

FCC Test Report

Applicant : MYLAPS BV

Address : Zuiderhoutlaan 4, 2012PJ, Haarlem,
Netherlands

Product Name : MYLAPS ProChipT2

Report Date : Apr. 15, 2025

Shenzhen Anbotek Compliance Laboratory Limited



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TEST REPORT

Applicant : MYLAPS BV

Manufacturer : MYLAPS BV

Product Name : MYLAPS ProChipT2

Model No. : T2

Trade Mark : MYLAPS

Rating(s) : Input: 5V== 0.25A(with DC 3.7V, 660mAh battery inside)

Test Standard(s) : 47 CFR Part 2, 47 CFR Part 22(H), 47 CFR Part 24(E), 47 CFR Part 27(C)
ANSI C63.26-2015

Test Method(s) : KDB 971168 D01 Power Meas License Digital Systems v03r01

The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Shenzhen Anbotek Compliance Laboratory Limited is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the 47 CFR Part 22, 47 CFR Part 24, 47 CFR Part 27 requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Shenzhen Anbotek Compliance Laboratory Limited.

Date of Receipt Oct. 25, 2024

Date of Test : Oct. 25, 2024 to Apr. 15, 2025

Prepared by :

Lene Chen

(Lene Chen)

Approved & Authorized Signer :

Hugo Chen

(Hugo Chen)



Revision History

Report Version	Description	Issued Date
R00	Original Issue.	Apr. 15, 2025



1. General Information

1.1. Client Information

Applicant	:	MYLAPS BV
Address	:	Zuiderhoutlaan 4, 2012PJ, Haarlem, Netherlands
Manufacturer	:	MYLAPS BV
Address	:	Zuiderhoutlaan 4, 2012PJ, Haarlem, Netherlands
Factory	:	MYLAPS BV
Address	:	Zuiderhoutlaan 4, 2012PJ, Haarlem, Netherlands

1.2. Description of Device (EUT)

Product Name	:	MYLAPS ProChipT2
Model No.	:	T2
Trade Mark	:	MYLAPS
Test Power Supply	:	DC 3.7V Battery inside
Test Sample No.	:	1-2-1(Normal Sample), 1-2-2(Engineering Sample)
Adapter	:	N/A
RF Specification		
Support Band	:	<input checked="" type="checkbox"/> FDD Band 2 <input checked="" type="checkbox"/> FDD Band 4 <input checked="" type="checkbox"/> FDD Band 5 <input checked="" type="checkbox"/> FDD Band 7 <input checked="" type="checkbox"/> FDD Band 12 <input type="checkbox"/> FDD Band 13 <input type="checkbox"/> FDD Band 14 <input type="checkbox"/> FDD Band 17 <input type="checkbox"/> FDD Band 25 <input type="checkbox"/> FDD Band 26 <input checked="" type="checkbox"/> TDD Band 38 <input checked="" type="checkbox"/> TDD Band 41 <input checked="" type="checkbox"/> FDD Band 66 <input type="checkbox"/> FDD Band 71
Transmit Frequency	:	FDD Band 2: 1850.7~1909.3MHz FDD Band 4: 1710.7~1754.3MHz FDD Band 5: 824.7~848.3MHz FDD Band 7: 2502.5~2567.5MHz FDD Band 12: 699.7~715.3MHz TDD Band 38: 2572.5~2617.5MHz TDD Band 41: 2498.5~2687.5MHz FDD Band 66: 1710.7~1779.3MHz
Receive Frequency	:	FDD Band 2: 1930.7~1989.3MHz FDD Band 4: 2110.7~2154.3MHz FDD Band 5: 869.7~893.3MHz FDD Band 7: 2622.5~2687.5MHz FDD Band 12: 729.7~745.3MHz TDD Band 38: 2572.5~2617.5MHz TDD Band 41: 2498.5~2687.5MHz



		FDD Band 66: 2110.7~2179.3MHz
Modulation Type	:	QPSK, 16QAM
Power Class	:	Class 3
Antenna Type	:	Internal Antenna
Antenna Gain(Peak)	:	FDD Band 2: -0.2dBi FDD Band 4: -0.39dBi FDD Band 5: -1.53dBi FDD Band 7: 0.23dBi FDD Band 12: 0.32dBi TDD Band 38: 0.86dBi TDD Band 41: 0.86dBi FDD Band 66: -0.39dBi

Remark: 1) All of the RF specification are provided by customer. 2) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.



