



Co-location Report

FCC ID: 2ATHQZL1
IC: 25141-ZL1
APPLICANT: Zoleo Incorporated

Application Type: Certification
Product: Global Satellite Communicator
Model No.: ZL1000
Brand Name: Zoleo
FCC Classification: Digital Transmission System (DTS)
Licensed Non-Broadcast Transmitter Worn on Body (TNT)
Test Date: July 24, 2019

Reviewed By:

Jame Yuan

(Jame Yuan)

Approved By:

Robin Wu

(Robin Wu)



The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.4-2013. Test results reported herein relate only to the item(s) tested.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

Revision History

Report No.	Version	Description	Issue Date	Note
1907RSU001-U3	Rev. 01	Initial Report	09-13-2019	Valid

1. Radiated Emissions for Co-located

1.1. Test Limit

FCC Part 15.209:

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR must not exceed the limits shown in Table per Section 15.209.

FCC Part 15.209		
Frequency (MHz)	Field Strength ($\mu\text{V/m}$)	Measured Distance (m)
0.009 - 0.490	2400/F (kHz)	300
0.490 - 1.705	24000/F (kHz)	30
1.705 - 30	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

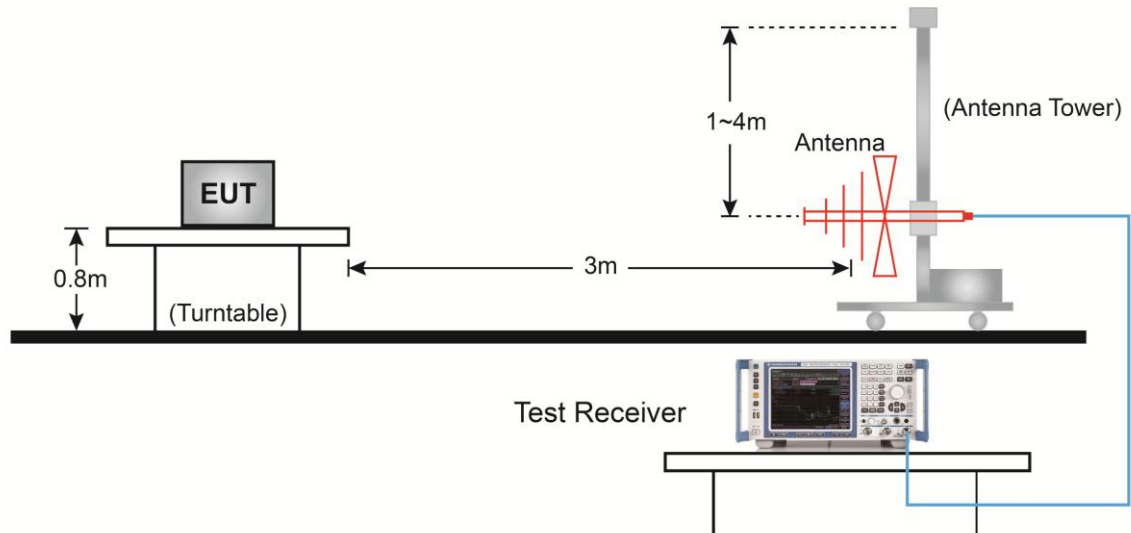
FCC Part 25.202(f):

(3) In any 4kHz band, the center frequency of which is removed from the assigned frequency by more than 250 percent of the authorized bandwidth: An amount equal to 43dB plus 10 times the logarithm (to the base 10) of the transmitter power in watts. The emission limit equal to -13dBm.

