



Test report No:
NIE: 66136REM.001

Test report

FCC Rules and Regulations CFR 47, Part 15, Subpart B (10-1-19 Edition) & ICES-003 Issue 6 (Updated 2019-04)

(*) Identification of item tested	LTE Wireless module
(*) Trademark	Telit
(*) Model and /or type reference tested	LE910C1-SAX
Other identification of the product	Hardware version: 1.10 Software version: M0F.313002 FCC ID: R17LE910CXSA IC: 5131A-LE910CXSA
(*) Features	GNSS Audio: VoLTE
Manufacturer	Telit Wireless Solutions Co., LTD 13th Fl.,Shinyoung Securities Bld, 6, Gukjegeumyung-ro 8-gil Yeongdeungpo-gu, Seoul, 07330, SOUTH KOREA
Test method requested, standard	FCC CFR 47, Part 15, Subpart B (10-1-19 Edition) & ICES-003 Issue 6 (Updated 2019-04)
Summary	IN COMPLIANCE
Approved by (name / position & signature)	Rafael López Martín EMC Consumer & RF Lab. Manager
Date of issue	2020-11-03
Report template No	FDT08_22 (*) "Data provided by the client"

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Competences and guarantees

DEKRA Testing and Certification is a testing laboratory accredited by the National Accreditation Body (ENAC - Entidad Nacional de Acreditación), to perform the tests indicated in the Certificate No. 51/LE 147.

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DEKRA Testing and Certification guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated on the report and, it is based on the knowledge and technical facilities available at DEKRA Testing and Certification at the time of performance of the test.

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The results presented in this Test Report apply only to the particular item under test established in this document.

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General conditions

1. This report is only referred to the item that has undergone the test.
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4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA Testing and Certification and the Accreditation Bodies.

Uncertainty

Uncertainty (factor $k=2$) was calculated according to the DEKRA Testing and Certification internal document PODT000.

The total uncertainty of the measurement system for the measured radio disturbance characteristics of EUT from 30 MHz to 1000 MHz is $I = \pm 4,9$ dB for quasi-peak measurements, $I = \pm 4,6$ dB for peak measurements ($k = 2$).

The total uncertainty of the measurement system for the measured radio disturbance characteristics of EUT from 1000 MHz to 12.75GHz is $I = \pm 2,6$ dB for peaks and average measurements ($k = 2$).

Data provided by the client

The following data has been provided by the client:

1. Information relating to the description of the sample ("Identification of the item tested", "Trademark", "Model and/or type reference tested").
2. The sample consists of a LTE Wireless module. LTE Cat.1. LTE bands: FDD B2, B4, B12, B66. Data Capability: LTE CAT1 10/5 Mb.

DEKRA declines any responsibility with respect to the information provided by the client and that may affect the validity of results.

Usage of samples

Samples under test have been selected by: The client.

Sample S/01 is composed of the following elements:

Control N°	Description	Model	Serial N°	Date of reception
66136/002	LTE Wireless module	LE910C1-SAX	IMEI: 357661799998321	2020-09-23
66136/015	Antenna	---	---	2020-09-23
66136/016	Antenna	---	---	2020-09-23
66136/019	Antenna	---	---	2020-09-23

Auxiliary elements used with the sample S/01:

Control N°	Description	Model	Serial N°	Date of reception
61863B/010	Test board	---	---	2020-09-23

Test sample description

Ports..... :	Port name and description	Cable					
		Specified max length [m]	Attached during test	Shielded	Coupled to patient ⁽³⁾		
	Main(Primary) port	x	☐	☐	☐		
	Diversity port	x	☐	☐	☐		
	GNSS port	x	☐	☐	☐		
Supplementary information to the ports..... :	SMA type connectors						
Rated power supply 3.4~4.2V, typ 3.8V	Voltage and Frequency		Reference poles				
			L1	L2	L3	N	PE
	☐	AC:	☐	☐	☐	☐	☐
	☒	DC: 3.4~4.2V, typ 3.8V					
Rated Power	0.2W						
Clock frequencies	19.2MHz						
Other parameters.....	--						
Software version	M0F.313002						
Hardware version.....	1.10						
Dimensions in cm (W x H x D)....	28.2 x 28.2 x 2.2mm						
Mounting position.....	☐	Table top equipment					
	☐	Wall/Ceiling mounted equipment					
	☐	Floor standing equipment					
	☐	Hand-held equipment					
	☒	Other: Variable equipment					
Modules/parts	Module/parts of test item		Type	Manufacturer			
	--						
Accessories (not part of the test item)	Description		Type	Manufacturer			
	--						
Documents as provided by the applicant.....	Description		File name	Issue date			
	Hardware_Design_Guide		LE910Cx_Hardware_Design_Guide	2020-07-31			

