peak			
4	2500.000	36.46	-7.40	29.06	54.00	-24.94	peak			

Note: Average measurement with peak detection at No.2&4

Job No.: STAR2015 #445

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Braven 2200m Portable Bluetooth Speaker

Mode: TX 2402MHz(8DPSK)

Model: 2200m

Manufacturer: Braven LC

Polarization: Horizontal

Power Source: AC 120V/60Hz

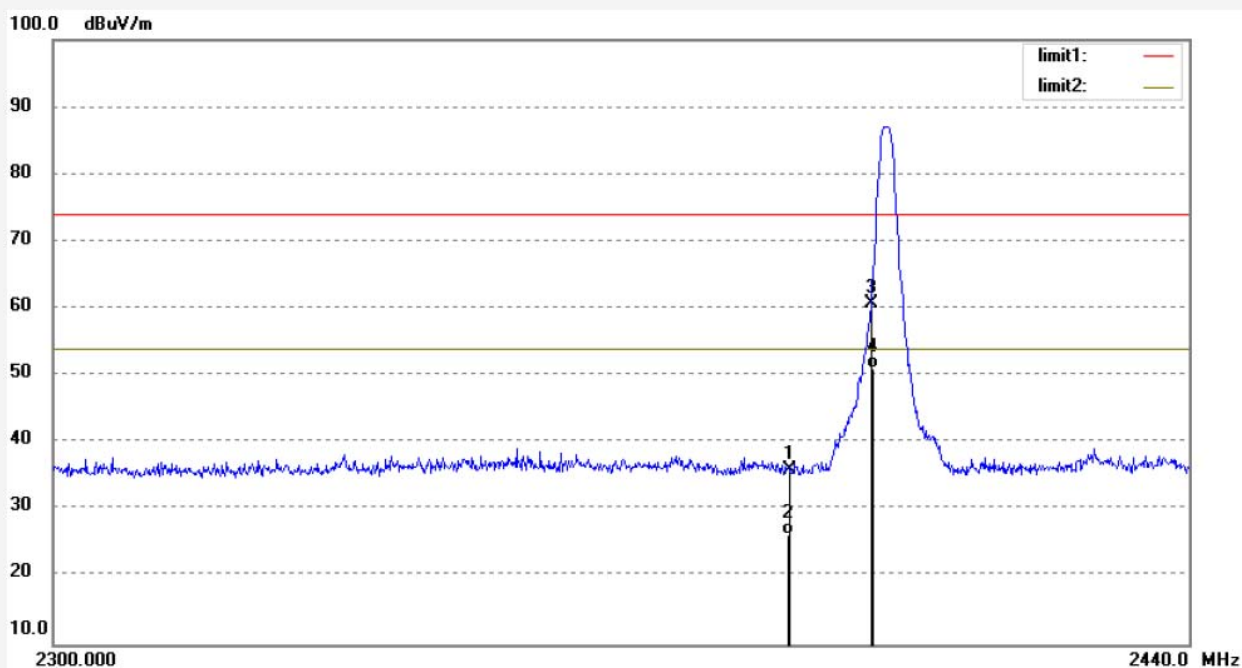
Date: 15/07/24/

Time: 18/27/57

Engineer Signature:

Distance: 3m

Note: Report NO.:ATE20151559



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	43.55	-7.53	36.02	74.00	-37.98	peak			
2	2390.000	33.81	-7.53	26.28	54.00	-27.72	peak			
3	2400.000	68.21	-7.46	60.75	74.00	-13.25	peak			
4	2400.000	58.43	-7.46	50.97	54.00	-3.03	peak			

Note: Average measurement with peak detection at No.2&4



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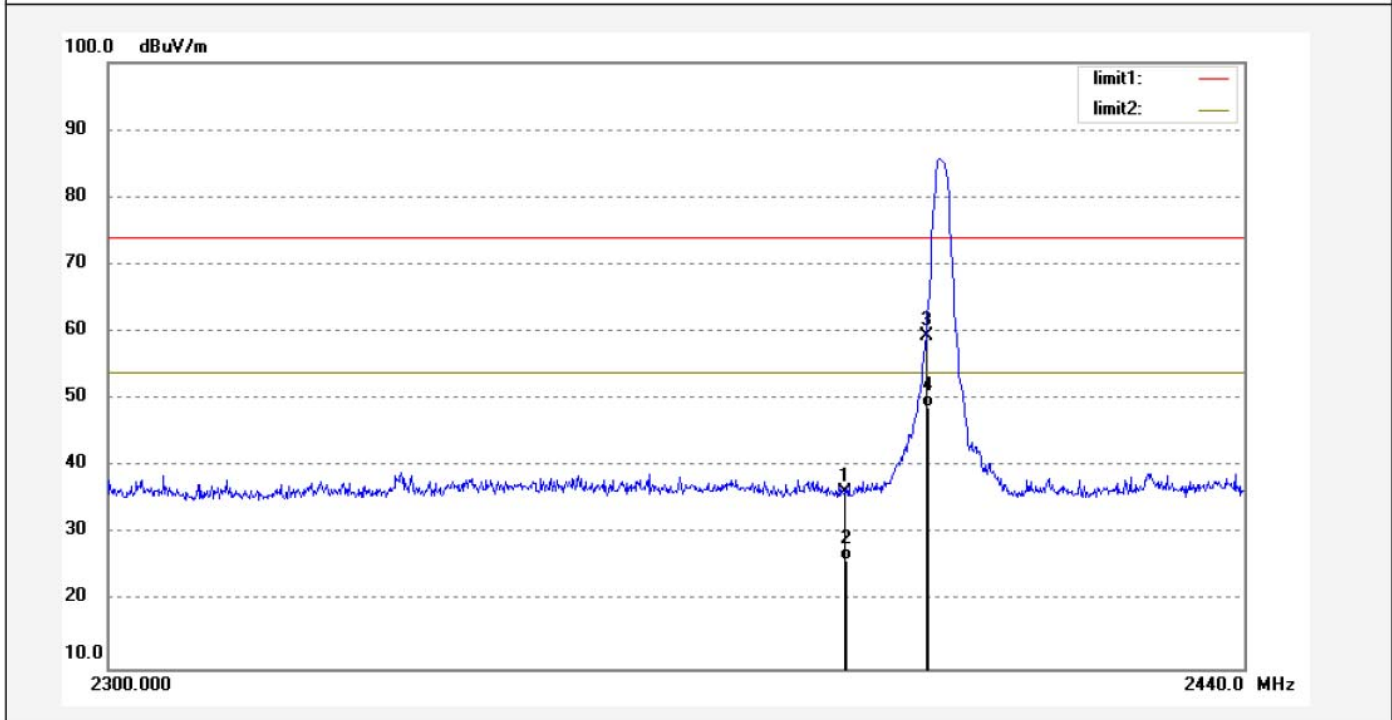
Site: 2# Chamber

Tel:+86-0755-26503290

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Job No.: STAR2015 #446	Polarization: Vertical
Standard: FCC PK	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 15/07/24/
Temp.(C)/Hum.(%) 23 C / 48 %	Time: 18/29/04
EUT: Braven 2200m Portable Bluetooth Speaker	Engineer Signature:
Mode: TX 2402MHz(8DPSK)	Distance: 3m
Model: 2200m	
Manufacturer: Braven LC	

Note: Report NO.:ATE20151559



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	43.78	-7.53	36.25	74.00	-37.75	peak			
2	2390.000	33.70	-7.53	26.17	54.00	-27.83	peak			
3	2400.000	66.96	-7.46	59.50	74.00	-14.50	peak			
4	2400.000	56.30	-7.46	48.84	54.00	-5.16	peak			