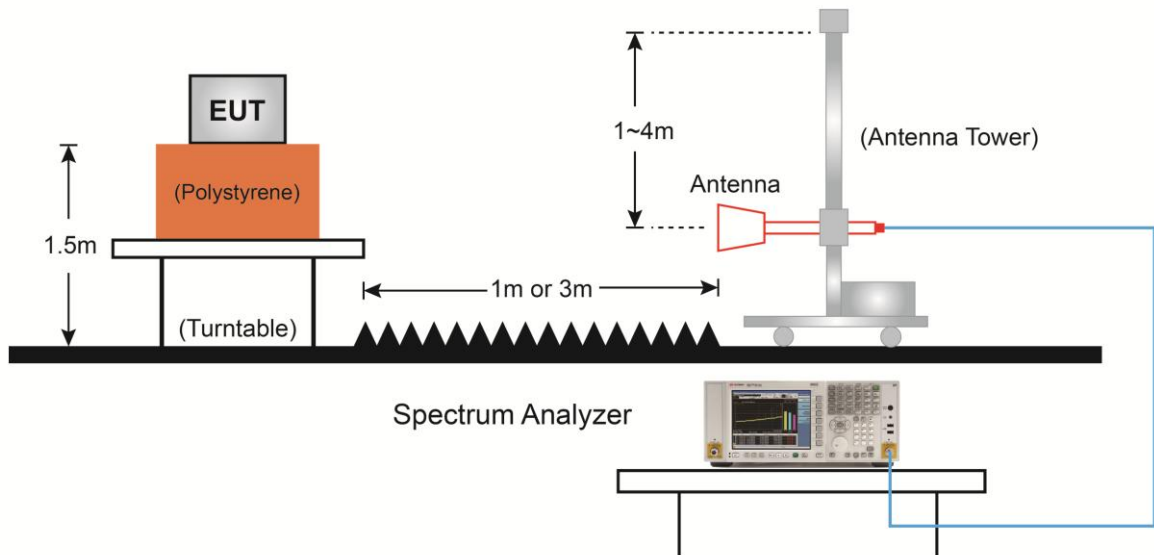
Limit (dBm)	Equivalent Field Strength Limit at 3m (dBuV/m)
-13	82.2

1.2. Test Setup

Below 1GHz Test Setup:

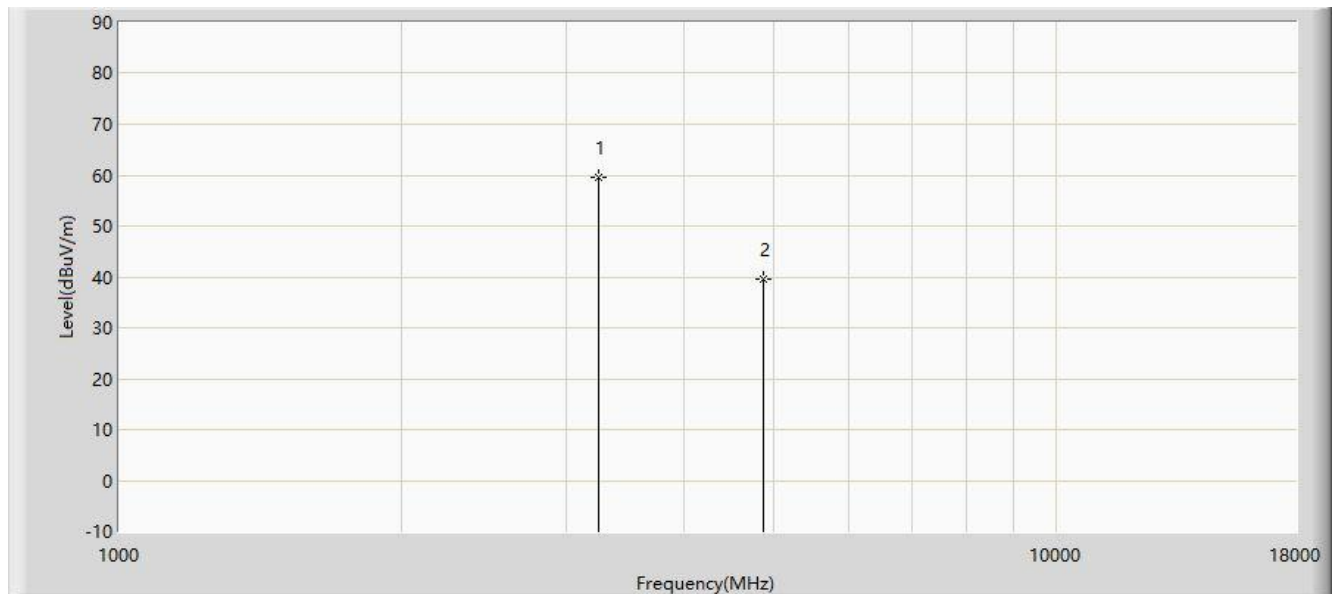


Above 1GHz Test Setup:



1.3. Test Result of Radiated Emissions for Co-located

Test Mode:	BLE Transmit + Satellite Transmit	Test Site:	AC2
Test Engineer:	Bruce Wang	Polarity:	Horizontal
Remark:	There is the ambient noise within frequency range 9kHz~1GHz and 18GHz~40GHz, the permissible value is not show in the report.		



