



International Certification Corp.

No. 3-1, Lane 6, Wen San 3rd St., Kwei Shan Hsiang, Tao Yuan Hsien 333, Taiwan, R.O.C.

Tel: 886-3-271-8666

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FCC Test Report

FCC ID : VQK-F01F
Equipment : Mobile Phone
Model No. : F-01F
Brand Name : FUJITSU
Applicant : FUJITSU LIMITED
Address : 1-1, Kamikodanaka 4-chome, Nakahara-ku,
Kawasaki 211-8588, Japan
Standard : 47 CFR FCC Part 15.225
Received Date : Jul. 01, 2013
Tested Date : Aug. 09 ~ Aug. 15, 2013

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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Release Record

Report No.	Version	Description	Issued Date
FR370110	Rev. 01	Initial issue	Sep. 03, 2013



Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	Conducted Emissions	N/A	N/A
15.225(a)~(c)	Field strength of fundamental emissions and spectrum mask	[dBuV/m at 3m]: 13.56 54.48 (Margin -69.52dB)	Pass
15.225(d)	Field strength of any emissions appearing outside of the 13.110-14.010 MHz band	Meet the requirement of limit	Pass
15.225(e)	Frequency tolerance	Meet the requirement of limit	Pass
15.215 (c)	20dB bandwidth	Meet the requirement of limit	Pass
15.203	Antenna Requirement	Meet the requirement of limit	Pass



1 General Description

1.1 Information

1.1.1 Product Details

Product Name	Mobile Phone
Brand Name	FUJITSU
Model Name	F-01F
IMEI Code	357611050021511
H/W Version	V2.1.0
S/W Version	R19.8e

1.1.2 Specification of the Equipment under Test (EUT)

RF General Information			
Frequency Range (MHz)	Modulation	Ch. Frequency (MHz)	Channel Number
13.553 – 13.567	NFC-ASK	13.56	1
13.553 – 13.567	RFID-ASK	13.56	1

1.1.3 Antenna Details

Ant. No.	Type	Gain (dBi)	Connector	Remark
1	Loop antenna	-	---	---

1.1.4 EUT Operational Condition

Supply Voltage	<input checked="" type="checkbox"/> AC mains	<input checked="" type="checkbox"/> DC	
Type of DC Source	<input type="checkbox"/> Internal DC supply	<input checked="" type="checkbox"/> External DC adapter	<input checked="" type="checkbox"/> Battery
Test Voltage	<input checked="" type="checkbox"/> Vnom (3.9 V)	<input checked="" type="checkbox"/> Vmax (4.29 V)	<input checked="" type="checkbox"/> Vmin (3.51 V)
Test Climatic	<input checked="" type="checkbox"/> Tnom (20°C)	<input checked="" type="checkbox"/> Tmax (55°C)	<input checked="" type="checkbox"/> Tmin (-20°C)

1.1.5 Accessories

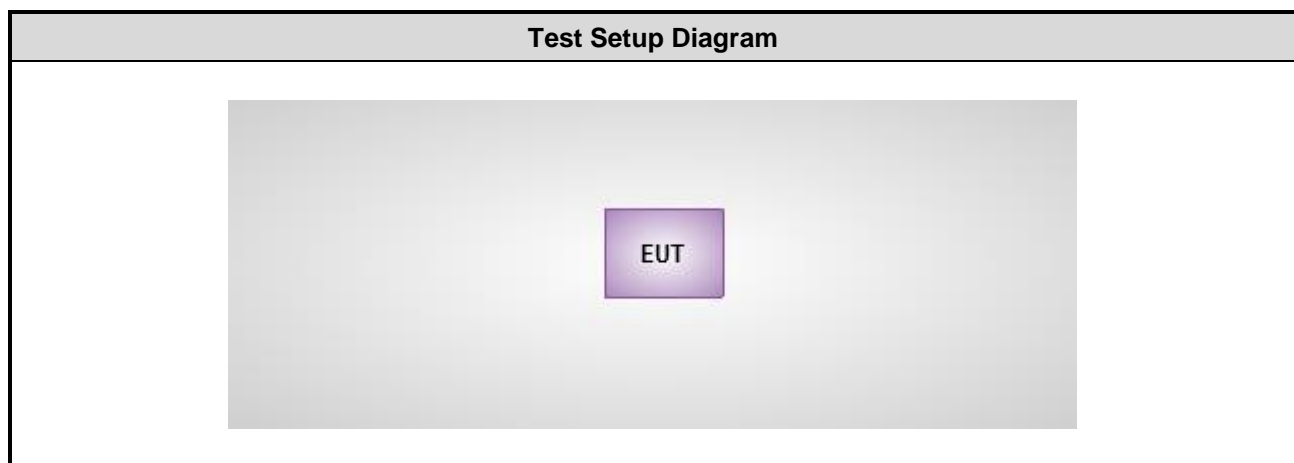
Accessories		
No.	Equipment	Description
2	Battery	Brand Name: Fujitsu limited Model Name: CA54310-0052 Power Rating: O/P: 3.75Vdc, 3200mA, 12Wh



