RF TEST REPORT

SIEMIC
A Bureau Veritas Group Company

Report No.: FCC_RF_SL19032802-DIG-001 Rev_1.0
Supersede Report No.: FCC_RF_SL19032802-DIG-001

Applicant	Tyco - Digital Security Controls
FCC ID	F53193G4000W
Product Name	Cellular Alarm Communicator
Model No.	3G4000W
Test Standard	47CFR Part 22/24
Test Method	TIA-603-E: 2016
Date of test	05/02/2019 - 05/07/2019
Issue Date	05/16/2019
Test Result	Pass Fail
Equipment complied with the specification	[x]
Equipment did not comply with the specification	[ ]
	
Deon Dai	Chen Ge
Test Engineer	Engineer Reviewer
This test report may be reproduced in full only Test result presented in this test report is applicable to the tested sample only	

Issued By:
SIEMIC Laboratories
775 Montague Expressway, Milpitas, 95035 CA

ACCREDITED
TESTING CERT # 2742-01

Laboratory Introduction

SIEMIC, headquartered in the heart of Silicon Valley, with superior facilities in US and Asia, is one of the leading independent testing and certification facilities providing customers with one-stop shop services for Compliance Testing and Global Certifications.

In addition to testing and certification, SIEMIC provides initial design reviews and compliance management throughout a project. Our extensive experience with China, Asia Pacific, North America, European, and International compliance requirements, assures the fastest, most cost effective way to attain regulatory compliance for the global markets.

Accreditations for Conformity Assessment

Country/Region	Accreditation Body	Scope
USA	FCC, A2LA	EMC , RF/Wireless , Telecom
Canada	IC, A2LA, NIST	EMC, RF/Wireless , Telecom
Taiwan	BSMI , NCC , NIST	EMC, RF, Telecom , Safety
Hong Kong	OFTA , NIST	RF/Wireless ,Telecom
Australia	NATA, NIST	EMC, RF, Telecom , Safety
Korea	KCC/RRA, NIST	EMI, EMS, RF , Telecom, Safety
Japan	VCCI, JATE, TELEC, RFT	EMI, RF/Wireless, Telecom
Mexico	NOM, COFETEL, Caniety	Safety, EMC , RF/Wireless, Telecom
Europe	A2LA, NIST	EMC, RF, Telecom , Safety
Israel	MOC, NIST	EMC, RF, Telecom, Safety

Accreditations for Product Certifications

Country	Accreditation Body	Scope
USA	FCC TCB, NIST	EMC , RF , Telecom
Canada	IC FCB , NIST	EMC , RF , Telecom
Singapore	iDA, NIST	EMC , RF , Telecom
EU	NB	EMC & R&TTE Directive
Japan	MIC (RCB 208)	RF , Telecom
HongKong	OFTA (US002)	RF , Telecom

CONTENTS

1 Report Revision History

Report No.	Report Version	Description	Issue Date
FCC_RF_SL19032802-DIG-001	None	Original	05/10/2019
FCC_RF_SL19032802-DIG-001 Rev_1.0	Rev_1.0	Update Per Review	05/16/2019

2 Executive Summary

The purpose of this test program was to demonstrate compliance of following product

Company:	Tyco - Digital Security Controls
Product:	Cellular Alarm Communicator
Model:	3G4000W

against the current Stipulated Standards. The specified model product stated above has demonstrated compliance with the Stipulated Standard listed on 1st page.

3 Customer information

Applicant Name	Tyco - Digital Security Controls
Applicant Address	3301 Langstaff Rd., Concord, ON L4K4L2 Canada
Manufacturer Name	Tyco - Digital Security Controls
Manufacturer Address	3301 Langstaff Rd., Concord, ON L4K4L2 Canada

4 Test site information

Lab performing tests	SIEMIC Laboratories
Lab Address	775 Montague Expressway, Milpitas, CA 95035
FCC Test Site No.	540430
IC Test Site No.	4842D
VCCI Test Site No.	A0133

