



FCC RADIO TEST REPORT

FCC ID : RI7FN980M
Equipment : 5G/ LTE M.2 Data Card
Brand Name : Telit
Model Name : FN980m
Marketing Name : FN980m
Applicant : TELIT COMMUNICATIONS S.P.A.
VIA STAZIONE DI PROSECCO 5B -
SGONICO -TRIESTE - ITALY
Manufacturer : TELIT COMMUNICATIONS S.P.A.
VIA STAZIONE DI PROSECCO 5B -
SGONICO -TRIESTE - ITALY
Standard : FCC 47 CFR Part 2, 22(H), 24(E), 27(L)

The product was received on Aug. 11, 2021 and testing was started from Aug. 30, 2021 and completed on Aug. 30, 2021. We, Sporton International Inc. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI / TIA-603-E and has been in compliance with the applicable technical standards.

The test results in this variant report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Louis Wu

Approved by: Louis Wu

Sporton International Inc. EMC & Wireless Communications Laboratory

No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)



Table of Contents

History of this test report.....	3
Summary of Test Result.....	4
1 General Description	5
1.1 Product Feature of Equipment Under Test	5
1.2 Modification of EUT	5
1.3 Testing Location	5
1.4 Applicable Standards	6
2 Test Configuration of Equipment Under Test	7
2.1 Test Mode.....	7
2.2 Connection Diagram of Test System	7
2.3 Support Unit used in test configuration and system.....	8
2.4 Frequency List of Low/Middle/High Channels.....	8
3 Conducted Test Result	9
3.1 Measuring Instruments.....	9
3.2 Conducted Output Power and ERP/EIRP	10
4 List of Measuring Equipment.....	11
Appendix A. Test Results of Conducted Test	



Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.2	§2.1046	Conducted Output Power	Pass	-
	§22.913 (a)(5)	Effective Radiated Power (WCDMA Band V)		
	§24.232 (c)	Equivalent Isotropic Radiated Power (WCDMA Band II)		
	§27.50 (d)(4)	Equivalent Isotropic Radiated Power (WCDMA Band IV)		
-	§24.232 (d)	Peak-to-Average Ratio	Not Required	
-	§2.1049 §22.917 (b) §24.238 (b) §27.53 (g)	Occupied Bandwidth (WCDMA Band V) (WCDMA Band II) (WCDMA Band IV)	Not Required	-
-	§2.1051 §22.917 (a) §24.238 (a) §27.53 (g)	Band Edge Measurement (WCDMA Band V) (WCDMA Band II) (WCDMA Band IV)	Not Required	-
-	§2.1051 §22.917 (a) §24.238 (a) §27.53 (g)	Conducted Emission (WCDMA Band V) (WCDMA Band II) (WCDMA Band IV)	Not Required	-
-	§2.1055 §22.355 §24.235 §27.54	Frequency Stability Temperature & Voltage	Not Required	-
-	§2.1053 §22.917 (a) §24.238 (a) §27.53 (h)	Field Strength of Spurious Radiation (WCDMA Band V) (WCDMA Band II) (WCDMA Band IV)	Not Required	-

Remark:

1. Not required means after assessing, test items are not necessary to carry out.
2. This is a variant report which can be referred Product Equality Declaration. All the test cases were performed on original report which can be referred to Sporton Report Number FG031715-01A. Based on the original report, the Conducted Output Power test cases were verified. The verify test of Radiated Spurious Emission was assessed in other bands, which can be referred to other bands split report.

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Reviewed by: Avis Chuang

Report Producer: Celery Wei



1 General Description

1.1 Product Feature of Equipment Under Test

WCDMA/LTE/5G NR, and GNSS.

Product Specification subjective to this standard	
Antenna Type	WWAN: <Ant. 0> Dipole Antenna <Ant. 1> Dipole Antenna <Ant. 2> Dipole Antenna <Ant. 3> Dipole Antenna GNSS : <1559 MHz ~ 1610 MHz>: <Ant. 3> Dipole Antenna <Ant. 4> Dipole Antenna <1164 MHz ~ 1215 MHz>: <Ant. 2> Dipole Antenna

Remark: The above EUT's information was declared by manufacturer. Please refer to Comments and Explanations in report summary.

1.2 Modification of EUT

No modifications are made to the EUT during all test items.

1.3 Testing Location

Test Site	Sporton International Inc. EMC & Wireless Communications Laboratory
Test Site Location	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978
Test Site No.	Sporton Site No. TH03-HY
Test Engineer	Oscar Chi
Temperature	22~24°C
Relative Humidity	45~49%

FCC Designation No.: TW1190



1.4 Applicable Standards

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

- ♦ ANSI C63.26-2015
- ♦ ANSI / TIA-603-E
- ♦ FCC 47 CFR Part 2, 22(H), 24(E), 27(L)
- ♦ FCC KDB 971168 D01 Power Meas. License Digital Systems v03r01
- ♦ FCC KDB 412172 D01 Determining ERP and EIRP v01r01

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.
3. The TAF code is not including all the FCC KDB listed without accreditation.