1.1.6 Test Tool and Power Setting

Test tool	NFC Rw Test	
Modulation Mode	NFC	RFID
Setting	Default	Default

1.2 Test Setup Chart





1.3 The Equipment List

Test Item	Radiated Emission above 1GHz				
Test Site	966 chamber1 / (03CH01-WS)				
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until
3m semi-anechoic chamber	CHAMPRO	SAC-03	03CH01-WS	Jan. 04, 2013	Jan. 03, 2014
Spectrum Analyzer	R&S	FSV40	101498	Jan. 24, 2013	Jan. 23, 2014
Receiver	R&S	ESR3	101658	Jan. 28, 2013	Jan. 27, 2014
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-522	Jan. 11, 2013	Jan. 10, 2014
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1096	Feb. 18, 2013	Feb. 17, 2014
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Jan. 14, 2013	Jan. 13, 2014
Amplifier	Burgeon	BPA-530	100219	Nov. 28, 2012	Nov. 27, 2013
Amplifier	Agilent	83017A	MY39501308	Dec. 18, 2012	Dec. 17, 2013
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16014/4	Dec. 25, 2012	Dec. 24, 2013
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16019/4	Dec. 25, 2012	Dec. 24, 2013
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16139/4	Dec. 25, 2012	Dec. 24, 2013
RF Cable-R03m	Woken	CFD400NL-LW	CFD400NL-001	Dec. 25, 2012	Dec. 24, 2013
RF Cable-R10m	Woken	CFD400NL-LW	CFD400NL-002	Dec. 25, 2012	Dec. 24, 2013
control	EM Electronics	EM1000	60612	N/A	N/A
Note: Calibration Interval of instruments listed above is one year.					

Loop Antenna	R&S	HFH2-Z2	100330	Nov. 15, 2012	Nov. 14, 2014
Amplifier	MITEQ	AMF-6F-260400	9121372	Apr. 19, 2013	Apr. 18, 2015
Note: Calibration Interval of instruments listed above is two year.					

Test Item	RF Conducted				
Test Site	(TH01-WS)				
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until
Spectrum Analyzer	R&S	FSV 40	101063	Feb. 18, 2013	Feb. 17, 2014
TEMP&HUMIDITY CHAMBER	GIANT FORCE	GCT-225-40-SP-SD	MAF1212-002	Nov. 29, 2012	Nov. 28, 2013
Power Meter	Anritsu	ML2495A	1241002	Oct. 15, 2012	Oct. 14, 2013
Power Sensor	Anritsu	MA2411B	1027366	Oct. 24, 2012	Oct. 23, 2013
Signal Generator	R&S	SMB100A	175727	Jan. 14, 2013	Jan. 13, 2014
Note: Calibration Interval of instruments listed above is one year.					



1.4 Test Standards

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

47 CFR FCC Part 15.225

ANSI C63.10-2009

Note: The EUT has been tested and complied with FCC part 15B requirement. FCC Part 15B test results are issued to another report.

1.5 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	± 35.286 Hz
Conducted power	± 0.536 dB
Frequency error	± 35.286 Hz
Temperature	± 0.3 °C
Conducted emission	± 2.946 dB
AC conducted emission	± 2.43 dB
Radiated emission	± 2.49 dB



2 Test Configuration

2.1 Testing Condition

Test Item	Test Site	Ambient Condition	Tested By
Radiated Emissions	03CH01-WS	23°C / 65%	Haru Yang
RF Conducted	TH01-WS	22°C / 63%	Felix Sung

➤ FCC site registration No.: 657002

➤ IC site registration No.: 10807A-1

2.2 The Worst Test Modes and Channel Details

Test item	Mode	Test Frequency (MHz)
Field strength of fundamental emissions and spectrum mask	NFC RFID	13.56
Field strength of any emissions appearing outside of the 13.110-14.010 MHz band	NFC RFID	13.56
Frequency tolerance	NFC RFID	13.56
20dB bandwidth	NFC RFID	13.56

NOTE:

1. The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement – X, Y, and Z-plane. The **Z-plane** results were found as the worst case and were shown in this report.



3 Transmitter Test Results

3.1 20dB and Occupied Bandwidth

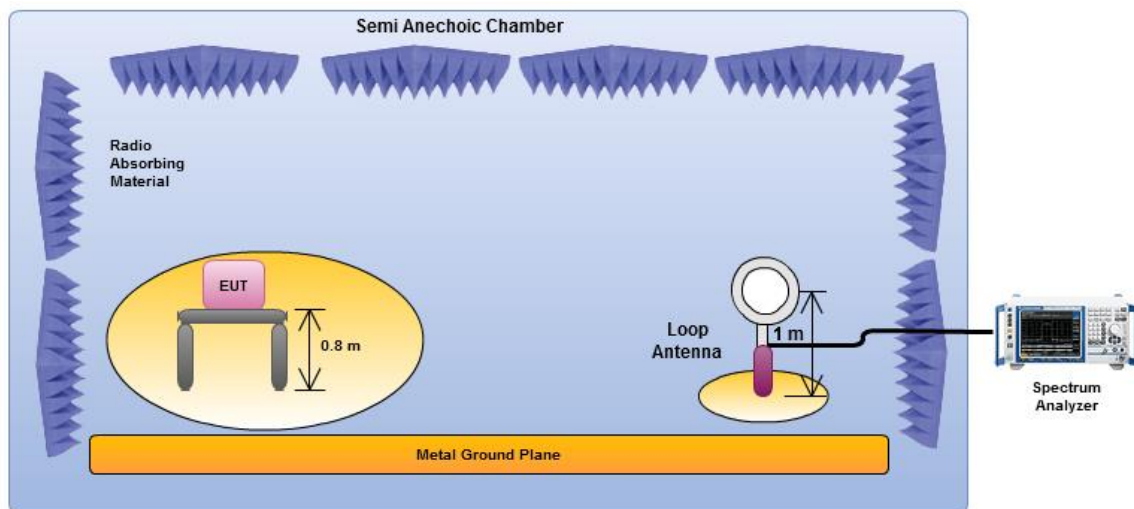
3.1.1 Limit of 20dB Bandwidth

The upper and lower frequency of the 20dB bandwidth shall within 13.553~13.567 MHz

3.1.2 Test Procedures

1. Set resolution bandwidth (RBW) = 1 kHz, Video bandwidth = 3 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 20dB relative to the maximum level measured in the fundamental emission.

