Co-location Report

FCC ID:	2AUBBFL60P-E
APPLICANT:	China Starwin Science & Technology Co., Ltd
Application Type:	Certification
Product:	Flat Panel Integrated Satellite Communication Terminal
Model No.:	FL60P-E
Serial Model No.:	FL60P-M, FL60F-M
Brand Name:	StarWin
FCC Classification:	Digital Transmission System (DTS) Licensed Non-Broadcast Station Transmitter (TNB)
Test Date:	August 13, 2019

Reviewed By: (Jame Yuan)

Approved By: (Robin Wu)

ACCREDITED
TESTING LABORATORY
CERTIFICATE #3628.01

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
1907RSU030-U4	Rev. 01	Initial Report	09-10-2019	Valid

1. Radiated Emissions for Co-located

1.1. Test Limit

FCC Part15.209:

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 (μV/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

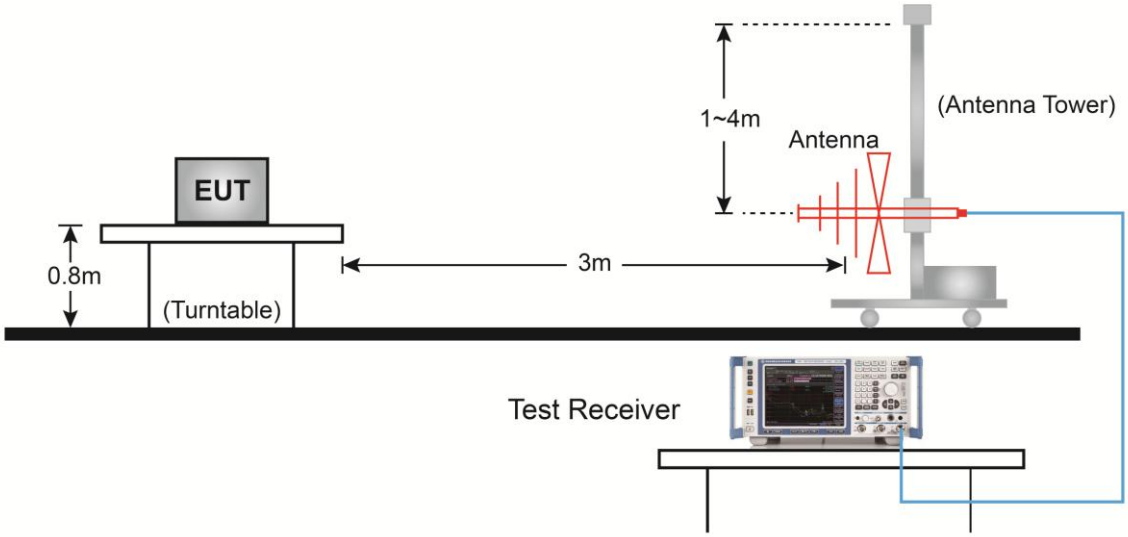
FCC Part 25.202(f):

(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.