Copy of marking plate:



Identification of the client

Telit Wireless Solutions Co., LTD
13th Fl.,Shinyoung Securities Bld, 6, Gukjegeumyung-ro 8-gil
Yeongdeungpo-gu, Seoul, 07330, SOUTH KOREA

Testing period and place

Test Location	DEKRA Testing and Certification S.A.U.
Date (start)	2020-09-23
Date (finish)	2020-10-01

Document history

Report number	Date	Description
66136REM.001	2020-11-03	First release

Environmental conditions

In the control chamber, the following limits were not exceeded during the test:

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 30 % Max. = 75 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar

In the semianechoic chamber, the following limits were not exceeded during the test.

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 30 % Max. = 75 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar

In the chamber for conducted measurements, the following limits were not exceeded during the test:

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 30 % Max. = 60 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar

Remarks and comments

The test have been performed by the technical personnel: Lorena Oviedo.

Testing verdicts

Not applicable :	N/A
Pass :	P
Fail :	F
Not measured :	N/M

List of equipment used during the test

Control Number	Description	Model	Manufacturer	Next Calibration
2942	EMI TEST RECEIVER 20Hz-40GHz	ESU40	ROHDE AND SCHWARZ	2021-09-17
4523	EMI TEST RECEIVER 20Hz-26.5GHz	ESU26	ROHDE AND SCHWARZ	2022-05-27
4612	HORN ANTENNA 1-18GHz	BBHA 9120 D	SCHWARZBECK MESS-ELEKTRONIK	2021-06-14
5641	HYBRID BILOG ANTENNA 30MHz-6GHz	3142E	ETS LINDGREN	2021-07-31
6064	SEMIANECHOIC ABSORBER LINED CHAMBER	SAC-3	Frankonia	---
6126	ETHERNET TEMPERATURE AND HUMIDITY LOGGER	HWg-STE	HW GROUP	2021-04-17
6132	ETHERNET TEMPERATURE AND HUMIDITY LOGGER	HWg-STE	HW GROUP	2021-04-20
6195	PRE-AMPLIFIER G>55dB 1-18GHz	AMF-7D-01001800-22-10P	NARDA	2021-05-19
6329	SHIELDED ROOM	---	FRANKONIA	---

Summary

Emission Test		
Requirement – Test case	Verdict	Remark
Radiated emission test (30 MHz – 1000 MHz)	Pass	-
Radiated emission test (1 GHz – 12.75 GHz)	Pass	-
Radiated emission test (12.75 GHz – 26 GHz)	N/A	(1)
Conducted emission test (150 kHz to 30 MHz)	N/A	(2)
<u>Supplementary information and remarks:</u> 1) Range: $f > 12.75$ GHz. Test required only to the 5th harmonics of the maximum internal work frequency in the EUT. 2) This test is not applicable because EUT is powered in DC.		

Appendix A: Test results

Appendix A Content

DESCRIPTION OF THE OPERATION MODES12

RADIATED EMISSION. ELECTROMAGNETIC FIELD MEASURE13

DESCRIPTION OF THE OPERATION MODES

The operation modes described in this paragraph constitute a functionality of the sample under test for itself.

The operation modes used by the samples to which the present report refers, are shown in the following table:

OPERATION MODE	DESCRIPTION
OM#01	EUT ON. MS in IDLE mode. LTE Band 12 (worst case). Power supply: 3.8Vdc

