Report No.:
 SEWM2304000115RG04

 Rev.:
 01

 Page:
 1 of 40



## **TEST REPORT**

Test Result :	PASS *
Date of Issue:	2023/05/29
Date of Test:	2023/05/02 to 2023/05/29
Date of Receipt:	2023/04/20
	47 CFR Part 90
	47 CFR Part 27
	47 CFR Part 24
otanuarus.	47 CFR Part 22
Standards:	47 CFR Part 2
FCC ID:	XD6U380AA
Model No.:	U380AA, U380AC
EUT Description:	Smart Phone
	Road, Xili Community, Xili Street, Nanshan District, Shenzhen ,PRC
Address of Manufacturer:	27-001, South Side of Tianlong Mobile Headquarters Building, Tongfa South
Manufacturer:	Shenzhen Tinno Mobile Technology Corp.
Address of Applicant:	27-001, South Side of Tianlong Mobile Headquarters Building, Tongfa South Road, Xili Community, Xili Street, Nanshan District, Shenzhen ,PRC
Applicant:	Shenzhen Tinno Mobile Technology Corp.
Application No:	SEWM2304000115RG

In the configuration tested, the EUT detailed in this report complied with the standards specified above.

Authorized Signature:

>wn

Panta Sun Wireless Laboratory Manager



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 Report No.:
 SEWM2304000115RG04

 Rev.:
 01

 Page:
 2 of 40

### 1 Version

Revision Record							
Version	Chapter	Date	Modifier	Remark			
01		2023/05/29		Original			

Prepared By	Timy Song (Tizzy Song) / Test Engineer
Checked By	(Well Wei) / Reviewer



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 Report No.:
 SEWM2304000115RG04

 Rev.:
 01

 Page:
 3 of 40

### Contents

1	Vers	sion	2
2	Test	t Summary	5
	2.1	UMTS Band 5/LTE Band 5	5
	2.2	UMTS Band 2 /LTE Band 2	6
	2.3	UMTS Band 4 /LTE Band 4 /66	7
	2.4	LTE Band 7	8
	2.5	LTE Band 12	9
	2.6	LTE Band 14	10
	2.7	LTE Band 30	12
3	Gen	eral Information	14
	3.1	Details of Client	14
	3.2	Test Location	14
	3.3	Test Facility	14
	3.4	General Description of EUT	15
	3.5	Test Mode	16
	3.6	Test Environment	16
	3.7	Description of Support Units	16
	3.8	Technical Specification	17
	3.9	Test Frequencies	20
4	Des	cription of Tests	25
	4.1	Conducted Output Power	25
	4.2	Effective (Isotropic) Radiated Power of Transmitter	26
	4.3	Occupied Bandwidth	27
	4.4	Band Edge at Antenna Terminals	28
	4.5	Spurious And Harmonic Emissions at Antenna Terminal	29
	4.6	Peak-Average Ratio	
	4.7	Field Strength of Spurious Radiation	31
	4.8	Frequency Stability / Temperature Variation	32
	4.9	Test Setups	33
		4.9.1 Test Setup 1	



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			Report No.:	SEWM2304000115RG04
			Rev.:	
			Page:	4 of 40
	4.9.2	Test Setup 2		
	4.9.3	Test Setup 3		
	4.10 Tes	st Conditions		
5	Main Test I	nstruments		
7	Measurem	ent Uncertainty		
8	Appendixe	S		



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 Report No.:
 SEWM2304000115RG04

 Rev.:
 01

 Page:
 5 of 40

### 2 Test Summary

#### 2.1 UMTS Band 5/LTE Band 5

Test Item	FCC Rule No.	Requirements	Test Result	Verdict
Effective (Isotropic) Radiated Power Output Data	§2.1046, §22.913(a)(5)	ERP ≤ 7 W	Section 1 of Appendix B.1&B.4	Pass
Peak-Average Ratio	§22.913(d)	Limit≤13 dB	Section 2 of Appendix B.1&B.4	Pass
Modulation Characteristics	§2.1047	Digital modulation	Section 3 of Appendix B.1&B.4	Pass
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Section 4 of Appendix B.1&B.4	Pass
Band Edges Compliance	§2.1051, §22.917(a)	≤ -13 dBm/1%*EBW, in 1 MHz bands immediately outside and adjacent to the frequency block.	Section 5 of Appendix B.1&B.4	Pass
Spurious Emission at Antenna Terminals	§2.1051, §22.917(a)	FCC: ≤ -13 dBm/100 kHz, from 9 kHz to 10th harmonics but outside authorized operating frequency ranges.	Section 6 of Appendix B.1&B.4	Pass
Field Strength of Spurious Radiation	§2.1053, §22.917(a)	FCC: ≤ -13 dBm/100 kHz.	Section 7 of Appendix B.1&B.4	Pass
Frequency Stability	§2.1055(a)(1)(b) §2.1055(d)(2) §22.355	≤ ±2.5ppm.	Section 8 of Appendix B.1&B.4	Pass



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 Report No.:
 SEWM2304000115RG04

 Rev.:
 01

 Page:
 6 of 40

Test Item	FCC Rule No.	Requirements	Test Result	Verdict
Effective (Isotropic) Radiated Power Output Data	§2.1046, §24.232(c)	EIRP ≤ 2 W	Section 1 of Appendix B.1&B.2	Pass
Peak-Average Ratio	§24.232(d)	Limit≤13 dB	Section 2 of Appendix B.1&B.2	Pass
Modulation Characteristics	§2.1047	Digital modulation	Section 3 of Appendix B.1&B.2	Pass
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Section 4 of Appendix B.1&B.2	Pass
Band Edges Compliance	§2.1051, §24.238(a)	≤ -13 dBm/1%*EBW, in 1 MHz bands immediately outside and adjacent to the frequency block.	Section 5 of Appendix B.1&B.2	Pass
Spurious Emission at Antenna Terminals	§2.1051, §24.238(a)	<ul> <li>≤ -13 dBm/1 MHz, from 9 kHz to 10<sup>th</sup> harmonics but outside authorized operating frequency ranges.</li> </ul>	Section 6 of Appendix B.1&B.2	Pass
Field Strength of Spurious Radiation	§2.1053, §24.238(a)	≤ -13 dBm/1 MHz.	Section 7 of Appendix B.1&B.2	Pass
Frequency Stability	§2.1055(a)(1)(b) §2.1055(d)(2) §24.235	Within authorized bands of operation/frequency block.	Section 8 of Appendix B.1&B.2	Pass

#### 2.2 UMTS Band 2 /LTE Band 2

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 Report No.:
 SEWM2304000115RG04

 Rev.:
 01

 Page:
 7 of 40

Test Item	FCC Rule No.	Requirements	Test Result	Verdict
Effective (Isotropic) Radiated Power Output Data	§2.1046, §27.50(d)(4)	EIRP ≤ 1 W	Section 1 of Appendix B.1&B.3&B.9	Pass
Peak-Average Ratio	§27.50(d)(5)	Limit≤13 dB	Section 2 of Appendix B.1&B.3&B.9	Pass
Modulation Characteristics	§2.1047	Digital modulation	Section 3 of Appendix B.1&B.3&B.9	Pass
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Section 4 of Appendix B.1&B.3&B.9	Pass
Band Edges Compliance	§2.1051, §27.53(h)	≤ -13 dBm/1%*EBW, in 1 MHz bands immediately outside and adjacent to the frequency block.	Section 5 of Appendix B.1&B.3&B.9	Pass
Spurious Emission at Antenna Terminals	§2.1051, §27.53(h)	<ul> <li>≤ -13 dBm/1 MHz, from 9 kHz to 10<sup>th</sup> harmonics but outside authorized operating frequency ranges.</li> </ul>	Section 6 of Appendix B.1&B.3&B.9	Pass
Field Strength of Spurious Radiation	§2.1053, §27.53(h)	≤ -13 dBm/1 MHz.	Section 7 of Appendix B.1&B.3&B.9	Pass
Frequency Stability	§2.1055(a)(1)(b) §2.1055(d)(2) §27.54	Within authorized bands of operation/frequency block.	Section 8 of Appendix B.1&B.3&B.9	Pass