Note: Average measurement with peak detection at No.2&4

Job No.: STAR2015 #448

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Braven 2200m Portable Bluetooth Speaker

Mode: TX 2480MHz(8DPSK)

Model: 2200m

Manufacturer: Braven LC

Polarization: Horizontal

Power Source: AC 120V/60Hz

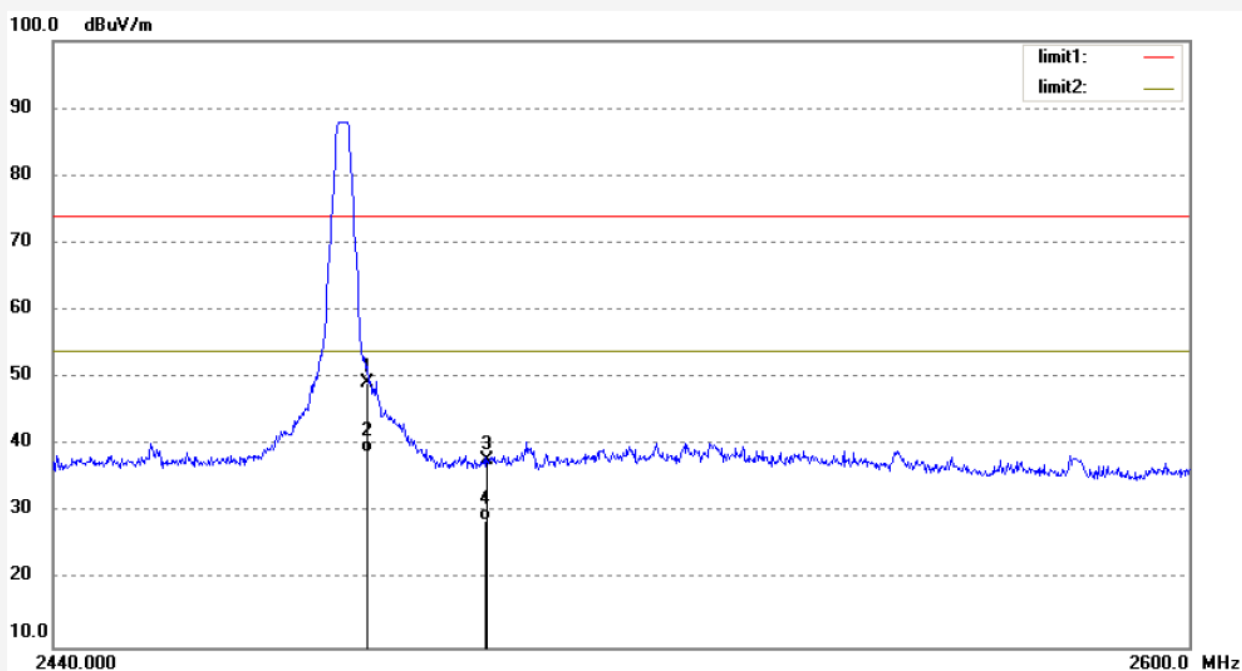
Date: 15/07/24/

Time: 18/32/57

Engineer Signature:

Distance: 3m

Note: Report NO.:ATE20151559



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	56.54	-7.37	49.17	74.00	-24.83	peak			
2	2483.500	46.28	-7.37	38.91	54.00	-15.09	peak			
3	2500.000	45.16	-7.40	37.76	74.00	-36.24	peak			
4	2500.000	36.10	-7.40	28.70	54.00	-25.30	peak			

Note: Average measurement with peak detection at No.2&4



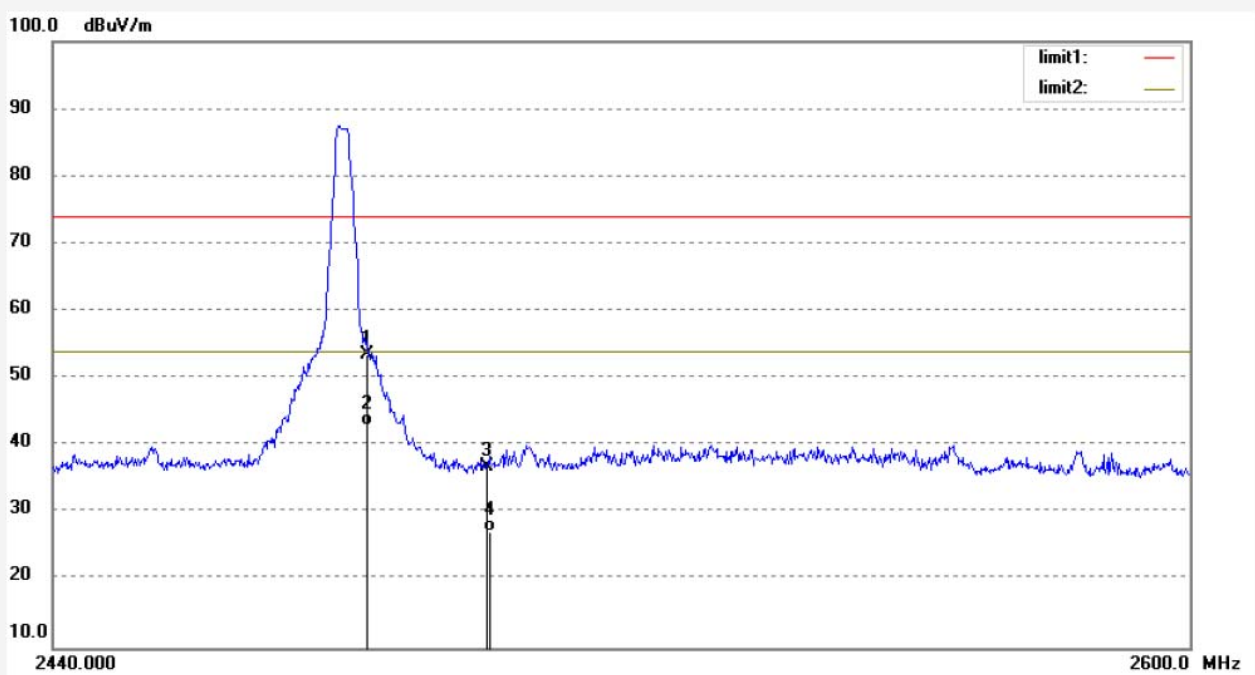
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Site: 2# Chamber
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Job No.: STAR2015 #447	Polarization: Vertical
Standard: FCC PK	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 15/07/24/
Temp.(C)/Hum.(%) 23 C / 48 %	Time: 18/31/26
EUT: Braven 2200m Portable Bluetooth Speaker	Engineer Signature:
Mode: TX 2480MHz(8DPSK)	Distance: 3m
Model: 2200m	
Manufacturer: Braven LC	

Note: Report NO.:ATE20151559



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	60.83	-7.37	53.46	74.00	-20.54	peak			
2	2483.500	50.40	-7.37	43.03	54.00	-10.97	peak			
3	2500.000	44.36	-7.40	36.96	74.00	-37.04	peak			
4	2500.000	34.69	-7.40	27.29	54.00	-26.71	peak			

