

TEST REPORT

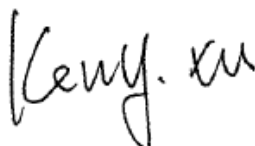
Application No.: SZCR2110023549AT
Applicant: Qorvo International Pte. Ltd.
Address of Applicant: 1 Changi Business Park Avenue 1, # 04-01, Singapore
Manufacturer: Qorvo International Pte. Ltd.
Address of Manufacturer: 1 Changi Business Park Avenue 1, # 04-01, Singapore
Factory: Victory Concept
Address of Factory: Building A, No 18 Shuiyuan Industrial District, Ruhu Town, Huizhou City, 516021, Guangdong

Equipment Under Test (EUT):
EUT Name: UWB Transceiver module
Model No.: DWM3001C
Trade Mark: Qorvo
Standard(s) : EN 301 489-1 V2.2.3
EN 301 489-17 V3.2.4
EN 301 489-33 V2.2.1

Date of Receipt: 2021-11-01
Date of Test: 2021-11-11 to 2021-11-19
Date of Issue: 2021-12-02

Test Result:	Pass*
---------------------	--------------

* In the configuration tested, the EUT complied with the standards specified above.



Keny Xu
EMC Laboratory Manager



SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch EMC Laboratory

Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing / inspection report and certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.ssgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2021-12-02		Original

Authorized for issue by:				
		Calvin Weng		
		Calvin Weng/Project Engineer		
		Eric Fu		
		Eric Fu/Reviewer		



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing / inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

2 Test Summary

Emission Part				
Item	Standard	Method	Requirement	Result
Radiated Emissions (30MHz-1GHz)	EN 301 489-1 V2.2.3	EN 55032:2015+A1:2020	Class B	Pass
Radiated Emissions (Above 1GHz)	EN 301 489-17 V3.2.4 EN 301 489-33 V2.2.1	EN 55032:2015+A1:2020	Class B	Pass

Immunity Part				
Item	Standard	Method	Requirement	Result
Radiated Immunity (80MHz-6GHz)	EN 301 489-1 V2.2.3	EN IEC 61000-4-3: 2020	3V/m, 80%, 1kHz Amp. Mod.	Pass
Electrostatic Discharge	EN 301 489-17 V3.2.4 EN 301 489-33 V2.2.1	EN 61000-4-2:2009	4kV Contact Discharge 8kV Air Discharge	Pass



3 Contents

	Page
1 COVER PAGE	1
2 TEST SUMMARY	3
3 CONTENTS	4
4 GENERAL INFORMATION	5
4.1 DETAILS OF E.U.T.	5
4.2 DESCRIPTION OF SUPPORT UNITS	5
4.3 MEASUREMENT UNCERTAINTY	5
4.4 TEST LOCATION	6
4.5 TEST FACILITY	6
4.6 DEVIATION FROM STANDARDS	6
4.7 ABNORMALITIES FROM STANDARD CONDITIONS	6
5 EQUIPMENT LIST	7
6 EMISSION TEST RESULTS	9
6.1 RADIATED EMISSIONS (30MHZ-1GHZ)	9
6.1.1 E.U.T. Operation	9
6.1.2 Test Mode Description	9
6.1.3 Test Setup Diagram	9
6.1.4 Measurement Procedure and Data	10
6.2 RADIATED EMISSIONS (ABOVE 1GHZ)	13
6.2.1 E.U.T. Operation	13
6.2.2 Test Mode Description	13
6.2.3 Test Setup Diagram	13
6.2.4 Measurement Procedure and Data	14
7 IMMUNITY TEST RESULTS	17
7.1 RADIATED IMMUNITY (80MHZ-6GHZ)	20
7.1.1 Test Setup Diagram	20
7.1.2 E.U.T. Operation	20
7.1.3 Test Mode Description	20
7.1.4 Test Condition and Results:	20
7.2 ELECTROSTATIC DISCHARGE	22
7.2.1 Test Setup Diagram	22
7.2.2 E.U.T. Operation	22
7.2.3 Test Mode Description	22
7.2.4 Test Condition and Results:	22
8 TEST SETUP PHOTO	24
9 EUT CONSTRUCTIONAL DETAILS (EUT PHOTOS)	26



