

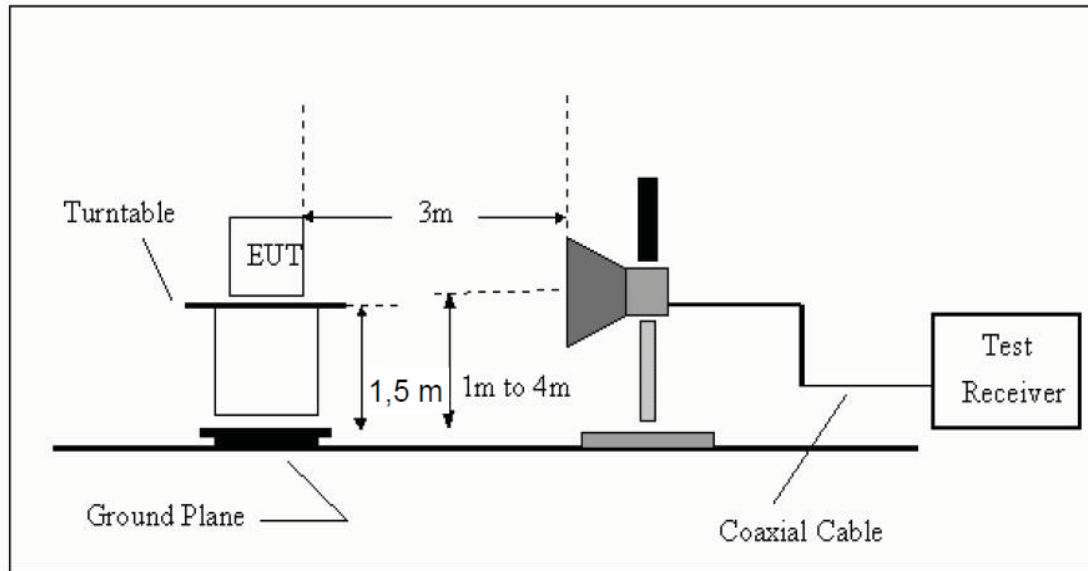
1GHz—25GHz Radiated emissison Test result									
EUT: Outdoor Wireless Speakers					M/N: CORNERSTONE				
Power: DC 15V from adapter									
Test date: 2016-01-06 Test site: 3m Chamber Tested by: Peter									
Test mode: 8- DQPSK Tx CH1 2402MHz									
Antenna polarity: Vertical									
No	Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4804	45.16	33.95	10.18	34.26	55.03	74	18.97	PK
2	4804	36.76	33.95	10.18	34.26	46.63	54	7.37	AV
3	7206	/							
4	9608	/							
5	12010	/							
Antenna Polarity: Horizontal									
1	4804	44.84	33.95	10.18	34.26	54.71	74	19.29	PK
2	4804	36.42	33.95	10.18	34.26	46.29	54	7.71	AV
3	7206	/							
4	9608	/							
5	12010	/							
Note:									
1, Measuring frequency from 1GHz to 25GHz									
2, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK									
2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK									
3, Result = Read level + Antenna factor + cable loss-Amp factor									
4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.									

1GHz—25GHz Radiated emissison Test result									
EUT: Outdoor Wireless Speakers					M/N: CORNERSTONE				
Power: DC 15V from adapter									
Test date: 2016-01-06 Test site: 3m Chamber Tested by: Peter									
Test mode: 8- DQPSK Tx CH40 2441MHz									
Antenna polarity: Vertical									
No	Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4882	44.97	33.93	10.2	34.29	54.81	74	19.19	PK
2	4882	36.85	33.93	10.2	34.29	46.69	54	7.31	AV
3	7323	/							
4	9764	/							
5	12205	/							
Antenna Polarity: Horizontal									
1	4882	45.15	33.93	10.2	34.29	54.99	74	19.01	PK
2	4882	36.97	33.93	10.2	34.29	46.81	54	7.19	AV
3	7323	/							
4	9764	/							
5	12205	/							
Note:									
1, Measuring frequency from 1GHz to 25GHz									
2, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK									
2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK									
3, Result = Read level + Antenna factor + cable loss-Amp factor									
4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.									

1GHz—25GHz Radiated emission Test result									
EUT: Outdoor Wireless Speakers					M/N: CORNERSTONE				
Power: DC 15V from adapter									
Test date: 2016-01-06 Test site: 3m Chamber Tested by: Peter									
Test mode: 8- DQPSK Tx CH79 2480MHz									
Antenna polarity: Vertical									
No	Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4960	44.95	33.98	10.22	34.25	54.9	74	19.1	PK
2	4960	38.38	33.98	10.22	34.25	48.33	54	5.67	AV
3	7440	/							
4	9920	/							
5	12400	/							
Antenna Polarity: Horizontal									
1	4960	45.27	33.98	10.22	34.25	55.22	74	18.78	PK
2	4960	36.85	33.98	10.22	34.25	46.8	54	7.2	AV
3	7440	/							
4	9920	/							
5	12400	/							
Note:									
1, Measuring frequency from 1GHz to 25GHz									
2, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK									
2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK									
3, Result = Read level + Antenna factor + cable loss-Amp factor									
4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.									

9. Band Edge Compliance

9.1. Block Diagram of Test Setup



9.2. Limit

All the lower and upper band-edges emissions appearing within restricted frequency bands shall not exceed the limits shown in RSS-GEN, all the other emissions outside operation shall be at least 20dB below the fundamental emissions, or comply with RSS-GEN limits.

9.3. Test Procedure

All restriction band and non- restriction band have been tested , only worse case is reported.

9.4. Test Result

PASS. (See below detailed test data)

Radiated Method

GFSK (CH Low)

Band Edge Test result								
EUT: Outdoor Wireless Speakers					M/N: CORNERSTONE			
Power: DC 15V from adapter								
Test date: 2016-01-06			Test site: 3m Chamber		Tested by: Peter			
Test mode: Tx CH Low 2402MHz								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2390	45.55	27.62	3.92	34.97	42.12	74	31.88	PK
2390	--	27.62	3.92	34.97	--	54	--	AV
Antenna Polarity: Horizontal								
2390	44.32	27.62	3.92	34.97	40.89	74	33.11	PK
2390	--	27.62	3.92	34.97	--	54	--	AV
Note:								
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK								
2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK								
3, Result = Read level + Antenna factor + cable loss-Amp factor								
4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.								

Band Edge Test result								
EUT: Outdoor Wireless Speakers					M/N: CORNERSTONE			
Power: DC 15V from adapter								
Test date: 2016-01-06			Test site: 3m Chamber		Tested by: Peter			
Test mode: Tx CH High 2480MHz								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2483.5	44.88	27.89	4	34.97	41.8	74	32.2	PK
2483.5		--	--	--	--	54	--	AV
Antenna Polarity: Horizontal								
2483.5	44.35	27.89	4	34.97	41.27	74	32.73	PK
2483.5		--	--	--	--	54	--	AV
Note:								
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK								
2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK								
3, Result = Read level + Antenna factor + cable loss-Amp factor								
4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.								

Band Edge Test result								
EUT: Outdoor Wireless Speakers					M/N: CORNERSTONE			
Power: DC 15V from adapter								
Test date: 2016-01-06			Test site: 3m Chamber		Tested by: Peter			
Test mode: Tx								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2390	43.06	27.62	3.92	34.97	39.63	74	34.37	PK
2390	--	27.62	3.92	34.97	--	54	--	AV
Antenna Polarity: Horizontal								
2390	43.76	27.62	3.92	34.97	40.33	74	33.67	PK
2390	--	27.62	3.92	34.97	--	54	--	AV
Note:								
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK								
2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK								
3, Result = Read level + Antenna factor + cable loss-Amp factor								
4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.								

GFSK (Hopping High)

Band Edge Test result								
EUT: Outdoor Wireless Speakers					M/N: CORNERSTONE			
Power: DC 15V from adapter								
Test date: 2016-01-06			Test site: 3m Chamber		Tested by: Peter			
Test mode: Tx								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(d B)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2483.5	43.12	27.89	4	34.97	40.04	74	33.96	PK
2483.5		--	--	--	--	54	--	AV
Antenna Polarity: Horizontal								
2483.5	43.85	27.89	4	34.97	40.77	74	33.23	PK
2483.5		--	--	--	--	54	--	AV
Note:								
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK								
2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK								
3, Result = Read level + Antenna factor + cable loss-Amp factor								
4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.								