1.3. Auxiliary Equipment Used During Test

Title	Manufacturer	Model No.	Serial No.
/	/	/	/

1.4. Operation State

Test frequency list:

Band	Frequency (MHz)					
FDD Band 2	Test Frequency ID	Bandwidth [MHz]	N _{UL}	Frequency of Uplink [MHz]	N _{DL}	Frequency of Downlink [MHz]
	Low Range	1.4	18607	1850.7	607	1930.7
		3	18615	1851.5	615	1931.5
		5	18625	1852.5	625	1932.5
		10	18650	1855	650	1935
		15 ⁽¹⁾	18675	1857.5	675	1937.5
		20 ⁽¹⁾	18700	1860	700	1940
	Mid Range	1.4/3/5/10 15 ⁽¹⁾ /20 ⁽¹⁾	18900	1880	900	1960
	High Range	1.4	19193	1909.3	1193	1989.3
		3	19185	1908.5	1185	1988.5
		5	19175	1907.5	1175	1987.5
		10	19150	1905	1150	1985
		15 ⁽¹⁾	19125	1902.5	1125	1982.5
		20 ⁽¹⁾	19100	1900	1100	1980
FDD Band 4	Test Frequency ID	Bandwidth [MHz]	N _{UL}	Frequency of Uplink [MHz]	N _{DL}	Frequency of Downlink [MHz]
	Low Range	1.4	19957	1710.7	1957	2110.7
		3	19965	1711.5	1965	2111.5
		5	19975	1712.5	1975	2112.5
		10	20000	1715	2000	2115
		15	20025	1717.5	2025	2117.5
		20	20050	1720	2050	2120
	Mid Range	1.4/3/5/10/15/20	20175	1732.5	2175	2132.5
	High Range	1.4	20393	1754.3	2393	2154.3
		3	20385	1753.5	2385	2153.5
		5	20375	1752.5	2375	2152.5
		10	20350	1750	2350	2150
		15	20325	1747.5	2325	2147.5
		20	20300	1745	2300	2145
FDD Band 5	Test Frequency ID	Bandwidth [MHz]	N _{UL}	Frequency of Uplink [MHz]	N _{DL}	Frequency of Downlink [MHz]
	Low Range	1.4	20407	824.7	2407	869.7
		3	20415	825.5	2415	870.5
		5	20425	826.5	2425	871.5
		10 ⁽¹⁾	20450	829	2450	874
	Mid Range	1.4/3/5 10 ⁽¹⁾	20525	836.5	2525	881.5
	High Range	1.4	20643	848.3	2643	893.3
		3	20635	847.5	2635	892.5
		5	20625	846.5	2625	891.5
		10 ⁽¹⁾	20600	844	2600	889



FDD Band 7	Test Frequency ID	Bandwidth [MHz]	N _{UL}	Frequency of Uplink [MHz]	N _{DL}	Frequency of Downlink [MHz]
	Low Range	5	20775	2502.5	2775	2622.5
		10	20800	2505	2800	2625
		15	20825	2507.5	2825	2627.5
		20 [1]	20850	2510	2850	2630
	Mid Range	5/10/15	21100	2535	3100	2655
		20 [1]				
	High Range	5	21425	2567.5	3425	2687.5
		10	21400	2565	3400	2685
		15	21375	2562.5	3375	2682.5
		20 [1]	21350	2560	3350	2680

FDD Band 12	Test Frequency ID	Bandwidth [MHz]	N _{UL}	Frequency of Uplink [MHz]	N _{DL}	Frequency of Downlink [MHz]
	Low Range	1.4	23017	699.7	5017	729.7
		3	23025	700.5	5025	730.5
		5 [1]	23035	701.5	5035	731.5
		10 [1]	23060	704	5060	734
	Mid Range	1.4/3	23095	707.5	5095	737.5
		5 [1]/10 [1]				
	High Range	1.4	23173	715.3	5173	745.3
		3	23165	714.5	5165	744.5
		5 [1]	23155	713.5	5155	743.5
		10 [1]	23130	711	5130	741

TDD Band 38	Test Frequency ID	Bandwidth [MHz]	EARFCN	Frequency (UL and DL) [MHz]
	Low Range	5	37775	2572.5
		10	37800	2575
		15	37825	2577.5
		20	37850	2580
	Mid Range	5/10/15/20	38000	2595
	High Range	5	38225	2617.5
		10	38200	2615
		15	38175	2612.5
		20	38150	2610

TDD Band 41	Test Frequency ID	Bandwidth [MHz]	EARFCN	Frequency (UL and DL) [MHz]
	Low Range	5	39675	2498.5
		10	39700	2501
		15	39725	2503.5
		20	39750	2506
	Mid Range	5/10/15/20	40620	2593
	High Range	5	41565	2687.5
		10	41540	2685
		15	41515	2682.5
		20	41490	2680

FDD Band 66	Test Frequency ID	Bandwidth [MHz]	N _{UL}	Frequency of Uplink [MHz]	N _{DL}	Frequency of Downlink [MHz]
	Low Range	1.4	131979	1710.7	66443	2110.7
		3	131987	1711.5	66451	2111.5
		5	131997	1712.5	66461	2112.5
		10	132022	1715	66486	2115
		15	132047	1717.5	66511	2117.5
		20	132072	1720	66536	2120
	Mid Range	1.4/3/5/10/15/20	132197	1732.5	66661	2132.5
	High Range	1.4	132415	1754.3	66879	2154.3
		3	132407	1753.5	66871	2153.5
		5	132397	1752.5	66861	2152.5
		10	132372	1750	66836	2150
		15	132347	1747.5	66811	2147.5
		20	132322	1745	66786	2145