Note: Average measurement with peak detection at No.2&4

Hopping mode

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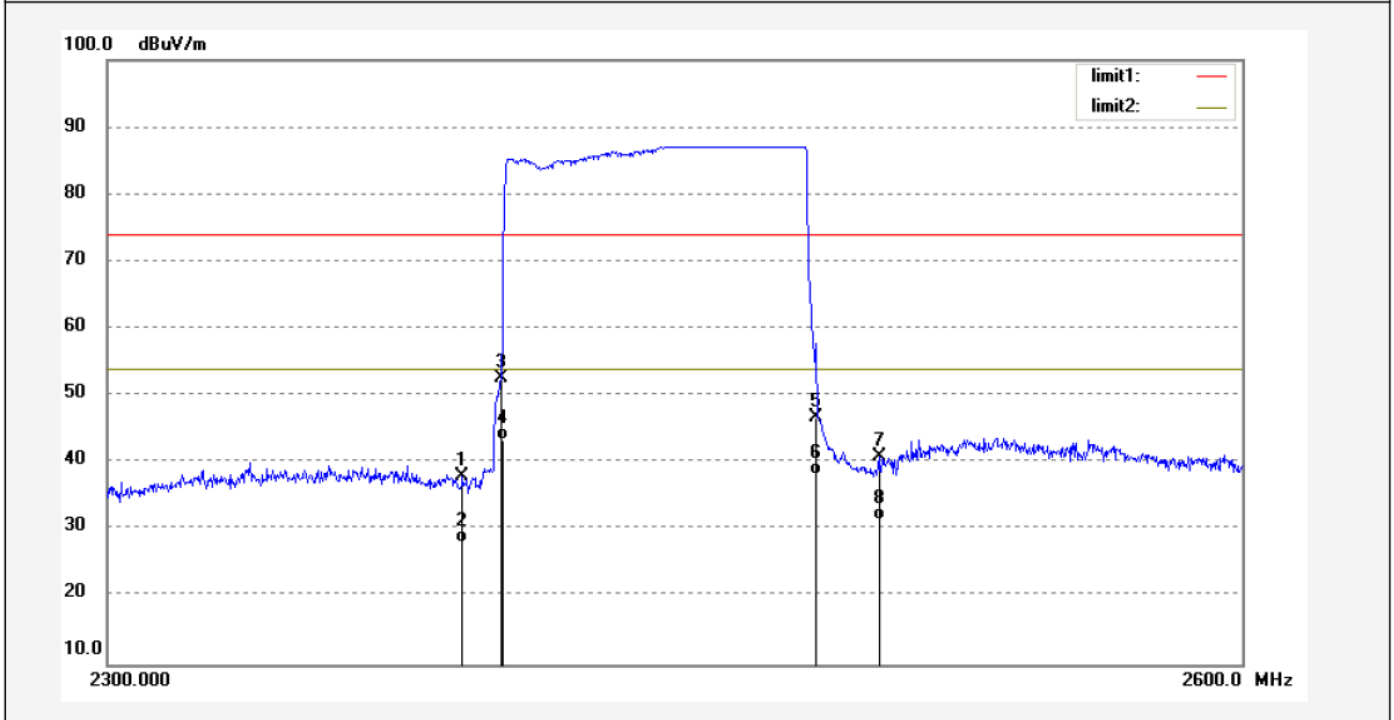
Site: 2# Chamber

Tel:+86-0755-26503290

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Job No.: STAR2015 #450	Polarization: Horizontal
Standard: FCC PK	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 15/07/24/
Temp.(C)/Hum.(%) 23 C / 48 %	Time: 18/38/50
EUT: Braven 2200m Portable Bluetooth Speaker	Engineer Signature:
Mode: HOPPING (GFSK)	Distance: 3m
Model: 2200m	
Manufacturer: Braven LC	

Note: Report NO.:ATE20151559



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	45.48	-7.53	37.95	74.00	-36.05	peak			
2	2390.000	35.69	-7.53	28.16	54.00	-25.84	peak			
3	2400.000	60.00	-7.46	52.54	74.00	-21.46	peak			
4	2400.000	50.88	-7.46	43.42	54.00	-10.58	peak			
5	2483.500	54.24	-7.37	46.87	74.00	-27.13	peak			
6	2483.500	45.67	-7.37	38.30	54.00	-15.70	peak			
7	2500.000	48.28	-7.40	40.88	74.00	-33.12	peak			
8	2500.000	38.88	-7.40	31.48	54.00	-22.52	peak			

Note: Average measurement with peak detection at No.2, 4, 6, 8


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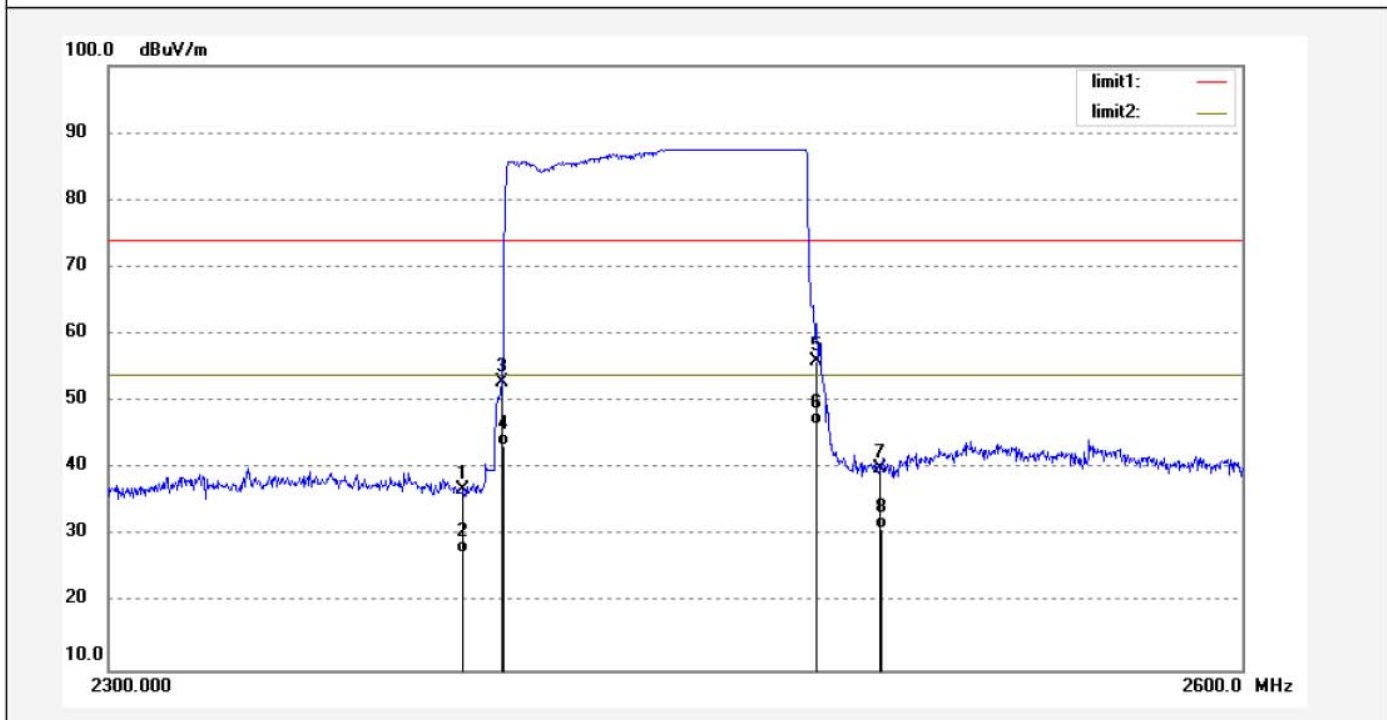
Site: 2# Chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: STAR2015 #449	Polarization: Vertical
Standard: FCC PK	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 15/07/24/
Temp.(C)/Hum.(%) 23 C / 48 %	Time: 18/37/00
EUT: Braven 2200m Portable Bluetooth Speaker	Engineer Signature:
Mode: HOPPING (GFSK)	Distance: 3m
Model: 2200m	
Manufacturer: Braven LC	

