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## FCC PART 15 SUBPART C TEST REPORT

### FCC PART 15C

**Report Reference No.**.....: **VITE1003017R**

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Date of issue.....: March 29, 2010

**Testing Laboratory Name** .....: **Shenzhen VITE Technology Co., Ltd**

Address.....: Suite 2123, Building 4, Hongfa Centre, Central Area Baoan, Baoan District, Shenzhen, Guangdong, 518101, P.R. China

**Applicant's name** .....: **J.B. Industrial (Shen Zhen) Co., Ltd.**

Address.....: J.B. Industrial Center, Beishandao YanTian, Shenzhen P.R.China.

#### **Test specification:**

Standard .....: **FCC Part 15C**

TRF Originator .....: Shenzhen VITE Technology Co., Ltd

Master TRF .....: Dated 2009-03

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**Test item description** .....: F-20-06

Operation Frequency.....: 125KHz

Modulation mode: .....: ASK

Trade Mark .....: JB

Model/Type reference.....: CN-F20-06C

Listed Models .....: /

Difference description.....: /

Power Supply.....: DC 7V 0.5A from adapter

Anttenna Type.....: Integral without external RF Port

Result.....: **Positive**

**FCC ID**.....: **X9V-CN-F20-06C**

## TEST REPORT

<b>Test Report No. :</b>	<b>VITE1003017R</b>	March 29, 2010
		Date of issue

Equipment under Test : F-20-06

Model /Type : CN-F20-06C

Listed Models : /

Difference description: /

**Applicant** : J.B. Industrial (Shen Zhen) Co., Ltd.

Address : J.B. Industrial Center, Beishandao YanTian, Shenzhen  
P.R.China.

**Manufacturer** : J.B. Industrial (Shen Zhen) Co., Ltd.

Address : J.B. Industrial Center, Beishandao YanTian, Shenzhen  
P.R.China.

<b>Test Result</b> according to the standards on page 4:	<b>Positive</b>
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The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

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## **1. TEST STANDARDS**

The tests were performed according to following standards:

[\*\*FCC Rules Part 15 Subpart C Section 15.207, 15.209&ANSI C63.4-2003\*\*](#)

## 2. SUMMARY

### 2.1. General Remarks

Date of receipt of test sample : March 25, 2010

Testing commenced on : March 26, 2010

Testing concluded on : March 28, 2010

### 2.2. Equipment Under Test

#### Power supply system utilised

Power supply voltage :  120V / 60 Hz  115V / 60Hz  
 12 V DC  24 V DC  
 Other (specified in blank below)

DC 7V from adapter

### 2.3. Short description of the Equipment under Test (EUT)

125KHz Wireless Charger

For more details, refer to the user's manual of the EUT.

Serial number: Prototype

### 2.4. EUT operation mode

The EUT has been tested under typical operating condition.

Note: For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage.

### 2.5. EUT configuration

**The following peripheral devices and interface cables were connected during the measurement:**

- supplied by the manufacturer

- supplied by the lab

Power Cable Length (m) : /

Shield : /

Detachable : /

Multimeter Manufacturer : /

Model No. : /

## 2.6. Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for **FCC ID: X9V-CN-F20-06C** filing to comply with the FCC Part 15, Subpart C Rules.

## 2.7. Modifications

No modifications were implemented to meet testing criteria.

## 2.8. Test Result Summary

Test Item	Test Requirement	Standard Paragraph	Result
Radiated Emission	FCC PART 15	Section 15.209	PASS
Conducted Emission	FCC PART 15	Section 15.207	PASS
Occupied Bandwidth	FCC PART 15	Section 15C	PASS

### **3. TEST ENVIRONMENT**

#### **3.1. Address of the test laboratory**

Bontek Compliance Testing Laboratory Ltd  
1/F, Block East H-3, OCT Eastern Ind. Zone, Qiaocheng East Road, Nanshan, Shenzhen, China

There is one 3m semi-anechoic chamber and two line conducted labs for final test. The Test Sites meet the requirements in documents ANSI C63.4 and CISPR 22/EN 55022 requirements

#### **3.2. Test Facility**

The test facility is recognized, certified, or accredited by the following organizations:

##### **FCC-Registration No.: 338263**

Bontek Compliance Testing Laboratory Ltd EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 338263, March 24, 2008.

##### **IC Registration No.: 7631A**

The 3m alternate test site of Bontek Compliance Testing Laboratory Ltd EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the performance of with Registration NO.: 7631A on March, 2008.