1.5. Environmental Conditions

Temperature range:	21-25°C
Humidity range:	40-75%
Pressure range:	86-106kPa

1.6. Test Equipment List

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	EMI Preamplifier	SKET Electronic	LNPA-0118G-45	SKET-PA-002	Jan. 17, 2024	1 Year
					Jan. 13, 2025	1 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESR26	101481	Jan. 23, 2024	1 Year
					Jan. 14, 2025	1 Year
3.	Double Ridged Horn Antenna	SCHWARZBECK	BBHA 9120D	02555	Oct. 16, 2022	3 Year
4.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	345	Oct. 23, 2022	3 Year
5.	Pre-amplifier	SONOMA	310N	186860	Jan. 17, 2024	1 Year
					Jan. 14, 2025	1 Year
6.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A
7.	MXA Spectrum Analysis	Agilent	N9020A	MY51170037	Sept. 09, 2024	1 Year
8.	MXG RF Vector Signal Generator	Agilent	N5182A	MY48180656	Feb. 04, 2024	1 Year
				MY47420822	Feb. 21, 2025	1 Year
9.	DC Power Supply	LW	TPR-6420D	374470	Oct. 17, 2024	1 Year
10.	Constant Temperature Humidity Chamber	ZHONGJIAN	ZJ-KHWS80B	N/A	Oct. 14, 2024	1 Year
11.	Wideband Radio Communication Tester	Rohde & Schwarz	CMW 500	167336	Feb. 04, 2024	1 Year
					Feb. 21, 2025	1 Year
12.	High-Pass Filter	CDKMV	ZHPF-BM1100-4000-0730	B2015094550	Oct. 17, 2024	1 Year
13.	High-Pass Filter	CDKMV	ZHPF-M3.5-18G-3834	1307006523	Oct. 17, 2024	1 Year
14.	Bilog Broadband Antenna	SCHWARZBECK	VULB 9163	01109	Oct. 16, 2022	3 Year
15.	Double Ridged Horn Antenna	Chengyi Electronics Co., Ltd.	GTH-0118	351600	Nov. 02, 2022	2 Year
					Nov. 01, 2024	2 Year



1.7. Measurement Uncertainty

Parameter	Uncertainty
Occupied Bandwidth	925Hz
Conducted Output Power	0.76dB
Conducted Spurious Emission	1.24dB
Radiated spurious emissions (30MHz~1GHz)	Horizontal: 3.70dB; Vertical: 4.42dB
Radiated spurious emissions (above 1GHz)	1G-6GHz: 4.64dB 6G-18GHz: 4.82dB 18G-40GHz: 5.62dB
The measurement uncertainty and decision risk evaluated according to AB/WI-RF-F-032. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

1.8. Description of Test Facility

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

FCC-Registration No.: 434132

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No. 434132.

ISED-Registration No.: 8058A

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (ISED) Innovation, Science and Economic Development Canada. The acceptance letter from the ISED is maintained in our files. Registration 8058A.

Test Location

Shenzhen Anbotek Compliance Laboratory Limited.

Sogood Industrial Zone Laboratory & 1/F. of Building D, Sogood Science and Technology Park, Sanwei Community, Hangcheng Subdistrict, Bao'an District, Shenzhen, Guangdong, China.



1.9. Disclaimer

1. The test report is invalid if not marked with the signatures of the persons responsible for preparing and approving the test report.
2. The test report is invalid if there is any evidence and/or falsification.
3. The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein.
4. This document may not be altered or revised in any way unless done so by Anbotek and all revisions are duly noted in the revisions section.
5. Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.
6. The authenticity of the information provided by the customer is the responsibility of the customer and the laboratory is not responsible for its authenticity.

The laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant.



2. Summary of Test

2.1. Summary of test result

Description of Test	FCC Rules	Requirements	Result
Conducted Output Power	Part 2.1046 Part 22.913(a) Part 24.232(b) Part 27.50(b) Part 27.50(c) Part 27.50(d) Part 27.50(h)	N/A	Compliance
Peak-Average Ratio	Part 22.913 Part 24.232 Part 27.50	≤13dB	Compliance
Modulation Characteristics	§ 2.1047	Digital modulation	N/A
99% Occupied Bandwidth & 26 dB Bandwidth	Part 2.1049	OBW: No limit EBW: No limit	Compliance
Conducted Spurious Emission	Part 2.1051 Part 22.917 Part 24.238 Part 27.53(g) Part 27.53(h) Part 27.53(m)	≤ -13dBm(LTE Band5) ≤ -13dBm(LTE Band2) ≤ -13dBm(LTE Band12) ≤ -13dBm(LTE Band4,66) ≤ -25dBm(LTE Band7,38,41)	Compliance
Band Edge	Part 2.1051 Part 22.917 Part 24.238 Part 27.53(g) Part 27.53(h) Part 27.53(m)	≤ -13dBm (LTE Band5) ≤ -13dBm (LTE Band2) ≤ -13dBm (LTE Band12) ≤ -13dBm (LTE Band4,66) Refer to clause 8.1 for LTE Band7,38,41)	Compliance
Frequency stability VS. temperature	Part 2.1055(a)(1)(b) Part 22.355 Part 24.235 Part 27.54	≤ ±2.5ppm	Compliance
Frequency stability VS. voltage	Part 2.1055(d)(1)(2) Part 22.355 Part 24.235 Part 27.54	≤ ±2.5ppm	Compliance
ERP and EIRP	Part 2.1046 Part 22.913(a) Part 24.232(c) Part 27.50(c) Part 27.50(d)	ERP≤ 7W(LTE Band 5) EIRP≤ 2W(LTE Band 2) ERP≤ 3W(LTE Band 12) EIRP≤ 1W(LTE Band 4, 66)	Compliance



