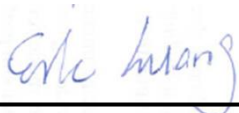


RF Exposure Evaluation Report

APPLICANT : Telit Wireless Solutions
EQUIPMENT : H24 NA DB/2100
BRAND NAME : Telit
MODEL NAME : KL1
FCC ID : RI7T56KL1
STANDARD : 47 CFR Part 2.1091

The product was installed into this GNSS device (Brand Name: ALTUS, Model Name: APS-NR2) during evaluation.

We, SPORTON INTERNATIONAL INC., would like to declare that the device has been evaluated in accordance with 47 CFR Part 2.1091, and pass the limit. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.



Reviewed by: Eric Huang / Deputy Manager



Approved by: Jones Tsai / Manager



SPORTON INTERNATIONAL INC.

No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.



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Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA471554	Rev. 01	Initial issue of report	Oct. 28, 2014
FA471554	Rev. 02	Revised Tune-up limit and re-calculated.	Nov. 25, 2014



1. Administration Data

1.1. Testing Laboratory

Testing Laboratory	
Test Site	SPORTON INTERNATIONAL INC.
Test Site Location	No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978

Applicant	
Company Name	Telit Wireless Solutions
Address	Via Stazione di Prosecco, 5/B, I-34010 Sgonico, Italy

Manufacturer	
Company Name	Telit Wireless Solutions
Address	Via Stazione di Prosecco, 5/B, I-34010 Sgonico, Italy

2. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	H24 NA DB/2100
Brand Name	Telit
Model Name	KL1
FCC ID	RI7T56KL1
Wireless Technology and Frequency Range	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8 MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz
Mode	<ul style="list-style-type: none">• GSM/GPRS/EGPRS• RMC 12.2Kbps Rel 99• HSDPA Rel 7, Cat14• HSUPA Rel 6, Cat6

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.



3. Maximum RF average output power among production units

Mode	GSM 850	GSM 1900
	Burst Average power(dBm)	
GSM (GMSK, 1 Tx slot)	34.0	31.0
GPRS/EDGE (GMSK, 1 Tx slot)	34.0	31.0
GPRS/EDGE (GMSK, 2 Tx slots)	34.0	31.0
GPRS/EDGE (GMSK, 3 Tx slots)	34.0	31.0
GPRS/EDGE (GMSK, 4 Tx slots)	34.0	31.0
EDGE (8PSK, 1 Tx slot)	28.0	27.0
EDGE (8PSK, 2 Tx slots)	28.0	27.0
EDGE (8PSK, 3 Tx slots)	28.0	27.0
EDGE (8PSK, 4 Tx slots)	28.0	27.0

Mode	WCDMA Band V	WCDMA Band II
	Average power(dBm)	
RMC 12.2Kbps	24.5	24.5
HSDPA Subtest-1	24.5	24.5
HSUPA Subtest-5	24.5	24.5



4. RF Exposure Limit Introduction

According to ANSI/IEEE C95.1-1992, the criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio frequency (RF) radiation as specified in §1.1310.

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f ²)	6
30-300	61.4	0.163	1.0	6
300-1500			f/300	6
1500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f ²)	30
30-300	27.5	0.073	0.2	30
300-1500			f/1500	30
1500-100,000			1.0	30

The MPE was calculated at 20 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

$$S = \frac{PG}{4\pi R^2}$$

Where:

S = Power Density

P = Output Power at Antenna Terminals

G = Gain of Transmit Antenna (linear gain)

R = Distance from Transmitting Antenna



5. Radio Frequency Radiation Exposure Evaluation

5.1. Power Density Calculation

Band	Frequency (MHz)	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Maximum EIRP (W)	Average EIRP (mW)	Power Density at 20cm (mW/cm ²)	Limit (mW/cm ²)	Power Density / Limit
GSM850 (4 Tx slots)	824.2	-1.80	34.00	32.200	1.660	831.764	0.166	0.549	0.301
GSM1900 (4 Tx slots)	1850.2	1.20	31.00	32.200	1.660	831.764	0.166	1.000	0.166
WCDMA Band 5	826.4	-1.80	24.50	22.700	0.186	186.209	0.037	0.551	0.067
WCDMA Band 2	1852.4	1.20	24.50	25.700	0.372	371.535	0.074	1.000	0.074

5.2. Co-location Analysis

WLAN Power Density / Limit	Bluetooth Power Density / Limit	GSM850 (4 TX slots) Power Density / Limit	Σ (Power Density / Limit) of WWAN+WLAN+Bluetooth
0.017731	0.003379	0.301	0.32211

Note:

1. The WLAN module, LS Research, LLC, model name: TiWi-R1, FCC ID: TFB-TIWI1-01 is also integrated in to this host, and the power density calculation results were referred to report no.: #310117, and also use perform co-location analysis.
2. For colocation analysis, GSM850 (4Tx slots) is chosen for summation due to the highest (power density/limit) among all WWAN wireless modes.
3. Σ(Power Density / Limit): This is a summation of [(power density for each transmitter/antenna included in the simultaneous transmission)/ (corresponding MPE limit)], for WWAN + WLAN + Bluetooth.
4. Considering the WWAN module collocation with the WLAN and Bluetooth transmitter of the EIRP performance listed in the table above, the aggregated (power density /limit) is smaller than 1, and MPE of 3 collocated transmitters is compliant

Conclusion:

According to 47 CFR §2.1091, the RF exposure analysis concludes that the RF Exposure is FCC compliant.