#### **3.3. Environmental conditions**

During the measurement the environmental conditions were within the listed ranges:

Temperature: 15-35 ° C

Humidity: 30-60 %

Atmospheric pressure: 950-1050mbar

#### **3.4. Configuration of Tested System**

**Fig. 2-1 Configuration of Tested System**



**Table 2-1 Equipment Used in Tested System**

### 3.5. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the Bontek Compliance Testing Laboratory Ltd quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Bontek laboratory is reported:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	4.10dB	(1)
Radiated Emission	1~12.75GHz	4.32dB	(1)
Conducted Emission	0.15~30MHz	3.22dB	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

### 3.6. Equipments Used during the Test

Radiated Emission					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	ULTRA-BROADBAND ANTENNA	ROHDE & SCHWARZ	HL562	100015	2009/04
2	EMI TEST RECEIVER	ROHDE & SCHWARZ	ESI 26	100009	2009/04
3	RF TEST PANEL	ROHDE & SCHWARZ	TS / RSP	335015/ 0017	2009/04
4	TURNTABLE	ETS	2088	2149	2009/04
5	ANTENNA MAST	ETS	2075	2346	2009/04
6	EMI TEST SOFTWARE	ROHDE & SCHWARZ	ESK1	N/A	2009/04
7	Loop Antenna	ROHDE & SCHWARZ	HFH2-Z2	8335211/0035	2009/04

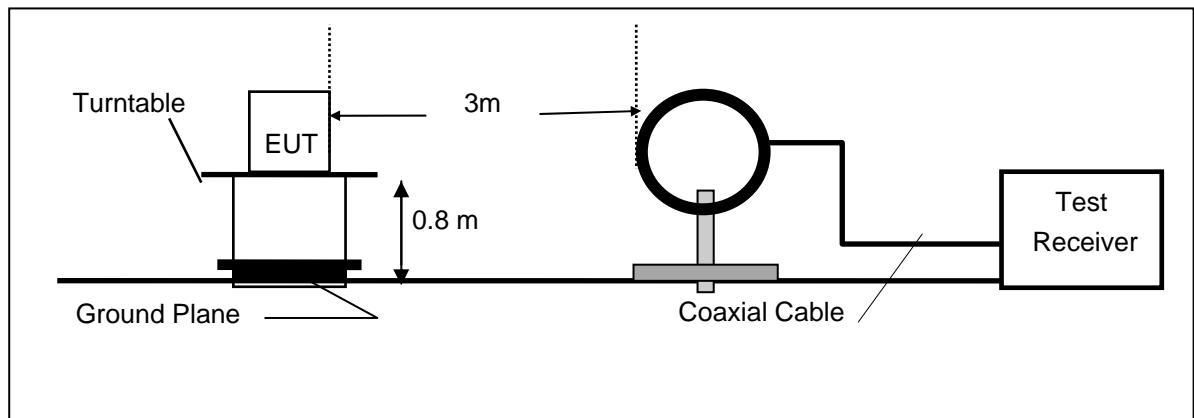
Conducted Emission					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCS30	100038	2009/04
2	Artificial Mains	ROHDE & SCHWARZ	ESH2-Z5	100028	2009/04
3	Pulse Limiter	ROHDE & SCHWARZ	ESHSZ2	100044	2009/04
4	EMI Test Software	ROHDE & SCHWARZ	ESK1	N/A	2009/04

