

Report No. : FR630231AL

FCC Test Report

Equipment : 1T1R 11n Wireless LAN with Bluetooth USB Adapter

Brand Name : EDIMAX

Model No. : EW-7611ULB

FCC ID : NDD9576111602

Standard : 47 CFR FCC Part 15.247

Frequency : 2400 MHz – 2483.5 MHz

FCC Classification : DTS

Function : | Point-to-multipoint; | Point-to-point

Applicant : EDIMAX TECHNOLOGY CO., LTD.

Manufacturer No.3, Wu-Chuan 3rd Road, Wu-Ku Industrial Park,

New Taipei City, Taiwan

The product sample received on May 11, 2016 and completely tested on May 27, 2016. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by:

Kevin Liang / Assistant Manager

Testing Laboratory 1190

SPORTON INTERNATIONAL INC. Page No. : 1 of 27
TEL: 886-3-327-3456 Report Version : Rev. 01



FCC Test Report

Table of Contents

1	GENERAL DESCRIPTION	5
1.1	Information	5
1.2	Testing Applied Standards	
1.3	Testing Location Information	
1.4	Measurement Uncertainty	
2	TEST CONFIGURATION OF EUT	g
2.1	The Worst Case Modulation Configuration	g
2.2	Test Channel Mode	
2.3	The Worst Case Measurement Configuration	10
2.4	Accessories and Support Equipment	
2.5	Test Setup Diagram	
3	TRANSMITTER TEST RESULT	13
3.1	AC Power-line Conducted Emissions	13
3.2	DTS Bandwidth	15
3.3	Fundamental Emission Output Power	16
3.4	Power Spectral Density	
3.5	Transmitter Radiated Bandedge Emissions	
3.6	Transmitter Radiated Unwanted Emissions	
4	TEST EQUIPMENT AND CALIBRATION DATA	27

Appendix I. Test Result of AC Power-line Conducted Emissions

Appendix A. Test Result of Emission Bandwidth

Appendix B. Test Result of Maximum Conducted Output Power

Appendix C. Test Result of Power Spectral Density

Appendix D. Test Result of Transmitter Radiated Bandedge Emissions

Appendix E. Transmitter Radiated Unwanted Emissions

Appendix F. Test Photos

Appendix G. Photographs of EUT

Report No.: FR630231AL

Summary of Test Result

Report No.: FR630231AL

	Conformance Test Specifications									
Report Clause	Ref. Std. Clause	Description	Description Measured							
1.1.2	15.203	Antenna Requirement	Antenna connector mechanism complied	FCC 15.203	Complied					
3.1	Conducted Emissions 48.86 (M		[dBuV]: 0.1894380MHz 48.86 (Margin 15.20dB) – QP 39.19 (Margin 14.87dB) - AV	FCC 15.207	Complied					
3.2	15.247(a)	DTS Bandwidth	Refer as Appendix A	≥500kHz	Complied					
3.3	3.3 15.247(b) Fundamental Emission Output Power		Refer as Appendix B	Power [dBm]:30	Complied					
3.4	15.247(e)	Power Spectral Density	Refer as Appendix C	PSD [dBm/3kHz]:8	Complied					
3.5	Transmitter Radiated 2540.3 Bandedge Emissions Restri [dBuV 61.07 [dBuV		Non-Restricted Bands: 2540.32 MHz: 46.18 dB Restricted Bands [dBuV/m at 3m]: 2484.00MHz 61.07 (Margin 12.93 dB) – PK [dBuV/m at 3m]: 2485.92MHz 46.95 (Margin 7.05dB) - AV	Non-Restricted Bands:> 20 dBc Bands: FCC 15.209	Complied					
3.6	3.6 15.247(d) Transmitter Radiated Unwanted Emissions		Restricted Bands [dBuV/m at 3m]: 598.420 MHz 40.45 (Margin 5.55dB) - PK	Non-Restricted Bands:> 20 dBc Restricted Bands: FCC 15.209	Complied					

SPORTON INTERNATIONAL INC. Page No. : 3 of 27
TEL: 886-3-327-3456 Report Version : Rev. 01



Revision History

Report No.: FR630231AL

Report No.	Version	Description	Issued Date
FR630231AL	Rev. 01	Initial issue of report	Jun. 16, 2016

SPORTON INTERNATIONAL INC. Page No. : 4 of 27 TEL: 886-3-327-3456 Report Version : Rev. 01

1 General Description

1.1 Information

1.1.1 RF General Information

Band	Mode	BWch (MHz)	BWch (MHz) Nss-Min	
2.4G	BT-LE	1	1	1

Report No.: FR630231AL

Note:

- 2.4G is the 2.4GHz Band (2.4-2.4835GHz).
- Bluetooth LE (Low Energy) using GFSK modulation for DTS digital modulation.
- BWch is the nominal channel bandwidth.
- Nss-Min is the minimum number of spatial streams.
- Nant is the number of outputs.

1.1.2 Antenna Information

		Antenna Category							
\boxtimes	Inte	Integral antenna (antenna permanently attached)							
		Temporary RF connector provided							
	\boxtimes	No temporary RF connector provided Transmit chains bypass antenna and soldered temporary RF connector provided for connected measurement. In case of conducted measurements the transmitter shall be connected to the measuring equipment via a suitable attenuator and correct for all losses in the RF path.							
	Exte	ernal antenna (dedicated antennas)							
		Single power level with corresponding antenna(s).							
		Multiple power level and corresponding antenna(s).							
		RF connector provided							
		Unique antenna connector. (e.g., MMCX, U.FL, IPX, and RP-SMA, RP-N type)							
		Standard antenna connector. (e.g., SMA, N, BNC, and TNC type)							

Antenna General Information						
No.	Ant. Cat.	Ant. Type	Gain _(dBi)			
1	Integral	PIFA	1.6			

SPORTON INTERNATIONAL INC. : 5 of 27
TEL: 886-3-327-3456 : Report Version : Rev. 01



FCC Test Report

1.1.3 Type of EUT

	Identify EUT							
EU ⁻	T Serial Number	N/A						
Pre	sentation of Equipment	☐ Production ; ☐ Pr	e-Pr	oduction; 🛛 Prototyp	ре			
	Type of EUT							
\boxtimes	Stand-alone							
	Combined (EUT where t	he radio part is fully integ	grate	d within another device	e)			
	Combined Equipment - E	Brand Name / Model No.	:					
	Plug-in radio (EUT intend	ded for a variety of host	syste	ems)				
	Host System - Brand Na	me / Model No.:						
	Other:							
1.1.	4 Mode Test Duty	Cycle Operated Mode fo	r Wo	aret Duty Cycle				
\boxtimes	Operated test mode for	•	1 440	nst buty Cycle				
	•			Dawer D	······································			
	Test Signal Duty Cycle (x) Power Duty Factor [dB] – (10 log 1/x)							
\boxtimes								
1.1.	1.1.5 EUT Operational Condition							
Sup	oply Voltage	AC mains	\boxtimes	DC				
Тур	e of DC Source	External AC adapter		From Host System	☐ Battery			

Report No.: FR630231AL

SPORTON INTERNATIONAL INC. Page No. : 6 of 27 TEL: 886-3-327-3456 Report Version : Rev. 01

FAX: 886-3-327-0973

FCC Test Report

1.2 Testing Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

Report No.: FR630231AL

- 47 CFR FCC Part 15
- ANSI C63.10-2013
- FCC KDB 558074 D01 v03r05

1.3 Testing Location Information

	Testing Location								
\boxtimes	HWA YA ADD : No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan City, Taiwan, R.O.C. TEL : 886-3-327-3456 FAX : 886-3-318-0055								
Test Condition		<u> </u>		Test Site No.	Test Engineer	Test Environment	Test Date		
AC Conduction				CO04-HY	Ryan Hong	24°C / 58%	2016/05/27		
RF Conducted				TH01-HY	Lisa Chen	25°C / 65%	2016/05/26		
Radiated			03CH03-HY	Jeff Lin	22.1°C / 59%	2016/05/26			

Test site registered number [553509] with FCC.