	Part 27.50(h)	EIRP≤ 2W(LTE Band 7,38,41)	
Radiated Spurious Emission	Part 2.1053		Compliance
	Part 22.917	≤ -13dBm(LTE Band5)	
	Part 24.238	≤ -13dBm(LTE Band2)	
	Part 27.53(g)	≤ -13dBm(LTE Band12)	
	Part 27.53(h)	≤ -13dBm(LTE Band4,66)	
	Part 27.53(m)	≤ -25dBm(LTE Band7,38,41)	

Note:

1. "N/A" is an abbreviation for Not Applicable.
2. Testing was performed by configuring EUT to maximum output power status, the declared output power class for different

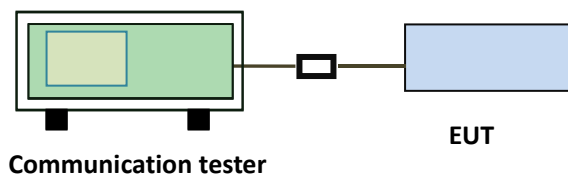


3. Conducted Output Power Test

3.1. Test Standard and Limit

Applicable Standard:	Part 2.1046 Part 22.913(a) Part 24.232(c) Part 27.50(b) Part 27.50(c) Part 27.50(d) Part 27.50(h)
Limit:	N/A

3.2. Test Setup



3.3. Test Procedure

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

3.4. Test Data

Pass

Please refer to FCC ID: XPYUBX22EL01, test report: PSU-NQN2204290110-1RF01, PSU-NQN2204290110-1RF02 and PSU-NQN2204290110-1RF03.

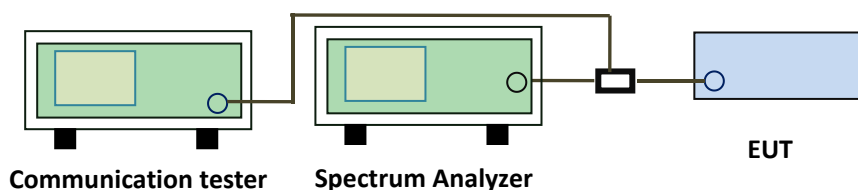


4. Peak-Average Ratio

4.1. Test Standard and Limit

Applicable Standard:	Part 22.913 Part 24.232 Part 27.50
Limit:	≤13dB

4.2. Test Setup



4.3. Test Procedure

According with KDB 971168 D01 Section 5.7:

1. The EUT was connected to the spectrum analyzer and communication tester via a power splitter.
2. Set EUT in maximum power output.
3. Center Frequency = Carrier frequency, RBW > Emission bandwidth of signal.
4. The signal analyzer was set to collect one million samples to generate the CCDF curve.
5. The measurement interval was set depending on the type of signal analyzed.
 - i. For continuous signals (>98% duty cycle), the measurement interval was set to 1ms.
 - ii. For burst transmissions, the spectrum analyzer is set to use an internal "RF Burst" trigger that is synced with an incoming pulse and the measurement interval is set to less than the duration of the "on time" of one burst to ensure that energy is only captured during a time in which the transmitter is operating at maximum power
6. Record the maximum PAPR level associated with a probability of 0.1%.

4.4. Test Data

Pass

Please refer to FCC ID: XPYUBX22EL01, test report: PSU-NQN2204290110-1RF01, PSU-NQN2204290110-1RF02 and PSU-NQN2204290110-1RF03.



5. Modulation Characteristic

According to FCC § 2.1047, Part 22H, Part 24E, Part 27C there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

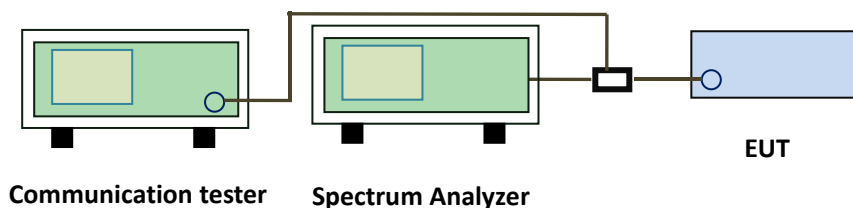


6. 99% Occupied Bandwidth & 26 dB Bandwidth

6.1. Test Standard and Limit

Applicable Standard:	Part 2.1049
Limit:	N/A

6.2. Test Setup



6.3. Test Procedure

1. The EUT was connected to the spectrum analyzer and communication tester via a power splitter.
2. Set EUT in maximum power output.
3. Spectrum analyzer setting as follow:
Center Frequency= Carrier frequency, RBW=1% to 5% of anticipated OBW, VBW= 3 * RBW,
Detector=Peak,
Trace maximum hold.
4. Record the value of 99% Occupied bandwidth and -26dB bandwidth.