5 Modification

Index	Item	Description	Note
-	-	-	-

6 EUT Information

6.1 EUT Description

Product Name:	Cellular Alarm Communicator
Model No.:	3G4000W
Trade Name:	DSC
Serial No.:	-
Input Power:	13.5Vdc/1A.
Date of EUT received:	15th Apr 2019
Equipment Class/ Category:	PCB
Highest frequency generated or used in the device or on which the device operates or tunes:	1910MHz
Port/Connectors:	-
Remark:	-
AC Power Adapter Model No.:	HK-XX14-A138NC
AC Power Adapter Input:	100~240V 50/60Hz, 0.4A

6.2 Radio Description

Item	GSM/GPRS/EGPRS Band	
Operating Band /Radio Type	850	1900
Frequency TX(MHz)	TX: 824.2 MHz to 848.8 MHz RX: 869.2 MHz to 893.8 MHz	TX: 1850.2 MHz to 1909.8 MHz RX: 1930.2 MHz to 1989.8 MHz
Channel Spacing	200kHz	200kHz
Modulation	GMSK/8PSK	GMSK/8PSK
Antenna Type	dipole antenna	dipole antenna
Antenna Gain	2.5 dBi	6.2 dBi
Antenna Connector Type	RP-SMA	RP-SMA

Item	WCDMA	
Operating Band /Radio Type	Band 2	Band 5
Frequency TX(MHz)	TX: 1852.4 MHz to 1907.6 MHz RX: 1932.4 MHz to 1987.6 MHz	TX: 826.4 MHz to 846.6 MHz RX: 871.4 MHz to 891.6 MHz
Bandwidth	5MHz	5MHz
Modulation	QPSK	QPSK
Antenna Type	dipole antenna	dipole antenna
Antenna Gain	6.2 dBi	2.5 dBi
Antenna Connector Type	RP-SMA	RP-SMA

Band	Max. RF Output power	Max. ERP/EIRP
GSM/GPRS850	33.00 dBm / 1.995 W	33.35 dBm / 2.163 W
GSM/GPRS1900	29.90 dBm / 0.977 W	36.10 dBm / 4.074 W
EGPRS 850	29.90 dBm / 0.977 W	30.25 dBm / 1.059 W
EGPRS1900	28.60 dBm / 0.724 W	34.80 dBm / 3.019 W
WCDMA Band II	26.39 dBm / 0.436 W	32.59 dBm / 1.812 W
WCDMA Band V	26.63 dBm / 0.460 W	26.98 dBm / 0.499 W

6.3 EUT test modes/configuration Description

Test mode

Final Test Mode		Note
Final_test_mode_1	Continuous transmission	GSM
Final_test_mode_2	Continuous transmission	WCDMA
-	-	-
Remark:		

7 Supporting Equipment/Software and cabling Description

7.1 Supporting Equipment

Item	Supporting Equipment Description	Model	Serial Number	Manufacturer	Note
1	Wideband Radio Communicator	CMW500	108852	Rohde & Schwarz	-

7.2 Test Software Description

Test Item	Software	Description

8 Test Summary

Test Item	Test standard		Test Method/Procedure		Pass / Fail
E.R.P/ E.I.R.P	FCC	47CFR 22.913(a)(5), 47CFR 24.232(c)	FCC	TIA-603-E: 2016	☒ Pass ☐ N/A
Occupied Bandwidth	FCC	47CFR 2.1049	FCC	TIA-603-E: 2016	☒ Pass ☐ N/A
Peak-Average Ratio	FCC	47CFR24.232	FCC	TIA-603-E: 2016	☒ Pass ☐ N/A
Spurious and harmonic Emission at antenna port	FCC	47CFR2.1051, 47CFR22.917(a), 47CFR24.238(a)	FCC	TIA-603-E: 2016	☒ Pass ☐ N/A
Band Edge	FCC	47CFR2.1053, 47CFR22.917(a), 47CFR24.238(a)	FCC	TIA-603-E: 2016	☒ Pass ☐ N/A
Radiated spurious and harmonic emission	FCC	47CFR2.1053, 47CFR22.917(a), 47CFR24.238(a)	FCC	TIA-603-E: 2016	☒ Pass ☐ N/A
Frequency stability	FCC	47CFR2.1055, 47CFR22.355, 47CFR24.235,	FCC	TIA-603-E: 2016	☒ Pass ☐ N/A
Remark	1. All measurement uncertainties do not take into consideration for all presented test results. 2. The applicant shall ensure frequency stability by showing that an emission is maintained within the band of operation under all normal operating conditions as specified in the user's manual. 3. Only radiated spurious emission test in this report, for other test item, please see FCC ID: RI7UE910GL report no.: T150316W02-RPI and 1112FR12-02.				