SPORTON INTERNATIONAL INC. Page No. : 7 of 27
TEL: 886-3-327-3456 Report Version : Rev. 01



1.4 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)

Report No.: FR630231AL

Measurement Uncertainty						
Test Item		Uncertainty				
AC power-line conducted emissions		±2.3 dB				
Emission bandwidth, 6dB bandwidth		±0.6 %				
RF output power, conducted		±0.1 dB				
Power density, conducted		±0.6 dB				
Unwanted emissions, conducted	9 – 150 kHz	±0.4 dB				
	0.15 – 30 MHz	±0.4 dB				
	30 – 1000 MHz	±0.6 dB				
	1 – 18 GHz	±0.5 dB				
	18 – 40 GHz	±0.5 dB				
	40 – 200 GHz	N/A				
All emissions, radiated	9 – 150 kHz	±2.5 dB				
	0.15 – 30 MHz	±2.3 dB				
	30 – 1000 MHz	±2.6 dB				
	1 – 18 GHz	±3.6 dB				
	18 – 40 GHz	±3.8 dB				
	40 – 200 GHz	N/A				
Temperature		±0.8 °C				
Humidity		±5 %				
DC and low frequency voltages		±0.9%				
Time		±1.4 %				
Duty Cycle		±0.6 %				

SPORTON INTERNATIONAL INC. Page No. : 8 of 27
TEL: 886-3-327-3456 Report Version : Rev. 01

2 Test Configuration of EUT

2.1 The Worst Case Modulation Configuration

Worst Modulation Used for Conformance Testing							
Bluetooth Version	Transmit Chains (N _{TX})	Data Rate	Modulation Mode				
LE	1	1 Mbps	LE-1Mbps				

Report No.: FR630231AL

Note 1: Bluetooth LE (Low Energy) using GFSK modulation for DTS digital modulation.

Note 2: Modulation modes consist below configuration:

DSSS LE-1Mbps: GFSK (1Mbps)

2.2 Test Channel Mode

Test Softw	are Version		RTLBTAPP/11,02.2015,1						
Band	Band Mode		Nss-Min	Nant	Ch. (MHz)	Range	Power Setting		
2.4G	LE-1Mbps	1	1	1	2402	L	default		
2.4G	LE-1Mbps	1	1	1	2440	М	default		
2.4G	LE-1Mbps	1	1	1	2480	Н	default		

Abbreviation Explanation

ADDIEVIA	tion Explain	ation						
Band	Mode	BWch (MHz)	Nss-Min	Nant	Ch. (MHz)	Range	Test Cond.	Abbreviation
2.4G	BT-LE,	1	1	1	2402	L	TN,VN	2.4G;BT-LE;1;1;1;2480;TN,VN

Note:

SPORTON INTERNATIONAL INC. : 9 of 27
TEL: 886-3-327-3456 : Report Version : Rev. 01

[•] Test range channel consist of L (Low Ch.), M (Middle Ch.), H (High Ch.), S (Single Ch).

2.3 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral Test Voltage: 120Vac / 60Hz
Operating Mode	Operating Mode Description
1	USB Mode

Report No.: FR630231AL

The Worst Case Mode for Following Conformance Tests	
Tests Item	DTS Bandwidth, Fundamental Emission Output Power, Power Spectral Density, Emissions in Non-restricted Frequency Bands
Test Condition	Conducted measurement at transmit chains

Th	The Worst Case Mode for Following Conformance Tests			
Tests Item	Em	issions in Restricted Fr	equency Bands	
Test Condition	Rac	diated measurement		
		EUT will be placed in	fixed position.	
User Position		EUT will be placed in mobile position and operating multiple positions. EUT shall be performed three orthogonal planes.		
	EUT will be a hand-held or body-worn battery-powered devices and operating multiple positions. EUT shall be performed three orthogonal planes.			
Operating Mode < 1GHz	\boxtimes	1. USB Mode		
		X Plane	Y Plane	Z Plane
Orthogonal Planes of EUT				
Worst Planes of EUT		V		

SPORTON INTERNATIONAL INC. Page No. : 10 of 27 TEL: 886-3-327-3456 Report Version : Rev. 01



FCC Test Report

2.4 Accessories and Support Equipment

Support Equipment

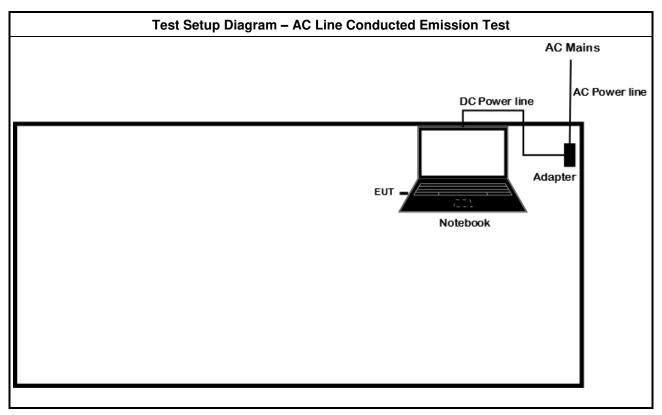
No.	Equipment	Brand	Model	FCC ID	Description
1	Notebook	DELL	E5540	R33002	-
2	AC adapter for NB	DELL	HA65NM130	R3537	-

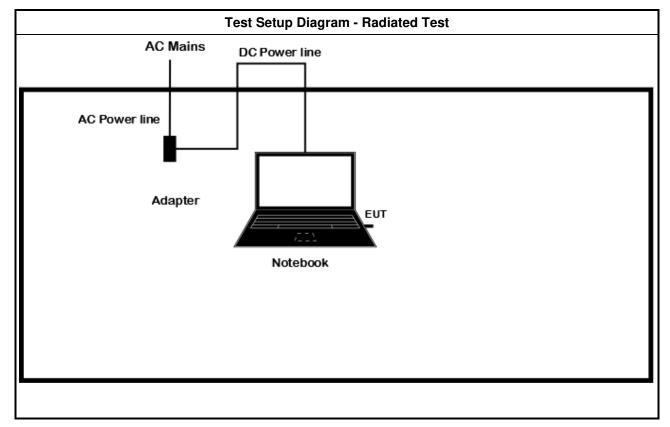
Report No.: FR630231AL

SPORTON INTERNATIONAL INC. Page No. : 11 of 27 TEL: 886-3-327-3456 Report Version : Rev. 01



Test Setup Diagram





SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 Page No. : 12 of 27

Report Version

: Rev. 01

Report No.: FR630231AL



3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

AC Power-line Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

Report No.: FR630231AL

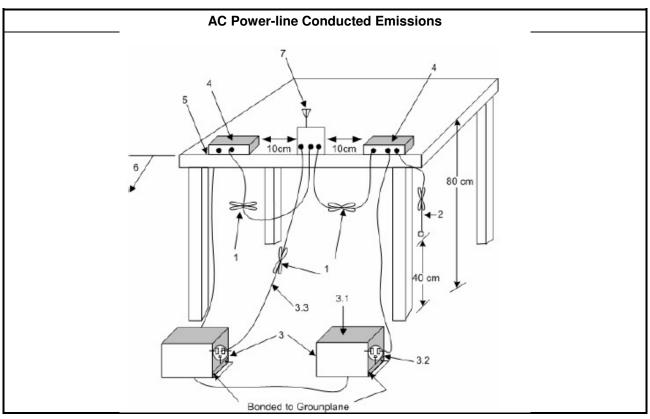
3.1.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.1.3 Test Procedures

	Test Method
ſ	 Refer as ANSI C63.10-2013, clause 6.2 for AC power-line conducted emissions.