2 Test Configuration of Equipment Under Test

2.1 Test Mode

Antenna port conducted and radiated test items were performed according to KDB 971168 D01 Power Meas. License Digital Systems v03r01 with maximum output power.

Radiated emissions were investigated as following frequency range:

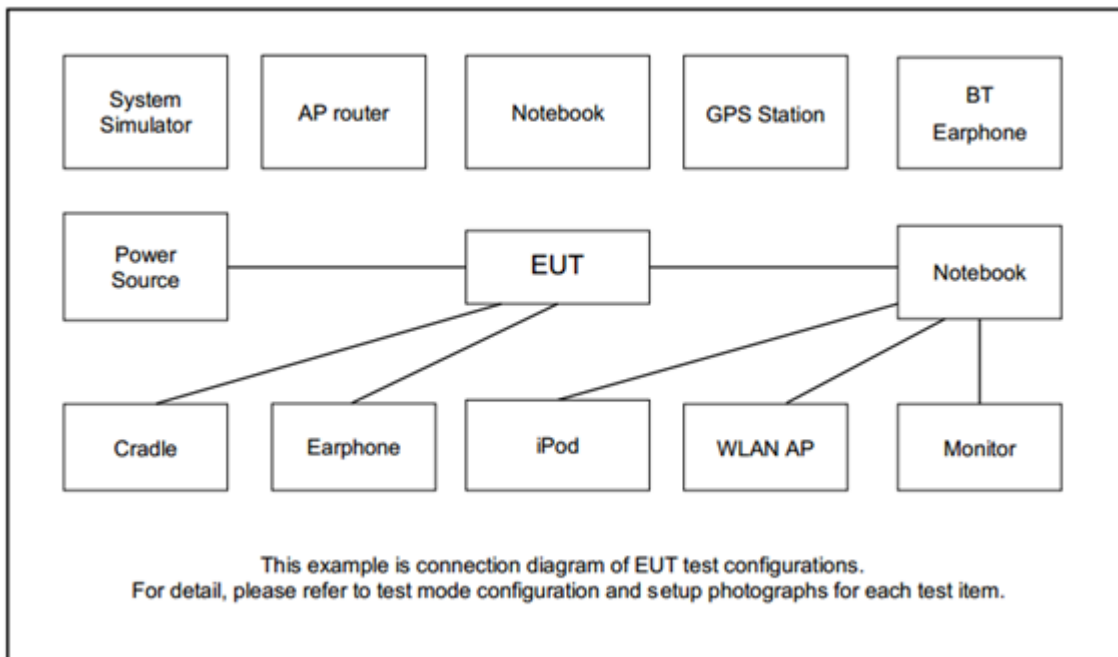
1. 30 MHz to 9000 MHz for WCDMA Band V
2. 30 MHz to 18000 MHz for WCDMA Band IV
3. 30 MHz to 19100 MHz for WCDMA Band II

All modes, data rates and positions were investigated.

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

Test Modes	
Band	Conducted TCs
WCDMA Band V	■ RMC 12.2Kbps Link
WCDMA Band II	■ RMC 12.2Kbps Link
WCDMA Band IV	■ RMC 12.2Kbps Link

2.2 Connection Diagram of Test System





2.3 Support Unit used in test configuration and system

Item	Equipment	Brand Name	Model No.	FCC ID	Data Cable	Power Cord
1.	DC power Supply	Agilent	E3610A	N/A	N/A	N/A
2.	System Simulator	Anritsu	MT8821C	N/A	N/A	Unshielded, 1.8 m

2.4 Frequency List of Low/Middle/High Channels

Frequency List				
Band	Channel/Frequency(MHz)	Lowest	Middle	Highest
WCDMA Band V	Channel	4132	4182	4233
	Frequency	826.4	836.4	846.6
WCDMA Band II	Channel	9262	9400	9538
	Frequency	1852.4	1880.0	1907.6
WCDMA Band IV	Channel	1312	1413	1513
	Frequency	1712.4	1732.6	1752.6

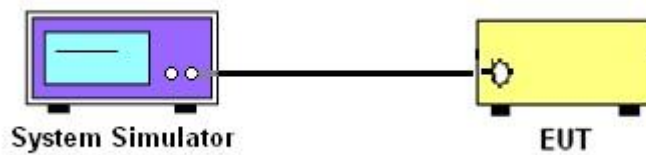
3 Conducted Test Result

3.1 Measuring Instruments

See list of measuring instruments of this test report.

3.1.1 Test Setup

3.1.2 Conducted Output Power



3.1.3 Test Result of Conducted Test

Please refer to Appendix A.