9 Measurement Uncertainty

Emissions			
Test Item	**Frequency Range**	**Description**	**Uncertainty**
AC Conducted Emissions	150KHz – 30MHz	Confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2	±3.5dB
RF conducted measurement	150KHz – 40GHz	Confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2	±0.95dB
Radiated Spurious Emissions	30MHz – 1GHz	Confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2 (for EUTs < 0.5m X 0.5m X 0.5m)	±6dB
Radiated Spurious Emissions	1GHz – 40GHz	Confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2 (for EUTs < 0.5m X 0.5m X 0.5m)	±6dB

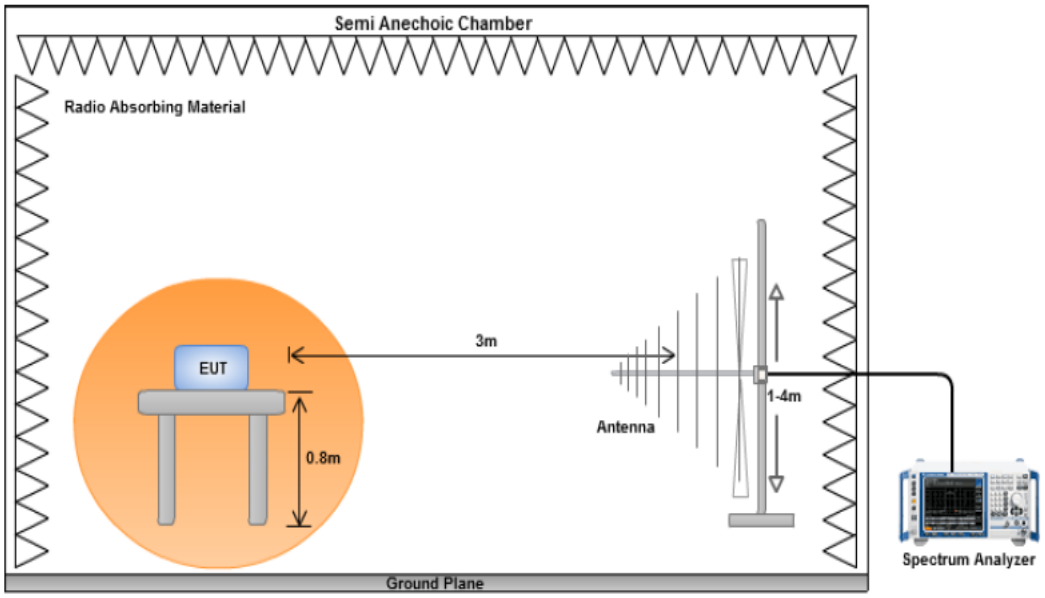
10 Measurements, Examination and Derived Results

10.1 Radiated Spurious Emission below 1GHz

Requirement(s):

Spec	Item	Requirement	Applicable
47CFR22.917	-	Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.	☒
47CFR24.238	-	Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.	☒

Test Setup



Test Procedure

Substitution method:

1. The EUT was switched on and allowed to warm up to its normal operating condition.
2. The test was carried out at the selected frequency points obtained from the EUT characterisation. Maximization of the emissions, was carried out by rotating the EUT, changing the antenna polarization, and adjusting the antenna height in the following manner:
   a. Vertical or horizontal polarisation (whichever gave the higher emission level over a full rotation of the EUT) was chosen.
   b. The EUT was then rotated to the direction that gave the maximum emission.
   c. Finally, the antenna height was adjusted to the height that gave the maximum emission.
3. Remove the transmitter and replace it with a substitution antenna (the antenna should be half-wavelength for each frequency involved). The center of the substitution antenna should be approximately at the same location as the center of the transmitter.
4. Feed the substitution antenna at the transmitter end with a signal generator connected to the antenna by means of a nonradiating cable. With the antennas at both ends horizontally polarized, and with the signal generator tuned to a particular spurious frequency, raise and lower the test antenna to obtain a maximum reading at the spectrum analyzer. Adjust the level of the signal generator output until the previously recorded maximum reading for this set of conditions is obtained.
5. Steps 4 were repeated for the next frequency point, until all selected frequency points were measured.

