

# **FCC Test Report**

FCC ID : 2ACF3-WIPCO-201N

Equipment : ICE 360

Model No. : WIPCO-201N

Brand Name : BLACKLOUD

Applicant : Blackloud Inc.

Address : 42 Corporate Park #250 Irvine, CA 92606 USA

Standard : 47 CFR FCC Part 15.247

Received Date : Sep. 01, 2014

Tested Date : Dec. 01 ~ Dec. 04, 2014

We, International Certification Corp., would like to declare that the tested sample has been evaluated and in compliance with the requirement of the above standards. The test results contained in this report refer exclusively to the product. It may be duplicated completely for legal use with the approval of the applicant. It shall not be reproduced except in full without the written approval of our laboratory.

Approved & Reviewed by:

Gary Chang / Manager





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Report No.: FR490101AE Report Version: Rev. 01



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## **Release Record**

Report No.	Version	Description	Issued Date
FR490101AE	Rev. 01	Initial issue	Dec. 12, 2014

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# **Summary of Test Results**

FCC Rules	Test Items	Measured	Result
15.207	AC Power Line Conducted Emissions	[dBuV]: 0.318MHz 37.84 (Margin -11.91dB) - AV	Pass
15.247(d)	Radiated Emissions	[dBuV/m at 3m]: 264.00MHz	Pass
15.209	Radiated Emissions	45.00 (Margin -1.00dB) - QP	Pa55
15.247(b)(3)	Maximum Output Power	Power [dBm]: 6.88	Pass
15.247(a)(2)	6dB Bandwidth	Meet the requirement of limit	Pass
15.247(e)	Power Spectral Density	Meet the requirement of limit	Pass
15.203	Antenna Requirement	Meet the requirement of limit	Pass

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## 1 General Description

### 1.1 Information

### 1.1.1 Specification of the Equipment under Test (EUT)

RF General Information								
Frequency Range (MHz) Bluetooth Ch. Freq. (MHz) Channel Number Data Rate								
2400-2483.5 V4.0 2402-2480 0-39 [40] 1 Mbps								
Note 1: Bluetooth LE	Note 1: Bluetooth LE (Low energy) uses GFSK modulation.							

### 1.1.2 Antenna Details

Ant. No.	Туре	Gain (dBi)	Connector	Remark
1	Chip	3		

### 1.1.3 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	5Vdc from adapter
-------------------	-------------------

### 1.1.4 Accessories

	Accessories						
No.	Equipment	Description					
1	AC Adapter 1	Brand Name: PHIHONG Model Name: PSAA10A-050Q Power Rating: I/P: 100-240Vac, 50-60Hz, 0.5A, 23-31VA O/P: 5Vdc, 2A					
2	AC Adapter 2	Brand Name: LEI Model Name: MU10-Q050200-A1 Power Rating: I/P: 100-240Vac, 50-60Hz, 0.3A O/P: 5Vdc, 2A					
3	AC Adapter 3	Brand Name: FRECOM Model Name: F12L6-050200SPAU Power Rating: I/P: 100-240Vac, 50-60Hz, 0.3A O/P: 5Vdc, 2A					
4	USB cable 1	EKSON, 3m shielded cable without core					
5	USB cable 2	Tung-Li, 3m shielded cable without core					

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### 1.1.5 Channel List

Frequency band (MHz)					2400~	2483.5	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
37	2402	9	2422	18	2442	28	2462
0	2404	10	2424	19	2444	29	2464
1	2406	38	2426	20	2446	30	2466
2	2408	11	2428	21	2448	31	2468
3	2410	12	2430	22	2450	32	2470
4	2412	13	2432	23	2452	33	2472
5	2414	14	2434	24	2454	34	2474
6	2416	15	2436	25	2456	35	2476
7	2418	16	2438	26	2458	36	2478
8	2420	17	2440	27	2460	39	2480

### 1.1.6 Test Tool and Duty Cycle

Test tool	Hyper Terminal, Version: 5.1
Duty cycle of test signal (%)	66.98%
Duty Factor (dB)	1.74

### 1.1.7 Power Setting

Modulation Mode		Test Frequency (MHz)	
Wodulation Wode	2402	2440	2480
BT-LE/1Mbps	0X0E	0X0E	0X0E

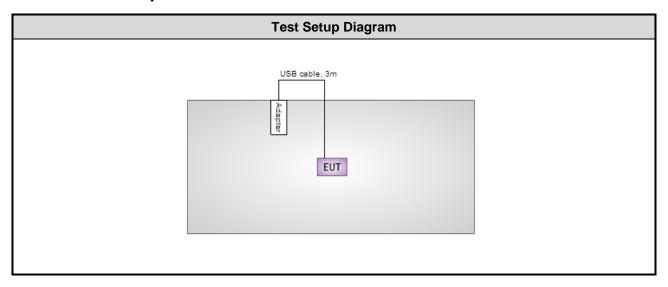
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## 1.2 Local Support Equipment List