3.1.4 Test Setup



SPORTON INTERNATIONAL INC. Page No. : 13 of 27
TEL: 886-3-327-3456 Report Version : Rev. 01



FCC Test Report

3.1.5 Test Result of AC Power-line Conducted Emissions

Report No.: FR630231AL

Refer as Appendix I

SPORTON INTERNATIONAL INC. Page No. : 14 of 27 TEL: 886-3-327-3456 Report Version : Rev. 01

FCC Test Report No.: FR630231AL

3.2 DTS Bandwidth

3.2.1 6dB Bandwidth Limit

6dB Bandwidth Limit		
Systems using digital modulation techniques:		
■ 6 dB bandwidth ≥ 500 kHz.		

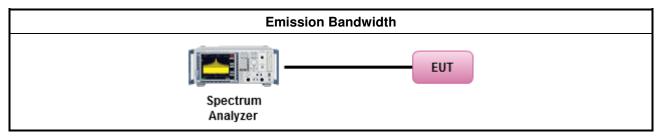
3.2.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.2.3 Test Procedures

		Test Method
-	For	the emission bandwidth shall be measured using one of the options below:
	\boxtimes	Refer as FCC KDB 558074, clause 8.1 Option 1 for 6 dB bandwidth measurement.
		Refer as FCC KDB 558074, clause 8.2 Option 2 for 6 dB bandwidth measurement.
		Refer as ANSI C63.10, clause 6.9.1 for occupied bandwidth testing.

3.2.4 Test Setup



3.2.5 Test Result of Emission Bandwidth

Refer as Appendix A

SPORTON INTERNATIONAL INC. Page No. : 15 of 27 TEL: 886-3-327-3456 Report Version : Rev. 01



3.3 Fundamental Emission Output Power

3.3.1 Fundamental Emission Output Power Limit

Max	kimui	m Peak Conducted Output Power or Maximum Conducted Output Power Limit
•	240	0-2483.5 MHz Band:
	•	If $G_{TX} \le 6$ dBi, then $P_{Out} \le 30$ dBm (1 W)
	•	Point-to-multipoint systems (P2M): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$ dBm
	•	Point-to-point systems (P2P): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
	•	Smart antenna system (SAS):
		- Single beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
		- Overlap beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
		- Aggregate power on all beams: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3 + 8$ dB dBm
e.i.ı	.p. P	ower Limit:
•	240	0-2483.5 MHz Band
	•	Point-to-multipoint systems (P2M): P _{eirp} ≤ 36 dBm (4 W)
	•	Point-to-point systems (P2P): $P_{eirp} \le MAX(36, [P_{Out} + G_{TX}]) dBm$
	•	Smart antenna system (SAS)
		- Single beam: $P_{eirp} \le MAX(36, P_{Out} + G_{TX}) dBm$
		- Overlap beam: P _{eirp} ≤ MAX(36, P _{Out} + G _{TX}) dBm
		- Aggregate power on all beams: P _{eirp} ≤ MAX(36, [P _{Out} + G _{TX} + 8]) dBm
\mathbf{P}_{Out} = maximum peak conducted output power or maximum conducted output power in dBm, \mathbf{G}_{TX} = the maximum transmitting antenna directional gain in dBi. \mathbf{P}_{eirp} = e.i.r.p. Power in dBm.		

Report No.: FR630231AL

SPORTON INTERNATIONAL INC. Page No. : 16 of 27 TEL: 886-3-327-3456 Report Version : Rev. 01

3.3.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.3.3 Test Procedures

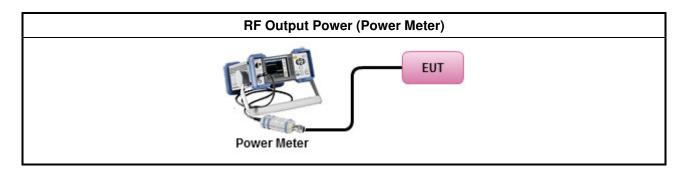
	Test Method
•	Maximum Peak Conducted Output Power
	☐ Refer as FCC KDB 558074, clause 9.1.1 Option 1 (RBW ≥ EBW method).
	Refer as FCC KDB 558074, clause 9.1.2 Option 2 (peak power meter for VBW ≥ DTS BW)
-	Maximum Conducted Output Power
	[duty cycle ≥ 98% or external video / power trigger]
	Refer as FCC KDB 558074, clause 9.2.2.2 Method AVGSA-1 (spectral trace averaging).
	☐ Refer as FCC KDB 558074, clause 9.2.2.3 Method AVGSA-1 Alt. (slow sweep speed)
	duty cycle < 98% and average over on/off periods with duty factor
	Refer as FCC KDB 558074, clause 9.2.2.4 Method AVGSA-2 (spectral trace averaging).
	Refer as FCC KDB 558074, clause 9.2.2.5 Method AVGSA-2 Alt. (slow sweep speed)
	RF power meter and average over on/off periods with duty factor or gated trigger
	Refer as FCC KDB 558074, clause 9.2.3 Method AVGPM (using an RF average power meter).
-	For conducted measurement.
	■ If the EUT supports multiple transmit chains using options given below: Refer as FCC KDB 662911, In-band power measurements. Using the measure-and-sum approach, measured all transmit ports individually. Sum the power (in linear power units e.g., mW) of all ports for each individual sample and save them.
	If multiple transmit chains, EIRP calculation could be following as methods: P _{total} = P ₁ + P ₂ + + P _n (calculated in linear unit [mW] and transfer to log unit [dBm]) EIRP _{total} = P _{total} + DG

Report No.: FR630231AL

SPORTON INTERNATIONAL INC. Page No. : 17 of 27 TEL: 886-3-327-3456 Report Version : Rev. 01



3.3.4 Test Setup



Report No.: FR630231AL

3.3.5 Test Result of Maximum Peak Conducted Output Power

Refer as Appendix B

3.3.6 Test Result of Maximum Average Conducted Output Power

Refer as Appendix B

SPORTON INTERNATIONAL INC. Page No. : 18 of 27 TEL: 886-3-327-3456 Report Version : Rev. 01

