TEST REPORT

Application No.:	KSEM2107001129CR
FCC ID:	2AH25T5F01
Applicant:	Shanghai Sunmi Technology Co.,Ltd.
Address of Applicant:	Room 505, KIC Plaza, No.388 Song Hu Road, Yang Pu District, Shanghai, China
Manufacturer:	Shanghai Sunmi Technology Co.,Ltd.
Address of Manufacturer:	Room 505, KIC Plaza, No.388 Song Hu Road, Yang Pu District, Shanghai, China
Factory:	Shanghai Sunmi Technology Co.,Ltd.
Address of Factory:	Room 505, KIC Plaza, No.388 Song Hu Road, Yang Pu District, Shanghai, China
Equipment Under Test (EUT):	
EUT Name:	Wireless data POS System
Model No.:	T5F01
Trade mark:	SUNMI
Standard(s) :	47 CFR Part 2 47 CFR Part 22 47 CFR Part 24 47 CFR Part 27
Date of Receipt:	2021-02-07
Date of Test:	2021-05-18 to 2021-07-02
Date of Issue:	2021-07-05
Test Result:	**Pass**

* In the configuration tested, the EUT complied with the standards specified above.

Eric Lin
Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

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Revision Record			
Version	**Description**	**Date**	**Remark**
00	Original	2021-07-05	/

Authorized for issue by:				
		Damon zhou		
		Damon Zhou / Project Engineer		
		Eric Lin		
		Eric Lin / Reviewer		

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2 Test Summary

Test Item	FCC Rule No.	Requirements	Verdict
Effective (Isotropic) Radiated Power Output Data	§2.1046 §22.913 §24.232 §27.50(b) §27.50(c) §27.50(d) §27.50(h)	ERP≤7W(LTE Band 5) EIRP≤ 3W(LTE Band 12,13,17) EIRP≤ 2W(LTE Band 2,7,38,41) EIRP≤ 1W(LTE Band 4) EIRP≤ 0.25W(LTE Band 40)	PASS
Peak-Average Ratio	§24.232 §27.50(c) §27.50(d)	≤13dB	PASS
Modulation Characteristics	§2.1047	Digital modulation	PASS
Bandwidth	§2.1049(h)	OBW:No limit EBW: No limit	PASS
Band Edge Compliance	§2.1051 §22.917 §24.238 §27.53(c) §27.53(h) §27.53(g)	≤ -13dBm/1%*EBW, in 1 MHz bands immediately outside and adjacent to the frequency block ≤ -13dBm(LTE Band7, <5.5MHz) -25dBm(LTE Band7, ⩾5.5MHz) LTE Band 13 should follow FCC §27.53(c): On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB. On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations.	PASS
Spurious emissions at antenna terminals	§2.1051 §22.917 §24.238 §27.53(c) §27.53(h) §27.53(g)	≤ -13dBm(LTE Band2,4,5,13,17) ≤ -25dBm(LTE Band7,38,41) ≤ -40dBm(LTE Band40)	PASS
Field strength of spurious radiation	§2.1051 §22.917 §24.238 §27.53(c) §27.53(h) §27.53(g)	≤ -13dBm(LTE Band2,4,5,13,17) ≤ -25dBm(LTE Band7,38,41) ≤ -40dBm(LTE Band40)	PASS
Frequency stability	§2.1055, §22.355, §24.235 §27.54	≤ ±2.5ppm.	PASS

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4 General Information

4.1 Details of E.U.T.

Power supply:	DC 7.7V by Rechargeable Li-Polymer Battery charged by Adapter Battery Model: JKPJ 2ICP5/62/70 Nominal voltage:7.7V Limited charge voltage:8.8V Rated capacity:3500mAh/26.95Wh Typical capacity:3600mAh/27.22Wh Adapter Model: CK18W02U INPUT:100-240V,50/60Hz,0.5A OUTPUT:5V,3A;9V,2A;12V,1.5A
Test voltage:	DC 7.7V
Serial Number:	VM08D14U20116
Firmware version:	Ambh6e
Sample Type:	Portable production
LTE Operation Frequency Band:	LTE Band 2,4,5,7,13,17,38,40,41
Modulation Type:	QPSK, 16QAM
Antenna Type:	PIFA Antenna
Antenna Gain:	Band 2:2.7dBi(Provided by the manufacturer) Band 4: 2.1dBi(Provided by the manufacturer) Band 5: 2.4dBi(Provided by the manufacturer) Band 7: 1.8dBi(Provided by the manufacturer) Band 13: 2.5dBi(Provided by the manufacturer) Band 17: -5dBi(Provided by the manufacturer) Band 38: 1.6dBi(Provided by the manufacturer) Band 40: 1.4dBi(Provided by the manufacturer) Band 41: 1.8dBi(Provided by the manufacturer)
Extreme temp. Tolerance:	-20°C to +60°C
Extreme vol. Limits:	6.93V DC to 8.47V DC (nominal: 7.7V DC)
IMEI:	869489050044606

Note:
The antenna gain value is provided by the customer. The test lab will not be responsible for wrong test result due to incorrect information about antenna gain values.

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4.2 Test Frequency

Test mode:	Nominal Bandwidth (MHz)	RF Channel		
		Low (L)	Middle (M)	High (H)
		MHz	MHz	MHz
LTE FDD Band 2	1.4	1850.7	1880	1909.3
	3	1851.5	1880	1908.5
	5	1852.5	1880	1907.5
	10	1855.0	1880	1905.0
	15	1857.5	1880	1902.5
	20	1860.0	1880	1900.0
Test mode:	**Nominal Bandwidth (MHz)**	**RF Channel**		
		Low (L)	**Middle (M)**	**High (H)**
		MHz	**MHz**	**MHz**
LTE FDD Band 4	1.4	1710.7	1732.5	1754.3
	3	1711.5	1732.5	1753.5
	5	1712.5	1732.5	1752.5
	10	1715.0	1732.5	1750.0
	15	1717.5	1732.5	1747.5
	20	1720.0	1732.5	1745.0
Test mode:	**Nominal Bandwidth (MHz)**	**RF Channel**		
		Low (L)	**Middle (M)**	**High (H)**
		MHz	**MHz**	**MHz**
LTE FDD Band 5	1.4	824.7	836.5	848.3
	3	825.5	836.5	847.5
	5	826.5	836.5	846.5
	10	829.0	836.5	844.0
Test mode:	**Nominal Bandwidth (MHz)**	**RF Channel**		
		Low (L)	**Middle (M)**	**High (H)**
		MHz	**MHz**	**MHz**
LTE FDD Band 7	5	2502.5	2535	2567.5
	10	2505	2535	2565
	15	2507.5	2535	2562.5
	20	2510	2535	2560
Test mode:	**Nominal Bandwidth (MHz)**	**RF Channel**		
		Low (L)	**Middle (M)**	**High (H)**
		MHz	**MHz**	**MHz**
LTE FDD Band 13	5	779.5	782	784.5
	10	/	782	/
Test mode:	**Nominal**	**RF Channel**		