4 General Information

4.1 Details of E.U.T.

Power supply:	For RF Module: DC3.3V from debug board For Debug Board: DC5V from PC USB port
---------------	--

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Laptop	Lenovo	L480	REF. No.SEA18C01F
Mouse	Lenovo	M-U0025-O	REF. No.:SEA24A01
Router	NETGEAR	DGN2200	REF. No.SEA22A00

4.3 Measurement Uncertainty

Test Item	Measurement Uncertainty
Radiated Emissions (30MHz-1GHz)	$\pm 5.5\text{dB}$
Radiated Emissions (Above 1GHz)	$\pm 4.7\text{dB}$
Radiated Immunity (80MHz-6GHz)	$\pm 2.1\text{dB}$
Electrostatic Discharge	$\pm 6\%$

Remark:

The U_{lab} (lab Uncertainty) is less than $U_{\text{CISPR/ETSI}}$ (CISPR/ETSI Uncertainty), so the test results

- compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.



4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China. 518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

4.5 Test Facility

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

- **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

- **VCCI (Member No. 1937)**

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen EMC laboratory have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

- **Innovation, Science and Economic Development Canada**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None



5 Equipment List

Radiated Emissions (30MHz-1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEM001-01	2020-07-19	2023-07-18
MXE EMI Receiver	Agilent Technologies	N9038A	SEM004-15	2021-10-21	2022-10-20
BiConiLog Antenna	ETS-LINDGREN	3142C	SEM003-01	2021-09-17	2023-09-16
Pre-Amplifier	Agilent Technologies	8447D	SEM005-01	2021-03-24	2022-03-23
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM025-01	2021-07-09	2022-07-08

Radiated Emissions (Above 1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2021-03-26	2024-03-25
EXA Signal Analyzer	Agilent Technologies Inc	N9010A	SEM004-12	2021-02-01	2022-01-31
Horn Antenna	Rohde&Schwarz	HF907	SEM003-07	2021-04-14	2023-04-13
Pre-Amplifier	Compliance Directions Systems Inc.	PAP-0126	SEM004-11	2021-09-23	2022-09-22
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM026-01	2021-07-09	2022-07-08

Radiated Immunity (80MHz-6GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Fully-Anechoic Chamber 2	Chang Zhou Zhong Shuo	854	SEM001-05	2021-07-09	2022-07-08
Power Sensor	Rohde&Schwarz	NRP-Z91	SEM009-09	2021-03-24	2022-03-23
Stacked Log.-Per.-Broadband Antenna	Schwarzbeck	STLP 9129	SEM003-25	N/A	N/A
Signal Generator	Rohde&Schwarz	SMB100A	SEM006-11	2021-03-24	2022-03-23
Broadband Amplifier	Rohde&Schwarz	BBA150-BC250	SEM005-12	2021-09-23	2022-09-22
Broadband Amplifier	Rohde&Schwarz	BBA150-D110	SEM005-13	2021-03-24	2022-03-23
Broadband Amplifier	Rohde&Schwarz	BBA150-E60	SEM005-16	2021-04-08	2022-04-07
Measurement Software	Rohde&Schwarz	EMC32 V9.25.00	N/A	N/A	N/A



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained herein reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing / inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch (EMC Laboratory)

No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgs.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

Electrostatic Discharge					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
ESD Generator	TESEQ AG	NSG 437	SEM019-02	2021-03-30	2022-03-29
ESD Simulator	SCHAFFNER	NSG 438	SEM019-01	2021-04-14	2022-04-13

General used equipment					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Humidity/ Temperature Indicator	Mingle	N/A	SEM002-08	2021-09-14	2022-09-13
Humidity/ Temperature Indicator	Anymetre	TH101B	SEM002-09	2021-09-14	2022-09-13
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2021-03-30	2022-03-29



6 Emission Test Results

6.1 Radiated Emissions (30MHz-1GHz)

Test Requirement: EN 301 489-1 V2.2.3
EN 301 489-17 V3.2.4
EN 301 489-33 V2.2.1

Test Method: EN 55032:2015+A1:2020

Measurement Distance: 3m

Limit:

FREQUENCY (MHz)	dBuV/m (At 10m)	dBuV/m (At 3m)
	Class B	Class B
30 ~ 230	30	40
230 ~ 1000	37	47
Detector: Peak for pre-scan (120kHz resolution bandwidth) 30M to 1000MHz		

6.1.1 E.U.T. Operation

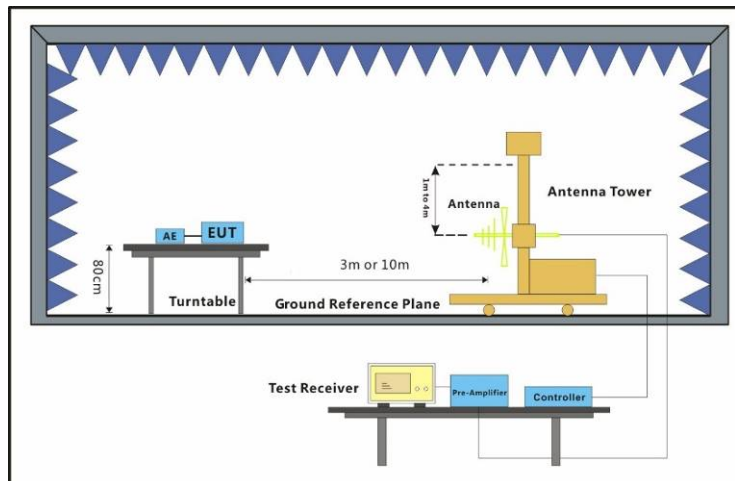
Operating Environment:

Temperature: 23.2 °C Humidity: 63.2 % RH Atmospheric Pressure: 1020 mbar

6.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	06	Operation(BT+UWB):Keep the EUT communicating with other device.
Pre-scan	07	Idle:Keep the EUT standby.

6.1.3 Test Setup Diagram



6.1.4 Measurement Procedure and Data

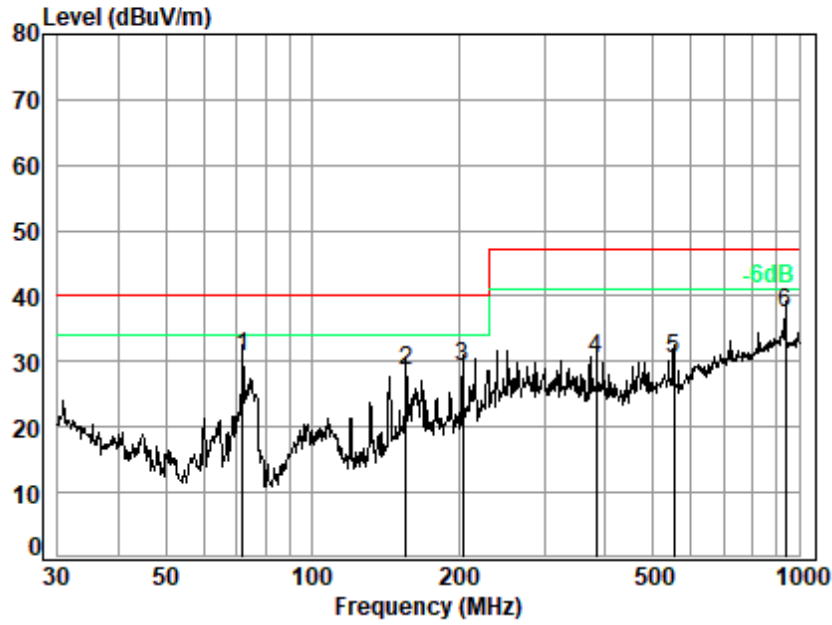
Frequency range: 30MHz-1GHz

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities.

Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor



Test Mode: 06; Polarity: Horizontal

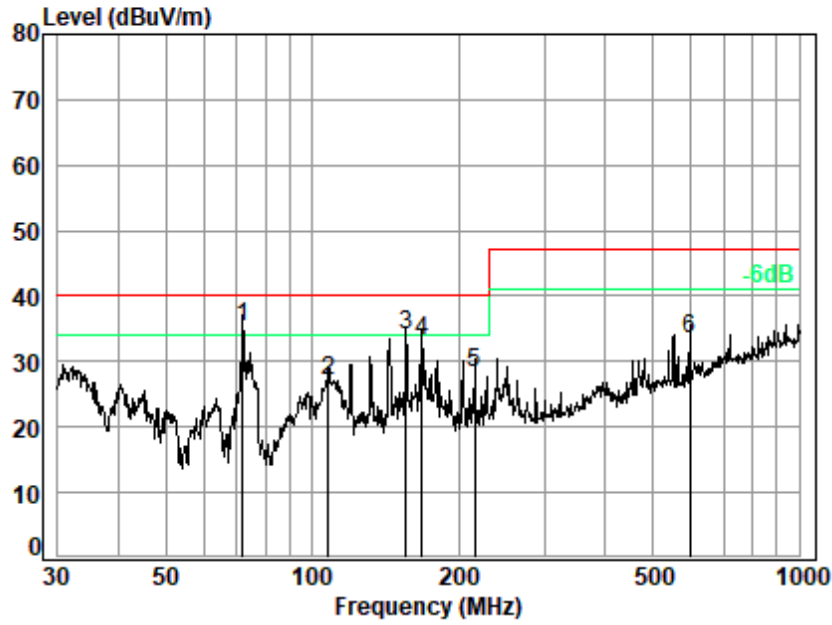


Site : chamber
Condition: 3m HORIZONTAL
Job No. : 23549AT
Test Mode: 06

		Ant	Cable	Preamp	Read		Limit	Over	
	Freq	Factor	Loss	Factor	Level	Level	Line	Limit	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	
1	q	71.83	10.41	1.24	27.43	46.42	30.64	40.00	-9.36 QP
2		155.91	13.50	1.96	27.12	40.12	28.46	40.00	-11.54 QP
3		204.24	14.82	2.11	26.94	39.12	29.11	40.00	-10.89 QP
4		383.93	21.38	2.46	27.13	33.62	30.33	47.00	-16.67 QP
5		552.88	23.95	2.66	27.76	31.63	30.48	47.00	-16.52 QP
6		938.83	28.66	3.92	26.78	31.53	37.33	47.00	-9.67 QP



Test Mode: 06; Polarity: Vertical



Site : chamber
Condition: 3m VERTICAL
Job No. : 23549AT
Test Mode: 06

		Ant	Cable	Preamp	Read		Limit	Over	
	Freq	Factor	Loss	Factor	Level	Level	Line	Limit	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	
1	q	71.83	10.41	1.24	27.43	50.99	35.21	40.00	-4.79 QP
2		107.89	12.64	1.74	27.35	40.10	27.13	40.00	-12.87 QP
3		155.91	13.50	1.96	27.12	45.77	34.11	40.00	-5.89 QP
4		167.82	14.03	2.00	27.07	44.14	33.10	40.00	-6.90 QP
5		216.02	15.65	2.12	26.91	37.55	28.41	40.00	-11.59 QP
6		597.22	25.13	2.70	27.89	33.66	33.60	47.00	-13.40 QP



6.2 Radiated Emissions (Above 1GHz)

Test Requirement: EN 301 489-1 V2.2.3
EN 301 489-17 V3.2.4
EN 301 489-33 V2.2.1
Test Method: EN 55032:2015+A1:2020

Limit:

Frequency range(GHz)	Radiated emissions limit(dBμV/m)	
	Peak	Average
1GHz-3GHz	70	50
3GHz-6GHz	74	54
Detector: Peak for pre-scan (1000kHz resolution bandwidth) 1000M to 6000MHz		

