

RF TEST REPORT

Applicant Shanghai Sunmi Technology Co.,Ltd.
FCC ID 2AH25T5F2AN
Product Portable Data Processing Terminal
Brand SUNMI
Model T5F2A
Report No. EFTA25070074-IE-02-R1
Issue Date November 12, 2025

Eurofins TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 2 / FCC CFR 47 Part 22H / FCC CFR 47 Part 24E / FCC CFR47 Part 27C / FCC CFR 47 Part 90S**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

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Summary of Measurement Results

Test Case	Clause in FCC rules	Limits	Verdict
GSM 850; WCDMA Band 5; LTE Band 5/26 (824-849MHz)			
RF Power Output and Effective Radiated Power	2.1046 22.913(a)(5)	$\leq 7 \text{ W}$ (38.45 dBm)	PASS
Occupied Bandwidth	2.1049	No specific requirements	PASS
Band Edge Compliance	2.1051 22.917(a)	$\leq -13 \text{ dBm}$	PASS
Peak-to-Average Power Ratio	22.913(d) KDB 971168 D01(5.7)	$\leq 13 \text{ dB}$	PASS
Frequency Stability	2.1055 22.355(d)(1)	$\leq 2.5 \text{ ppm}$	PASS
Spurious Emissions at Antenna Terminals	2.1051 22.917(a)	$\leq -13 \text{ dBm}$	PASS
Radiated Spurious Emission	2.1053 22.917 (a)	$\leq -13 \text{ dBm}$	PASS
GSM 1900; WCDMA Band 2; LTE Band 2/25			
RF Power Output and Effective Isotropic Radiated Power	2.1046 24.232(c)	$\leq 2 \text{ W}$ (33 dBm)	PASS
Occupied Bandwidth	2.1049	No specific requirements	PASS
Band Edge Compliance	2.1051 24.238(a)	$\leq -13 \text{ dBm}$	PASS
Peak-to-Average Power Ratio	24.232 (d) KDB 971168 D01(5.7)	$\leq 13 \text{ dB}$	PASS
Frequency Stability	2.1055 24.235	The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.	PASS
Spurious Emissions at Antenna Terminals	2.1051 24.238(a)	$\leq -13 \text{ dBm}$	PASS
Radiated Spurious Emission	2.1053 24.238(a)	$\leq -13 \text{ dBm}$	PASS
WCDMA Band 4; LTE Band 4/66			
RF Power Output and Effective Isotropic Radiated Power	2.1046 27.50(d)(4)	$\leq 1 \text{ W}$ (30 dBm)	PASS
Occupied Bandwidth	2.1049	No specific requirements	PASS
Band Edge Compliance	2.1051 27.53(h)	$\leq -13 \text{ dBm}$	PASS

Test Case	Clause in FCC rules	Limits	Verdict
Peak-to-Average Power Ratio	27.50(d)(5) KDB971168 D01(5.7)	≤ 13 dB	PASS
Frequency Stability	2.1055 27.54	Shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.	PASS
Spurious Emissions at Antenna Terminals	2.1051 27.53(h)	≤ -13 dBm	PASS
Radiated Spurious Emission	2.1053 27.53(h)	≤ -13 dBm	PASS
LTE Band 7/38/41			
RF Power Output and Effective Isotropic Radiated Power	2.1046 27.50(h)(2)	≤ 2 W (33 dBm)	PASS
Occupied Bandwidth	2.1049	No specific requirements	PASS
Band Edge Compliance	2.1051 27.53(m)(4)	The attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.	PASS
Peak-to-Average Power Ratio	27.50(d)(5) KDB971168 D01(5.7)	≤ 13 dB	PASS
Frequency Stability	2.1055 27.54	Shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.	PASS

RF Test Report		Report No.: EP-1A20010014-12-02-1A					
Test Case	Clause in FCC rules	Limits	Verdict				
Spurious Emissions at Antenna Terminals	2.1051 27.53(m)	≤ -25 dBm	PASS				
Radiated Spurious Emission	2.1053 27.53(m)	≤ -25 dBm	PASS				
LTE Band 12/17/71							
RF Power Output and Effective Radiated Power	2.1046 27.50(c)(10)	≤ 3 W (34.77 dBm)	PASS				
Occupied Bandwidth	2.1049	No specific requirements	PASS				
Band Edge Compliance	2.1051 27.53(g)	≤ -13 dBm	PASS				
Peak-to-Average Power Ratio	KDB971168 D01(5.7)	≤ 13 dB	PASS				
Frequency Stability	2.1055 27.54	Shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.	PASS				
Spurious Emissions at Antenna Terminals	2.1051 27.53(g)	≤ -13 dBm	PASS				
Radiated Spurious Emission	2.1053 27.53(g)	≤ -13 dBm	PASS				
LTE Band 13							
RF Power Output and Effective Radiated Power	2.1046 27.50(b)(10)	≤ 3 W (34.77 dBm)	PASS				
Occupied Bandwidth	2.1049	No specific requirements	PASS				
Band Edge Compliance	2.1051 27.53(c)(2)	The power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB;	PASS				
Peak-to-Average Power Ratio	KDB971168 D01(5.7)	≤ 13 dB	PASS				
Frequency Stability	2.1055 27.54	Shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.	PASS				
Spurious Emissions at Antenna Terminals	2.1051 27.53(c) 27.53(f)	<table><tr><td>Limit out of the band 1559-1610 MHz</td><td>≤ -13 dBm</td></tr><tr><td>Limit in the band 1559-1610 MHz</td><td>≤ -40 dBm</td></tr></table>	Limit out of the band 1559-1610 MHz	≤ -13 dBm	Limit in the band 1559-1610 MHz	≤ -40 dBm	PASS
Limit out of the band 1559-1610 MHz	≤ -13 dBm						
Limit in the band 1559-1610 MHz	≤ -40 dBm						
Radiated Spurious Emission	2.1053 27.53(c) 27.53(f)	<table><tr><td>Limit out of the band 1559-1610 MHz</td><td>≤ -13 dBm</td></tr><tr><td>Limit in the band 1559-1610 MHz</td><td>≤ -40 dBm</td></tr></table>	Limit out of the band 1559-1610 MHz	≤ -13 dBm	Limit in the band 1559-1610 MHz	≤ -40 dBm	PASS
Limit out of the band 1559-1610 MHz	≤ -13 dBm						
Limit in the band 1559-1610 MHz	≤ -40 dBm						
LTE Band 26 (814-824MHz)							
RF Power Output and Effective Radiated Power	2.1046 90.635(b)	≤ 100 W (50 dBm)	PASS				
Occupied Bandwidth	2.1049	No specific requirements	PASS				