3.4 Power Spectral Density

3.4.1 Power Spectral Density Limit

Power Spectral Density Limit Power Spectral Density (PSD) ≤ 8 dBm/3kHz

Report No.: FR630231AL

3.4.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

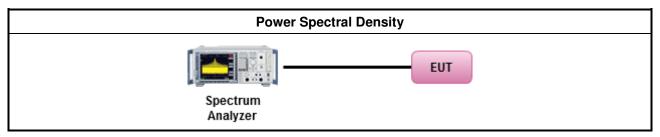
3.4.3 Test Procedures

	Test Method
•	Peak power spectral density procedures that the same method as used to determine the conducted output power. If maximum peak conducted output power was measured to demonstrate compliance to the output power limit, then the peak PSD procedure below (Method PKPSD) shall be used. If maximum conducted output power was measured to demonstrate compliance to the output power limit, then one of the average PSD procedures shall be used, as applicable based on the following criteria (the peak PSD procedure is also an acceptable option).
	Refer as FCC KDB 558074, clause 10.2 Method PKPSD (RBW=3-100kHz; Detector=peak).
	[duty cycle ≥ 98% or external video / power trigger]
	Refer as FCC KDB 558074, clause 10.3 Method AVGPSD-1 (spectral trace averaging).
	☐ Refer as FCC KDB 558074, clause 10.4 Method AVGPSD-2 (slow sweep speed)
	duty cycle < 98% and average over on/off periods with duty factor
	Refer as FCC KDB 558074, clause 10.5 Method AVGPSD-1 Alt (spectral trace averaging).
	Refer as FCC KDB 558074, clause 10.6 Method AVGPSD-2 Alt. (slow sweep speed)
•	For conducted measurement.
	If The EUT supports multiple transmit chains using options given below:
	Option 1: Measure and sum the spectra across the outputs. Refer as FCC KDB 662911, In-band power spectral density (PSD). Sample all transmit ports simultaneously using a spectrum analyzer for each transmit port. Where the trace bin-by-bin of each transmit port summing can be performed. (i.e., in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3, and so on up to the N _{TX} output to obtain the value for the first frequency bin of the summed spectrum.). Add up the amplitude (power) values for the different transmit chains and use this as the new data trace.
	Option 2: Measure and sum spectral maxima across the outputs. With this technique, spectra are measured at each output of the device at the required resolution bandwidth. The maximum value (peak) of each spectrum is determined. These maximum values are then summed mathematically in linear power units across the outputs. These operations shall be performed separately over frequency spans that have different out-of-band or spurious emission limits,
	Option 3: Measure and add 10 log(N) dB, where N is the number of transmit chains. Refer as FCC KDB 662911, In-band power spectral density (PSD). Performed at each transmit chains and each transmit chains shall be compared with the limit have been reduced with 10 log(N). Or each transmit chains shall be add 10 log(N) to compared with the limit.

SPORTON INTERNATIONAL INC. Page No. : 19 of 27 TEL: 886-3-327-3456 Report Version : Rev. 01

FCC Test Report

3.4.4 Test Setup



Report No.: FR630231AL

3.4.5 Test Result of Power Spectral Density

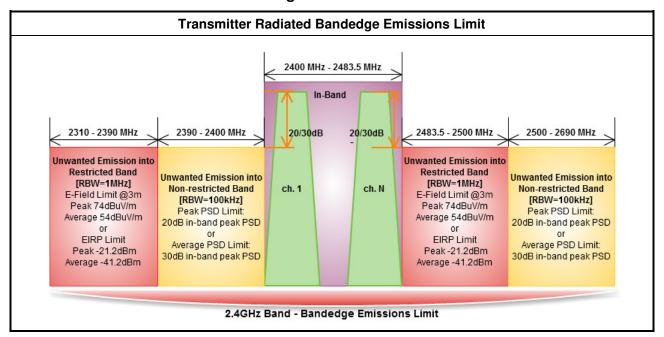
Refer as Appendix C

SPORTON INTERNATIONAL INC. Page No. : 20 of 27 TEL: 886-3-327-3456 Report Version : Rev. 01



3.5 Transmitter Radiated Bandedge Emissions

3.5.1 Transmitter Radiated Bandedge Emissions Limit



Report No.: FR630231AL

3.5.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

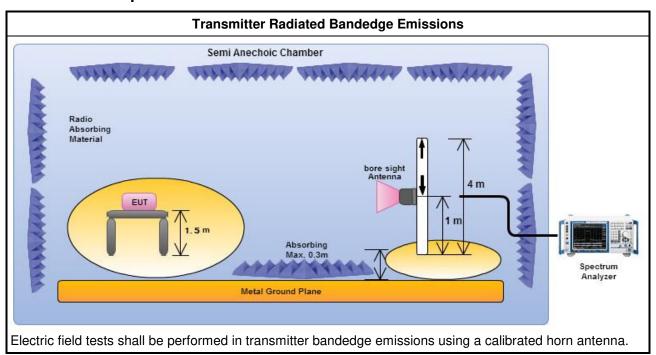
SPORTON INTERNATIONAL INC. Page No. : 21 of 27
TEL: 886-3-327-3456 Report Version : Rev. 01

3.5.3 Test Procedures

		Test Method		
		rest wethou		
\boxtimes	The average emission levels shall be measured in [duty cycle ≥ 98 or duty factor].			
	Refer as ANSI C63.10, clause 6.10 bandedge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.			
\boxtimes	For	the transmitter unwanted emissions shall be measured using following options below:		
	\boxtimes	Refer as FCC KDB 558074, clause 11 for unwanted emissions into non-restricted bands.		
	\boxtimes	Refer as FCC KDB 558074, clause 12 for unwanted emissions into restricted bands.		
		☐ Refer as FCC KDB 558074, clause 12.2.5.1 Option 1 (trace averaging for duty cycle ≥98%)		
		Refer as FCC KDB 558074, clause 12.2.5.2 Option 2 (trace averaging + duty factor).		
		Refer as FCC KDB 558074, clause 12.2.5.3 Option 3 (Reduced VBW≥1/T).		
		Refer as ANSI C63.10, clause 4.1.4.2.3 (Reduced VBW). VBW ≥ 1/T, where T is pulse time.		
		Refer as ANSI C63.10, clause 4.1.4.2.4 average value of pulsed emissions.		
		Refer as FCC KDB 558074, clause 11.3 and 12.2.4 measurement procedure peak limit.		
\boxtimes	For	the transmitter bandedge emissions shall be measured using following options below:		
		Refer as FCC KDB 558074, clause 13.3 for narrower resolution bandwidth (100kHz) using the band power and summing the spectral levels (i.e., 1 MHz).		
		Refer as ANSI C63.10, clause 6.10 for band-edge testing.		
	\boxtimes	Refer as ANSI C63.10, clause 6.10.6.2 for marker-delta method for band-edge measurements.		
\boxtimes		radiated measurement, refer as FCC KDB 558074, clause 12.2.7 and ANSI C63.10, clause 6.6. distance is 3m.		

Report No.: FR630231AL

3.5.4 Test Setup



SPORTON INTERNATIONAL INC. Page No. : 22 of 27 TEL: 886-3-327-3456 Report Version : Rev. 01



FCC Test Report

3.5.5 Test Result of Emissions in Non-restricted Frequency Bands

Report No.: FR630231AL

Refer as Appendix D

SPORTON INTERNATIONAL INC. Page No. : 23 of 27 TEL: 886-3-327-3456 Report Version : Rev. 01



3.6 Transmitter Radiated Unwanted Emissions

3.6.1 Transmitter in Radiated Unwanted Emissions Limit

Restricted Band Emissions Limit										
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (m)							
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300							
0.490~1.705	24000/F(kHz)	33.8 - 23	30							
1.705~30.0	30	29	30							
30~88	100	40	3							
88~216	150	43.5	3							
216~960	200	46	3							
Above 960	500	54	3							

Report No.: FR630231AL

Note 1: Test distance for frequencies at or above 30 MHz, measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

Note 2: Test distance for frequencies at below 30 MHz, measurements may be performed at a distance closer than the EUT limit distance; however, an attempt should be made to avoid making measurements in the near field. When performing measurements below 30 MHz at a closer distance than the limit distance, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two or more distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). The test report shall specify the extrapolation method used to determine compliance of the EUT.