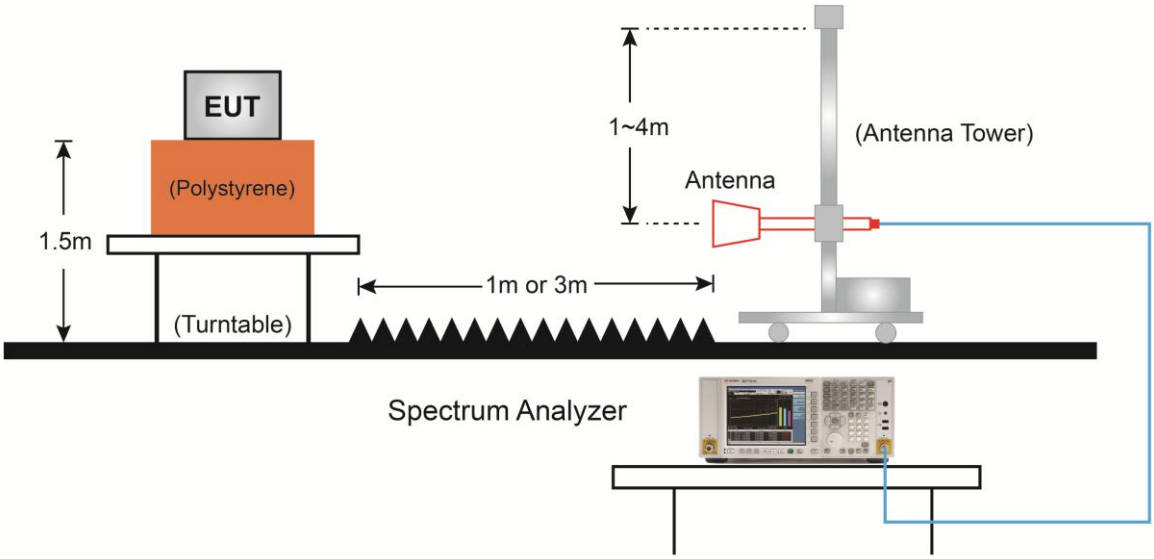
Limit (dBm)	Equivalent Field Strength Limit at 3m (dBuV/m)
-13	82.2

1.2. Test Setup

Below 1GHz Test Setup:

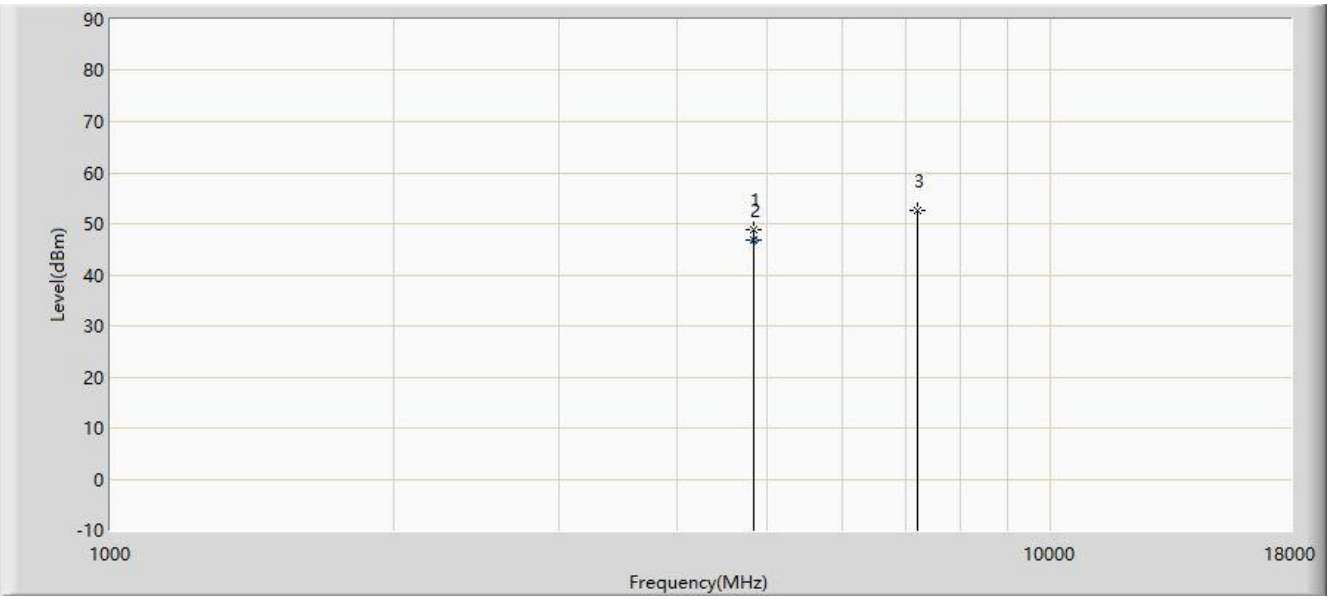


Above 1GHz Test Setup:



1.3. Test Result of Radiated Emissions for Co-located

Test Mode	BLE Transmit & 2.4G Wi-Fi Transmit & Satellite Transmit	Test Site	AC1
Test Engineer	Bruce Wang	Polarity	Horizontal
Remark	There is the ambient noise within frequency range 9kHz~1GHz and 40GHz~75GHz, the permissible value is not show in the report.		



