

TEST REPORT

REPORT No.: R2SH180725F0516E

Date: August 31, 2018

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Shanghai SIMCom Wireless Solutions Ltd
SIMTechnology Building, No. 633, Jinzhong Road, Changning District, Shanghai, P.R. China

Report on the submitted samples said to be:

Sample Name : LTE/HSPA/GSM/GNSS MODULE
Tested Style/ Items No.^① : SIM7500 series miniPCIE
Additional Styles/ Items No.^② : SIM7500E-PCIE, SIM7500E-H-PCIE, SIM7500A-PCIE, SIM7500A-H-PCIE, SIM7500SA-PCIE, SIM7500SA-H-PCIE, SIM7500V-PCIE, SIM7500JC-PCIE, SIM7500JE-PCIE
Brand : SIMCom
Sample Receiving Date : July 25, 2018
Testing Period : From July 25, 2018 to August 7, 2018
Results : Please refer to next page(s).
Remark :
①The tested Style/ Item No. is tested by the lab. ②The Additional Styles/ Items No. declared in the applicant's declaration are not tested, their materials are the same as the tested parts and the result of the test report is only responsible for the test sample.

Signed for and on behalf of
BACL



Checked by: _____
Jane Xu
Technical Supervisor



Approved by: _____
William Wei
Laboratory Manager

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Summary of Test Results:

TEST REQUEST

CONCLUSION

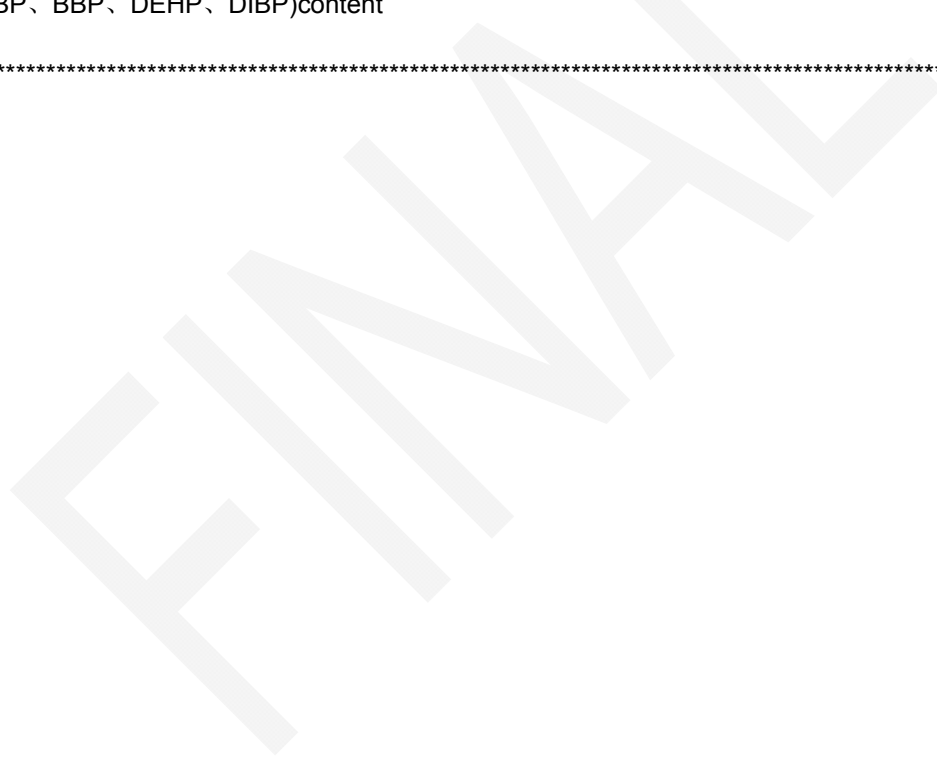
A RoHS Directive 2011/65/EU and its amendment directives

XRF screening test and Wet Chemical Testing (Lead, Cadmium, Mercury, Hexavalent Chromium, PBBs & PBDEs content)

Pass

Phthalates(DBP、BBP、DEHP、DIBP)content

Pass



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Results:

A. RoHS Directive 2011/65/EU and its amendment directives

XRF screening test

Test method: With reference to IEC62321-3-1:2013 screening by X-ray Fluorescence Spectroscopy (XRF)

