



FCC Part 15C Test Report

FCC ID: 2ATO7-360LOCK

Product Name:	360LOCK
Trademark:	N/A
Model Name :	360LOCK-1
Prepared For :	Mondo Novo Electronics Srl
Address :	Via Borgo Nazario Sauro,26 -62024 -Matelica , Macerata, Italy
Prepared By :	Shenzhen BCTC Testing Co., Ltd.
Address :	BCTC Building & 1-2F, East of B Building, Pengzhou Industrial, Fuyuan 1st Road, Qiaotou Community, Fuyong Street, Bao'an District, Shenzhen, China
Test Date:	Jun. 03, 2019 – Jun. 11, 2019
Date of Report :	Jun. 11, 2019
Report No.:	BCTC-FY190502986-1E



TEST RESULT CERTIFICATION

Applicant's name: Mondo Novo Electronics Srl

Address: Via Borgo Nazario Sauro,26 -62024 -Matelica , Macerata, Italy

Manufacture's Name: Shenzhen HHD Technology Co.,Ltd

Address: 9F,Bldg A,Jingang Tech Park,Qiaotou village,Fuyong
Town,Bao'an Area,Shenzhen,China 518103

Product description

Product name: 360LOCK

Trademark: N/A

Model and/or type reference : 360LOCK-1

Standards: FCC Part15.225
ANSI C63.10-2013

This device described above has been tested by BCTC, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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Prepared by(Engineer): Willem Wang

Willem Wang



Reviewer(Supervisor): Eric Yang

Approved(Manager): Zero Zhou



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1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 (15.225)			
Standard Section	Test Item	Judgment	Remark
15.207	Conducted Emission	PASS	
Part 15.209(a), 15.225(d)	Radiated Spurious Emission	PASS	
15.215	Bandwidth	PASS	
Part 15.209(a), 15.225(a)(b)(c)(d)	Band Edge Emission	PASS	
Part 15.225(e)	Transmitter Frequency Stability (Temperature & Voltage Variation)	PASS	
15.203	Antenna Requirement	PASS	

NOTE:

(1)" N/A" denotes test is not applicable in this Test Report

1.1 TEST FACILITY

Shenzhen BCTC Testing Co., Ltd.

Add. : BCTC Building & 1-2F, East of B Building, Pengzhou Industrial, Fuyuan 1st Road, Qiaotou Community, Fuyong Street, Bao'an District, Shenzhen, China

FCC Test Firm Registration Number: 712850

IC Registered No.: 23583

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %。

No.	Item	Uncertainty
1	3m chamber Radiated spurious emission(30MHz-1GHz)	U=4.3dB
2	3m chamber Radiated spurious emission(1GHz-18GHz)	U=4.5dB
3	3m chamber Radiated spurious emission(18GHz-40GHz)	U=3.34dB
4	Conducted Adjacent channel power	U=1.38dB
5	Conducted output power uncertainty Above 1G	U=1.576dB
6	Conducted output power uncertainty below 1G	U=1.28dB
7	humidity uncertainty	U=5.3%
8	Temperature uncertainty	U=0.59 °C



2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	360LOCK										
Trade Name	N/A										
Model Name	360LOCK-1										
Model Difference	N/A										
Product Description	<p>The EUT is a 360LOCK</p> <table border="1"><tr><td>Operation Frequency:</td><td>13.56MHz</td></tr><tr><td>Modulation Type:</td><td>ASK</td></tr><tr><td>Number Of Channel</td><td>1 CH</td></tr><tr><td>Antenna type:</td><td>PCB Coil Antenna</td></tr><tr><td>Antenna Gain (dBi)</td><td>0dBi</td></tr></table>	Operation Frequency:	13.56MHz	Modulation Type:	ASK	Number Of Channel	1 CH	Antenna type:	PCB Coil Antenna	Antenna Gain (dBi)	0dBi
Operation Frequency:	13.56MHz										
Modulation Type:	ASK										
Number Of Channel	1 CH										
Antenna type:	PCB Coil Antenna										
Antenna Gain (dBi)	0dBi										
	<p>Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.</p>										
Channel List	Please refer to the Note 2.										
Power	DC 3.7V from Battery; DC 5V from Adapter										
hardware version	--										
Software version	--										
Serial number	--										
Connecting I/O Port(s)	Please refer to the User's Manual										

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.



2.2 DESCRIPTION OF TEST MODES

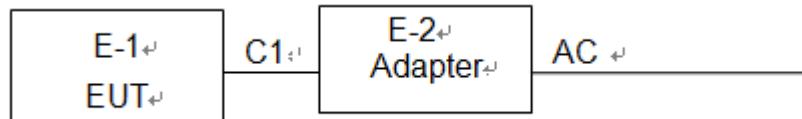
To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	TX Mode
Link mode(conducted emission and Radiated emission)	
Final Test Mode	Description
Mode 1	TX Mode

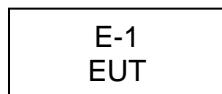


2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Conducted Emission



Radiated Emission Test



2.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	360LOCK	N/A	360LOCK-1	N/A	EUT
E-2	Adapter	N/A	BCTC005	N/A	Auxiliary

Item	Shielded Type	Ferrite Core	Length	Note
C1	NO	NO	0.5M	USB cable unshielded

Note: For detachable type I/O cable should be specified the length in cm in «Length» column.