#### 2.3 UMTS Band 4 /LTE Band 4 /66



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 Report No.:
 SEWM2304000115RG04

 Rev.:
 01

 Page:
 8 of 40

Test Item	FCC Rule No.	Requirements	Test Result	Verdict
Effective (Isotropic) Radiated Power Output Data	§2.1046, §27.50(h)(2)	EIRP ≤ 2W	Section 1 of Appendix B.5	Pass
Peak-Average Ratio		≤13 dB	Section 2 of Appendix B.5	Pass
Modulation Characteristics	§2.1047	Digital modulation	Section 3 of Appendix B.5	Pass
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Section 4 of Appendix B.5	Pass
Band Edges Compliance	§2.1051, §27.53(m4)	For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz.	Section 5 of Appendix B.5	Pass
Spurious Emission at Antenna Terminals	§2.1051, §27.53(m)	9 kHz 9.5 MHz X=Max {6MHz, EBW}	Section 6 of Appendix B.5	Pass
Field Strength of Spurious Radiation	§2.1053, §27.53(m)	9 kHz 9 5 MHz XMHz 10 <sup>th</sup> harmonics X=Max {6MHz, EBW}	Section 7 of Appendix B.5	Pass
Frequency Stability	§2.1055(a)(1)(b) §2.1055(d)(2) §27.54	Within authorized bands of operation/frequency block.	Section 8 of Appendix B.5	Pass

#### 2.4 LTE Band 7

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 Report No.:
 SEWM2304000115RG04

 Rev.:
 01

 Page:
 9 of 40

#### 2.5 LTE Band 12

Test Item	FCC Rule No.	Requirements	Test Result	Verdict
Effective (Isotropic) Radiated Power Output Data	§2.1046 §27.50(c)(10)	ERP ≤ 3 W.	Section 1 of Appendix B.6	Pass
Peak-Average Ratio		Limit≤13 dB	Section 2 of Appendix B.6	Pass
Modulation Characteristics	§2.1047	Digital modulation	Section 3 of Appendix B.6	Pass
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Section 4 of Appendix B.6	Pass
Band Edges Compliance	§2.1051, §27.53(g)	≤ -13 dBm/1%*EBW, in 1 MHz bands immediately outside and adjacent to the frequency block.	Section 5 of Appendix B.6	Pass
Spurious Emission at Antenna Terminals	§2.1051, §27.53(g)	FCC: ≤ -13 dBm/100 kHz, from 9 kHz to 10 <sup>th</sup> harmonics but outside authorized operating frequency ranges.	Section 6 of Appendix B.6	Pass
Field Strength of Spurious Radiation	§2.1053, §27.53(g)	FCC: ≤ -13 dBm/100 kHz.	Section 7 of Appendix B.6	Pass
Frequency Stability	§2.1055(a)(1)(b) §2.1055(d)(2) §27.54	Within authorized bands of operation/frequency block.	Section 8 of Appendix B.6	Pass



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 Report No.:
 SEWM2304000115RG04

 Rev.:
 01

 Page:
 10 of 40

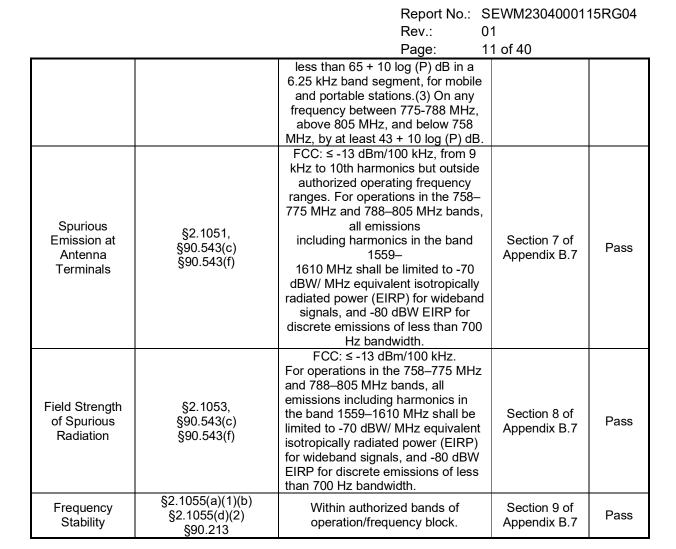
Test Item	FCC Rule No.	Requirements	Test Result	Verdict
Effective (Isotropic) Radiated Power Output Data	§2.1046 §90.542(a)	ERP ≤ 3 W	Section 1 of Appendix B.7	Pass
Peak-Average Ratio		Limit≤13 dB	Section 2 of Appendix B.7	Pass
Modulation Characteristics	§2.1047	Digital modulation	Section 3 of Appendix B.7	Pass
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Section 4 of Appendix B.7	Pass
Emission Mask	§2.1051 §90.210(b)	Transmitters designed for operation under this part on frequencies other than listed in this section must meet the emission Mask B. Equipment operating under this part on frequencies allocated to but shared with the Federal Government, must meet the applicable Federal Government technical standards (b) Emission Mask B. For transmitters that are equipped with an audio low-pass filter, the power of any emission must be attenuated below the unmodulated carrier power (P) as follows: (1) On any frequency removed from the assigned frequency by more than 50 percent, but not more than 100 percent of the authorized bandwidth: At least 25 dB.(2) On any frequency removed from the assigned frequency by more than 100 percent, but not more than 250 percent of the authorized bandwidth: At least 35 dB(3) On any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least 43 + 10 log (P) dB.	Section 5 of Appendix B.7	Pass
Band Edges Compliance	§2.1051 §90.543(e)(2)(3)	<ul> <li>(1) On all frequencies between 769- 775 MHz and 799-805 MHz, by a factor not less than 76 + 10 log (P) dB in a 6.25 kHz band segment, for base and fixed stations.(2) On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not</li> </ul>	Section 6 of Appendix B.7	Pass

#### 2.6 LTE Band 14



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 Report No.:
 SEWM2304000115RG04

 Rev.:
 01

 Page:
 12 of 40

#### 2.7 LTE Band 30

2.7 LIE DAILU 30							
Test Item	FCC Rule No.	Requirements	Test Result	Verdict			
Effective (Isotropic) Radiated Power Output Data	§2.1046, §27.50(a)(3)	EIRP ≤ 250mW/5MHz	Section 1 of Appendix B.8	Pass			
Peak-Average Ratio		FCC: Limit≤13 dB	Section 2 of Appendix B.8	Pass			
Modulation Characteristics	§2.1047	Digital modulation	Section 3 of Appendix B.8	Pass			
Bandwidth	§2.1049,	OBW: No limit. EBW: No limit.	Section 4 of Appendix B.8	Pass			
Band Edges Compliance	§2.1051, §27.53(a)(4)	<ul> <li>≤ -13 dBm/1%*EBW, in 1 MHz bands immediately outside and adjacent to the frequency block.</li> </ul>	Section 5 of Appendix B.8	Pass			
Spurious Emission at Antenna Terminals	§2.1051, §27.53(a)(4)	For mobile and portable stations operating in the 2305-2315 MHz and 2350-2360 MHz bands: (i) By a factor of not less than: 43 + 10 log (P) dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, not less than 55 + 10 log (P) dB on all frequencies between 2320 and 2324 MHz and on all frequencies between 2341 and 2345 MHz, not less than 61 + 10 log (P) dB on all frequencies between 2324 and 2328 MHz and on all frequencies between 2337 and 2341 MHz, and not less than 67 + 10 log (P) dB on all frequencies between 2328 and 2337 MHz; (ii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2300 and 2305 MHz, 55 + 10 log (P) dB on all frequencies between 2300 and 2305 MHz, 55 + 10 log (P) dB on all frequencies	Section 6 of Appendix B.8	Pass			