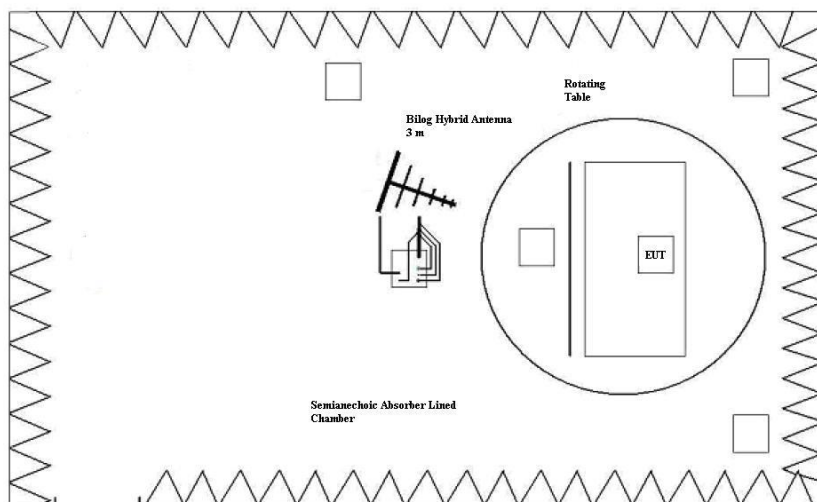
RADIATED EMISSION. ELECTROMAGNETIC FIELD MEASURE

LIMITS:	Product standard:	FCC CFR 47, Part 15, Subpart B (10-1-19 Edition) & ICES-003 Issue 6 (Updated 2019-04)
	Test standard:	FCC CFR 47, Part 15, Subpart B (10-1-19 Edition) & ICES-003 Issue 6 (Updated 2019-04)

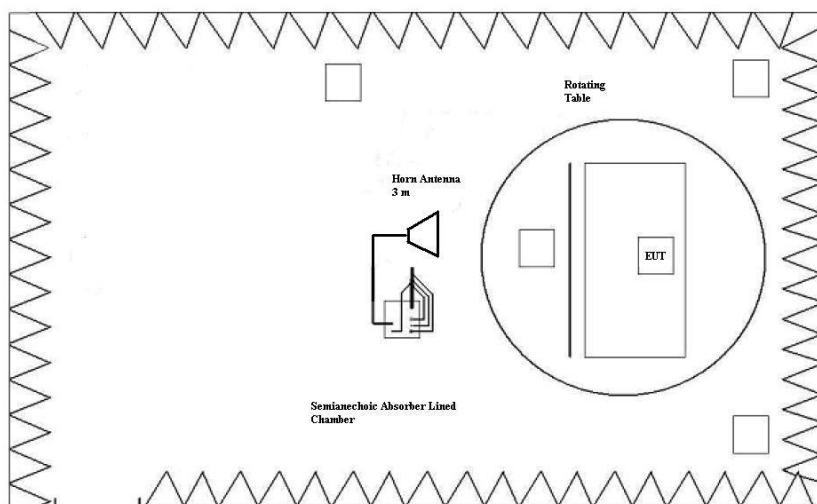
Limits of interference Class B

The applied limit for radiated emissions, 3 m distance, according with the requirements of FCC Rules and Regulations 47 CFR Part 15, Subpart B (10-1-19 Edition), Secs. 15.109 & ICES-003 Issue 6 (Updated 2019-04) in the frequency range 30 MHz to 12.75 GHz for class B equipments.

Frequency range (MHz)	QP Limit for 3 m		PK Limit for 3 m
	($\mu\text{V/m}$)	(dB $\mu\text{V/m}$)	(dB $\mu\text{V/m}$)
30 to 88	100	40	---
88 to 216	150	43.5	---
216 to 960	200	46	---
Above 960	500	54	74



Setup for measurements < 1GHz.



Setup for measurements > 1GHz.

TESTED SAMPLE:	S/01
TESTED OPERATION MODES:	OM#01
TEST RESULTS:	CRmmnnRRPP: CR, Radiated Condition; mm: Sample number; nn: Operation mode; RR: Range; PP: Polarization.