6.4. Test Data

Pass

Please refer to FCC ID: XPYUBX22EL01, test report: PSU-NQN2204290110-1RF01, PSU-NQN2204290110-1RF02 and PSU-NQN2204290110-1RF03.

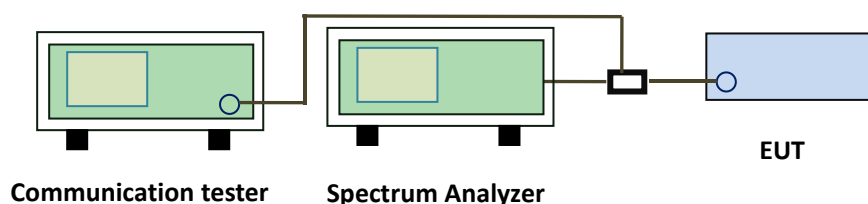


7. Conducted Spurious Emission

7.1. Test Standard and Limit

Applicable Standard:	Part 2.1051 Part 22.917 Part 24.238 Part 27.53(g) Part 27.53(h) Part 27.53(m)
Limit:	$\leq -13\text{dBm}$ (LTE Band 5) $\leq -13\text{dBm}$ (LTE Band 2) $\leq -13\text{dBm}$ (LTE Band 12) $\leq -13\text{dBm}$ (LTE Band 4,66) $\leq -25\text{dBm}$ (LTE Band 7,38,41)

7.2. Test Setup



7.3. Test Procedure

1. The EUT was connected to the spectrum analyzer and communication tester via a power splitter.
2. Set EUT in maximum power output.
3. Spectrum analyzer setting as follow:
Below 1GHz, RBW=100KHz, VBW = 300KHz, Detector=Peak, Sweep time= Auto
Above 1GHz, RBW=1MHz, VBW=3MHz, Detector=Peak, Sweep time= Auto
Scan frequency range up to 10th harmonic.
4. Record the test plot.

7.4. Test Data

Pass

Please refer to FCC ID: XPYUBX22EL01, test report: PSU-NQN2204290110-1RF01, PSU-NQN2204290110-1RF02 and PSU-NQN2204290110-1RF03.

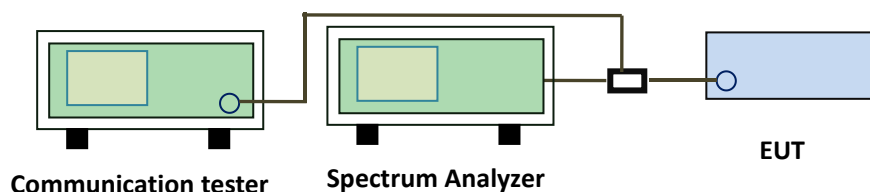


8. Band Edge

8.1. Test Standard and Limit

Applicable Standard:	Part 2.1051 Part 22.917 Part 24.238 Part 27.53(g) Part 27.53(h) Part 27.53(m)
Limit:	$\leq -13\text{dBm}$ (LTE Band 5) $\leq -13\text{dBm}$ (LTE Band 2) $\leq -13\text{dBm}$ (LTE Band 12) $\leq -13\text{dBm}$ (LTE Band 4,66) For LTE Band 7, 38, 41: For mobile digital stations, 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.

8.2. Test Setup



8.3. Test Procedure

1. The EUT was connected to the spectrum analyzer and communication tester via a power splitter.
2. Set EUT in maximum power output.
3. The band edges of low and high channels were measured.
4. Spectrum analyzer setting as follow:
RBW=3KHz, VBW = 10KHz, Sweep time= Auto
5. Record the test plot.



8.4. Test Data

Pass

Please refer to FCC ID: XPYUBX22EL01, test report: PSU-NQN2204290110-1RF01,
PSU-NQN2204290110-1RF02 and PSU-NQN2204290110-1RF03.