Note: Report NO.:ATE20151559



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	44.36	-7.53	36.83	74.00	-37.17	peak			
2	2390.000	34.89	-7.53	27.36	54.00	-26.64	peak			
3	2400.000	60.26	-7.46	52.80	74.00	-21.20	peak			
4	2400.000	50.79	-7.46	43.33	54.00	-10.67	peak			
5	2483.500	63.32	-7.37	55.95	74.00	-18.05	peak			
6	2483.500	53.97	-7.37	46.60	54.00	-7.40	peak			
7	2500.000	47.45	-7.40	40.05	74.00	-33.95	peak			
8	2500.000	38.37	-7.40	30.97	54.00	-23.03	peak			

Note: Average measurement with peak detection at No.2, 4, 6, 8

Job No.: STAR2015 #451

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Braven 2200m Portable Bluetooth Speaker

Mode: HOPPING (PI/4DQPSK)

Model: 2200m

Manufacturer: Braven LC

Polarization: Horizontal

Power Source: AC 120V/60Hz

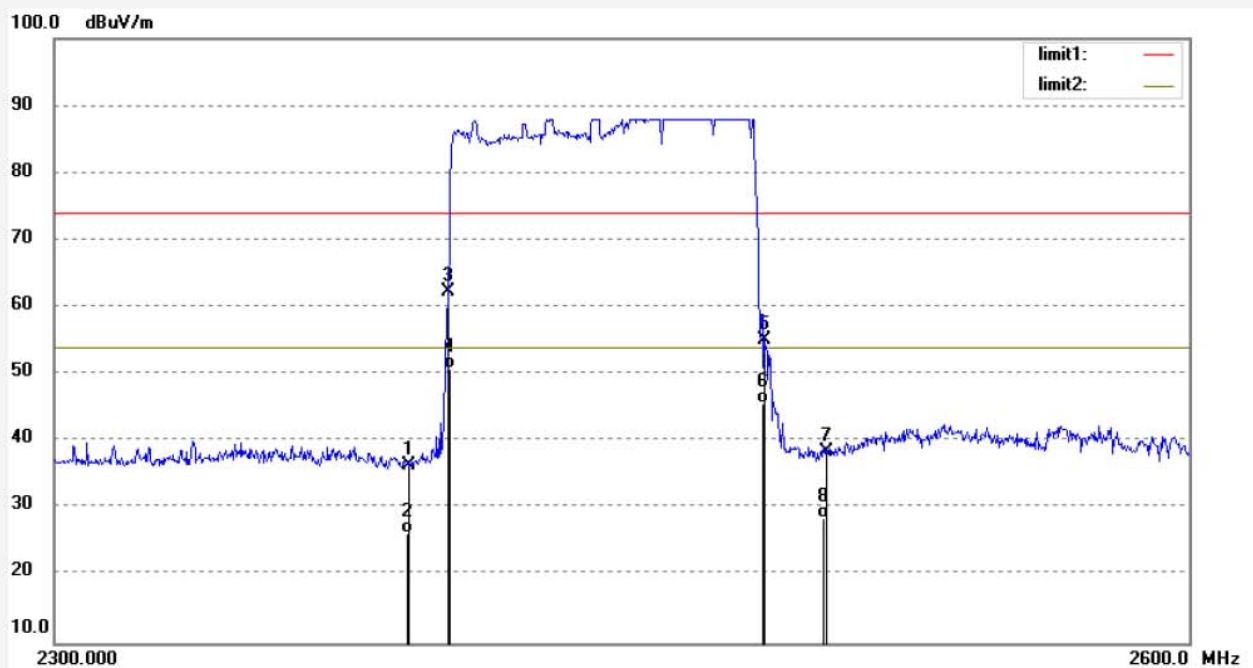
Date: 15/07/24/

Time: 18/41/25

Engineer Signature:

Distance: 3m

Note: Report NO.:ATE20151559



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	43.96	-7.53	36.43	74.00	-37.57	peak			
2	2390.000	33.76	-7.53	26.23	54.00	-27.77	peak			
3	2400.000	69.87	-7.46	62.41	74.00	-11.59	peak			
4	2400.000	58.30	-7.46	50.84	54.00	-3.16	peak			
5	2483.500	62.38	-7.37	55.01	74.00	-18.99	peak			
6	2483.500	52.97	-7.37	45.60	54.00	-8.40	peak			
7	2500.000	45.96	-7.40	38.56	74.00	-35.44	peak			
8	2500.000	35.99	-7.40	28.59	54.00	-25.41	peak			

Note: Average measurement with peak detection at No.2, 4, 6, 8

Job No.: STAR2015 #452

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Braven 2200m Portable Bluetooth Speaker

Mode: HOPPING (PI/4DQPSK)

Model: 2200m

Manufacturer: Braven LC

Polarization: Vertical

Power Source: AC 120V/60Hz

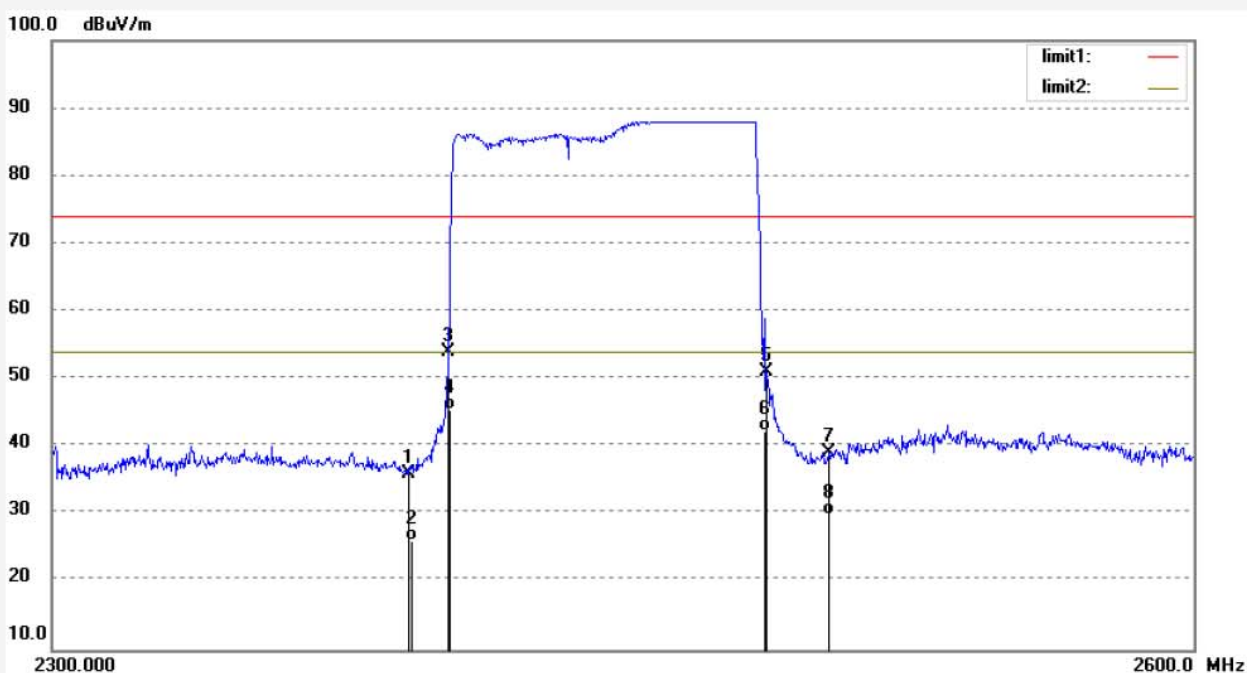
Date: 15/07/24/

Time: 18/43/09

Engineer Signature:

Distance: 3m

Note: Report NO.:ATE20151559



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	43.49	-7.53	35.96	74.00	-38.04	peak			
2	2390.000	33.69	-7.53	26.16	54.00	-27.84	peak			
3	2400.000	61.55	-7.46	54.09	74.00	-19.91	peak			
4	2400.000	52.79	-7.46	45.33	54.00	-8.67	peak			
5	2483.500	58.47	-7.37	51.10	74.00	-22.90	peak			
6	2483.500	49.64	-7.37	42.27	54.00	-11.73	peak			
7	2500.000	46.56	-7.40	39.16	74.00	-34.84	peak			
8	2500.000	37.38	-7.40	29.98	54.00	-24.02	peak			

Note: Average measurement with peak detection at No.2, 4, 6, 8

Job No.: STAR2015 #454

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Braven 2200m Portable Bluetooth Speaker

Mode: HOPPING (8DPSK)

Model: 2200m

Manufacturer: Braven LC

Polarization: Horizontal

Power Source: AC 120V/60Hz

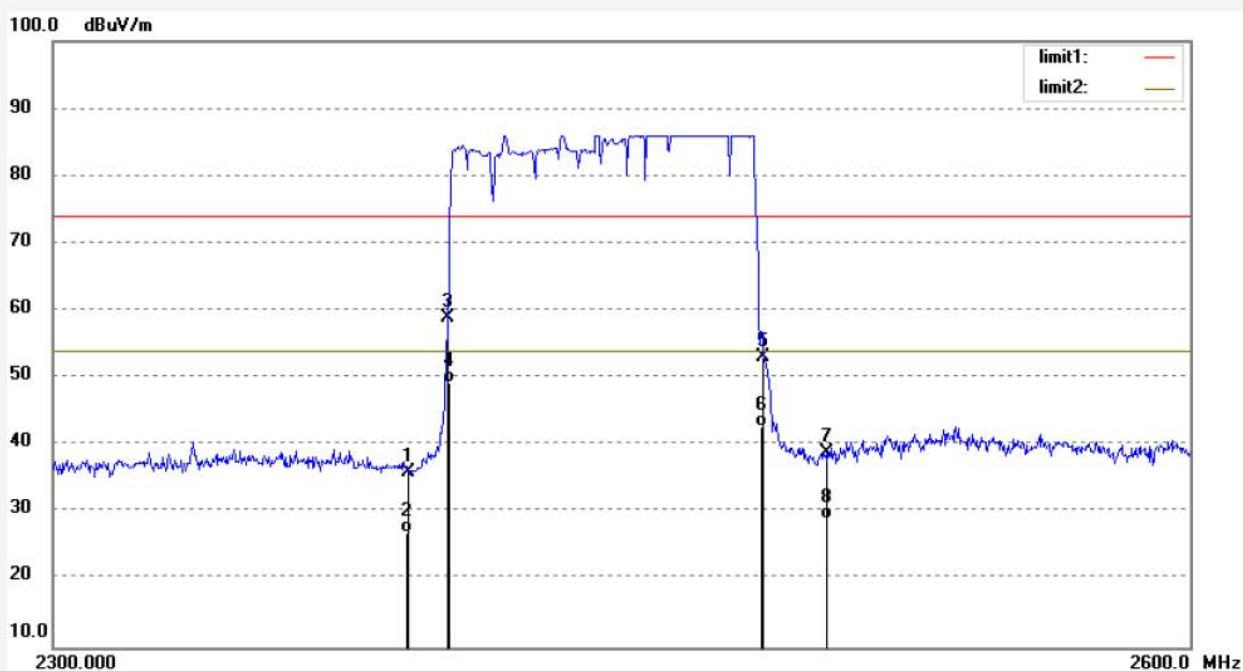
Date: 15/07/24/

Time: 18/47/18

Engineer Signature:

Distance: 3m

Note: Report NO.:ATE20151559

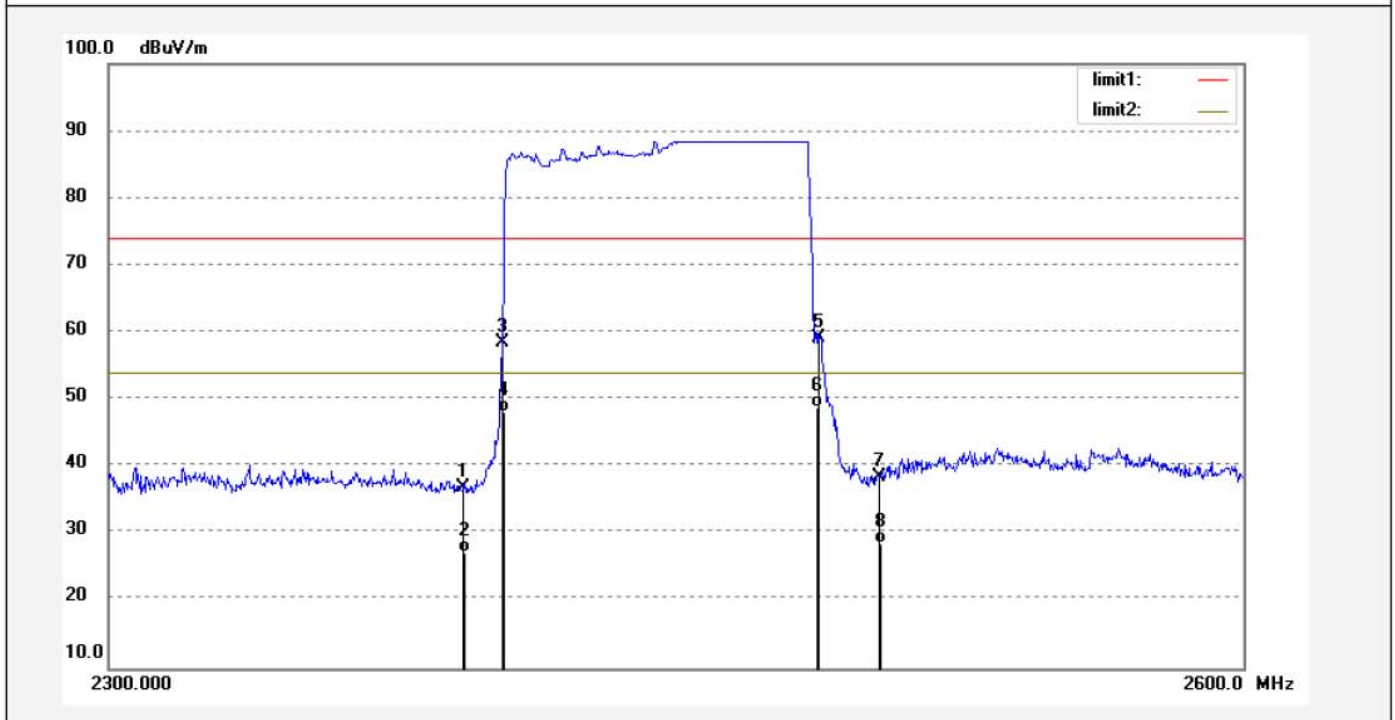


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	43.55	-7.53	36.02	74.00	-37.98	peak			
2	2390.000	34.62	-7.53	27.09	54.00	-26.91	peak			
3	2400.000	66.47	-7.46	59.01	74.00	-14.99	peak			
4	2400.000	56.79	-7.46	49.33	54.00	-4.67	peak			
5	2483.500	60.54	-7.37	53.17	74.00	-20.83	peak			
6	2483.500	50.22	-7.37	42.85	54.00	-11.15	peak			
7	2500.000	46.21	-7.40	38.81	74.00	-35.19	peak			
8	2500.000	36.43	-7.40	29.03	54.00	-24.97	peak			