Un-restricted Band Emissions Limit							
RF output power procedure	Limit (dB)						
Peak output power procedure	20						
Average output power procedure	30						

Note 1: If the peak output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the peak conducted output power measured within any 100 kHz outside the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum measured in-band peak PSD level.

Note 2: If the average output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the power in any 100 kHz outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum measured in-band average PSD level.

3.6.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

SPORTON INTERNATIONAL INC. Page No. : 24 of 27
TEL: 886-3-327-3456 Report Version : Rev. 01



3.6.3 Test Procedures

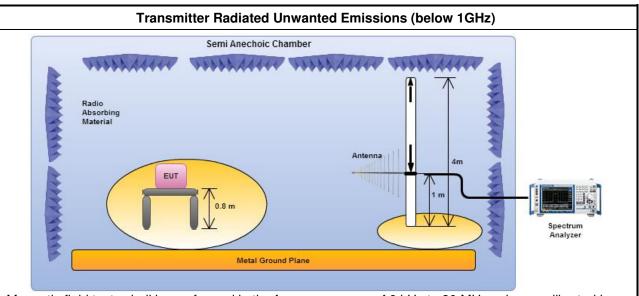
		Test Method
	perfo equi extra dista	surements may be performed at a distance other than the limit distance provided they are not be ormed in the near field and the emissions to be measured can be detected by the measurement pment. When performing measurements at a distance other than that specified, the results shall be applied to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear ance for field-strength measurements, inverse of linear distance-squared for power-density issurements).
\boxtimes	The	average emission levels shall be measured in [duty cycle ≥ 98 or duty factor].
\boxtimes	For	the transmitter unwanted emissions shall be measured using following options below:
	\boxtimes	Refer as FCC KDB 558074, clause 11 for unwanted emissions into non-restricted bands.
	\boxtimes	Refer as FCC KDB 558074, clause 12 for unwanted emissions into restricted bands.
		☐ Refer as FCC KDB 558074, clause 12.2.5.1 Option 1 (trace averaging for duty cycle ≥98%)
		Refer as FCC KDB 558074, clause 12.2.5.2 Option 2 (trace averaging + duty factor).
		Refer as FCC KDB 558074, clause 12.2.5.3 Option 3 (Reduced VBW≥1/T).
		☐ Refer as ANSI C63.10, clause 4.1.4.2.3 (Reduced VBW). VBW ≥ 1/T, where T is pulse time.
		Refer as ANSI C63.10, clause 4.1.4.2.4 average value of pulsed emissions.
		Refer as FCC KDB 558074, clause 11.3 and 12.2.4 measurement procedure peak limit.
		Refer as FCC KDB 558074, clause 12.2.3 measurement procedure Quasi-Peak limit.
\boxtimes	For	radiated measurement, refer as FCC KDB 558074, clause 12.2.7.
	\boxtimes	Refer as ANSI C63.10, clause 6.4 for radiated emissions below 30 MHz and test distance is 3m.
	\boxtimes	Refer as ANSI C63.10, clause 6.5 for radiated emissions 30 MHz to 1 GHz and test distance is 3m.
	\boxtimes	Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1 GHz and test distance is 3m.
\boxtimes	The	any unwanted emissions level shall not exceed the fundamental emission level.
\boxtimes		mplitude of spurious emissions that are attenuated by more than 30 dB below the permissible value no need to be reported.

Report No.: FR630231AL

SPORTON INTERNATIONAL INC. Page No. : 25 of 27 TEL: 886-3-327-3456 Report Version : Rev. 01

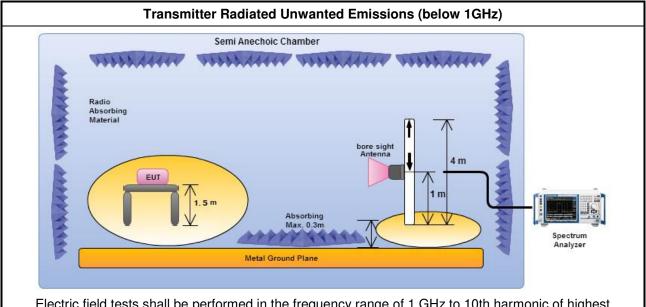


3.6.4 Test Setup



Report No.: FR630231AL

Magnetic field tests shall be performed in the frequency range of 9 kHz to 30 MHz using a calibrated loop antenna. Electric field tests shall be performed in the frequency range of 30 MHz to 1000 MHz using a calibrated bi-log antenna.



Electric field tests shall be performed in the frequency range of 1 GHz to 10th harmonic of highest fundamental frequency or 40 GHz using a calibrated horn antenna.

3.6.5 Transmitter Radiated Unwanted Emissions (Below 30MHz)

All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

3.6.6 Transmitter Radiated Unwanted Emissions

Refer as Appendix E

SPORTON INTERNATIONAL INC. Page No. : 26 of 27
TEL: 886-3-327-3456 Report Version : Rev. 01



4 Test Equipment and Calibration Data

Instrument for AC Conduction

Instrument	Manufacturer	Model No.	Serial No.	Serial No. Characteristics		Calibration Due Date			
EMC Receiver	KETSIGHT	N9038A	MY54130031	20Hz ~ 8.4GHz	Apr. 14, 2016	Apr. 13, 2017			
LISN	SCHWARZBECK MESS-ELEKTRONIK	NSLK 8127	8127-477	9kHz ~ 30MHz	Jan. 26, 2016	Jan. 25, 2017			
RF Cable-CON	Cable-CON HUBER+SUHNER RG		07611832020001	9kHz ~ 30MHz	Oct. 30, 2015	Oct. 29, 2016			
EMI Filter LINDGREN		LRE-2030	2651	< 450 Hz	NCR	NCR			

Report No.: FR630231AL

Instrument for Conducted Test

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Last Cal.	Calibration Due Date
Spectrum Analyzer	R&S	FSV 40	101500	9KHz~40GHz	May 12, 2016	May 11, 2017
Signal Generator	Signal Generator R&S		100116	10MHz ~ 40GHz	Jul. 28, 2015	Jul. 27, 2016
Power Sensor	Anritsu	MA2411B	0917017	300MHz ~ 40GHz	Feb. 04 ,2016	Feb. 03 ,2017
Power Meter	Anritsu	ML2495A	0949003	300MHz ~ 40GHz	Feb. 04, 2016	Feb. 03, 2017

Instrument for Radiated Test

ot. ament ie	naulaleu lesi					
Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Last Cal.	Calibration Due Date
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY 30MHz ~ 1GHz 3m		Nov. 28, 2015	Nov. 27, 2016
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	1GHz ~ 18GHz 3m	Dec. 16, 2015	Dec. 15, 2016
Amplifier	HP	8447D	2944A08033	10kHz ~ 1.3GHz	May 10, 2016	May 09, 2017
Amplifier	Agilent	8449B	3008A02120	1GHz ~ 26.5GHz	Sep. 02, 2015	Sep. 01, 2016
Spectrum	R&S	FSV40	101513	9kHz ~ 40GHz	Feb. 16, 2016	Feb. 15, 2017
Bilog Antenna	SCHAFFNER	CBL 6112D	22237	30MHz ~ 1GHz	Sep. 18, 2015	Sep. 17, 2016
Horn Antenna	SCHWARZBECK	/ARZBECK BBHA9120D		1GHz ~ 18GHz	Apr. 22, 2016	Apr. 21, 2017
Horn Antenna	SCHWARZBECK	HWARZBECK BBHA9170		18GHz ~ 40GHz	Jan. 29, 2016	Jan. 28, 2017
Loop Antenna	TESEQ	HLA 6120	31244	9 kHz~30 MHz	Feb. 02.2015	Feb. 01.2017