Seq. No.	Tested Part(s)	Results				
		Pb	Cd	Hg	Cr	Br
1	White adhesive plastic with black printing(label, shield, PCB) ①.②.③.④.⑤.⑥.⑦.⑧.⑨	BL	BL	BL	BL	BL
2*	Silvery metal(shield, PCB) ①.②.③.④.⑤.⑥.⑦.⑧.⑨	BL	BL	BL	IN	---
3	Brown body(capacitor, PCB) ①.②.③.④.⑤.⑥.⑦.⑧.⑨	BL	BL	BL	BL	BL
4	Black body(resistor, PCB) ①.②.③.④.⑤.⑥.⑦.⑧.⑨	BL	BL	BL	BL	BL
5	Black body with white printing(IC, PCB) ①.②.③.④.⑤.⑥.⑦.⑧.⑨	BL	BL	BL	BL	BL
6	Black body with yellow printing(IC, PCB) ①.②.③.④.⑤.⑥.⑦.⑧.⑨	BL	BL	BL	BL	BL
7	Silvery body(crystal, PCB) ①.②.③.④.⑤.⑥.⑦.⑧.⑨	BL	BL	BL	BL	BL
8	Black body(diode, PCB)	BL	BL	BL	BL	BL
9	Brown magnet(core, inductor, PCB) ①.②.③.④.⑤.⑥.⑦.⑧.⑨	BL	BL	BL	BL	BL
10	Coppery metal(coil, inductor, PCB) ①.②.③.④.⑤.⑥.⑦.⑧.⑨	BL	BL	BL	BL	---
11	Grey body(EC, PCB) ①.②.③.④.⑤.⑥.⑦.⑧.⑨	BL	BL	BL	BL	BL
12	Blue body(EC, PCB) ①.②.③.④.⑤.⑥.⑦.⑧.⑨	BL	BL	BL	BL	BL
13	White body(EC, PCB) ①.②. ⑤.⑥. ⑧.⑨	BL	BL	BL	BL	BL
14	White/grey body(EC, PCB) ①.②.③.④.⑤.⑥.⑦.⑧.⑨	BL	BL	BL	BL	BL
15	Silvery body(EC, PCB) ③.④.⑦	BL	BL	BL	BL	BL
16	Off-white body(EC, PCB) ①.②.③.④.⑤.⑥.⑦.⑨	BL	BL	BL	BL	BL
17	Black body(EC, PCB) ①.②.③.④.⑤.⑥.⑦.⑧.⑨	BL	BL	BL	BL	BL
18	Silvery solder(PCB) ①.②.③.④.⑤.⑥.⑦.⑧.⑨	BL	BL	BL	BL	---
19	Green PCB(PCB) ①.②.③.④.⑤.⑥.⑦.⑧.⑨	BL	BL	BL	BL	BL
20	Green body(EC, PCB) ③.④.⑤.⑥.⑧.⑨	BL	BL	BL	BL	BL

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No.69, Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China
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Seq. No.	Tested Part(s)	Results				
		Pb	Cd	Hg	Cr	Br
21	Orange body(EC, PCB) ⑧	BL	BL	BL	BL	BL
22	Black body(triode, PCB) ①.②.③.④.⑤.⑥.⑦.⑧.⑨	BL	BL	BL	BL	BL
23	White adhesive plastic(label, PCB"SIM7100-PCIE") ①.②.③.④.⑤.⑥.⑦.⑧.⑨	BL	BL	BL	BL	BL
24	Brown body(capacitor, PCB"SIM7100-PCIE") ①.②.③.④.⑤.⑥.⑦.⑧.⑨	BL	BL	BL	BL	BL
25	Black body(diode, PCB"SIM7100-PCIE") ①.②.③.④.⑤.⑥.⑦.⑧.⑨	BL	BL	BL	BL	BL
26	Black body(resistor, PCB"SIM7100-PCIE") ①.②.③.④.⑤.⑥.⑦.⑧.⑨	BL	BL	BL	BL	BL
27	Black body(triode, PCB"SIM7100-PCIE") ①.②.③.④.⑤.⑥.⑦.⑧.⑨	BL	BL	BL	BL	BL
28	Black body(IC, PCB"SIM7100-PCIE") ①.②.③.④.⑤.⑥.⑦.⑧.⑨	BL	BL	BL	BL	BL
29	Black magnet(core, inductor, PCB"SIM7100-PCIE") ①.②.③.④.⑤.⑥.⑦.⑧.⑨	BL	BL	BL	BL	BL
30	Black body with white printing(EC, PCB"SIM7100-PCIE") ①.②.③.④.⑤.⑥.⑦.⑧.⑨	BL	BL	BL	BL	BL
31	Golden metal(pin, antenna socket , PCB"SIM7100-PCIE") ①.②.③.④.⑤.⑥.⑦.⑧.⑨	BL	BL	BL	BL	---
32	White plastic(pin holder, antenna socket , PCB"SIM7100-PCIE") ①.②.③.④.⑤.⑥.⑦.⑧.⑨	BL	BL	BL	BL	BL
33	Golden metal(shell, antenna socket , PCB"SIM7100-PCIE") ①.②.③.④.⑤.⑥.⑦.⑧.⑨	BL	BL	BL	BL	---
34	Silvery solder(PCB"SIM7100-PCIE") ①.②.③.④.⑤.⑥.⑦.⑧.⑨	BL	BL	BL	BL	---
35*	Green PCB(PCB"SIM7100-PCIE") ①.②.③.④.⑤.⑥.⑦.⑧.⑨	BL	BL	BL	BL	IN

