Test Report No. 7191006338-EEC11/08
dated 18 Jul 2011

PSB Singapore

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FORMAL REPORT ON TESTING IN ACCORDANCE WITH
47 CFR FCC Part 15B : 2011 (CLASS B)
OF A
VEHICLE MOUNT TERMINAL
[Model : VM1 W]
[FCC ID : KDZLXE-VM1]

TEST FACILITY	TÜV SÜD PSB Pte Ltd, Electrical & Electronics Centre (EEC), Product Services, 13 Internatonal Business Park #01-01, Singapore 609932
FCC REG. NO.	160581 (3m and 10m Semi-Anechoic Chamber, International Business Park)
IND. CANADA REG. NO.	2932N-1 (10m Semi-Anechoic Chamber, International Business Park)
PREPARED FOR	LXE Inc 125 Technology Parkway Norcross, GA 30092-2913, United States Tel : +1 770-447 4224 Fax : +1-770-447-6928
QUOTATION NUMBER	219124671
JOB NUMBER	7191006338
TEST PERIOD	05 May 2011 – 13 Jun 2011

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TÜV SÜD PSB

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LA-2007-0380-A
LA-2007-0380-A-1
LA-2007-0381-F
LA-2007-0382-B
LA-2007-0383-G
LA-2007-0384-G
LA-2007-0385-E
LA-2007-0386-C

The results reported herein have been performed in accordance with the laboratory's terms of accreditation under the Singapore Accreditation Council - Singapore Laboratory Accreditation Scheme. Tests/Calibrations marked "Not SAC-SINGLAS Accredited" in this Report are not included in the SAC-SINGLAS Accreditation Schedule for our laboratory.

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TEST SUMMARY

The product was tested in accordance with the customer's specifications.

Test Results Summary

Test Standard	Description	Pass / Fail
47 CFR FCC Part 15B : 2011		
15.107	Conducted Emissions (Class B)	Pass
15.109	Radiated Emissions (Class B)	Pass

Notes

1. All test measurement procedures are according to ANSI C63.4: 2003.

2. The following RF modules are FCC certified RF modules:
   - WLAN module (FCC ID: TWG-SDCPE15N) and
   - mobile telecom module (WWAN) (FCC ID: N7NGOBI2)

   As the modules are integrated onto the Equipment Under Test (EUT) without modifications, only the spurious emissions of the EUT were evaluated.

3. Vehicle Mount Terminal (EUT) come with 2 types of keypad as shown:

Modifications

No modifications were made.

PRODUCT DESCRIPTION

Description	:	The Equipment Under Test (EUT) is a **VEHICLE MOUNT TERMINAL WITH QUICK MOUNT CRADLE.** It is designated for industrial environment and vehicle use. The terminal integrated with the following wireless modules: - Bluetooth module - certified WLAN module (FCC ID: TWG-SDCPE15N) and - mobile telecom module (WWAN) (FCC ID: N7NGOBI2) It also integrated with audio function and basic I/O ports as follows: - serial-RS232 - USB and - CANBUS Input and output ports are available for peripheral support like power input, RS232, USB and CANBUS/Audio. The terminal can be powered by vehicle battery from 10V to 60V or an AC-DC adapter or UPS battery. The UPS battery provides an alternate power when the terminal is removed from the cradle mount or when the vehicle is powered off. The front panel of the display designated with 64-Key QWERTY keyboard and/or 13 functional keys. Four SMA antennas connectors are mounted at the top-rear for the housing panel for external connection.
Applicant	:	LXE Inc 125 Technology Parkway Norcross, GA 30092-2913, United States
Manufacturer	:	GES Singapore Pte Ltd 28 Marsiling Lane, Singapore 739152
Factor (ies)	:	GES Manufacturing Services (M) Sdn Bhd PLO 34 Fasa 2, Kawasan Perindustrian Senai, 81400 Senai, Johor, Malaysia
Model Number	:	VM1 W
FCC ID		KDZLXE-VM1
Serial Number	:	VM1110300146 (Config#3) VM1110400168 (Config#4)
Microprocessor	:	Intel Atom, Z530