RF Test Report		Report No.: EPTA2001007412-02-11								
Test Case	Clause in FCC rules	Limits	Verdict							
Emission Masks	2.1051 90.691(a)(1)	For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 116 Log ₁₀ (f/6.1) decibels or 50 + 10 Log ₁₀ (P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.	PASS							
Peak-to-Average Power Ratio	KDB 971168 D01(5.7)	≤ 13 dB	PASS							
Frequency Stability	2.1055 90.213	<table><tr><td rowspan="3">Fixed and base stations</td><td colspan="2">Mobile stations</td></tr><tr><td>Over 2 watts output power</td><td>2 watts or less output power</td></tr><tr><td>1.5</td><td>2.5</td></tr></table>	Fixed and base stations	Mobile stations		Over 2 watts output power	2 watts or less output power	1.5	2.5	PASS
Fixed and base stations	Mobile stations									
	Over 2 watts output power	2 watts or less output power								
	1.5	2.5								
Spurious Emissions at Antenna Terminals	2.1051 90.691	≤ -13 dBm	PASS							
Radiated Spurious Emission	2.1053 90.691	≤ -13 dBm	PASS							
Date of Testing: July 30, 2025 ~ September 1, 2025 Date of Sample Received: July 28, 2025										
Note: PASS: The EUT complies with the essential requirements in the standard. FAIL: The EUT does not comply with the essential requirements in the standard. All indications of Pass/Fail in this report are opinions expressed by Eurofins TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only.										

1 Test Laboratory

1.1 Notes of the Test Report

This report shall not be reproduced in full or partial, without the written approval of **Eurofins TA Technology (Shanghai) Co., Ltd.** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above.

1.2. Test facility

FCC (Designation number: CN1179, Test Firm Registration Number: 446626)

Eurofins TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform measurements.

A2LA (Certificate Number: 3857.01)

Eurofins TA Technology (Shanghai) Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform measurement.

1.3 Testing Location

Company: Eurofins TA Technology (Shanghai) Co., Ltd.
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E-mail: Kain.Xu@cpt.eurofinscn.com

2 General Description of Equipment under Test

2.1 Applicant and Manufacturer Information

Applicant	Shanghai Sunmi Technology Co.,Ltd.
Applicant address	Room 505, No.388, Song Hu Road, Yang Pu District, Shanghai, China
Manufacturer	Shanghai Sunmi Technology Co.,Ltd.
Manufacturer address	Room 505, No.388, Song Hu Road, Yang Pu District, Shanghai, China

2.2 General information

EUT Description				
Model	T5F2A			
SN	Conducted	VB03256TJ0175		
	Radiated	VB03256TJ0055		
Hardware Version	SM08_MB_V1.1			
Software Version	4.0.0			
Power Supply	Battery / AC adapter			
Antenna Type	Internal Antenna			
Rated Power Supply Voltage	7.74VDC			
Operating Voltage	Minimum: 6.6VDC		Maximum: 8.9VDC	
Operating Temperature	Lowest: -10°C		Highest: +55°C	
Testing Temperature	Lowest: -30°C		Highest: +50°C	
Operating Frequency Range(s)	Mode	Tx (MHz)	Rx (MHz)	Gain (dBi)
	GSM850	824 ~ 849	869 ~ 894	2.42
	GSM1900	1850 ~ 1910	1930 ~ 1990	0.48
	WCDMA Band II	1850 ~ 1910	1930 ~ 1990	0.48
	WCDMA Band IV	1710 ~ 1755	2110 ~ 2155	0.61
	WCDMA Band V	824 ~ 849	869 ~ 894	2.42
	LTE Band 2	1850 ~ 1910	1930 ~ 1990	0.48
	LTE Band 4	1710 ~ 1755	2110 ~ 2155	0.61
	LTE Band 5	824 ~ 849	869 ~ 894	2.42
	LTE Band 7	2500 ~ 2570	2620 ~ 2690	2.84
	LTE Band 12	699 ~ 716	729 ~ 746	-3.20
	LTE Band 13	777 ~ 787	746 ~ 756	1.66
	LTE Band 17	704 ~ 716	734 ~ 746	-3.20
	LTE Band 25	1850 ~ 1915	1930 ~ 1995	0.48
	LTE Band 26	824 ~ 849	869 ~ 894	2.42

