

JianYan Testing Group Shenzhen Co., Ltd.

Report No.: JYTSZ-R12-2202209

FCC RF Test Report

Applicant:	Hangzhou Roombanker Technology Co., Ltd.		
Address of Applicant:	A#801 Wantong center, Hangzhou, China		
Equipment Under Test (E	UT)		
Product Name:	Waterproof Industrial Gateway		
Model No.:	DSGW-010		
FCC ID:	2AUXBDSGW-010		
Applicable Standards:	FCC CFR Title 47 Part 15C (§15.247)		
Date of Sample Receipt:	16 Nov., 2022		
Date of Test:	17 Nov., 2022 to 27 Feb., 2023		
Date of Report Issued:	27 Feb., 2023		
Test Result:	PASS		

Tested by:	Mike OU Test Engineer	Date:	27 Feb., 2023
Reviewed by:	Reject Engineer	_ Date:	27 Feb., 2023
Approved by:	一般設設機等用章 Manager	Date:	27 Feb., 2023

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 above the application standard version. Test results reported herein relate only to the item(s) tested.

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1 Version

Version No.	Date	Description
00	30 Dec., 2022	Original
01	27 Feb., 2023	Retest power.



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3 General Information

3.1 Client Information

Applicant:	Hangzhou Roombanker Technology Co., Ltd.	
Address:	A#801 Wantong center, Hangzhou, China	
Manufacturer:	Zhejiang Dusun Electron Co., Ltd.	
Address:	NO.640 FengQing str., DeQing, ZheJiang, China	

3.2 General Description of E.U.T.

1	
Product Name:	Waterproof Industrial Gateway
Model No.:	DSGW-010
Operation Frequency:	2402 MHz - 2480 MHz
Channel Numbers:	40
Channel Separation:	2MHz
Modulation Technology:	GFSK
Data Speed:	1 Mbps (LE 1M PHY), 2 Mbps (LE 2M PHY), 125 kbps (LE Coded PHY, S=8), 500 kbps (LE Coded PHY, S=2)
Antenna Type:	External Antenna
Antenna Gain:	0.98dBi (declare by applicant)
Antenna transmit mode:	SISO (1TX, 1RX)
Power Supply:	DC 12V
Test Sample Condition:	The test samples were provided in good working order with no visible defects.



3.3 Test Mode and Test Environment

Test Mode:			
Transmitting mode	Keep the EUT in continuous transmitting with modulation		
Remark: For AC power line condu	ucted emission and radiated spurious emission (below 1GHz), pre-scan all data speed,		
found 1 Mbps (LE 1M PHY) was v	vorse case mode. The report only reflects the test data of worst mode.		
Operating Environment:			
Temperature:	15℃ ~ 35℃		
Humidity:	20 % ~ 75 % RH		
Atmospheric Pressure:	1008 mbar		

3.4 Description of Test Auxiliary Equipment

The EUT has been tested as an independent unit.

3.5 Measurement Uncertainty

Parameter	Expanded Uncertainty (Confidence of 95%(U = 2Uc(y)))
Conducted Emission for LISN (9kHz ~ 10MHz)	1.9 dB
Conducted Emission for LISN (10MHz ~ 30MHz)	2.6 dB
Radiated Emission (30MHz ~ 1GHz) (3m SAC)	3.8 dB
Radiated Emission (1GHz ~ 18GHz) (3m SAC)	3.6 dB
Radiated Emission (18GHz ~ 40GHz) (3m SAC)	5.34 dB

Note: All the measurement uncertainty value were shown with a coverage k=2 to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.

3.6 Additions to, Deviations, or Exclusions from the Method

No

3.7 Laboratory Facility

The test facility is recognized, certified, or accredited by the following organizations:

• FCC - Designation No.: CN1211

JianYan Testing Group Shenzhen Co., Ltd. has been accredited as a testing laboratory by FCC(Federal Communications Commission). The test firm Registration No. is 727551.

• ISED – CAB identifier.: CN0021

The 3m Semi-anechoic chamber and 10m Semi-anechoic chamber of JianYan Testing Group Shenzhen Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

• CNAS - Registration No.: CNAS L15527

JianYan Testing Group Shenzhen Co., Ltd. is accredited to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L15527.

• A2LA - Registration No.: 4346.01

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: <u>https://portal.a2la.org/scopepdf/4346-01.pdf</u>

3.8 Laboratory Location

JianYan Testing Group Shenzhen Co., Ltd. Address: No.101, Building 8, Innovation Wisdom Port, No.155 Hongtian Road, Huangpu Community, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, People's Republic of China. Tel: +86-755-23118282, Fax: +86-755-23116366 Email: info-JYTee@lets.com, Website: <u>http://jyt.lets.com</u>



3.9 Test Instruments List

Radiated Emission(3m SAC):						
Test Equipment	Manufacturer	Model No.	Model No. Manage No.		Cal. Due date (mm-dd-yy)	
3m SAC	ETS	9m*6m*6m	WXJ001-1	04-14-2021	04-13-2024	
Loop Antenna	Schwarzbeck	FMZB 1519 B	WXJ002-4	03-07-2022	03-06-2023	
BiConiLog Antenna	Schwarzbeck	VULB9163	WXJ002	03-08-2022	03-07-2023	
Horn Antenna	Schwarzbeck	BBHA9120D	WXJ002-2	03-08-2022	03-07-2023	
Horn Antenna	Schwarzbeck	BBHA9170	WXJ002-5	04-07-2022	04-06-2023	
Pre-amplifier (30MHz ~ 1GHz)	Schwarzbeck	BBV9743B	WXJ001-2	01-20-2022	01-19-2023	
Pre-amplifier (1GHz ~ 18GHz)	SKET	LNPA_0118G-50	WXJ001-3	01-20-2022	01-19-2023	
Pre-amplifier (18GHz ~ 40GHz)	RF System	TRLA-180400G45B	WXJ002-7	03-30-2022	03-29-2023	
EMI Test Receiver	Rohde & Schwarz	ESRP7	WXJ003-1	03-05-2022	03-04-2023	
Spectrum Analyzer	Rohde & Schwarz	FSP 30	WXJ004	01-20-2022	01-19-2023	
Spectrum Analyzer	KEYSIGHT	N9010B	WXJ004-2	10-17-2022	10-16-2023	
Coaxial Cable (30MHz ~ 1GHz)	JYTSZ	JYT3M-1G-NN-8M	WXG001-4	01-20-2022	01-19-2023	
Coaxial Cable (1GHz ~ 18GHz)	JYTSZ	JYT3M-18G-NN-8M	WXG001-5	01-20-2022	01-19-2023	
Coaxial Cable (18GHz ~ 40GHz)	JYTSZ	JYT3M-40G-SS-8M	WXG001-7	01-20-2022	01-19-2023	
Band Reject Filter Group	Tonscend	JS0806-F	WXJ089	N/A		
Test Software	Tonscend	TS+		Version: 3.0.0.1		



Conducted Emission:						
Test Equipment	Manufacturer	Model No.	Manage No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)	
EMI Test Receiver	Rohde & Schwarz	ESR3	WXJ003-2	07-12-2022	07-11-2023	
LISN	Schwarzbeck	NSLK 8127	QCJ001-13	02-24-2022	02-23-2023	
LISN	Rohde & Schwarz	ESH3-Z5	WXJ005-1	03-30-2022	03-29-2023	
LISN Coaxial Cable (9kHz ~ 30MHz)	JYTSZ	JYTCE-1G-NN-2M	WXG003-1	02-24-2022	02-23-2023	
RF Switch	TOP PRECISION	RSU0301	WXG003 N/A			
Test Software	AUDIX	E3	V	/ersion: 6.11091	9b	

Conducted Method:						
Test Equipment	Manufacturer	Model No.	Manage No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)	
Spectrum Analyzer	Keysight	N9010B	WXJ004-3	10-17-2022	10-16-2023	
Temperature Humidity Chamber	ZHONG ZHI	CZ-A-80D	WXJ032-3	03-19-2021	03-18-2023	
Power Detector Box	MWRFTEST	MW100-PSB	WXJ007-4	10-17-2022	10-16-2023	
DC Power Supply	Keysight	E3642A	WXJ025-2	N/A		
RF Control Unit	MWRFTEST	MW100-RFCB	WXG006 N/A		I/A	
Test Software	MWRFTEST	MTS 8310		Version: 2.0.0.0		



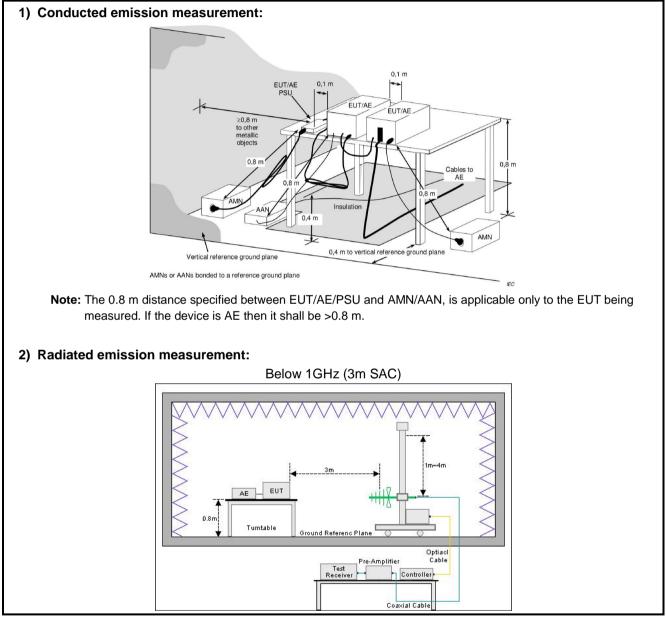
4 Measurement Setup and Procedure

4.1 Test Channel

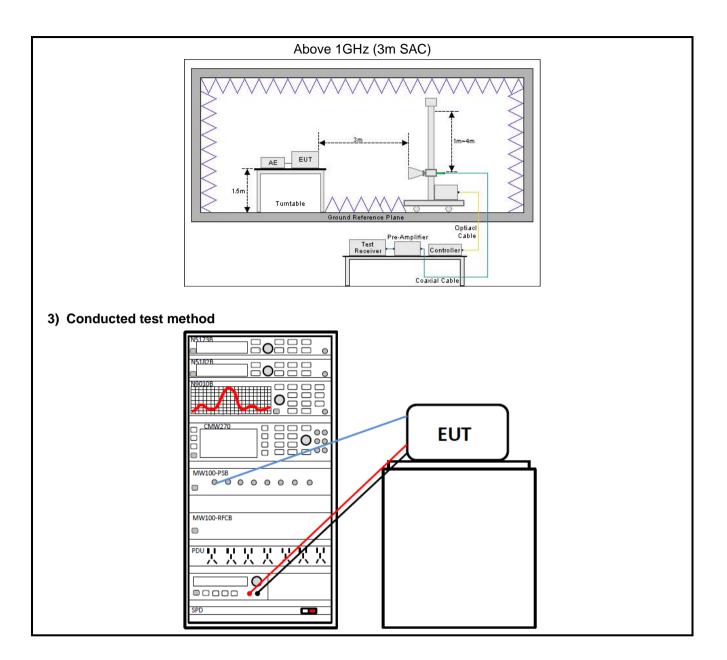
According to ANSI C63.10-2013 chapter 5.6.1 Table 4 requirement, select lowest channel, middle channel, and highest channel in the frequency range in which device operates for testing. The detailed frequency points are as follows:

Lowe	est channel	Middle channel		Middle channel Highest channel	
Channel No.	Frequency (MHz)	Channel No.	annel No. Frequency (MHz)		Frequency (MHz)
0	2402	20	2442	39	2480

4.2 Test Setup









4.3 Test Procedure

Test method	Test step
Conducted emission	 The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.
Radiated emission	For below 1GHz:
	1. The EUT was placed on the tabletop of a rotating table 0.8 m the ground at a 3 m semi anechoic chamber. The measurement distance from the EUT to the receiving antenna is 3 m.
	 EUT works in each mode of operation that needs to be tested , and having the EUT continuously working, respectively on 3 axis (X, Y & Z) and considered typical configuration to obtain worst position. The highest signal levels relative to the limit shall be determined by rotating the EUT from 0° to 360° and with varying the measurement antenna height between 1 m and 4 m in vertical and horizontal polarizations. Open the test software to control the test antenna and test turntable. Perform the test, save the test results, and export the test data.
	For above 1GHz:
	 The EUT was placed on the tabletop of a rotating table 1.5 m the ground at a 3 m fully anechoic room. The measurement distance from the EUT to the receiving antenna is 3 m.
	2. EUT works in each mode of operation that needs to be tested, and having
	the EUT continuously working, respectively on 3 axis (X, Y & Z) and considered typical configuration to obtain worst position. The highest signal levels relative to the limit shall be determined by rotating the EUT from 0° to 360° and with varying the measurement antenna height between 1 m and 4 m in vertical and horizontal polarizations.
	3. Open the test software to control the test antenna and test turntable. Perform
Conducted test method	 the test, save the test results, and export the test data. The BLE antenna port of EUT was connected to the test port of the test
	system through an RF cable.
	 The EUT is keeping in continuous transmission mode and tested in all modulation modes.
	3. Open the test software, prepare a test plan, and control the system through
	the software. After the test is completed, the test report is exported through the test software.
L	



5 Test Results

5.1 Summary

5.1.1 Clause and Data Summary

Test items	Standard clause	Test data	Result
Antenna Requirement	15.203 15.247 (b)(4)	See Section 5.2	Pass
AC Power Line Conducted Emission	15.207	See Section 5.3	Pass
Conducted Output Power	15.247 (b)(3)	Appendix A – BLE 1M PHY Appendix B – BLE 2M PHY Appendix C – BLE Coded PHY, S=2 Appendix D – BLE Coded PHY, S=8	Pass
6dB Emission Bandwidth 99% Occupied Bandwidth	15.247 (a)(2)	Appendix A – BLE 1M PHY Appendix B – BLE 2M PHY Appendix C – BLE Coded PHY, S=2 Appendix D – BLE Coded PHY, S=8	Pass
Power Spectral Density	15.247 (e)	Appendix A – BLE 1M PHY Appendix B – BLE 2M PHY Appendix C – BLE Coded PHY, S=2 Appendix D – BLE Coded PHY, S=8	Pass
Band-edge Emission Conduction Spurious Emission	15.247 (d)	Appendix A – BLE 1M PHY Appendix B – BLE 2M PHY Appendix C – BLE Coded PHY, S=2 Appendix D – BLE Coded PHY, S=8	Pass
Emissions in Restricted Frequency Bands	15.205 15.247 (d)	See Section 5.4	Pass
Emissions in Non-restricted Frequency Bands	15.209 15.247(d)	See Section 5.5	Pass

Remark:

1. Pass: The EUT complies with the essential requirements in the standard.

2. N/A: Not Applicable.

3. The cable insertion loss used by "RF Output Power" and other conduction measurement items is 0.5dB (provided by the customer).

Test Method: KDB 558074 D01 15.247 Meas Guidance v05r02	



5.1.2 Test Limit

AC Power Line Conducted Frequency Quasi- 0.15 - 0.5 66 to 50 0.5 - 5 50 0.15 - 0.5 66 to 50 0.5 - 5 50 0.15 - 0.5 66 to 50 0.5 - 5 50 0.15 - 0.5 66 to 50 0.5 - 30 60 Note 1: The limit level in dBµV decreases linearly Note 2: The more stringent limit applies at transition 6dB Emission Bandwidth The minimum 6 dB bandwidth shall be at 99% Occupied Bandwidth N/A Power Spectral Density For digitally modulated systems, the power In any 100 kHz bandwidth outside the fre spectrum or digitally modulated intentional frequency power that is produced by the id dB below that in the 100 kHz bandwidth outside the fre generation Spectrum or digitally modulated intentional frequency power that is produced by the id dB below that in the 100 kHz bandwidth outside the fre band-edge Emission In any 100 kHz bandwidth outside the fre Conduction Spurious Emission If the peak conducted power limits. If the tra power limits based on the use of RMS av permitted under paragraph (b)(3) of this se thi	with the logarithm of free n frequencies. e 902-928 MHz, least 500 kHz. er spectral densit ot be greater thar	2400-2483.5 MHz, y conducted from t
AC Power Line Conducted Emission 0.15 - 0.5 66 to 56 0.5 - 30 0.5 - 5 56 5 - 30 66 Note 1: The limit level in dBµV decreases linearly Note 2: The more stringent limit applies at transition of 5725-5850 MHz bands: 1 Watt. 6dB Emission Bandwidth For systems using digital modulation in the and 5725-5850 MHz bands: 1 Watt. 6dB Emission Bandwidth The minimum 6 dB bandwidth shall be at 99% Occupied Bandwidth Power Spectral Density For digitally modulated systems, the power intentional radiator to the antenna shall ne band during any time interval of continuon frequency power that is produced by the id dB below that in the 100 kHz bandwidth verification frequency power that is produced by the id dB below that in the 100 kHz bandwidth verificated measurement, provided the transitive power limits based on the use of RMS av permitted under paragraph (b)(3) of this set this paragraph shall be 30 dB instead of 2 limits specified in §15.209(a) is not requirin which fall in the restricted bands, as defining with the radiated emission limits specified Emissions in Restricted Frequency Limit (dB (MHz) Q 3m 30 - 88 40.0 88 - 216 43.5	with the logarithm of free n frequencies. e 902-928 MHz, least 500 kHz. er spectral densit ot be greater thar	56 to 46 Note 1 46 50 quency. 2400-2483.5 MHz, y conducted from t
AC Power Line Conducted 0.5-5 56 Emission 0.5-30 60 Note 1: The limit level in dBµV decreases linearly Note 2: The more stringent limit applies at transition Conducted Output Power For systems using digital modulation in the and 5725-5850 MHz bands: 1 Watt. 6dB Emission Bandwidth The minimum 6 dB bandwidth shall be at 99% Occupied Bandwidth N/A Power Spectral Density For digitally modulated systems, the power intentional radiator to the antenna shall ne band during any time interval of continuor Band-edge Emission In any 100 kHz bandwidth outside the free spectrum or digitally modulated intentional frequency power that is produced by the id B below that in the 100 kHz bandwidth whighest level of the desired power, based radiated measurement, provided the transite the peak conducted power limits. If the transite the peak conducted power limits is produced by the id B below that in the 100 kHz bandwidth whighest level of the desired power, based is this paragraph (b)(3) of this set this paragraph shall be 30 dB instead of 2 limits specified in §15.209(a) is not requir which fall in the restricted bands, as defining with the radiated emission limits specified Emissions in Restricted Frequency Limit (dB (MHz) 88 – 216 43.5	with the logarithm of free n frequencies. e 902-928 MHz, least 500 kHz. er spectral densit of be greater thar	46 50 quency. 2400-2483.5 MHz, y conducted from t
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Power Spectral DensityFor digitally modulated systems, the power intentional radiator to the antenna shall me band during any time interval of continuouBand-edge EmissionIn any 100 kHz bandwidth outside the free spectrum or digitally modulated intentional frequency power that is produced by the dB below that in the 100 kHz bandwidth we highest level of the desired power, based radiated measurement, provided the transitive power limits based on the use of RMS av permitted under paragraph (b)(3) of this si this paragraph shall be 30 dB instead of 2 limits specified in §15.209(a) is not require which fall in the restricted bands, as definis with the radiated emission limits specifiedEmissions in RestrictedFrequency (MHz)Limit (dB (MHz)Emissions in Restricted88 – 21643.5	ot be greater than	
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Band-edge Emissionspectrum or digitally modulated intentional frequency power that is produced by the dB below that in the 100 kHz bandwidth w highest level of the desired power, based radiated measurement, provided the trans the peak conducted power limits. If the trans power limits based on the use of RMS av permitted under paragraph (b)(3) of this si this paragraph shall be 30 dB instead of 2 limits specified in §15.209(a) is not require which fall in the restricted bands, as define with the radiated emission limits specifiedEmissions in RestrictedFrequencyLimit (dB @ 3mEmissions in Restricted30 - 8840.0	us transmission.	
(MHz) @ 3m 30 - 88 40.0 Emissions in Restricted 88 - 216 43.5	al radiator is opera ntentional radiator vithin the band the on either an RF smitter demonstra ansmitter complie eraging over a tim ection, the attenue 20 dB. Attenuation ed. In addition, ra ed in §15.205(a),	ating, the radio or shall be at least a at contains the conducted or a ates compliance wi as with the conducted ne interval, as uation required und n below the general adiated emissions , must also comply
30 - 88 40.0 Emissions in Restricted 88 - 216 43.5		Detector
Emissions in Restricted 88 – 216 43.5	· · · · · · · · · · · · · · · · · · ·	
	@ 10m	Quasi paak
	@ 10m 30.0	Quasi-peak Quasi-peak
960 - 1000 54.0	@ 10m 30.0 33.5	Quasi-peak
	@ 10m 30.0 33.5 36.0	Quasi-peak Quasi-peak
Emissions in Non-restricted	@ 10m 30.0 33.5 36.0 44.0	Quasi-peak
Frequency Bands Frequency Avera	@ 10m 30.0 33.5 36.0 44.0 frequencies.	Quasi-peak Quasi-peak Quasi-peak
Above 1 GHz 54.0	@ 10m 30.0 33.5 36.0 44.0 frequencies. Limit (dBµV/m) @ 3i	Quasi-peak Quasi-peak Quasi-peak
Note: The measurement bandwidth shall be 1 MH	@ 10m 30.0 33.5 36.0 44.0 frequencies. Limit (dBµV/m) @ 3ige	Quasi-peak Quasi-peak Quasi-peak m