N/A

## 1.3 Test Setup Chart



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## 1.4 Test Equipment List and Calibration Data

Test Item	Conducted Emission								
Test Site	Conduction room 1 / (CO01-WS)								
Instrument	Manufacturer	Manufacturer Model No. Serial No. Calibration Date Calibration Until							
EMC Receiver	R&S	ESCS 30	100169	Oct. 17, 2014	Oct. 16, 2015				
LISN	SCHWARZBECK MESS-ELEKTRONIK	Schwarzbeck 8127	8127-667	Nov. 17, 2014	Nov. 16, 2015				
LISN (Support Unit)	SCHWARZBECK MESS-ELEKTRONIK	Schwarzbeck 8127	8127-666	Nov. 26, 2014	Nov. 25, 2015				
RF Cable-CON	Woken	CFD200-NL	CFD200-NL-001	Apr. 23, 2014	Apr. 22, 2015				
50 ohm terminal (Support Unit)	NA	50	04	Apr. 18, 2014	Apr. 17, 2015				
Measurement Software	AUDIX	e3	6.120210k	NA	NA				
Note: Calibration Inte	Note: Calibration Interval of instruments listed above is one year.								

Test Item	Radiated Emission							
Test Site	966 chamber1 / (03CH01-WS)							
Instrument	Manufacturer Model No. Serial No. Calibration Date Calibration Until							
Spectrum Analyzer	R&S	FSV40	101498	Jan. 25, 2014	Jan. 24, 2015			
Receiver	R&S	ESR3	101658	Nov. 10, 2014	Nov. 09, 2015			
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-522	Sep. 05, 2014	Sep. 04, 2015			
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1096	Feb. 13, 2014	Feb. 12, 2015			
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Nov. 10, 2014	Nov. 09, 2015			
Preamplifier	Burgeon	BPA-530	SN:100219	Sep. 09, 2014	Sep. 08, 2015			
Preamplifier	Agilent	83017A	MY39501308	Oct. 09, 2014	Oct. 08, 2015			
Preamplifier	EMC	EMC184045B	980192	Aug. 26, 2014	Aug. 25, 2015			
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16014/4	Dec. 16, 2013	Dec. 15, 2014			
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16019/4	Dec. 16, 2013	Dec. 15, 2014			
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16139/4	Dec. 16, 2013	Dec. 15, 2014			
LF cable 3M	Woken	CFD400NL-LW	CFD400NL-001	Dec. 16, 2013	Dec. 15, 2014			
LF cable 10M	Woken	CFD400NL-LW	CFD400NL-002	Dec. 16, 2013	Dec. 15, 2014			
Measurement Software	AUDIX	e3	6.120210g	NA	NA			
Note: Calibration Inter	rval of instruments listed	d above is one year.	_					

Loop Antenna	R&S	HFH2-Z2	100330	Nov. 10, 2014	Nov. 09, 2015	
Note: Calibration Inter	Note: Calibration Interval of instruments listed above is two year.					

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Test Item	RF Conducted					
Test Site	(TH01-WS)	(TH01-WS)				
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until	
Spectrum Analyzer	R&S	FSV40	101063	Feb. 17, 2014	Feb. 16, 2015	
Power Meter	Anritsu	ML2495A	1241002	Sep. 29, 2014	Sep. 28, 2015	
Power Sensor	Anritsu	MA2411B	1207366	Sep. 29, 2014	Sep. 28, 2015	
Measurement Software	Sporton	Sporton_1	1.3.30	NA	NA	
Note: Calibration Interval of instruments listed above is one year.						

### 1.5 Test Standards

According to the specification of EUT, the EUT must comply with following standards and KDB documents.

47 CFR FCC Part 15.247

ANSI C63.10-2009

FCC KDB 558074 D01 DTS Meas Guidance v03r02

## 1.6 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)

Measurement Uncertainty			
Parameters	Uncertainty		
Bandwidth	±34.134 Hz		
Conducted power	±0.808 dB		
Frequency error	±34.134 Hz		
Temperature	±0.6 °C		
Conducted emission	±2.670 dB		
AC conducted emission	±2.92 dB		
Radiated emission ≤ 1GHz	±3.26 dB		
Radiated emission > 1GHz	±4.94 dB		

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## 2 Test Configuration

## 2.1 Testing Condition

Test Item	Test Site	Ambient Condition	Tested By
AC Conduction	CO01-WS	23°C / 62%	Skys Huang
Radiated Emissions	03CH01-WS	22°C / 62%	Aska Huang
RF Conducted	TH01-WS	22°C / 65%	Felix Sung