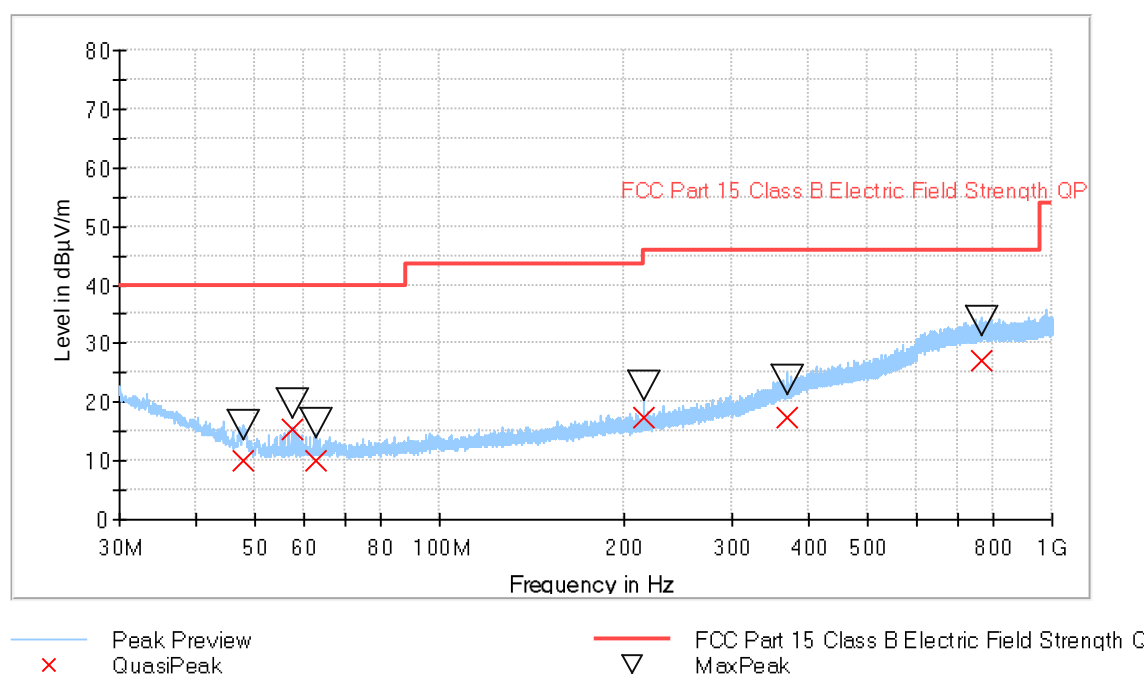
CRmmnnRRPP	Description	Result
CR0101LR	Range: 30 MHz - 1000 MHz.	P
CR0101HR_VP	Range: 1 GHz – 12.75 GHz. Vertical Polarization.	P
CR0101HR_HP	Range: 1 GHz – 12.75 GHz. Horizontal Polarization.	P

Note: Range: $f > 12.75$ GHz. Test required only to the 5th harmonics of the maximum internal work frequency in the EUT.

Radiated Emission. CR0101LR

Project: 66136REM.001
Company: TELIT WIRELESS SOLUTIONS CO., LTD
Sample: S/01
Operation mode: OM#01
Description: EUT ON. MS in IDLE mode. LTE Band 12 (worst case). Power supply: 3.8Vdc

RE FCC Part 15 Class B



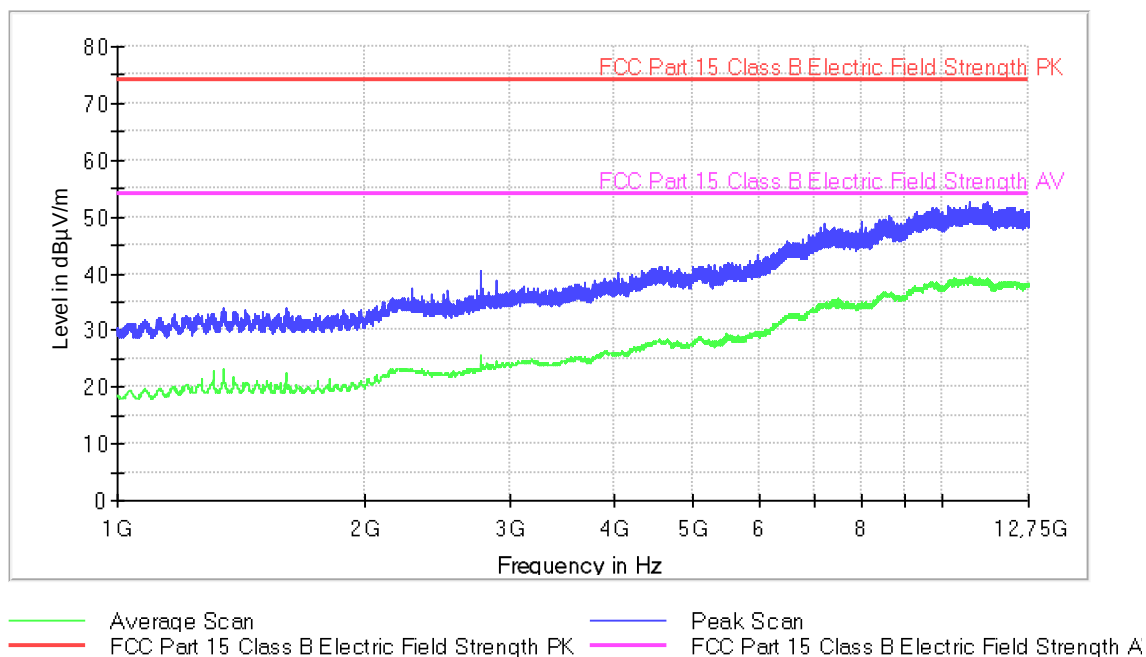
Maximizations

Frequency (MHz)	QuasiPeak (dBµV/m)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
47.750000	10.13	16.13	40.00	29.87	121.0	V	158.0
57.285000	15.48	19.82	40.00	24.52	285.0	H	-101.0
62.966000	10.21	16.29	40.00	29.79	267.0	H	-14.0
215.989000	17.36	22.71	43.52	26.16	283.0	H	169.0
368.159000	17.47	23.83	46.00	28.53	247.0	V	0.0
764.790000	27.17	33.66	46.00	18.83	102.0	H	-171.0