## 4. TEST CONDITIONS AND RESULTS

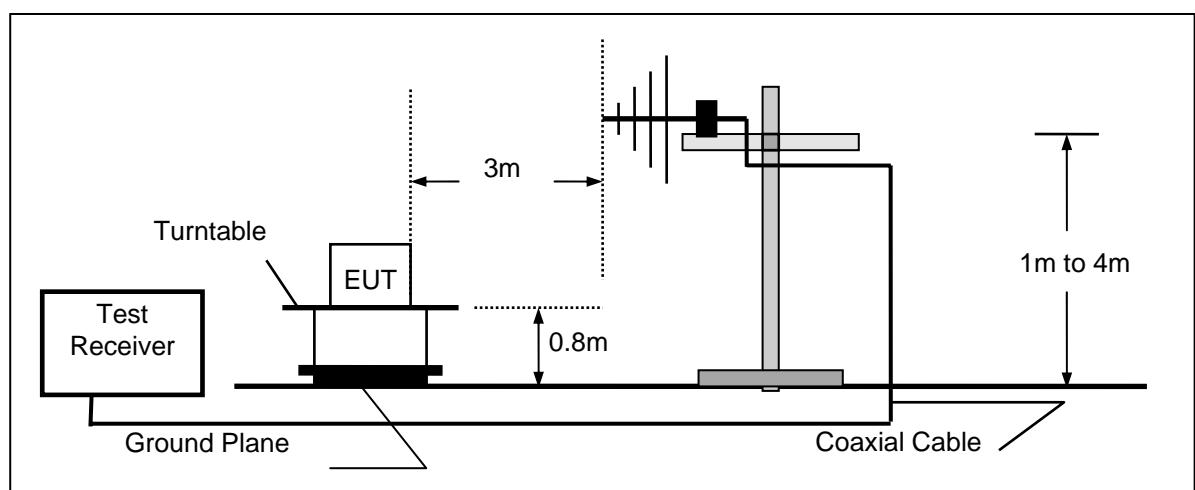
### 4.1. Radiated Emission Test

#### TEST CONFIGURATION

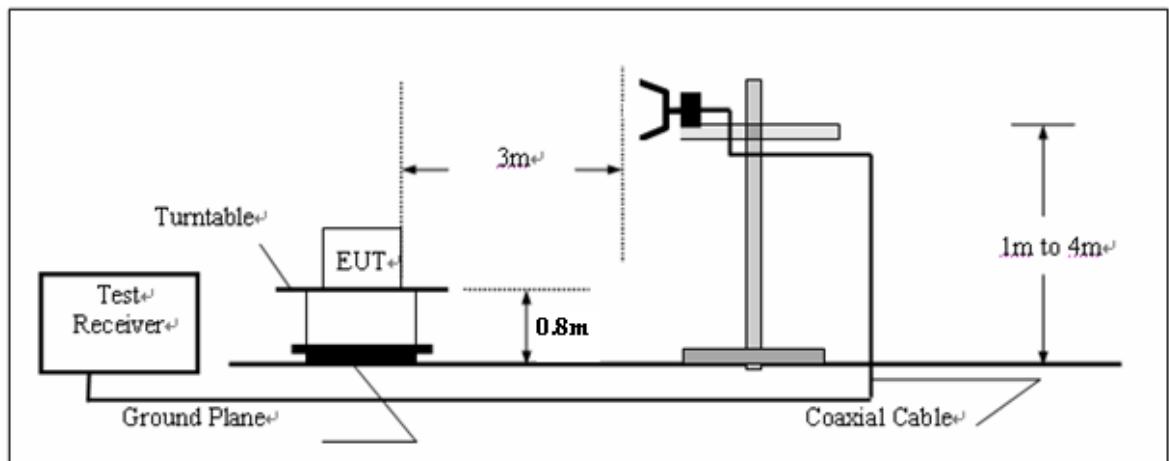
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



(B) Radiated Emission Test Set-Up, Frequency below 1000MHz



(C) Radiated Emission Test Set-Up, Frequency above 1000MHz



### Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor(if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CL - AG$$

Where FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
RA = Reading Amplitude	AG = Amplifier Gain
AF = Antenna Factor	

### **Field Strength:**

Limits were extrapolated from 300m to 3m distance:

E-field:

$$\begin{aligned} \text{Limit (@ 300m)} &= 2400/F = 2400/125 = 19.2 \mu\text{V/m} = 25.7 \text{ dB}\mu\text{V/m} \\ \text{Limit (@ 3m)} &= \text{Limit (@ 300m)} + 40 * \log_{10}(300/3) = 105.7 \text{ dB}\mu\text{V/m} \end{aligned}$$

### RADIATION LIMIT

For unintentional device, according to § 15.109(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency (MHz)	Distance (Meters)	Radiated (dB $\mu$ V/m)	Radiated ( $\mu$ V/m)
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the above table.

### Test Procedure

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.

### **Additional Observations:**

The Spectrum was searched from 9 kHz to 1 GHz. All measurements were performed using a Peak Detector with 200Hz RBW below 150 kHz, 10kHz RBW in 0.15 – 30MHz range and 100kHz RBW in 30 – 1000 MHz range at a distance of 3 meters.

**Radiation Test Result****9KHz-30MHz:**

Freq. (MHz)	Ant.Pol. LOOP	DetectorMode (PK/AV)	Reading (dBuV)	Ant./CL/ Amp. CF(dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
0.125		Peak	79.50	10.60	90.10	105.70	-15.60
0.250		Peak	35.00	10.50	45.50	99.65	-54.15
0.375		Peak	---	10.50		96.12	
0.500		Peak	---	10.50		73.62	
0.625		Peak	---	10.40		71.69	
0.750		Peak	---	10.40		70.10	
0.875		Peak	---	10.30		68.76	
1.000		Peak	---	10.20		67.60	
1.125		Peak	---	10.10		66.58	
1.250		Peak	---	10.00		65.67	
Others							