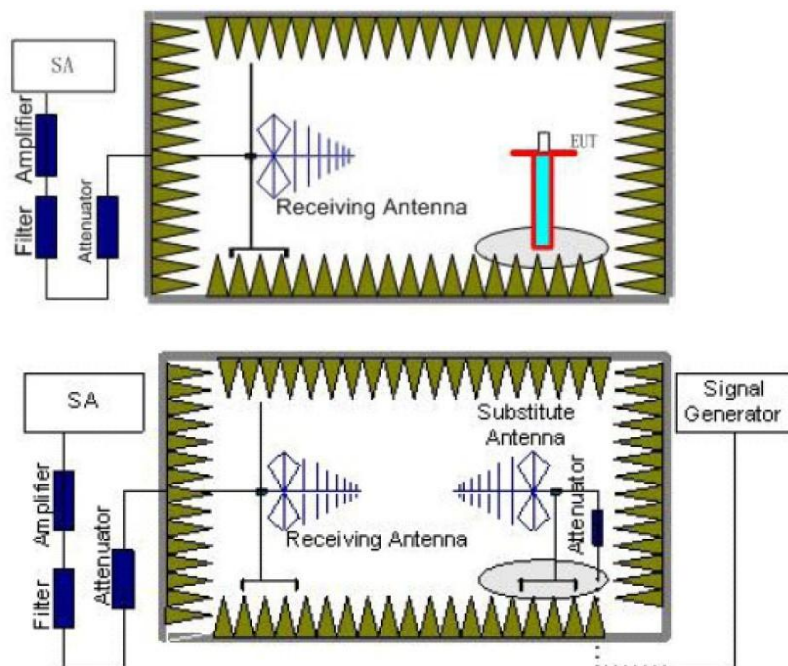


9. Radiated Spurious Emission

9.1. Test Standard and Limit

Applicable Standard:	Part 2.1053 Part 22.917 Part 24.238 Part 27.53(g) Part 27.53(h) Part 27.53(m)
Limit:	$\leq -13\text{dBm}$ (LTE Band 5) $\leq -13\text{dBm}$ (LTE Band 2) $\leq -13\text{dBm}$ (LTE Band 12) $\leq -13\text{dBm}$ (LTE Band 4,66) $\leq -25\text{dBm}$ (LTE Band 7, 38, 41)

9.2. Test Setup



9.3. Test Procedure

- Place the EUT in the center of the turntable.
 - For radiated emissions measurements performed at frequencies less than or equal to 1 GHz, the EUT shall be placed on a RF-transparent table at a nominal height of 80 cm above the reference ground plane
 - For radiated measurements performed at frequencies above 1 GHz, the EUT shall be placed on an RF transparent table at a nominal height of 1.5 m above the ground plane.
- Unless the EUT uses an integral antenna, the EUT shall be terminated with a non-radiating



transmitter load. In cases where the EUT uses an adjustable antenna, the antenna shall be adjusted through typical positions and lengths to maximize emissions levels.

3. The EUT shall be tested while operating on the frequency per manufacturer specification. Set the transmitter to operate in continuous transmit mode.
4. Receiver or Spectrum set as follow:
Below 1GHz, RBW=100kHz, VBW=300kHz, Detector=Peak, Sweep time=Auto
Above 1GHz, RBW=1MHz, VBW=3MHz, Detector=Peck, Sweep time=Auto
5. Each emission under consideration shall be evaluated:
 - a) Raise and lower the measurement antenna from 1 m to 4 m, as necessary to enable detection of the maximum emission amplitude relative to measurement antenna height.
 - b) Rotate the EUT through 360° to determine the maximum emission level relative to the axial position.
 - c) Return the turntable to the azimuth where the highest emission amplitude level was observed.
 - d) Vary the measurement antenna height again through 1 m to 4 m again to find the height associated with the maximum emission amplitude.
 - e) Record the measured emission amplitude level and frequency
6. Repeat step 5 for each emission frequency with the measurement antenna oriented in both the horizontal and vertical polarizations to determine the orientation that gives the maximum emissions amplitude.
7. Set-up the substitution measurement with the reference point of the substitution antenna located as near as possible to where the center of the EUT radiating element was located during the initial EUT measurement.
8. Maintain the previous measurement instrument settings and test set-up, with the exception that the EUT is removed and replaced by the substitution antenna.
9. Connect a signal generator to the substitution antenna; locate the signal generator so as to minimize any potential influences on the measurement results. Set the signal generator to the frequency where emissions are detected, and set an output power level such that the radiated signal can be detected by the measurement instrument, with sufficient dynamic range relative to the noise floor.
10. For each emission that was detected and measured in the initial test
 - a) Vary the measurement antenna height between 1 m to 4 m to maximize the received (measured) signal amplitude.
 - b) Adjust the signal generator output power level until the amplitude detected by the measurement instrument equals the amplitude level of the emission previously measured directly in step 5 and step 6.
 - c) Record the output power level of the signal generator when equivalence is achieved in step b).
11. Repeat step 8 through step 10 with the measurement antenna oriented in the opposite polarization.
12. Calculate the emission power in dBm referenced to a half-wave dipole using the following equation:
$$Pe = Ps(\text{dBm}) - \text{cable loss (dB)} + \text{antenna gain (dBd)}$$

where
Pe = equivalent emission power in dBm
Ps = source (signal generator) power in dBm

NOTE—dBd refers to the measured antenna gain in decibels relative to a half-wave dipole.
13. Correct the antenna gain of the substitution antenna if necessary to reference the emission power to a half-wave dipole. When using measurement antennas with the gain specified in dBi, the equivalent dipole-referenced gain can be determined from:



gain (dBd) = gain (dBi) – 2.15 dB.

If necessary, the antenna gain can be calculated from calibrated antenna factor information

14. Provide the complete measurement results as a part of the test report.

9.4. Test Data

Pass

Please refer to FCC ID: XPYUBX22EL01, test report: PSU-NQN2204290110-1RF01,
PSU-NQN2204290110-1RF02 and PSU-NQN2204290110-1RF03.