Remark: ①:SIM7500E-PCIE ②:SIM7500E-H-PCIE ③:SIM7500A-PCIE
 ④:SIM7500A-H-PCIE ⑤:SIM7500SA-PCIE ⑥:SIM7500SA-H-PCIE
 ⑦:SIM7500V-PCIE ⑧:SIM7500JC -PCIE ⑨:SIM7500JC-PCIE

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Remark:

(1)

--- = Not Conducted

Results were obtained by XRF for primary screening, and further chemical testing by ICP (for Cd,

* = Pb, Hg), UV-Vis (for Cr(VI)) and GC-MS (for PBBs, PBDEs) are recommended to be performed, if the concentration exceeds the below warning value according to IEC62321-3-1:2013.

Element	Unit	Polymers	Metal	Composite Material
Cd	mg/kg	BL≤70-3σ< X <130+3σ≤OL	BL≤70-3σ< X <130+3σ≤OL	LOD < X <150+3σ≤OL
Pb	mg/kg	BL≤700-3σ< X <1300+3σ≤OL	BL≤700-3σ< X <1300+3σ≤ OL	BL≤500-3σ< X <1500+3σ≤OL
Hg	mg/kg	BL≤700-3σ< X <1300+3σ≤OL	BL≤700-3σ< X <1300+3σ≤OL	BL≤500-3σ< X <1500+3σ≤OL
Cr	mg/kg	BL≤700-3σ< X	BL≤700-3σ< X	BL≤500-3σ< X
Br	mg/kg	BL≤300-3σ< X	---	BL≤250-3σ< X

BL = Below Limit

OL = Over Limit

IN = Inconclusive

LOD = Limit of Detection

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(2) The XRF screening test for RoHS elements – The reading may be different to the actual content in the sample be of non-uniformity composition.

(3) The maximum permissible limit is quoted from RoHS directive 2011/65/EU:

RoHS Restricted Substances	Maximum Concentration Value (mg/kg) (by weight in homogenous materials)
Cadmium(Cd)	100
Lead(Pb)	1000
Mercury (Hg)	1000
Hexavalent Chromium (Cr(VI))	1000
Polybrominated biphenyls (PBBs)	1000
Polybrominate ddiphenylethers (PBDEs)	1000

(4) As requested by applicant, only components shown in this report were screened by XRF spectroscopy for 2011/65/EU and its amendment directives, other components were not screened included in this report.

(5) Photo appendix is included.

Disclaimers:

This XRF Screening report is for reference purposes only. The applicant shall make its/his/her own judgment as to whether the information provided in this XRF screening report is sufficient for its/his/her purposes.

The result shown in this XRF screening report will differ based on various factors, including but not limited to, the sample size, thickness, area, surface flatness, equipment parameters and matrix effect (e.g. plastic, rubber, metal, glass, ceramic etc.). Further wet chemical pre-treatment with relevant chemical equipment analysis are required to obtain quantitative data.

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Wet Chemical Testing:

Test method:

Hexavalent Chromium Content (For metal material):

With reference to IEC 62321-7-1:2015, by boiling-water-extraction and analysis was performed by UV-visible spectrophotometer (UV-Vis)

PBBs & PBDEs Content:

With reference to IEC 62321-6:2015, by solvent extraction and analysis was performed by gas chromatographic-mass spectrometer (GC-MS)

1) The test results of Cr (VI)

Item	Unit	MDL	Results	Limit
			2	
Hexavalent Chromium (Cr(VI))	µg/cm ²	0.10	N.D.	**
Conclusion	/	/	Pass	/

Note:

- N.D. = Not Detected or less than MDL
- MDL = Method Detection Limit
- mg/kg = ppm
- ** =
 - a. The sample is positive for CrVI if the CrVI concentration is greater than 0.13µg/cm². The sample coating is considered to contain CrVI
 - b. The sample is negative for CrVI if CrVI is ND (concentration less than 0.10µg/cm²). The coating is considered a non-CrVI based coating
 - c. The result between 0.10µg/cm² and 0.13µg/cm² is considered to be inconclusive -unavoidable coating variations may influence the determination

For corrosion protection coatings on metals: Information on storage conditions and production date of the tested sample is unavailable and thus results of Cr(VI) represent status of the sample at the time of testing.