FCC site registration No.: 657002IC site registration No.: 10807A-1

### 2.2 The Worst Test Modes and Channel Details

Test item	Mode	Test Frequency (MHz)	Data Rate (Mbps)	Test Configuration
AC Power Line Conducted Emissions	BT LE	2440	1Mbps	
Radiated Emissions ≤ 1GHz	BT LE	2440	1Mbps	
Radiated Emissions > 1GHz	BT LE	2402, 2440, 2480	1Mbps	
Maximum Output Power				
6dB bandwidth	BT LE	2402, 2440, 2480	1Mbps	
Power spectral density				

#### NOTE:

- 1) Adapter 1, Adapter 2 and Adapter 3 had been pretested and found that **Adapter 1** was the worst case and was selected for final testing (Adapter 1: PHIHONG adapter; Adapter 2: LEI adapter; Adapter 3: FRECOM adapter).
- 2) USB cable 1 and USB cable 2 had been pretested and found that **USB cable 2** was the worst case and was selected for final testing (USB cable 1: EKSON; USB cable 2: Tung-Li).

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### 3 Transmitter Test Results

### 3.1 Conducted Emissions

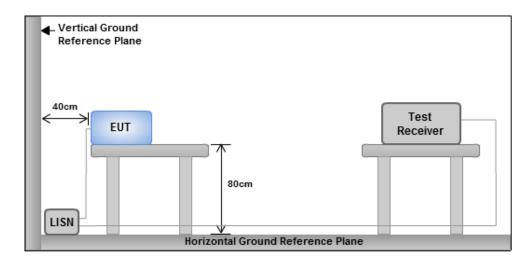
#### 3.1.1 Limit of Conducted Emissions

Conducted Emissions Limit				
Frequency Emission (MHz) Quasi-Peak Average				
0.15-0.5	66 - 56 *	56 - 46 *		
0.5-5	56	46		
5-30	60	50		
Note 1: * Decreases with the logarithm of the frequency.				

#### 3.1.2 Test Procedures

- 1. The device is placed on a test table, raised 80 cm above the reference ground plane. The vertical conducting plane is located 40 cm to the rear of the device.
- 2. The device is connected to line impedance stabilization network (LISN) and other accessories are connected to other LISN. Measured levels of AC power line conducted emission are across the 50  $\Omega$  LISN port.
- 3. AC conducted emission measurements is made over frequency range from 150 kHz to 30 MHz.
- 4. This measurement was performed with AC 120V/60Hz

### 3.1.3 Test Setup



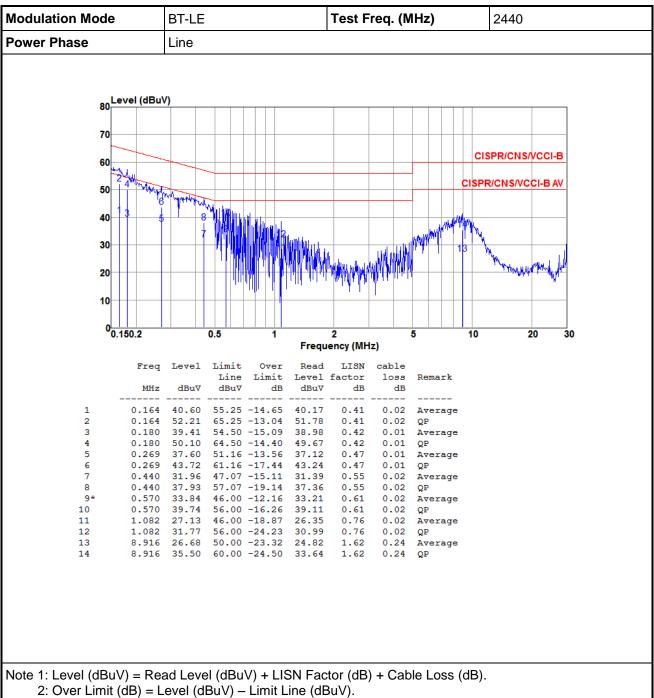
Note: 1. Support units were connected to second LISN.

Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

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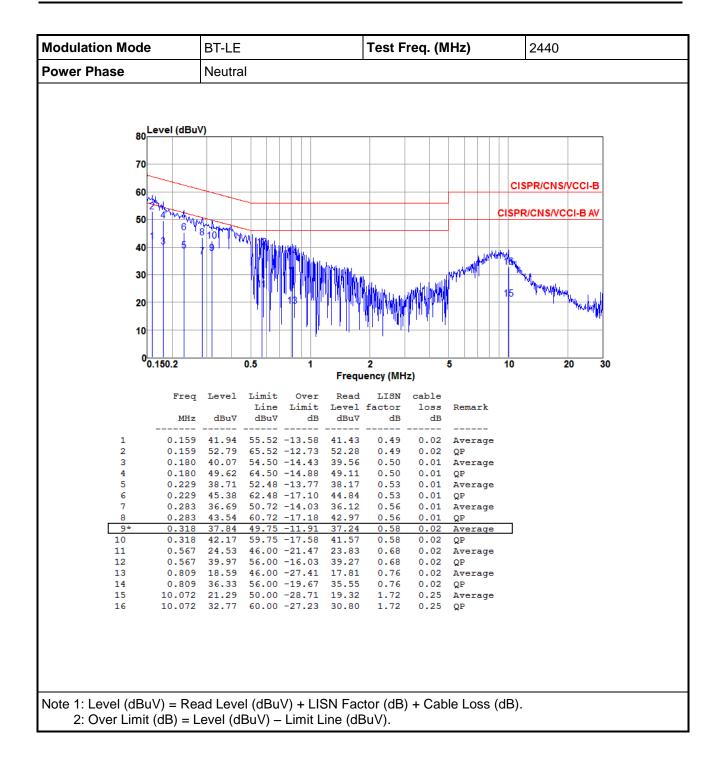