Test Date	05/02/2019 – 05/07/2019	Environmental condition	Temperature	23°C
			Relative Humidity	48%
			Atmospheric Pressure	1008mbar

Remark

The EUT was scanned up to 25GHz. Both horizontal and vertical polarities were investigated. The results show only the worst case.

Limit calculation:
Emission limit = PdBm – [43+ 10 log (PW)] = 10log(1000 x PW) - 43 - 10log(PW) = 30 dBm - 43 = -13 dBm
All different modulation and bandwidth configuration has been verified and only the test data of worst case with

	QPSK modulation and greatest bandwidth was presented in this report.
Result	☒ Pass ☐ Fail

Test Data ☒ Yes (See below) ☐ N/A

Test Plot ☒ Yes (See below) ☐ N/A

Test was done by Deon Dai at 10m chamber.

External Antenna:

Radiated Emission Test Results (Below 1GHz) (Worst case only)

GSM 850 Mid Channel

Indicated			Test Antenna		Substituted						
Frequency (MHz)	Raw (dBm)	Degree	Height (cm)	Polarity	Frequency (MHz)	Level (dBm)	Ant Gain (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
893.5	-68.92	233	155	V	893.5	-64.07	0	0.98	-65.05	-13	-52.05
893.5	-68.32	214	160	H	893.5	-62.86	0	0.98	-63.84	-13	-50.84
866.03	-67.21	98	149	V	866.03	-61.11	0	0.96	-62.07	-13	-49.07
866.03	-68.17	146	180	H	866.03	-62.62	0	0.96	-63.58	-13	-50.58
672.64	-68.91	2	188	V	672.64	-63.95	0	0.81	-64.76	-13	-51.76
672.64	-69.72	359	200	H	672.64	-64.25	0	0.81	-65.06	-13	-52.06

WCDMA Band 2 Mid Channel

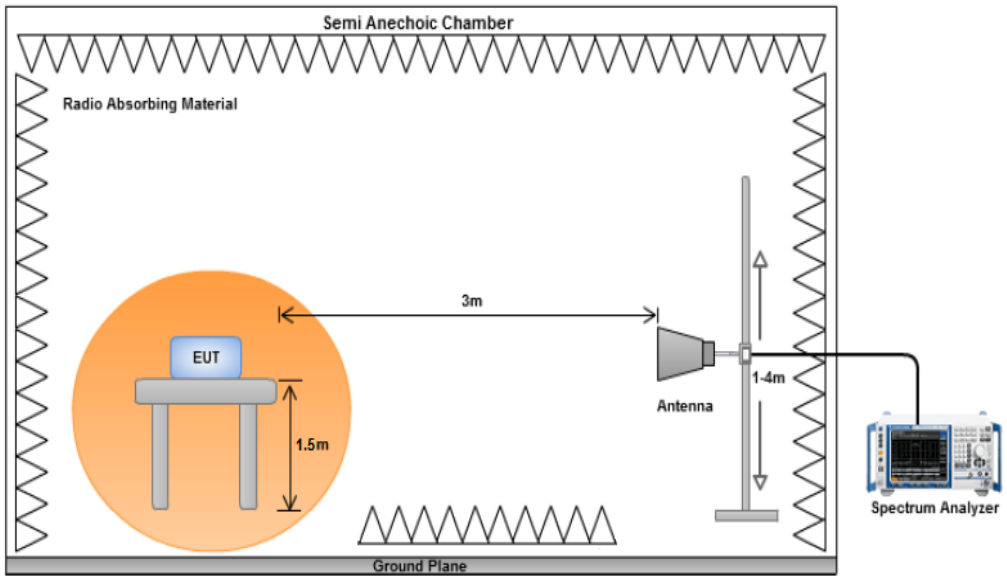
Indicated			Test Antenna		Substituted						
Frequency (MHz)	Raw (dBm)	Degree	Height (cm)	Polarity	Frequency (MHz)	Level (dBm)	Ant Gain (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
938.99	-69.32	205	214	V	938.99	-62.99	0	1.02	-64.01	-13	-51.01
938.99	-70.11	236	149	H	938.99	-63.85	0	1.02	-64.87	-13	-51.87
768.53	-67.81	36	154	V	768.53	-62.52	0	0.89	-63.41	-13	-50.41
768.53	-68.76	184	200	H	768.53	-62.88	0	0.89	-63.77	-13	-50.77
610.77	-72.23	99	158	V	610.77	-67.87	0	0.77	-68.64	-13	-55.64
610.77	-71.55	109	199	H	610.77	-67.25	0	0.77	-68.02	-13	-55.02