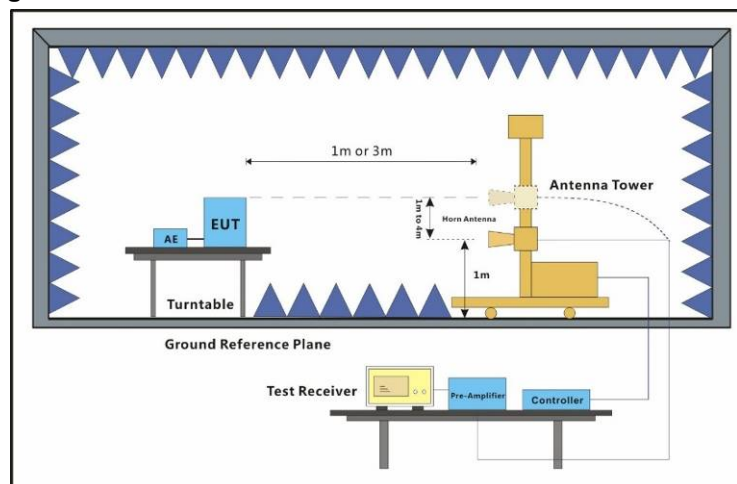
6.2.1 E.U.T. Operation

Operating Environment:
Temperature: 24.0 °C Humidity: 53.3 % RH Atmospheric Pressure: 1020 mbar

6.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	06	Operation(BT+UWB):Keep the EUT communicating with other device.
Pre-scan	07	Idle:Keep the EUT standby.

6.2.3 Test Setup Diagram



6.2.4 Measurement Procedure and Data

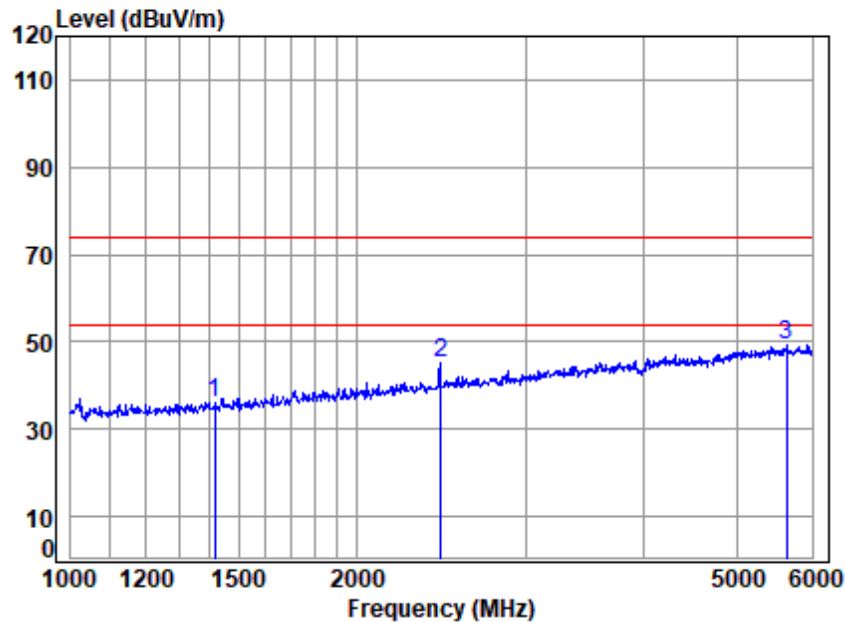
Frequency range: Above 1GHz

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Average measurements were conducted based on the peak sweep graph. The EUT was measured by Horn antenna with 2 orthogonal polarities.

Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor



Test Mode: 06; Polarity: Horizontal

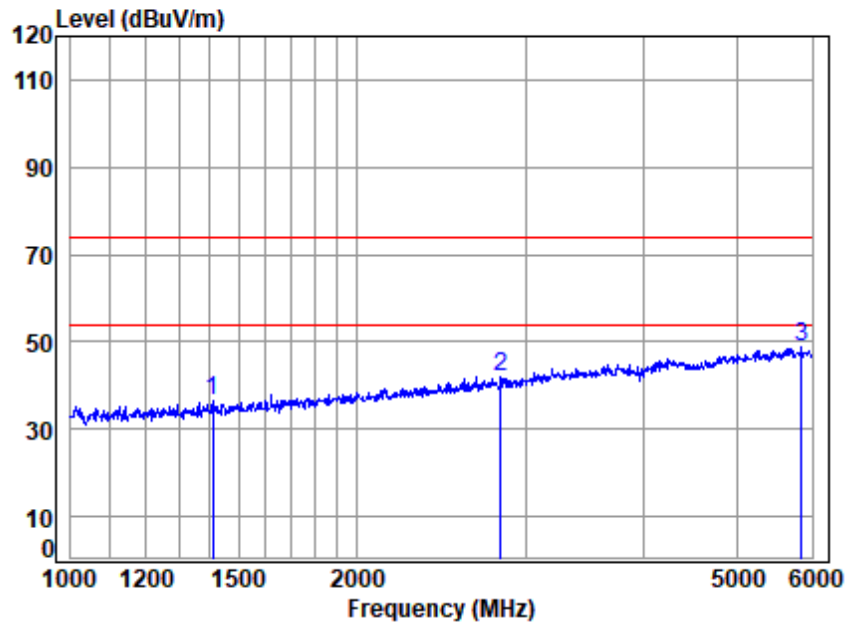


Site : chamber
Condition: 3m HORIZONTAL
Job No : 23549AT
Mode : 06

		Cable	Ant	Preamp	Read	Limit	Over	
Freq		Loss	Factor	Factor	Level	Level	Line	Limit Remark
MHz		dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	1415.668	3.13	25.54	39.90	47.43	36.20	74.00	-37.80 Peak
2	2445.105	4.43	28.99	40.45	52.10	45.07	74.00	-28.93 Peak
3	5645.392	8.20	34.32	42.37	49.21	49.36	74.00	-24.64 Peak



Test Mode: 06; Polarity: Vertical



Site : chamber
Condition: 3m VERTICAL
Job No : 23549AT
Mode : 06

		Cable	Ant	Preamp	Read	Limit	Over	
Freq		Loss	Factor	Factor	Level	Level	Line	Limit Remark
MHz		dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	1410.604	3.12	25.53	39.90	47.55	36.30	74.00	-37.70 Peak
2	2827.012	4.75	29.98	40.63	48.03	42.13	74.00	-31.87 Peak
3	5851.364	8.24	34.48	42.39	48.34	48.67	74.00	-25.33 Peak



7 Immunity Test Results

Performance Criteria Description in EN 301 489-1 V2.2.3

Performance criteria for continuous phenomena	<p>During the test, the equipment shall:</p> <ul style="list-style-type: none"> • continue to operate as intended; • not unintentionally transmit; • not unintentionally change its operating state; • not unintentionally change critical stored data.
Performance criteria for transient phenomena	<p>For all ports and transient phenomena with the exception described below, the following applies:</p> <ul style="list-style-type: none"> • The application of the transient phenomena shall not result in a change of the mode of operation (e.g. unintended transmission) or the loss of critical stored data. • After application of the transient phenomena, the equipment shall operate as intended. <p>For surges applied to symmetrically operated wired network ports intended to be connected directly to outdoor lines the following criteria applies:</p> <ul style="list-style-type: none"> • For products with only one symmetrical port intended for connection to outdoor lines, loss of function is allowed, provided the function is self-recoverable, or can be otherwise restored. Information stored in non-volatile memory, or protected by a battery backup, shall not be lost. • For products with more than one symmetrical port intended for connection to outdoor lines, loss of function on the port under test is allowed, provided the function is self-recoverable. Information stored in non-volatile memory, or protected by a battery backup, shall not be lost.



Performance Criteria Description in EN 301 489-17 V3.2.4

Criteria	During Test	After Test (i.e. as a result of the application of the test)
A	Shall operate as intended. (see note). Shall be no loss of function. Shall be no unintentional transmissions.	Shall operate as intended. Shall be no degradation of performance. Shall be no loss of function. Shall be no loss of critical stored data.
B	May be loss of function.	Functions shall be self-recoverable. Shall operate as intended after recovering. Shall be no loss of critical stored data.
C	May be loss of function.	Functions shall be recoverable by the operator. Shall operate as intended after recovering. Shall be no loss of critical stored data.

NOTE: Operate as intended during the test allows a level of degradation in accordance with Minimum performance level.

Minimum performance level

For equipment that supports a PER or FER, the minimum performance level shall be a PER or FER less than or equal to 10 %.

For equipment that does not support a PER or a FER, the minimum performance level shall be no loss of the wireless transmission function needed for the intended use of the equipment.

Performance criteria for Continuous phenomena

The performance criteria A shall apply.

Where the EUT is a transmitter in standby mode, unintentional transmission shall not occur during the test.

Where the EUT is a transceiver in receive mode, unintentional transmission shall not occur during the test.