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2) The test results of PBBs & PBDEs

Item	Unit	MDL	Results	Limit
			35	
Polybrominated Biphenyls				
Monobromobiphenyl	mg/kg	5	N.D.	
Dibromobiphenyl	mg/kg	5	N.D.	
Tribromobiphenyl	mg/kg	5	N.D.	
Tetrabromobiphenyl	mg/kg	5	N.D.	
Pentabromobiphenyl	mg/kg	5	N.D.	
Hexabromobiphenyl	mg/kg	5	N.D.	
Heptabromobiphenyl	mg/kg	5	N.D.	
Octabromobiphenyl	mg/kg	5	N.D.	
Nonabromodiphenyl	mg/kg	5	N.D.	
Decabromodiphenyl	mg/kg	5	N.D.	
Total content	mg/kg	/	N.D.	1000
Polybrominated Diphenylethers				
Monobromodiphenyl ether	mg/kg	5	N.D.	
Dibromodiphenyl ether	mg/kg	5	N.D.	
Tribromodiphenyl ether	mg/kg	5	N.D.	
Tetrabromodiphenyl ether	mg/kg	5	N.D.	
Pentabromodiphenyl ether	mg/kg	5	N.D.	
Hexabromodiphenyl ether	mg/kg	5	N.D.	
Heptabromodiphenyl ether	mg/kg	5	N.D.	
Octabromodiphenyl ether	mg/kg	5	N.D.	
Nonabromodiphenyl ether	mg/kg	5	N.D.	
Decabromodiphenyl ether	mg/kg	5	N.D.	
Total content	mg/kg	/	N.D.	1000
Conclusion	/	/	Pass	/

Note:

- N.D. = Not Detected or less than MDL
- MDL = Method Detection Limit
- The results less than MDL are not taken into account while calculating the sum contents.
- mg/kg = ppm
- Photo is included.

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Phthalates(DBP, BBP, DEHP, DIBP)content

Test method: With reference to IEC 62321-8:2017, by gas chromatographic-mass spectrometer (GC-MS)

Item	Unit	MDL	Results		Limit
			23	35	
Dibutyl Phthalate (DBP)	%	0.003	N.D.	N.D.	0.1
Benzylbutyl Phthalate (BBP)	%	0.003	N.D.	N.D.	0.1
Bis-(2-ethylhexyl) Phthalate (DEHP)	%	0.003	N.D.	N.D.	0.1
Diisobutyl Phthalate(DIBP)	%	0.003	N.D.	N.D.	0.1
Conclusion	/	/	Pass	Pass	/

Note:

- The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.
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- MDL = Method Detection Limit
- mg/kg = ppm
- Photo is included.