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Report No.: SEWM2304000115RG04 Rev.: 01

		Rev 0	1	
		Page: 1	3 of 40	
		<ul> <li>+ 10 log (P) dB on all frequencies between 2292 and 2296 MHz, 67</li> <li>+ 10 log (P) dB on all frequencies between 2288 and 2292 MHz, and 70 + 10 log (P) dB below 2288 MHz;(iii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2360 and 2365 MHz, and not less than 70 + 10 log (P) dB above 2365 MHz.</li> </ul>		
Field Strength of Spurious Radiation	§2.1053, §27.53(a)(4)	≤ -13 dBm/1 MHz.	Section 7 of Appendix B.8	Pass
Frequency Stability	§2.1055(a)(1)(b) §2.1055(d)(2) §27.54	within the range of the operating frequency blocks	Section 8 of Appendix B.8	Pass



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Report No.: SEWM2304000115RG04 Rev.: 01 Page: 14 of 40

#### 3 General Information

#### 3.1 Details of Client

Applicant:	Shenzhen Tinno Mobile Technology Corp.
Address of Applicant:	27-001, South Side of Tianlong Mobile Headquarters Building, Tongfa South Road, Xili Community, Xili Street, Nanshan District, Shenzhen ,PRC
Manufacturer:	Shenzhen Tinno Mobile Technology Corp.
Address of Manufacturer:	27-001, South Side of Tianlong Mobile Headquarters Building, Tongfa South Road, Xili Community, Xili Street, Nanshan District, Shenzhen ,PRC

#### 3.2 Test Location

Company:	SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd.
Address:	South of No. 6 Plant, No. 1, Runsheng Road, Suzhou Industrial Park, Suzhou Area, China (Jiangsu) Pilot Free Trade Zone
Post code:	215000
Test engineer:	Levi Li, Tizzy Song

### 3.3 Test Facility

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

#### A2LA (Certificate No. 6336.01)

SGS-CSTC STANDARDS TECHNICAL SERVICES (SUZHOU) CO., LTD. is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 6336.01.

#### Innovation, Science and Economic Development Canada

SGS-CSTC STANDARDS TECHNICAL SERVICES (SUZHOU) CO., LTD. has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0120.

IC#: 27594.

• FCC – Designation Number: CN1312

SGS-CSTC STANDARDS TECHNICAL SERVICES (SUZHOU) CO., LTD. has been recognized as an accredited testing laboratory.

Designation Number: CN1312.

Test Firm Registration Number: 717327



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Report No.: SEWM2304000115RG04 Rev.: 01 15 of 40 Page:

EUT Description:	Smart Phone					
Model No.:	U380AA, U380AC					
Hardware Version:	V1.0					
Software Version:	U380AAV01.09.10					
	RF Conducted	8607	19060004128	}		
IMEI:	RSE	8607	19060004979	)		
Antenna Type:	□External, ⊠Integra	ated				
	WCDMA Band II:	0.24dBi(Ant0)		WCDMA Bar	nd IV:	-0.33dBi(Ant0)
	WCDMA Band V:	lBi(Ant0)				
	LTE Band 2:	0.24dBi(Ant0)		LTE Band 4:		-0.33dBi(Ant0)
	LTE Band 5:	-3.57dBi(Ant0)		LTE Band 7:		0.42dBi(Ant0)
Antenna Gain:	LTE Band 12:	-2.55dBi(Ant0)		LTE Band 14:		-3.30dBi(Ant0)
	LTE Band 30:	-1.22dBi(Ant0)		LTE Band 66:		-0.25dBi(Ant0)
	Note: The antenna gain are derived from the gain information report provided by the manufacturer.					
RF Cable:	4.2dB(Below 1GHz) 4.5dB(1.0~2.4GHz) 4.8dB(2.4~3.4GHz)					3(2.4~3.4GHz)
Remark: As above information is p	provided and confirmed		e applicant. So	GS is not liable	e to the	accuracy,

#### 3.4 General Description of EUT

suitability, reliability or/and integrity of the information.



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 Report No.:
 SEWM2304000115RG04

 Rev.:
 01

 Page:
 16 of 40

#### 3.5 Test Mode

Test Mode	Test Modes Description		
UMTS/TM1	UMTS system, WCDMA, QPSK modulation		
LTE/TM1	LTE system, QPSK modulation		
LTE/TM2	LTE system, 16QAM modulation		
LTE/TM3 LTE system, 64QAM modulation			
Remark: The test mode(s	) are selected according to relevant radio technology specifications.		

#### 3.6 Test Environment

Environment Parameter		101.0 kPa Selected Values During Tests			
Relative Humidity		44-46 % RH Ambient			
Value		Temperature(°C)	Voltage(V)		
NTNV		22~23	3.85		
LTLV		-30	3.60		
LTHV		-30	4.40		
HTLV		50	3.60		
HTHV		50	4.40		
Remark:					
NV: Normal Voltage LV: Low		v Extreme Test Voltage	HV: High Extreme Test Voltage		
NT: Normal Temperature LT: Low		/ Extreme Test Temperature	HT: High Extreme Test Temperature		

### 3.7 Description of Support Units

The EUT has been tested as an independent unit.



 Report No.:
 SEWM2304000115RG04

 Rev.:
 01

 Page:
 17 of 40

Characteristics	Description						
Radio System Type							
	Band		TX	TX		RX	
	UMTS Band II		1850 to 19	1850 to 1910 MHz		1930 to 1990 MHz	
	UMTS Band IV	/	1710 to 17	55 MHz	2110 to 2	2155 MHz	
	UMTS Band V		824 to 849	MHz	869 to 89	94 MHz	
	LTE Band 2		1850 to 19	10 MHz	1930 to 7	1990 MHz	
Supported Frequency Range	LTE Band 4		1710 to 17	55 MHz	2110 to 2	2155 MHz	
Supported Frequency Range	LTE Band 5		824 to 849	MHz	869 to 89	94 MHz	
	LTE Band 7		2500 to 25	70 MHz	2620 to 2	2690 MHz	
	LTE Band 12		699 to 716	MHz	729 to 74	46 MHz	
	LTE Band 14		788 to 798	MHz	758 to 76	68 MHz	
	LTE Band 30		2305 to 23	15 MHz	2350 to 2	2360 MHz	
	LTE Band 66		1710 to 17	80 MHz	2110 to 2	2200 MHz	
	UMTS system:		⊠5 MHz				
	LTE Band 2		⊠1.4 MHz	⊠3 MHz	⊠5 MHz	⊠10 MHz	
			🖾 15 MHz	⊠20 MHz			
	LTE Band 4		⊠1.4 MHz	⊠3 MHz	⊠5 MHz	⊠10 MHz	
			🖾 15 MHz	20 MHz			
	LTE Band 5		⊠1.4 MHz	⊠3 MHz	⊠5 MHz	⊠10 MHz	
Supported Channel Bandwidth	LTE Band 7		⊠5 MHz	⊠10 MHz	⊠15 MHz	⊠20 MHz	
	LTE Band 12		⊠1.4 MHz	⊠3 MHz	⊠5 MHz	⊠10 MHz	
	LTE Band 14		⊠5 MHz	⊠10 MHz			
	LTE Band 30		⊠5 MHz	⊠10 MHz			
	LTE Band 66		⊠1.4 MHz	⊠3 MHz	⊠5 MHz	⊠10 MHz	
	ETE Baild 00		⊠15MHz	⊠20MHz			
	Note: WCDMA worst case wa	••				but only the	
Characteristics	Description						
Designation of Emissions	UMTS: QP		PSK				
(Remark: the necessary	Band II	4	M17F9W				
bandwidth of which is the worst value from the	Band IV	4	4M15F9W				
measured occupied	Band V	4	4M14F9W				