Band Edge Test result								
EUT: Outdoor Wireless Speakers					M/N: CORNERSTONE			
Power: DC 15V from adapter								
Test date: 2016-01-06 Test site: 3m Chamber Tested by: Peter								
Test mode: Tx CH Low 2402MHz								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(d B)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2390	43.93	27.62	3.92	34.97	40.5	74	33.5	PK
2390	--	27.62	3.92	34.97	--	54	--	AV
Antenna Polarity: Horizontal								
2390	44.25	27.62	3.92	34.97	40.82	74	33.18	PK
2390	--	27.62	3.92	34.97	--	54	--	AV
Note:								
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK								
2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK								
3, Result = Read level + Antenna factor + cable loss-Amp factor								
4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.								

$\pi/4$ DQPSK (CH High)

Band Edge Test result								
EUT: Outdoor Wireless Speakers					M/N: CORNERSTONE			
Power: DC 15V from adapter								
Test date: 2016-01-06			Test site: 3m Chamber		Tested by: Peter			
Test mode: Tx CH High 2480MHz								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2483.5	43.34	27.89	4	34.97	40.26	74	33.74	PK
2483.5		--	--	--	--	54	--	AV
Antenna Polarity: Horizontal								
2483.5	43.78	27.89	4	34.97	40.7	74	33.3	PK
2483.5		--	--	--	--	54	--	AV
Note:								
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK								
2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK								
3, Result = Read level + Antenna factor + cable loss-Amp factor								
4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.								

Band Edge Test result								
EUT: Outdoor Wireless Speakers					M/N: CORNERSTONE			
Power: DC 15V from adapter								
Test date: 2016-01-06			Test site: 3m Chamber		Tested by: Peter			
Test mode:								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2390	43.93	27.62	3.92	34.97	40.5	74	33.5	PK
2390	--	27.62	3.92	34.97	--	54	--	AV
Antenna Polarity: Horizontal								
2390	43.89	27.62	3.92	34.97	40.46	74	33.54	PK
2390	--	27.62	3.92	34.97	--	54	--	AV
Note:								
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK								
2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK								
3, Result = Read level + Antenna factor + cable loss-Amp factor								
4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.								

Band Edge Test result								
EUT: Outdoor Wireless Speakers					M/N: CORNERSTONE			
Power: DC 15V from adapter								
Test date: 2016-01-06			Test site: 3m Chamber		Tested by: Peter			
Test mode: Tx								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2483.5	43.18	27.89	4	34.97	40.1	74	33.9	PK
2483.5		--	--	--	--	54	--	AV
Antenna Polarity: Horizontal								
2483.5	44.43	27.89	4	34.97	41.35	74	32.65	PK
2483.5		--	--	--	--	54	--	AV
Note:								
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK								
2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK								
3, Result = Read level + Antenna factor + cable loss-Amp factor								
4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.								

Band Edge Test result								
EUT: Outdoor Wireless Speakers					M/N: CORNERSTONE			
Power: DC 15V from adapter								
Test date: 2016-01-06			Test site: 3m Chamber		Tested by: Peter			
Test mode: Tx CH Low 2402MHz								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2390	44.11	27.62	3.92	34.97	40.68	74	33.32	PK
2390	--	27.62	3.92	34.97	--	54	--	AV
Antenna Polarity: Horizontal								
2390	44.32	27.62	3.92	34.97	40.89	74	33.11	PK
2390	--	27.62	3.92	34.97	--	54	--	AV
Note:								
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK								
2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK								
3, Result = Read level + Antenna factor + cable loss-Amp factor								
4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.								

Band Edge Test result								
EUT: Outdoor Wireless Speakers					M/N: CORNERSTONE			
Power: DC 15V from adapter								
Test date: 2016-01-06			Test site: 3m Chamber		Tested by: Peter			
Test mode: Tx CH High 2480MHz								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2483.5	43.16	27.89	4	34.97	40.08	74	33.92	PK
2483.5		--	--	--	--	54	--	AV
Antenna Polarity: Horizontal								
2483.5	44.51	27.89	4	34.97	41.43	74	32.57	PK
2483.5		--	--	--	--	54	--	AV
Note:								
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK								
2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK								
3, Result = Read level + Antenna factor + cable loss-Amp factor								
4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.								

8- DPSK (Hopping Low)

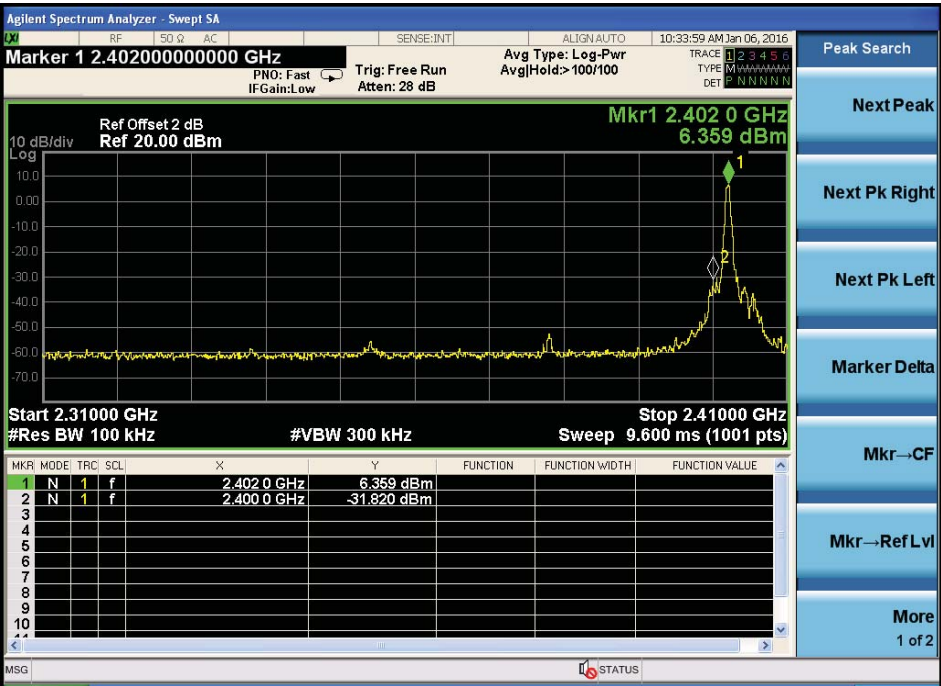
Band Edge Test result								
EUT: Outdoor Wireless Speakers					M/N: CORNERSTONE			
Power: DC 15V from adapter								
Test date: 2016-01-06			Test site: 3m Chamber		Tested by: Peter			
Test mode: Tx								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2390	43.83	27.62	3.92	34.97	40.4	74	33.6	PK
2390	--	27.62	3.92	34.97	--	54	--	AV
Antenna Polarity: Horizontal								
2390	44.36	27.62	3.92	34.97	40.93	74	33.07	PK
2390	--	27.62	3.92	34.97	--	54	--	AV
Note:								
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK								
2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK								
3, Result = Read level + Antenna factor + cable loss-Amp factor								
4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.								

Band Edge Test result								
EUT: Outdoor Wireless Speakers					M/N: CORNERSTONE			
Power: DC 15V from adapter								
Test date: 2016-01-06			Test site: 3m Chamber		Tested by: Peter			
Test mode: Tx								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2483.5	43.25	27.89	4	34.97	40.17	74	33.83	PK
2483.5		--	--	--	--	54	--	AV
Antenna Polarity: Horizontal								
2483.5	43.96	27.89	4	34.97	40.88	74	33.12	PK
2483.5		--	--	--	--	54	--	AV
Note:								
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK								
2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK								
3, Result = Read level + Antenna factor + cable loss-Amp factor								
4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.								