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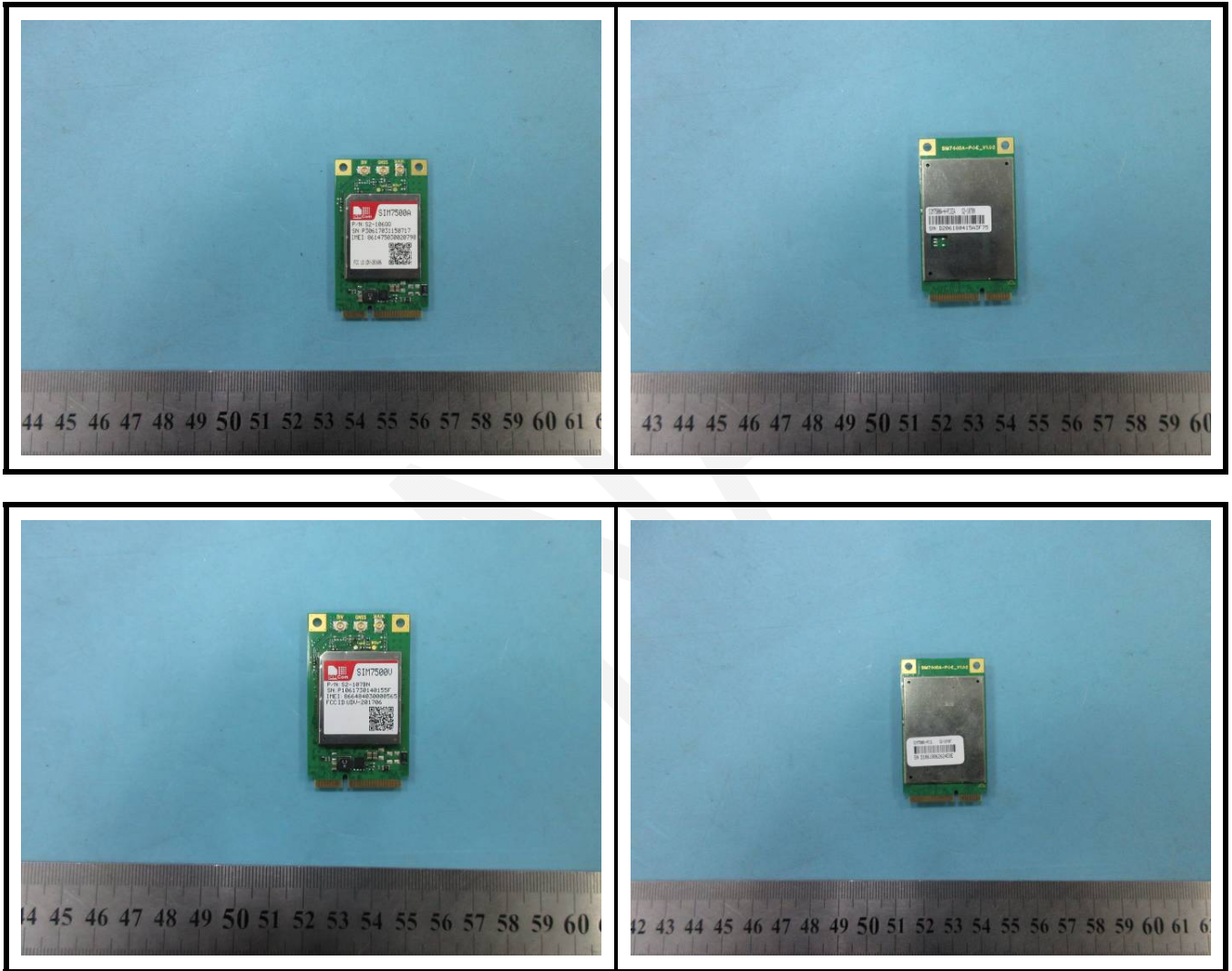
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Photograph of Sample