10.2 Radiated Spurious Emissions above 1GHz

Requirement(s):

Spec	Item	Requirement	Applicable
47CFR22.917	-	Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.	☒
47CFR24.238	-	Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.	☒

Test Setup



Test Procedure

Substitution method:

1. The EUT was switched on and allowed to warm up to its normal operating condition.
2. The test was carried out at the selected frequency points obtained from the EUT characterisation. Maximization of the emissions, was carried out by rotating the EUT, changing the antenna polarization, and adjusting the antenna height in the following manner:
   a. Vertical or horizontal polarisation (whichever gave the higher emission level over a full rotation of the EUT) was chosen.
   b. The EUT was then rotated to the direction that gave the maximum emission.
   c. Finally, the antenna height was adjusted to the height that gave the maximum emission.
3. Remove the transmitter and replace it with a substitution antenna (the antenna should be half-wavelength for each frequency involved). The center of the substitution antenna should be approximately at the same location as the center of the transmitter.
4. Feed the substitution antenna at the transmitter end with a signal generator connected to the antenna by means of a nonradiating cable. With the antennas at both ends horizontally polarized, and with the signal generator tuned to a particular spurious frequency, raise and lower the test antenna to obtain a maximum reading at the spectrum analyzer. Adjust the level of the signal generator output until the previously recorded maximum reading for this set of conditions is obtained.
5. Steps 4 were repeated for the next frequency point, until all selected frequency points were measured.

Test Date	05/02/2019 – 05/07/2019	Environmental condition	Temperature	23°C
			Relative Humidity	48%
			Atmospheric Pressure	1008mbar

Remark

The EUT was scanned up to 25GHz. Both horizontal and vertical polarities were investigated. The results show only the worst case.
Limit calculation:
Emission limit = PdBm – [43+ 10 log (PW)] = 10log(1000 x PW) - 43 - 10log(PW) = 30 dBm - 43 = -13 dBm

Result ☒ Pass ☐ Fail

Test Data ☒ Yes (See below) ☐ N/A

Test Plot ☐ Yes (See below) ☒ N/A

Test was done by Gary Chou at 10m chamber.

Radiated Emission Test Results (Above 1GHz)

GSM850 Low Channel

Indicated			Test Antenna		Substituted						
Frequency (MHz)	Raw (dBm)	Degree	Height (cm)	Polarity	Frequency (MHz)	Level (dBm)	Ant Gain (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
2472.6	-56.69	89	184	V	2472.6	-51.91	8.68	1.5	-44.73	-13	-31.73
2472.6	-64.13	47	193	H	2472.6	-59.35	8.68	1.5	-52.17	-13	-39.17
2085	-65.04	125	217	V	2085	-60.63	9.22	1.4	-52.81	-13	-39.81
2085	-59.63	107	194	H	2085	-55.22	9.22	1.4	-47.4	-13	-34.4