2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation Test equipment

Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	Spectrum Analyzer (9kHz-26.5GHz)	Agilent	E4407B	MY45109572	2018.06.20	2019.06.20
2	Test Receiver (9kHz-7GHz)	R&S	ESR7	101154	2018.06.20	2019.06.20
3	Bilog Antenna (30MHz-3GHz)	SCHWARZBEC K	VULB9163	VULB9163-942	2018.06.23	2019.06.23
4	Horn Antenna (1GHz-18GHz)	SCHWARZBEC K	BBHA9120D	1541	2018.06.23	2019.06.22
5	Horn Antenna (18GHz-40GHz)	SCHWARZBEC K	BBHA9170	822	2018.08.06	2019.08.06
6	Amplifier (9KHz-6GHz)	SCHWARZBEC K	BBV9744	9744-0037	2018.06.20	2019.06.20
7	Amplifier (0.5GHz-18GHz)	SCHWARZBEC K	BBV9718	9718-309	2018.06.20	2019.06.20
8	Amplifier (18GHz-40GHz)	MITEQ	TTA1840-35-H G	2034381	2018.08.06	2019.08.06
9	Loop Antenna (9KHz-30MHz)	SCHWARZBEC K	FMZB1519B	014	2018.06.23	2019.06.23
10	RF cables1 (9kHz-30MHz)	Huber+Suhnar	9kHz-30MHz	B1702988-0008	2019.02.12	2020.02.12
11	RF cables2 (30MHz-1GHz)	Huber+Suhnar	30MHz-1GHz	1486150	2019.03.27	2020.03.27
12	RF cables3 (1GHz-40GHz)	Huber+Suhnar	1GHz-40GHz	1607106	2018.06.19	2019.06.19
13	Power Meter	Keysight	E4419	\	2018.06.15	2019.06.15
14	Power Sensor (AV)	Keysight	E9 300A	\	2018.06.15	2019.06.15
15	Signal Analyzer 20kHz-26.5GHz	KEYSIGHT	N9020A	MY49100060	2018.08.14	2019.08.13
16	Test Receiver 9kHz-40GHz	R&S	FSP40	100550	2018.06.13	2019.06.12
17	D.C. Power Supply	LongWei	TPR-6405D	\	\	\
18	Software	Frad	EZ-EMC	FA-03A2 RE	\	\

Conduction Test equipment

Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	Test Receiver	R&S	ESR3	102075	2018.06.20	2019.06.20
2	LISN	SCHWARZBEC K	NSLK8127	8127739	2018.06.19	2019.06.19
3	LISN	R&S	ENV216	101375	2018.06.20	2019.06.20
4	RF cables	Huber+Suhnar	9kHz-30MHz	B1702988-0008	2019.02.12	2020.02.12
5	Software	Frad	EZ-EMC	EMC-CON 3A1	\	\



3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Class B (dBuV)		Standard
	Quasi-peak	Average	
0.15 -0.5	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	56.00	46.00	FCC
5.0 -30.0	60.00	50.00	FCC

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

3.1.2 TEST PROCEDURE

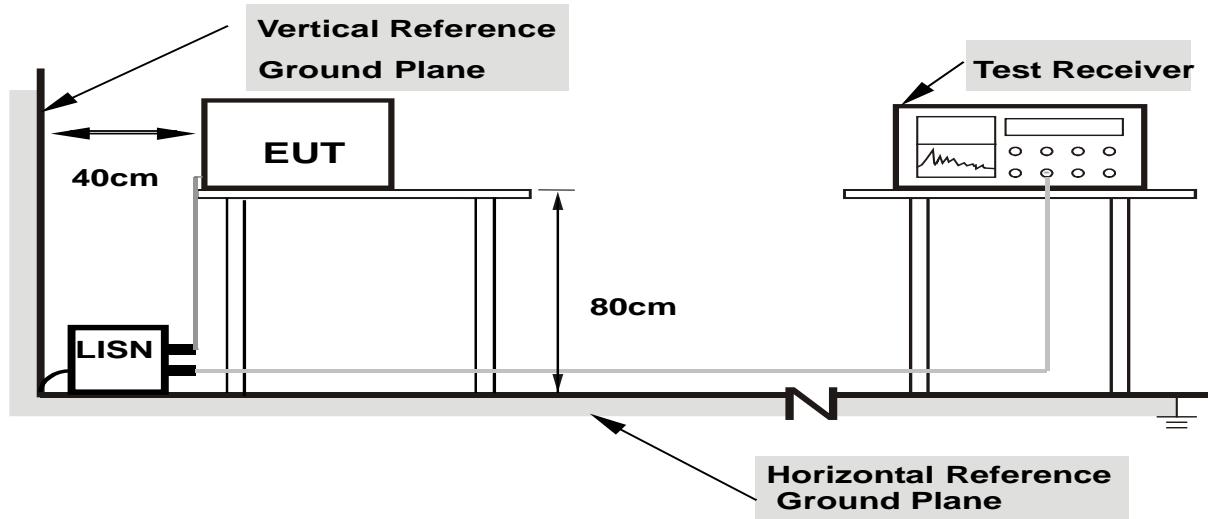
- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.1.3 DEVIATION FROM TEST STANDARD

No deviation



3.1.4 TEST SETUP



Note:

1. Support units were connected to second LISN.
2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

3.1.5 EUT OPERATING CONDITIONS

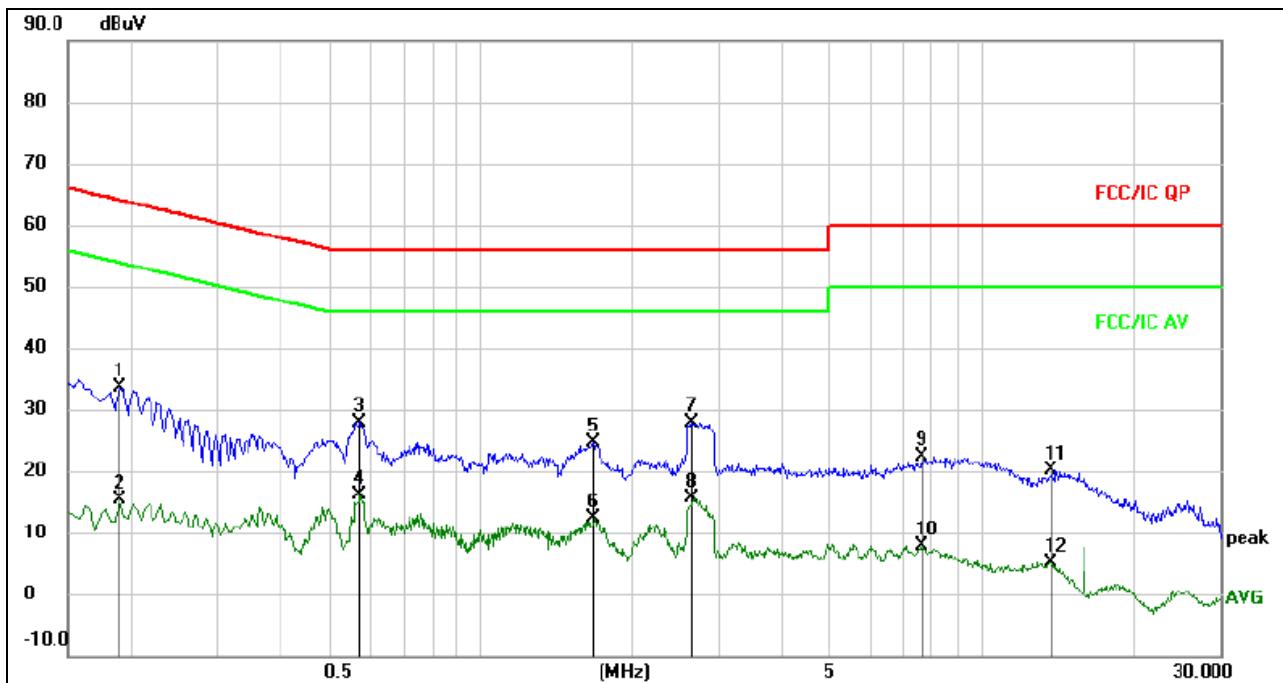
The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

We pretest AC 120V and AC 240V, the worst voltage was AC 120V and the data recording in the report.

3.1.6 TEST RESULTS



Temperature :	26 °C	Relative Humidity :	54%
Test Voltage :	DC 5V from adapter	Phase :	L
Test Mode :	Mode 1		



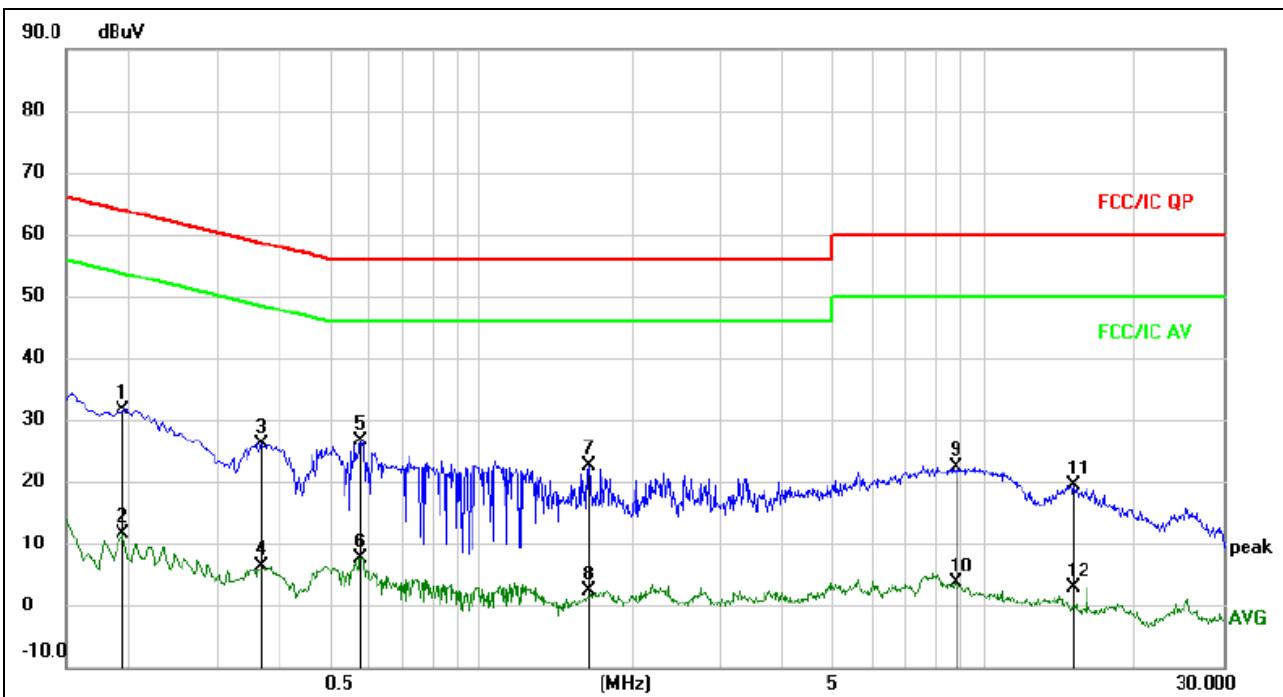
Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

No.	Mk.	Freq.	Reading	Measure-	Limit	Over	Detector	Comment
			Level					
1		0.1900	24.14	9.47	33.61	64.04	-30.43	QP
2		0.1900	5.86	9.47	15.33	54.04	-38.71	AVG
3	*	0.5740	18.11	9.89	28.00	56.00	-28.00	QP
4		0.5740	6.29	9.89	16.18	46.00	-29.82	AVG
5		1.6740	15.03	9.58	24.61	56.00	-31.39	QP
6		1.6740	2.71	9.58	12.29	46.00	-33.71	AVG
7		2.6340	18.13	9.63	27.76	56.00	-28.24	QP
8		2.6340	5.98	9.63	15.61	46.00	-30.39	AVG
9		7.5980	12.63	9.71	22.34	60.00	-37.66	QP
10		7.5980	-1.87	9.71	7.84	50.00	-42.16	AVG
11		13.6620	10.45	9.70	20.15	60.00	-39.85	QP
12		13.6620	-4.49	9.70	5.21	50.00	-44.79	AVG