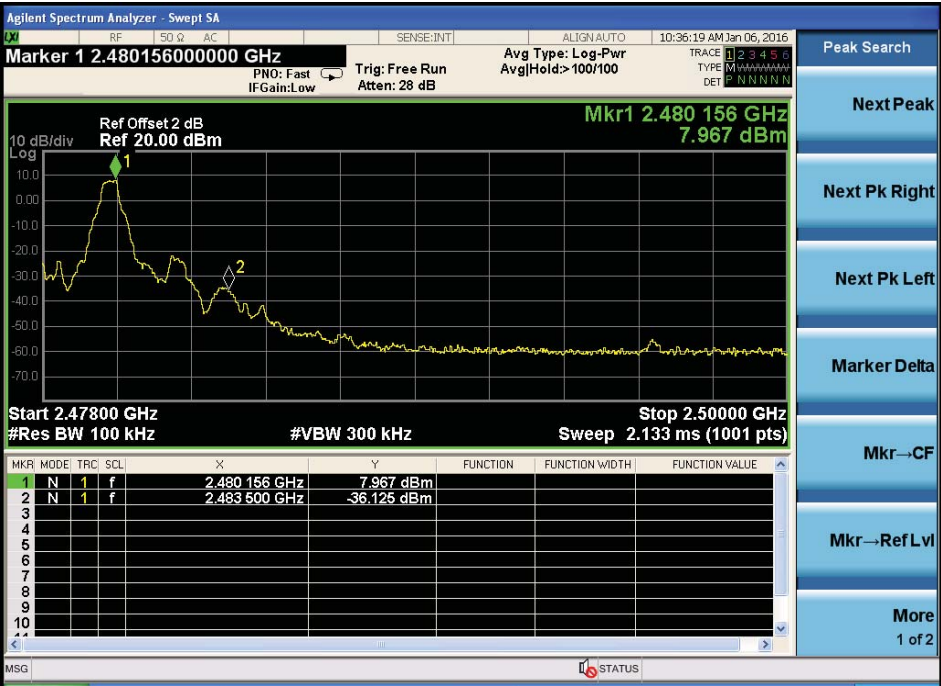
Conducted Method

GFSK

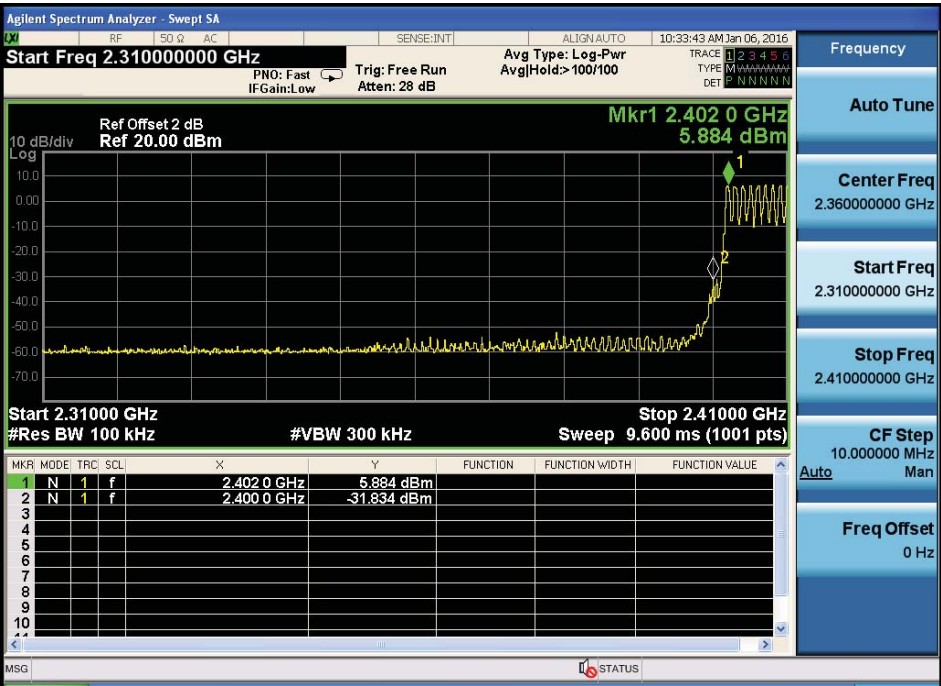
CH LOW :



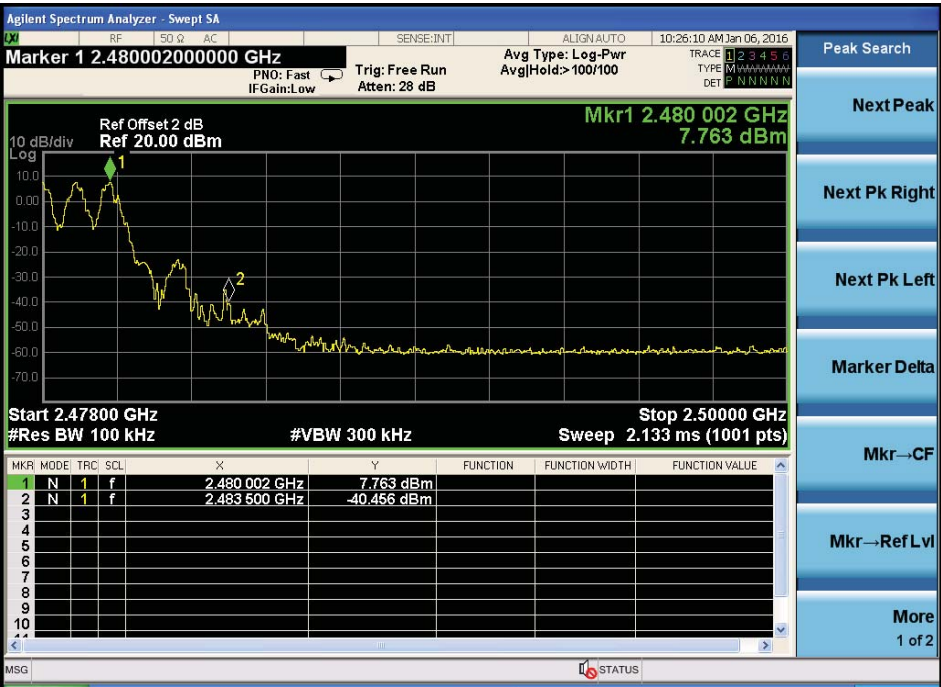
CH High :



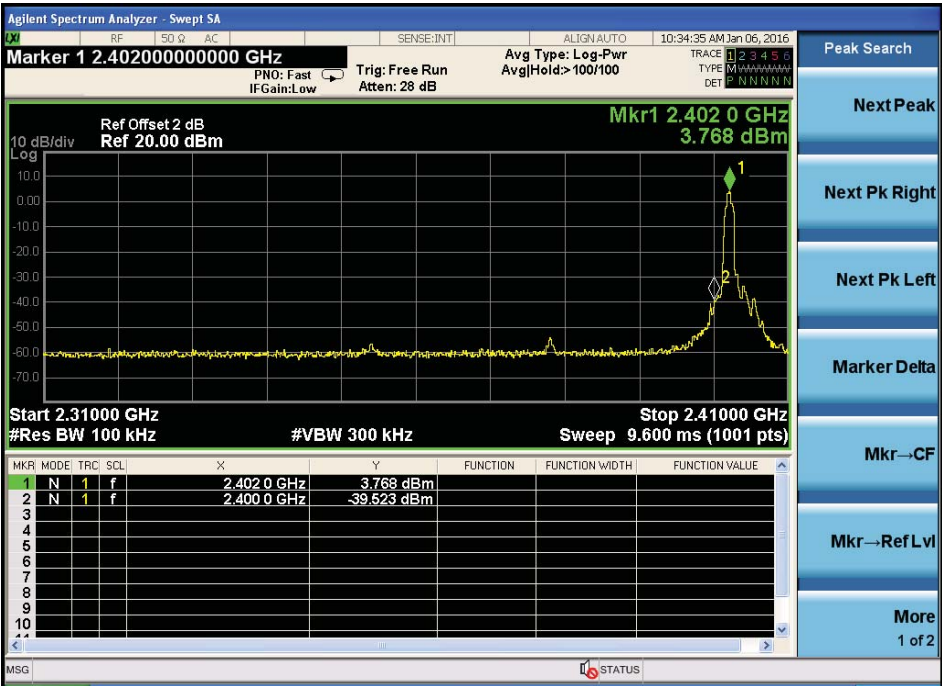
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Low