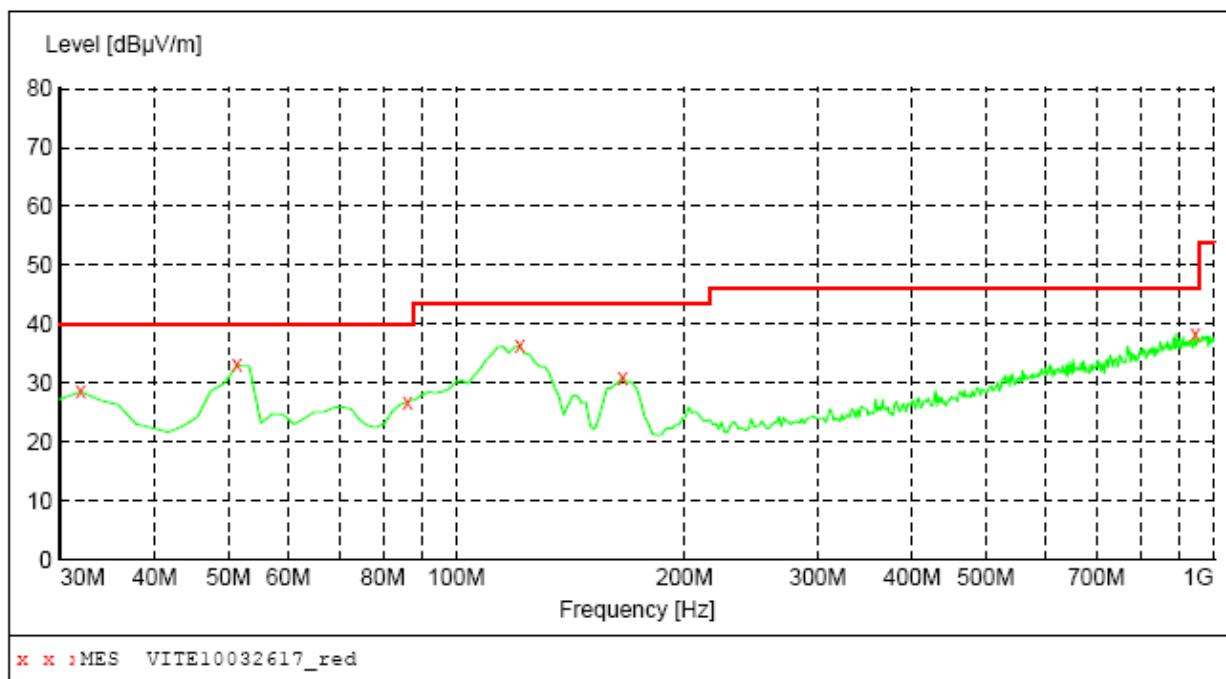
## Remark:

- (1) Measuring frequencies from 9KHz to the 30MHz.
- (2) "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency.
- (3) \* denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
- (4) Spurious radiated emissions of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the 15.209 limit or the field strength is too small to be measured.
- (5) The IF bandwidth of EMI Test Receiver was 100KHz for measuring from 30 MHz to 1 GHz and 1 MHz for measuring above 1 GHz

**30MHz-1GHz:**

***SWEEP TABLE: "test (30M-1G)"***

Short Description:		Field Strength		
Start Frequency	Stop Frequency	Detector	Meas.	IF
30.0 MHz	1.0 GHz	QP	Coupled	120 kHz
			Time	Bandw.
				VULB9163 NEW