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	Bandwidth (MHz)	Low (L) MHz	Middle (M) MHz	High (H) MHz
LTE FDD Band 17	5	706.5	710	713.5
	10	709	710	711
Test mode:	**Nominal Bandwidth (MHz)**	**RF Channel**		
		Low (L) MHz	**Middle (M) MHz**	**High (H) MHz**
LTE TDD Band 38	5	2572.5	2595.0	2617.5
	10	2575.0	2595.0	2615.0
	15	2577.5	2595.0	2612.5
	20	2580.0	2595.0	2610.0
Test mode:	**Nominal Bandwidth (MHz)**	**RF Channel**		
		Low (L) MHz	**Middle (M) MHz**	**High (H) MHz**
LTE TDD Band 40 (2305MHz-2315MHz)	5	2307.5	2310	2312.5
	10	/	2310	/
Test mode:	**Nominal Bandwidth (MHz)**	**RF Channel**		
		Low (L) MHz	**Middle (M) MHz**	**High (H) MHz**
LTE TDD Band 40 (2350MHz-2360MHz)	5	2352.5	2355	2357.5
	10	/	2355	/
Test mode:	**Nominal Bandwidth (MHz)**	**RF Channel**		
		Low (L) MHz	**Middle (M) MHz**	**High (H) MHz**
LTE TDD Band 41	5	2498.5	2593.0	2687.5
	10	2501.0	2593.0	2685.0
	15	2503.5	2593.0	2682.5
	20	2506.0	2593.0	2680.0

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4.3 Test Environment

Environment Parameter	Selected Values During Tests	
Relative Humidity	48%	
Atmospheric Pressure:	1015Pa	
Temperature:	TN	25 °C
Voltage:	VL	108 V
	VN	120 V
	VH	132 V

NOTE: VL= lower extreme test voltage
VN= nominal voltage
VH= upper extreme test voltage
TN= normal temperature

4.4 Description of Support Units

The EUT has been tested as an independent unit.

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4.5 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	8.4×10^{-8}
2	Timeout	2s
3	Duty cycle	0.37%
4	Occupied Bandwidth	3%
5	RF conducted power	0.6dB
6	RF power density	2.84dB
7	Conducted Spurious emissions	0.75dB
8	RF Radiated power	4.6dB (Below 1GHz)
		4.1dB (Above 1GHz)
9	Radiated Spurious emission test	4.2dB (Below 30MHz)
		4.4dB (30MHz-1GHz)
		4.8dB (1GHz-18GHz)
		5.2dB (Above 18GHz)
10	Temperature test	1°C
11	Humidity test	3%
12	Supply voltages	1.5%
13	Time	3%

Note: The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

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4.6 Test Location

All tests were performed at:

Compliance Certification Services (Kunshan) Inc.

No.10 Weiye Rd, Innovation park, Eco&Tec, Development Zone, Kunshan City, Jiangsu, China.

Tel: +86 512 5735 5888 Fax: +86 512 5737 0818

No tests were sub-contracted.

4.7 Test Facility

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

- **CNAS (No. CNAS L4354)**

CNAS has accredited Compliance Certification Services (Kunshan) Inc. to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **A2LA (Certificate No. 2541.01)**

Compliance Certification Services (Kunshan) Inc. is accredited by the American Association for Laboratory Accreditation (A2LA). Certificate No. 2541.01.

- **FCC (Designation Number: CN1172)**

Compliance Certification Services Inc. has been recognized as an accredited testing laboratory.

Designation Number: CN1172.

- **ISED (CAB identifier: CN0072)**

Compliance Certification Services (Kunshan) Inc. has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory.

Company Number: 2324E

- **VCCI (Member No.: 1938)**

The 3m and 10m Semi-anechoic chamber and Shielded Room of Compliance Certification Services (Kunshan) Inc. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-20134, R-11600,C-11707, T-11499, G-10216 respectively.

4.8 Deviation from Standards

None

4.9 Abnormalities from Standard Conditions

None

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5 Equipment List

Item	Equipment	Manufacturer	Model	Serial Number	Cal Date	Cal. Due Date
RF Conducted Test						
1	Spectrum Analyzer	Agilent	E4446A	MY44020154	04/16/2021	04/15/2022
2	Spectrum Analyzer	Keysight	N9020A	MY55370209	12/02/2020	12/01/2021
3	Spectrum Analyzer	Keysight	N9010A	MY56480443	02/01/2021	01/31/2022
4	Signal Generator	Agilent	N5182A	MY50142015	09/25/2020	09/24/2021
5	Radio Communication Test Station	Anritsu	MT8000A	6262012849	N/A	N/A
6	Radio Communication Analyzer	Anritsu	MT8821C	6201692222	N/A	N/A
7	Universal Radio Communication Tester	R&S	CMW500	159275	10/19/2020	10/18/2021
8	Universal Radio Communication Tester	R&S	CMW500	167239	04/16/2021	04/15/2022
9	Power Meter	Anritsu	ML2495A	1445010	04/15/2021	04/14/2022
10	Switcher	CCSRF	FY562	KUS2001M001-3	10/19/2020	10/18/2021
11	6dB Attenuator	Mini-Circuits	NAT-6-2W	15542-1	N.C.R	N.C.R
12	Power Divider	AISI	IOWOPE2068	PE2068	N.C.R	N.C.R
13	Filter	MICRO-TRONICS	BRM50701	5	N.C.R	N.C.R
14	Conducted test cable	/	RF01-RF04	/	04/15/2021	04/14/2022
15	Software	BST	TST-PASS	N/A	N/A	N/A
16	Temp. / Humidity Chamber	TERCHY	MHK-120AK	X30109	04/15/2021	04/14/2022
17	Thermometer	Anymetre	TH603	CCS007	10/16/2020	10/15/2021
RF Radiated Test						
1	Spectrum Analyzer	R&S	FSV40	101493	10/19/2020	10/18/2021
2	Signal Generator	Agilent	E8257C	MY43321570	10/19/2020	10/18/2021
3	Loop Antenna	Schwarzbeck	HXYZ9170	9170-108	02/22/2021	02/21/2022
4	Bilog Antenna	TESEQ	CBL 6112D	35403	06/21/2021	06/20/2023
5	Bilog Antenna	SCHWARZBECK	VULB9160	9160-3342	04/13/2021	04/12/2023
6	Horn-antenna(1-18GHz)	Schwarzbeck	BBHA9120D	267	10/26/2020	10/25/2022
7	Horn-antenna(1-18GHz)	ETS-LINDGREN	3117	00143290	02/22/2021	02/21/2023
8	Horn Antenna(18-40GHz)	Schwarzbeck	BBHA9170	BBHA9170171	02/22/2021	02/21/2022
9	Pre-Amplifier(30MHz~18GHz)	LNA	/	/	04/15/2021	04/14/2022
10	Amplifier(18~40GHz)	COM-POWER	PAM-840A	461332	10/23/2020	10/22/2021
11	Low Pass Filter	MICRO-TRONICS	VLFX-950	RV142900829	N.C.R	N.C.R
12	High Pass Filter	Mini-Circuits	VHF-1200	15542	N.C.R	N.C.R
13	Filter (885 MHz～915 MHz)	MICRO-TRONICS	BRM14698	1	N.C.R	N.C.R
14	Filter (815 MHz～860 MHz)	MICRO-TRONICS	BRM14697	1	N.C.R	N.C.R
15	Filter (1745 MHz～1910 MHz)	MICRO-TRONICS	BRM14700	1	N.C.R	N.C.R
16	Filter (1922 MHz～1977 MHz)	MICRO-TRONICS	BRM50715	1	N.C.R	N.C.R
17	Filter (2550 MHz)	MICRO-TRONICS	HPM13362	5	N.C.R	N.C.R
18	Filter (1532 MHz～1845 MHz)	MICRO-TRONICS	BRM50713	1	N.C.R	N.C.R
19	Filter (2.4GHz)	MICRO-TRONICS	BRM50701	5	N.C.R	N.C.R
20	RE test cable	/	RE01-RE04	/	04/15/2021	04/14/2022
21	Software	Faratronic	EZ_EMC-v 3A1	N/A	N/A	N/A