#### 3.8 Technical Specification



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		Report No.: SEWM2304000115RG04
		Rev.: 01 Page: 18 of 40
bandwidths for each type of	E-UTRA:	QPSK 16QAM 64QAM
channel bandwidth configuration.)		1M09G7D 1M09W7D 1M09W7D
eeguu.e)		2M70G7D 2M69W7D 2M69W7D
		4M47G7D 4M46W7D 4M50W7D
	LTE Band 2	8M93G7D 8M93W7D 8M95W7D
		13M5G7D 13M5W7D 13M5W7D
		17M9G7D 17M9W7D 17M9W7D
		1M09G7D 1M10W7D 1M10W7D
		2M69G7D 2M69W7D 2M69W7D
		4M48G7D 4M48W7D 4M48W7D
	LTE Band 4	8M95G7D 8M94W7D 8M94W7D
		13M5G7D 13M4W7D 13M5W7D
		17M9G7D 17M9W7D 17M9W7D
	LTE Band 5	1M09G7D 1M10W7D 1M09W7D
		2M69G7D 2M69W7D 2M69W7D
		4M48G7D 4M46W7D 4M48W7D
		8M93G7D 8M95W7D 8M94W7D
	LTE Band 7	4M48G7D 4M47W7D 4M49W7D
		8M99G7D 8M94W7D 8M94W7D
		13M5G7D 13M5W7D 13M5W7D
		17M9G7D 17M9W7D 17M9W7D
		1M09G7D 1M10W7D 1M10W7D
	LTE Band 12	2M69G7D 2M69W7D 2M69W7D
		4M49G7D 4M47W7D 4M49W7D
		8M93G7D 8M92W7D 8M96W7D
	LTE Band 14	4M48G7D 4M49W7D 4M49W7D
		8M96G7D 8M94W7D 8M95W7D
	LTE Band 30	4M49G7D 4M50W7D 4M49W7D
		8M97G7D 8M96W7D 8M96W7D
		1M08G7D 1M10W7D 1M10W7D
		2M69G7D 2M69W7D 2M69W7D
	LTE Band 66	4M48G7D 4M48W7D 4M49W7D
		8M95G7D 8M94W7D 8M97W7D
		13M5G7D 13M5W7D 13M5W7D



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Report	No.: SEWM2304000115RG04
Rev.:	01
 Page:	19 of 40
18M0G7D 17N	/9W7D 17M9W7D



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 Report No.:
 SEWM2304000115RG04

 Rev.:
 01

 Page:
 20 of 40

#### 3.9 Test Frequencies

Test Mode	TX / RX	RF Channel			
Test Would		Low (L)	Middle (M)	High (H)	
WCDMA Band II	ТХ	Channel 9262	Channel 9400	Channel 9538	
		1852.4 MHz	1880.0 MHz	1907.6 MHz	
	RX	Channel 9662	Channel 9800	Channel 9938	
		1932.4 MHz	1960.0 MHz	1987.6 MHz	

Test Mode	TX / RX	RF Channel			
I EST MODE		Low (L)	Middle (M)	High (H)	
		Channel 1312	Channel 1413	Channel 1513	
WCDMA Band IV	TX	1712.4MHz	1732.6 MHz	1752.6 MHz	
	RX	Channel 1537	Channel 1638	Channel 1738	
	КЛ	2112.4 MHz	2132.6 MHz	2152.6 MHz	

Test Mode	TX / RX	RF Channel				
I EST MOUE		Low (L)	Middle (M)	High (H)		
	TX	Channel 4132	Channel 4182	Channel 4233		
WCDMA Band V		826.4MHz	836.4 MHz	846.6 MHz		
		Channel 4357	Channel 4407	Channel 4458		
	RX	871.4 MHz	881.4 MHz	891.6 MHz		



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	Report No.: SEWM2304000115RG04				
			Rev.:	01	
			Page:	21 of 40	
Test Mede	Dandwidth			RF Channel	
Test Mode	Bandwidth	TX / RX	Low (L)	Middle (M)	High (H)
			Channel 18607	Channel 18900	Channel 19193
		ТХ	1850.7 MHz	1880 MHz	1909.3 MHz
	1.4MHz	RX	Channel 607	Channel 900	Channel 1193
		КЛ	1930.7 MHz	1960 MHz	1989.3 MHz
			Channel 18615	Channel 18900	Channel 19185
		ТХ	1851.5 MHz	1880 MHz	1908.5 MHz
	3MHz	RX	Channel 615	Channel 900	Channel 1185
		КЛ	1931.5 MHz	1960 MHz	1988.5 MHz
	5MHz	тх	Channel 18625	Channel 18900	Channel 19175
			1852.5 MHz	1880 MHz	1907.5 MHz
		RX	Channel 625	Channel 900	Channel1175
LTE Band 2			1932.5 MHz	1960 MHz	1987.5 MHz
	10MHz	тх	Channel 18650	Channel 18900	Channel 19150
			1855 MHz	1880 MHz	1905 MHz
		RX	Channel 650	Channel 900	Channel 1150
			1935 MHz	1960 MHz	1985 MHz
			Channel 18675	Channel 18900	Channel 19125
		ТХ	1857.5 MHz	1880 MHz	1902.5 MHz
	15MHz	RX	Channel 675	Channel 900	Channel 1125
			1937.5 MHz	1960 MHz	1982.5 MHz
			Channel 18700	Channel 18900	Channel 19100
	0.01.41.1	ТХ	1860 MHz	1880 MHz	1900 MHz
	20MHz	RX	Channel 700	Channel 900	Channel 1100
			1940 MHz	1960 MHz	1980 MHz

Report No : SEWM2304000115RG04



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Report No.: SEWM2304000115RG04					
			Rev.:	01	
			Page:	22 of 40	
				RF Channel	
Test Mode	Bandwidth	TX / RX	Low (L)	Middle (M)	High (H)
			Channel 19957	Channel 20175	Channel 20393
		ТХ	1710.7 MHz	1732.5 MHz	1754.3 MHz
	1.4MHz	DY	Channel 1975	Channel 2175	Channel 2375
		RX	2112.5 MHz	2132.5MHz	2152.5 MHz
			Channel 19965	Channel 20175	Channel 20385
		ТХ	1711.5 MHz	1732.5 MHz	1753.5 MHz
	3MHz	RX	Channel 2000	Channel 2175	Channel 2350
		RA.	2115 MHz	2132.5MHz	2150 MHz
	5MHz -	ТХ	Channel 19975	Channel 20175	Channel 20375
			1712.5 MHz	1732.5 MHz	1752.5 MHz
		RX	Channel 1975	Channel 2175	Channel 2375
LTE Dand 4			2112.5 MHz	2132.5MHz	2152.5 MHz
LTE Band 4			Channel 20000	Channel 20175	Channel 20350
		TX	1715 MHz	1732.5 MHz	1750 MHz
	10MHz	RX	Channel 2000	Channel 2175	Channel 2350
			2115 MHz	2132.5MHz	2150 MHz
			Channel 20025	Channel 20175	Channel 20325
		ТХ	1717.5 MHz	1732.5 MHz	1747.5 MHz
	15MHz	RX	Channel 2025	Channel 2175	Channel 2325
			2117.5 MHz	2132.5MHz	2147.5 MHz
			Channel 20050	Channel 20175	Channel 20300
		ТХ	1720 MHz	1732.5 MHz	1745 MHz
	20MHz	RX	Channel 2050	Channel 2175	Channel 2300
			2120 MHz	2132.5MHz	2145 MHz