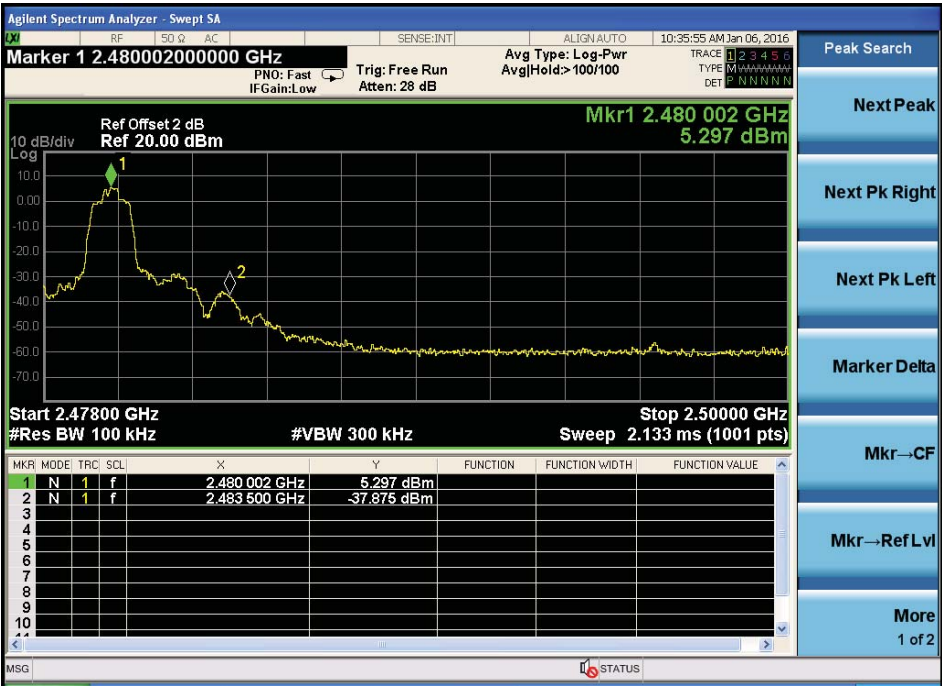
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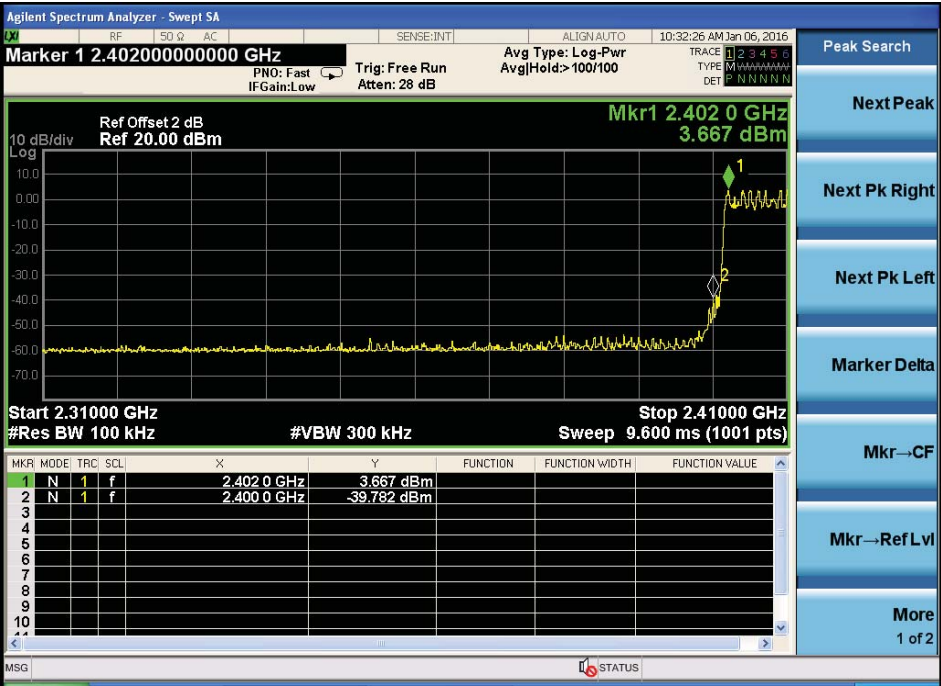
$\pi/4$ DQPSK
Low



High



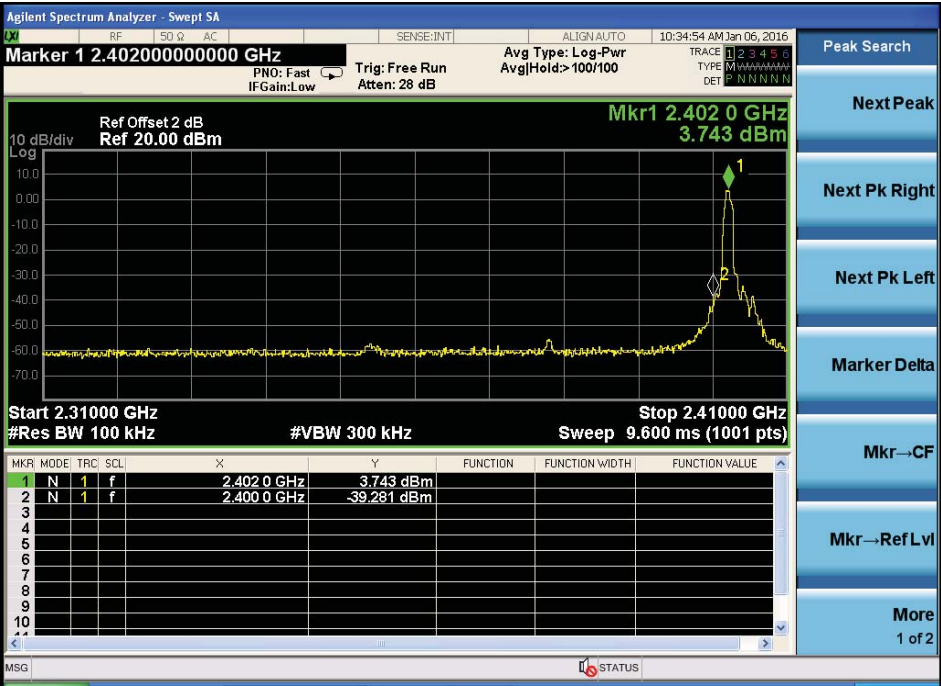
Hopping
Low



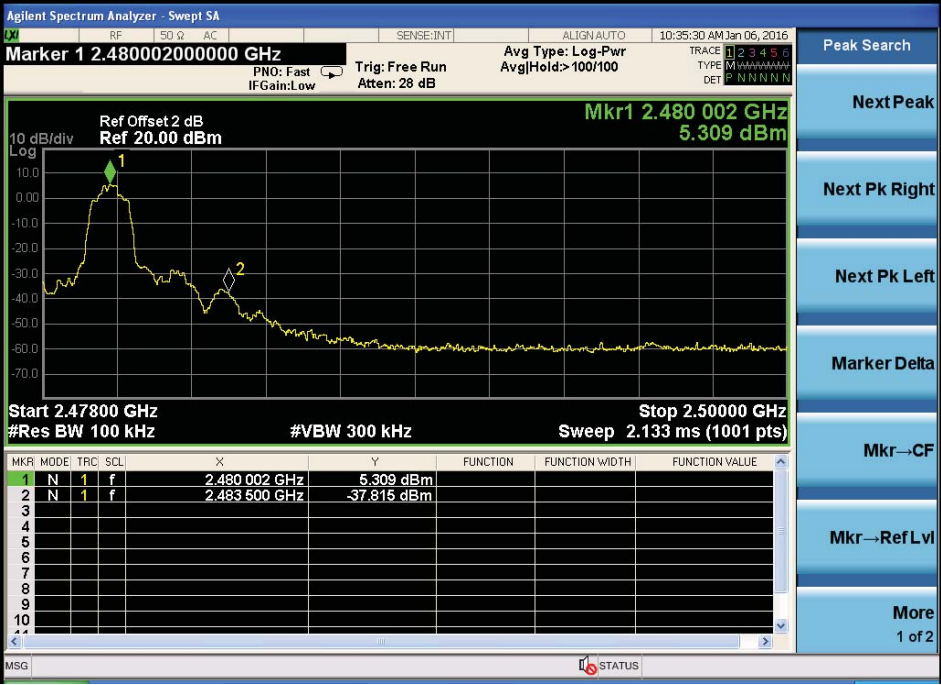
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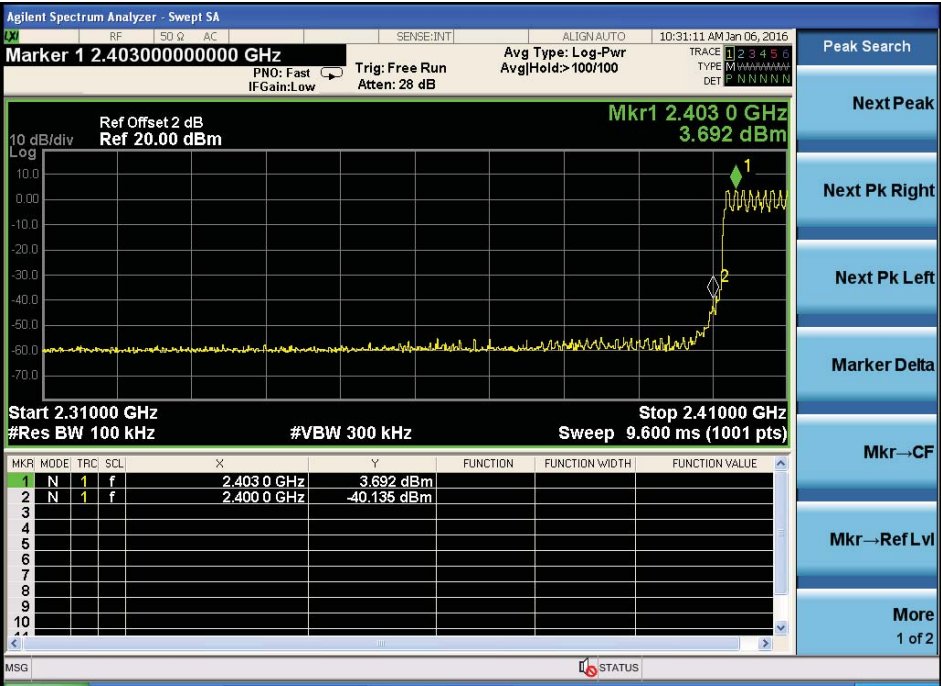
8- DPSK:
Low