No	Flag	Mark	Frequency (MHz)	Measure Level (dBm)	Reading Level (dBm)	Margin (dB)	Limit (dBm)	Factor (dB)	Type
1			4824.000	48.711	43.200	-25.289	74.000	5.511	PK
2			4824.000	46.711	41.200	-7.289	54.000	5.511	AV
3			7206.000	52.629	41.000	-15.571	68.200	11.629	PK

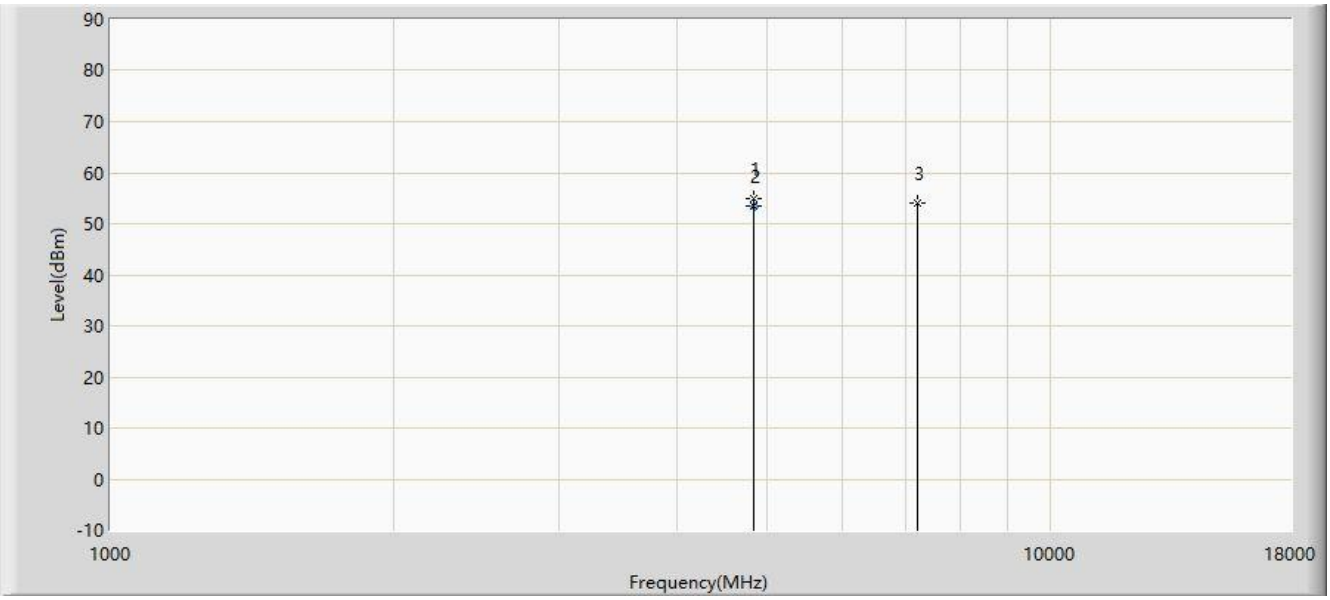
Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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 TNB reports.

Test Mode: BLE Channel 2402MHz (1Mbps) & 2.4G Wi-Fi Channel 2412MHz (802.11b), Ku-Band Satellite Channel 14250MHz (7/8 OQPSK, 5000kbps)

Test Mode	BLE Transmit & 2.4G Wi-Fi Transmit & Satellite Transmit	Test Site	AC1
Test Engineer	Bruce Wang	Polarity	Vertical
Remark	There is the ambient noise within frequency range 9kHz~1GHz and 40GHz~75GHz, the permissible value is not show in the report.		