5.2 Antenna requirement

Standard requirement: FCC Part 15 C Section 15.203 /247(b)(4)

15.203 requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

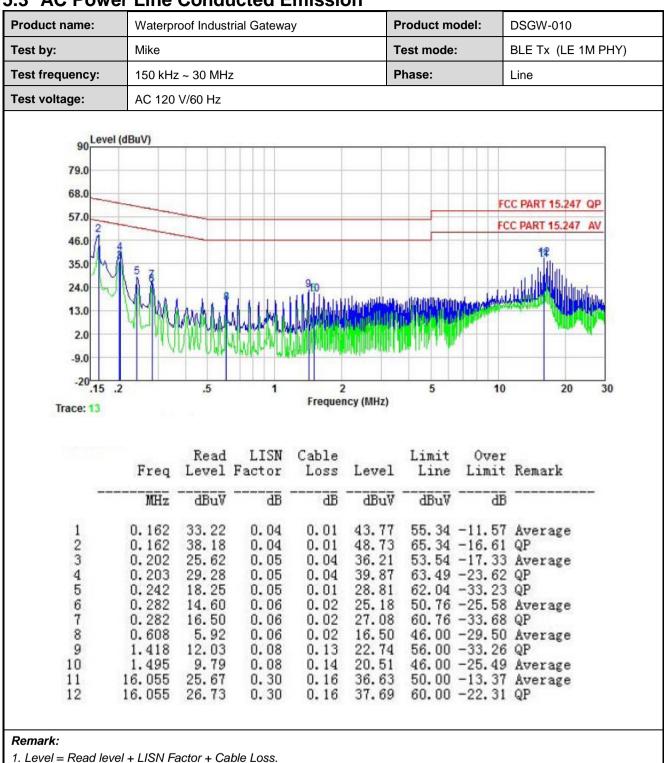
15.247(b) (4) requirement:

(4) The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

E.U.T Antenna:

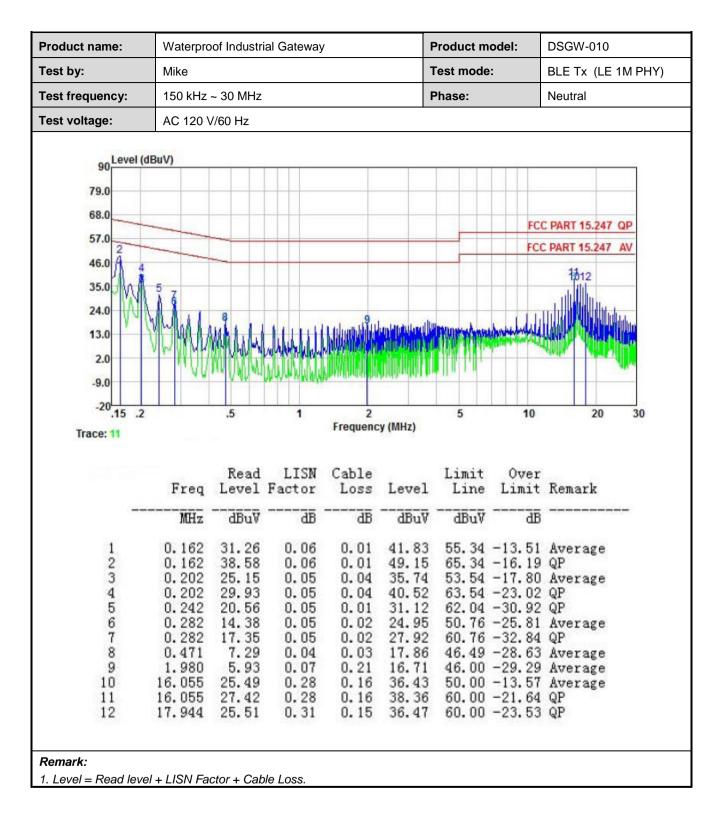
The BLE antenna is an external antenna which cannot replace by end-user, the best case gain of the antenna is 0.98 dBi. See product internal photos for details.