Temperature :	26 °C	Relative Humidity :	54%
Test Voltage :	DC 5V from adapter	Phase :	N
Test Mode :	Mode 1		



Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Detector	Comment
			Level	Factor	ment				
1		0.1940	22.23	9.47	31.70	63.86	-32.16	QP	
2		0.1940	2.09	9.47	11.56	53.86	-42.30	AVG	
3		0.3660	16.68	9.53	26.21	58.59	-32.38	QP	
4		0.3660	-3.21	9.53	6.32	48.59	-42.27	AVG	
5	*	0.5780	16.61	9.91	26.52	56.00	-29.48	QP	
6		0.5780	-2.25	9.91	7.66	46.00	-38.34	AVG	
7		1.6380	12.95	9.58	22.53	56.00	-33.47	QP	
8		1.6380	-7.24	9.58	2.34	46.00	-43.66	AVG	
9		8.7579	12.71	9.70	22.41	60.00	-37.59	QP	
10		8.7579	-6.07	9.70	3.63	50.00	-46.37	AVG	
11		15.0779	9.74	9.70	19.44	60.00	-40.56	QP	
12		15.0779	-6.84	9.70	2.86	50.00	-47.14	AVG	



3.2 RADIATED EMISSION MEASUREMENT

3.2.1 RADIATED EMISSION LIMITS (Frequency Range 9kHz-1000MHz)

1. The field strength of any emissions within the band 13.553–13.567 MHz shall not exceed 15,848 microvolts/ meter at 30 meters
2. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

3.2.2 TEST PROCEDURE

Below 1GHz test procedure as below:

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

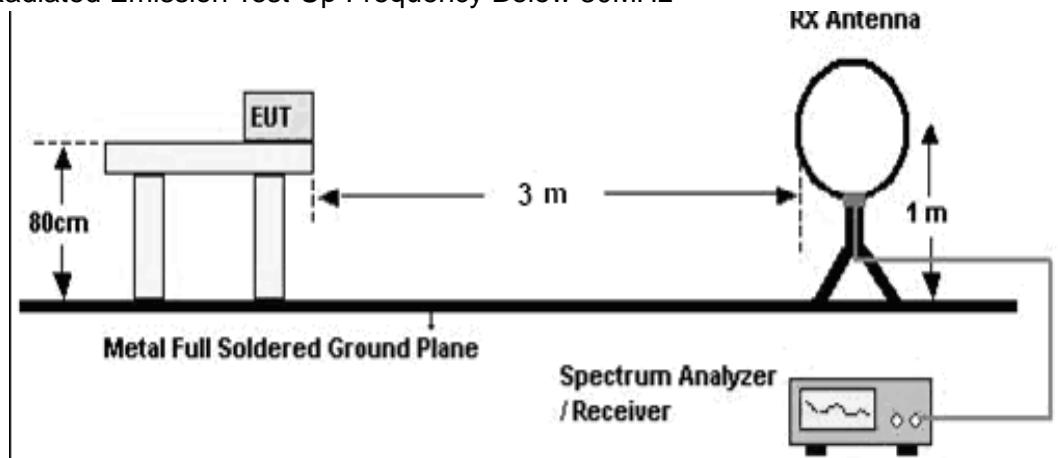


3.2.3 DEVIATION FROM TEST STANDARD

No deviation

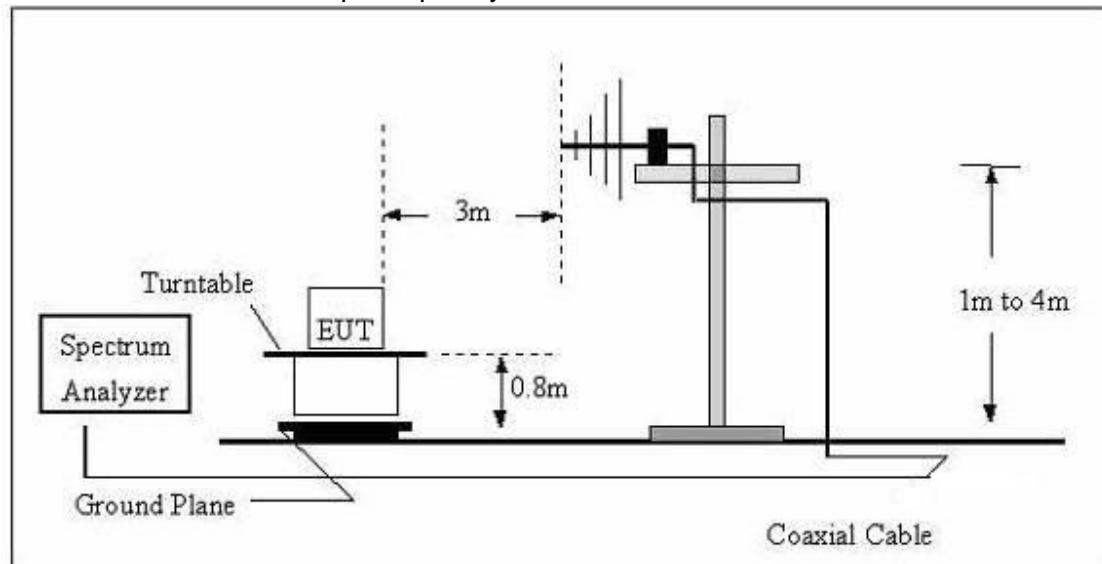
3.2.4 TEST SETUP

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





(B) Radiated Emission Test-Up Frequency 30MHz~1GHz



3.2.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.