No	Flag	Mark	Frequency (MHz)	Measure Level (dBm)	Reading Level (dBm)	Margin (dB)	Limit (dBm)	Factor (dB)	Type
1			4824.000	55.036	49.525	-18.964	74.000	5.511	PK
2			4824.000	53.611	48.100	-0.389	54.000	5.511	AV
3			7206.000	54.129	42.500	-14.071	68.200	11.629	PK

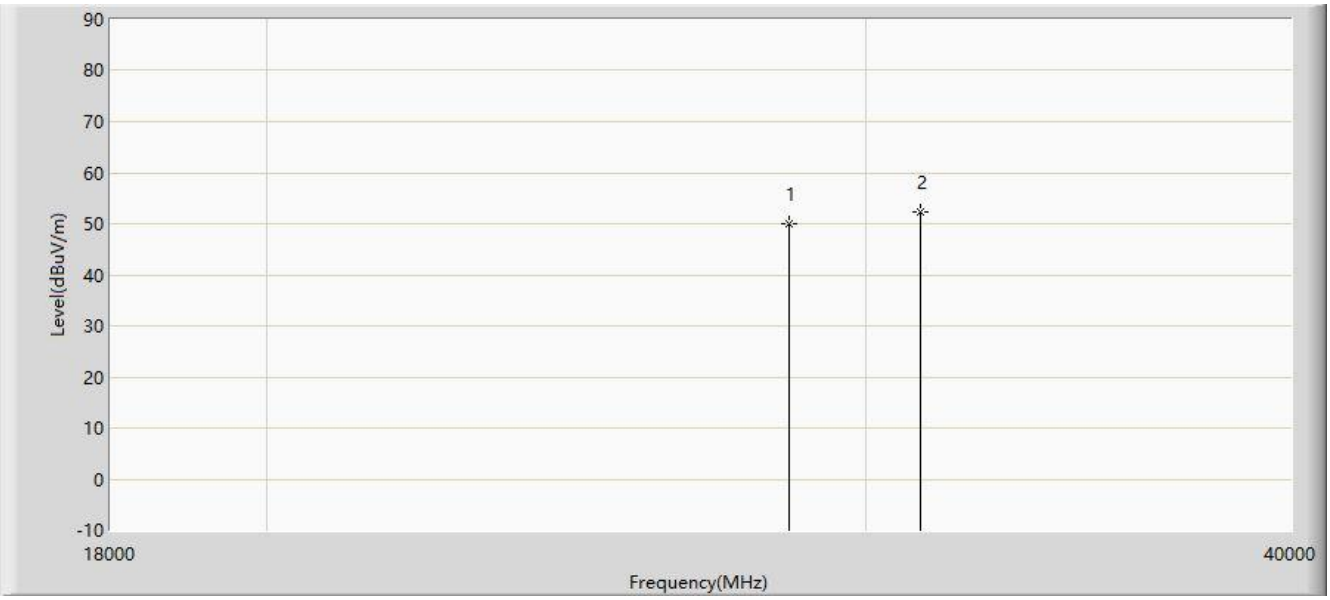
Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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 TNB reports.

Test Mode: BLE Channel 2402MHz (1Mbps) & 2.4G Wi-Fi Channel 2412MHz (802.11b), Ku-Band Satellite Channel 14250MHz (7/8 OQPSK, 5000kbps)

Test Mode	BLE Transmit & 2.4G Wi-Fi Transmit & Satellite Transmit	Test Site	AC1
Test Engineer	Bruce Wang	Polarity	Horizontal
Remark	There is the ambient noise within frequency range 9kHz~1GHz and 40GHz~75GHz, the permissible value is not show in the report.		