High



Hopping
Low

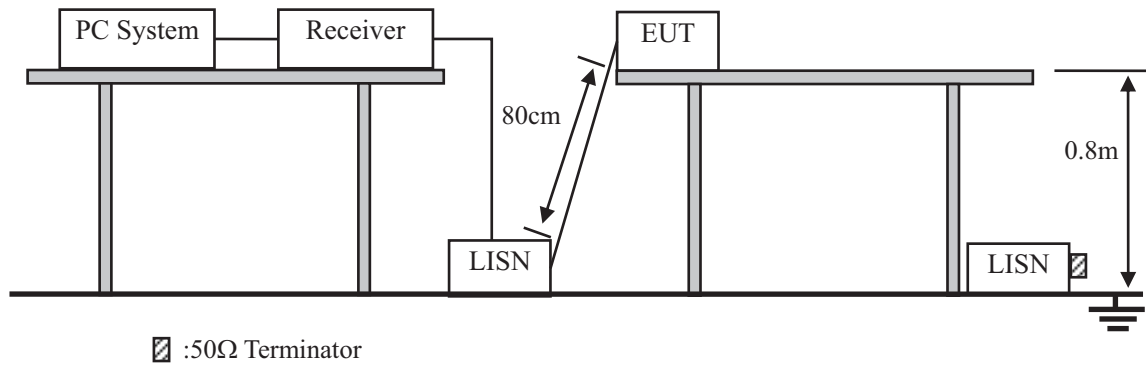


High



10. Power Line Conducted Emissions

10.1. Block Diagram of Test Setup



10.2. Limit

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level dB(μ V)	Average Level dB(μ V)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

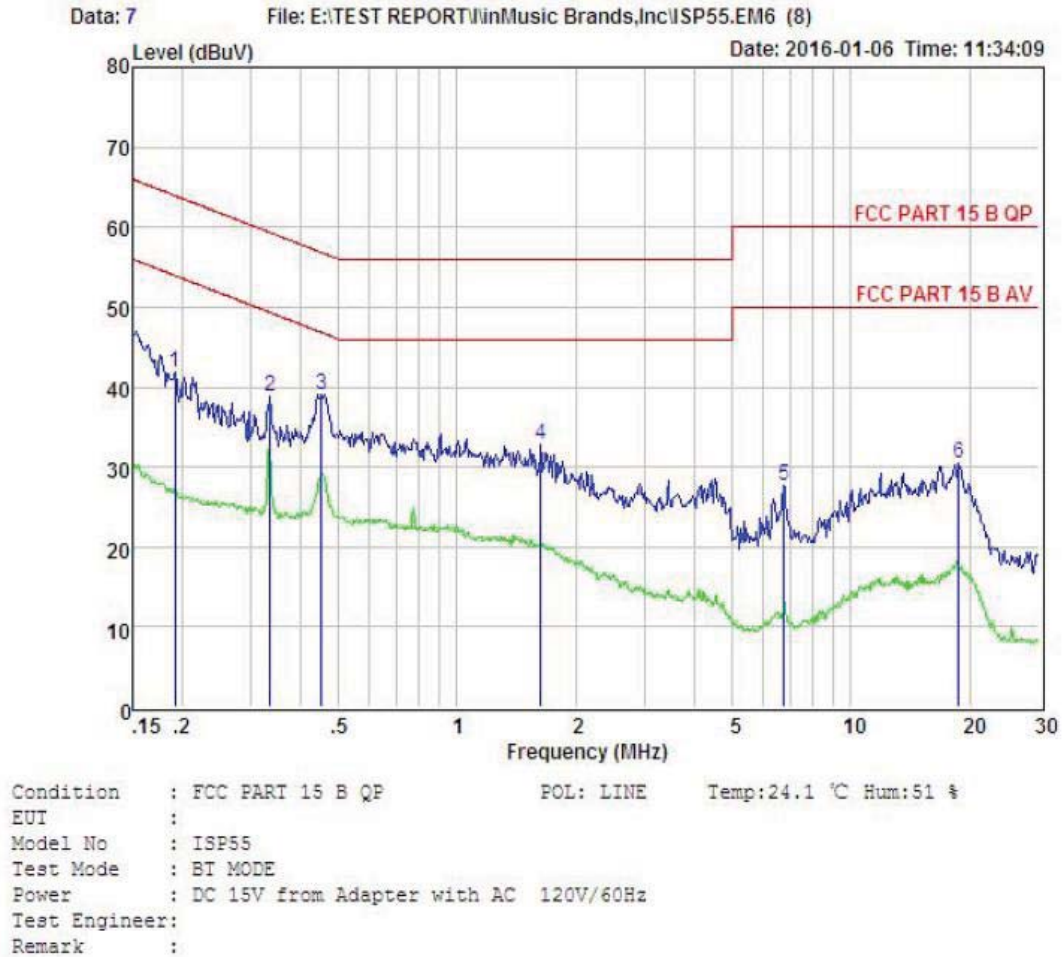
Notes: 1. * Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

10.3. Test Procedure

- (1) The EUT was placed on a non-metallic table, 80cm above the ground plane.
- (2) Setup the EUT and simulator as shown in 10.1
- (3) The EUT Power connected to the power mains through a power adapter and a line impedance stabilization network (L.I.S.N1). The other peripheral devices power cord connected to the power mains through a line impedance stabilization network (L.I.S.N2), this provided a 50-ohm coupling impedance for the EUT (Please refer to the block diagram of the test setup and photographs). Both sides of power line were checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.4 2014 on conducted Emission test.
- (4) The bandwidth of test receiver is set at 10KHz.
- (5) The frequency range from 150 KHz to 30MHz is checked.