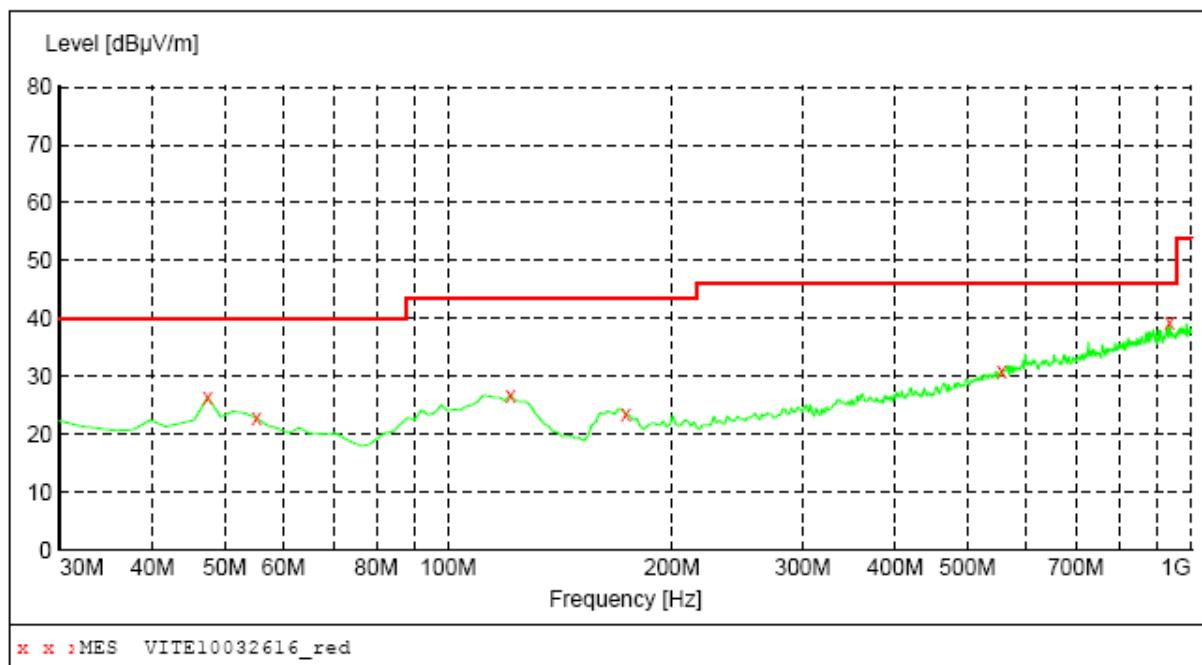
***MEASUREMENT RESULT: "VITE10032617\_red"***

3/26/2010 23:16

Frequency MHz	Level dB $\mu$ V/m	Transd dB	Limit dB $\mu$ V/m	Margin dB	Det. QP	Height cm	Azimuth deg	Polarization
31.940000	28.50	14.4	40.0	11.5	QP	100.0	55.00	VERTICAL
51.340000	33.00	15.7	40.0	7.0	QP	100.0	115.00	VERTICAL
86.260000	26.80	14.8	40.0	13.2	QP	100.0	150.00	VERTICAL
121.180000	36.30	14.9	43.5	7.2	QP	100.0	58.00	VERTICAL
165.800000	31.00	14.1	43.5	12.5	QP	100.0	110.00	VERTICAL
945.680000	38.50	31.7	46.0	7.5	QP	100.0	80.00	VERTICAL

***SWEEP TABLE: "test (30M-1G)"***

Short Description:		Field Strength		
Start Frequency	Stop Frequency	Detector	Meas.	IF
30.0 MHz	1.0 GHz	QP	Coupled	120 kHz
			Time	Bandw.
				VULB9163 NEW

***MEASUREMENT RESULT: "VITE10032616\_red"***

3/26/2010 23:14

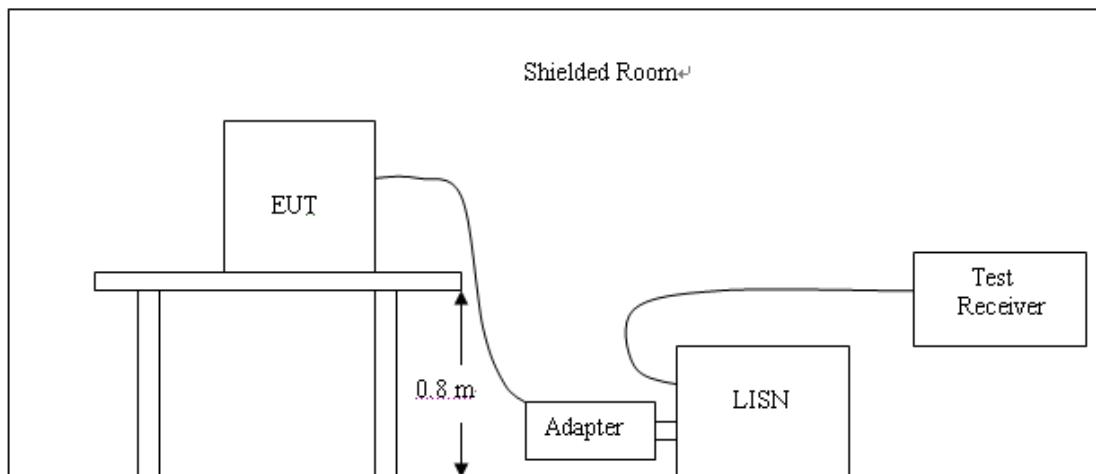
Frequency MHz	Level dB $\mu$ V/m	Transd dB	Limit dB $\mu$ V/m	Margin dB	Det. QP	Height cm	Azimuth deg	Polarization
47.460000	26.40	15.8	40.0	13.6	QP	300.0	55.00	HORIZONTAL
55.220000	22.80	15.6	40.0	17.2	QP	300.0	85.00	HORIZONTAL
121.180000	26.80	14.9	43.5	16.7	QP	300.0	145.00	HORIZONTAL
173.560000	23.40	14.5	43.5	20.1	QP	300.0	116.00	HORIZONTAL
555.740000	31.00	25.3	46.0	15.0	QP	100.0	56.00	HORIZONTAL
935.980000	39.40	31.6	46.0	6.6	QP	300.0	26.00	HORIZONTAL