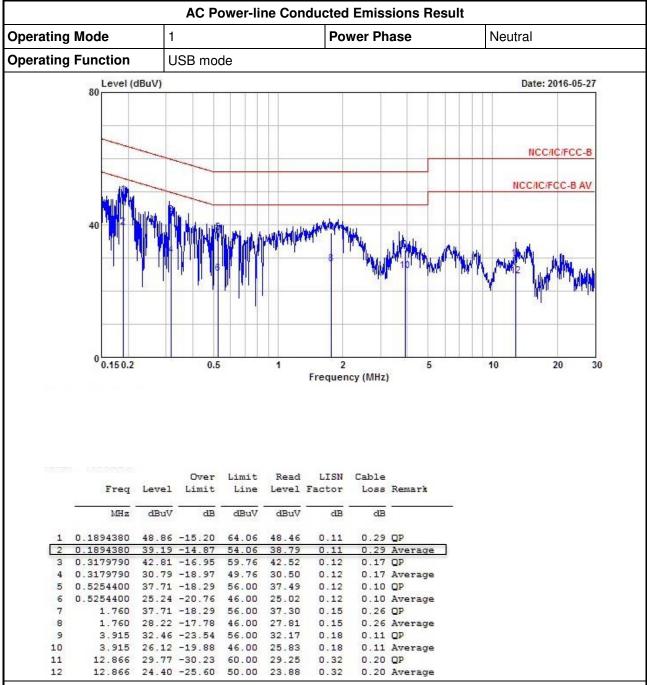
SPORTON INTERNATIONAL INC. Page No. : 27 of 27 TEL: 886-3-327-3456 Report Version : Rev. 01



Appendix I



Test Result of AC Power-line Conducted Emissions



Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit. Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)

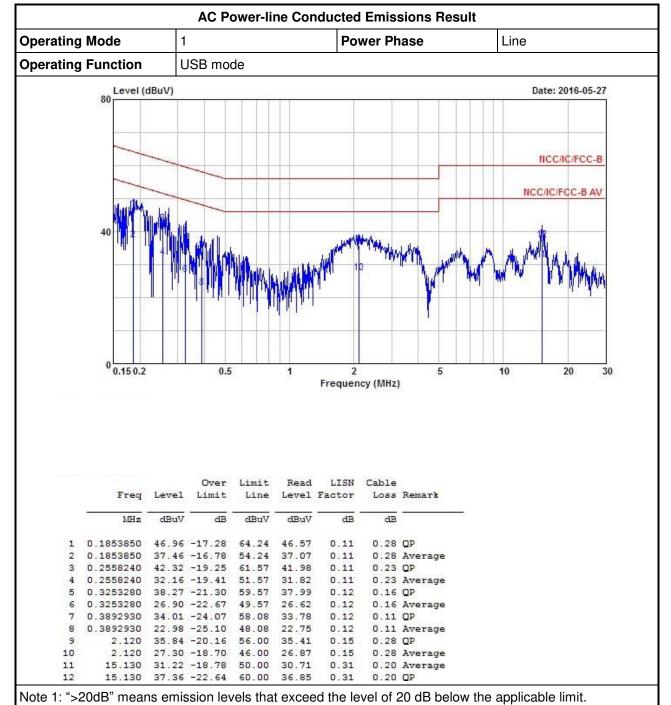
SPORTON INTERNATIONAL INC.

TEL: 886-3-3273456 FAX: 886-3-3270973 Page No. : I1 of I2

Report Version

: Rev. 01





Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)

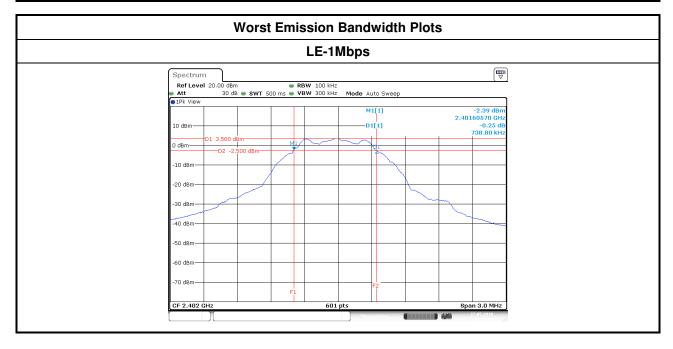
SPORTON INTERNATIONAL INC. Page No. : I2 of I2
TEL: 886-3-3273456 Report Version : Rev. 01

FAX: 886-3-3270973



Test Result of Emission Bandwidth

	Emission Bandwidth Result									
Modulation Mode	Freq. (MHz)	99% Bandwidth (kHz)	6dB Bandwidth (kHz)							
LE-1Mbps	LE-1Mbps 2402		738.8000							
LE-1Mbps	2440	1068.2196	748.8000							
LE-1Mbps	2480	1068.2196	748.8000							
Lii	mit	N/A	≥500 kHz							
Re	sult	Com	plied							



SPORTON INTERNATIONAL INC. Page No. : A1 of A1 TEL: 886-3-327-3456 Report Version : Rev. 01



Appendix B

Test Result of Maximum Peak Conducted Output Power

Maximum Peak Conducted Output Power Result									
Condition			RF O	utput Power ((dBm)				
Modulation Mode	Freq. (MHz)	RF Output Power	Power Limit	Antenna Gain (dBi)	EIRP Power	EIRP Limit			
LE-1Mbps	2402	9.21	30	1.60	10.81	36			
LE-1Mbps	2440	9.16	30	1.60	10.76	36			
LE-1Mbps	2480	8.94	30	1.60	10.54	36			
Result			Complied						

Test Result of Maximum Average Conducted Output Power

Maximum Average Conducted Output Power Result										
Condition			RF O	utput Power (dBm)					
Modulation Mode	Freq. (MHz)	Average Power	Duty Factor (dB)	RF Output Power	Antenna Gain (dBi)	EIRP Power				
LE-1Mbps	2402	6.45	1.84	8.29	1.60	9.89				
LE-1Mbps	2440	6.39	1.84	8.23	1.60	9.83				
LE-1Mbps 2480		6.24 1.84 8.08 1.60			9.68					
Result			Complied							

SPORTON INTERNATIONAL INC. Page No. : B1 of B1 TEL: 886-3-327-3456 Report Version : Rev. 01

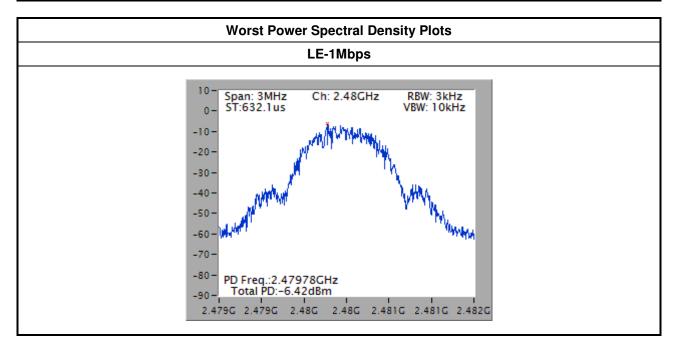


Appendix C



Test Result of Power Spectral Density

	Power Spectral Density Result									
Modulation Mode	Freq. (MHz)	PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)							
LE-1Mbps	2402	-7.03	8							
LE-1Mbps	2440	-6.82	8							
LE-1Mbps	2480	-6.42	8							
Re	sult	Con	nplied							



SPORTON INTERNATIONAL INC. Page No. : C1 of C1
TEL: 886-3-327-3456 Report Version : Rev. 01