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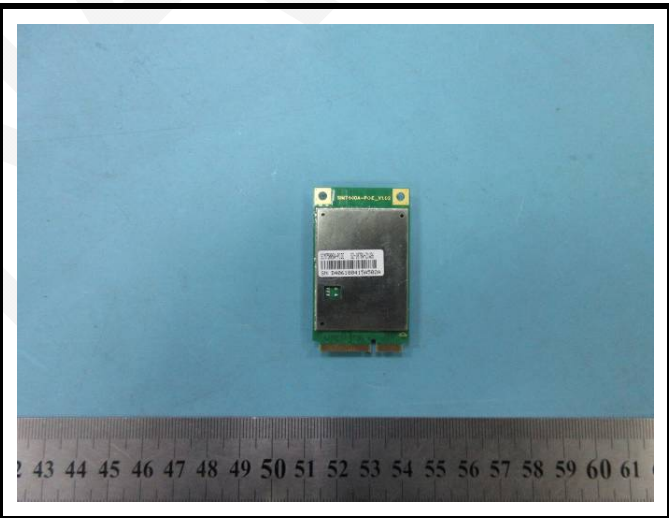
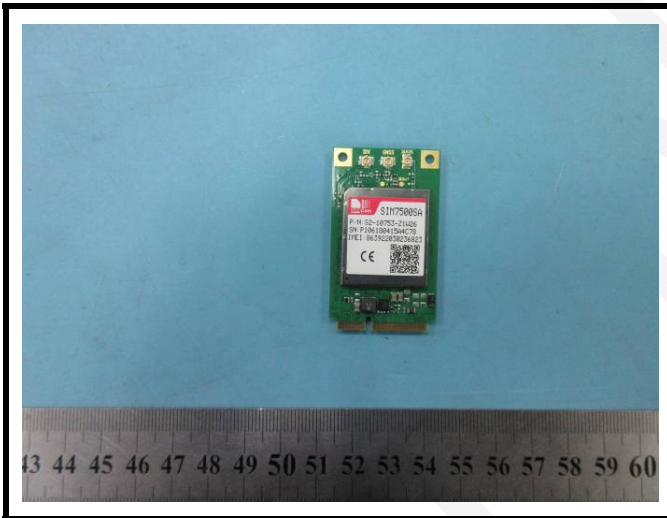
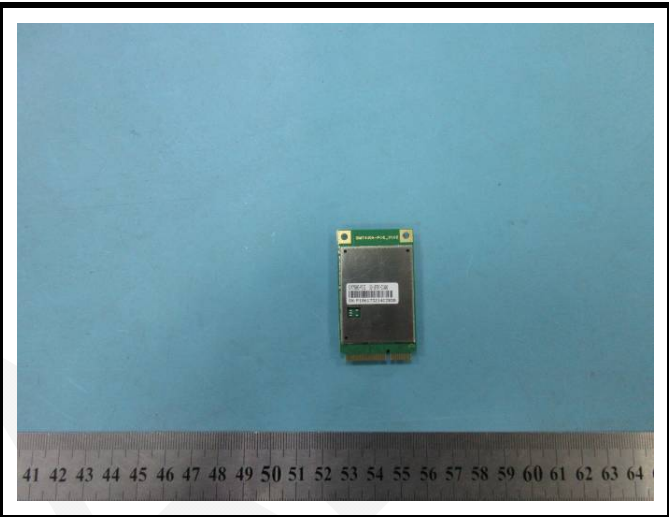
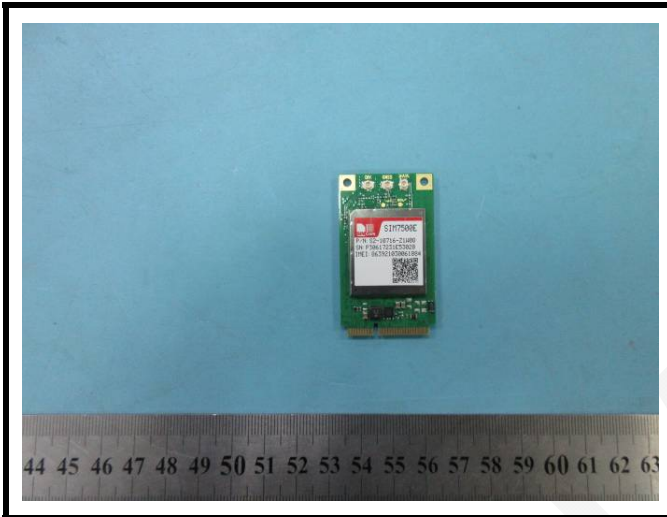
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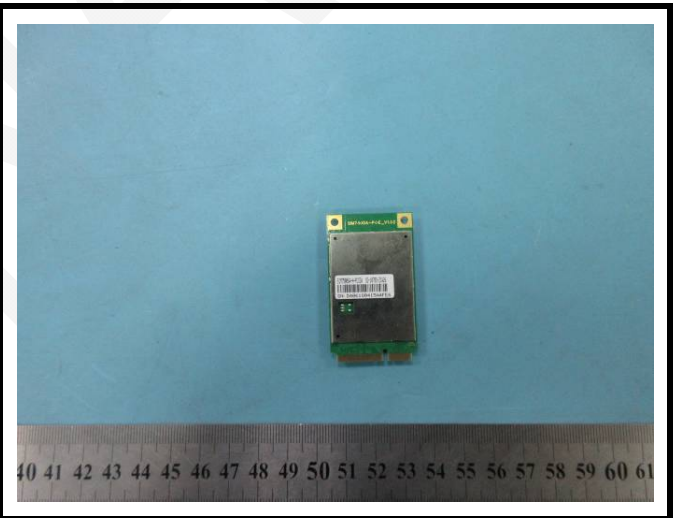