Performance criteria for Transient phenomena

The performance criteria B shall apply, except for voltage dips greater than or equal to 100 ms and voltage interruptions of 5 000 ms duration, for which performance criteria C shall apply.

Where the EUT is a transmitter in standby mode, unintentional transmission shall not occur as a result of the application of the test.

Where the EUT is a transceiver in receive mode, unintentional transmission shall not occur as a result of the application of the test.



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing / inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch (SGS-CSTC Laboratory)

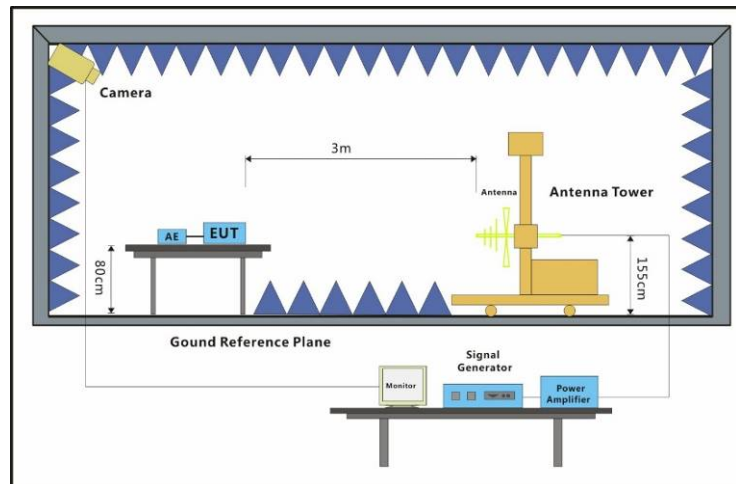
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

Performance Criteria Description in EN 301 489-33 V2.2.1	
Performance criteria for continuous phenomena applied to transmitters and receivers	The provision of ETSI EN 301 489-1 [1], clause 6.1 shall apply.
Performance criteria for transient phenomena applied to transmitters and receivers	The provision of ETSI EN 301 489-1 [1], clause 6.2 shall apply
Performance criteria for equipment which does not provide an UWB communication link	<p>For radio equipment which does not provide an UWB communication link, the performance criteria described in clauses 6.1 and 6.2 are not appropriate, in these cases the manufacturer shall declare, for inclusion in the test report, his own specification for an acceptable level of performance or degradation of performance during and/or after the immunity tests. The performance specification shall be included in the product description and documentation.</p> <p>The manufacturer shall furthermore define the test method(s) for the assessment of the actual level of performance or degradation of performance during and/or after the EMC exposure. Under these circumstances the manufacturer shall additionally provide the following information also for inclusion in the test report:</p> <ul style="list-style-type: none"> • the functions of the EUT during and after EMC stress; • the intended functions of the EUT which shall be in accordance with the documentation accompanying the equipment; • suitable pass/fail criteria for the EUT; • the method of monitoring the actual level of performance and/or the actual degradation of performance of the EUT. <p>The assessment of the actual performance or its degradation which is carried out during and/or after the EMC exposure, shall be simple, but at the same time give adequate proof that the primary functions of the equipment fulfil the manufacturer defined acceptable level of performance or degradation of performance.</p>
Performance criteria for ancillary equipment tested on a stand alone basis	<p>If ancillary equipment is intended to be tested on a stand alone basis, the performance criteria described in clauses 6.1 and 6.2 are not appropriate, in these cases the manufacturer shall declare, for inclusion in the test report, his own specification for an acceptable level of performance or degradation of performance during and/or after the immunity tests. The performance specification shall be included in the product description and documentation.</p> <p>The related specifications set out in clause 5.3 have also to be taken into account.</p>

7.1 Radiated Immunity (80MHz-6GHz)

Test Requirement: EN 301 489-1 V2.2.3
EN 301 489-17 V3.2.4
EN 301 489-33 V2.2.1
Test Method: EN IEC 61000-4-3: 2020

7.1.1 Test Setup Diagram



7.1.2 E.U.T. Operation

Operating Environment:
Temperature: 23.5 °C Humidity: 50.2 % RH Atmospheric Pressure: 1020 mbar

7.1.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	06	Operation(BT+UWB):Keep the EUT communicating with other device.
Final test	07	Idle:Keep the EUT standby.