#### **Test Result of Conducted Emissions** 3.1.4



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### 3.2 6dB and Occupied Bandwidth

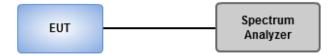
#### 3.2.1 Limit of 6dB Bandwidth

The minimum 6dB bandwidth shall be at least 500 kHz.

### 3.2.2 Test Procedures

- 1. Set resolution bandwidth (RBW) = 100 kHz, Video bandwidth = 300 kHz.
- 2. Detector = Peak, Trace mode = max hold.
- 3. Sweep = auto couple, Allow the trace to stabilize.
- 4. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6dB relative to the maximum level measured in the fundamental emission.
- 5. Use OBW measurement function of specturm analyzer to measure Occupied bandwidth.

### 3.2.3 Test Setup

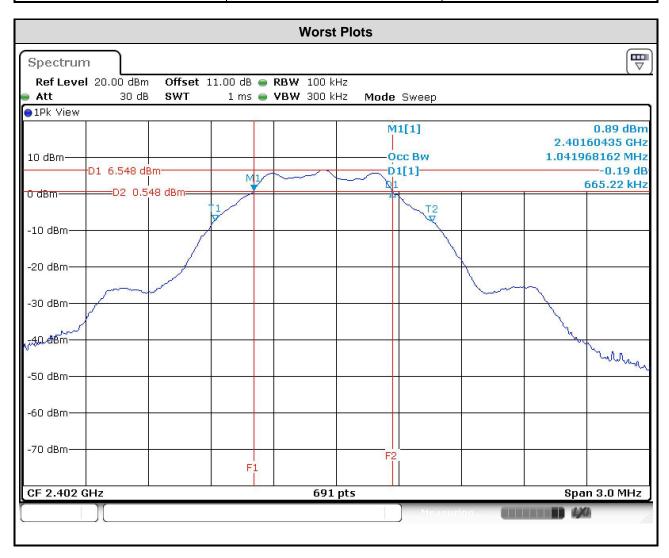


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### 3.2.4 Test Result of 6dB and Occupied Bandwidth

Freq. (MHz)	6dB Bandwidth (kHz)	Limit (kHz)
2402	665	500
2440	665	500
2480	670	500



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Freq. (MHz)	99% Occupied Bandwidth (MHz)
2402	1.01
2440	1.01
2480	1.01



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### 3.3 RF Output Power

### 3.3.1 Limit of RF Output Power

Conducted power shall not exceed 1Watt.

Antenna gain <= 6dBi, no any corresponding reduction is in output power limit.

Antenna gain > 6dBi

Non Fixed, point to point operations.
The conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dB

Fixed, point to point operations
Systems operating in the 2400–2483.5 MHz band that are used exclusively for fixed, point-to-point Operations, maximum peak output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

Systems operating in the 5725–5850 MHz band that are used exclusively for fixed, point-to-point operations, no any corresponding reduction is in transmitter peak output power

#### 3.3.2 Test Procedures

Maximum Peak Conducted Output Power

#### 

- 1. Set RBW = 1MHz, VBW = 3MHz, Detector = Peak.
- 2. Sweep time = auto, Trace mode = max hold, Allow trace to fully stabilize.
- 3. Use the spectrum analyzer channel power measurement function with the band limits set equal to the DTS bandwidth edges.

#### Nower meter

- 1. A broadband Peak RF power meter is used for output power measurement. The video bandwidth of power meter is greater than DTS bandwidth of EUT. If duty cycle of test signal is not 100 %, trigger and gating function of power meter will be enabled to capture transmission burst for measuring output power.
- Maximum Conducted Average Output Power (For reference only)

#### Nower meter

 A broadband Average RF power meter is used for output power measurement. The video bandwidth of power meter is greater than DTS bandwidth of EUT. If duty cycle of test signal is not 100 %, trigger and gating function of power meter will be enabled to capture transmission burst for measuring output power.