		(824 ~ 849)			
		LTE Band 26 (814 ~ 824)	814 ~ 824	859 ~ 869	2.42
		LTE Band 38	2570 ~ 2620	2570 ~ 2620	2.80
		LTE Band 41	2496 ~ 2690	2496 ~ 2690	2.84
		LTE Band 66	1710 ~ 1780	2110 ~ 2180	0.61
		LTE Band 71	663 ~ 698	617 ~ 652	-2.65
Test Modulation		(GSM/GPRS)GMSK, (EGPRS) GMSK/ 8PSK; (WCDMA) QPSK; (LTE) QPSK, 16QAM;			
GPRS Multislot Class		33			
EGPRS Multislot Class		33			
HSDPA UE Category		24			
HSUPA UE Category		6			
LTE Category		4			
Power Class		GSM 850: 4 GSM 1900: 1 WCDMA / LTE: 3			
Maximum E.I.R.P./ E.R.P.		GSM850	33.78 dBm		
		GSM1900	30.34 dBm		
		WCDMA Band II	23.99 dBm		
		WCDMA Band IV	24.12 dBm		
		WCDMA Band V	24.00 dBm		
		LTE Band 2	23.97 dBm		
		LTE Band 4	23.97dBm		
		LTE Band 5	23.38 dBm		
		LTE Band 7	26.78 dBm		
		LTE Band 12	17.59 dBm		
		LTE Band 13	22.66 dBm		
		LTE Band 17	17.46 dBm		
		LTE Band 25	23.70 dBm		
		LTE Band 26 (824 ~ 849)	23.23 dBm		
		LTE Band 26 (814 ~ 824)	23.51 dBm		
		LTE Band 38	26.24 dBm		
		LTE Band 41	26.36 dBm		
		LTE Band 66	23.97 dBm		
LTE Band 71	18.29 dBm				
EUT Accessory					
Adapter 1		Manufacturer: Shenzhen Tianyin Electronics Co.,Ltd			

	Model: TD-661G120167UF01
Adapter 2	Manufacturer: Jiangsu Chenyang Electron Co., Ltd. Model: UC13US
Battery	Manufacturer: Guangdong Highpower New Energy Technology Co., Ltd. Model: HPPE
USB Cable 1	Manufacturer: Saibao (Jiangxi) Industry Co., LTD Model: SSM-A033A 1500cm
USB Cable 2	Manufacturer: Saibao (Jiangxi) Industry Co., LTD Model: SSM-A063A 1500cm
Note: 1. The EUT is sent from the applicant to Eurofins TA and the information of the EUT is declared by the applicant.	

3 Applied Standards

According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

Test standards:

FCC CFR 47 Part 2 (2024)

FCC CFR 47 Part 22H (2024)

FCC CFR 47 Part 24E (2024)

FCC CFR 47 Part 27C (2024)

FCC CFR 47 Part 90S (2024)

Reference standard:

ANSI C63.26-2015

KDB 971168 D01 Power Meas License Digital Systems v03r01

4 Test Configuration

There is more than one SIM card slot, each one should be applied throughout the compliance test. All mode and data rates and positions and RB size and modulations were investigated.

Subsequently, only the worst case emissions are reported.

The following testing in GSM/WCDMA/LTE/NR is set based on the maximum RF Output Power.

The following testing in different Bandwidth is set to detail in the following table:

ENDC test Effective Isotropic Radiated Power and RSE, report only show worst mode.

Test modes are chosen to be reported as the worst case configuration below for NR Band:

Test items	Modes/Modulation	
	GSM 850 / GSM 1900	WCDMA Band 2/4/5
RF Power Output and Effective (Isotropic) Radiated power	GSM GPRS EGPRS	RMC HSDPA/HSUPA
Occupied Bandwidth	GSM GPRS(1Tx slot) EGPRS(1Tx slot)	RMC
Band Edge Compliance	GSM GPRS(1Tx slot) EGPRS(1Tx slot)	RMC
Peak-to-Average Power Ratio	GSM GPRS(1Tx slot) EGPRS(1Tx slot)	RMC
Frequency Stability	GSM	RMC
Spurious Emissions at Antenna Terminals	GSM	RMC
Radiated Spurious Emission	GSM	RMC

Test modes are chosen to be reported as the worst case configuration below for LTE Band:

Test items	Modes	Bandwidth (MHz)						Modulation		RB			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	1	50%	100%	L	M	H
RF Power Output and Effective Isotropic Radiated Power	LTE 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	LTE 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	LTE 5	0	0	0	0	-	-	0	0	0	0	0	0	0	0
	LTE 7	-	-	0	0	0	0	0	0	0	0	0	0	0	0
	LTE 12	0	0	0	0	-	-	0	0	0	0	0	0	0	0
	LTE 13	-	-	0	0	-	-	0	0	0	0	0	0	0	0
	LTE 17	-	-	0	0	-	-	0	0	0	0	0	0	0	0
	LTE 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	LTE 26	0	0	0	0	0	-	0	0	0	0	0	0	0	0
	LTE 38	-	-	0	0	0	0	0	0	0	0	0	0	0	0
	LTE 41	-	-	0	0	0	0	0	0	0	0	0	0	0	0
	LTE 66	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	LTE 77	-	-	0	0	0	0	0	0	0	0	0	0	0	0
Occupied Bandwidth	LTE 2	0	0	0	0	0	0	0	0	-	-	0	0	0	0
	LTE 4	0	0	0	0	0	0	0	0	-	-	0	0	0	0
	LTE 5	0	0	0	0	-	-	0	0	-	-	0	0	0	0
	LTE 7	-	-	0	0	0	0	0	0	-	-	0	0	0	0
	LTE 12	0	0	0	0	-	-	0	0	-	-	0	0	0	0
	LTE 13	-	-	0	0	-	-	0	0	-	-	0	0	0	0
	LTE 17	-	-	0	0	-	-	0	0	-	-	0	0	0	0
	LTE 25	0	0	0	0	0	0	0	0	-	-	0	0	0	0
	LTE 26	0	0	0	0	0	-	0	0	-	-	0	0	0	0
	LTE 38	-	-	0	0	0	0	0	0	-	-	0	0	0	0
	LTE 41	-	-	0	0	0	0	0	0	-	-	0	0	0	0
	LTE 66	0	0	0	0	0	0	0	0	-	-	0	0	0	0
	LTE 71	-	-	0	0	0	0	0	0	-	-	0	0	0	0

Test items	Modes	Bandwidth (MHz)						Modulation		RB			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	1	50%	100%	L	M	H
Band Edge Compliance	LTE 2	O	O	O	O	O	O	O	O	O	-	O	O	-	O
	LTE 4	O	O	O	O	O	O	O	O	O	-	O	O	-	O
	LTE 5	O	O	O	O	-	-	O	O	O	-	O	O	-	O
	LTE 7	-	-	O	O	O	O	O	O	O	-	O	O	-	O
	LTE 12	O	O	O	O	-	-	O	O	O	-	O	O	-	O
	LTE 13	-	-	O	O	-	-	O	O	O	-	O	O	-	O
	LTE 17	-	-	O	O	-	-	O	O	O	-	O	O	-	O
	LTE 25	O	O	O	O	O	O	O	O	O	-	O	O	-	O
	LTE 26	O	O	O	O	O	-	O	O	O	-	O	O	-	O
	LTE 38	-	-	O	O	O	O	O	O	O	-	O	O	-	O
	LTE 41	-	-	O	O	O	O	O	O	O	-	O	O	-	O
	LTE 66	O	O	O	O	O	O	O	O	O	-	O	O	-	O
Peak-to-Average Power Ratio	LTE 2	O	O	O	O	O	O	O	O	-	-	O	O	O	O
	LTE 4	O	O	O	O	O	O	O	O	-	-	O	O	O	O
	LTE 5	O	O	O	O	-	-	O	O	-	-	O	O	O	O
	LTE 7	-	-	O	O	O	O	O	O	-	-	O	O	O	O
	LTE 12	O	O	O	O	-	-	O	O	-	-	O	O	O	O
	LTE 13	-	-	O	O	-	-	O	O	-	-	O	O	O	O
	LTE 17	-	-	O	O	-	-	O	O	-	-	O	O	O	O
	LTE 25	O	O	O	O	O	O	O	O	-	-	O	O	O	O
	LTE 26	O	O	O	O	O	-	O	O	-	-	O	O	O	O
	LTE 38	-	-	O	O	O	O	O	O	-	-	O	O	O	O
	LTE 41	-	-	O	O	O	O	O	O	-	-	O	O	O	O
	LTE 66	O	O	O	O	O	O	O	O	-	-	O	O	O	O
Frequency Stability	LTE 2	O	O	O	O	O	O	O	-	-	-	O	O	-	O
	LTE 4	O	O	O	O	O	O	O	-	-	-	O	O	-	O
	LTE 5	O	O	O	O	-	-	O	-	-	-	O	-	O	-
	LTE 7	-	-	O	O	O	O	O	-	-	-	O	O	-	O
	LTE 12	O	O	O	O	-	-	O	-	-	-	O	O	-	O
	LTE 13	-	-	O	O	-	-	O	-	-	-	O	O	-	O
	LTE 17	-	-	O	O	-	-	O	-	-	-	O	O	-	O
	LTE 25	O	O	O	O	O	O	O	-	-	-	O	O	-	O
	LTE 26	O	O	O	O	O	-	O	-	-	-	O	-	O	-
	LTE 38	-	-	O	O	O	O	O	-	-	-	O	O	-	O
	LTE 41	-	-	O	O	O	O	O	-	-	-	O	O	-	O
	LTE 66	O	O	O	O	O	O	O	-	-	-	O	O	-	O
	LTE 71	-	-	O	O	O	O	O	-	-	-	O	O	-	O