3.2 Conducted Output Power and ERP/EIRP

3.2.1 Description of the Conducted Output Power and ERP/EIRP

A system simulator was used to establish communication with the EUT. Its parameters were set to enforce EUT transmitting at the maximum power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

The ERP of mobile transmitters must not exceed 7 Watts for WCDMA Band V

The EIRP of mobile transmitters must not exceed 2 Watts for WCDMA Band II

The EIRP of mobile transmitters must not exceed 1 Watts for WCDMA Band IV

According to KDB 412172 D01 Power Approach,

$EIRP = P_T + G_T - L_C$, $ERP = EIRP - 2.15$, where

P_T = transmitter output power in dBm

G_T = gain of the transmitting antenna in dBi

L_C = signal attenuation in the connecting cable between the transmitter and antenna in dB

3.2.2 Test Procedures

1. The transmitter output port was connected to the system simulator.
2. Set EUT at maximum power through system simulator.
3. Select the lowest, middle, and the highest channels for each band and different modulation.
4. Measure the maximum burst average power for GSM and maximum average power for other modulation signal.



4 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Hygrometer	Testo	608-H1	34893241	N/A	Mar. 03, 2021	Aug. 30, 2021	Mar. 02, 2022	Conducted (TH03-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP30	101329	9kHz~30GHz	Sep. 03, 2020	Aug. 30, 2021	Sep. 02, 2021	Conducted (TH03-HY)
Temperature Chamber	ESPEC	SH-641	92013720	-40°C ~90°C	Sep. 14, 2020	Aug. 30, 2021	Sep. 13, 2021	Conducted (TH03-HY)
Programmable Power Supply	GW Instek	PSS-2005	EL890001	1V~20V 0.5A~4A	Oct. 05, 2020	Aug. 30, 2021	Oct. 04, 2021	Conducted (TH03-HY)
Base Station (Measure)	Rohde & Schwarz	CMU200	117997	GSM / GPRS / WCDMA / CDMA	Sep. 22, 2020	Aug. 30, 2021	Sep. 21, 2021	Conducted (TH03-HY)
Power Divider	Warison	WCOU-0.4-26.5S-20	#A	N/A	Nov. 03, 2020	Aug. 30, 2021	Nov. 02, 2021	Conducted (TH03-HY)



Appendix A. Test Results of Conducted Test

Conducted Output Power(Average power) & ERP / EIRP

WCDMA Band V Maximum Average Power [dBm] (GT - LC = 3.5 dB)					
Channel	4132	4182	4233	ERP (dBm)	ERP (W)
Frequency	826.4	836.4	846.6		
RMC 12.2K	23.39	23.49	23.40	24.84	0.3048
HSDPA Subtest-1	22.68	22.55	22.48		
HSDPA Subtest-2	22.60	22.58	22.39		
HSDPA Subtest-3	22.09	22.22	21.90		
HSDPA Subtest-4	21.86	22.05	21.94		
HSUPA Subtest-1	22.55	22.35	22.26		
HSUPA Subtest-2	20.37	20.53	20.53		
HSUPA Subtest-3	21.09	21.28	21.39		
HSUPA Subtest-4	20.17	20.25	20.54		
HSUPA Subtest-5	22.50	22.42	22.37		
Limit	ERP < 7W				

WCDMA Band II Maximum Average Power [dBm] (GT - LC = 6 dB)					
Channel	9262	9400	9538	EIRP (dBm)	EIRP (W)
Frequency	1852.4	1880	1907.6		
RMC 12.2K	23.60	23.50	23.55	29.60	0.9120
HSDPA Subtest-1	22.70	22.35	22.50		
HSDPA Subtest-2	22.73	22.51	22.72		
HSDPA Subtest-3	22.09	22.11	21.92		
HSDPA Subtest-4	22.05	21.93	22.18		
HSUPA Subtest-1	22.79	22.71	22.45		
HSUPA Subtest-2	20.70	20.35	20.62		
HSUPA Subtest-3	21.67	21.61	21.47		
HSUPA Subtest-4	20.47	20.51	20.47		
HSUPA Subtest-5	22.63	22.33	22.32		
Limit	EIRP < 2W				

WCDMA Band IV Maximum Average Power [dBm] (GT - LC = 5 dB)					
Channel	1312	1413	1513	EIRP (dBm)	EIRP (W)
Frequency	1712.4	1732.6	1752.6		
RMC 12.2K	23.58	23.55	23.45	28.58	0.7211
HSDPA Subtest-1	22.62	22.47	22.67		
HSDPA Subtest-2	22.60	22.72	22.40		
HSDPA Subtest-3	21.82	22.04	21.88		
HSDPA Subtest-4	21.86	22.24	22.07		
HSUPA Subtest-1	22.68	22.58	22.54		
HSUPA Subtest-2	20.30	20.43	20.49		
HSUPA Subtest-3	21.34	21.25	21.46		
HSUPA Subtest-4	20.59	20.40	20.67		
HSUPA Subtest-5	22.64	22.58	22.44		
Limit	EIRP < 1W				

————THE END————