### 3.3.3 Test Setup



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## 3.3.4 Test Result of Maximum Output Power

Freq. (MHz)	Peak Conducted Power (dBm)	Limit (dBm)
2402	6.71	30
2440	6.88	30
2480	6.78	30

Freq. (MHz)	Average Conducted Power (dBm)	Limit (dBm)
2402	6.69	30
2440	6.87	30
2480	6.75	30

Note: Average power is for reference only.

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### 3.4 Power Spectral Density

#### 3.4.1 Limit of Power Spectral Density

Power spectral density shall not be greater than 8 dBm in any 3 kHz band.

#### 3.4.2 Test Procedures

- Maximum peak conducted output power was used to demonstrate compliance to the fundamental output power limit.
  - Set the RBW = 10kHz, VBW = 30kHz.
  - 2. Detector = Peak, Sweep time = auto couple.
  - 3. Trace mode = max hold, allow trace to fully stabilize.
  - 4. Use the peak marker function to determine the maximum amplitude level.
- Maximum (average) conducted output power was used to demonstrate compliance to the fundamental output power limit.
  - 1. Set the RBW = 100kHz, VBW = 300 kHz.
  - 2. Detector = RMS, Sweep time = auto couple.
  - 3. Set the sweep time to: ≥ 10 x (number of measurement points in sweep) x (maximum data rate per stream).
  - 4. Perform the measurement over a single sweep.
  - 5. Use the peak marker function to determine the maximum amplitude level.\

### 3.4.3 Test Setup

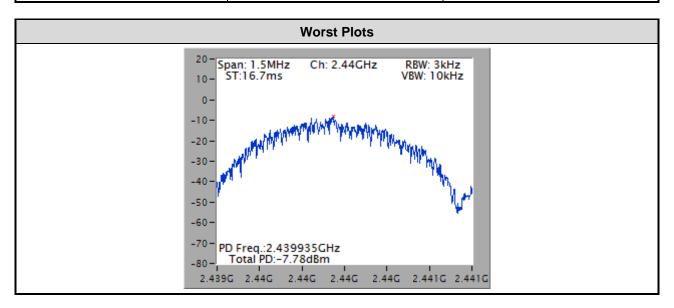


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### 3.4.4 Test Result of Power Spectral Density

Freq. (MHz)	Power Spectral Density (dBm / 3kHz)	Limit (dBm)
2402	-8.37	8
2440	-7.78	8
2480	-7.88	8



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### 3.5 Emissions in Restricted Frequency Bands

### 3.5.1 Limit of Emissions in Restricted Frequency Bands

Restricted Band Emissions Limit					
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (m)		
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300		
0.490~1.705	24000/F(kHz)	33.8 - 23	30		
1.705~30.0	30	29	30		
30~88	100	40	3		
88~216	150	43.5	3		
216~960	200	46	3		
Above 960	500	54	3		

#### Note 1:

Qusai-Peak value is measured for frequency below 1GHz except for 9–90 kHz, 110–490 kHz frequency band. Peak and average value are measured for frequency above 1GHz. The limit on average radio frequency emission is as above table. The limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit **Note 2**:

Measurements may be performed at a distance other than what is specified provided. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor as below, Frequency at or above 30 MHz: 20 dB/decade Frequency below 30 MHz: 40 dB/decade.

#### 3.5.2 Test Procedures

- Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission frequency. The EUT is placed at a height of 0.8 m test table above the ground plane.
- 2. Measurement is made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna is varied in height (1m ~ 4m) above the reference ground plane to obtain the maximum signal strength. Distance between EUT and antenna is 3 m.
- 3. This investigation is performed with the EUT rotated 360°, the antenna height scanned between 1 m and 4 m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations.

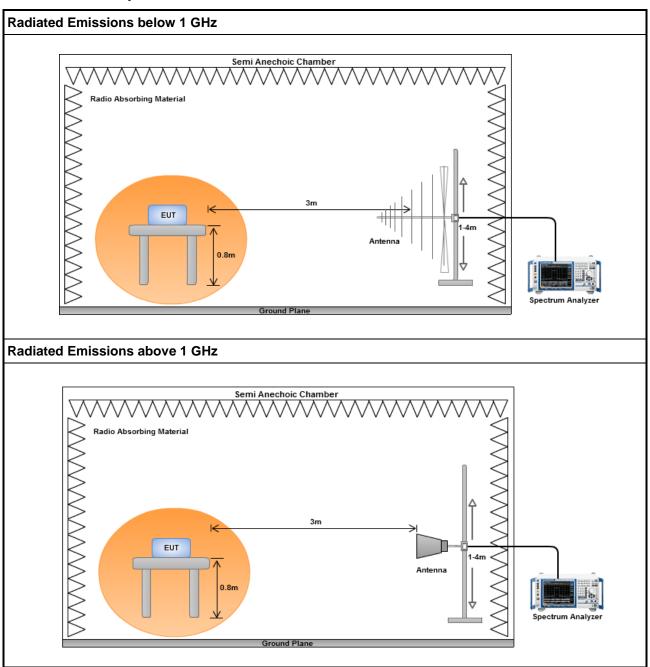
#### Note:

- 1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
- 2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
- 3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above 1GHz.