5.3 AC Power Line Conducted Emission



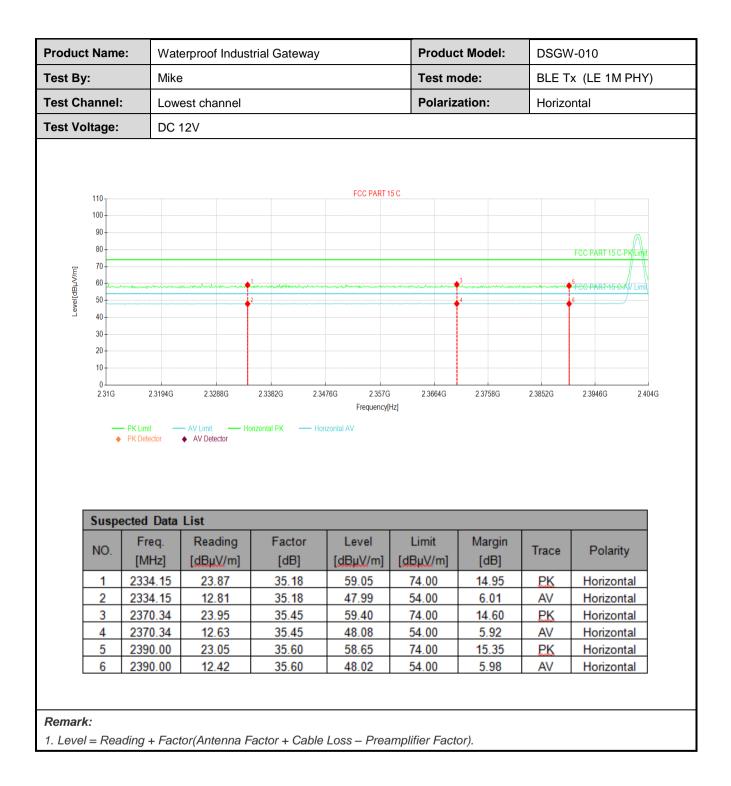






5.4 Emissions in Restricted Frequency Bands





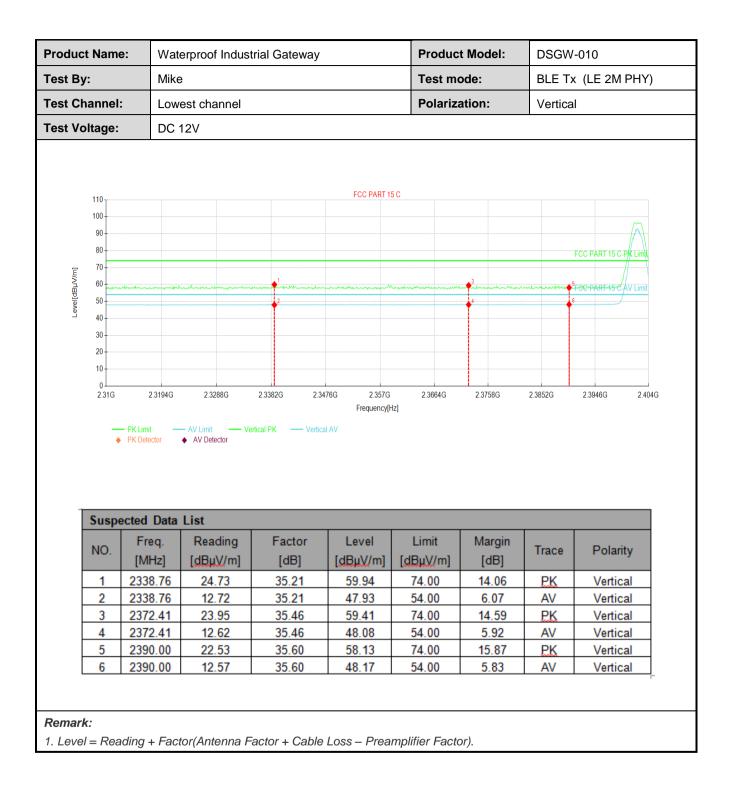


				strial Gateway		Produc	t Model:	DSGW	/-010
By:		Mike				Test m	ode:	BLE T	x (LE 1M PHY)
Channe	l:	Highe	est channel			Polariza	ation:	Vertica	al
Voltage	:	DC 1	2V						
110 100 90 80 70 60 50 40				1. 2.	FCC PART 1	5 C		.5	FCC PART 15 C-PK Limit
40 30 20 10 2.478G	 ≥ 2. PK Limit PK Detect 		2.4824G AV Limit AV Detector	2.4846G 2.48 Vertical PK — Vertica	Frequency[I	2.4912G [z]	2.4934G	2.4956G	2.4978G 2.50
	- PK Limit	or 🔸	AV Limit AV Detector		Frequency[I		2.4934G	2.4956G	2.4978G 2.50
	PK Limit PK Detec	or • Data L 7.	AV Limit AV Detector		Frequency[I		2.4934G Margin [dB]	2.4956G	2.4978G 2.50 Polarity
30 20 10 0 2.478G	PK Limit ♦ PK Detected I Free	or • Data L न. z]	AV Limit AV Detector	Vertical PK — Vertica Factor	Frequency[IZ] Limit	Margin		
30 20 10 0 2.4786	PK Limit ◆ PK Detec	or • Data L 	AV Limit AV Detector	Vertical PK — Vertical Factor [dB]	Frequency[al AV Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Trace	Polarity
30 20 10 2.4786 Susp NO. 1	PK Limit ◆ PK Detec ected I Fre [MH 2483	or • Data L 7. 2] 50 50	AV Limit AV Detector	Vertical PK — Vertico Factor [dB] 35.51	Frequency[Limit [dBµV/m] 74.00	Margin [dB] 15.41	Trace	Polarity Vertical
30 20 10 0 2.4780 Susp NO. 1 2	PK Limit ◆ PK Detec ected I Fre [MH 2483 2483	or ♦ Data L ק. z] 50 50 47	AV Limit AV Detector ist Reading [dBµV/m] 23.08 12.98	Vertical PK — Vertical Factor [dB] 35.51 35.51	Frequency[Level [dBµV/m] 58.59 48.49	Limit [dBµV/m] 74.00 54.00	Margin [dB] 15.41 5.51	Trace PK AV	Polarity Vertical Vertical
30 20 10 0 2.4780 Susp NO. 1 2 3	 PK Limit PK Detected Free [MH 2483 2483 2488 	Data L 1- 2 50 50 47 47	AV Limit AV Detector ist Reading [dBµV/m] 23.08 12.98 12.61	Vertical PK — Vertical Factor [dB] 35.51 35.51 35.50	Frequency[Level [dBµV/m] 58.59 48.49 48.11	Limit [dBµV/m] 74.00 54.00 54.00	Margin [dB] 15.41 5.51 5.89	Trace PK AV AV	Polarity Vertical Vertical Vertical

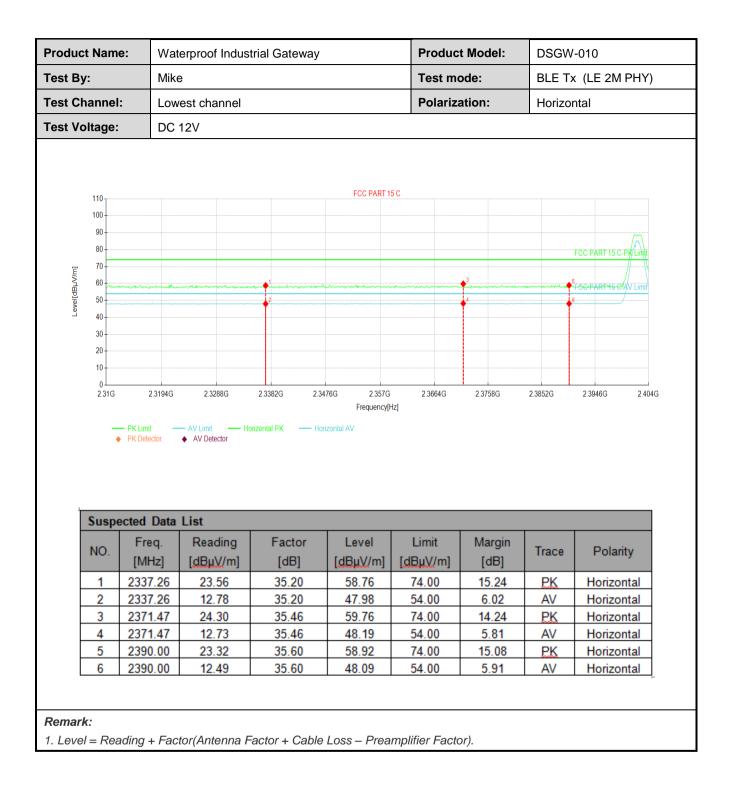


			proori	indust	rial Gate	eway			Pro	oduct	Model:		DSGV	N-010)	
t By:		Mike							Tes	st mo	de:		BLE 1	Γx (L	E 1M	РΗ
t Channe	1:	Highe	st cha	nnel					Pol	ariza	tion:		Horizo	ontal		
t Voltage	:	DC 12	2V													
110 100 90 80 70 60 50 60							FCC F	ART 15 C)				5.		ART 15 C-	
	 ⇒ PK Limit ◆ PK Detect 		2.4824 AV Limit AV Detect	Ho	2.4846G	2.480		I89G ency[Hz]	2.491	2G	2.4934G	2	.4956G	2.49	78G	2.
40 30 20 10 0 2.478G	— PK Limit	or 🔶	AV Limit AV Detect	Ho			Frequ				2.4934G	2	4956G	2.49	78G	2.
40 30 20 10 0 2.478G	PK Limit ♦ PK Detect	or • Data L q.	AV Limit AV Detect	- Ho or		— Hor	Frequ	ency[Hz]		1	24934G Margir [dB]	1	4956G		78G	
30 20 10 2.478G	PK Limit PK Detect	or \blacklozenge Data L q. z]	AV Limit AV Detect ist Readi	Hor or ing [/m]	rizontal PK	— Hor tor 3]	Frequencies for the second sec	ency[Hz]	Limit	: [m]	Margir	1		F		у
30 20 10 2.478G Susp NO.	PKLimit PKDeted	or +	AV Limit AV Detect ist Readi [dBµV	— Ho or ing /m]	izontal PK Fact [dE	— Hor tor 3] 51	Frequence of the second	n]	Limit [dBµV/	: m]	Margir [dB]	1	Trace	F	Polarit	y
30 20 10 2.478G Susp NO. 1	PK Limit PK Detect PK Detect I Free [MH 2483	or • Data L q. z] .50 .50	AV Limit AV Detect ist Readi [dBµV 23.3	ing (/m] 9	Fact [dE 35.5	— Hor tor 3] 51 51	Frequences	n]	Limit [dBµV/ 74.00	: [m])	Margir [dB] 15.10	1	Trace	F	^o olarit orizon	y tal
10 20 10 2.478G Susp NO. 1 2	 → PKLimit → PKDeted → PKDete	or ♦ Data L q. [z] .50 .50 .42	AV Limit AV Detect ist Readi [dBµV 23.3 12.6	ing //m] 9 9 6	Fact [dE 35.5	Hor tor 3] 51 51 50	Erequ izontal AV	n]	Limit [dBµV/ 74.00 54.00	im]))	Margir [dB] 15.10 5.80	1	Trace <u>PK</u> AV	F Hi Hi	^o olarit orizon orizon	y tal tal
30 20 10 0 2.478G NO. 1 2 3	 PKLimit PK Detect PK Detect Free [MH 2483 2483 2488 	Data L q. [2] .50 .50 .42 .42	AV Limit AV Detect ist Readi [dBµV 23.3 12.6 12.3	Hor or ing /m] 9 9 9 6 3	Fact [dE 35.5 35.5	Hor tor 3] 51 51 50 50	Erequ Izontal AV	n]	Limit [dBµV/ 74.00 54.00 54.00	m] [Margir [dB] 15.10 5.80 6.14	1	Trace <u>PK</u> AV	F Hu Hu Hu	^o olarit orizon orizon orizon	y tal tal tal