Radiated Emission. CR0101HR_VP

Project: 66136REM.001
Company: TELIT WIRELESS SOLUTIONS CO., LTD
Sample: S/01
Operation mode: OM#01
Description: EUT ON. MS in IDLE mode. LTE Band 12 (worst case). Power supply: 3.8Vdc.
Vertical polarization

RE FCC Part 15 Class B



Subrange Maxima

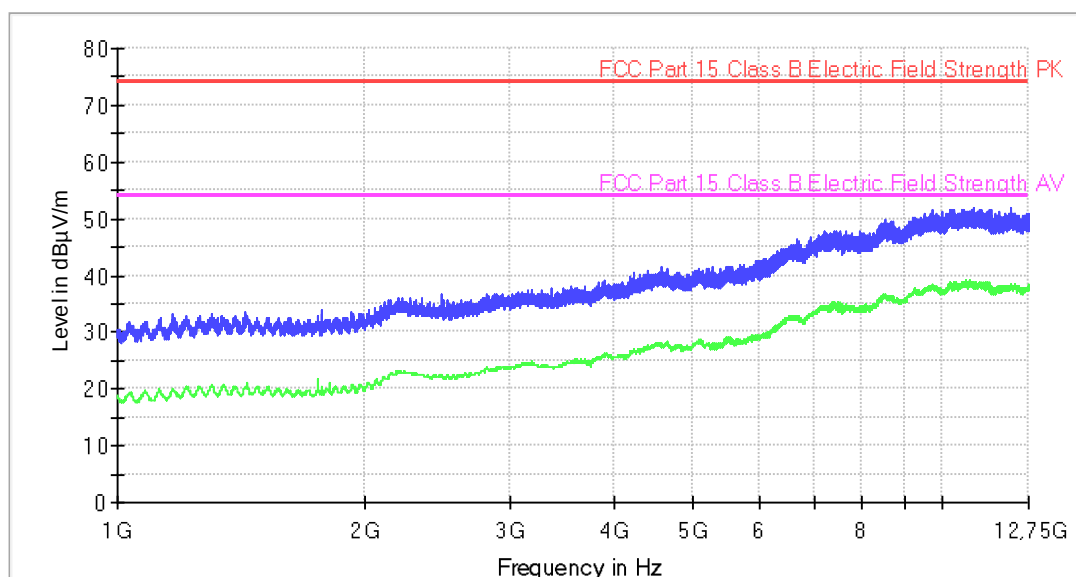
Frequency (MHz)	PK+ CLRWR (dBμV/m)	AVG CLRWR (dBμV/m)
2159.600000	35.8	23.2
2760.400000	40.6	24.3
4494.000000	41.0	28.1
5579.200000	42.0	28.9
6773.200000	46.0	32.1
8007.200000	49.1	34.7
8642.800000	50.1	36.4
10206.400000	52.0	38.6
10833.600000	52.8	39.2
12270.000000	51.8	38.2

Radiated Emission. CR0101HR_HP

Project: 66136REM.001
Company: TELIT WIRELESS SOLUTIONS CO., LTD
Sample: S/01
Operation mode: OM#01
Description: EUT ON. MS in IDLE mode. LTE Band 12 (worst case). Power supply: 3.8Vdc.
Horizontal polarization.

RE FCC Part 15 Class B

RE FCC Part 15 ClassB 1-12,75 GHz



— Average Scan — Peak Scan
— FCC Part 15 Class B Electric Field Strength PK — FCC Part 15 Class B Electric Field Strength AV

Subrange Maxima

Frequency (MHz)	PK+ CLRWR (dBµV/m)	AVG CLRWR (dBµV/m)
2129.200000	35.7	22.0
3182.800000	37.5	24.7
4390.400000	40.8	27.4
5680.400000	41.9	28.4
6664.400000	46.3	32.6
7416.400000	47.9	34.7
9209.200000	50.2	36.9
9718.800000	51.8	38.3
10905.200000	52.0	38.2
12130.800000	52.1	38.1