Note: Average measurement with peak detection at No.2, 4, 6, 8

Job No.: STAR2015 #453	Polarization: Vertical
Standard: FCC PK	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 15/07/24/
Temp.(C)/Hum.(%) 23 C / 48 %	Time: 18/45/59
EUT: Braven 2200m Portable Bluetooth Speaker	Engineer Signature:
Mode: HOPPING (8DPSK)	Distance: 3m
Model: 2200m	
Manufacturer: Braven LC	

Note: Report NO.:ATE20151559



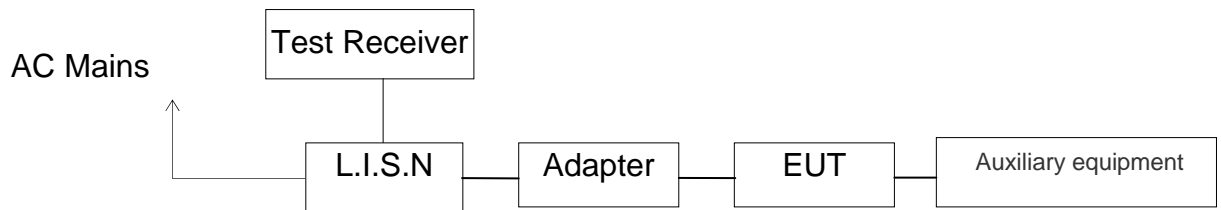
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	44.31	-7.53	36.78	74.00	-37.22	peak			
2	2390.000	34.69	-7.53	27.16	54.00	-26.84	peak			
3	2400.000	65.84	-7.46	58.38	74.00	-15.62	peak			
4	2400.000	55.55	-7.46	48.09	54.00	-5.91	peak			
5	2483.500	66.61	-7.37	59.24	74.00	-14.76	peak			
6	2483.500	56.17	-7.37	48.80	54.00	-5.20	peak			
7	2500.000	45.87	-7.40	38.47	74.00	-35.53	peak			
8	2500.000	35.88	-7.40	28.48	54.00	-25.52	peak			

Note: Average measurement with peak detection at No.2, 4, 6, 8

12.AC POWER LINE CONDUCTED EMISSION FOR FCC PART

15 SECTION 15.207(A)

12.1.Block Diagram of Test Setup



(EUT: Braven 2200m Portable Bluetooth Speaker)

12.2.Power Line Conducted Emission Measurement Limits

Frequency (MHz)	Limit dB(μV)	
	Quasi-peak Level	Average Level
0.15 - 0.50	66.0 – 56.0 *	56.0 – 46.0 *
0.50 - 5.00	56.0	46.0
5.00 - 30.00	60.0	50.0

NOTE1: The lower limit shall apply at the transition frequencies.

NOTE2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.

12.3.Configuration of EUT on Measurement

The following equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner, which tends to maximize its emission characteristics in a normal application.

12.4.Operating Condition of EUT

12.4.1.Setup the EUT and simulator as shown as Section 5.1.

12.4.2.Turn on the power of all equipment.

12.4.3.Let the EUT work in test mode and measure it.

12.5. Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC lines 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 C63.4: 2009 on Conducted Emission Measurement.

The bandwidth of test receiver (R & S ESCS30) is set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

12.6. Power Line Conducted Emission Measurement Results

PASS.

The frequency range from 150kHz to 30MHz is checked.

Test mode : BT communicating(AC 120V/60Hz)

MEASUREMENT RESULT: "ZY72111_fin"

2015-7-21 11:17

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.176000	46.20	10.5	65	18.5	QP	L1	GND
1.756000	33.70	11.7	56	22.3	QP	L1	GND
15.383000	30.80	11.9	60	29.2	QP	L1	GND

MEASUREMENT RESULT: "ZY72111_fin2"

2015-7-21 11:17

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.296000	36.30	11.0	50	14.1	AV	L1	GND
1.250000	23.30	11.6	46	22.7	AV	L1	GND
14.888000	25.20	11.9	50	24.8	AV	L1	GND

MEASUREMENT RESULT: "ZY72112_fin"

2015-7-21 11:20

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.170000	40.90	10.5	65	24.1	QP	N	GND
1.022000	37.00	11.6	56	19.0	QP	N	GND
15.077000	33.00	11.9	60	27.0	QP	N	GND

MEASUREMENT RESULT: "ZY72112_fin2"

2015-7-21 11:20

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.476000	32.60	11.4	46	13.8	AV	N	GND
1.192000	26.20	11.6	46	19.8	AV	N	GND
14.726000	26.20	11.9	50	23.8	AV	N	GND

Test mode : BT communicating(AC 240V/60Hz)								
MEASUREMENT RESULT: "zy72107_fin"								
2015-7-21 11:06								
Frequency	Level	Transd	Limit	Margin	Detector	Line	PE	
MHz	dBµV	dB	dBµV	dB				
0.168000	45.90	10.5	65	19.2	QP	L1	GND	
0.399000	39.90	11.3	58	18.0	QP	L1	GND	
0.471000	40.20	11.4	57	16.3	QP	L1	GND	
MEASUREMENT RESULT: "zy72107_fin2"								
2015-7-21 11:06								
Frequency	Level	Transd	Limit	Margin	Detector	Line	PE	
MHz	dBµV	dB	dBµV	dB				
0.348000	37.60	11.1	49	11.4	AV	L1	GND	
0.390000	37.90	11.3	48	10.2	AV	L1	GND	
0.519000	35.10	11.5	46	10.9	AV	L1	GND	
MEASUREMENT RESULT: "zy72108_fin"								
2015-7-21 11:09								
Frequency	Level	Transd	Limit	Margin	Detector	Line	PE	
MHz	dBµV	dB	dBµV	dB				
0.153000	35.10	10.4	66	30.7	QP	N	GND	
0.177000	50.80	10.5	65	13.8	QP	N	GND	
0.399000	41.80	11.3	58	16.1	QP	N	GND	
0.510000	36.60	11.5	56	19.4	QP	N	GND	
MEASUREMENT RESULT: "zy72108_fin2"								
2015-7-21 11:09								
Frequency	Level	Transd	Limit	Margin	Detector	Line	PE	
MHz	dBµV	dB	dBµV	dB				
0.174000	44.50	10.5	55	10.3	AV	N	GND	
0.390000	37.40	11.3	48	10.7	AV	N	GND	
0.522000	34.70	11.5	46	11.3	AV	N	GND	

Emissions attenuated more than 20 dB below the permissible value are not reported.

The spectral diagrams are attached as below.