## 4.2. Conducted Emissions Test

### Measurement Procedure:

1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system; a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.4.
2. Support equipment, if needed, was placed as per ANSI C63.4.
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.
4. The EUT received DC7V power from adapter.
5. The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
6. Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.
7. During the above scans, the emissions were maximized by cable manipulation.

### Test SET-UP (Block Diagram of Configuration)



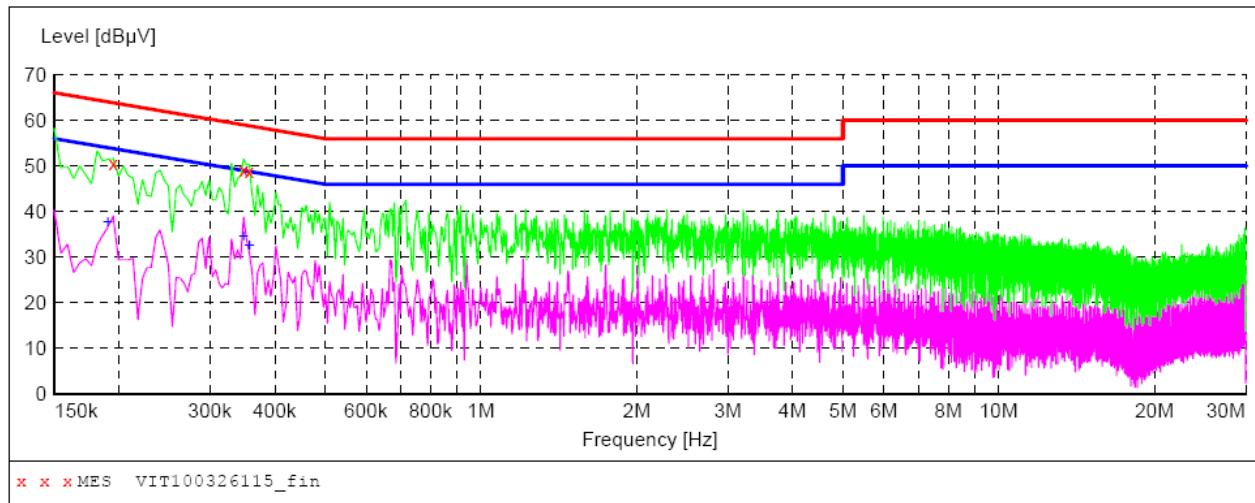
### Measurement Result:

### Additional Observations:

All measurements for conducted emissions were performed using a Peak detector, Average detector and Quasi-Peak detector with 9 kHz RBW.

***Voltage Mains FCC PART15 B***

EUT: M/N:CN-F20-06C  
 Manufacturer: JB  
 Operating Condition: CHARGING  
 Test Site: SHIELDED ROOM  
 Operator: Mandy  
 Test Specification: AC 120V/60Hz  
 Comment: N LINE  
 Temperature:24 Humiuity:55%

***SCAN TABLE: "Voltage (150K-30M) FIN"***  
Short Description: 150K-30M Voltage***MEASUREMENT RESULT: "VIT100326115\_fin"***

3/26/2010 19:42

Frequency MHz	Level dB $\mu$ V	Transd dB	Limit dB $\mu$ V	Margin dB	Detector	Line	PE
0.195000	50.60	10.9	64	13.2	QP	N	GND
0.348000	49.20	10.5	59	9.8	QP	N	GND
0.357000	48.70	10.5	59	10.1	QP	N	GND