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6 Radio Spectrum Matter Test Results

6.1 Effective (Isotropic) Radiated Power Output Data

Test Requirement: §2.1046,§22.913,§24.232,§27.50(b),§27.50(c),§27.50(d), §27.50(h)

Test Method: ANSI C63.26, KDB 971168 D01 v03

Limit: ERP≤7W(LTE Band 5)
EIRP≤ 3W(LTE Band 13,17)
EIRP≤ 2W(LTE Band 2,7,38,41)
EIRP≤ 1W(LTE Band 4)
EIRP≤ 0.25W(LTE Band 40)

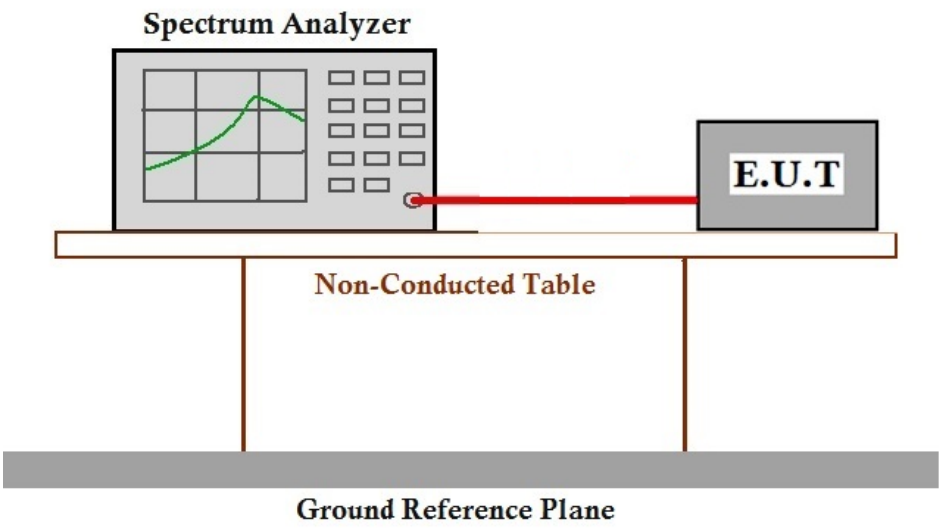
6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 22.7 °C Humidity: 68.2 % RH Atmospheric Pressure: 1030 mbar

Test mode: a: Tx mode, Keep the EUT in transmitting mode.

6.1.2 Test Setup Diagram



6.1.3 Measurement Data

Please refer to Appendix G for KSEM210700112907

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6.2 Peak-Average Ratio

Test Requirement: §24.232,§27.50(c),§27.50(d)

Test Method: ANSI C63.26, KDB 971168 D01 v03

Limit: ≤13dB

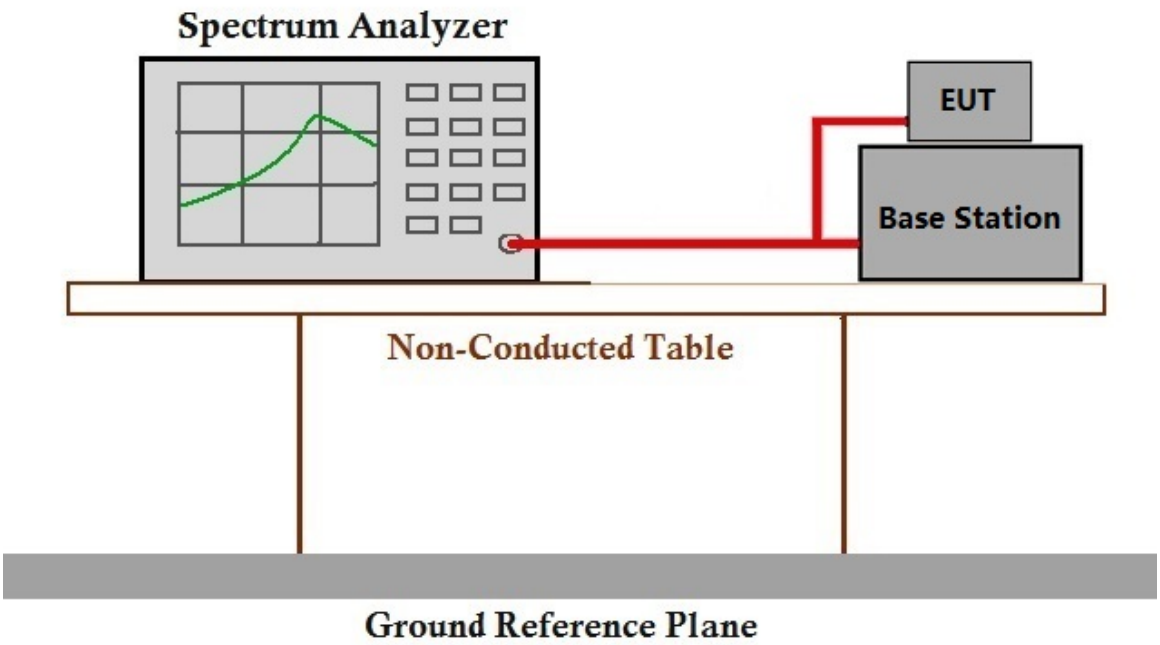
6.2.1 E.U.T. Operation

Operating Environment:

Temperature: 22.7 °C Humidity: 68.2 % RH Atmospheric Pressure: 1030 mbar

Test mode: a: Tx mode, Keep the EUT in transmitting mode.