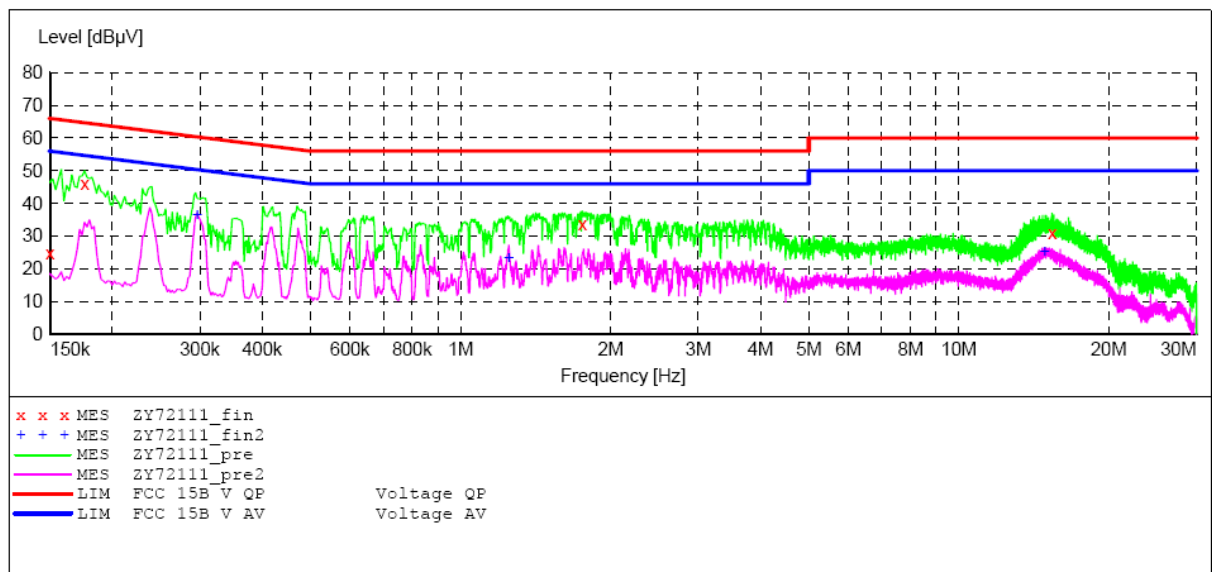
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: Braven 2200m Portable Bluetooth Speaker M/N:2200m
 Manufacturer: Braven LC
 Operating Condition: BT
 Test Site: 2#Shielding Room
 Operator: star
 Test Specification: L 120V/60Hz
 Comment: Report No.:ATE20151559
 Start of Test: 2015-7-21 / 11:16:05

SCAN TABLE: "V 150K-30MHZ fin"

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	30.0 MHz	4.5 kHz	QuasiPeak	1.0 s	9 kHz	LISN (ESH3-Z5)
Average						



MEASUREMENT RESULT: "ZY72111_fin"

2015-7-21 11:17

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.176000	46.20	10.5	65	18.5	QP	L1	GND
1.756000	33.70	11.7	56	22.3	QP	L1	GND
15.383000	30.80	11.9	60	29.2	QP	L1	GND

MEASUREMENT RESULT: "ZY72111_fin2"

2015-7-21 11:17

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.296000	36.30	11.0	50	14.1	AV	L1	GND
1.250000	23.30	11.6	46	22.7	AV	L1	GND
14.888000	25.20	11.9	50	24.8	AV	L1	GND

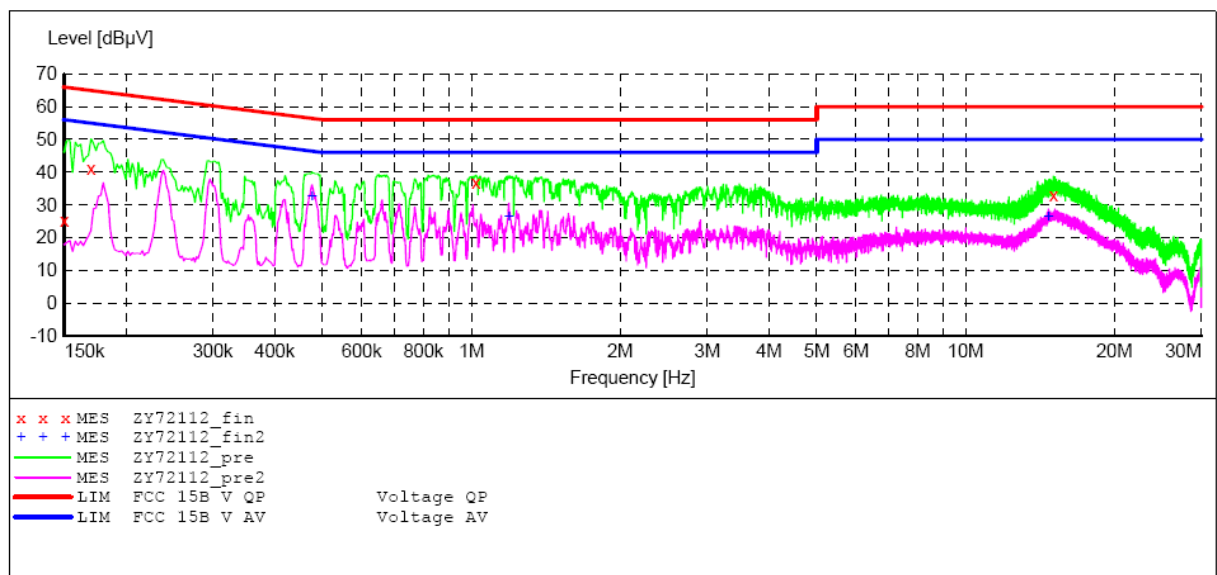
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: Braven 2200m Portable Bluetooth Speaker M/N:2200m
 Manufacturer: Braven LC
 Operating Condition: BT
 Test Site: 2#Shielding Room
 Operator: star
 Test Specification: N 120V/60Hz
 Comment: Report No.:ATE20151559
 Start of Test: 2015-7-21 / 11:18:17

SCAN TABLE: "V 150K-30MHZ fin"

Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	30.0 MHz	4.5 kHz	QuasiPeak	1.0 s	9 kHz	LISN (ESH3-Z5)
Average						



MEASUREMENT RESULT: "ZY72112_fin"

2015-7-21 11:20

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.170000	40.90	10.5	65	24.1	QP	N	GND
1.022000	37.00	11.6	56	19.0	QP	N	GND
15.077000	33.00	11.9	60	27.0	QP	N	GND

MEASUREMENT RESULT: "ZY72112_fin2"

2015-7-21 11:20

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.476000	32.60	11.4	46	13.8	AV	N	GND
1.192000	26.20	11.6	46	19.8	AV	N	GND
14.726000	26.20	11.9	50	23.8	AV	N	GND

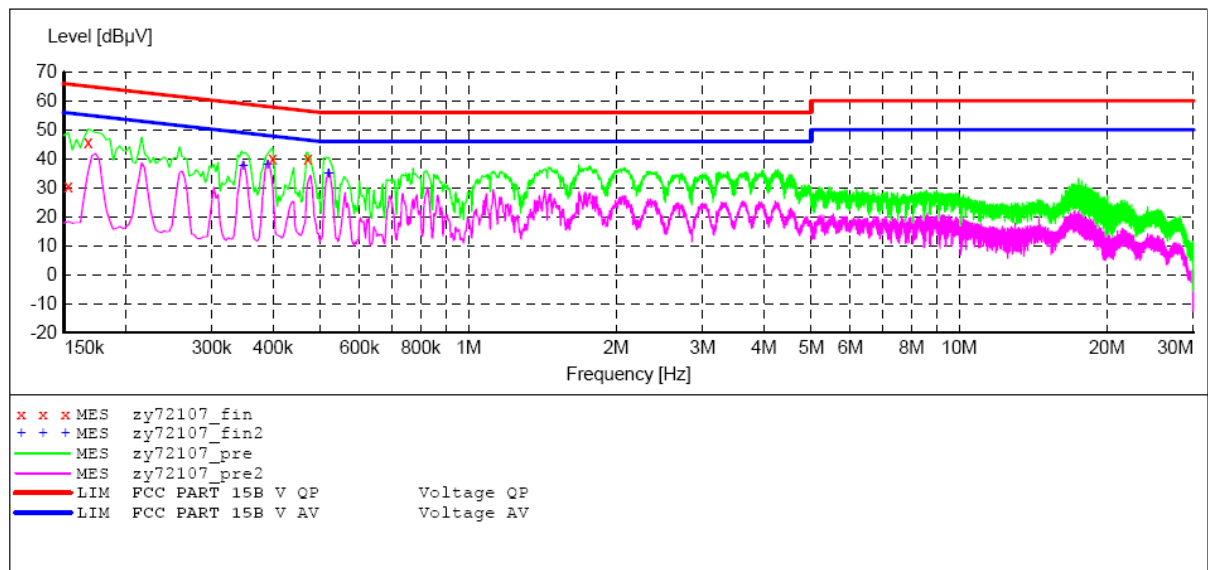
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: Braven 2200m Portable Bluetooth Speaker M/N:2200m
 Manufacturer: Braven LC
 Operating Condition: BT Operation
 Test Site: 2#Shielding Room
 Operator: star
 Test Specification: L 240V/60Hz
 Comment: Report No.:ATE20151559
 Start of Test: 2015-7-21 / 11:04:50