7.1.4 Test Condition and Results:

Performance Criterion: A
Frequency Range: 80MHz to 6GHz
Antenna Polarisation: Vertical and Horizontal
Modulation: 1kHz,80% Amp. Mod,1% increment



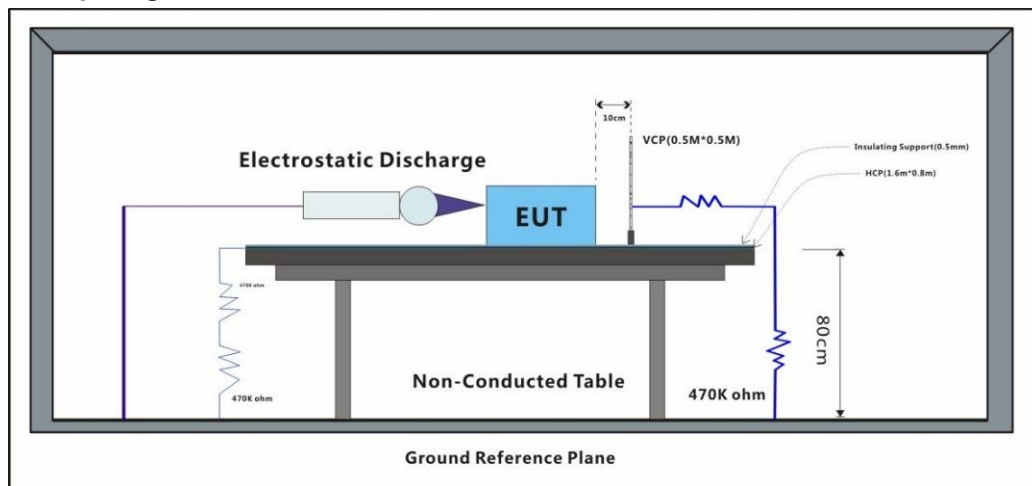
Frequency	Level (V/m)	EUT Face	Dwell time	Result / Observations
80MHz-6GHz	3	Front	2s	A
80MHz-6GHz	3	Back	2s	A
80MHz-6GHz	3	Left	2s	A
80MHz-6GHz	3	Right	2s	A
80MHz-6GHz	3	Top	2s	A
80MHz-6GHz	3	Underside	2s	A
A: No degradation in the performance of the EUT was observed				



7.2 Electrostatic Discharge

Test Requirement: EN 301 489-1 V2.2.3
EN 301 489-17 V3.2.4
EN 301 489-33 V2.2.1
Test Method: EN 61000-4-2:2009

7.2.1 Test Setup Diagram



7.2.2 E.U.T. Operation

Operating Environment:
Temperature: 23.1 °C Humidity: 42.3 % RH Atmospheric Pressure: 1020 mbar

7.2.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	06	Operation(BT+UWB):Keep the EUT communicating with other device.
Final test	07	Idle:Keep the EUT standby.

7.2.4 Test Condition and Results:

Performance Criterion: B
Discharge Impedance: 330Ω/150pF
Number of Discharge: Minimum 10 times at each test point
Discharge Mode: Single Discharge
Discharge Period: 1 second minimum
Test Point: 1. All insulated enclosure and seams.
2. All accessible metal parts of the enclosure.
3. All side



Discharge type	Level (kV)	Polarity	Test Point	Result / Observations
Air Discharge	2,4,8	+	1	
Air Discharge	2,4,8	-	1	
Contact Discharge	4	+	2	
Contact Discharge	4	-	2	
Horizontal Coupling	4	+	3	A
Horizontal Coupling	4	-	3	A
Vertical Coupling	4	+	3	A
Vertical Coupling	4	-	3	A
A: No degradation in the performance of the EUT was observed				



8 Test Setup Photo

Radiated Emissions (30MHz-1GHz)



Radiated Immunity (80MHz-6GHz)



Electrostatic Discharge



9 EUT Constructional Details (EUT Photos)

Refer to Appendix - Photographs of EUT Constructional Details for SZCR2110023549AT

- End of the Report -