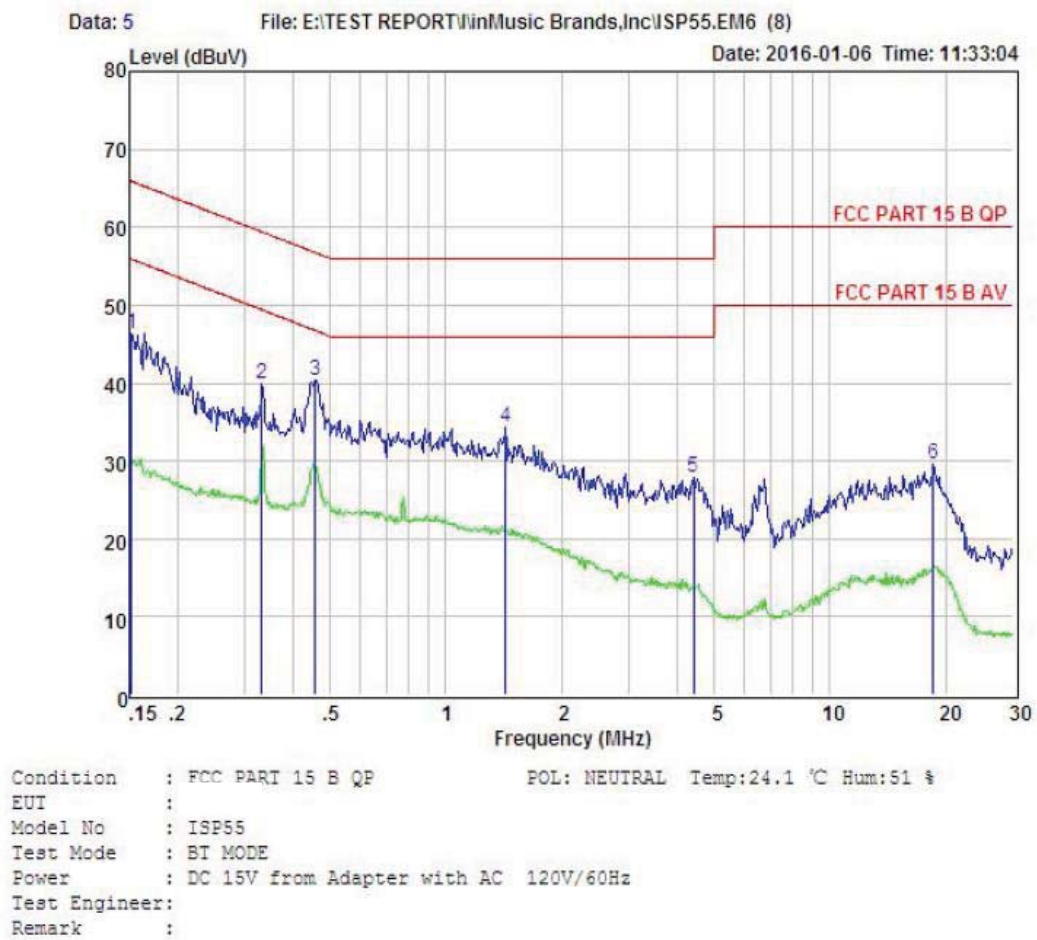
10.4. Test Result

PASS. (See below detailed test data)



Item	Freq	Read	LISN	Attenuator	Cable	Level	Limit	Margin	Remark
	MHz	dBuV	Factor	Factor	Loss	dBuV	dBuV	dBuV	
			dB	dB	dB				
1	0.192	32.18	0.03	-9.52	0.10	41.83	63.93	-22.10	Peak
2	0.336	29.07	0.03	-9.56	0.10	38.76	59.31	-20.55	Peak
3	0.452	29.31	0.03	-9.58	0.10	39.02	56.85	-17.83	Peak
4	1.628	23.03	0.05	-9.69	0.10	32.87	56.00	-23.13	Peak
5	6.769	17.51	0.12	-9.97	0.15	27.75	60.00	-32.25	Peak
6	18.820	20.12	0.30	-9.81	0.33	30.56	60.00	-29.44	Peak

Remarks: Level = Read + LISN Factor - Attenuator Factor + Cable loss



Item	Freq MHz	Read dBuV	LISN Factor dB	Attenuator Factor dB	Cable Loss dB	Level dBuV	Limit dBuV	Margin dBuV	Remark
1	0.152	36.73	0.03	-9.52	0.10	46.38	65.91	-19.53	Peak
2	0.332	30.18	0.03	-9.56	0.10	39.87	59.40	-19.53	Peak
3	0.456	30.60	0.03	-9.58	0.10	40.31	56.76	-16.45	Peak
4	1.433	24.44	0.05	-9.66	0.10	34.25	56.00	-21.75	Peak
5	4.407	17.89	0.09	-9.89	0.12	27.99	56.00	-28.01	Peak
6	18.622	19.18	0.30	-9.81	0.33	29.62	60.00	-30.38	Peak

Remarks: Level = Read + LISN Factor - Attenuator Factor + Cable loss

Note1: If QP Result comply with AV limit, AV Result is deemed to comply with AV limit

11. Antenna Requirements

11.1. Limit

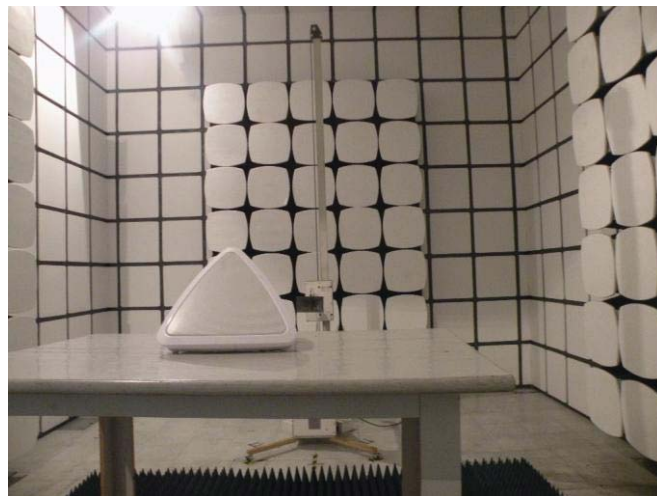
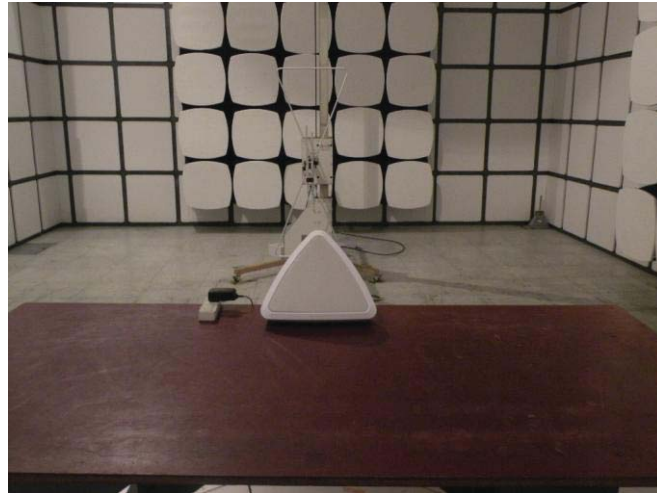
For intentional device, according to RSS-GEN, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to RSS-GEN, if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

11.2. Result

The antennas used for this product are PCB Antenna for Bluetooth, no antenna other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is only 0dBi .

12. Test setup photo

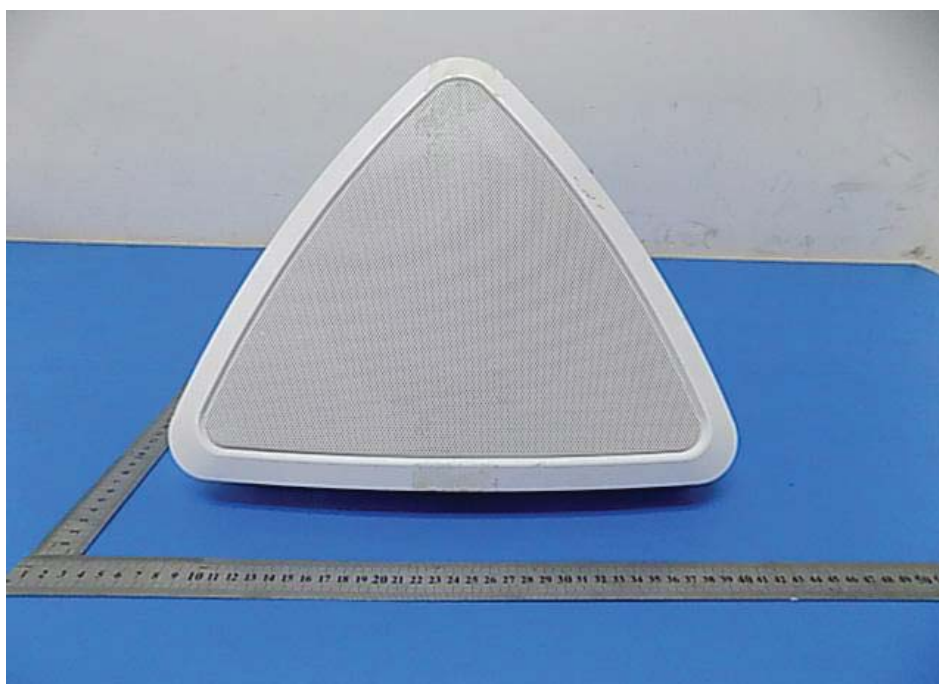
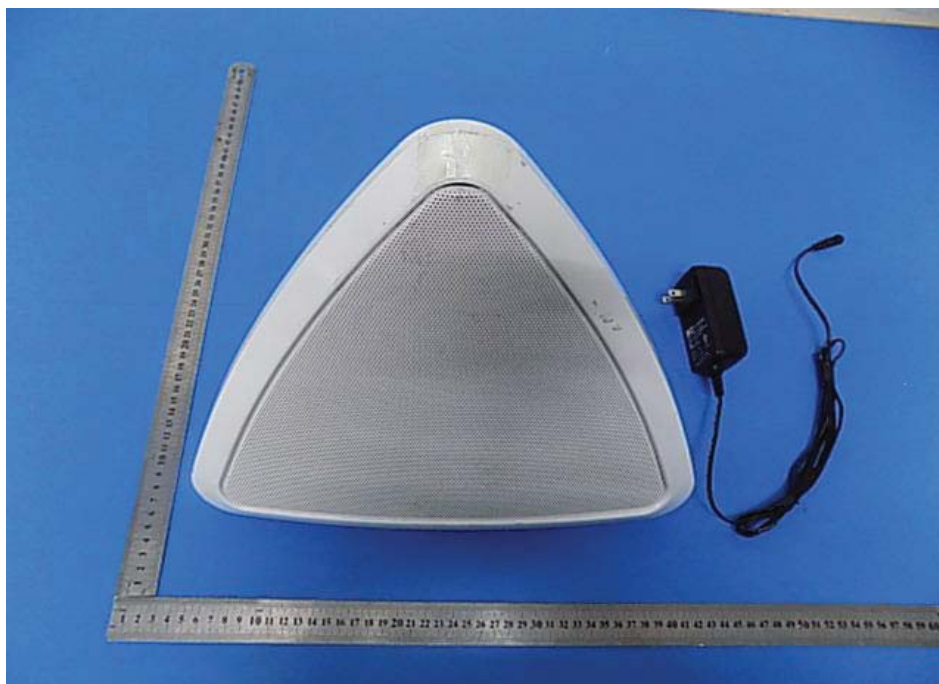
12.1. Photos of Radiated emission