TeetMade	Dondwidth		RF Channel			
Test Mode	Bandwidth	TX/RX	Low (L)	Middle (M)	High (H)	
			Channel 20407	Channel 20525	Channel 20643	
		TX	824.7 MHz	836.5 MHz	848.3 MHz	
	1.4MHz	RX	Channel 2407	Channel 2525	Channel 2643	
			869.7 MHz	881.5 MHz	893.3 MHz	
			Channel 20415	Channel 20525	Channel 20635	
	3MHz	TX	825.5 MHz	836.5 MHz	847.5 MHz	
		RX	Channel 2415	Channel 2525	Channel 2635	
			870.5 MHz	881.5 MHz	892.5 MHz	
LTE Band 5		тх	Channel 20425	Channel 20525	Channel 20625	
			826.5 MHz	836.5 MHz	846.5 MHz	
	5MHz	RX	Channel 2425	Channel 2525	Channel 2625	
		КЛ	871.5 MHz	881.5 MHz	891.5 MHz	
			Channel 20450	Channel 20525	Channel 20600	
		TX	829 MHz	836.5 MHz	844 MHz	
	10MHz	RX	Channel 2450	Channel 2525	Channel 2600	
			874 MHz	881.5 MHz	889 MHz	



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Report No.: SEWM2304000115RG04					4000115RG04
			Rev.:	01	
			Page:	23 of 40	
TestMede	D	TV / DV		RF Channel	
Test Mode	Bandwidth	TX / RX	Low (L)	Middle (M)	High (H)
			Channel 20775	Channel 21100	Channel 21425
		TX	2502.5 MHz	2535 MHz	2567.5 MHz
	5MHz	RX	Channel 2775	Channel 3100	Channel 5825
		ΓΛ.	2622.5 MHz	2655 MHz	2687.5 MHz
	10MHz	TX RX	Channel 20800	Channel 21100	Channel 21400
			2505 MHz	2535 MHz	2565 MHz
			Channel 2800	Channel 3100	Channel 3400
			2625 MHz	2655 MHz	2685 MHz
LTE Band 7		тх	Channel 20825	Channel 21100	Channel 21375
			2507.5 MHz	2535 MHz	2562.5 MHz
	15MHz	RX	Channel 2825	Channel 3100	Channel 3375
		КЛ	2627.5 MHz	2655 MHz	2682.5 MHz
			Channel 20850	Channel 21100	Channel 21350
		TX	2510 MHz	2535 MHz	2560 MHz
	20MHz	DV	Channel 2850	Channel 3100	Channel 3350
		RX	2630 MHz	2655 MHz	2680 MHz

Teet Mede	Donduvidth			RF Channel	
Test Mode	Bandwidth	TX / RX	Low (L)	Middle (M)	High (H)
			Channel 23017	Channel 23095	Channel 23173
		TX	699.7 MHz	707.5 MHz	715.3 MHz
	1.4MHz	RX	Channel 5017	Channel 5095	Channel 5173
			729.7 MHz	737.5 MHz	745.3 MHz
			Channel 23025	Channel 23095	Channel 23165
	3MHz	TX	700.5 MHz	707.5 MHz	714.5 MHz
		RX	Channel 5025	Channel 5095	Channel 5165
			730.5 MHz	737.5 MHz	744.5 MHz
LTE Band 12		тх	Channel 23035	Channel 23095	Channel 23155
			701.5 MHz	707.5 MHz	713.5 MHz
	5MHz	RX	Channel 5035	Channel 5095	Channel 5155
			731.5 MHz	737.5 MHz	743.5 MHz
			Channel 23060	Channel 23095	Channel 23130
		TX	704 MHz	707.5 MHz	711 MHz
	10MHz	RX	Channel 5060	Channel 5095	Channel 5130
			734 MHz	737.5 MHz	741 MHz



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		Report No.: SEWM2304000115RG04				
				Rev.:	01	
				Page	: 24 of 40	
				1 490	RF Channel	
Test Mode	Bandwidth	TX / RX	ŀ	Low (L)	Middle (M)	High (H)
				Channel 23305		Channel 23355
		TX	ŀ	790.5 MHz	793 MHz	795.5 MHz
	5MHz			Channel 5305	Channel 5330	Channel 5355
		RX	F	760.5 MHz	763 MHz	765.5 MHz
LTE Band 14				Channel 23330		Channel 23330
		TX	ŀ	793MHz	793 MHz	793 MHz
	10MHz			Channel 5330	Channel 5330	Channel 5330
		RX	Ē	763MHz	763 MHz	763 MHz
					1	
TestMede	Development	TV / DV			RF Channel	
Test Mode	Bandwidth	TX/RX	Ī	Low (L)	Middle (M)	High (H)
				Channel 27685		Channel 27735
	5MHz	TX	ſ	2307.5 MHz	2310MHz	2312.5 MHz
		RX		Channel 9795	Channel 9820	Channel 9845
LTE Band 30		КЛ		2352.5MHz	2355 MHz	2357.5MHz
LTE Dallu 30		ТХ		Channel 27710	Channel27710	Channel27710
				2310 MHz	2310MHz	2310MHz
	10MHz RX			Channel 9820	Channel 9820	Channel 9820
				2355 MHz	2355 MHz	2355 MHz
Test Mode	Bandwidth	TX / RX			RF Channel	
Test Mode	Danuwiuun			Low (L)	Middle (M)	High (H)
				annel 131979	Channel 132322	Channel 132665
		ТХ		1710.7 MHz	1745 MHz	1779.3 MHz
	1.4MHz	RX		hannel 66443	Channel 66786	Channel 67329
				2110.7 MHz	2145MHz	2199.3 MHz
				nannel 131987	Channel 132322	Channel 132657
		TX		1711.5 MHz	1745 MHz	1778.5MHz
	3MHz	RX		hannel 66451	Channel 66786	Channel 67321
				2111.5 MHz	2145MHz	2198.5MHz
			Ch	annel 131997	Channel 132322	Channel 132647
	<b>CN</b> 41 1	ТХ		1712.5 MHz	1745 MHz	1777.5 MHz
	5MHz	z		hannel 66461	Channel 66786	Channel 67311

			Channel 131987	Channel 132322	Channel 132657
		TX	1711.5 MHz	1745 MHz	1778.5MHz
	3MHz	RX	Channel 66451	Channel 66786	Channel 67321
			2111.5 MHz	2145MHz	2198.5MHz
			Channel 131997	Channel 132322	Channel 132647
		ТХ	1712.5 MHz	1745 MHz	1777.5 MHz
	5MHz	RX	Channel 66461	Channel 66786	Channel 67311
			2112.5 MHz	2145MHz	2197.5 MHz
LTE Band66			Channel 132022	Channel 132322	Channel 132622
		TX	1715 MHz	1745 MHz	1775 MHz
	10MHz	RX	Channel 66486	Channel 66786	Channel 67286
			2115 MHz	2145MHz	2195 MHz
		ТΧ	Channel 132047	Channel 132322	Channel 132597
			1717.5 MHz	1745 MHz	1772.5 MHz
	15MHz	RX	Channel 66511	Channel 66786	Channel 67261
			2117.5 MHz	2145MHz	2192.5 MHz
			Channel 132072	Channel 132322	Channel 132572
		TX	1720 MHz	1745 MHz	1770 MHz
	20MHz	RX	Channel 66536	Channel 66786	Channel 67236
			2120 MHz	2145MHz	2190 MHz