3.2.6 TEST RESULTS (BETWEEN 9KHZ – 30 MHZ)

Temperature:	26°C	Relative Humidity:	54%
Pressure:	101 kPa	Test Voltage :	DC 3.7V
Test Mode :	Mode 1	Polarization :	--

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
0.5347	15.36	20.84	36.2	53.04	-16.84	QP
1.3651	14.08	20.77	34.85	64.90	-30.05	QP
1.4750	15.25	20.7	35.95	64.23	-28.28	QP
2.6532	14.39	20.63	35.02	69.54	-34.52	QP
5.3641	14.87	20.12	34.99	69.54	-34.55	QP
18.1251	16.39	19.25	35.64	69.54	-33.90	QP

NOTE:

Pre-scan in the all of mode, the worst case in of was recorded.

Factor = antenna factor + cable loss – pre-amplifier.

Margin = Emission Level- Limit.

Measurements were performed at 3 metres and results extrapolated to 30 metres.

The limit is specified at a test distance of 30 metres. However, as specified by FCC Section 15.31 (f)(2), measurements may be performed at a closer distance and the measured level corrected to the specified measurement distance by making the measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor.

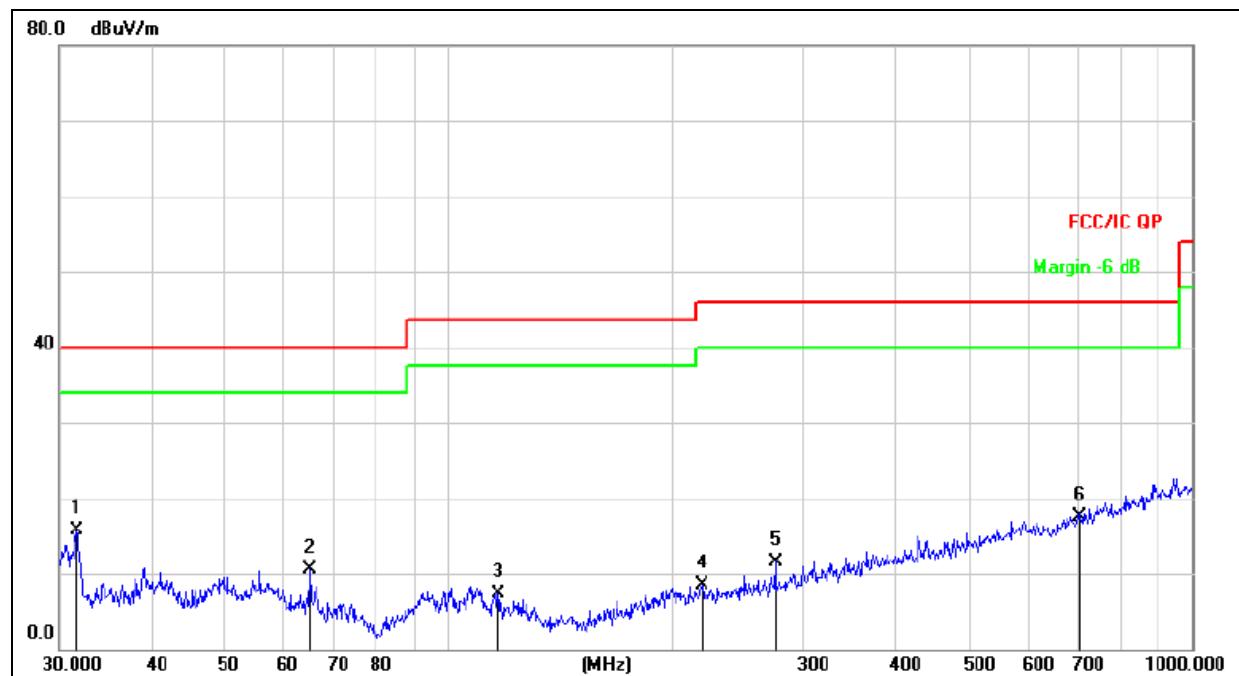
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor = $40 \log \left(\frac{\text{specific distance}}{\text{test distance}} \right) \text{dB}$;
Limit line = specific limits(dB μ V) + distance extrapolation factor.



3.2.7 TEST RESULTS (BETWEEN 30MHZ – 1GHZ)

Temperature :	26°C	Relative Humidity :	54%
Pressure :	101 kPa	Polarization :	Horizontal
Test Voltage :	DC 3.7V		
Test Mode :	Mode 1		



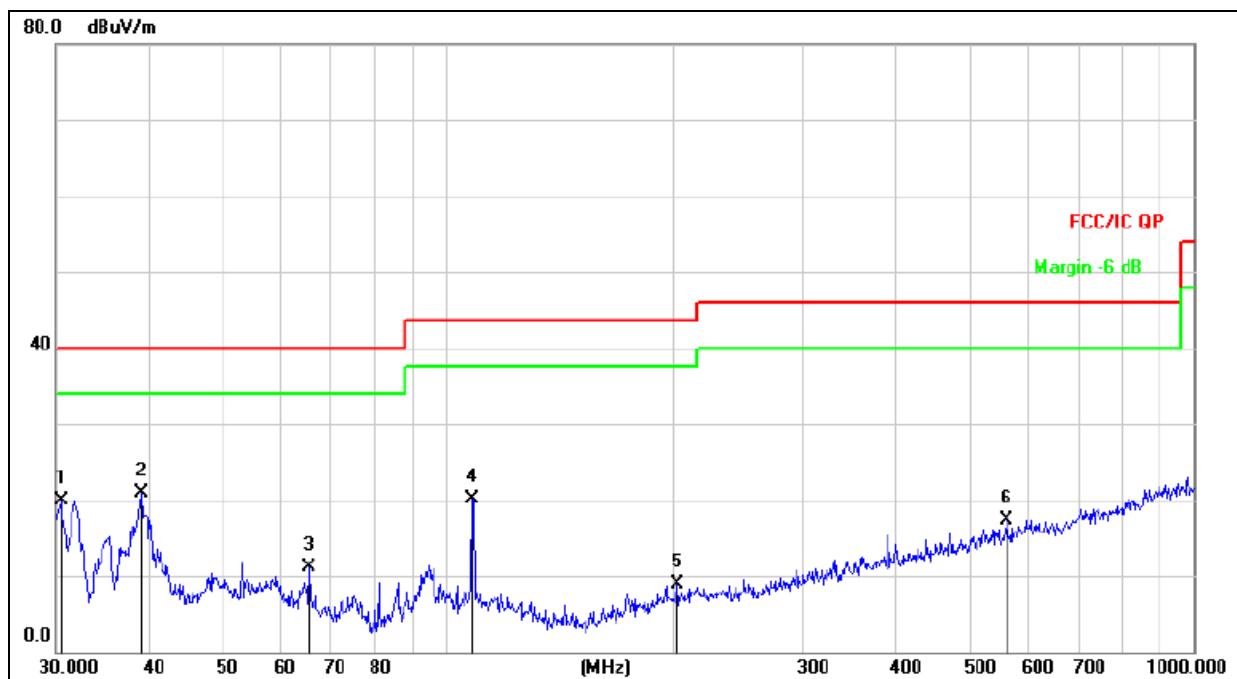
Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Detector
1	*	31.6202	32.71	-16.98	15.73	40.00	-24.27	QP
2		65.1145	27.56	-17.08	10.48	40.00	-29.52	QP
3		116.5401	24.72	-17.35	7.37	43.50	-36.13	QP
4		219.0753	24.29	-15.86	8.43	46.00	-37.57	QP
5		275.1570	25.87	-14.37	11.50	46.00	-34.50	QP
6		701.7610	22.65	-5.11	17.54	46.00	-28.46	QP