Test items	Modes	Bandwidth (MHz)						Modulation		RB			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	1	50%	100%	L	M	H
Spurious Emissions at Antenna Terminals	LTE 2	O	O	O	O	O	O	O	-	O	-	-	O	O	O
	LTE 4	O	O	O	O	O	O	O	-	O	-	-	O	O	O
	LTE 5	O	O	O	O	-	-	O	-	O	-	-	O	O	O
	LTE 7	-	-	O	O	O	O	O	-	O	-	-	O	O	O
	LTE 12	O	O	O	O	-	-	O	-	O	-	-	O	O	O
	LTE 13	-	-	O	O	-	-	O	-	O	-	-	O	O	O
	LTE 17	-	-	O	O	-	-	O	-	O	-	-	O	O	O
	LTE 25	O	O	O	O	O	O	O	-	O	-	-	O	O	O
	LTE 26	O	O	O	O	O	-	O	-	O	-	-	O	O	O
	LTE 38	-	-	O	O	O	O	O	-	O	-	-	O	O	O
	LTE 41	-	-	O	O	O	O	O	-	O	-	-	O	O	O
	LTE 66	O	O	O	O	O	O	O	-	O	-	-	O	O	O
	LTE 71	-	-	O	O	O	O	O	-	O	-	-	O	O	O
Radiated Spurious Emission	LTE 2	O	-	O	-	-	O	O	-	O	-	-	-	O	-
	LTE 4	O	-	O	-	-	O	O	-	O	-	-	-	O	-
	LTE 5	O	-	O	O	-	-	O	-	O	-	-	-	O	-
	LTE 7	-	-	O	-	-	O	O	-	O	-	-	-	O	-
	LTE 12	O	-	O	O	-	-	O	-	O	-	-	-	O	-
	LTE 13	-	-	O	O	-	-	O	-	O	-	-	-	O	-
	LTE 17	-	-	O	O	-	-	O	-	O	-	-	-	O	-
	LTE 25	O	-	O	-	-	O	O	-	O	-	-	-	O	-
	LTE 26	O	-	O	-	O	-	O	-	O	-	-	-	O	-
	LTE 38	-	-	O	-	-	O	O	-	O	-	-	-	O	-
	LTE 41	-	-	O	-	-	O	O	-	O	-	-	-	O	-
	LTE 66	O	O	O	-	-	O	O	-	O	-	-	-	O	-
	LTE 71	-	-	O	-	-	O	O	-	O	-	-	-	O	-
Note	1. The mark "O" means that this configuration is chosen for testing. 2. The mark "-" means that this configuration is not testing.														

5 Test Case Results

5.1 RF Power Output and Effective Isotropic Radiated Power

Ambient condition

Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

Methods of Measurement

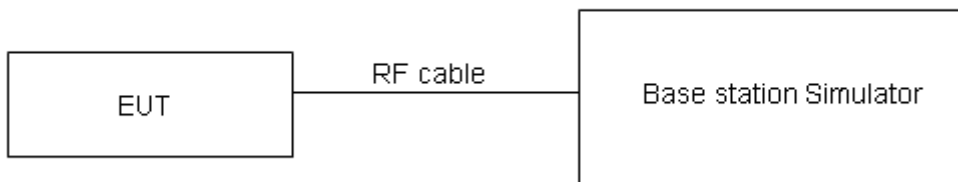
During the process of the testing, The EUT was connected to the Base Station Simulator with a known loss. The EUT is controlled by the Base Station Simulator test set to ensure max power transmission with proper modulation.

ERP can then be calculated as follows:

$EIRP\ (dBm) = Output\ Power\ (dBm) + Antenna\ Gain\ (dBi)$

$EIRP\ (dBm) = ERP\ (dBm) + 2.15\ (dB.)$

Test Setup



Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U=0.4\ dB$ for RF power output, $k = 2$, $U= 1.19\ dB$ for ERP/EIRP.

Test Results

The detailed test data see EFTA25070074-IE-02-R1-A.

5.2 Occupied Bandwidth

Ambient condition

Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

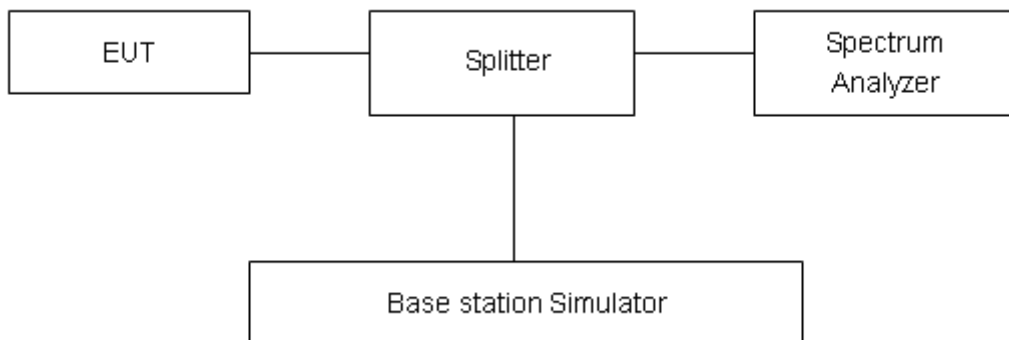
Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The occupied bandwidth is measured using spectrum analyzer.

RBW is set to $\geq 1\%EBW$, VBW is set to 3x RBW.

99% power and -26dBc occupied bandwidths are recorded. Spectrum analyzer plots are included on the following pages.

Test Setup



Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U=624\text{Hz}$.

Test Results

The detailed test data see EFTA25070074-IE-02-R1-B.

5.3 Band Edge Compliance

Ambient condition

Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The band edge of the lowest and highest channels were measured.

The testing follows KDB 971168 D01 v03r01 Section 6.0

The EUT was connected to spectrum analyzer and system simulator via a power divider.