6.2.2 Test Setup Diagram



6.2.3 Measurement Data

Please refer to Appendix G for KSEM210700112907

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6.3 Bandwidth

Test Requirement: §2.1049(h)

Test Method: ANSI C63.26, KDB 971168 D01 v03

Limit: OBW: No limit

EBW: No limit

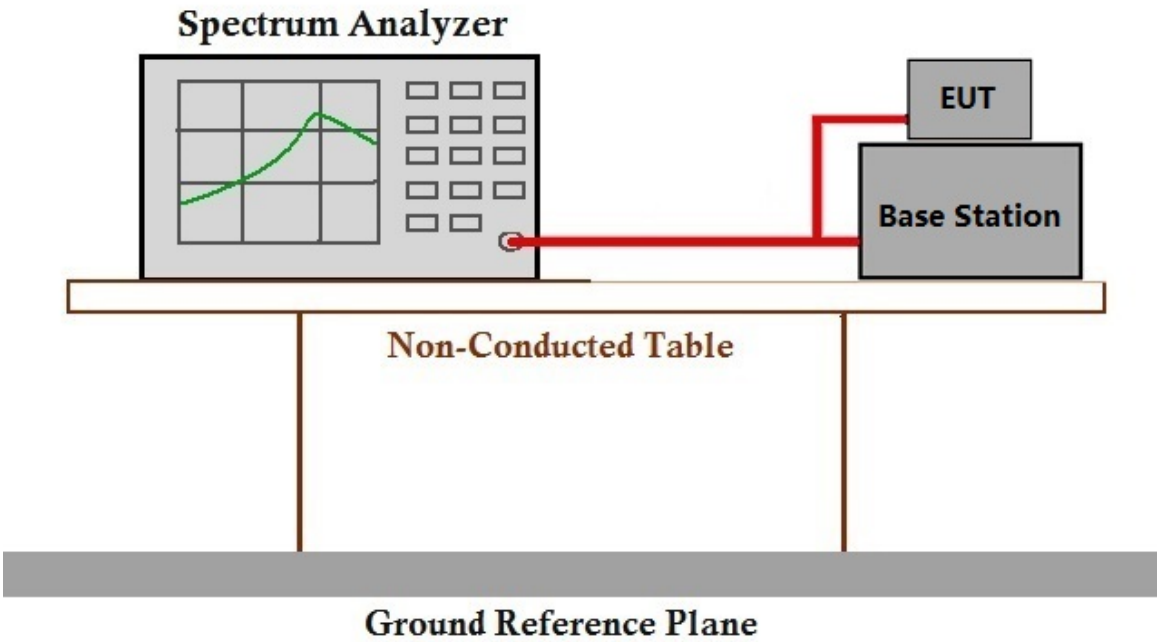
6.3.1 E.U.T. Operation

Operating Environment:

Temperature: 22.7 °C Humidity: 68.2 % RH Atmospheric Pressure: 1030 mbar

Test mode: a: Tx mode, Keep the EUT in transmitting mode.

6.3.2 Test Setup Diagram



6.3.3 Measurement Data

Please refer to Appendix G for KSEM210700112907

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6.4 Band Edge Compliance

Test Requirement: §2.1051

Test Method: ANSI C63.26, KDB 971168 D01 v03

Limit: ≤ -13dBm/1%*EBW, in 1 MHz bands immediately outside and adjacent to the frequency block

LTE Band 13 should follow FCC §27.53(c): On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB.

On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations.

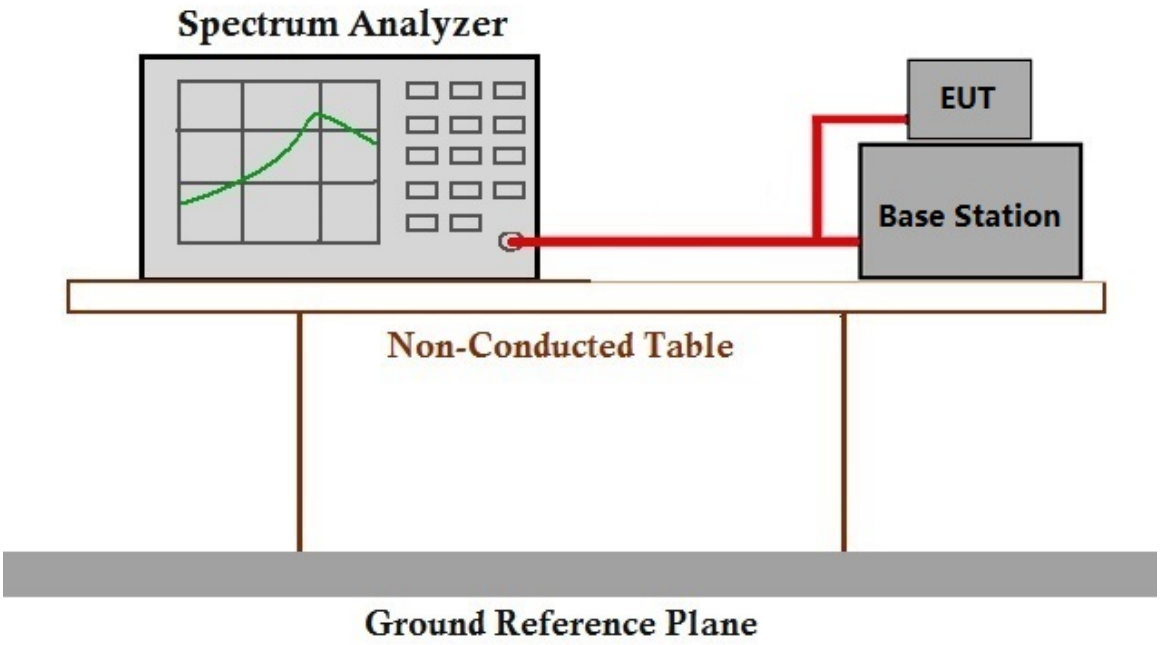
6.4.1 E.U.T. Operation

Operating Environment:

Temperature: 22.7 °C Humidity: 68.2 % RH Atmospheric Pressure: 1030 mbar

Test mode: a: Tx mode, Keep the EUT in transmitting mode.