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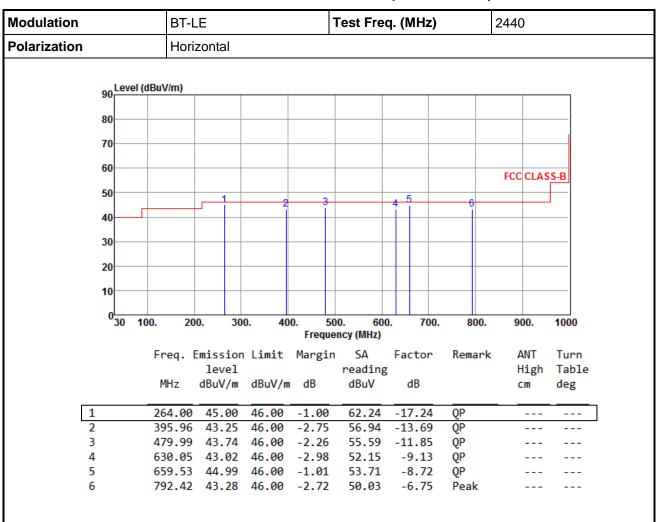
### 3.5.3 Test Setup



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### 3.5.4 Transmitter Radiated Unwanted Emissions (Below 1GHz)



Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

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Modulation		BT-LE Test Freq. (MHz) 2440											
Polarization				Vertical									
	90	Leve	el (dBu	V/m)									
	80												
	70												
	60										FCC	CLAS	S-B
	50					1 .	,	4	6				
	40	1											
	30												
	30												
	20												
	10												
	0	30	100.	20	0.	300. 4		00. 60 ency (MHz)	00. 700	. 800.	9(	00.	1000
			F	rea. E	missi	on Limit	Margir		Factor	Remark	. A	ANT	Turn
					leve			readin				ligh	Table
			ı	MHz	dBuV/ı	n dBuV/	m dB	dBuV	dB		C	zm	deg
:	1		_	51.26	38.39	40.00	-1.61	54.87	-16.48	QP .			
:	2		2	63.77				60.38		Peak			
	3			86.48		46.00			-13.94	QP			
4	4		5	60.24	43.7	L 46.00	-2.29	53.98	-10.27	Peak			

-9.57

-9.12

54.06

QP

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

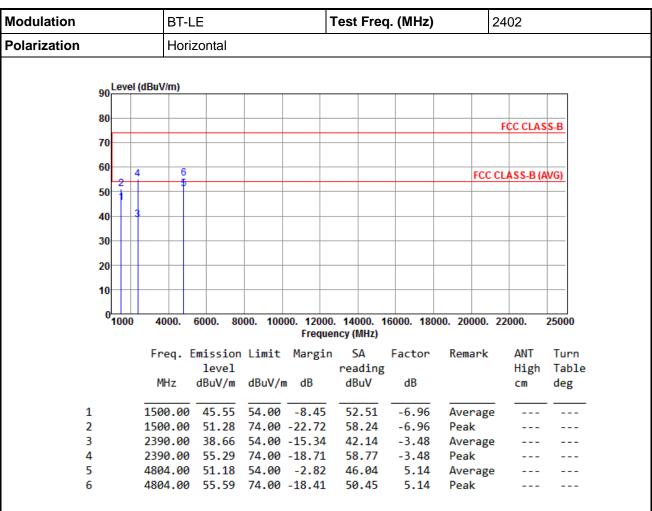
600.12 41.97 46.00 -4.03 51.54

630.43 44.94 46.00 -1.06

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### 3.5.5 Transmitter Radiated Unwanted Emissions (Above 1GHz) for GFSK



Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

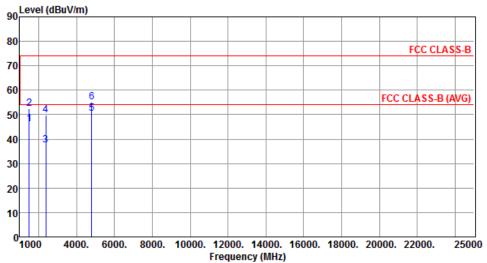
\*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) - Limit (dBuV/m).