The band edges of low and high channels for the highest RF powers were measured.

For LTE Band 7/38 set RBW $\geq 1\%$ EBW in the 1MHz band immediately outside and adjacent to the band edge. Beyond the 1 MHz band from the band edge, RBW=1MHz was used.

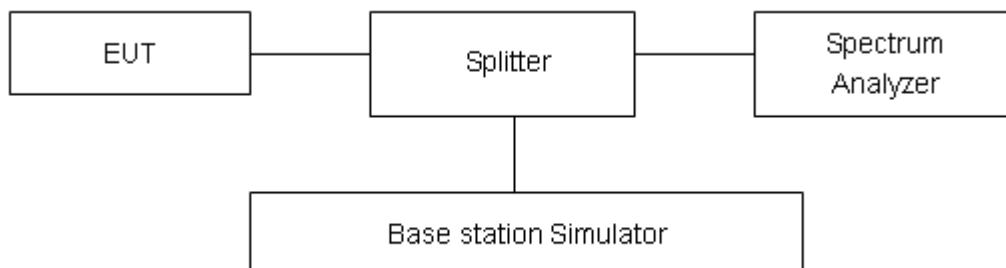
For LTE Band 41 the middle channel, high channel set RBW $\geq 1\%$ EBW in the 1MHz band immediately outside and adjacent to the band edge. Beyond the 1 MHz band from the band edge, RBW=1MHz was used; Low channel set RBW $\geq 2\%$ EBW in the 1MHz band immediately outside and adjacent to the band edge. Beyond the 1 MHz band from the band edge, RBW=1MHz was used. RBW is set to $\geq 1\%$ EBW, VBW is set to 3x RBW on spectrum analyzer.

Set spectrum analyzer with RMS detector.

The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

Checked that all the results comply with the emission limit line.

Test Setup



Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 1.96$, $U=0.684\text{dB}$.

Test Results

The detailed test data see EFTA25070074-IE-02-R1-C.

5.4 Peak-to-Average Power Ratio (PAPR)

Ambient condition

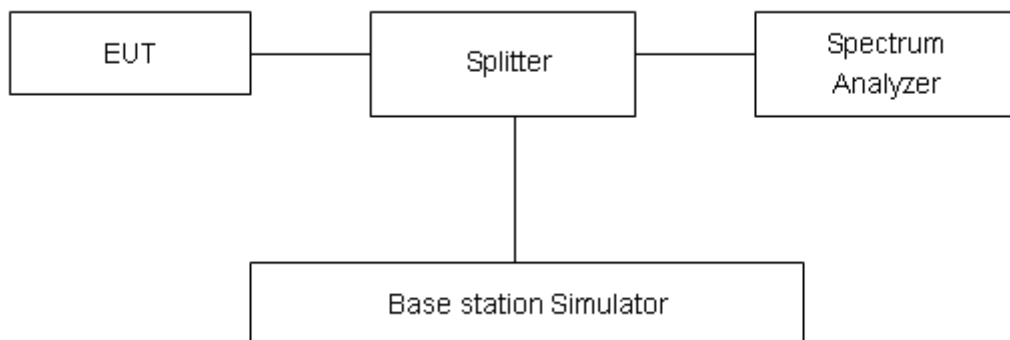
Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

Methods of Measurement

Measure the total peak power and record as PPK. And measure the total average power and record as PAvg. Both the peak and average power levels must be expressed in the same logarithmic units (e.g., dBm). Determine the PAPR from:

$$\text{PAPR (dB)} = \text{PPk (dBm)} - \text{PAvg (dBm)}.$$

Test Setup



Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 0.4$ dB.

Test Results

The detailed test data see EFTA25070074-IE-02-R1-D.

5.5 Frequency Stability

Ambient condition

Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

Method of Measurement

Frequency Stability (Temperature Variation)

The temperature inside the climate chamber is varied from -30°C to +50°C in 10°C step size.

(1) With all power removed, the temperature was decreased to -10°C and permitted to stabilize for three hours.

(2) Measure the carrier frequency with the test equipment in a “call mode”. These measurements should be made within 1 minute of powering up the mobile station, to prevent significant self warming.

(3) Repeat the above measurements at 10°C increments from -30°C to +50°C. Allow at least 1.5 hours at each temperature, un-powered, before making measurements.

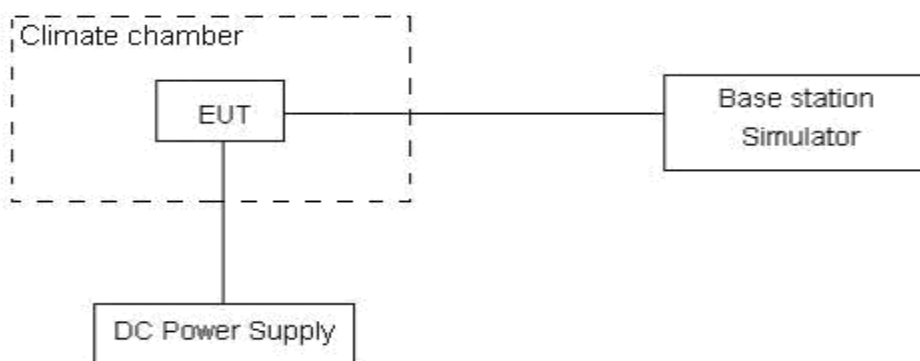
Frequency Stability (Voltage Variation)

The frequency stability shall be measured with variation of primary supply voltage as follows:

Primary Supply Voltage: The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

This transceiver is specified to operate with an input voltage of between 6.6 V and 8.9V, with a nominal voltage of 7.74V.