Continued

Operating Frequency	:	Bluetooth (FCC ID: KDZLXE-VM1) 2.412GHz - 2.480GHz WLAN 802.11a/b/g/n (FCC ID: TWG-SDCPE15N) 2.412GHz – 2.462GHz 2.422GHz – 2.452GHz 5.180GHz to 5.240GHz 5.260GHz to 5.320GHz 5.500GHz to 5.700GHz WWAN (FCC ID: N7NGOBI2) 824.2MHz – 848.8MHz 1850.2MHz – 1909.8MHz
Clock / Oscillator Frequency	:	Z530 CPU speed: 1.6GHz FSB, front-side bus: 400MHz, 533MHz Clock generator: 14.31818MHz, 100MHz, 133.33MHz, 200MHz, 1666.67MHz, Crystal clock (USB CAD BUS): 24MHz Crystal clock: 32.768kHz
Port / Connectors	:	Refer to manufacturer's user manual / operating manual
Rated Input Power	:	7-12Vdc, 7.5A (Terminal) 10Vdc to 60Vdc, 6.4A (Terminal and Quick Mount Cradle)
Accessories	:	Refer to manufacturer's user manual / operating manual

SUPPORTING EQUIPMENT DESCRIPTION

Equipment Description (Including Brand Name)	Model, Serial & FCC ID Number	Cable Description (List Length, Type & Purpose)
DMC Monitor	M/N: AM1564 S/N: MT71C3014046 FCC ID: I84AM1564	3.00m unshielded power cable
HP PC	M/N: HPDX2300 S/N: SGH73006RP FCC ID: DoC	1.80m unshielded power cable
Datamini Mouse	M/N: 80XX S/N: SG74800268 FCC ID: DoC	1.80m PS/2 cable
Symbol Scanner	M/N: SBRE S/N: M1J37F764 FCC ID: Nil	1.50m USB cable
HP Keyboard	M/N: SK-2501K S/N: M970936881 FCC ID: GYVR385K	1.80m PS/2 cable
CanBus cable Power Adapter	M/N: GT81081-6015-T3 S/N: RCHS10082139/09 FCC ID: DoC	1.80m unshielded power cable
Microsoft Mouse	M/N: Nil S/N: Nil FCC ID: DoC	1.50m USB cable

EUT OPERATING CONDITIONS

47 CFR FCC Part 15B
1. Conducted Emissions **2. Radiated Emissions**
The EUT was exercised in its typical operating modes (all possible supported modes) as listed below throughout the test: a. 802.11b/g/n + ITE + Active Sync + WWAN + Bluetooth (using internal antennas) b. 802.11a + ITE + Active Sync + WWAN + Bluetooth (using internal antennas) c. 802.11b/g/n + ITE + Active Sync + WWAN + Bluetooth (using external antennas) d. 802.11a + ITE + Active Sync + WWAN + Bluetooth (using external antennas)

47 CFR FCC Part 15.107 Conducted Emission Limits (Class B)

AC Port

Frequency Range (MHz)	Limit Values (dBµV)	
	Quasi-peak (QP)	Average (AV)
0.15 - 0.5	66 – 56 *	56 – 46 *
0.5 - 5.0	56	46
5.0 - 30.0	60	50
* Decreasing linearly with the logarithm of the frequency		

47 CFR FCC Part 15.107 Conducted Emission Test Instrumentation

Instrument	Model	S/No	Cal Due Date
Rohde & Schwarz EMI Test Receiver (9kHz-3GHz)	ESCI	100477	24 Sep 2011
Schaffner LISN 2-Line V-Network (EUT) (9kHz-30MHz)	NNB41	04/10152	14 Sep 2011
Schaffner LISN 2-Line V-Network (9kHz-30MHz)	NNB41	04/10151	14 Sep 2011

AC Port

47 CFR FCC Part 15.107 Conducted Emission Test Setup

1. The EUT and supporting equipment were set up in accordance with the requirements of the standard as shown in the setup photos.
2. The power supply for the EUT was fed through a 50Ω/50μH EUT LISN, connected to filtered mains.
3. The RF OUT of the EUT LISN was connected to the EMI test receiver via a low-loss coaxial cable.
4. All other supporting equipment were powered separately from another LISN.