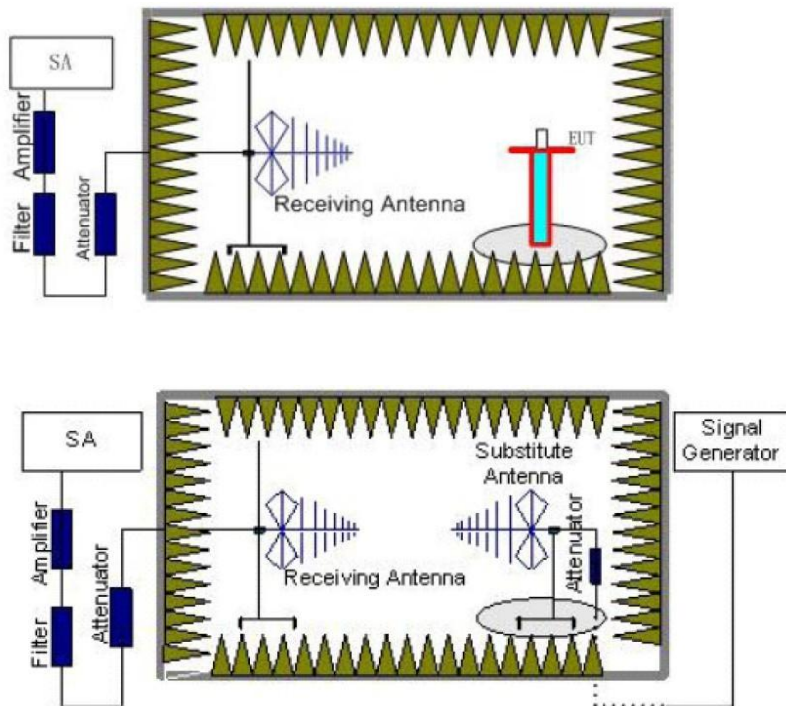


10. ERP and EIRP

10.1. Test Standard and Limit

Applicable Standard:	Part 2.1046 Part 22.913(a) Part 24.232(b) Part 27.50(c) Part 27.50(d) Part 27.50(h)
Limit:	ERP ≤ 7W(38.45dBm) (LTE Band 5) EIRP ≤ 2W(33.00dBm) (LTE Band 2) ERP ≤ 3W(34.77dBm) (LTE Band 12) EIRP ≤ 1W(30.00dBm) (LTE Band 4,66) EIRP ≤ 2W(33.00dBm) (LTE Band 7,38,41)

10.2. Test Setup



10.3. Test Procedure

- Place the EUT in the center of the turntable.
 - For radiated emissions measurements performed at frequencies less than or equal to 1 GHz, the EUT shall be placed on a RF-transparent table at a nominal height of 80 cm above the reference ground plane
 - For radiated measurements performed at frequencies above 1 GHz, the EUT shall be placed on an RF transparent table at a nominal height of 1.5 m above the ground plane.
- Unless the EUT uses an integral antenna, the EUT shall be terminated with a non-radiating



- transmitter load. In cases where the EUT uses an adjustable antenna, the antenna shall be adjusted through typical positions and lengths to maximize emissions levels.
3. The EUT shall be tested while operating on the frequency per manufacturer specification. Set the transmitter to operate in continuous transmit mode.
 4. Receiver or Spectrum set as follow:
Below 1GHz, RBW=100kHz, VBW=300kHz, Detector=Peak, Sweep time=Auto
Above 1GHz, RBW=1MHz, VBW=3MHz, Detector=Peck, Sweep time=Auto
 5. Each emission under consideration shall be evaluated:
 - a) Raise and lower the measurement antenna from 1 m to 4 m, as necessary to enable detection of the maximum emission amplitude relative to measurement antenna height.
 - b) Rotate the EUT through 360° to determine the maximum emission level relative to the axial position.
 - c) Return the turntable to the azimuth where the highest emission amplitude level was observed.
 - d) Vary the measurement antenna height again through 1 m to 4 m again to find the height associated with the maximum emission amplitude.
 - e) Record the measured emission amplitude level and frequency
 6. Repeat step 5 for each emission frequency with the measurement antenna oriented in both the horizontal and vertical polarizations to determine the orientation that gives the maximum emissions amplitude.
 7. Set-up the substitution measurement with the reference point of the substitution antenna located as near as possible to where the center of the EUT radiating element was located during the initial EUT measurement.
 8. Maintain the previous measurement instrument settings and test set-up, with the exception that the EUT is removed and replaced by the substitution antenna.
 9. Connect a signal generator to the substitution antenna; locate the signal generator so as to minimize any potential influences on the measurement results. Set the signal generator to the frequency where emissions are detected, and set an output power level such that the radiated signal can be detected by the measurement instrument, with sufficient dynamic range relative to the noise floor.
 10. For each emission that was detected and measured in the initial test
 - a) Vary the measurement antenna height between 1 m to 4 m to maximize the received (measured) signal amplitude.
 - b) Adjust the signal generator output power level until the amplitude detected by the measurement instrument equals the amplitude level of the emission previously measured directly in step 5 and step 6.
 - c) Record the output power level of the signal generator when equivalence is achieved in step b).
 11. Repeat step 8 through step 10 with the measurement antenna oriented in the opposite polarization.
 12. Calculate the emission power in dBm referenced to a half-wave dipole using the following equation:
$$P_e = P_s(\text{dBm}) - \text{cable loss (dB)} + \text{antenna gain (dBd)}$$

where
 P_e = equivalent emission power in dBm
 P_s = source (signal generator) power in dBm