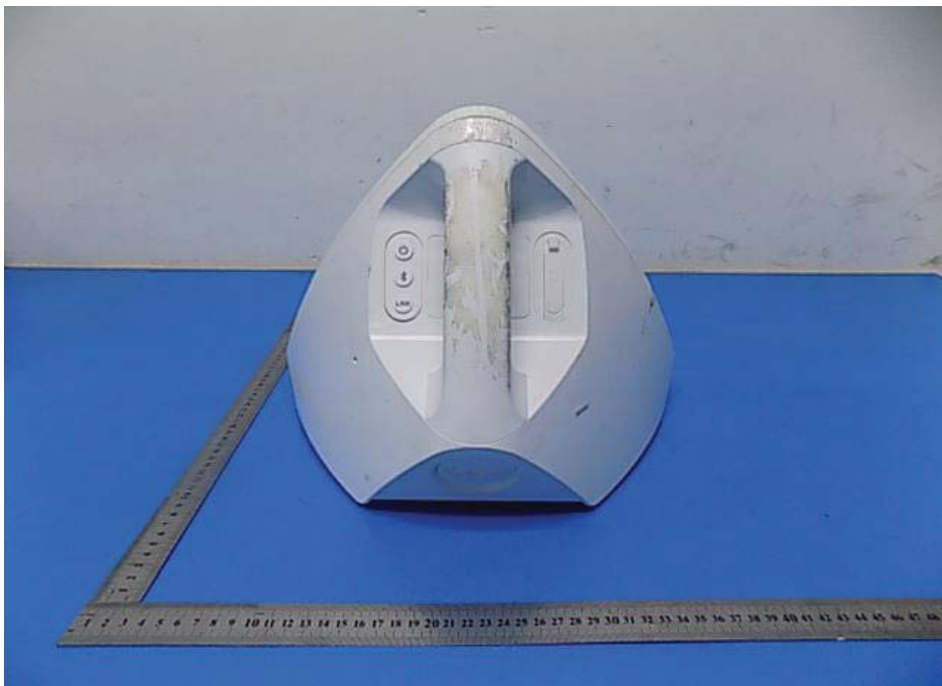


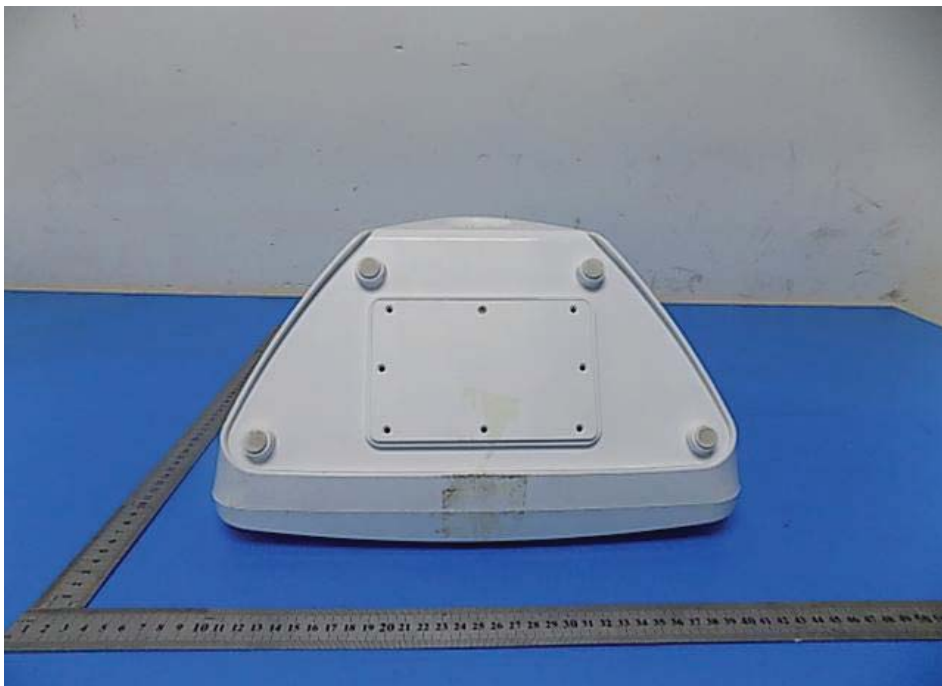
12.2.Photos of Conducted Emission test

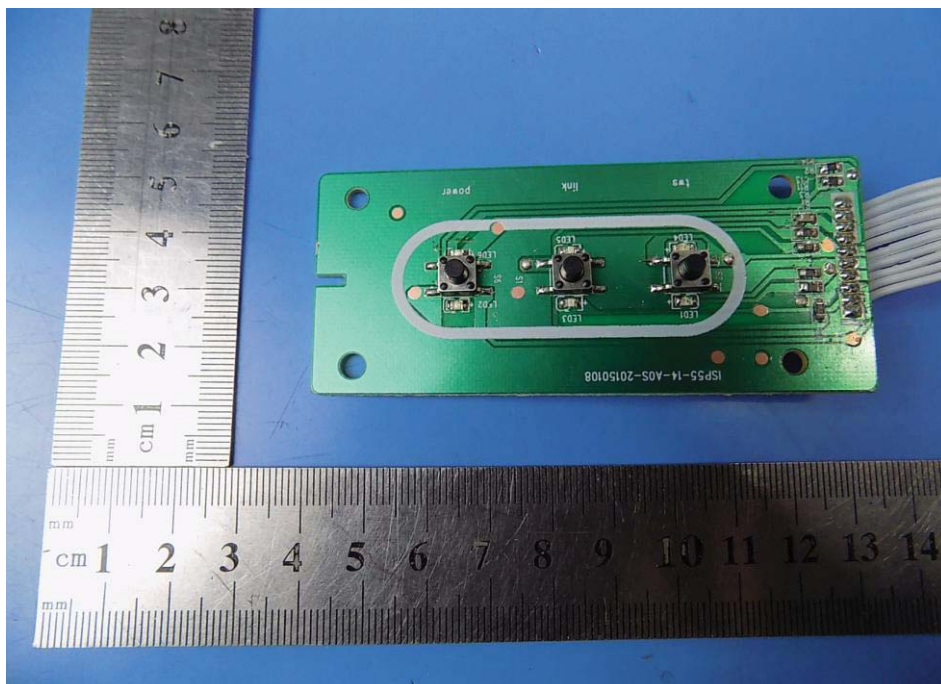
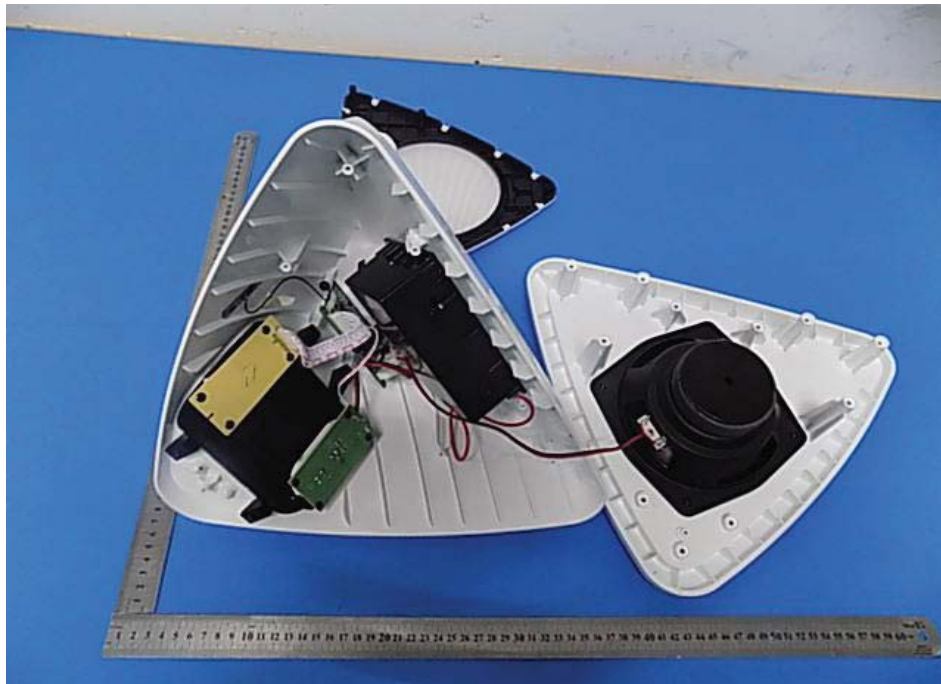