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 Report No.:
 SEWM2304000115RG04

 Rev.:
 01

 Page:
 25 of 40

### 4 Description of Tests

#### 4.1 Conducted Output Power

Measurement Procedure: FCC KDB 971168 D01 V03r01 Section 5.2.1

The transmitter output was connected to a calibrated coaxial cable, attenuator and power meter, the other end of which was connected to a Base Station Simulator. The Base Station Simulator was set to force the EUT to its maximum power setting. The power output at the transmitter antenna port was determined by adding the value of the cable insertion loss to the power reading. The tests were performed at three frequencies (low channel, middle channel and high channel) and on the highest power levels, which can be setup on the transmitters.

Remark: Reference test setup 1



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 Report No.:
 SEWM2304000115RG04

 Rev.:
 01

 Page:
 26 of 40

#### 4.2 Effective (Isotropic) Radiated Power of Transmitter

Measurement Procedure: FCC KDB 971168 D01 V03r01 Section 5.8.4

Calculate power in dBm by the following formula:

ERP (dBm) = Conducted Power (dBm) + antenna gain (dBd)

EIRP(dBm) = Conducted Power (dBm) + antenna gain (dBi)

EIRP=ERP+2.15dB

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 Report No.:
 SEWM2304000115RG04

 Rev.:
 01

 Page:
 27 of 40

#### 4.3 Occupied Bandwidth

Measurement Procedure: FCC KDB 971168 D01 V03r01 Section 4.2 & 4.3

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured. The transmitter output was connected to a calibrated coaxial cable, attenuator and Spectrum analyser, the other end of which was connected to a Base Station Simulator. The Base Station Simulator was set to force the EUT to its maximum power setting. The tests were performed at three frequencies (low channel, middle channel and high channel). The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts. The resolution bandwidth shall be set to as close to 1 percent of the selected span as is possible without being below 1 percent. The video bandwidth shall be set to 3 times the resolution bandwidth. Video averaging is not permitted. Where practical, a sampling detector shall be used since a peak or, peak hold, may produce a wider bandwidth than actual. The trace data points are recovered and are directly summed in linear terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 percent of the total is reached and that frequency recorded. The process is repeated for the highest frequency data points. This frequency is recorded. The span between the two recorded frequencies is the occupied bandwidth.

#### Remark: Reference test setup 1

#### Test Settings

- The signal analyzer's automatic bandwidth measurement capability was used to perform the 99% occupied bandwidth and the 26dB bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
- 2. RBW = 1 5% of the expected OBW
- 3. VBW ≥ 3 x RBW
- 4. Detector = Peak
- 5. Trace mode = max hold
- 6. Sweep = auto couple
- 7. The trace was allowed to stabilize
- 8. If necessary, steps 2 7 were repeated after changing the RBW such that it would be within
  - 1 5% of the 99% occupied bandwidth observed in Step 7



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 Report No.:
 SEWM2304000115RG04

 Rev.:
 01

 Page:
 28 of 40

#### 4.4 Band Edge at Antenna Terminals

Measurement Procedure: FCC KDB 971168 D01 V03r01 Section 6.0

The transmitter output was connected to a calibrated coaxial cable, attenuator and Spectrum analyser, the other end of which was connected to a Base Station Simulator. The Base Station Simulator was set to force the EUT to its maximum power setting. The tests were performed at two frequencies (low channel and high channel).in the 1MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of 100kHz or 1% of the emission bandwidth of the fundamental emission of the transmitter may be employed. The EUT emission bandwidth is measured as the width of the signal between two points, outside of which all emission are attenuated at least 26dB below the transmitter power. The video bandwidth of the spectrum analyzer was set at thrice the resolution bandwidth. Detector Mode was set to rms.

#### Remark: Reference test setup 1

#### Test Settings

- 1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
- 2. Span was set large enough so as to capture all out of band emissions near the band edge
- 3. RBW > 1% of the emission bandwidth
- 4.  $VBW \ge 3 \times RBW$
- 5. Detector = RMS
- 6. Number of sweep points ≥ 2 x Span/RBW
- 7. Trace mode = trace average for continuous emissions, max hold for pulse emissions
- 8. Sweep time = auto couple
- 9. The trace was allowed to stabilize



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 Report No.:
 SEWM2304000115RG04

 Rev.:
 01

 Page:
 29 of 40

#### 4.5 Spurious And Harmonic Emissions at Antenna Terminal

Measurement Procedure: FCC KDB 971168 D01 V03r01 Section 6.0

The transmitter output was connected to a calibrated coaxial cable, attenuator and Spectrum analyzer, the other end of which was connected to a Base Station Simulator. The Base Station Simulator was set to force the EUT to its maximum power setting. The tests were performed at three frequencies (low channel and high channel). The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log(P) dB. Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.

#### Remark: Reference test setup 1

#### Test Settings

1. Start frequency was set to 9kHz and stop frequency was set to at least 10\* the fundamental frequency(Separated into at least two plots per channel)

- 2. Detector = RMS
- 3. Trace mode = trace average for continuous emissinos, max hold for pulse emissions
- 4. Sweep time = auto couple
- 5. The trace was allowed to stabilize
- 6. Please see test notes below for RBW and VBW settings



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 Report No.:
 SEWM2304000115RG04

 Rev.:
 01

 Page:
 30 of 40

#### 4.6 Peak-Average Ratio

Measurement Procedure: FCC KDB 971168 D01 V03r01 Section 5.7.2

A peak to average ratio measurement is performed at the conducted port of the EUT. For WCDMA signals, the spectrum analyzers Complementary Cumulative Distribution Function (CCDF) measurement profile is used to determine the largest deviation between the average and the peak power of the EUT in a given bandwidth. The CCDF curve shows how much time the peak waveform spends at or above a given average power level. The percent of time the signal spends at or above the level defines the probability for that particular power level. For GSM signals, an average and a peak trace are used on a spectrum analyzer to determine the largest deviation between the average and the peak power of the EUT in a bandwidth greater than the emission bandwidth. The traces are generated with the spectrum analyzer set to zero span mode.