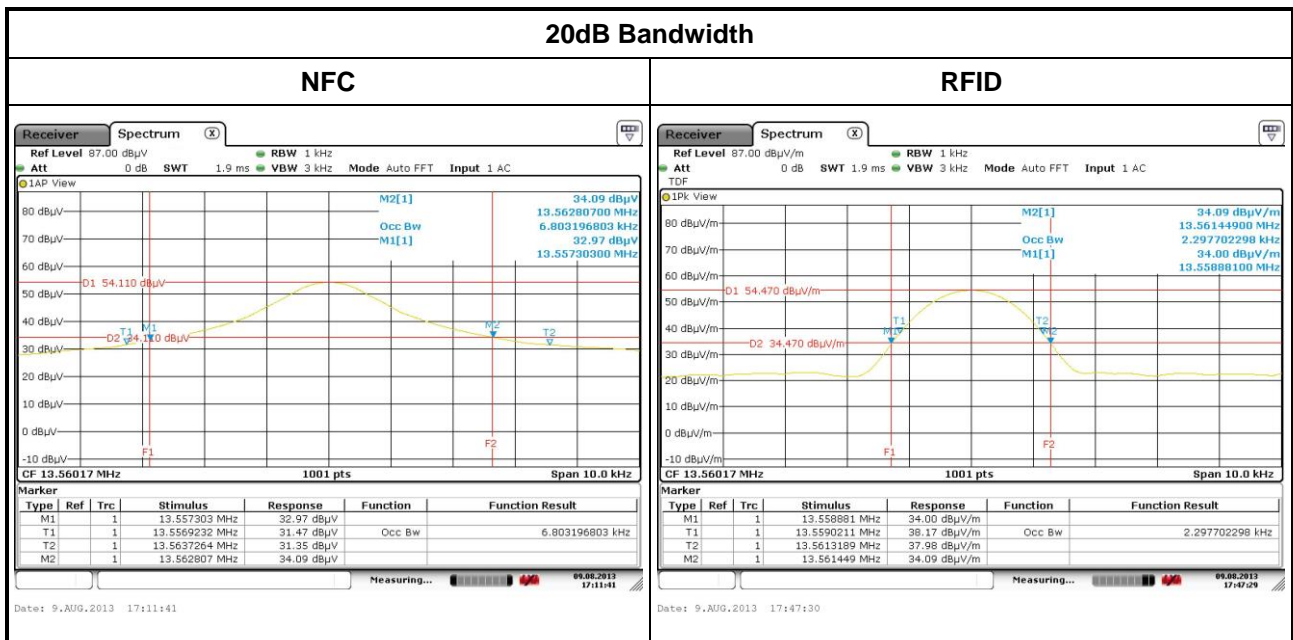
3.1.3 Test Setup





3.1.4 Test Result of 20dB and Occupied Bandwidth

Modulation Mode	Freq. (MHz)	20dB Bandwidth (kHz)	F _L at 20dB BW (MHz)	F _H at 20dB BW (MHz)	99% Bandwidth (kHz)
NFC	13.56	5.5	13.5573	13.5628	6.8032
RFID	13.56	2.5	13.5589	13.5614	2.2977
Limit		N/A	13.553	13.567	N/A





3.2 Field Strength of Fundamental Emissions and Spectrum Mask

3.2.1 Field Strength of Fundamental Emissions and Spectrum Mask Limit

Field Strength of Fundamental Emissions					
Emissions	(uV/m)@30m	(dBuV/m)@30m	(dBuV/m)@10m	(dBuV/m)@3m	(dBuV/m)@1m
Fundamental	15848	84.0	103.1	124.0	143.1
Quasi peak measurement of the fundamental.					

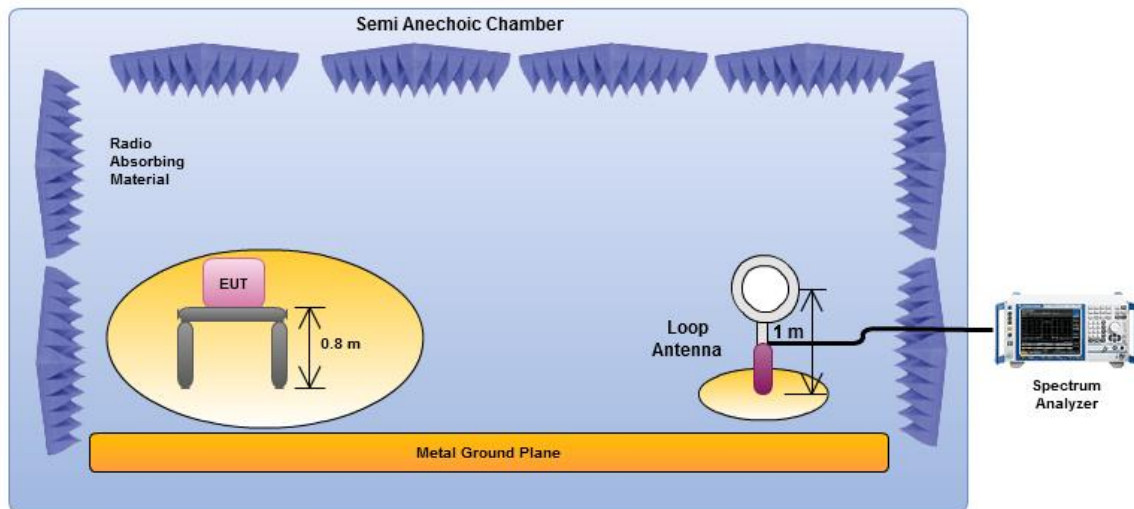
Spectrum Mask					
Freq. of Emission (MHz)	(uV/m)@30m	(dBuV/m)@30m	(dBuV/m)@10m	(dBuV/m)@3m	(dBuV/m)@1m
1.705~13.110	30	29.5	48.6	69.5	88.6
13.110~13.410	106	40.5	59.6	80.5	99.6
13.410~13.553	334	50.5	69.6	90.5	109.6
13.553~13.567	15848	84.0	103.1	124.0	143.1
13.567~13.710	334	50.5	69.6	90.5	109.6
13.710~14.010	106	40.5	59.6	80.5	99.6
14.010~30.000	30	29.5	48.6	69.5	88.6