GSM850 Mid Channel, 10MHz BW, QPSK

Indicated			Test Antenna		Substituted						
Frequency (MHz)	Raw (dBm)	Degree	Height (cm)	Polarity	Frequency (MHz)	Level (dBm)	Ant Gain (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
2509.2	-59.22	357	206	V	2509.2	-54.92	8.57	1.49	-47.84	-13	-34.84
2509.2	-65.02	120	158	H	2509.2	-60.72	8.57	1.49	-53.64	-13	-40.64
2834	-62.33	212	203	V	2834	-58.43	9.45	1.52	-50.5	-13	-37.5
2834	-64.01	95	205	H	2834	-60.11	9.45	1.52	-52.18	-13	-39.18

GSM850 High Channel, 10MHz BW, QPSK

Indicated			Test Antenna		Substituted						
Frequency (MHz)	Raw (dBm)	Degree	Height (cm)	Polarity	Frequency (MHz)	Level (dBm)	Ant Gain (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
2546.4	-59.14	40	216	V	2546.4	-55.12	8.55	1.43	-48	-13	-35
2546.4	-62.66	76	192	H	2546.4	-58.64	8.55	1.43	-51.52	-13	-38.52
2176	-61.5	1	165	V	2176	-57	9.43	1.42	-48.99	-13	-35.99
2176	-63.92	331	211	H	2176	-59.42	9.43	1.42	-51.41	-13	-38.41

DCS1900 Low Channel

Indicated			Test Antenna		Substituted						
Frequency (MHz)	Raw (dBm)	Degree	Height (cm)	Polarity	Frequency (MHz)	Level (dBm)	Ant Gain (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
3700.4	-61.08	269	206	V	3700.4	-57.29	10.32	1.95	-48.92	-13	-35.92
3700.4	-52.15	137	176	H	3700.4	-48.36	10.32	1.95	-39.99	-13	-26.99
2760	-63.15	149	161	V	2760	-59.22	9.33	1.49	-51.38	-13	-38.38
2760	-58.78	223	155	H	2760	-54.85	9.33	1.49	-47.01	-13	-34.01

DCS1900 Mid Channel

Indicated			Test Antenna		Substituted						
Frequency (MHz)	Raw (dBm)	Degree	Height (cm)	Polarity	Frequency (MHz)	Level (dBm)	Ant Gain (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
3760	-55.88	0	213	V	3760	-52	9.98	1.95	-43.97	-13	-30.97
3760	-60.17	195	218	H	3760	-56.29	9.98	1.95	-48.26	-13	-35.26
2236	-67.68	112	204	V	2236	-63.12	9.4	1.44	-55.16	-13	-42.16
2236	-64.7	46	150	H	2236	-60.14	9.4	1.44	-52.18	-13	-39.18

DCS1900 High Channel

Indicated			Test Antenna		Substituted						
Frequency (MHz)	Raw (dBm)	Degree	Height (cm)	Polarity	Frequency (MHz)	Level (dBm)	Ant Gain (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
3819.6	-56.51	308	164	V	3819.6	-52.53	9.71	1.95	-44.77	-13	-31.77
3819.6	-61.67	35	155	H	3819.6	-57.69	9.71	1.95	-49.93	-13	-36.93
2726	-66.96	65	200	V	2726	-63.02	9.18	1.48	-55.32	-13	-42.32
2726	-64.4	63	164	H	2726	-60.46	9.18	1.48	-52.76	-13	-39.76

WCDMA band 2 Low Channel

Indicated			Test Antenna		Substituted						
Frequency (MHz)	Raw (dBm)	Degree	Height (cm)	Polarity	Frequency (MHz)	Level (dBm)	Ant Gain (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
3704.8	-55.48	118	164	V	3704.8	-51.68	10.29	1.95	-43.34	-13	-30.34
3704.8	-53.23	88	187	H	3704.8	-49.43	10.29	1.95	-41.09	-13	-28.09
7593	-61.75	101	180	V	7593	-55.92	11.01	2.45	-47.36	-13	-34.36
7593	-58.2	360	184	H	7593	-52.37	11.01	2.45	-43.81	-13	-30.81