SCAN TABLE: "V 150K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 150.0 kHz 30.0 MHz 4.5 kHz QuasiPeak 1.0 s 9 kHz LISN (ESH3-Z5)
 Average



MEASUREMENT RESULT: "zy72107_fin"

2015-7-21 11:06

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.168000	45.90	10.5	65	19.2	QP	L1	GND
0.399000	39.90	11.3	58	18.0	QP	L1	GND
0.471000	40.20	11.4	57	16.3	QP	L1	GND

MEASUREMENT RESULT: "zy72107_fin2"

2015-7-21 11:06

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.348000	37.60	11.1	49	11.4	AV	L1	GND
0.390000	37.90	11.3	48	10.2	AV	L1	GND
0.519000	35.10	11.5	46	10.9	AV	L1	GND

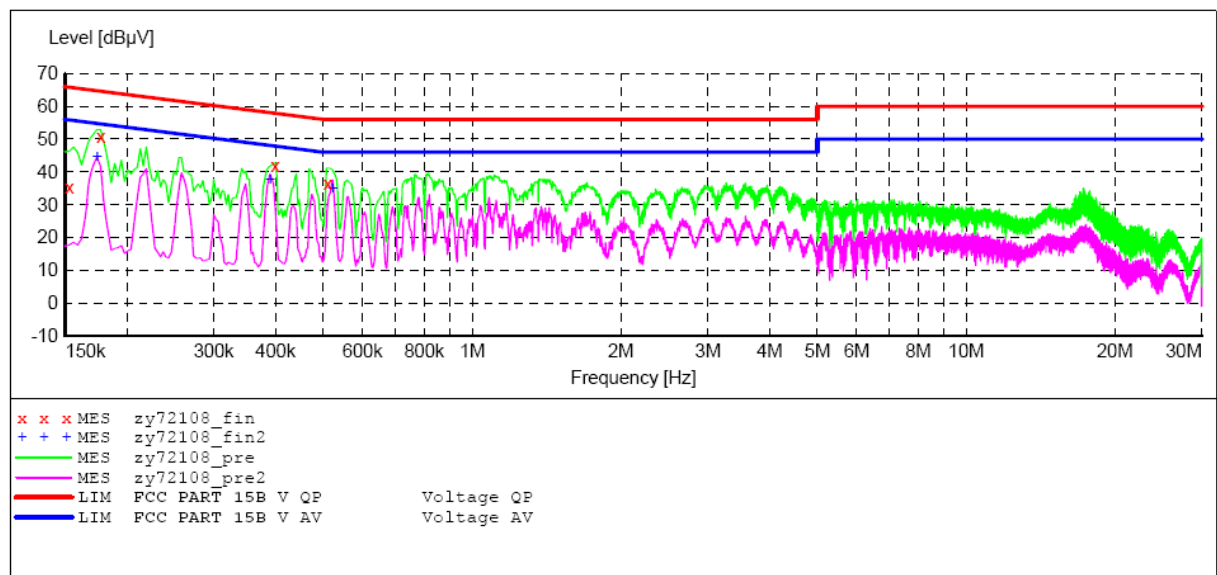
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: Braven 2200m Portable Bluetooth Speaker M/N:2200m
 Manufacturer: Braven LC
 Operating Condition: BT Operation
 Test Site: 2#Shielding Room
 Operator: star
 Test Specification: N 240V/60Hz
 Comment: Report No.:ATE20151559
 Start of Test: 2015-7-21 / 11:07:03

SCAN TABLE: "V 150K-30MHz fin"

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	30.0 MHz	4.5 kHz	QuasiPeak	1.0 s	9 kHz	LISN (ESH3-Z5)
Average						



MEASUREMENT RESULT: "zy72108_fin"

2015-7-21 11:09

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.153000	35.10	10.4	66	30.7	QP	N	GND
0.177000	50.80	10.5	65	13.8	QP	N	GND
0.399000	41.80	11.3	58	16.1	QP	N	GND
0.510000	36.60	11.5	56	19.4	QP	N	GND

MEASUREMENT RESULT: "zy72108_fin2"

2015-7-21 11:09

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.174000	44.50	10.5	55	10.3	AV	N	GND
0.390000	37.40	11.3	48	10.7	AV	N	GND
0.522000	34.70	11.5	46	11.3	AV	N	GND

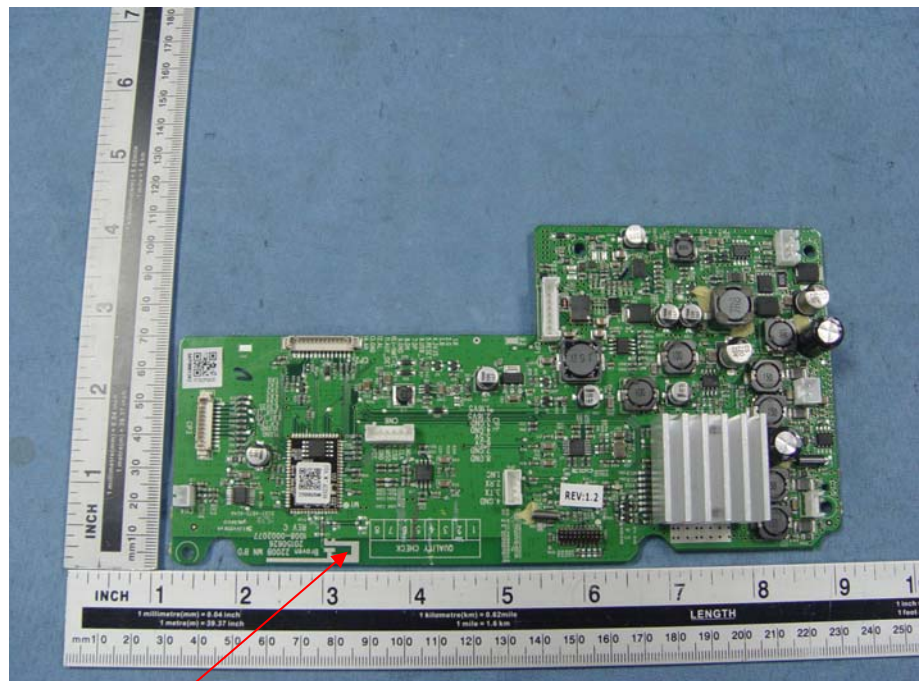
13.ANTENNA REQUIREMENT

13.1.The Requirement

According to Section 15.203, 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.

13.2.Antenna Construction

The antenna is PCB Layout antenna, no consideration of replacement. Therefore, the equipment complies with the antenna requirement of Section 15.203.



Antenna