3.2.2 Test Procedures

1. 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 open and close planes of polarization. . Distance between EUT and antenna is 3 m.
3. This investigation is performed with the EUT rotated 360°, and the antenna rotated to repeat the measurements for both the open and close antenna polarizations.



3.2.3 Test Setup

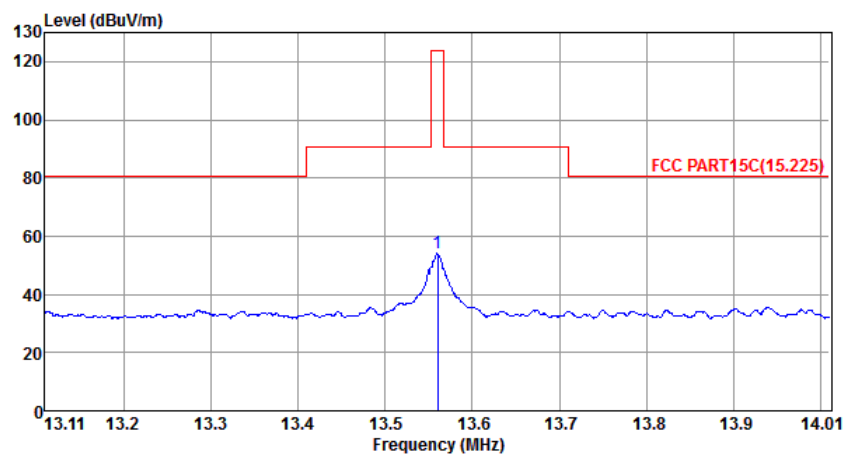




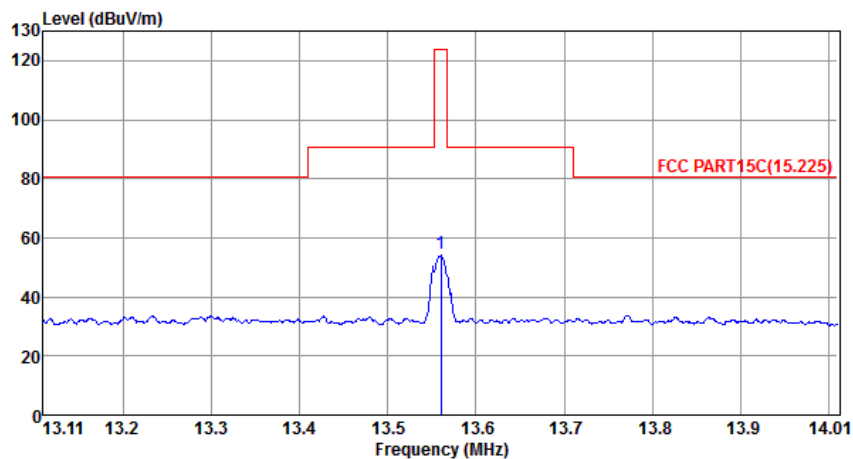
3.2.4 Test Result of Field Strength of Fundamental Emissions and Spectrum Mask

Field Strength of Fundamental Emissions Result					
Modulation Mode	Frequency (MHz)	Fundamental (dBuV/m)@3m	Polarization	Margin (dB)	Limit (dBuV/m)@3m
NFC	13.56	54.12	Open	-69.88	124.0
RFID	13.56	54.48	Open	-69.52	124.0

Spectrum Mask Plot (NFC)



Spectrum Mask Plot (RFID)





3.3 Unwanted Emissions into Restricted Frequency Bands

3.3.1 Limit of Unwanted Emissions into 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:
Quasi-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.