Test setup



Measurement Uncertainty

The assessed measurement uncertainty to ensure 99.75% confidence level for the normal distribution is with the coverage factor $k = 3$, $U = 0.01\text{ppm}$.

Test Results

The detailed test data see EFTA25070074-IE-02-R1-E.

5.6 Spurious Emissions at Antenna Terminals

Ambient condition

Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The measurement is carried out using a spectrum analyzer. The spectrum analyzer scans from 9kHz to the 10th harmonic of the carrier. The peak detector is used.

RBW is set to 1 kHz (0.009MHz~ 0.15 MHz),

RBW is set to 10 kHz (0.15 MHz~ 30 MHz)

RBW is set to 100 kHz (30MHz~1000 MHz)

RBW is set to 1000 kHz (above 1000MHz)

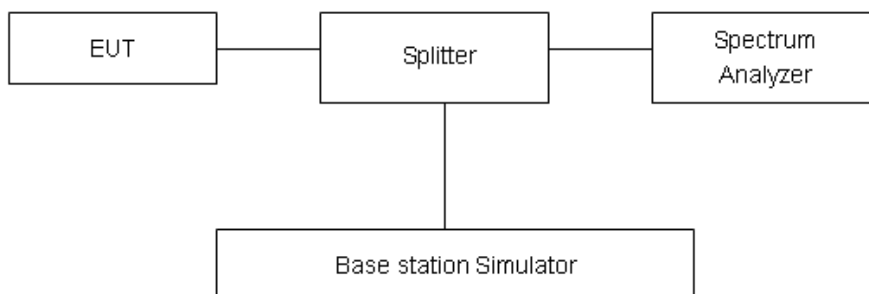
For Band 2/7/38/41/66, the RBW is set to 100KHz below 1G, and the factor is 10dB for 1MHz.

Sweep is set to AUTO.

Of those disturbances below (limit – 20 dB), the mark is not required for the EUT.

The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup



Measurement Uncertainty

The assessed measurement uncertainty to ensure 99.75% confidence level for the normal distribution is with the coverage factor $k = 1.96$.

Frequency	Uncertainty
9kHz-1GHz	0.684 dB
above 1GHz	1.407 dB

Test Results

The detailed test data see EFTA25070074-IE-02-R1-F.

5.7 Radiated Spurious Emission

Ambient condition

Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

Method of Measurement

- The testing follows FCC KDB 971168 D01 v03r01 Section 5.8 and ANSI C63.26-2015.
- Below 1GHz: The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H). Above 1GHz: (Note: the FCC's permission to use 1.5m as an alternative per TCBC Conf call of Dec. 2, 2014.) The EUT is placed on a turntable 1.5 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).
- A loop antenna, A log-periodic antenna or horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.
- The EUT is then put into continuously transmitting mode at its maximum power level during the test. Set Test Receiver or Spectrum RBW=100kHz, VBW=300kHz for 30MHz to 1GHz and RBW=1MHz, VBW=3MHz for above 1GHz, and the maximum value of the receiver should be recorded as (Pr).
- The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (PMea) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded (Pr). The power of signal source (PMea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.
- A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna. The cable loss (Pcl) ,the Substitution Antenna Gain (Ga) and the Amplifier Gain (PAg) should be recorded after test.
- The measurement results are obtained as described below:

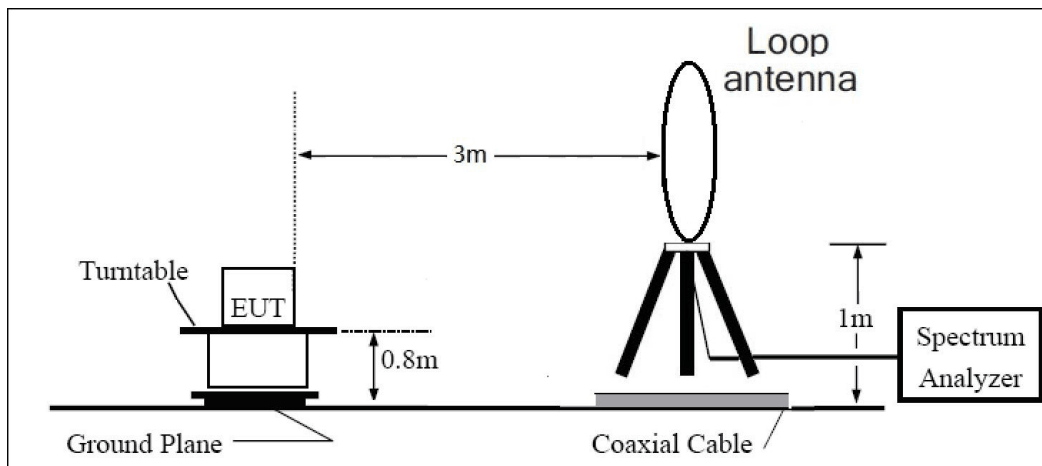
$$\text{Power(EIRP)} = \text{PMea} - \text{PAg} - \text{Pcl} + \text{Ga}$$
The measurement results are amend as described below:

$$\text{Power(EIRP)} = \text{PMea} - \text{Pcl} + \text{Ga}$$
- This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dB) and known input power. ERP can be calculated from EIRP by subtracting the gain of the dipole, $\text{ERP} = \text{EIRP} - 2.15\text{dB}$.