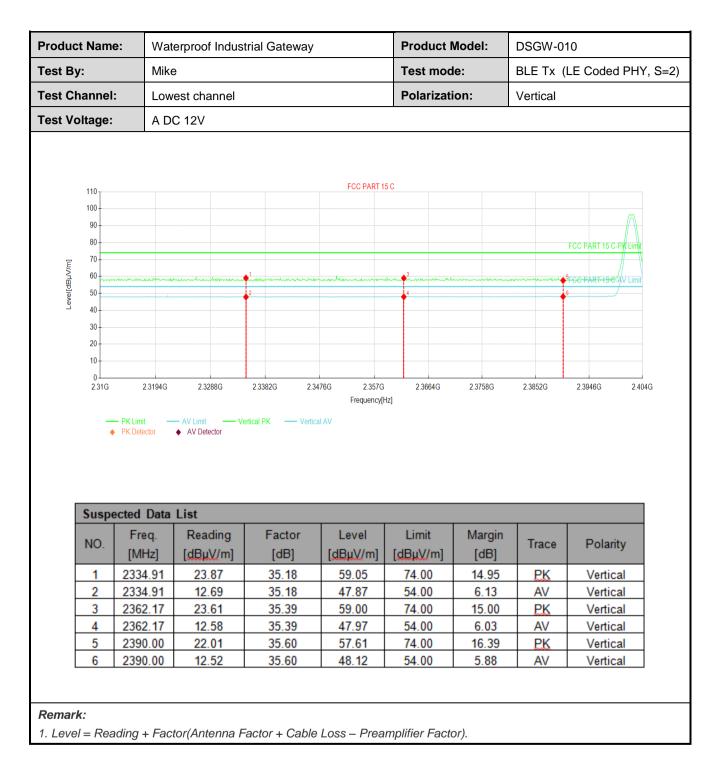


oduct Name: st By:			strial Gateway		Produc	Product Model:		DSGW-010	
By:	М	ke			Test m	ode:	BLE T	x (LE 2M PHY)	
Channe	l: Hi	ghest channel			Polariz	ation:	Vertica	al	
Voltage	D	C 12V							
110 100 90 80 70 60 60 50 40				FCC PART 1	5 C		5	FCC PART 15 C-PK Limit	
40 30 20 10 0 2.478G	2.4802 — PK Limit • PK Detector		2.4846G 2.48 /ertical PK — Vertica	Frequency[H	2.4912G iz]	2.4934G	2 4956G	2.4978G 2.50	
40 30 20 10 0 2.478G	- PK Limit	AV Limit AV Detector		Frequency[H	iz]	2.4934G	2.4956G	2.4978G 2.50	
40 30 20 10 0 2.478G	 PK Limit PK Detector 	AV Limit AV Detector		Frequency[H		2.4934G Margin [dB]	2.4956G	2.4978G 2.50 Polarity	
40 30 20 10 0 2.478G	PK Limit PK Detector	AV Limit AV Detector Ta List Reading [dBµV/m] 23.62	Vertical PK — Vertica	Frequency[+ al AV	Limit [dBµV/m] 74.00	Margin			
30 20 10 0 2.478G NO. 1 2	 PK Limit PK Detector ected Da Freq. [MHz] 2483.50 2483.51 	AV Limit AV Detector a List Reading [dBµV/m] 23.62 13.14	Factor [dB] 35.51 35.51	Erequency[+	Limit [dBµV/m] 74.00 54.00	Margin [dB] 14.87 5.35	Trace <u>PK</u> AV	Polarity Vertical Vertical	
40 30 20 10 0 2.478G Susp NO. 1 2 3	 PK Limit PK Detector ected Da Freq. [MHz] 2483.50 2483.50 2489.57 	AV Limit AV Detector a List Reading [dBµV/m] 23.62 13.14 12.39	Factor [dB] 35.51 35.51 35.50	Erequency[+	Limit [dBµV/m] 74.00 54.00 54.00	Margin [dB] 14.87 5.35 6.11	Trace PK AV AV	Polarity Vertical Vertical Vertical	
10 20 10 0 2.478G NO. 1 2 3 4	ected Da Freq. [MHz] 2483.50 2489.57 2489.57	AV Limit AV Detector AV DETEC	Factor [dB] 35.51 35.50 35.50	Frequency[+ al AV Level [dBµ\//m] 59.13 48.65 47.89 58.83	Limit [dBµV/m] 74.00 54.00 54.00 74.00	Margin [dB] 14.87 5.35 6.11 15.17	Trace PK AV AV PK	Polarity Vertical Vertical Vertical Vertical	
40 30 20 10 0 2.478G Susp NO. 1 2 3	 PK Limit PK Detector ected Da Freq. [MHz] 2483.50 2483.50 2489.57 	AV Limit AV Detector AV Detector AV Detector AV Detector AV Detector AV Detector AV Detector AV Detector (dBµV/m) 23.62 13.14 23.33 23.33 23.13	Factor [dB] 35.51 35.51 35.50	Erequency[+	Limit [dBµV/m] 74.00 54.00 54.00	Margin [dB] 14.87 5.35 6.11	Trace PK AV AV	Polarity Vertical Vertical Vertical	



oduct Name: st By:		Waterproof Industrial Gateway							Product Model:		DSGW-010					
Ву:		Mike							Test n	node:		BL	E Tx	(LE	2M I	РΗΥ
Channe	el:	Highe	st chann	el					Polari	zation	:	Но	orizor	ntal		
Voltage	:	DC 12	2V													
110 100 90 80 70 70 60 50 40				2			FCC PAF	Γ 15 C		*				;	RT 15 C-P	
40 30 20 10 2.478G	 ⇒ 2.4 → PK Limit ◆ PK Detect 		2.4824G AV Limit - AV Detector	2.4{ — Horizont	B46G tal PK —	2.4868G — Horizon	Frequen		2 4912G	2.49	334G	2.4956G	3	2.497{	3G	2.
40 30 20 10 0 2.478G	— PK Limit	or 🔶	AV Limit — AV Detector				Frequen		24912G	2.49	934G	2.4956G	3	2.497	3G	2.
40 30 20 10 0 2.478G	← PK Limit ◆ PK Detect	or • Data L 7.	AV Limit — AV Detector	– Horizont		- Horizon	Frequen	y(Hz)	24912G Limit BµV/m]	Ma	argin dB]	2.4956G			olarit	
30 20 10 2.478G	PK Limit PK Detect	or ↓ Data L]. z]	AV Limit – AV Detector ist Reading	– Horizont	Factor	- Horizon	Frequen tal AV	y(Hz)	Limit	Ma [0	argin	_	се	P		4
30 20 10 0 2.478G	PK Limit PK Detect PC Detect PK Detect PK Detect PK Detect	or ↓ Data L q. z] 50	AV Limit — AV Detector ist Reading [dBµV/m	– Horizont	Factor [dB]	- Horizon	Eevel dBuV/m 57.78 47.99	y[Hz]	Limit BµV/m]	Ma [1	argin dB]	Tra	ce K	P	olarit	y al
30 20 10 0 2.478G Susp NO. 1	PK Limit PK Detect PC Teected [MH 2483.	or ♦ Data L 3. 2] 50 50	AV Limit — AV Detector ist Reading [dBuV/m 22.27	– Horizont	Factor [dB] 35.51	- Horizon	Frequent tal AV Level dBµV/m 57.78	y[Hz]	Limit BµV/m] 74.00	Ma [4 16 6	argin dB] 6.22	Tra	ce K	P	olarit	y al
30 20 10 0 2.478G Susp NO. 1 2	 → PK Limit → PK Deted → PK Deted	or ♦ Data L 	AV Limit AV Detector ist Reading [dBµV/m 22.27 12.48	– Horizont	Factor [dB] 35.51 35.51	- Horizon	Eevel dBuV/m 57.78 47.99	y[Hz]	Limit BµV/m] 74.00 54.00	Ma [4 10 6 6	argin dB] 5.22 5.01	Tra Pi A\	ce K V	P Ho Ho	olarit	y al al
30 20 10 2.4780 Susp NO. 1 2 3	 PK Limit PK Detect PK Detect Free [MH 2483. 2488. 	or ↓ Data L 3. 2] 50 50 69 69	AV Limit AV Detector ist Reading [dBµV/m 22.27 12.48 12.45	– Horizont	Factor [dB] 35.51 35.50	- Horizon	Eevel dBµV/m 57.78 47.99 47.95	y[Hz]	Limit BµV/m] 74.00 54.00 54.00	Ma [4 10 6 6 14	argin dB] 5.22 5.01 5.05	Tra Pl A\ A\	ce K V V	P Ho Ho Ho	olarit rizon	y al al al