3.3.2 Test Procedures

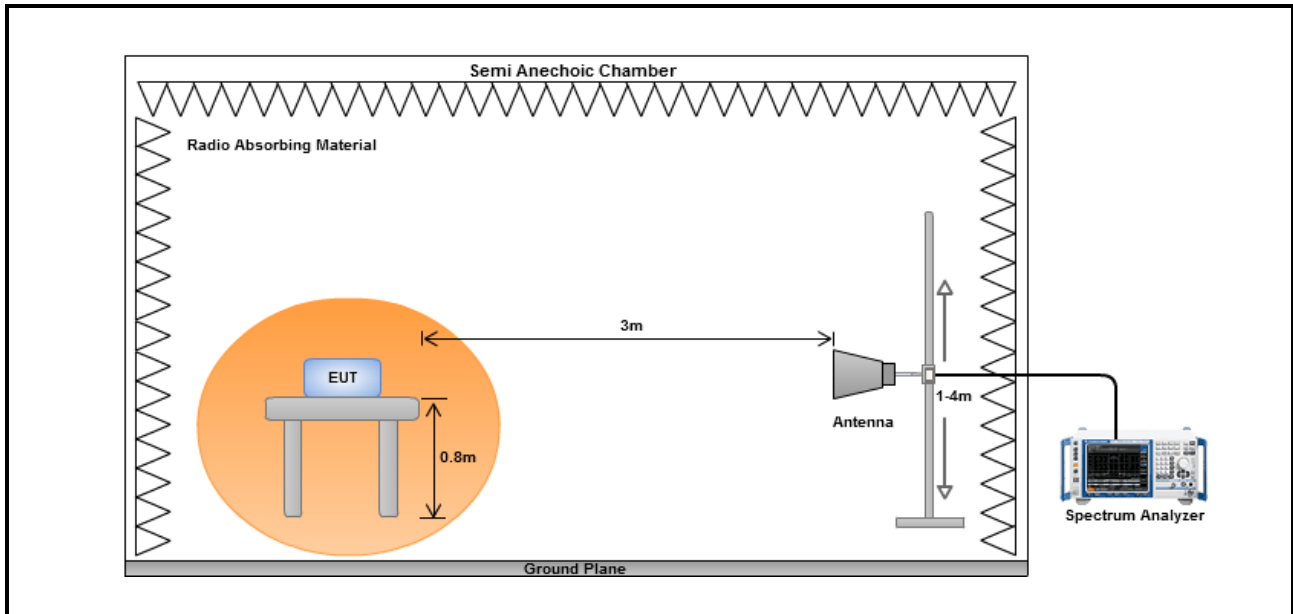
- Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission frequency. The EUT is placed at a height of 0.8 m test table above the ground plane.
- 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.
- 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:

- 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.



3.3.3 Test Setup





3.3.4 Transmitter Radiated Unwanted Emissions (Below 30GHz)

Polarization	Horizontal	Test Freq. (MHz)	13.56
Test Mode	NFC		
<div><div><div>Level (dBuV/m)</div><div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div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Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor (dB)

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



Polarization	Vertical	Test Freq. (MHz)	13.56																												
Test Mode	NFC																														
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Polarization	Horizontal	Test Freq. (MHz)	13.56																																														
Test Mode	RFID																																																
<div><div><div>Level (dBuV/m)</div><div>Frequency (MHz)</div></div><table><tr><th></th><th>Freq.</th><th>Emission</th><th>Limit</th><th>Margin</th><th>SA</th><th>Factor</th><th>Remark</th><th>ANT</th><th>Turn</th></tr><tr><th></th><th>MHz</th><th>level</th><th></th><th></th><th>reading</th><th></th><th></th><th>High</th><th>Table</th></tr><tr><th></th><th></th><th>dBuV/m</th><th>dBuV/m</th><th>dB</th><th>dBuV</th><th>dB</th><th></th><th>cm</th><th>deg</th></tr><tr><td>1</td><td>27.12</td><td>33.80</td><td>69.54</td><td>-35.74</td><td>13.46</td><td>20.34</td><td>Peak</td><td>---</td><td>---</td></tr></table></div>											Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn		MHz	level			reading			High	Table			dBuV/m	dBuV/m	dB	dBuV	dB		cm	deg	1	27.12	33.80	69.54	-35.74	13.46	20.34	Peak	---	---
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Polarization	Vertical	Test Freq. (MHz)	13.56
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<div><div><div>Level (dBuV/m)</div><div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div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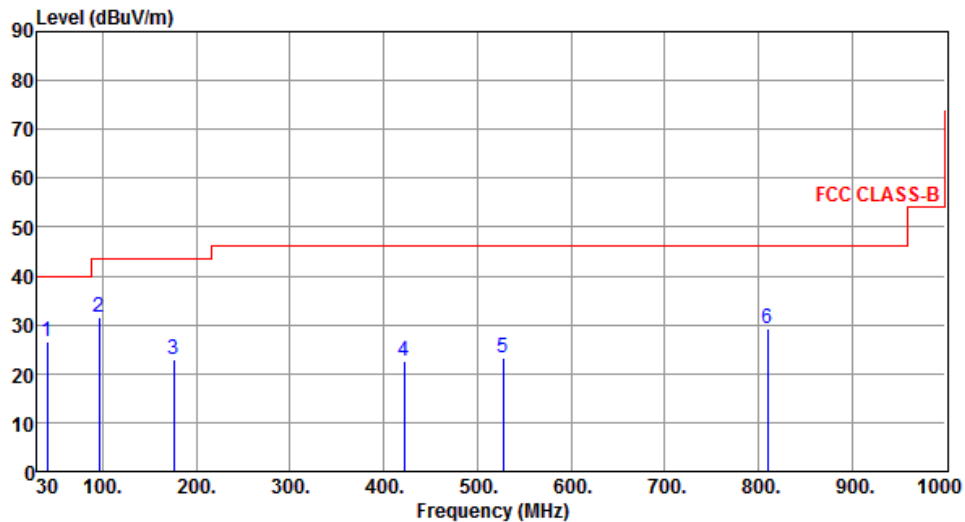