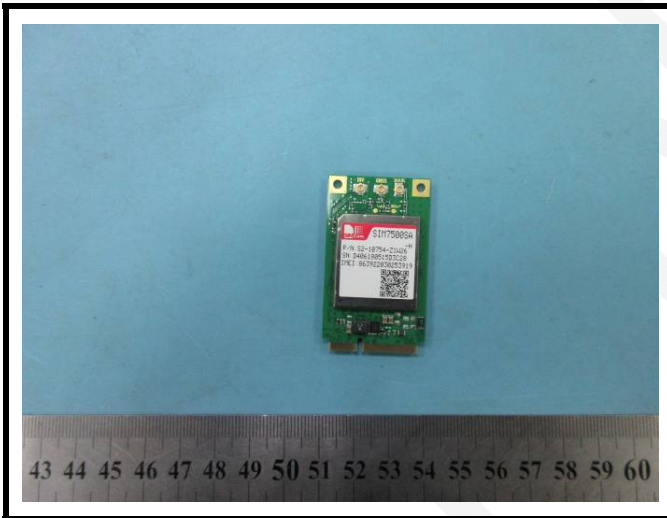
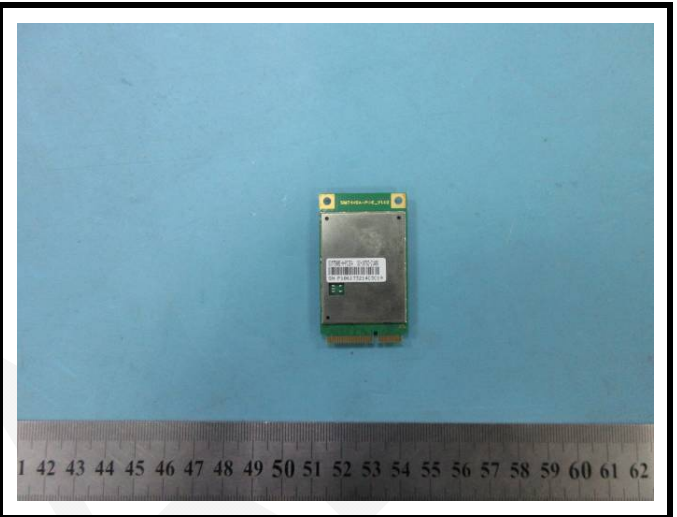
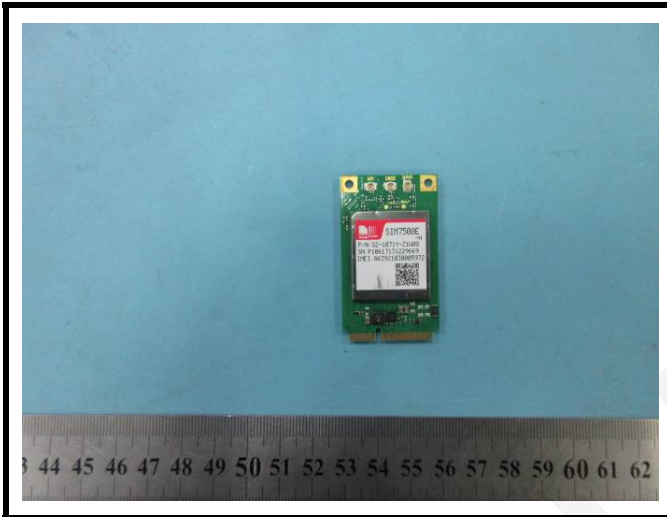
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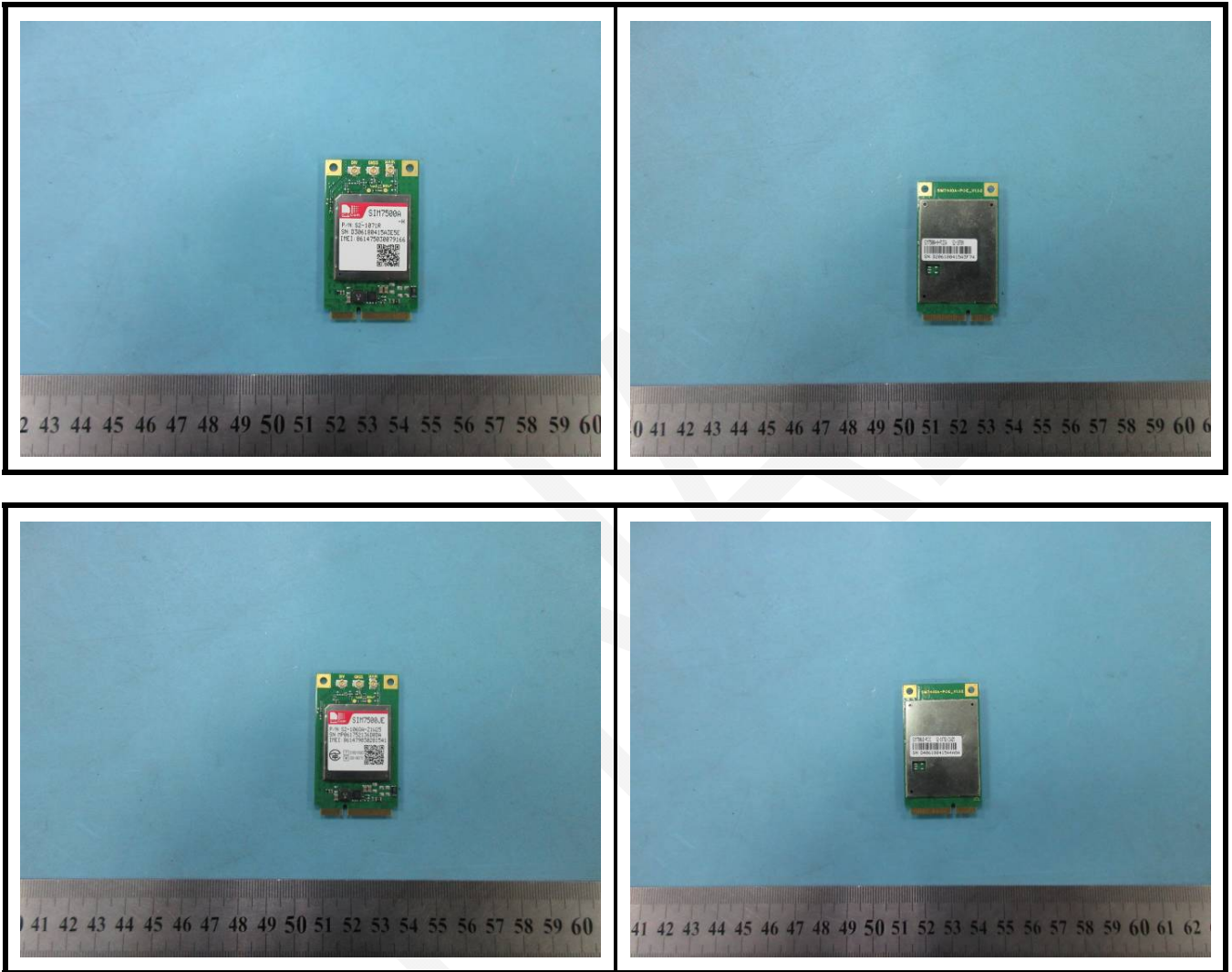