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Modulation	BT-LE	Test Freq. (MHz)	2402
Polarization	Vertical		
Lavel (dDa)			



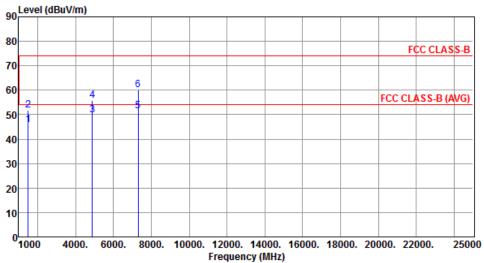
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Ū	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
	11112	ubuv/iii	ubuv/iii	ub	ubuv	ub		CIII	ueg
1	1500.00	46.30	54.00	-7.70	53.26	-6.96	Average		
2	1500.00	52.33	74.00	-21.67	59.29	-6.96	Peak		
3	2390.00	37.60	54.00	-16.40	41.08	-3.48	Average		
4	2390.00	49.90	74.00	-24.10	53.38	-3.48	Peak		
5	4804.00	50.42	54.00	-3.58	45.28	5.14	Average		
6	4804.00	55.13	74.00	-18.87	49.99	5.14	Peak		

\*Factor includes antenna factor , cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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Modulation	BT-LE	Test Freq.	(MHz)	244	0			
Polarization	Horizontal							
90 Level (dBu	V/m)					$\neg$		



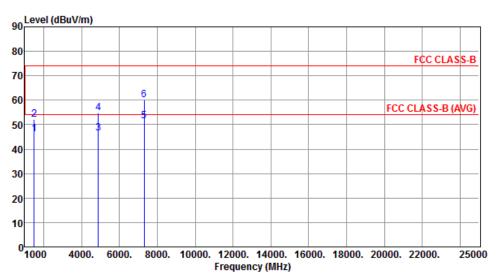
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Ū	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1500.00	45.76	54.00	-8.24	52.72	-6.96	Average		
2		51.80			58.76	-6.96	Peak		
3	4880.00	49.89	54.00	-4.11	44.59	5.30	Average		
4	4880.00	55.75	74.00	-18.25	50.45	5.30	Peak		
5	7320.00	51.60	54.00	-2.40	41.96	9.64	Average		
6	7320.00	60.17	74.00	-13.83	50.53	9.64	Peak		

\*Factor includes antenna factor, cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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Modulation	BT-LE	Test Freq. (MHz)	2440
Polarization	Vertical		

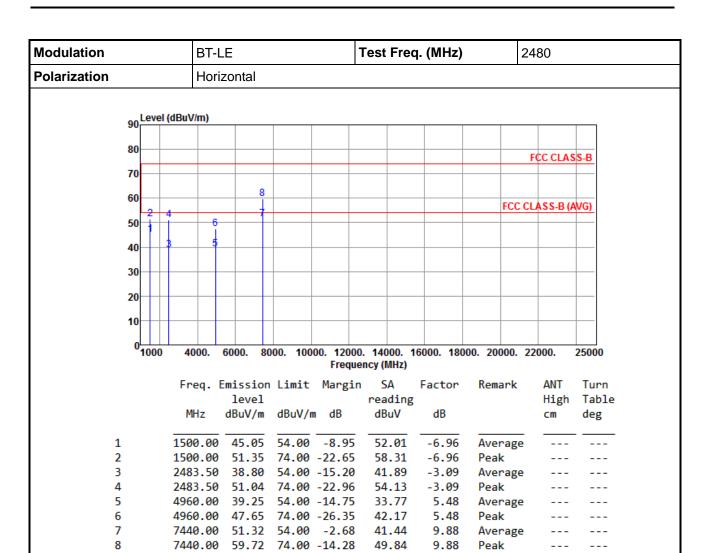


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Ü	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1500.00	46.28	54.00	-7.72	53.24	-6.96	Average		
2	1500.00				59.08	-6.96	Peak		
3	4880.00	46.59	54.00	-7.41	41.29	5.30	Average		
4	4880.00	54.92	74.00	-19.08	49.62	5.30	Peak		
5	7320.00	51.31	54.00	-2.69	41.67	9.64	Average		
6	7320.00	60.25	74.00	-13.75	50.61	9.64	Peak		

\*Factor includes antenna factor , cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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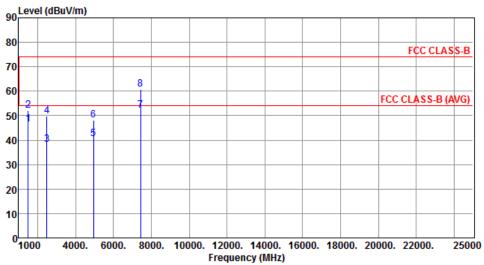
\*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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Modulation	BT-LE	Test Freq. (MHz)	2480
Polarization	Vertical		
go Level (dBu)	//m)		