3.3.5 Transmitter Radiated Unwanted Emissions (Above 30MHz)

Polarization	Horizontal		Test Freq. (MHz)		13.56																																																																										
Test Mode	NFC																																																																														
<div><p>The graph displays the radiated unwanted emissions of the transmitter. The y-axis represents the level in dBuV/m, ranging from 0 to 90. The x-axis represents the frequency in MHz, ranging from 30 to 1000. A red line indicates the FCC CLASS-B limit, which is 40 dBuV/m from 30 to 100 MHz, 45 dBuV/m from 100 to 1000 MHz, and 55 dBuV/m from 1000 to 10000 MHz. Six peaks are identified and numbered 1 through 6. The data for these peaks is provided in the table below.</p><table><tr><th></th><th>Freq. MHz</th><th>Emission level dBuV/m</th><th>Limit dBuV/m</th><th>Margin dB</th><th>SA reading dBuV</th><th>Factor dB</th><th>Remark</th><th>ANT High cm</th><th>Turn Table deg</th></tr><tr><td>1</td><td>121.18</td><td>21.55</td><td>43.50</td><td>-21.95</td><td>40.58</td><td>-19.03</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>2</td><td>148.34</td><td>24.45</td><td>43.50</td><td>-19.05</td><td>41.44</td><td>-16.99</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>3</td><td>175.50</td><td>31.60</td><td>43.50</td><td>-11.90</td><td>49.42</td><td>-17.82</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>4</td><td>461.65</td><td>26.44</td><td>46.00</td><td>-19.56</td><td>38.71</td><td>-12.27</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>5</td><td>693.48</td><td>28.25</td><td>46.00</td><td>-17.75</td><td>36.61</td><td>-8.36</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>6</td><td>924.34</td><td>31.61</td><td>46.00</td><td>-14.39</td><td>36.80</td><td>-5.19</td><td>Peak</td><td>---</td><td>---</td></tr></table></div>											Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg	1	121.18	21.55	43.50	-21.95	40.58	-19.03	Peak	---	---	2	148.34	24.45	43.50	-19.05	41.44	-16.99	Peak	---	---	3	175.50	31.60	43.50	-11.90	49.42	-17.82	Peak	---	---	4	461.65	26.44	46.00	-19.56	38.71	-12.27	Peak	---	---	5	693.48	28.25	46.00	-17.75	36.61	-8.36	Peak	---	---	6	924.34	31.61	46.00	-14.39	36.80	-5.19	Peak	---	---
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg																																																																						
1	121.18	21.55	43.50	-21.95	40.58	-19.03	Peak	---	---																																																																						
2	148.34	24.45	43.50	-19.05	41.44	-16.99	Peak	---	---																																																																						
3	175.50	31.60	43.50	-11.90	49.42	-17.82	Peak	---	---																																																																						
4	461.65	26.44	46.00	-19.56	38.71	-12.27	Peak	---	---																																																																						
5	693.48	28.25	46.00	-17.75	36.61	-8.36	Peak	---	---																																																																						
6	924.34	31.61	46.00	-14.39	36.80	-5.19	Peak	---	---																																																																						
<p>Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.</p> <p>Note 2: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.</p> <p>Note 3: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.</p>																																																																															



Polarization	Vertical	Test Freq. (MHz)	13.56
Test Mode	NFC		



	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	40.67	26.42	40.00	-13.58	43.35	-16.93	Peak	---	---
2	95.96	31.61	43.50	-11.89	53.77	-22.16	Peak	---	---
3	175.50	23.01	43.50	-20.49	40.83	-17.82	Peak	---	---
4	421.88	22.73	46.00	-23.27	35.86	-13.13	Peak	---	---
5	527.61	23.25	46.00	-22.75	34.34	-11.09	Peak	---	---
6	809.88	29.27	46.00	-16.73	35.91	-6.64	Peak	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 3: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



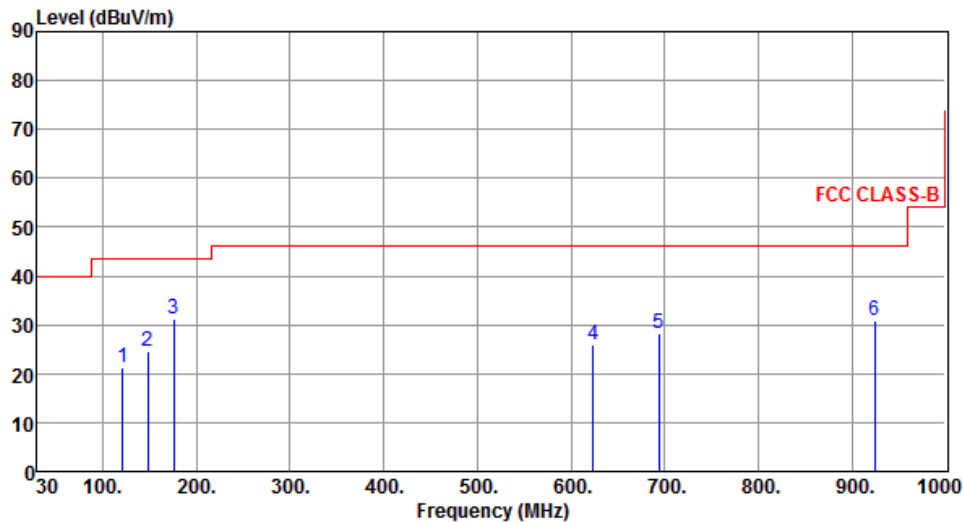
International Certification Corp.

No. 3-1, Lane 6, Wen San 3rd St., Kwei Shan Hsiang, Tao Yuan Hsien 333, Taiwan, R.O.C.