***MEASUREMENT RESULT: "VIT100326115\_fin2"***

3/26/2010 19:42

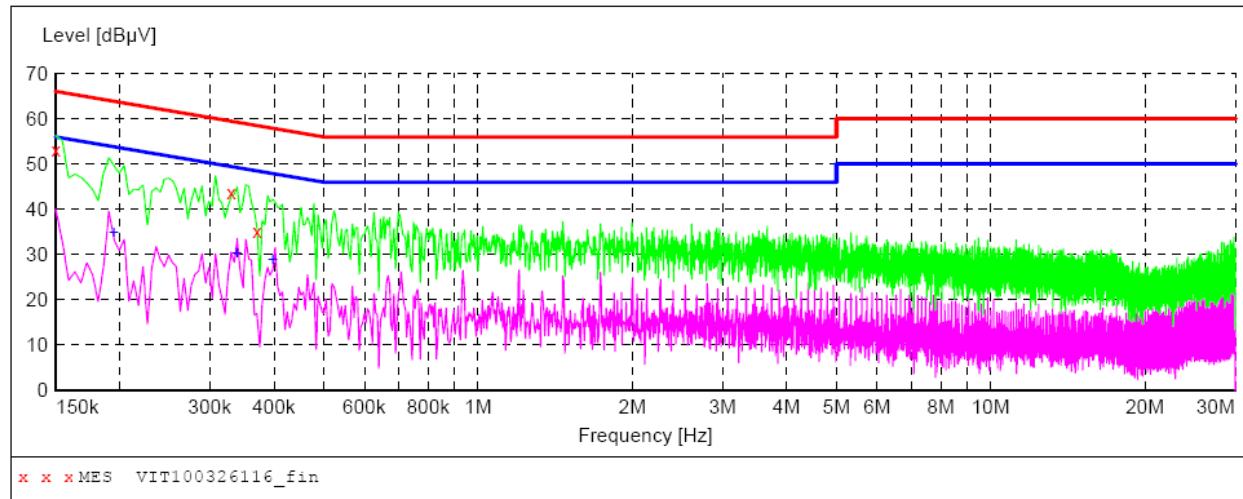
Frequency MHz	Level dB $\mu$ V	Transd dB	Limit dB $\mu$ V	Margin dB	Detector	Line	PE
0.190500	37.80	10.9	54	16.2	AV	N	GND
0.348000	34.50	10.5	49	14.5	AV	N	GND
0.357000	32.70	10.5	49	16.1	AV	N	GND

***Voltage Mains FCC PART15 B***

EUT: M/N:CN-F20-06C  
 Manufacturer: JB  
 Operating Condition: CHARGING  
 Test Site: SHIELDED ROOM  
 Operator: Mandy  
 Test Specification: AC 120V/60Hz  
 Comment: L LINE  
 Temperature:24 Humiuility:55%

***SCAN TABLE: "Voltage (150K-30M) FIN"***

Short Description: 150K-30M Voltage

***MEASUREMENT RESULT: "VIT100326116\_fin"***

3/26/2010 19:45

Frequency MHz	Level dB $\mu$ V	Transd dB	Limit dB $\mu$ V	Margin dB	Detector	Line	PE
0.150000	53.00	11.4	66	13.0	QP	L1	GND
0.330000	43.60	10.5	60	15.9	QP	L1	GND
0.370500	35.10	10.4	59	23.4	QP	L1	GND

***MEASUREMENT RESULT: "VIT100326116\_fin2"***

3/26/2010 19:45

Frequency MHz	Level dB $\mu$ V	Transd dB	Limit dB $\mu$ V	Margin dB	Detector	Line	PE
0.195000	34.70	10.9	54	19.1	AV	L1	GND
0.339000	30.20	10.5	49	19.0	AV	L1	GND
0.397500	28.70	10.4	48	19.2	AV	L1	GND

### 4.3. Occupied Bandwidth

#### Measurement Procedure

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Set EUT as normal operation
3. Set SPA Center Frequency = fundamental frequency, RBW= 300Hz, VBW= 1KHz.
4. The useful radiated emission from the EUT was detected by the spectrum analyser with peak detector.

#### Test SET-UP (Block Diagram of Configuration)

Same as Radiated Emission Measurement.