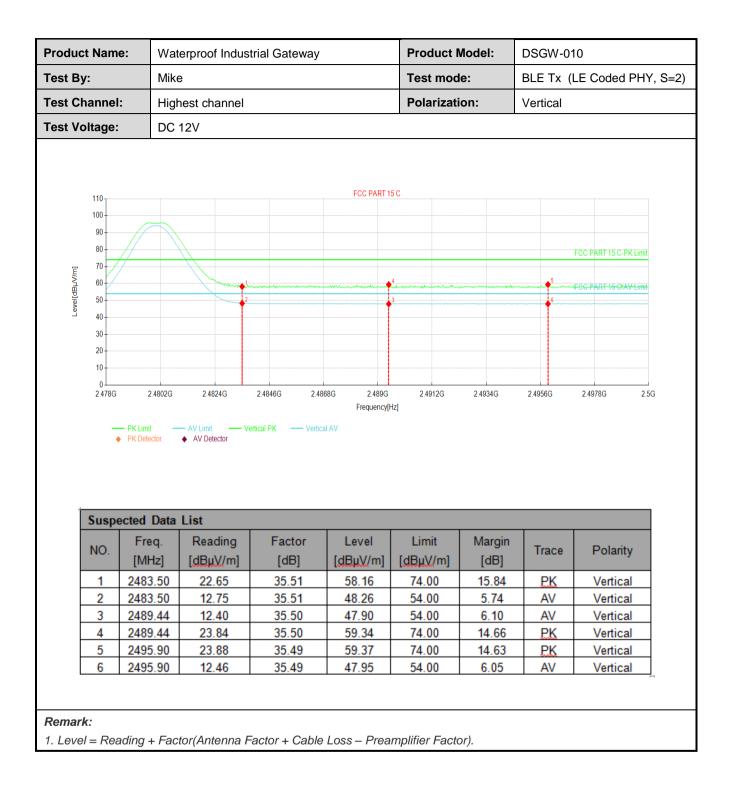




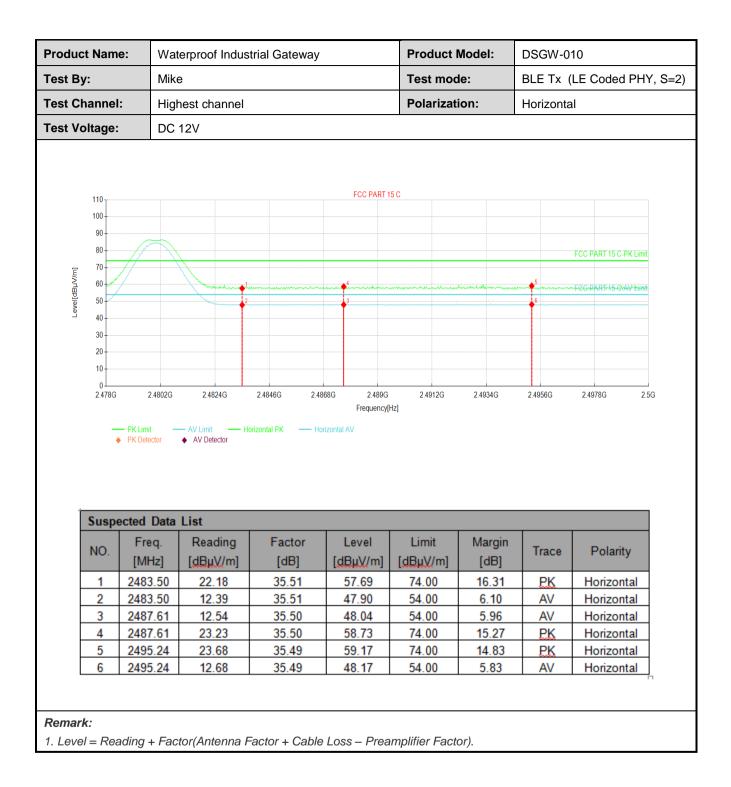


	ame:	vvale	erproof Indust	rial Gateway		Product N	lodel:	DSGW-01	0
Test By:		Mike	1			Test mode	e:	BLE Tx(L	_E Coded PHY, S=
Test Chan	nel:	Lowe	est channel			Polarizatio	on:	Horizontal	l
Fest Volta	ge:	DC 1	2V						
110 100 90 80 Europia 60 10 50 50					FCC PART 15	C			FCC PART 15 C-PK Limit
40 30 20 10 0	0 0 0 2.31G		2.3288G - AV Limit Hot AV Detector	2.3382G 2.347 rizontal PK — Horiz	6G 2.357G Frequency[Hz ontal AV	2.3664G 2]	2.3758G	2.3852G	2.3946G 2.404G
40 30 20 10 2.	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	K Limit —	 AV Limit → Hor AV Detector 		Frequency[Hz		2.3758G	2.3852G	2.3946G 2.404G
30 20 10 2 2 Su	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	K Limit	 AV Limit → Hor AV Detector 		Frequency[Hz		2.3758G Margin [dB]	2.3852G	23946G 2.404G
30 20 10 0 2. Su	0 0 2.31G 	ted Data Freq. [MHz] 2333.59	AV Limit Hor AV Detector	Factor [dB] 35.17	Frequency[Hz ontal AV Level [dBµV/m] 59.00	Limit [dBµV/m] 74.00	Margin [dB] 15.00	Trace <u>PK</u>	Polarity Horizontal
30 20 10 0 2. Su N(0 0 0 2.31G 0 2.31G 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ted Data Freq. [MHz] 2333.59 2333.59	AV Limit Hor AV Detector List Reading [dBµV/m] 23.83 12.58	Factor [dB] 35.17 35.17	Frequency[Hz ontal AV Level [dBµV/m] 59.00 47.75	Limit [dBµV/m] 74.00 54.00	Margin [dB] 15.00 6.25	Trace PK AV	Polarity Horizontal Horizontal
30 20 10 0 2. Su N(0 0 0 0 0 0 0 0 0 0 0 0 0 0	K Limit K Detector ted Data Freq. [MHz] 2333.59 2333.59 2333.59 2368.18	AV Limit Hor AV Detector	Factor [dB] 35.17	Frequency[Hz ontal AV Level [dBµV/m] 59.00	Limit [dBµV/m] 74.00	Margin [dB] 15.00 6.25 15.29	Trace <u>PK</u>	Polarity Horizontal
30 20 10 2 2 5 4 5 4	0 0 0 2.31G 0 2.31G 0	ted Data Freq. [MHz] 2333.59 2333.59	AV Limit Hor AV Detector List Reading [dBµV/m] 23.83 12.58	Factor [dB] 35.17 35.17	Frequency[Hz ontal AV Level [dBµV/m] 59.00 47.75	Limit [dBµV/m] 74.00 54.00	Margin [dB] 15.00 6.25	Trace PK AV	Polarity Horizontal Horizontal
30 20 10 0 2. Su N0 2.	0 0 231G 0 231G 0 0 0 0 231G 0 0 0 0 0 0 0 0 0 0 0 0 0	K Limit K Detector ted Data Freq. [MHz] 2333.59 2333.59 2333.59 2368.18	AV Limit Hor AV Detector List Reading [dBµV/m] 23.83 12.58 23.28	Factor [dB] 35.17 35.17 35.43	Frequency[Hz ontal AV Level [dBµV/m] 59.00 47.75 58.71	Limit [dBµV/m] 74.00 54.00 74.00	Margin [dB] 15.00 6.25 15.29	Trace PK AV PK	Polarity Horizontal Horizontal Horizontal









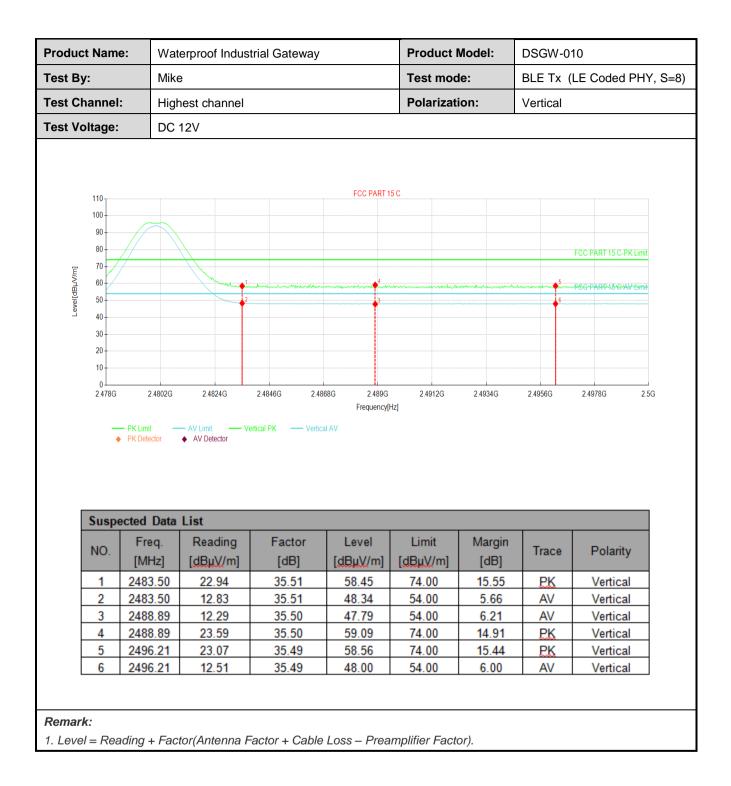


	Name			proor	Indus	inal G	ateway			Proc	duct N	Nodel:		DSGW	-010			
est By:		Ν	like							Test	mod	e:	E	BLE Tx	(LE	Code	ed Pl	⊣Υ, S⊧
est Cha	annel	: L	owes	st char	nnel					Pola	rizati	on:	`	Vertical				
est Vol	tage:	C	C 12	2V														
Level[dBµJV/m]	110 100 90 80 70 60 50 40				······································	1			FCC PART 1	5 C						PART 15		
Lew	30 20 10 0 2.31G	2.319 – PK Limit – PK Detector		2.328 AV Limit AV Detect	Ve	2.3382G	2. — Verti	3476G ical AV	2.357G Frequency[664G	2.3758G		2.3852G	23	3946G	2	2.404G
-	30 20 10 0 2.31G	– PK Limit	•	AV Limit AV Detect	Ve						664G	2.3758G		2 3852G	2.3	3946G		2.404G
	30 20 10 0 2.31G	– PK Limit	• •	AV Limit AV Detect	ve tor	rtical PK		ical AV			iit	2.3758G Marg	jin	2 3852G		Pola		2.404G
	30 20 10 231G	PK Limit PK Detector	•	AV Limit AV Detect ist Read	tor ling [/m]	Fa	Verti	ical AV	Frequency[لنة [dBu) 74.(iit ∦/m])0	Marg	jin				arity	2.404G
	30 20 10 2.31G • • • • • • • • • • • • • • • • • • •	PK Limit PK Detector PK Detector PK Detector PK Detector	• nta L	AV Limit AV Detect ist Read [dBµV	ling //m]	Fa	Verti actor dB]	Lu [dB	Frequency[evel	Lim	iit ∦/m])0	Marg [dB	jin]	Trace		Pola	arity	2.404G
	30 20 10 2.316 Suspe NO. 1	PK Limit PK Detector ected Da Freq. [MHz] 2334.3	•	AV Limit AV Detect ist Read [dBµV 23.9	ve tor ling (/m] 97 61	Fa		Li [dB 5: 4	Frequency[evel guv/m] 9.15	لنة [dBu) 74.(iit //m] 00	Marg [dB 14.8	jin] 5	Trace		Pola Vert Vert	arity ical ical	2.404G
	30 20 10 231G Susper NO. 1 2 3 4	ected Da Freq. [MHz] 2334.3 2364.1 2364.1	• • • • • • • • • • • • • • • • • • •	AV Limit AV Detect ist Read [dBµV 23.9 12.6	ling //m] 97 61 42	Fa	Verti actor dB] 5.18 5.18	Li [dB 5: 4: 5: 4:	Frequency[evel [µ]//m] 9.15 7.79 8.82 8.07	Lim [dBµ\ 74.(74.(54.(iit //m] 00 00 00	Marg [dB 14.8 6.2	jin [] [5 1 8	Trace <u>PK</u> AV		Pola Vert Vert	arity ical ical	2.404G
	30 20 10 231G Susper NO. 1 2 3	ected Da Freq. [MHz] 2334.3 2364.1	• • • • •	AV Limit AV Detect ist Read [dBµV 23.9 12.6 23.4	ling (/m] 97 51 42 57 80	Fra [3: 3: 3: 3: 3: 3: 3: 3: 3: 3: 3: 3: 3:		Li [dB 5: 4: 5: 4:	Frequency[evel buV/m] 9.15 7.79 8.82	Lim [dBµ\ 74.(54.(74.(iit //m] 00 00 00 00	Marg [dB 14.8 6.2 15.1	in] 55 1 8 33 00	Trace PK AV PK		Pola Vert Vert	arity ical ical ical	2.404G