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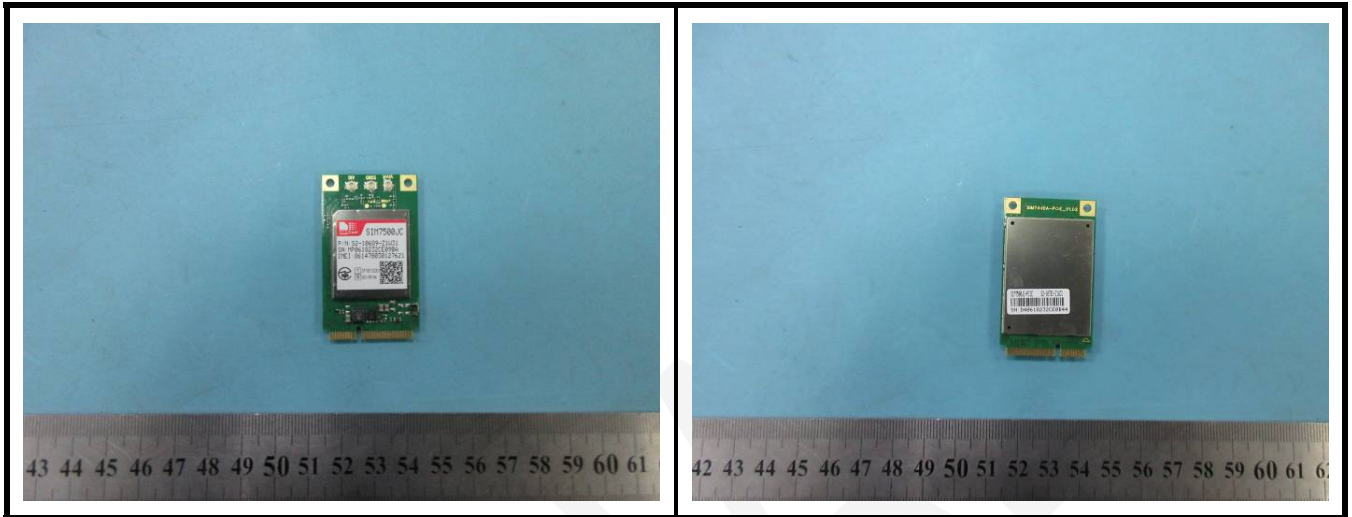
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Bay Area Compliance Laboratories Corp. (Dongguan)

No.69, Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China

Tel: +86-769-86858888 Fax: +86-769-86858891