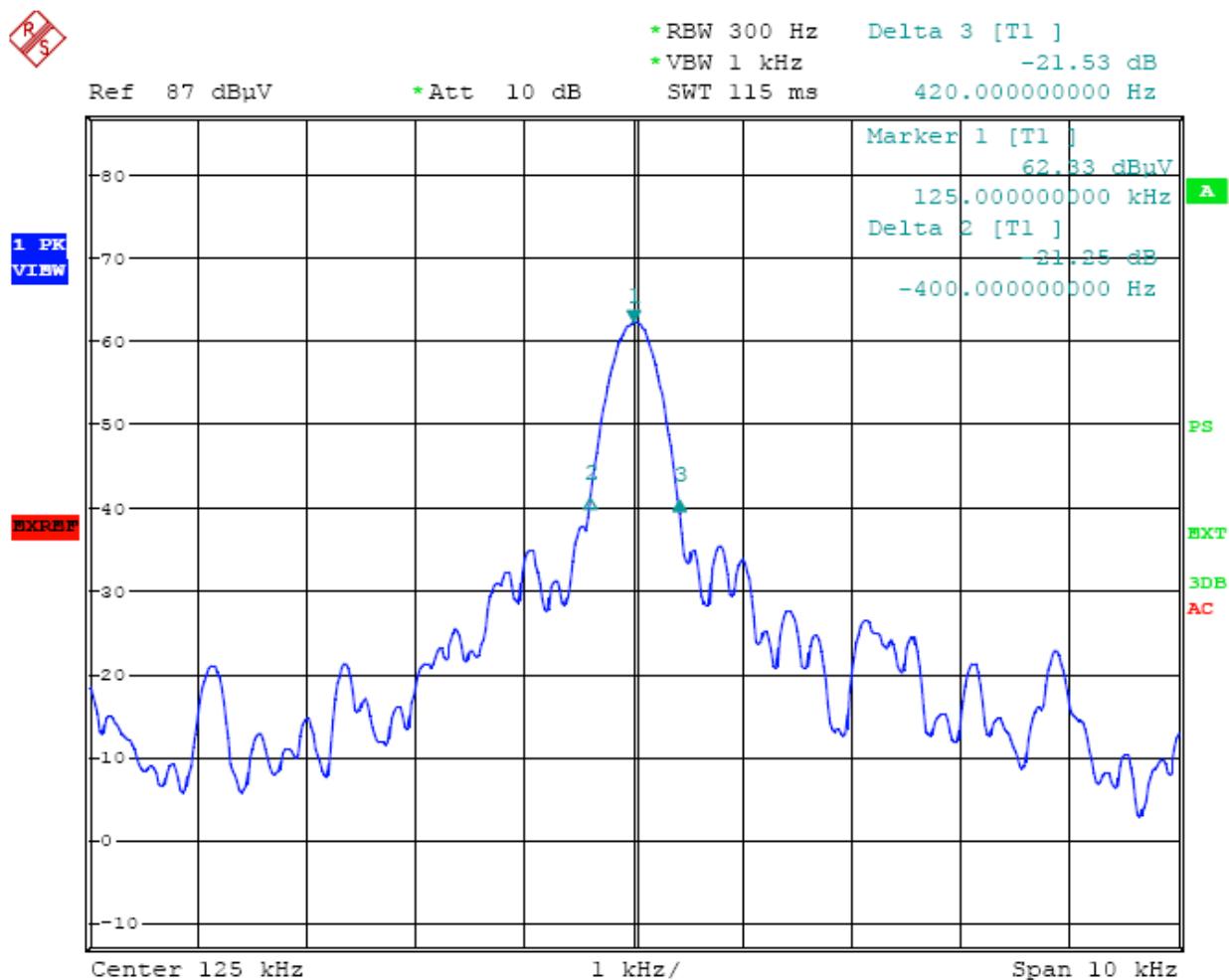
#### Measurement Equipment Used:

Same as Radiated Emission Measurement.

#### Measurement Results:

The graph as below, represents the emissions take for this device.

**20 dB Bandwidth Test Plot:**



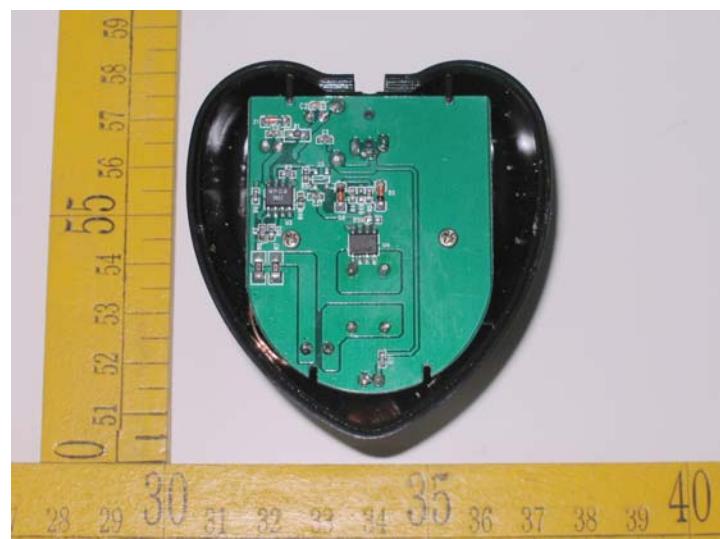
## 5. Test Setup Photos of the EUT



## **6. External and Internal Photos of the EUT**

### **External Photos**



Internal Photos

.....End of Report.....