No	Flag	Mark	Frequency (MHz)	Measure Level (dBm)	Reading Level (dBm)	Margin (dB)	Limit (dBm)	Factor (dB)	Type
1			28500.000	49.993	36.578	-32.207	82.200	13.415	PK
2			31123.000	52.293	37.638	-21.707	74.000	14.655	PK

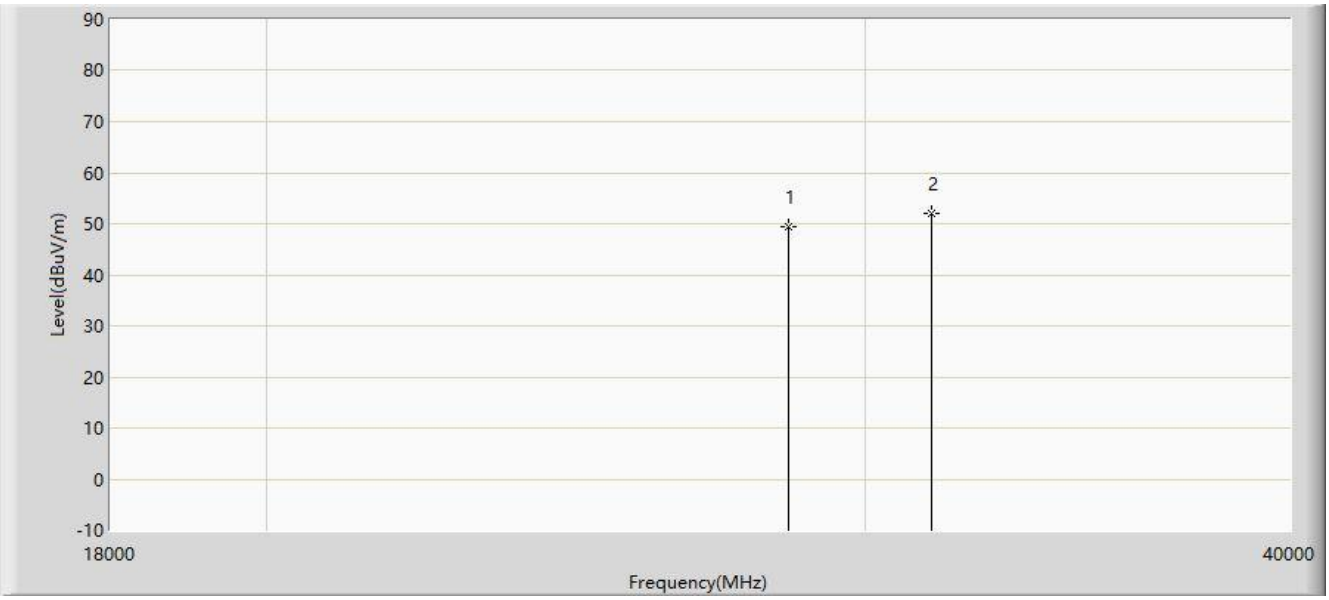
Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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 TNB reports.

Test Mode: BLE Channel 2402MHz (1Mbps) & 2.4G Wi-Fi Channel 2412MHz (802.11b), Ku-Band Satellite Channel 14250MHz (7/8 OQPSK, 5000kbps)

Test Mode	BLE Transmit & 2.4G Wi-Fi Transmit & Satellite Transmit	Test Site	AC1
Test Engineer	Bruce Wang	Polarity	Vertical
Remark	There is the ambient noise within frequency range 9kHz~1GHz and 40GHz~75GHz, the permissible value is not show in the report.		



No	Flag	Mark	Frequency (MHz)	Measure Level (dBm)	Reading Level (dBm)	Margin (dB)	Limit (dBm)	Factor (dB)	Type
1			28500.000	49.286	35.871	-32.914	82.200	13.415	PK
2			31376.000	52.150	38.134	-21.850	74.000	14.016	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 TNB reports.

Test Mode: BLE Channel 2402MHz (1Mbps) & 2.4G Wi-Fi Channel 2412MHz (802.11b), Ku-Band Satellite Channel 14250MHz (7/8 OQPSK, 5000kbps)

The End

Appendix A - Test Setup Photograph

Refer to “1907RSU030-UT” file.

Appendix B - EUT Photograph

Refer to “1907RSU030-UE” file.