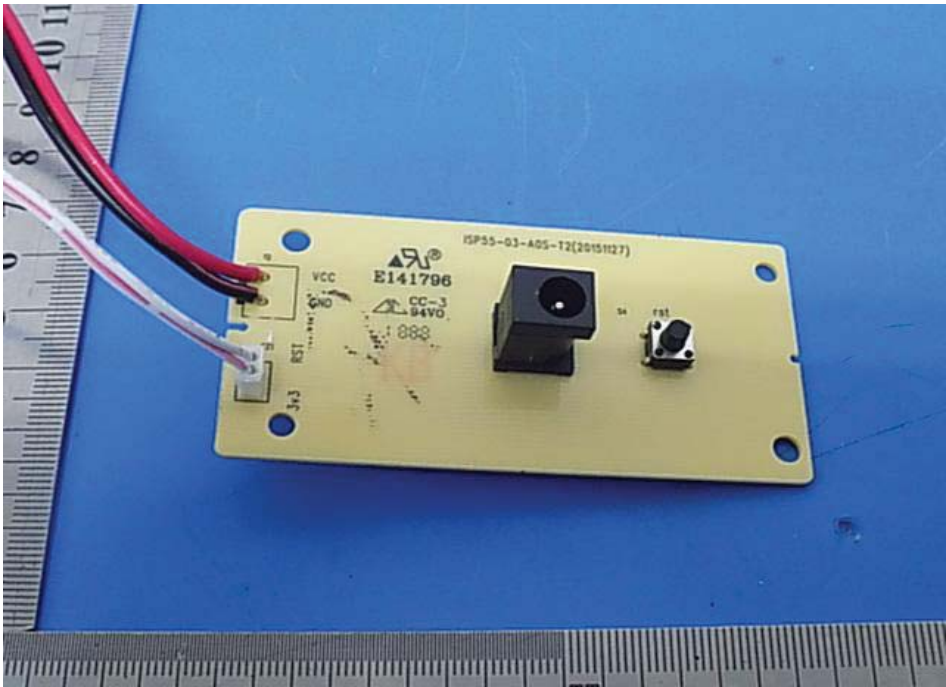
13.Photos of EUT

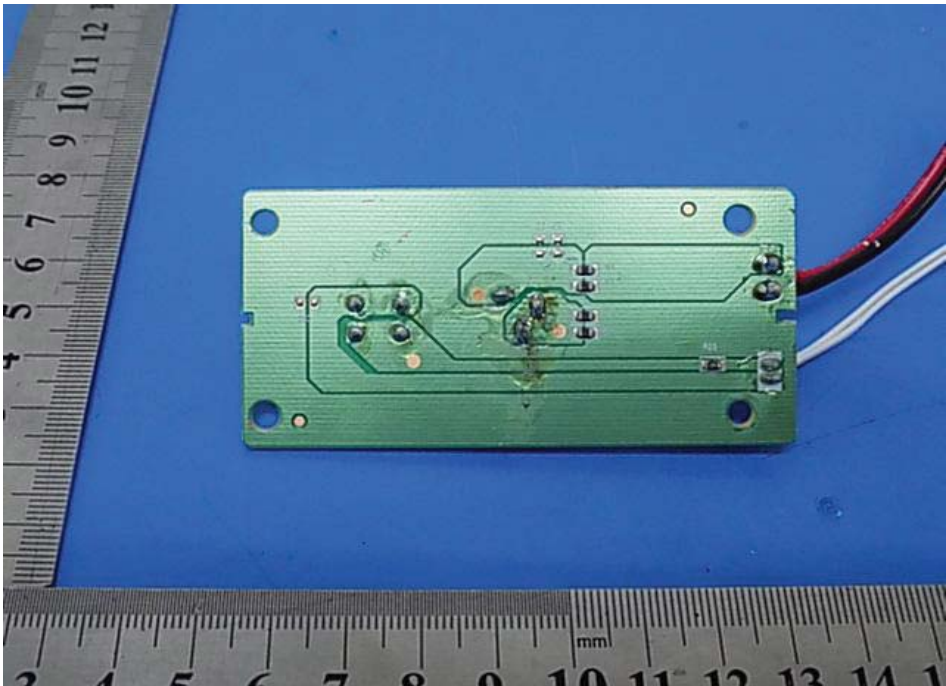


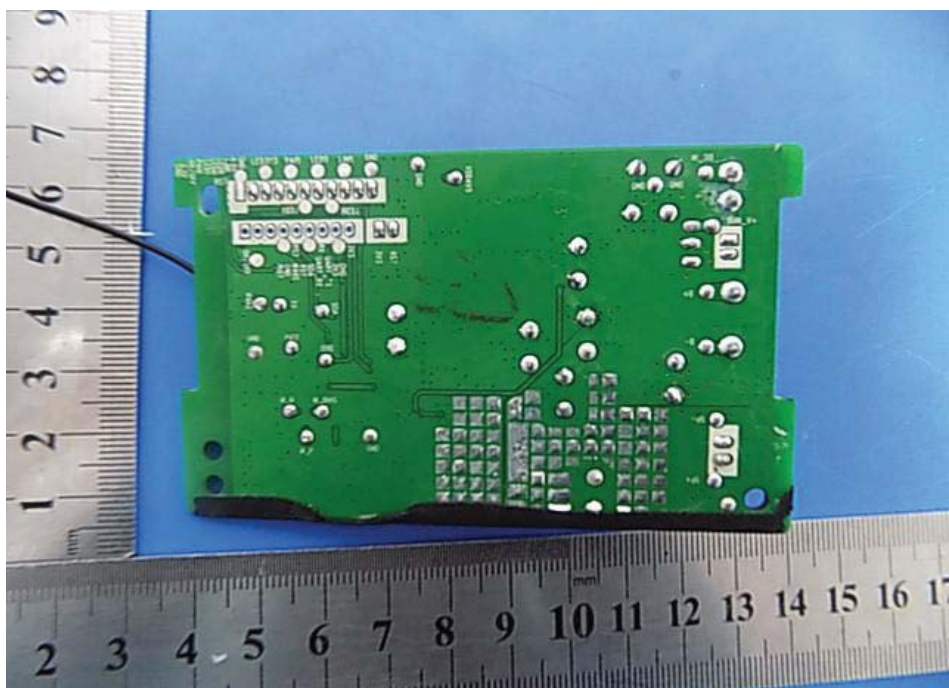












-----END OF THE REPORT-----