#### Remark: Reference test setup 1

#### Test Settings

- 1. The signal analyzer's CCDF measurement profile is enabled
- 2. Frequency = carrier center frequency
- 3. Measurement BW > Emission bandwidth of signal
- 4. The signal analyzer was set to collect one million samples to generate the CCDF curve
- 5. The measurement interval was set depending on the type of signal analyzed. For continuous signals (>98% duty cycle), the measurement interval was set to 1ms. For burst transmissions, the spectrum analyzer is set to use an internal "RF Burst" trigger that is synced with an incoming pulse and the measurement interval is set to less than the duration of the "on time" of one burst to ensure that energy is only captured during a time in which the transmitter is operating at maximum power



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 Report No.:
 SEWM2304000115RG04

 Rev.:
 01

 Page:
 31 of 40

#### 4.7 Field Strength of Spurious Radiation

Measurement Procedure: FCC KDB 971168 D01 V03r01 Section 5.8

#### Below 1GHz test procedure as below:

- 1). The EUT was powered ON and placed on a 80cm high table in the chamber. The antenna of the transmitter was extended to its maximum length.
- 2). The disturbance of the transmitter was maximized on the test receiver display by raising and lowering from 1m to 4m (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) the receive antenna and by rotating through 360° the turntable. After the fundamental emission was maximized, a field strength measurement was made.
- 3). Steps 1) and 2) were performed with the EUT and the receive antenna in both vertical and horizontal polarization.
- 4). Test the EUT in the lowest channel, the middle channel ,the Highest channel.
- 5). The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, Only the test worst case mode is recorded in the report.
- 6). Repeat above procedures until all frequencies measured was complete. E (dBµV/m) = Measured amplitude level (dBµV) + (Cable Loss (dB) + Antenna Factor (dB/m) – AMP(dB))
  - EIRP (dBm) = E (dB $\mu$ V/m) + 20 log D 104.8; where D is the measurement distance in meters

#### Above 1GHz test procedure as below:

- 1) Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber
- 2) Calculate power in dBm by the following formula:
  - E (dB $\mu$ V/m) = Measured amplitude level (dB $\mu$ V) + (Cable Loss (dB) + Antenna Factor (dB/m) AMP(dB)) EIRP (dBm) = E (dB $\mu$ V/m) + 20 log D – 104.8; where D is the measurement distance in meters
- 3). Test the EUT in the lowest channel, the middle channel the Highest channel
- 4). The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, Only the test worst case mode is recorded in the report.
- 5). Repeat above procedures until all frequencies measured was complete

Remark1: Reference test setup 2

Remark2: The emission below 18G were measured at a 3m test distance, while emissions above 18GHz were measured at a 1m test distance. At a measurement distance of 1 meter the limit line was increased by 20\*LOG(3/1) = 9.54 dB.

#### Remark: Reference test setup 2

Remark:

1) The field strength is calculated by adding the Antenna Factor, Cable Factor & AMP. The basic equation with a sample calculation is as follows:

AF = Antenna Factor(dB/m)

Factor = Cable Factor(dB) - Preamplifier (dB)

Level = Reading Level + AF + Factor -95.26

Margin = Limit – Level

2) Scan from 9kHz to 40GHz, The disturbance between 9KHz to 30MHz and 18GHz to 40GHz was very low, and the harmonics were the highest point could be found when testing, so only the harmonics

had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

3) All modes have been tested, but only the worst case data displayed in this report.



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 Report No.:
 SEWM2304000115RG04

 Rev.:
 01

 Page:
 32 of 40

#### 4.8 Frequency Stability / Temperature Variation

Measurement Procedure:

Frequency stability testing is performed in accordance with the guidelines of FCC KDB 971168 D01 V03r01; Section 9

- . The frequency stability of the transmitter is measured by:
- a.) **Temperature:** The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.
- b.) **Primary Supply Voltage:** The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

Specification – The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within  $\pm 0.00025\%$  ( $\pm 2.5$  ppm ) of the center frequency.

#### Time Period and Procedure:

- 1. The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).
- 2. The equipment is turned on in a "standby" condition for fifteen minutes before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
- 3. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

#### Remark: Reference test setup 3



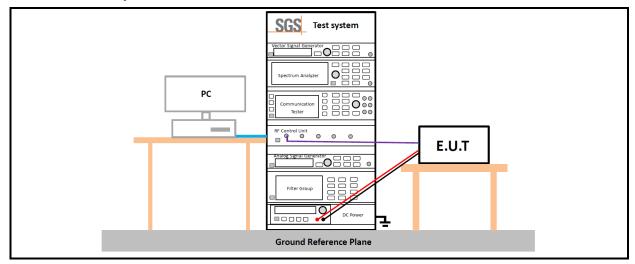
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Report No.: SEWM2304000115RG04 Rev.: 01 Page: 33 of 40

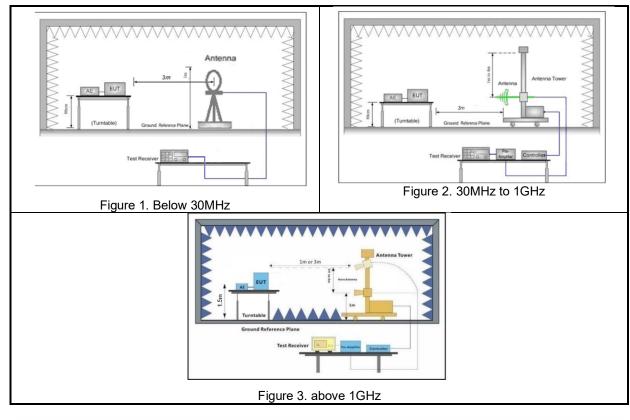
#### 4.9 Test Setups

#### 4.9.1 **Test Setup 1**



#### 4.9.2 **Test Setup 2**

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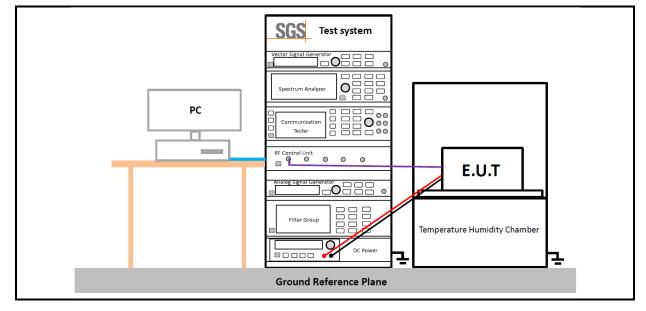
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 Report No.:
 SEWM2304000115RG04

 Rev.:
 01

 Page:
 34 of 40

#### 4.9.3 Test Setup 3





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 Report No.:
 SEWM2304000115RG04

 Rev.:
 01

 Page:
 35 of 40

#### 4.10Test Conditions

	Transmit Output Power Data - Average Power, Total				
Test Case	Test Case Test Conditions				
Test Environment	Ambient Climate & Rated Voltage				
Test Setup	Test Setup 1				
RF Channels (TX)	L, M, H (L= low channel, M= middle channel, H= high channel)				
Test Mode	UMTS/TM1;LTE/TM1;LTE/TM2;LTE/TM3				
	Peak-to-Average Ratio				
Test Case	Test Conditions				
Test Environment	Ambient Climate & Rated Voltage				
Test Setup	Test Setup 1				
RF Channels (TX)	L, M, H (L= low channel, M= middle channel, H= high channel)				
Test Mode	UMTS/TM1;LTE/TM1;LTE/TM2;LTE/TM3				
	Modulation Characteristics				
Test Case	Test Conditions				
Test Environment	Ambient Climate & Rated Voltage				
Test Setup	Test Setup 1				
RF Channels (TX)	M (M= middle channel)				
Test Mode	UMTS/TM1;LTE/TM1;LTE/TM2;LTE/TM3				
	Bandwidth - Occupied Bandwidth				
Test Case	Test Conditions				
Test Environment	Ambient Climate & Rated Voltage				
Test Setup	Test Setup 1				
RF Channels (TX)	L, M, H (L= low channel, M= middle channel, H= high channel )				
Test Mode	UMTS/TM1;LTE/TM1;LTE/TM2;LTE/TM3				
	Bandwidth - Emission Bandwidth				
Test Case	Test Conditions				
Test Environment	Ambient Climate & Rated Voltage				
Test Setup	Test Setup 1				
RF Channels (TX)	L, M, H (L= low channel, M= middle channel, H= high channel )				
Test Mode	UMTS/TM1;LTE/TM1;LTE/TM2;LTE/TM3				
	Band Edges Compliance				
Test Case	Test Conditions				