6.4.2 Test Setup Diagram



6.4.3 Measurement Data

Please refer to Appendix G for KSEM210700112907

Remark: The emission of frequencies between 793MHz-805MHz meets the requirements of FCC, test plots don't reflected in the report.

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6.5 Spurious emissions at antenna terminals

Test Requirement: §2.1051

Test Method: ANSI C63.26, KDB 971168 D01 v03

Limit: ≤ -13dBm(LTE Band2,4,5,13,17)

≤ -25dBm(LTE Band7,38,41)

≤ -40dBm(LTE Band40)

For operations in the 775-788MHz, emissions in the 1559-1610MHz shall be limited to -70dBW/MHz, The limit of emissions is equal to -40dBm.

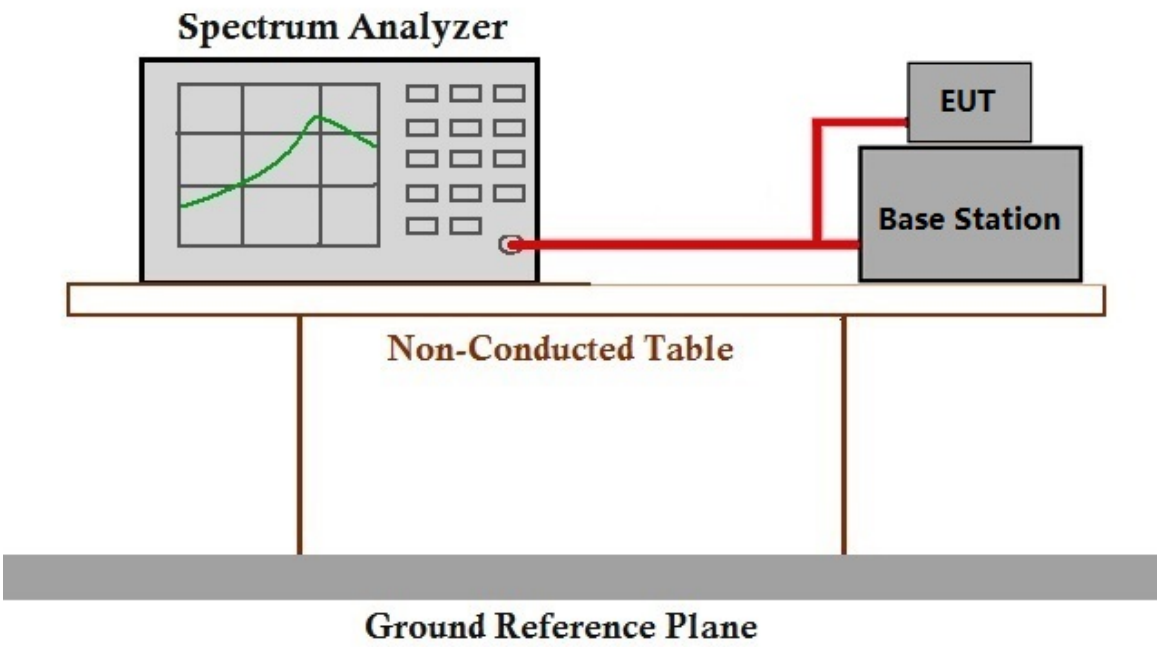
6.5.1 E.U.T. Operation

Operating Environment:

Temperature: 22.7 °C Humidity: 68.2 % RH Atmospheric Pressure: 1030 mbar

Test mode: a: Tx mode, Keep the EUT in transmitting mode.

6.5.2 Test Setup Diagram



6.5.3 Measurement Data

Please refer to Appendix G for KSEM210700112907

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6.6 Field strength of spurious radiation

Test Requirement: §2.1051

Test Method: ANSI C63.26, KDB 971168 D01 v03

Limit: ≤ -13dBm(LTE Band2,4,5,13,17)
≤ -25dBm(LTE Band7,38,41)
≤ -40dBm(LTE Band40)

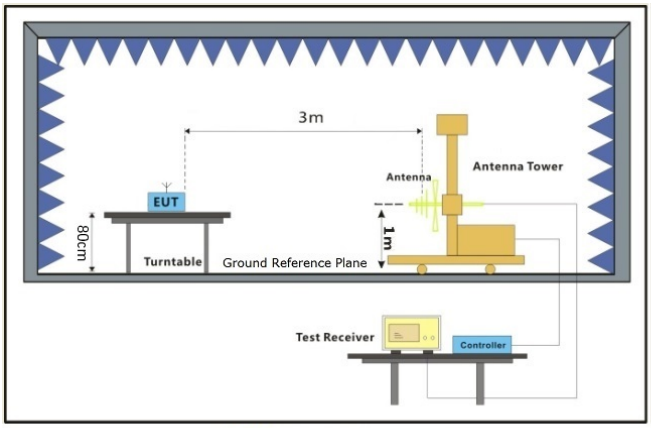
6.6.1 E.U.T. Operation

Operating Environment:

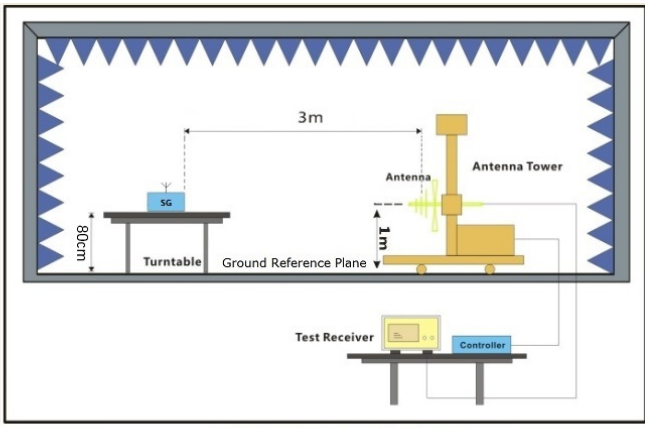
Temperature: 22.7 °C Humidity: 68.2 % RH Atmospheric Pressure: 1030 mbar

Test mode: a: Tx mode, Keep the EUT in transmitting mode.