	Freq.	Emission level	Limit	Margin	SA reading	Factor	Remark	ANT High	Turn Table
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB		cm	deg
1	1500.00	46.44	54.00	-7.56	53.40	-6.96	Average		
2	1500.00	52.30	74.00	-21.70	59.26	-6.96	Peak		
3	2483.50	38.11	54.00	-15.89	41.20	-3.09	Average		
4	2483.50	49.75	74.00	-24.25	52.84	-3.09	Peak		
5	4960.00	40.40	54.00	-13.60	34.92	5.48	Average		
6	4960.00	48.10	74.00	-25.90	42.62	5.48	Peak		
7	7440.00	52.21	54.00	-1.79	42.33	9.88	Average		
8	7440.00	60.71	74.00	-13.29	50.83	9.88	Peak		

\*Factor includes antenna factor, cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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### 3.6 Emissions in non-restricted Frequency Bands

### 3.6.1 Emissions in non-restricted frequency bands limit

Peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz

#### 3.6.2 Test Procedures

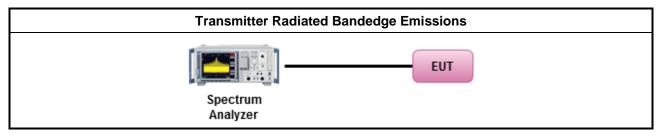
#### Reference level measurement

- 1. Set RBW=100kHz, VBW = 300kHz, Detector = Peak, Sweep time = Auto
- 2. Trace = max hold, Allow Trace to fully stabilize
- 3. Use the peak marker function to determine the maximum PSD level

#### **Emission level measurement**

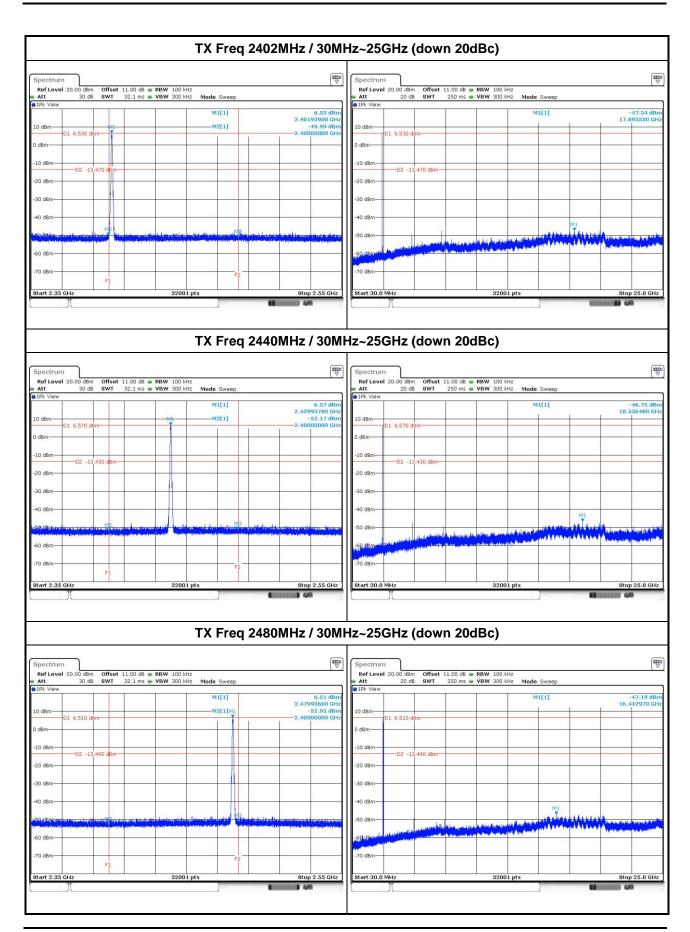
- 1. Set RBW=100kHz, VBW = 300kHz, Detector = Peak, Sweep time = Auto
- 2. Trace = max hold, Allow Trace to fully stabilize
- 3. Scan Frequency range is up to 25GHz
- 4. Use the peak marker function to determine the maximum amplitude level

### 3.6.3 Test Setup



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### 4 Test laboratory information

Established in 2012, ICC provides foremost EMC & RF Testing and advisory consultation services by our skilled engineers and technicians. Our services employ a wide variety of advanced edge test equipment and one of the widest certification extents in the business.

International Certification Corp, it is our definitive objective is to institute long term, trust-based associations with our clients. The expectation we set up with our clients is based on outstanding service, practical expertise and devotion to a certified value structure. Our passion is to grant our clients with best EMC / RF services by oriented knowledgeable and accommodating staff.

Our Test sites are located at Linkou District and Kwei Shan Hsiang. Location map can be found on our website <a href="http://www.icertifi.com.tw">http://www.icertifi.com.tw</a>.

Linkou

Tel: 886-2-2601-1640

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R.O.C.

Kwei Shan

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Tel: 886-3-271-8640

No. 14-1, Lane 19, Wen San 3rd St., Kwei Shan Hsiang, Tao Yuan Hsien 333, Taiwan, R.O.C.

If you have any suggestion, please feel free to contact us as below information

Tel: 886-3-271-8666 Fax: 886-3-318-0155

Email: ICC\_Service@icertifi.com.tw

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