No	Mark	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Constant Factor (dB)	Final Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Type
1		3244.000	61.239	-1.699	59.540	-23.979	35.561	82.200	-46.639	PK
2	*	4859.000	36.248	3.438	39.686	N/A	39.686	74.000	-34.314	PK

Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

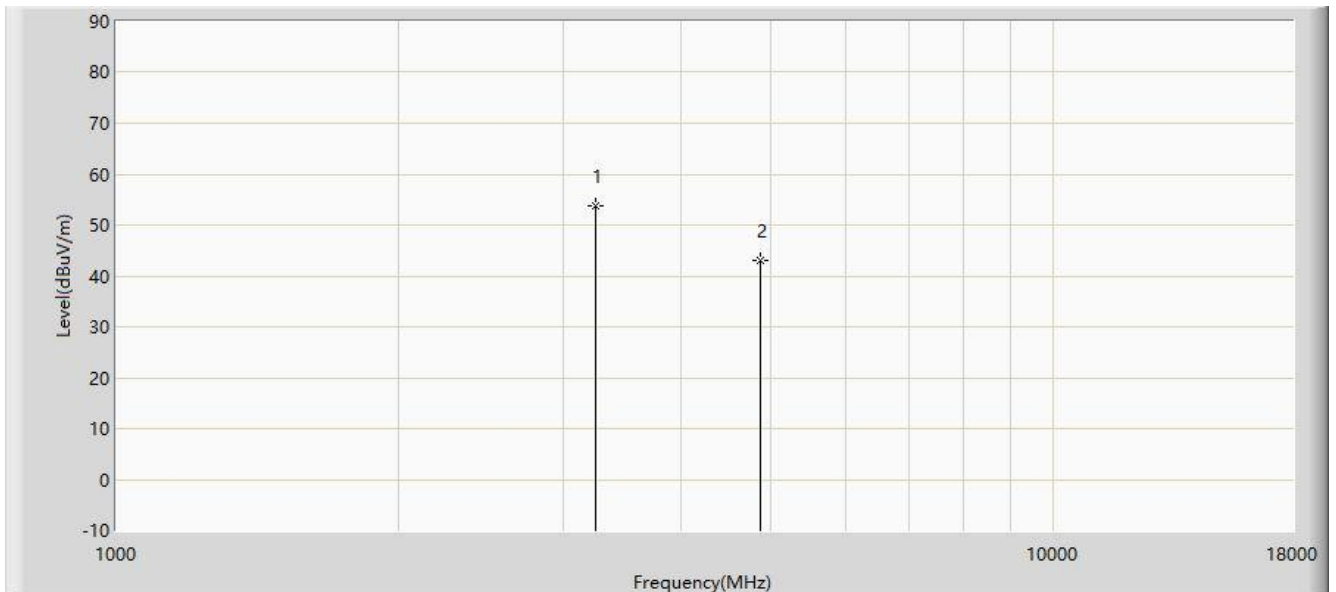
Note 2: We selected the worst-case mode of radiated spurious emissions in the DTS and TNT reports.

Test Mode: BLE Channel 2402MHz & Satellite Channel 1621.020833MHz

Note 3: For point 1: Final Measure Level = Measure Level + Constant Factor.

Constant factor: $10 \cdot \log(4\text{kHz} / 1\text{MHz}) = -23.979$.

Test Mode:	BLE Transmit + Satellite Transmit	Test Site:	AC2
Test Engineer:	Bruce Wang	Polarity:	Vertical
Remark:	There is the ambient noise within frequency range 9kHz~1GHz and 18GHz~40GHz, the permissible value is not show in the report.		



No	Mark	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Constant Factor (dB)	Final Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Type
1		3244.000	55.432	-1.699	53.733	-23.979	29.754	82.200	-52.446	PK
2	*	4859.000	39.726	3.438	43.164	N/A	43.164	74.000	-30.836	PK

Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

Note 2: We selected the worst-case mode of radiated spurious emissions in the DTS and TNT reports.

Test Mode: BLE Channel 2402MHz & Satellite Channel 1621.020833MHz

Note 3: For point 1: Final Measure Level = Measure Level + Constant Factor.

Constant factor: $10 \cdot \log(4\text{kHz} / 1\text{MHz}) = -23.979$.

The End

Appendix A - Test Setup Photograph

Refer to “1907RSU001-UT” file.

Appendix B - EUT Photograph

Refer to "1907RSU001-UE" file.