Temperature :	26°C	Relative Humidity :	54%
Pressure :	101 kPa	Polarization :	Vertical
Test Voltage :	DC 3.7V		
Test Mode :	Mode 1		



Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	
			Level	Factor	ment			
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		30.4238	37.08	-17.20	19.88	40.00	-20.12	QP
2	*	39.0245	36.40	-15.59	20.81	40.00	-19.19	QP
3		65.3432	28.15	-17.13	11.02	40.00	-28.98	QP
4		108.2667	36.95	-16.81	20.14	43.50	-23.36	QP
5		203.5228	25.13	-16.22	8.91	43.50	-34.59	QP
6		560.6928	24.65	-7.43	17.22	46.00	-28.78	QP



3.3 RADIATED BAND EMISSION MEASUREMENT

3.3.1 TEST REQUIREMENT:

FCC Part15 C Section 15.209 and 15.225

LIMITS OF RADIATED EMISSION MEASUREMENT

- a. 15.848 microvolts/m (84 dB μ V/m) at 30 m, within the band 13.553– 13.567 MHz.
- b. 334 microvolts/m (50.5 dB μ V/m) at 30 m, within the bands 13.410– 13.553 MHz and 13.567– 13.710 MHz.
- c. 106 microvolts/m (40.5 dB μ V/m) at 30 m, within the bands 13.110– 13.410 MHz and 13.710– 14.010 MHz.
- d. 30 microvolts/m (29.5 dB μ V/m) at 30 m, outside the band 13.110– 14.010 MHz.

Notes:

- (1) The limit for radiated test was performed according to FCC PART 15C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dB μ V/m)=20log Emission level (uV/m).

3.3.2 TEST PROCEDURE

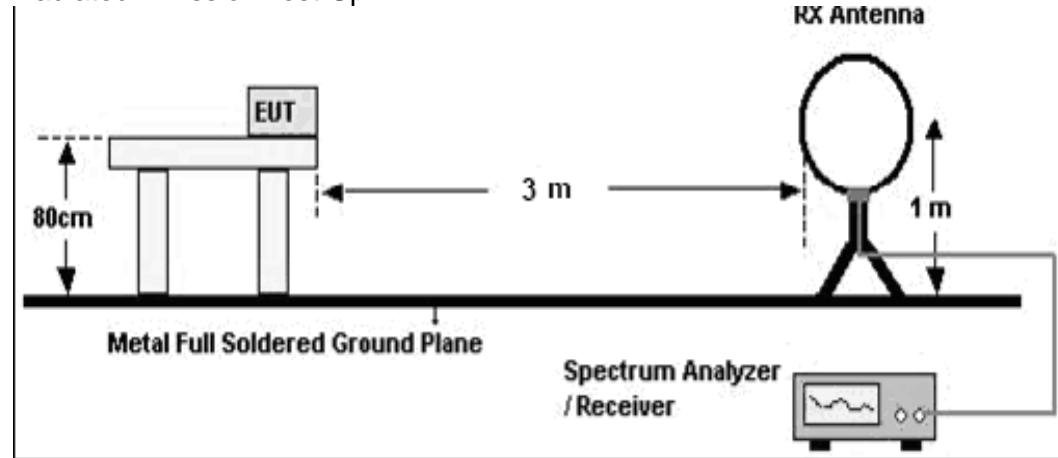
- a. The Product is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna (loop antenna). The maximum values of the field strength are recorded by adjusting the polarizations of the test antenna and rotating the turntable.
- b. For each suspected emission, the Product was arranged to its worst case and then turn table was turned from 0 degrees to 360 degrees to find the maximum reading.
- c. The test frequency analyzer system was set to Peak Detect (300Hz RBW in 9kHz to 150kHz and 10kHz RBW in 150kHz to 30MHz) Function and Specified Bandwidth with Maximum Hold Mode.