6.6.2 Test Setup Diagram



EUT



Substiute Antenna+Signal Generator

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6.6.3 Measurement Procedure and Data

Test Procedure:

(1)On a test site, the EUT shall be placed on a turntable and in the position closest to the normal use as declared by the user.
(2)The test antenna shall be oriented initially for vertical polarization located 3m from the EUT to correspond to the transmitter.
(3)The output of the antenna shall be connected to the measuring receiver and either a peak or quasi-peak detector was used for the measurement as indicated on the report. The detector selection is based on how close the emission level was approaching the limit.
(4)The transmitter shall be switched on; if possible, without the modulation and the measurement receiver shall be tuned to the frequency of the transmitter under test.
(5)The test antenna shall be raised and lowered through the specified range of height until the measuring receiver detects a maximum signal level.
(6)The transmitter shall than be rotated through 360°in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
(7)The test antenna shall be raised and lowered again through the specified range of height until the measuring receiver detects a maximum signal level.
(8)The maximum signal level detected by the measuring receiver shall be noted.
(9)The measurement shall be repeated with the test antenna set to horizontal polarization.
(10) Replace the antenna with a proper Antenna (substitution antenna).
(11)The substitution antenna shall be oriented for vertical polarization and, if necessary, the length of the substitution antenna shall be adjusted to correspond to the frequency of transmitting.
(12)The substitution antenna shall be connected to a calibrated signal generator.
(13)If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
(14)The test antenna shall be raised and lowered through the specified range of the height to ensure that the maximum signal is received.
(15)The input signal to substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuation setting of the measuring receiver.
(16)The input level to the substitution antenna shall be recorded as power level in dBm, corrected for any change of input attenuator setting of the measuring receiver.
(17)The measurement shall be repeated with the test antenna and the substitution antenna oriented for horizontal polarization.

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LTE BAND 2-Low channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
3720.000	-58.94	-13	-45.94	Horizontal
5580.000	-58.72	-13	-45.72	Horizontal
7440.000	-57.57	-13	-44.57	Horizontal
3720.000	-51.20	-13	-38.20	Vertical
5580.000	-59.39	-13	-46.39	Vertical
7440.000	-57.62	-13	-44.62	Vertical

LTE BAND 2-Middle channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
3760.000	-51.11	-13	-38.11	Horizontal
5640.000	-60.29	-13	-47.29	Horizontal
7520.000	-55.71	-13	-42.71	Horizontal
3760.000	-53.83	-13	-40.83	Vertical
5640.000	-58.60	-13	-45.60	Vertical
7520.000	-59.60	-13	-46.60	Vertical

LTE BAND 2-High channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
3800.000	-60.96	-13	-47.96	Horizontal
5700.000	-60.92	-13	-47.92	Horizontal
7600.000	-52.75	-13	-39.75	Horizontal
3800.000	-56.46	-13	-43.46	Vertical
5700.000	-63.11	-13	-50.11	Vertical
7600.000	-55.44	-13	-42.44	Vertical

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LTE BAND 4-Low channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
3440.000	-56.62	-13	-43.62	Horizontal
5160.000	-59.36	-13	-46.36	Horizontal
6880.000	-56.94	-13	-43.94	Horizontal
3440.000	-53.12	-13	-40.12	Vertical
5160.000	-59.17	-13	-46.17	Vertical
6880.000	-55.77	-13	-42.77	Vertical

LTE BAND 4-Middle channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
3465.000	-58.32	-13	-45.32	Horizontal
5197.500	-58.05	-13	-45.05	Horizontal
6930.000	-58.53	-13	-45.53	Horizontal
3465.000	-59.18	-13	-46.18	Vertical
5197.500	-57.75	-13	-44.75	Vertical
6930.000	-55.22	-13	-42.22	Vertical

LTE BAND 4-High channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
3490.000	-59.04	-13	-46.04	Horizontal
5235.000	-63.11	-13	-50.11	Horizontal
6980.000	-55.63	-13	-42.63	Horizontal
3490.000	-53.48	-13	-40.48	Vertical
5235.000	-61.29	-13	-48.29	Vertical
6980.000	-57.35	-13	-44.35	Vertical

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LTE BAND 5-Low channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
1658.000	-55.87	-13	-42.87	Horizontal
2487.000	-57.04	-13	-44.04	Horizontal
3316.000	-56.19	-13	-43.19	Horizontal
1658.000	-60.56	-13	-47.56	Vertical
2487.000	-56.11	-13	-43.11	Vertical
3316.000	-53.47	-13	-40.47	Vertical

LTE BAND 5-Middle channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
1673.000	-57.26	-13	-44.26	Horizontal
2509.500	-58.90	-13	-45.90	Horizontal
3346.000	-59.78	-13	-46.78	Horizontal
1673.000	-51.32	-13	-38.32	Vertical
2509.500	-59.29	-13	-46.29	Vertical
3346.000	-56.34	-13	-43.34	Vertical

LTE BAND 5-High channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
1688.000	-58.80	-13	-45.80	Horizontal
2532.000	-60.72	-13	-47.72	Horizontal
3376.000	-54.89	-13	-41.89	Horizontal
1688.000	-55.03	-13	-42.03	Vertical
2532.000	-62.15	-13	-49.15	Vertical
3376.000	-54.17	-13	-41.17	Vertical

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LTE BAND 7-Low channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
5020.000	-54.15	-25	-29.15	Horizontal
7530.000	-60.68	-25	-35.68	Horizontal
10040.000	-57.93	-25	-32.93	Horizontal
5020.000	-58.26	-25	-33.26	Vertical
7530.000	-56.57	-25	-31.57	Vertical
10040.000	-54.49	-25	-29.49	Vertical

LTE BAND 7-Middle channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
5070.000	-53.08	-25	-28.08	Horizontal
7605.000	-61.68	-25	-36.68	Horizontal
10140.000	-56.14	-25	-31.14	Horizontal
5070.000	-58.29	-25	-33.29	Vertical
7605.000	-58.5	-25	-33.5	Vertical
10140.000	-56.25	-25	-31.25	Vertical

LTE BAND 7-High channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
5120.000	-58.33	-25	-33.33	Horizontal
7680.000	-60.8	-25	-35.8	Horizontal
10240.000	-56.67	-25	-31.67	Horizontal
5120.000	-60.32	-25	-35.32	Vertical
7680.000	-58.88	-25	-33.88	Vertical
10240.000	-54.23	-25	-29.23	Vertical

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LTE BAND 12-Low channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
1408.000	-52.32	-13	-39.32	Horizontal
2112.000	-58.70	-13	-45.70	Horizontal
2816.000	-53.40	-13	-40.40	Horizontal
1408.000	-50.99	-13	-37.99	Vertical
2112.000	-56.24	-13	-43.24	Vertical
2816.000	-56.91	-13	-43.91	Vertical