	t Nam	•	aterp	root	Indus	strial	Gate	way			Pr	oduct	Mode	el:	DSG	W-0	10				
est By	:	N	ike								Те	st mo	de:		BLE	Tx ((LE C	Code	ed F	PHY,	, S=8
est Ch	annel	: L	owest	cha	nnel						Po	lariza	tion:		Horiz	zonta	al				
est Vo	Itage:	D	C 12	/																	
Level[dB, J/m]	110 100 90 80 70 60 50					1			F	CC PART	15 C	3					5		5 C-PK		
Leve	40 30 20 10 0 2.31G	2.319 – PK Limit – PK Detector	— A'	2.328 / Limit AV Detect	— H	2.33		2.34 — Hori		2.357(Frequency		2.3664G	2.3	758G	2.385;	2G	2.39	946G		2.4040	G
_	30 20 10 0 2.31G	— PK Limit	A\ •	/ Limit AV Detec	— H							2.3664G	2.3	758G	2.385	2G	2.39	946G		2.4044	G
_	30 20 10 0 2.31G	PK Limit PK Detector	ta Lis	/ Limit AV Detec	ctor H	orizonta		Hori	zontal AV		Hz]	2.3664G	M	argin dB]		20G		Pola	arity	2.4044	G
_	30 20 10 231G Suspe NO. 1	PK Limit PK Detector PC Detector PK Detector PK Detector PK Detector PK Limit PK Detector PK Limit PK Detector		/ Limit AV Detect st Read dBµV 24.1	Ling [//m] 18	orizonta	Factor [dB] 35.18	Hori	Le [dB] 59	Frequency vel v/m]	Hz] Li [dB] 74	mit IV/m]	M [argin dB] 4.64	Tra	ace K	F H	Pola	onta	1	G
_	30 20 10 0 2.316 Suspe NO. 1 2	 PK Limit PK Detector PK Detector 		x Detection x Det	ling (/m] 18 98	orizonta	Facto [dB] 35.18 35.18	Dr B B B B	Le [dB] 59	Frequency vel JV/m] .36 .16	Hz] [dBj 74 54	mit IV/m] .00	M [14	argin dB] 4.64 5.84	Tra E A	ace K	F H H	Pola	onta onta	1 1	G
_	30 20 10 231G Suspe NO. 1	PK Limit PK Detector PC Detector PK Detector PK Detector PK Detector PK Limit PK Detector PK Limit PK Detector		/ Limit AV Detect st Read dBµV 24.1	ling (/m] 18 98	orizonta	Factor [dB] 35.18	Dr B B B B	Le [dB] 59	Frequency vel v/m]	Li [dBı 74 54 74	mit [V/m] .00 .00	M [14	argin dB] 4.64	Tra E A	ace K	F H H	Pola	onta	1 1	G
_	30 20 10 2316 Suspe NO. 1 2 3 4	 PK Limit PK Detector PK Detector Ected Da Freq. [MHz] 2334.44 2334.44 2334.44 2336.7 2366.7 	A A A A A A A A A A A A A A A A A A A	/ Limit AV Detect st Read JBµV 24.1 12.9 24.2 12.6	ling //m] 18 28 51	orizonta	Facto [dB] 35.18 35.42 35.42	Pr Horr	Lee [dB] 59 48 59 48	Frequency vel v/m] .36 .16 .70 .03	Hz] [dB] 74 54 54 54	mit .V/m] .00 .00 .00	M [14	argin dB] 4.64 5.84	Tra E A A	ace K V K	H H H	Pola oriz oriz	onta onta		G
_	30 20 10 2316 Suspe NO. 1 2 3	 PK Limit PK Detector PK Detector Ected Da Freq. [MHz] 2334.44 2334.44 2334.64 		$\sqrt{1}$ Limit AV Detection st Read JB μ V 24.1 12.5 24.2	ling (/m] 18 28 21	orizonta	Facto [dB] 35.18 35.42	Hor Pr 33 33 2 2)	zontal AV [clB] 59 48 59 48 57	Frequency vel <u>v/m</u>] .36 .16 .70	Hz] [dB) 74 54 74 54 74	mit [V/m] .00 .00	M [1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,	argin dB] 4.64 5.84 4.30	Tra E A E	ace <u>K</u> V		Pola oriz oriz oriz oriz	onta onta onta		IG







				strial Gateway		Product I	viodei:	DSGW-02	10
Fest By:		Mik	е			Test mod	le:	BLE Tx (LE Coded PHY, S=
Test Cha	annel:	Hig	hest channel			Polarizati	on:	Horizonta	I
Fest Volt	tage:	DC	12V			·			
	110 100 90 80 70 60 50 40				FCC PART 15) C		. 5	FCC PART 15 C-PK Limit
	30 20 10 0 2.478G	2.4802G - PK Limit – PK Detector	2.4824G — AV Limit — H	2.4846G 2.486 orizontal PK — Hori	IBG 2.489G Frequency[H zontal AV	2.4912G Z]	2.4934G	2 4956G	2.4978G 2.5G
_	30 20 10 0 2.478G	- PK Limit -	AV Limit H AV Delector		Frequency[H		2.4934G	2.4956G	2.4978G 2.5G
S	30 20 10 0 2.478G	- PK Limit - PK Detector	AV Limit H AV Delector		Frequency[H		2.4934G Margin [dB]	2 4956G Trace	24978G 25G
S	30 20 10 0 2.478G	Cted Data Freq. [MHz] 2483.50	AV Limit → H AV Detector → H List Reading [dBµV/m] 22.36	Factor [dB] 35.51	Frequency[H zontal AV Level [dBµV/m] 57.87	z] Limit [dBuV/m] 74.00	Margin [dB] 16.13	Trace <u>PK</u>	Polarity Horizontal
S	30 20 10 0 2.478G	PK Limit PK Detector - cted Data Freq. [MHz] 2483.50 2483.50	AV Limit H AV Detector H AV Detector H List Reading [dBµV/m] 22.36 12.68	Factor [dB] 35.51 35.51	Frequency(H zontal AV Level [dBµV/m] 57.87 48.19	Limit [dBµV/m] 74.00 54.00	Margin [dB] 16.13 5.81	Trace PK AV	Polarity Horizontal Horizontal
S	30 20 10 0 2.478G	PK Limit - PK Detector - cted Data Freq. [MHz] 2483.50 2483.50 2488.27 -	AV Limit H AV Detector H AV Detector H List Reading [dBµV/m] 22.36 12.68 12.63	Factor [dB] 35.51 35.51 35.50	Frequency[H zontal AV Level [dBµV/m] 57.87 48.19 48.13	z] Limit [dBµ√/m] 74.00 54.00 54.00	Margin [dB] 16.13 5.81 5.87	Trace PK AV AV	Polarity Horizontal Horizontal Horizontal
S	30 20 10 2 478G • • • • • • • • • • • • • • • • • • •	PK Limit - PK Detector - Cted Data Freq. [MHz] 2483.50 2488.27 2488.27 2488.27	AV Limit ♦ AV Detector List Reading [dBµV/m] 22.36 12.68 12.63 23.13	Factor [dB] 35.51 35.50 35.50	Frequency(H zontal AV Level [dBµV/m] 57.87 48.19 48.13 58.63	z] Limit [dBµV/m] 74.00 54.00 54.00 74.00	Margin [dB] 16.13 5.81 5.87 15.37	Trace PK AV AV PK	Polarity Horizontal Horizontal Horizontal Horizontal
S	30 20 10 2 478G • • • • • • • • • • • • • • • • • • •	PK Limit - PK Detector - cted Data Freq. [MHz] 2483.50 2483.50 2488.27 -	AV Limit H AV Detector H AV Detector H List Reading [dBµV/m] 22.36 12.68 12.63	Factor [dB] 35.51 35.51 35.50	Frequency[H zontal AV Level [dBµV/m] 57.87 48.19 48.13	z] Limit [dBµ√/m] 74.00 54.00 54.00	Margin [dB] 16.13 5.81 5.87	Trace PK AV AV	Polarity Horizontal Horizontal Horizontal

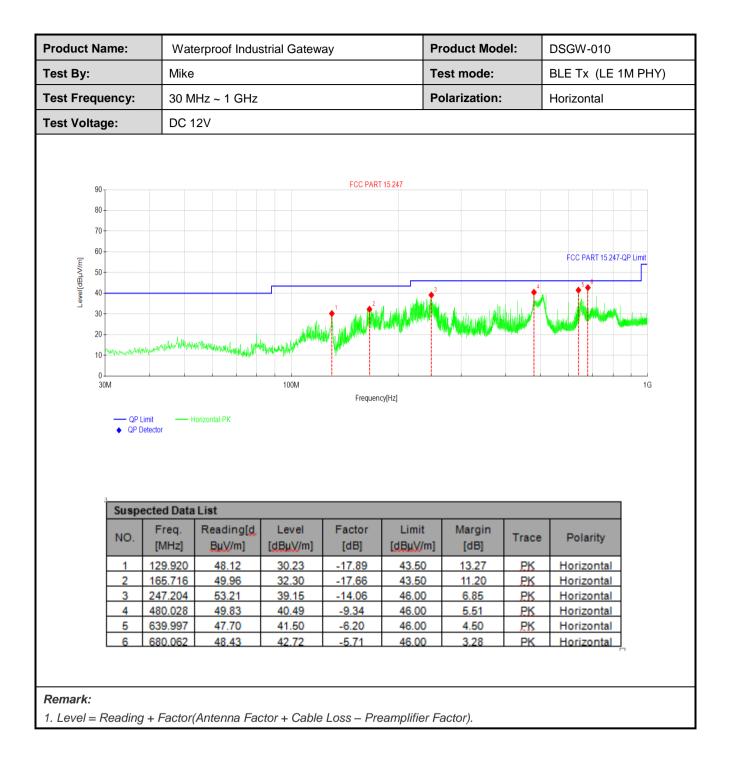


5.5 Emissions in Non-restricted Frequency Bands

Below 1GHz:

Product Name:			W	Waterproof Industrial Gateway					Product Model:			DSGW-010						
Fest By: Fest Frequency:			Mil	Mike 30 MHz ~ 1 GHz					Test mode: Polarization:			BLE Tx (LE 1M PHY) Vertical						
			30															
Test Vo	est Voltage:			:12V														
Level[dBµV/m]	90		machanthala							15.247	3		Luuch /	4	FCC 5	PART	15 247-1	2P Limit
	10 0 301	M — QP L		- Vertical			100		Frequenc	y[Hz]								16
	0	M — QP L • QP D	imit — etector	- Vertical	IPK				Frequenc	y[Hz]								16
	0	M	imit —	- Vertical	IPK			OM	Frequence	y(Hz)	it	Margin	Trac		De	larit		16
	0	M — QP L • QP D	imit — eetector	- Vertical	IPK	g[d.	Ler	OM				Margin [dB]	Trac	e	Po	larit	у	1G
	0	M → QP D Suspo NO. 1	ected Da Freq. [MHz] 130.89	- Vertical	st eading BuV/m 53.04	9[d. 1]	100 Len [dBu 35	vel ∭/m] .08	Factor [dB] -17.96	Limi [dBuV 43.5	/m] 0	[dB] 8.42	PK		Ver	rtica	al	1G
	0	M ← QP D Susp NO. 1 2	ected Da Freq. [MHz] 130.89 188.410	- Vertical	st eading BuV/m 53.04 51.93	9[d. 1] 4	100 Lev [dBu 35. 35.	vel ∭/m] .08 .80	Factor [dB] -17.96 -16.13	Limi [dBuV 43.5 43.5	/m] 0 0	[dB] 8.42 7.70	PK PK		Ver Ver	rtica rtica	ม ป	16
	0	M → QPD Susp NO. 1 2 3	ected Da Freq. [MHz] 130.89 188.411 240.123	ta Lis	st eading 53.04 51.93 51.77	g[d. 1] 4 3	100 Let [dBu 35 35 35 37	vel ∭/m] .08 .80 .56	Factor [dB] -17.96 -16.13 -14.21	Limi [dBµV 43.5 43.5 46.0	/m] 0 0 0	[dB] 8.42 7.70 8.44	PK PK PK		Ver Ver Ver	rtica rtica rtica	ม ป ป	10
	0	M → QPD Susp NO. 1 2 3 4	ected Da Freq. [MHz] 130.89 188.411 240.12 519.99	- Vertical	st eading 53.04 51.93 51.77 49.45	g[d, 1] 4 3 7	100 Lee [dBu 35 35 37 40	vel ∭/m] .08 .80 .56 .86	Factor [dB] -17.96 -16.13 -14.21 -8.59	Limi [dBuV 43.5 43.5 46.0 46.0	/m] 0 0 0 0	[dB] 8.42 7.70 8.44 5.14	PK PK PK		Ver Ver Ver	rtica rtica rtica rtica	1 1 1 1	10
	0	M → QPD Susp NO. 1 2 3	ected Da Freq. [MHz] 130.89 188.411 240.123	ta Lis	st eading 53.04 51.93 51.77	9[d. 1] 4 3 7 5 4	100 Let [dBu 35 35 35 37	vel V/m] .08 .80 .56 .86 .20	Factor [dB] -17.96 -16.13 -14.21	Limi [dBµV 43.5 43.5 46.0	/m] 0 0 0 0 0	[dB] 8.42 7.70 8.44	PK PK PK		Ver Ver Ver Ver	rtica rtica rtica	1 1 1 1 1	10







Above 1GHz:

			LE Tx (LE 1M PH	-			
		Test o	hannel: Lowest cl	hannel			
	т т	D	etector: Peak Valu	Je	r	I	
Frequency	Read Level	Factor	Level	Limit	Margin	Polarization	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	i olanzadoi	
4804.00	55.67	-9.60	46.07	74.00	27.93	Vertical	
4804.00	54.38	-9.60	44.78	74.00	29.22	Horizontal	
		De	tector: Average Va	alue	•	-	
Frequency	Read Level	Factor	Level	Limit	Margin	Polarizatio	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	r olarization	
4804.00	48.71	-9.60	39.11	54.00	14.89	Vertical	
4804.00	47.31	-9.60	37.71	54.00	16.29	Horizontal	
		Test	channel: Middle ch	nannel			
		D	etector: Peak Valu	ue			
Frequency	Read Level	Factor	Level	Limit	Margin	Delevientiev	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Polarizatior	
4884.00	55.37	-9.04	46.33	74.00	27.67	Vertical	
4884.00	53.99	-9.04	44.95	74.00	29.05	Horizontal	
		De	tector: Average Va	alue	·		
Frequency	Read Level	Factor	Level	Limit	Margin		
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Polarizatior	
4884.00	49.20	-9.04	40.16	54.00	13.84	Vertical	
4884.00	47.12	-9.04	38.08	54.00	15.92	Horizontal	
	<u> </u>				•		
		Test c	hannel: Highest c	hannel			
		D	etector: Peak Valu	ue			
Frequency	Read Level	Factor	Level	Limit	Margin	Dolorizatio	
ricqueriey	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Polarization	
(MHz)		0 15	47.58	74.00	26.42	Vertical	
	56.03	-8.45	11.00		1		
(MHz)	56.03 54.54	-8.45 -8.45	46.09	74.00	27.91	Horizontal	
(MHz) 4960.00		-8.45			27.91	Horizontal	
(MHz) 4960.00 4960.00		-8.45	46.09			Horizontal	
(MHz) 4960.00	54.54	-8.45 De	46.09 tector: Average Va	alue	27.91 Margin (dB)	Horizontal Polarization	
(MHz) 4960.00 4960.00 Frequency	54.54 Read Level	-8.45 De Factor	46.09 tector: Average Va Level	alue Limit	Margin		

2. Test Frequency up to 25GHz, and the emission levels of other frequencies are lower than the limit 20dB, not show in test report.



			LE Tx (LE 2M PH	•		
			channel: Lowest cl			
_	I I		etector: Peak Valu	L		1
Frequency (MHz)	Read Level (dBµV)	Factor (dB)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Polarization
4804.00	55.19	-9.60	45.59	74.00	28.41	Vertical
4804.00	53.88	-9.60	44.28	74.00	29.72	Horizontal
		De	tector: Average Va	alue		
Frequency (MHz)	Read Level (dBµV)	Factor (dB)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Polarization
4804.00	48.33	-9.60	38.73	54.00	15.27	Vertical
4804.00	47.80	-9.60	38.20	54.00	15.80	Horizontal
			channel: Middle ch etector: Peak Val			
C	Decident		1	L	Manain	1
Frequency	Read Level	Factor (dB)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Polarization
(MHz) 4884.00	(dBµV) 55.40	-9.04	46.36	(dBμV/III) 74.00	(ub) 27.64	Vertical
4884.00	54.39	-9.04	45.35	74.00	27.64	Horizontal
4884.00	54.59		tector: Average Va		20.05	Tionzoniai
Frequency	Read Level	Factor	Level	Limit	Margin	1
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Polarization
4884.00	49.20	-9.04	40.16	54.00	13.84	Vertical
4884.00	47.26	-9.04	38.22	54.00	15.78	Horizontal
	· · · ·					
			hannel: Highest c			
	1 1		etector: Peak Valu			1
Frequency	Read Level	Factor	Level	Limit	Margin	Polarization
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	
4960.00	56.43	-8.45	47.98	74.00	26.02	Vertical
4960.00	54.21	-8.45	45.76	74.00	28.24	Horizontal
_			tector: Average Va		N4 ·	T
Frequency (MHz)	Read Level (dBµV)	Factor (dB)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Polarization
4000.00	48.55	-8.45	40.10	54.00	13.90	Vertical
4960.00 4960.00	47.26	-8.45	38.81	54.00	15.19	Horizontal

 I est Frequency test report.



			Tx (LE Coded PH)			
			channel: Lowest cl			
	т		Detector: Peak Valu	 [[Г
Frequency (MHz)	Read Level (dBµV)	Factor (dB)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Polarization
4804.00	54.73	-9.60	45.13	74.00	28.87	Vertical
4804.00	53.52	-9.60	43.92	74.00	30.08	Horizontal
		D	etector: Average Va	alue		
Frequency	Read Level	Factor	Level	Limit	Margin	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Polarization
4804.00	47.86	-9.60	38.26	54.00	15.74	Vertical
4804.00	47.65	-9.60	38.05	54.00	15.95	Horizontal
	· · · ·		-			
		Test	channel: Middle ch	nannel		
			Detector: Peak Val	ue		
Frequency	Read Level	Factor	Level	Limit	Margin	Polarization
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	FUIAIIZALIUI
4884.00	55.68	-9.04	46.64	74.00	27.36	Vertical
4884.00	54.73	-9.04	45.69	74.00	28.31	Horizontal
		D	etector: Average Va	alue		
Frequency	Read Level	Factor	Level	Limit	Margin	Polarization
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	FUIAIIZALIUII
4884.00	49.48	-9.04	40.44	54.00	13.56	Vertical
4884.00	47.37	-9.04	38.33	54.00	15.67	Horizontal
			channel: Highest c			
			Detector: Peak Val	ue	ſ	T
Frequency	Read Level	Factor	Level	Limit	Margin	Polarization
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	T Oldrization
4960.00	56.65	-8.45	48.20	74.00	25.80	Vertical
4960.00	54.36	-8.45	45.91	74.00	28.09	Horizontal
		D	etector: Average Va	alue		1
	Read Level	Factor	Level	Limit	Margin	Polarization
Frequency	Reau Level				(dB)	FUIAIIZALION
Frequency (MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(ub)	
			(dBµV/m) 39.61	(dBµV/m) 54.00	(dB) 14.39	Vertical

Test Frequency up to 25GHz, and the emission levels of other frequencies are lower than the limit 20dB, not show ir test report.



			x (LE Coded PH)	-		
			hannel: Lowest cl			
_			etector: Peak Val	L	· · ·	
Frequency (MHz)	Read Level (dBµV)	Factor (dB)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Polarization
4804.00	54.49	-9.60	44.89	74.00	29.11	Vertical
4804.00	53.18	-9.60	43.58	74.00	30.42	Horizontal
		Det	tector: Average Va	alue		
Frequency (MHz)	Read Level (dBµV)	Factor (dB)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Polarization
4804.00	47.42	-9.60	37.82	54.00	16.18	Vertical
4804.00	47.59	-9.60	37.99	54.00	16.01	Horizontal
		Test	channel: Middle ch	nannel		
		D	etector: Peak Val	ue		
Frequency (MHz)	Read Level (dBµV)	Factor (dB)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Polarization
4884.00	55.75	-9.04	46.71	74.00	27.29	Vertical
4884.00	54.60	-9.04	45.56	74.00	28.44	Horizontal
		Det	tector: Average Va	alue		
Frequency (MHz)	Read Level (dBµV)	Factor (dB)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Polarization
4884.00	49.42	-9.04	40.38	54.00	13.62	Vertical
4884.00	47.21	-9.04	38.17	54.00	15.83	Horizontal
			hannel: Highest c etector: Peak Val			
Frequency	Read Level	 Factor	Level	Limit	Margin	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Polarization
4960.00	57.06	-8.45	48.61	74.00	25.39	Vertical
4960.00	54.60	-8.45	46.15	74.00	27.85	Horizontal
	· ·	De	tector: Average Va	alue		•
Frequency (MHz)	Read Level (dBµV)	Factor (dB)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Polarization
4960.00	47.65	-8.45	39.20	54.00	14.80	Vertical
	46.94	-8.45	38.49	54.00	15.51	Horizontal

2. Test Frequency up to 25GHz, and the emission levels of other frequencies are lower than the limit 20dB, not show in test report.

-----End of report-----