WCDMA band 2 Mid Channel

Indicated			Test Antenna		Substituted						
Frequency (MHz)	Raw (dBm)	Degree	Height (cm)	Polarity	Frequency (MHz)	Level (dBm)	Ant Gain (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
3760	-55.34	57	189	V	3760	-51.46	9.98	1.95	-43.43	-13	-30.43
3760	-57.88	185	198	H	3760	-54	9.98	1.95	-45.97	-13	-32.97
7302	-62.85	74	153	V	7302	-56.7	10.41	2.96	-49.25	-13	-36.25
7302	-54.37	74	216	H	7302	-48.22	10.41	2.96	-40.77	-13	-27.77

WCDMA band 2 High Channel

Indicated			Test Antenna		Substituted						
Frequency (MHz)	Raw (dBm)	Degree	Height (cm)	Polarity	Frequency (MHz)	Level (dBm)	Ant Gain (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
3815.2	-57.79	199	220	V	3815.2	-53.82	9.72	1.95	-46.05	-13	-33.05
3815.2	-52.5	304	204	H	3815.2	-48.53	9.72	1.95	-40.76	-13	-27.76
7442	-62.31	223	156	V	7442	-56.44	10.61	2.41	-48.24	-13	-35.24
7442	-64.63	248	190	H	7442	-58.76	10.61	2.41	-50.56	-13	-37.56

WCDMA band 5 Low Channel

Indicated			Test Antenna		Substituted						
Frequency (MHz)	Raw (dBm)	Degree	Height (cm)	Polarity	Frequency (MHz)	Level (dBm)	Ant Gain (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
1652.8	-66.16	59	198	V	1652.8	-61.86	9.32	1.27	-53.81	-13	-40.81
1652.8	-64.85	281	194	H	1652.8	-60.55	9.32	1.27	-52.5	-13	-39.5
6998	-63.35	277	199	V	6998	-57.53	10.43	2.86	-49.96	-13	-36.96
6998	-56.09	154	191	H	6998	-50.27	10.43	2.86	-42.7	-13	-29.7

WCDMA band 5 Mid Channel

Indicated			Test Antenna		Substituted						
Frequency (MHz)	Raw (dBm)	Degree	Height (cm)	Polarity	Frequency (MHz)	Level (dBm)	Ant Gain (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
1670	-56.88	188	174	V	1670	-52.71	9.29	1.29	-44.71	-13	-31.71
1670	-65.22	305	199	H	1670	-61.05	9.29	1.29	-53.05	-13	-40.05
6146	-59.83	341	187	V	6146	-54.94	10.28	2.58	-47.24	-13	-34.24
6146	-57.75	339	150	H	6146	-52.86	10.28	2.58	-45.16	-13	-32.16

WCDMA band 5 High Channel

Indicated			Test Antenna		Substituted						
Frequency (MHz)	Raw (dBm)	Degree	Height (cm)	Polarity	Frequency (MHz)	Level (dBm)	Ant Gain (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
1693.2	-67.02	208	189	V	1693.2	-62.95	9.25	1.3	-55	-13	-42
1693.2	-62.02	201	164	H	1693.2	-57.95	9.25	1.3	-50	-13	-37
6690	-58.79	209	200	V	6690	-53.31	10.67	2.76	-45.4	-13	-32.4
6690	-64.14	274	156	H	6690	-58.66	10.67	2.76	-50.75	-13	-37.75

Annex A. TEST INSTRUMENT

Instrument	Model	Serial #	Cal Date	Cal Cycle	Cal Due	In use
Radiated Emissions						
Keysight EXA 44GHz Spectrum Analyzer	N9030B(PXA)	MY57140374	09/06/2018	1 Year	09/06/2019	☑
Wideband Radio Communicator	CMW 500	108852	08/03/2018	1 Year	08/03/2019	☑
Keysight Signal Generator	MXG N5182A	MY47071065	07/12/2018	1 Year	07/12/2019	☑
Pre-Amplifier (1-26.5GHz)	8449B	3008A00715	08/16/2018	1 Year	08/16/2019	☑
RF Preamplifier (100KHz-7GHz)	LPA-6-30	11170602	05/09/2018	1 Year	05/09/2019	☑
Bi-Log antenna (30MHz~2GHz)	JB1	A030702	03/09/2018	2 Year	03/09/2020	☑
Horn Antenna (1GHz~26GHz)	3115	100059	11/09/2018	1 Year	11/09/2019	☑
Horn Antenna (700MHz-18GHz)	SAS-571	411	05/13/2018	1 Year	05/13/2019	☑
Tuned Dipole Antenna 30 - 1000 MHz (4pcs set)	AD-100	40133	10/02/2018	1 Year	10/02/2019	☑