3.3.3 DEVIATION FROM TEST STANDARD

No deviation

3.3.4 TEST SETUP

Radiated Emission Test-Up



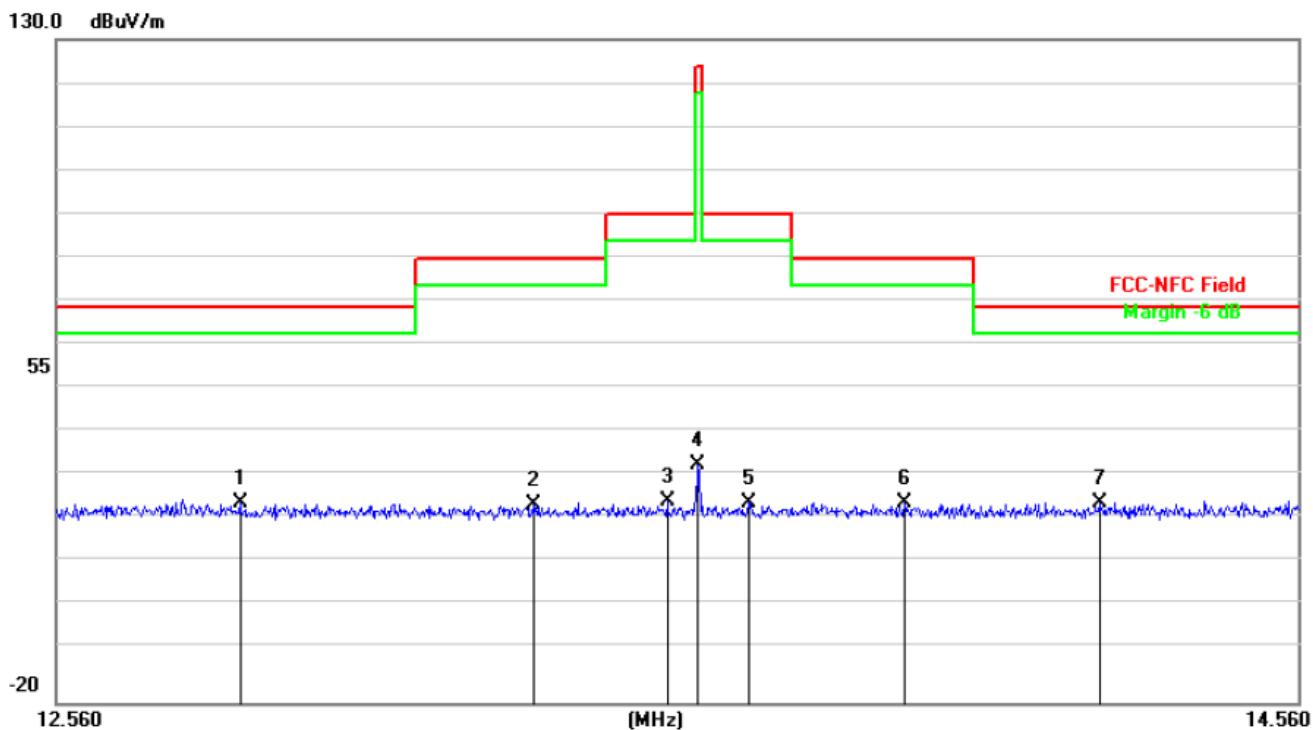
3.3.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

The report only show the worst antenna Polarity's data.



3.3.6 TEST RESULT



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	
			Level	Factor	ment			
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1	*	12.8379	35.59	-10.36	25.23	69.40	-44.17	peak
2		13.2940	34.94	-10.30	24.64	80.50	-55.86	peak
3		13.5079	35.72	-10.26	25.46	90.50	-65.04	peak
4		13.5580	44.23	-10.26	33.97	124.0	-90.03	peak
5		13.6400	35.32	-10.25	25.07	90.50	-65.43	peak
6		13.8940	35.40	-10.21	25.19	80.50	-55.31	peak
7		14.2200	35.32	-10.16	25.16	69.50	-44.34	peak

Note:

Factor = antenna factor + cable loss – pre-amplifier.

Margin = Emission Level- Limit.



4. BANDWIDTH TEST

4.1 APPLIED PROCEDURES

FCC Part15 (15.215)	
Section	Test Item
15.215	Bandwidth

4.1.1 TEST PROCEDURE

1. Set RBW = 1 kHz.
2. Set the video bandwidth (VBW) \geq RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 20 dB relative to the maximum level measured in the fundamental emission.

4.1.2 DEVIATION FROM STANDARD

No deviation.

4.1.3 TEST SETUP



4.1.4 EUT OPERATION CONDITIONS

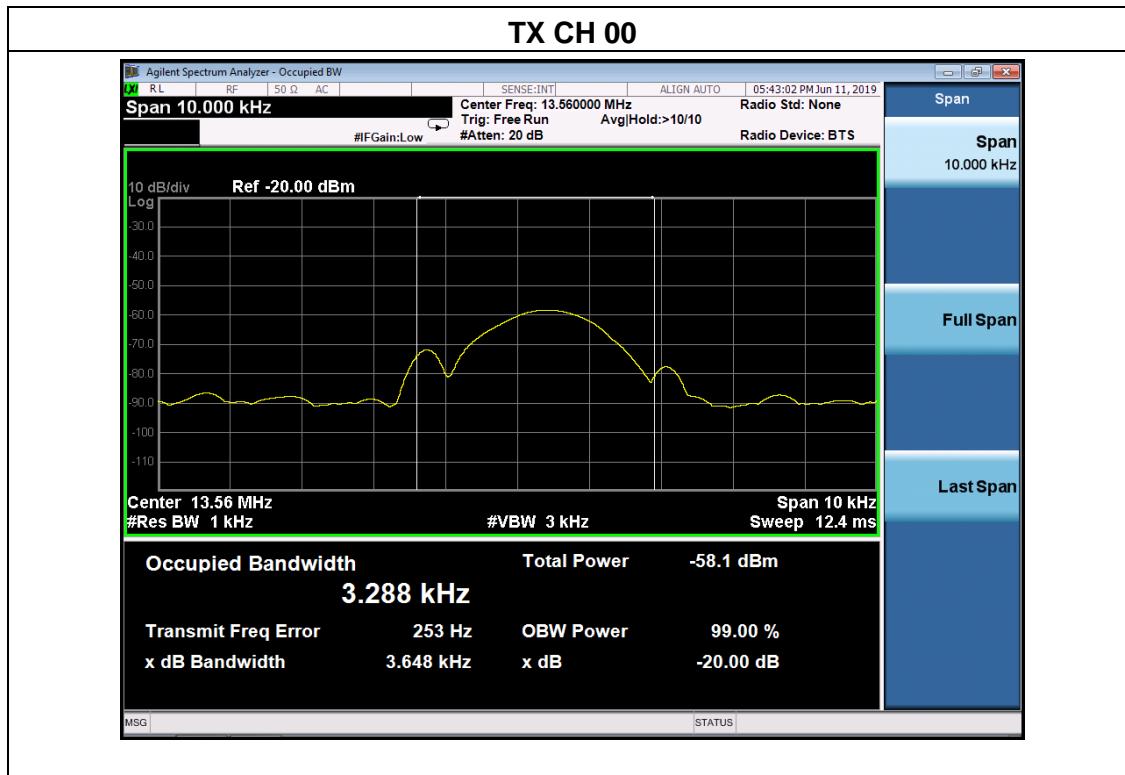
The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.