Tel: 886-3-271-8666

Fax: 886-3-318-0155

Polarization	Horizontal	Test Freq. (MHz)	13.56
Test Mode	RFID		

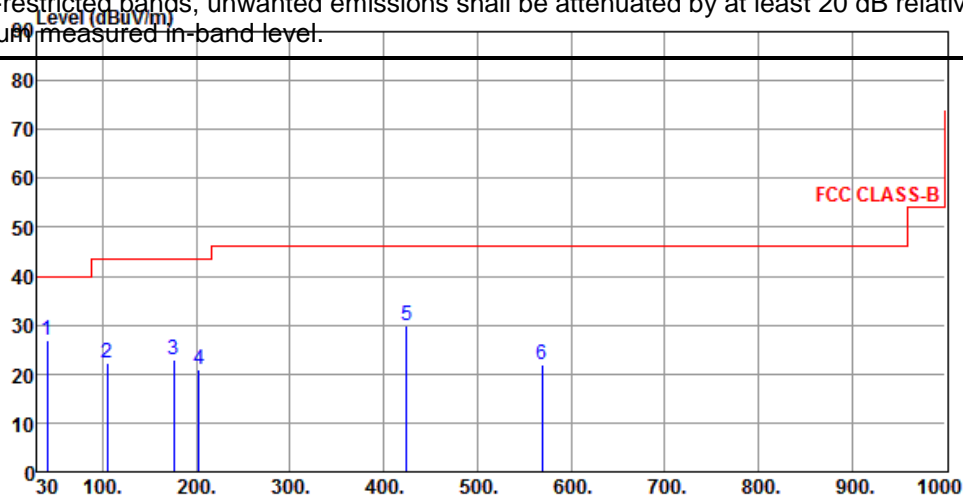


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	121.18	21.31	43.50	-22.19	40.34	-19.03	Peak	---	---
2	148.34	24.61	43.50	-18.89	41.60	-16.99	Peak	---	---
3	175.50	31.34	43.50	-12.16	49.16	-17.82	Peak	---	---
4	623.64	25.94	46.00	-20.06	35.34	-9.40	Peak	---	---
5	693.48	28.15	46.00	-17.85	36.51	-8.36	Peak	---	---
6	924.34	30.98	46.00	-15.02	36.17	-5.19	Peak	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 3: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.





Polarization	Vertical			Test Freq. (MHz)		13.56																																																																																	
Test Mode	RFID																																																																																						
<div><p>Level (dBuV/m)</p><p>Frequency (MHz)</p><table><tr><th>Freq.</th><th>Emission level</th><th>Limit</th><th>Margin</th><th>SA reading</th><th>Factor</th><th>Remark</th><th>ANT High</th><th>Turn Table</th></tr><tr><th>MHz</th><th>dBuV/m</th><th>dBuV/m</th><th>dB</th><th>dBuV</th><th>dB</th><th></th><th>cm</th><th>deg</th></tr><tr><td>1</td><td>40.67</td><td>26.81</td><td>40.00</td><td>-13.19</td><td>43.74</td><td>-16.93</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>2</td><td>104.69</td><td>22.30</td><td>43.50</td><td>-21.20</td><td>43.15</td><td>-20.85</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>3</td><td>175.50</td><td>22.83</td><td>43.50</td><td>-20.67</td><td>40.65</td><td>-17.82</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>4</td><td>202.66</td><td>21.00</td><td>43.50</td><td>-22.50</td><td>40.29</td><td>-19.29</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>5</td><td>424.79</td><td>29.77</td><td>46.00</td><td>-16.23</td><td>42.82</td><td>-13.05</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>6</td><td>569.32</td><td>22.07</td><td>46.00</td><td>-23.93</td><td>32.39</td><td>-10.32</td><td>Peak</td><td>---</td><td>---</td></tr></table></div>										Freq.	Emission level	Limit	Margin	SA reading	Factor	Remark	ANT High	Turn Table	MHz	dBuV/m	dBuV/m	dB	dBuV	dB		cm	deg	1	40.67	26.81	40.00	-13.19	43.74	-16.93	Peak	---	---	2	104.69	22.30	43.50	-21.20	43.15	-20.85	Peak	---	---	3	175.50	22.83	43.50	-20.67	40.65	-17.82	Peak	---	---	4	202.66	21.00	43.50	-22.50	40.29	-19.29	Peak	---	---	5	424.79	29.77	46.00	-16.23	42.82	-13.05	Peak	---	---	6	569.32	22.07	46.00	-23.93	32.39	-10.32	Peak	---	---
Freq.	Emission level	Limit	Margin	SA reading	Factor	Remark	ANT High	Turn Table																																																																															
MHz	dBuV/m	dBuV/m	dB	dBuV	dB		cm	deg																																																																															
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2	104.69	22.30	43.50	-21.20	43.15	-20.85	Peak	---	---																																																																														
3	175.50	22.83	43.50	-20.67	40.65	-17.82	Peak	---	---																																																																														
4	202.66	21.00	43.50	-22.50	40.29	-19.29	Peak	---	---																																																																														
5	424.79	29.77	46.00	-16.23	42.82	-13.05	Peak	---	---																																																																														
6	569.32	22.07	46.00	-23.93	32.39	-10.32	Peak	---	---																																																																														
<p>Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.</p> <p>Note 2: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.</p> <p>Note 3: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.</p>																																																																																							