Annex B. SIEMIC Accreditation

Accreditations	Document	Scope / Remark
ISO 17025 (A2LA)		Please see the documents for the detailed scope
ISO Guide 65 (A2LA)		Please see the documents for the detailed scope
TCB Designation		A1, A2, A3, A4, B1, B2, B3, B4, C
FCC DoC Accreditation		FCC Declaration of Conformity Accreditation
FCC Site Registration		3 meter site
FCC Site Registration		10 meter site
IC Site Registration		3 meter site
IC Site Registration		10 meter site
EU NB		**Radio & Telecommunications Terminal Equipment:** EN45001 – EN ISO/IEC 17025
		Electromagnetic Compatibility: EN45001 – EN ISO/IEC 17025
Singapore iDA CB(Certification Body)		Phase I, Phase II
Vietnam MIC CAB Accreditation		Please see the document for the detailed scope
HongKong OFCA		**(Phase II)** OFCA Foreign Certification Body for Radio and Telecom
		(Phase I) Conformity Assessment Body for Radio and Telecom
Industry Canada CAB		**Radio:** Scope A – All Radio Standard Specification in Category I
		Telecom: CS-03 Part I, II, V, VI, VII, VIII

Japan Recognized Certification Body Designation		**Radio** : A1. Terminal equipment for purpose of calling **Telecom** : B1. Specified radio equipment specified in Article 38-2, Paragraph 1, Item 1 of the Radio Law
Korea CAB Accreditation		**EMI:** KCC Notice 2008-39, RRL Notice 2008-3: CA Procedures for EMI KN22: Test Method for EMI**EMS:** KCC Notice 2008-38, RRL Notice 2008-4: CA Procedures for EMS KN24, KN61000-4-2, -4-3, -4-4, -4-5, -4-6, -4-8, -4-11: Test Method for EMS
		Radio: RRL Notice 2008-26, RRL Notice 2008-2, RRL Notice 2008-10, RRL Notice 2007-49, RRL Notice 2007-20, RRL Notice 2007-21, RRL Notice 2007-80, RRL Notice 2004-68
		Telecom: President Notice 20664, RRL Notice 2007-30, RRL Notice 2008-7 with attachments 1, 3, 5, 6; President Notice 20664, RRL Notice 2008-7 with attachment 4
Taiwan NCC CAB Recognition		LP0002, PSTN01, ADSL01, ID0002, IS6100, CNS14336, PLMN07, PLMN01, PLMN08
Taiwan BSMI CAB Recognition		CNS 13438
Japan VCCI		R-3083: Radiation 3 meter site C-3421: Main Ports Conducted Interference Measurement T-1597: Telecommunication Ports Conducted Interference Measurement
Australia CAB Regocnition		**EMC:** AS/NZS CISPR 11, AS/NZS CISPR 14.1, AS/NZS CISPR22, AS/NZS 61000.6.3, AS/NZS 61000.6.4
		Radio communications: AS/NZS 4281, AS/NZS 4268, AS/NZS 4280.1, AS/NZS 4280.2, AS/NZS 4295, AS/NZS 4582, AS/NZS 4583, AS/NZS 4769.1, AS/NZS 4769.2, AS/NZS 4770, AS/NZS 4771
		Telecommunications: AS/ACIF S002:05, AS/ACIF S003:06, AS/ACIF S004:06 AS/ACIF S006:01, AS/ACIF S016:01, AS/ACIF S031:01, AS/ACIF S038:01, AS/ACIF S040:01, AS/ACIF S041:05, AS/ACIF S043.2:06, AS/ACIF S60950.1
Australia NATA Recognition		AS/ACIF S002, AS/ACIF S003, AS/ACIF S004, AS/ACIF S006, AS/ACIF S016,AS/ACIF S031, AS/ACIF S038, AS/ACIF S040, AS/ACIF S041, AS/ACIF S043.2