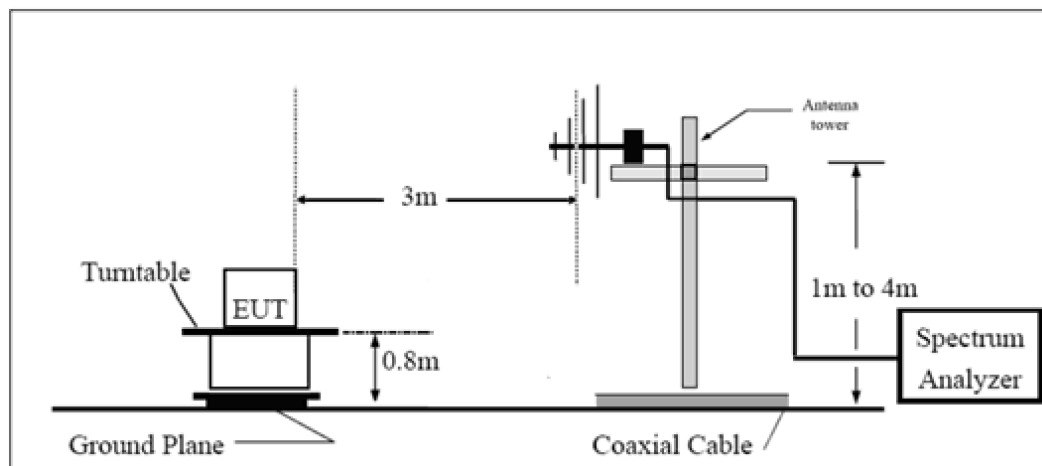
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup

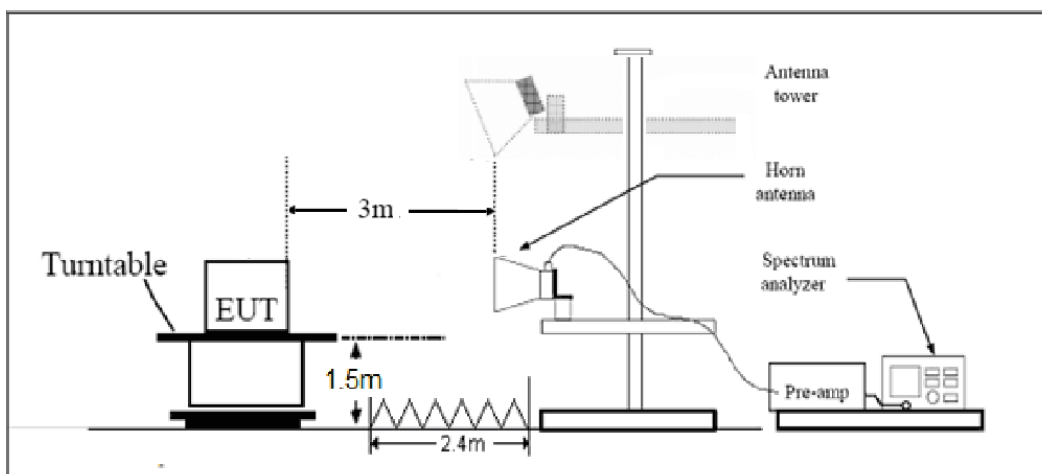
9KHz~ 30MHz



30MHz~ 1GHz



Above 1GHz



Note: Area side:2.4mX3.6m

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = \pm 1.96$, $U = \pm 3.55$ dB.

Test Results

The detailed test data see EFTA25070074-IE-02-R1-G.

6 Main Test Instruments

Name	Manufacturer	Type	Serial Number	Calibration Date	Expiration Date
Wireless Communication Tester	Anritsu	MT8821C	6201538758	2025-05-06	2026-05-05
Climate Chamber	WEISS	VT 4002	58226119450010	2025-05-06	2026-05-05
Wireless Communication Tester	R&S	CMW500	150415	2025-05-06	2026-05-05
Spectrum Analyzer	Keysight	N9020A	MY52330084	2025-05-06	2026-05-05
DC Power Supply	UNI-T	UTP1310+	C220795889	2025-05-06	2026-05-05
Spectrum Analyzer	R&S	FSV3030	101411	2024-12-02	2025-12-01
Spectrum Analyze	Agilent	N9010A	MY47191109	2025-05-06	2026-05-05
Attenuator	HASCO	HA18A-10	0003	/	/
Spectrum Analyzer	R&S	FSV30	100815	2024-12-02	2025-12-01
TRILOG Broadband Antenna	SCHWARZBECK	VULB 9163	391	2022-09-29	2025-09-28
Horn Antenna	SCHWARZBECK	BBHA 9120D	1594	2023-12-05	2026-12-04
Horn Antenna	ETS-Lindgren	3160-09	00102643	2024-9-24	2027-9-23
Software	R&S	EMC32	10.35.10	/	/

7 The EUT Appearance

Refer to *EUT Appearance*.

8 Test Setup Photos

Refer to *Part22_24_27_90 Test Setup*.

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