FCC Test Report Appendix D

Test Result of Transmitter Radiated Bandedge Emissions

2400-2483.5MHz Transmitter Radiated Bandedge Emissions (Non-restricted Band)											
Modulation N _{TX} Test Freq. (MHz) (dBuV/100kHz) In-band PSD Freq. (MHz) (dBuV/100kHz) Freq. (MHz) (dBuV/100kHz) Out-band PSD [o] (dBuV/100kHz) [i] - [o] (dB) Limit (dB) Policy (dBuV/100kHz)								Pol.			
LE-1Mbps	1	2402	96.61	2399.96	49.10	47.51	20	Н			
LE-1Mbps	1	2480	96.57	2540.32	50.39	46.18	20	Н			
Note 1: Measure	ment wo	rst emission	s of receive ante	enna polarization	1						

	2400-2483.5MHz Transmitter Radiated Bandedge Emissions (Restricted Band)											
Modulation Mode	N _{TX}	Freq. (MHz)	Measure Distance (m)	Freq. (MHz) PK	Level (dBuV/m) PK	Limit (dBuV/m) PK	Freq. (MHz) AV	Level (dBuV/m) AV	Limit (dBuV/m) AV	Pol.		
LE-1Mbps	1	2402	3	2322.24	60.18	74	2313.88	46.61	54	Н		
LE-1Mbps	1	2480	3	2484.00	61.07	74	2485.92	46.95	54	Н		

Note 1: Measurement worst emissions of receive antenna polarization. Note 2: Average emission setting: RBW=1MHz; VBW \geq 1/T, where T is "Pulse On Time", e.g., LE VBW \geq 1/625us, VBW=3kHz.

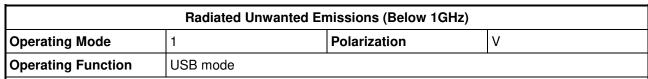
SPORTON INTERNATIONAL INC. Page No. : D1 of D1 TEL: 886-3-327-3456 Report Version : Rev. 01

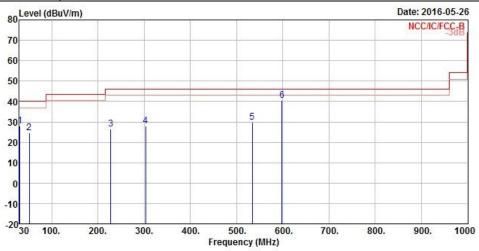


Appendix E



Transmitter Radiated Unwanted Emissions (Below 1GHz)





	Freq	Level	Over Limit	Limit Line		Antenna Factor		Preamp Factor	Remark
10.7	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	30.970	27.86	-12.14	40.00	28.80	25.82	0.79	27.55	Peak
2	51.340	24.82	-15.18	40.00	36.83	14.45	1.04	27.50	Peak
3	227.880	26.50	-19.50	46.00	34.09	16.89	2.38	26.86	Peak
4	303.540	27.88	-18.12	46.00	32.06	19.88	2.64	26.70	Peak
5	534.400	29.93	-16.07	46.00	29.80	24.39	3.62	27.88	Peak
6	598.420	40.45	-5.55	46.00	39.58	24.83	4.06	28.02	Peak

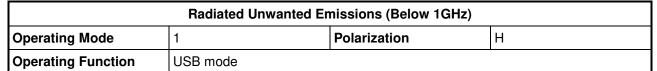
Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

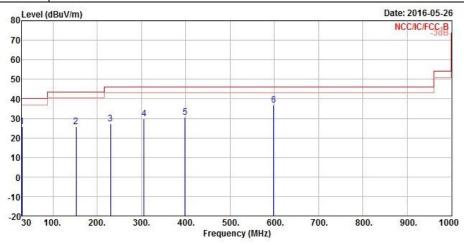
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

SPORTON INTERNATIONAL INC. Page No. : E1 of E8
TEL: 886-3-327-3456 Report Version : Rev. 01







	Freq	Level	Over Limit	Limit Line		Notenna Factor			Remark
21 <u>.</u>	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	ā.
1	30.000	25.81	-14.19	40.00	25.96	26.62	0.78	27.55	Peak
2	152.220	25.68	-17.82	43.50	34.07	16.82	1.93	27.14	Peak
3	229.820	27.07	-18.93	46.00	34.50	17.03	2.39	26.85	Peak
4	305.480	29.88	-16.12	46.00	33.98	19.94	2.66	26.70	Peak
4 5	398.600	30.73	-15.27	46.00	31.86	22.33	3.24	26.70	Peak
6	598.420	36.73	-9.27	46.00	35.86	24.83	4.06	28.02	Peak

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

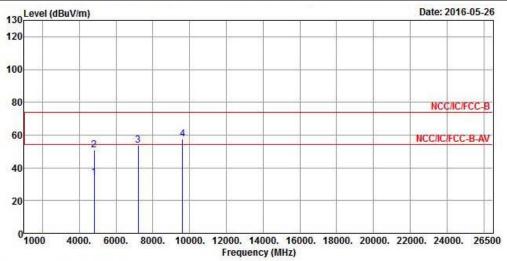
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

SPORTON INTERNATIONAL INC. Page No. : E2 of E8
TEL: 886-3-327-3456 Report Version : Rev. 01



Transmitter Radiated Unwanted Emissions (Above 1GHz)

Tra	nsmitter Radiated Unwan	ted Emissions (Above 1G	Hz)
Modulation Mode	LE-1Mbps	Test Freq. (MHz)	2402
Operating Function	Transmit	Polarization	V



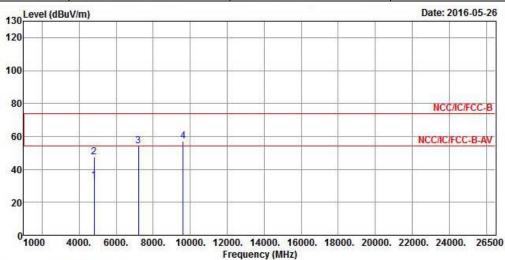
	Freq	Level	Over Limit	Limit Line		Antenna Factor			Remark
20	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	-
1	4804.000	33.95	-20.05	54.00	30.01	31.13	5.36	32.55	Average
2	4804.000	51.00	-23.00	74.00	47.06	31.13	5.36	32.55	Peak
3	7206.000	53.93			44.07	35.59	7.04	32.77	Peak
4	9608.000	57.41			43.62	38.72	8.29	33.22	Peak

- Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
- Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)
- Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
- Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
- Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level (97.52 dBuV/m).
- Note 6: No level of unwanted emissions exceeds the level of the fundamental emission.