4.1.5 TEST RESULTS

Temperature :	26°C	Relative Humidity :	54%
Pressure :	101kPa	Test Voltage :	DC 3.7V
Test Mode :	TX Mode		

Frequency (MHz)	20dB bandwidth (KHz)
13.56	3.648





5. TRANSMITTER FREQUENCY STABILITY

5.1 LIMITS

The frequency tolerance of the carrier signal shall be maintained within $\pm 0.01\%$ of the operating frequency over a temperature variation of -20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

Limit: $\pm 0.01\%$ of 13.56MHz=1356Hz

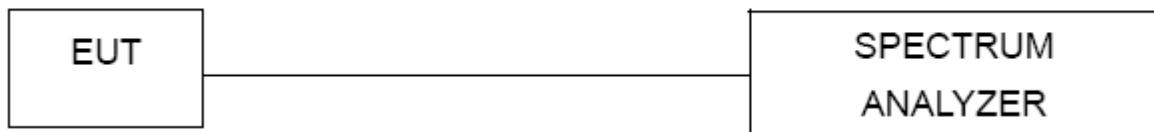
5.1.1 TEST PROCEDURE

1. Set RBW = 10 kHz.
2. Set the video bandwidth (VBW) \geq RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. The transmitter output (antenna port) was connected to the spectrum analyzer.

5.1.2 DEVIATION FROM STANDARD

No deviation.

5.1.3 TEST SETUP



5.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.



5.1.5 TEST RESULTS

Temperature :	26°C	Relative Humidity :	54%
Pressure :	101kPa	Test Voltage :	DC 3.7 V
Test Mode :	TX Mode		

Test Conditions			Frequency Deviation		Result
Frequency MHz	Power(Vdc)	Temperature (°C)	Measured Freq. (MHz)	Frequency Error(Hz)	
13.56	3.7	-20	13.5601	100	PASS
	3.7	-10	13.5601	100	
	3.7	0	13.5602	200	
	3.7	10	13.5603	300	
	3.7	20	13.5601	100	
	3.7	30	13.5602	200	
	3.7	40	13.5603	300	
	3.7	50	13.5602	200	
	4.255	25	13.5603	300	
	3.7	25	13.5601	100	
	3.145	25	13.5602	200	



6. ANTENNA REQUIREMENT

6.1 STANDARD REQUIREMENT

15.203 requirement: For intentional device, according to 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.

6.2 EUT ANTENNA

The EUT antenna is PCB Coil Antenna,. It comply with the standard requirement.



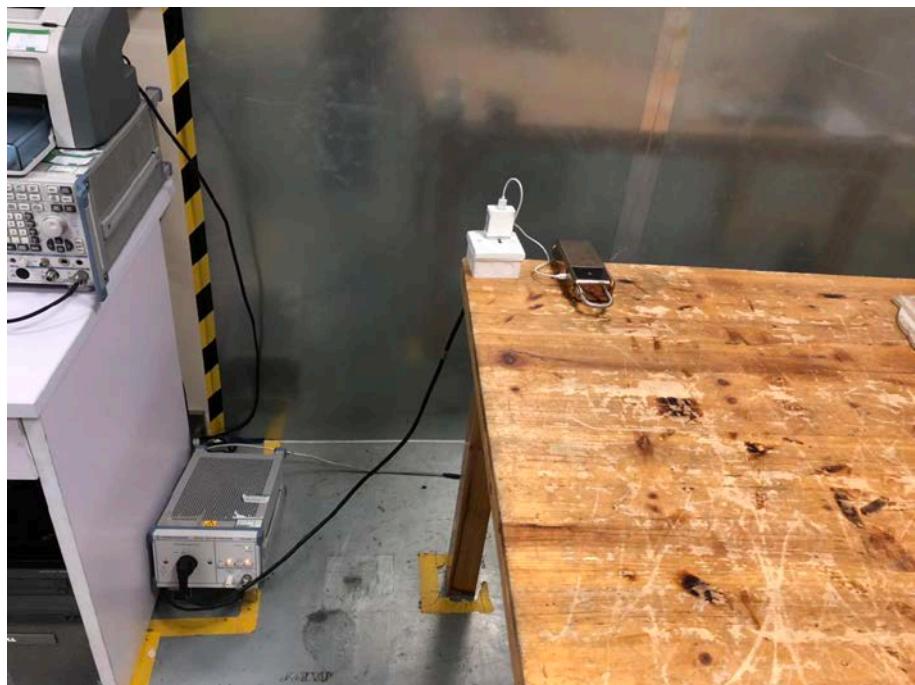
7. TEST SEUUP PHOTO

Radiated Measurement Photos





Conducted Emission





8. EUT PHOTO





***** END OF REPORT *****