3.4 Frequency Stability

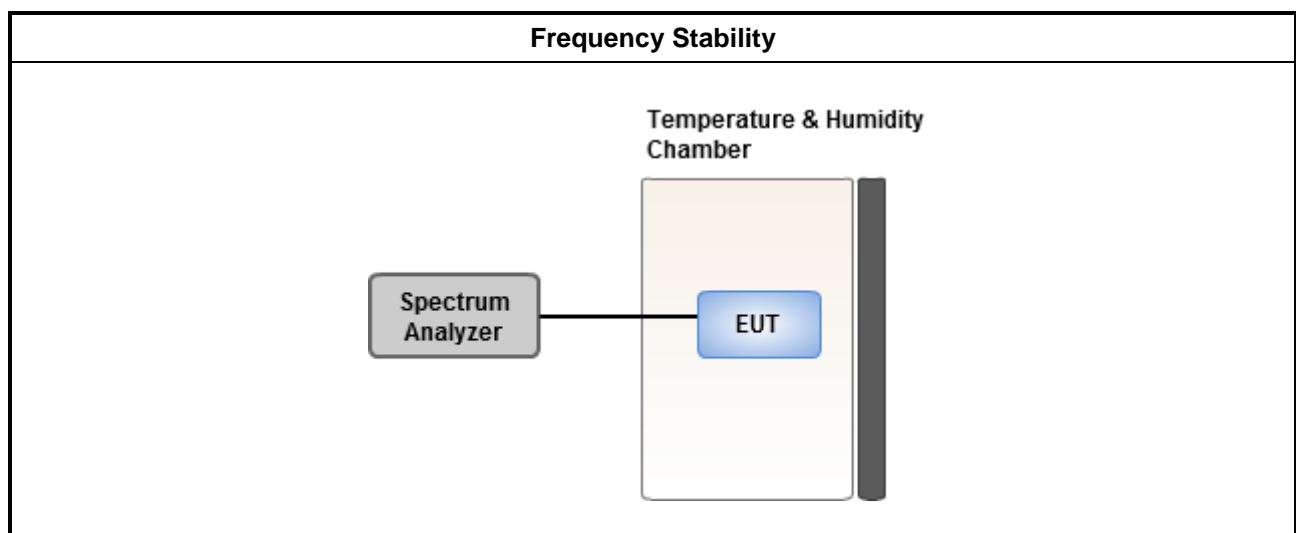
3.4.1 Frequency Stability Limit

Carrier frequency stability shall be maintained to $\pm 0.01\%$ (± 100 ppm).

3.4.2 Test Procedures

Test Method	
<input checked="" type="checkbox"/>	Refer as ANSI C63.10, clause 6.8 for frequency stability tests
<input checked="" type="checkbox"/>	Frequency stability with respect to ambient temperature
<input checked="" type="checkbox"/>	Frequency stability when varying supply voltage
<input type="checkbox"/>	For conducted measurement.
<input checked="" type="checkbox"/>	For radiated measurement. The equipment to be measured and the test antenna shall be oriented to obtain the maximum emitted power level.

3.4.3 Test Setup



**3.4.4 Test Result of Frequency Stability**

Frequency Stability Result (NFC)			
Condition	Ch. Freq. (MHz)	Frequency Stability (ppm)	
		Test Frequency (MHz)	Frequency Stability (ppm)
T _{20°C} V _{max}	13.56	13.56006	4.42
T _{20°C} V _{min}	13.56	13.56008	5.90
T _{55°C} V _{nom}	13.56	13.56009	6.64
T _{50°C} V _{nom}	13.56	13.56006	4.42
T _{40°C} V _{nom}	13.56	13.56008	5.90
T _{30°C} V _{nom}	13.56	13.56006	4.42
T _{20°C} V _{nom}	13.56	13.56007	5.16
T _{10°C} V _{nom}	13.56	13.56006	4.42
T _{0°C} V _{nom}	13.56	13.56005	3.69
T _{-10°C} V _{nom}	13.56	13.56003	2.21
T _{-20°C} V _{nom}	13.56	13.56007	5.16
Limit (ppm)		100	
Note 1: Measure at 85 % [Vmin] and 115 % [Vmax] of the nominal voltage [Vnom]. The nominal voltage refer test report clause 1.3 for EUT operational condition.			
Note 2: Measure maximum deviation frequency at operating frequency at startup and two, five, and ten min.			

Frequency Stability Result (RFID)			
Condition	Ch. Freq. (MHz)	Frequency Stability (ppm)	
		Test Frequency (MHz)	Frequency Stability (ppm)
T _{20°C} V _{max}	13.56	13.56015	11.06
T _{20°C} V _{min}	13.56	13.56016	11.80
T _{55°C} V _{nom}	13.56	13.56022	16.22
T _{50°C} V _{nom}	13.56	13.56018	13.27
T _{40°C} V _{nom}	13.56	13.56020	14.75
T _{30°C} V _{nom}	13.56	13.56017	12.54
T _{20°C} V _{nom}	13.56	13.56017	12.54
T _{10°C} V _{nom}	13.56	13.56018	13.27
T _{0°C} V _{nom}	13.56	13.56014	10.32
T _{-10°C} V _{nom}	13.56	13.56017	12.54
T _{-20°C} V _{nom}	13.56	13.56016	11.80
Limit (ppm)		100	
Note 1: Measure at 85 % [Vmin] and 115 % [Vmax] of the nominal voltage [Vnom]. The nominal voltage refer test report clause 1.3 for EUT operational condition.			
Note 2: Measure maximum deviation frequency at operating frequency at startup and two, five, and ten min.			

==END==