SPORTON INTERNATIONAL INC. Page No. : E3 of E8
TEL: 886-3-327-3456 Report Version : Rev. 01



Tra	nsmitter Radiated Unwan	ted Emissions (Above 1G	Hz)
Modulation Mode	LE-1Mbps	Test Freq. (MHz)	2402
Operating Function	Transmit	Polarization	Н



Freq	Level							Remark
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
4804.000	33.25	-20.75	54.00	29.31	31.13	5.36	32.55	Average
4804.000	47.57	-26.43	74.00	43.63	31.13	5.36	32.55	Peak
7206.000	54.22			44.36	35.59	7.04	32.77	Peak
9608.000	56.92			43.13	38.72	8.29	33.22	Peak
	MHz 4804.000 4804.000 7206.000	MHz dBuV/m 4804.000 33.25	Freq Level Limit MHz dBuV/m dB 4804.000 33.25 -20.75 4804.000 47.57 -26.43 7206.000 54.22	Freq Level Limit Line MHz dBuV/m dB dBuV/m 4804.000 33.25 -20.75 54.00 4804.000 47.57 -26.43 74.00 7206.000 54.22	Freq Level Limit Line Level MHz dBuV/m dB dBuV/m dBuV 4804.000 33.25 -20.75 54.00 29.31 4804.000 47.57 -26.43 74.00 43.63 7206.000 54.22 44.36	Freq Level Limit Line Level Factor MHz dBuV/m dB dBuV/m dBuV dB/m 4804.000 33.25 -20.75 54.00 29.31 31.13 4804.000 47.57 -26.43 74.00 43.63 31.13 7206.000 54.22 44.36 35.59	Freq Level Limit Line Level Factor Loss MHz dBuV/m dB dBuV/m dBuV dB/m dB 4804.000 33.25 -20.75 54.00 29.31 31.13 5.36 4804.000 47.57 -26.43 74.00 43.63 31.13 5.36 7206.000 54.22 44.36 35.59 7.04	4804.000 33.25 -20.75 54.00 29.31 31.13 5.36 32.55 4804.000 47.57 -26.43 74.00 43.63 31.13 5.36 32.55 7206.000 54.22 44.36 35.59 7.04 32.77

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

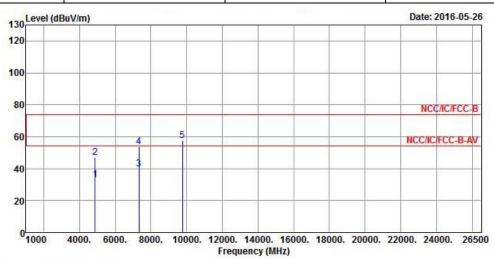
Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level (97.52dBuV/m).

Note 6: No level of unwanted emissions exceeds the level of the fundamental emission.

SPORTON INTERNATIONAL INC. Page No. : E4 of E8
TEL: 886-3-327-3456 Report Version : Rev. 01



Tra	nsmitter Radiated Unwan	ted Emissions (Above 1G	Hz)
Modulation Mode	LE-1Mbps	Test Freq. (MHz)	2440
Operating Function	Transmit	Polarization	V



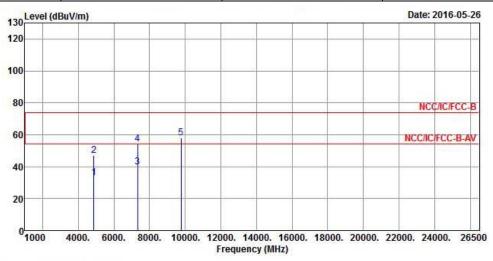
	Freq	Level		Limit Line				0.0	Remark
9	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	-
1	4880.000	32.89	-21.11	54.00	28.68	31.23	5.51	32.53	Average
2	4880.000	47.22	-26.78	74.00	43.01	31.23	5.51	32.53	Peak
3	7320.000	39.82	-14.18	54.00	29.74	35.87	7.02	32.81	Average
4	7320.000	53.87	-20.13	74.00	43.79	35.87	7.02	32.81	Peak
5	9760.000	57.41			43.67	38.75	8.20	33.21	Peak

- Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
- Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)
- Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
- Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
- Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level (98.27 dBuV/m).
- Note 6: No level of unwanted emissions exceeds the level of the fundamental emission.

SPORTON INTERNATIONAL INC. Page No. : E5 of E8
TEL: 886-3-327-3456 Report Version : Rev. 01



Tra	nsmitter Radiated Unwan	ted Emissions (Above 1G	Hz)
Modulation Mode	LE-1Mbps	Test Freq. (MHz)	2440
Operating Function	Transmit	Polarization	Н



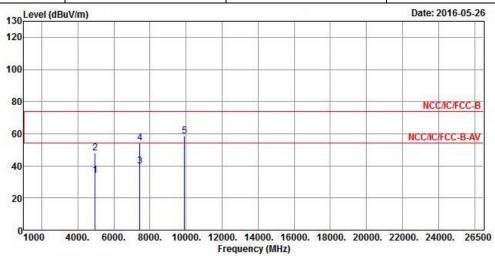
	Freq	Over Freq Level Limit	Limit ReadAr			7.0	Remark		
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	-
1	4880.000	33.25	-20.75	54.00	29.04	31.23	5.51	32.53	Average
2	4880.000	46.93	-27.07	74.00	42.72	31.23	5.51	32.53	Peak
3	7320.000	39.81	-14.19	54.00	29.73	35.87	7.02	32.81	Average
4	7320.000	54.40	-19.60	74.00	44.32	35.87	7.02	32.81	Peak
5	9760.000	57.96			44.22	38.75	8.20	33.21	Peak

- Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
- Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)
- Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
- Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
- Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level (98.27 dBuV/m).
- Note 6: No level of unwanted emissions exceeds the level of the fundamental emission.

SPORTON INTERNATIONAL INC. Page No. : E6 of E8
TEL: 886-3-327-3456 Report Version : Rev. 01



Tra	nsmitter Radiated Unwan	ted Emissions (Above 1G	Hz)
Modulation Mode	LE-1Mbps	Test Freq. (MHz)	2480
Operating Function	Transmit	Polarization	V



	Freq	Level	Over Limit	Limit Line		Antenna Factor			Remark
-	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	4960.000	33.90	-20.10	54.00	29.42	31.34	5.66	32.52	Average
2	4960.000	48.05	-25.95	74.00	43.57	31.34	5.66	32.52	Peak
3	7440.000	39.67	-14.33	54.00	29.32	36.16	7.04	32.85	Average
4	7440.000	54.00	-20.00	74.00	43.65	36.16	7.04	32.85	Peak
5	9920.000	58.71			44.92	38.78	8.21	33.20	Peak

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

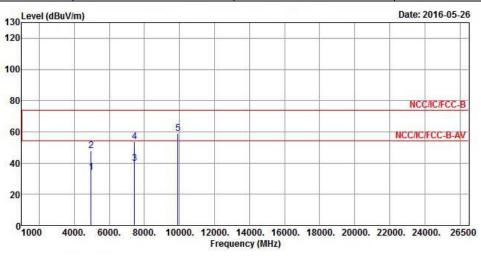
Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least **20** dB relative to the maximum measured in-band level (97.49 dBuV/m).

Note 6: No level of unwanted emissions exceeds the level of the fundamental emission.

SPORTON INTERNATIONAL INC. Page No. : E7 of E8
TEL: 886-3-327-3456 Report Version : Rev. 01



Tra	nsmitter Radiated Unwan	nitter Radiated Unwanted Emissions (Above 1GHz)						
Modulation Mode	LE-1Mbps	Test Freq. (MHz)	2480					
Operating Function	Transmit	Polarization	Н					



	Freq	Level	Over Limit		ReadAntenna Level Factor		1000	Remark	
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	8
1	4960.000	34.01	-19.99	54.00	29.53	31.34	5.66	32.52	Average
2	4960.000	48.14	-25.86	74.00	43.66	31.34	5.66	32.52	Peak
3	7440.000	39.71	-14.29	54.00	29.36	36.16	7.04	32.85	Average
4	7440.000	53.73	-20.27	74.00	43.38	36.16	7.04	32.85	Peak
5	9920.000	58.83			45.04	38.78	8.21	33.20	Peak

- Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
- Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)
- Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
- Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
- Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level (97.49dBuV/m).
- Note 6: No level of unwanted emissions exceeds the level of the fundamental emission.

SPORTON INTERNATIONAL INC. Page No. : E8 of E8
TEL: 886-3-327-3456 Report Version : Rev. 01