LTE BAND 12-Middle channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
1415.000	-59.83	-13	-46.83	Horizontal
2122.500	-58.60	-13	-45.60	Horizontal
2830.000	-56.40	-13	-43.40	Horizontal
1415.000	-59.82	-13	-46.82	Vertical
2122.500	-58.96	-13	-45.96	Vertical
2830.000	-59.33	-13	-46.33	Vertical

LTE BAND 12-High channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
1422.000	-60.18	-13	-47.18	Horizontal
2133.000	-63.28	-13	-50.28	Horizontal
2844.000	-54.61	-13	-41.61	Horizontal
1422.000	-58.23	-13	-45.23	Vertical
2133.000	-60.46	-13	-47.46	Vertical
2844.000	-52.65	-13	-39.65	Vertical

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LTE BAND 13-Low channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
1559.000	-60.10	-40	-40	Horizontal
2338.500	-56.93	-13	-13	Horizontal
3118.000	-56.32	-13	-13	Horizontal
1559.000	-60.08	-40	-40	Vertical
2338.500	-60.66	-13	-13	Vertical
3118.000	-55.75	-13	-13	Vertical

LTE BAND 13-Middle channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
1564.000	-58.52	-40	-18.52	Horizontal
2346.000	-58.91	-13	-45.91	Horizontal
3128.000	-59.37	-13	-46.37	Horizontal
1564.000	-59.38	-40	-19.38	Vertical
2346.000	-58.08	-13	-45.08	Vertical
3128.000	-58.16	-13	-45.16	Vertical

LTE BAND 13-High channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
1569.000	-60.29	-40	-20.29	Horizontal
2353.500	-59.72	-13	-46.72	Horizontal
3138.000	-56.60	-13	-43.60	Horizontal
1569.000	-54.96	-40	-14.96	Vertical
2353.500	-63.61	-13	-50.61	Vertical
3138.000	-53.61	-13	-40.61	Vertical

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LTE BAND 17-Low channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
1418.000	-54.77	-13	-41.77	Horizontal
2127.000	-58.66	-13	-45.66	Horizontal
2836.000	-56.11	-13	-43.11	Horizontal
1418.000	-58.32	-13	-45.32	Vertical
2127.000	-60.24	-13	-47.24	Vertical
2836.000	-53.18	-13	-40.18	Vertical

LTE BAND 17-Middle channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
1420.000	-56.93	-13	-43.93	Horizontal
2130.000	-58.31	-13	-45.31	Horizontal
2840.000	-56.11	-13	-43.11	Horizontal
1420.000	-51.98	-13	-38.98	Vertical
2130.000	-57.73	-13	-44.73	Vertical
2840.000	-56.15	-13	-43.15	Vertical

LTE BAND 17-High channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
1422.000	-59.18	-13	-46.18	Horizontal
2133.000	-60.02	-13	-47.02	Horizontal
2844.000	-55.60	-13	-42.60	Horizontal
1422.000	-52.66	-13	-39.66	Vertical
2133.000	-61.18	-13	-48.18	Vertical
2844.000	-54.46	-13	-41.46	Vertical

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LTE BAND 38-Low channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
5160.000	-53.91	-25	-28.91	Horizontal
7740.000	-59.4	-25	-34.4	Horizontal
10320.000	-56.36	-25	-31.36	Horizontal
5160.000	-58.78	-25	-33.78	Vertical
7740.000	-60.7	-25	-35.7	Vertical
10320.000	-56.02	-25	-31.02	Vertical

LTE BAND 38-Middle channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
5190.000	-53.4	-25	-28.4	Horizontal
7785.000	-60.73	-25	-35.73	Horizontal
10380.000	-55.79	-25	-30.79	Horizontal
5190.000	-58.28	-25	-33.28	Vertical
7785.000	-59.23	-25	-34.23	Vertical
10380.000	-55.61	-25	-30.61	Vertical

LTE BAND 38-High channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
5220.000	-53.59	-25	-28.59	Horizontal
7830.000	-62.91	-25	-37.91	Horizontal
10440.000	-53.9	-25	-28.9	Horizontal
5220.000	-54.52	-25	-29.52	Vertical
7830.000	-59.71	-25	-34.71	Vertical
10440.000	-52.94	-25	-27.94	Vertical

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LTE BAND 40-Low channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
4615.000	-55.84	-40	-15.84	Horizontal
6922.500	-58.3	-40	-18.3	Horizontal
9230.000	-53.1	-40	-13.1	Horizontal
4615.000	-52.7	-40	-12.7	Vertical
6922.500	-59.52	-40	-19.52	Vertical
9230.000	-55.3	-40	-15.3	Vertical

LTE BAND 40-Middle channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
4620.000	-53.41	-40	-13.41	Horizontal
6930.000	-58.02	-40	-18.02	Horizontal
9240.000	-55.7	-40	-15.7	Horizontal
4620.000	-58.56	-40	-18.56	Vertical
6930.000	-58.04	-40	-18.04	Vertical
9240.000	-58.85	-40	-18.85	Vertical

LTE BAND 40-High channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
4625.000	-53.34	-40	-13.34	Horizontal
6937.500	-62.77	-40	-22.77	Horizontal
9250.000	-54.14	-40	-14.14	Horizontal
4625.000	-58.3	-40	-18.3	Vertical
6937.500	-60.79	-40	-20.79	Vertical
9250.000	-55.06	-40	-15.06	Vertical

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LTE BAND 41-Low channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
5012.000	-55.01	-25	-30.01	Horizontal
7518.000	-56.69	-25	-31.69	Horizontal
10024.000	-54.13	-25	-29.13	Horizontal
5012.000	-59.13	-25	-34.13	Vertical
7518.000	-59.94	-25	-34.94	Vertical
10024.000	-56.98	-25	-31.98	Vertical

LTE BAND 41-Middle channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
5186.000	-59.91	-25	-34.91	Horizontal
7779.000	-62.03	-25	-37.03	Horizontal
10372.000	-58.3	-25	-33.3	Horizontal
5186.000	-57.3	-25	-32.3	Vertical
7779.000	-57.42	-25	-32.42	Vertical
10372.000	-58.25	-25	-33.25	Vertical

LTE BAND 41-High channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
5360.000	-56.28	-25	-31.28	Horizontal
8040.000	-61.14	-25	-36.14	Horizontal
10720.000	-54.4	-25	-29.4	Horizontal
5360.000	-55.4	-25	-30.4	Vertical
8040.000	-59.5	-25	-34.5	Vertical
10720.000	-53.83	-25	-28.83	Vertical

Remark:

We have tested all modulation and all Bandwidth, but only the worst case data presented in this report.