NOTE—dBd refers to the measured antenna gain in decibels relative to a half-wave dipole.
 13. Correct the antenna gain of the substitution antenna if necessary to reference the emission power to a half-wave dipole. When using measurement antennas with the gain specified in dBi, the



equivalent dipole-referenced gain can be determined from:

gain (dBd) = gain (dBi) – 2.15 dB.

If necessary, the antenna gain can be calculated from calibrated antenna factor information

14. Provide the complete measurement results as a part of the test report.

10.4. Test Data

Pass

Please refer to FCC ID: XPYUBX22EL01, test report: PSU-NQN2204290110-1RF01,
PSU-NQN2204290110-1RF02 and PSU-NQN2204290110-1RF03.

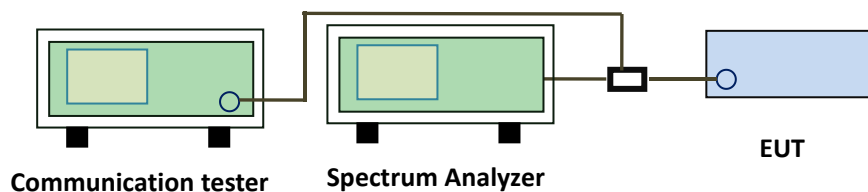


11. Frequency stability VS Voltage measurement

11.1. Test Standard and Limit

Applicable Standard:	Part 2.1055(d)(1)(2) Part 22.355 Part 24.235 Part 27.54
Limit:	$\leq \pm 2.5\text{ppm}$

11.2. Test Setup



11.3. Test Procedure

1. The equipment under test was connected to an external DC power supply and input rated voltage.
2. The EUT output port was connected to communication tester.
3. The EUT was placed inside the temperature chamber at 25°C.
4. The power supply voltage to the EUT was varied $\pm 15\%$ of the nominal value measured at the input to the EUT.
5. Record the maximum frequency change.

11.4. Test Data

Pass

Please refer to FCC ID: XPYUBX22EL01, test report: PSU-NQN2204290110-1RF01, PSU-NQN2204290110-1RF02 and PSU-NQN2204290110-1RF03.

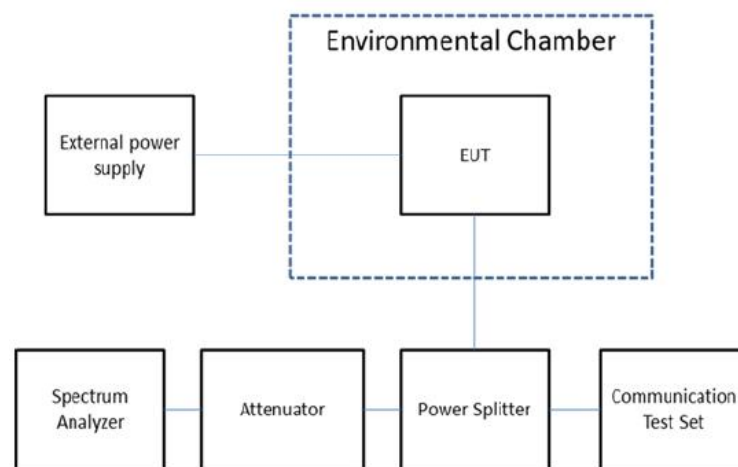


12. Frequency stability VS Temperature measurement

12.1. Test Standard and Limit

Applicable Standard:	Part 2.1055(a)(1)(b) Part 22.355 Part 24.235 Part 27.54
Limit:	$\leq \pm 2.5\text{ppm}$

12.2. Test Setup



12.3. Test Procedure

1. The equipment under test was connected to an external DC power supply and input rated voltage.
2. The EUT output port was connected to communication tester.
3. The EUT was placed inside the temperature chamber.
4. Turn EUT off and set the chamber temperature to -30°C . After the temperature stabilized for approximately 30 minutes recorded the frequency.
5. Repeat step 4 measure with 10°C increased per stage until the highest temperature of $+50^{\circ}\text{C}$ reached.

12.4. Test Data

Pass

Please refer to FCC ID: XPYUBX22EL01, test report: PSU-NQN2204290110-1RF01, PSU-NQN2204290110-1RF02 and PSU-NQN2204290110-1RF03.



APPENDIX I -- TEST SETUP PHOTOGRAPH

Please refer to separated files Appendix I -- Test Setup Photograph_Licensed

APPENDIX II -- EXTERNAL PHOTOGRAPH

Please refer to separated files Appendix II -- External Photograph

APPENDIX III -- INTERNAL PHOTOGRAPH

Please refer to separated files Appendix III -- Internal Photograph

----- End of Report -----