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 Report No.:
 SEWM2304000115RG04

 Rev.:
 01

 Page:
 36 of 40

	Page: 36 01 40
Test Environment	Ambient Climate & Rated Voltage
Test Setup	Test Setup 1
RF Channels (TX)	L, H (L= low channel, H= high channel)
Test Mode	UMTS/TM1;LTE/TM1
	Spurious Emission at Antenna Terminals
Test Case	Test Conditions
Test Environment	Ambient Climate & Rated Voltage
Test Setup	Test Setup 1
RF Channels (TX)	L, M, H (L= low channel, M= middle channel, H= high channel)
Test Mode	UMTS/TM1;LTE/TM1
	Field Strength of Spurious Radiation
Test Case	Test Conditions
Test Environment	Ambient Climate & Rated Voltage
Test Setup	Test Setup 2
RF Channels (TX)	L, M, H (L= low channel, M= middle channel, H= high channel)
Test Mode	UMTS/TM1;LTE/TM1 Remark: All bandwidth and modulation of UMTS/LTE have been pre tested, and only the worst results are reflected in the report.
	Frequency Stability
Test Case	Test Conditions
Test Environment	(1) -30 °C to +50 °C with step 10 °C at Rated Voltage
	(2) VL, VN and VH of Rated Voltage at Ambient Climate.
Test Setup	Test Setup 3
RF Channels (TX)	M (M= middle channel)
Test Mode	UMTS/TM1;LTE/TM1
	The report only show the bandwidth with the worst case.



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 Report No.:
 SEWM2304000115RG04

 Rev.:
 01

 Page:
 37 of 40

### 5 Main Test Instruments

RF conducted test								
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. date (yyyy/mm/dd)	Cal.Due date (yyyy/mm/dd)			
Shielding Room	Brilliant-emc	N/A	SUWI-04-01-06	2021/05/08	2024/05/07			
Temperature and humidity meter	MingGao	TH101B	SUWI-01-01-07	2023/02/06	2024/02/05			
Signal Analyzer	ROHDE&SCHWARZ	FSV3030	SUWI-01-02-02	2022/05/17	2023/05/16			
Signal Analyzei	KUHDE&SCHWARZ	F3V3030	30001-01-02-02	2023/05/11	2024/05/10			
Measurement Software	Tonscend	JS1120-3 Test System V 2.6.88.0336	SUWI-02-09-09	NCR	NCR			
Radio Communication Analyzer	Anritsu	MT8821C	SUWI-01-26-03	2022/11/23	2023/11/22			
Wideband Radio Communication Tester	ROHDE&SCHWARZ	CMW500	SUWI-01-16-05	2023/02/06	2024/02/05			
DC Power Supply	HYELEC	HY3005B	SUWI-01-18-01	2023/02/06	2024/02/05			
Temperature Chamber	ESPEC	SU-242	SUWI-01-13-01	2023/02/06	2024/02/05			
Wideband Radio Communication Test Ststion	Anritsu	MT8000A	SUWI-01-34-02	2022/09/16	2023/09/15			
Signal Analyzer	ROHDE&SCHWARZ	FSW43	SUWI-01-02-04	2022/05/28	2023/05/27			
		F31143	50771-01-02-04	2023/05/11	2024/05/10			



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 Report No.:
 SEWM2304000115RG04

 Rev.:
 01

 Page:
 38 of 40

	Page: 38 of 40						
		RSE Test S	ystem				
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. date (yyyy/mm/dd)	Cal.Due date (yyyy/mm/dd)		
Semi-Anechoic Chamber	Brilliant-emc	N/A	SUWI-04-02-02	2021/11/25	2024/11/24		
Temperature and humidity meter	MingGao	TH101B	SUWI-01-01-13	2023/02/07	2024/02/06		
Signal Apolyzor		FSW43	SUWI-01-02-04	2022/05/28	2023/05/27		
Signal Analyzer	ROHDE&SCHWARZ	F31143	30001-01-02-04	2023/05/11	2024/05/10		
Signal Analyzer	KEYSIGHT	N9020A	SUWI-01-02-06	2022/11/23	2023/11/22		
Test receiver	ROHDE&SCHWARZ	ESR7	SUWI-01-10-01	2023/02/08	2024/02/07		
Receiving antenna	SCHWRZBECK MESS- ELEKTRONIK	VULB 9168	SUWI-01-11-04	2021/12/05	2023/12/04		
Receiving antenna	SCHWRZBECK MESS- ELEKTRONIK	BBHA 9120D	SUWI-01-11-05	2021/12/05	2023/12/04		
Receiving	SCHWRZBECK MESS-	BBHA 9170	SUWI-01-11-03	2021/05/14	2023/05/13		
antenna	ELEKTRONIK	DDIA 9170	3000-01-11-03	2023/05/11	2024/05/10		
Active Loop Antenna	SCHWRZBECK MESS- ELEKTRONIK	FMZB 1519B	SUWI-01-21-01	2021/06/10	2023/06/09		
Amplifier	Tonscend	TAP9K3G32	SUWI-01-14-06	2022/11/23	2023/11/22		
Amplifier	Tonscend	TAP01018050	SUWI-01-14-04	2022/11/23	2023/11/22		
Amplifier	Tonscend	TAP30M7G30	SUWI-01-14-05	2022/11/23	2023/11/22		
Wideband Radio Communication Tester	Anritsu	MT8820C	SUWI-01-16-08	2023/02/06	2024/02/05		
Wideband Radio Communication Tester	Anritsu	MT8821C	SUWI-01-26-03	2022/11/23	2023/11/22		
Measurement Software	Tonscend	JS32-RE V4.0.0.0	SUWI-02-09-04	NCR	NCR		



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 Report No.:
 SEWM2304000115RG04

 Rev.:
 01

 Page:
 39 of 40

### 7 Measurement Uncertainty

For a 95% confidence level (k = 2), the measurement expanded uncertainties for defined systems, in

No.	Item	Measurement Uncertainty
1	Total RF power, conducted	±0.54dB
2	RF power density, conducted	±1.03dB
3	Spurious emissions, conducted	±0.54dB
4	Radio Frequency	±1.0 %
5	Duty Cycle	±0.37%
6	Occupied Bandwidth	±1.0 %
7	Radiated Emission	± 3.13dB (9k -30MHz)
		± 4.88dB (30M -1GHz)
		± 4.75dB (1GHz to 18GHz)
		± 4.77dB (Above 18GHz)

accordance with the recommendations of ISO 17025 as following:

The  $U_{Iab}$  (lab Uncertainty) is less than  $U_{cispr/ETSI}$  (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.



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 Report No.:
 SEWM2304000115RG04

 Rev.:
 01

 Page:
 40 of 40

### 8 Appendixes

Appendix A.3	WWAN Setup Photos
Appendix B.1	WCDMA Band II & IV & V
Appendix B.2	LTE Band 2
Appendix B.3	LTE Band 4
Appendix B.4	LTE Band 5
Appendix B.5	LTE Band 7
Appendix B.6	LTE Band 12
Appendix B.7	LTE Band 14
Appendix B.8	LTE Band 30
Appendix B.9	LTE Band 66

---End of Report---



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Grennan: <u>Chr. Doctor Hock (2015)</u> South Mb. Pieru, No. 1, Runsheng Rosel, Saburu Mudshill Park, Suzhou Area, China (Jangsu) Pich Free Trade Zone 215000 中国・苏州・中国(江苏)自由贸易试验区苏州片区苏州工业园区消胜路1号的6号厂房南都 単编: 215000