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6.7 Frequency stability

Test Requirement: §2.1055

Test Method: ANSI C63.26, KDB 971168 D01 v03

Limit: ≤ ±2.5ppm.

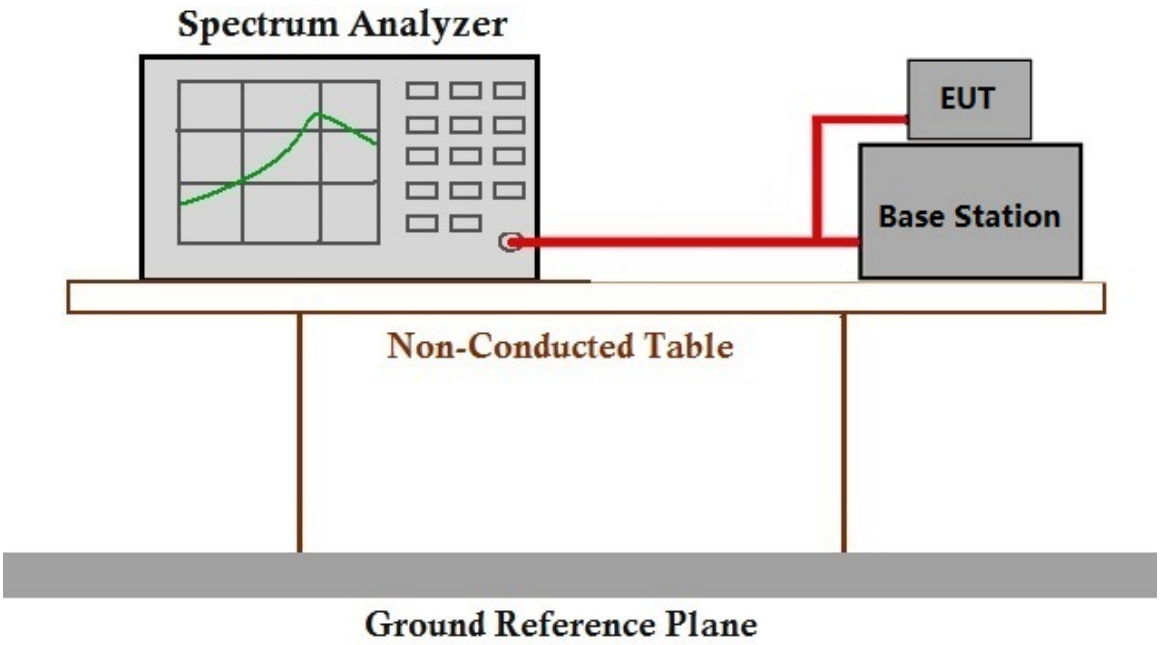
6.7.1 E.U.T. Operation

Operating Environment:

Temperature: 22.7 °C Humidity: 68.2 % RH Atmospheric Pressure: 1030 mbar

Test mode: a: Tx mode, Keep the EUT in transmitting mode.

6.7.2 Test Setup Diagram



6.7.3 Measurement Data

Please refer to Appendix G for KSEM210700112907

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6.8 Modulation Characteristics

Test Requirement: §2.1047

Test Method: ANSI C63.26

Limit: Digital modulation

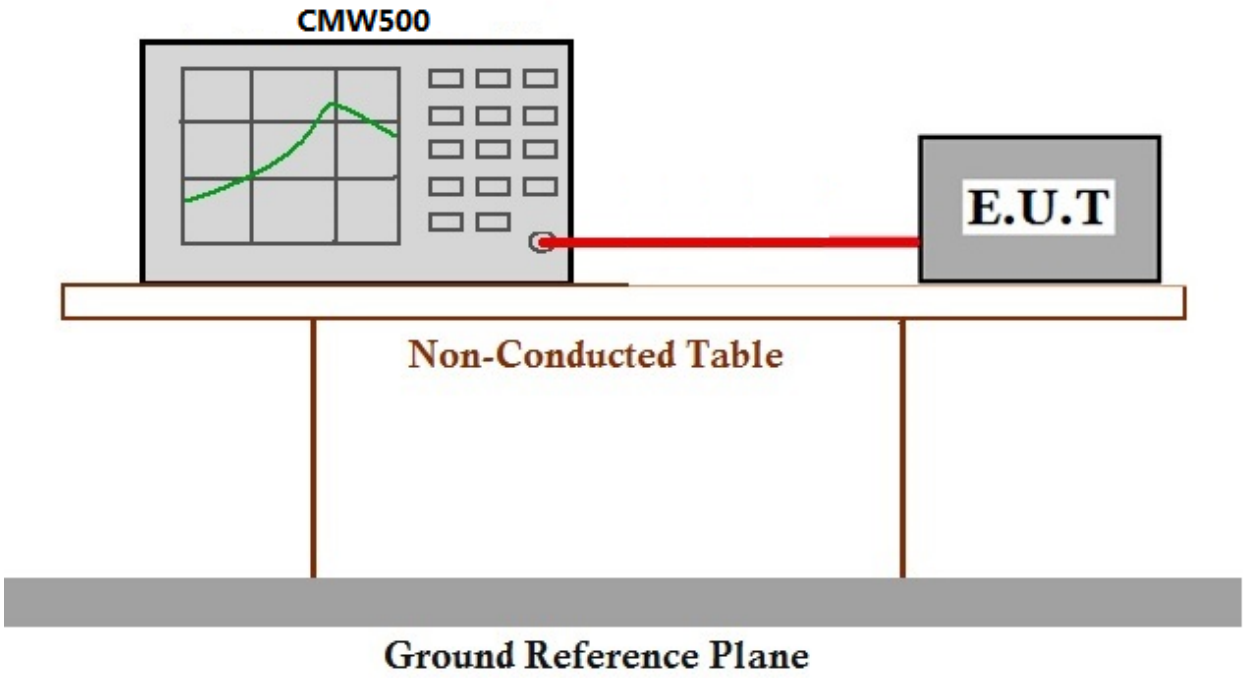
6.8.1 E.U.T. Operation

Operating Environment:

Temperature: 22.7 °C Humidity: 68.2 % RH Atmospheric Pressure: 1030 mbar

Test mode: a: Tx mode, Keep the EUT in transmitting mode.

6.8.2 Test Setup Diagram



6.8.3 Measurement Data

Please refer to Appendix G for KSEM210700112907

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7 Photographs

Refer to the < Photographs >

- End of the Report -

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