47 CFR FCC Part 15.107 Conducted Emission Test Method

1. The EUT was switched on and allowed to warm up to its normal operating condition.
2. A scan was made on the NEUTRAL line over the required frequency range using an EMI test receiver.
3. High peaks, relative to the limit line, were then selected.
4. The EMI test receiver was then tuned to the selected frequencies and the necessary measurements made with a receiver bandwidth setting of 9kHz. Both Quasi-peak and Average measurements were made.
5. Steps 2 to 4 were then repeated for the LIVE line.

Sample Calculation Example

At 20 MHz	Q-P limit (Class B) = 1000 μV = 60.0 dBμV
Transducer factor of LISN, pulse limiter & cable loss at 20 MHz = 11.2 dB	
Q-P reading obtained directly from EMI Receiver = 40.0 dBμV (Calibrated for system losses)	
Therefore, Q-P margin = 40.0 - 60.0 = -20.0	**i.e. 20.0 dB below Q-P limit**

Conducted Emissions Test Setup (Front View)

Conducted Emissions Test Setup (Rear View)

47 CFR FCC Part 15.107 Conducted Emission Results

Operating Mode	External Antenna + 802.11b/g/n + ITE + BT + Active Sync + WWAN mode (Worst mode)	Temperature	23°C
Test Input Power	110V 60Hz	Relative Humidity	58%
Line Under Test	AC Mains	Atmospheric Pressure	1030mbar
Class	B	Tested By	Kyaw Soe Hein

Frequency (MHz)	Q-P Value (dBµV)	Q-P Margin (dB)	AV Value (dBµV)	AV Margin (dB)	Line
0.1887	49.4	-14.7	38.4	-15.7	Neutral
0.2497	43.1	-18.7	34.8	-17.1	Neutral
0.3132	38.7	-21.2	30.8	-19.1	Neutral
0.4363	28.7	-28.4	19.7	-27.4	Neutral
0.5009	30.1	-25.9	21.2	-24.8	Live
8.0083	37.3	-22.7	30.3	-19.7	Neutral

Operating Mode	External Antenna + 802.11a + ITE + BT + Active Sync + WWAN mode (Worst mode)	Temperature	23°C
Test Input Power	110V 60Hz	Relative Humidity	58%
Line Under Test	AC Mains	Atmospheric Pressure	1030mbar
Class	B	Tested By	Kyaw Soe Hein

Frequency (MHz)	Q-P Value (dBµV)	Q-P Margin (dB)	AV Value (dBµV)	AV Margin (dB)	Line
0.1896	47.5	-16.6	41.3	-12.8	Neutral
0.3760	33.5	-24.9	28.2	-20.2	Neutral
0.7117	34.3	-21.7	29.0	-17.0	Neutral
7.2072	42.2	-17.8	36.5	-13.5	Neutral
7.5810	42.1	-17.9	36.3	-13.7	Live
8.6497	45.3	-14.7	25.7	-24.3	Live

Notes

1. All possible modes of operation were investigated from 150kHz to 30MHz. Only the worst case emissions measured, using the correct CISPR detectors, are reported. All other emissions were relatively insignificant.
2. A "-ve" margin indicates a PASS as it refers to the margin present below the limit line at the particular frequency.
3. EMI receiver Resolution Bandwidth (RBW) and Video Bandwidth (VBW) settings:
   150kHz - 30MHz
   RBW: 9kHz VBW: 30kHz
4. Conducted Emissions Measurement Uncertainty
   All test measurements carried out are traceable to national standards. The uncertainty of the measurement at a confidence level of approximately 95%, with a coverage factor of 2, in the range 9kHz – 30MHz is ±3.0dB.

47 CFR FCC Part 15.109 Radiated Emission Limits (Class B)

Frequency Range (MHz)	Quasi-Peak Limit Values (dBµV/m) @ 3m
30 - 88	40.0
88 - 216	43.5
216 - 960	46.0
Above 960	54.0*
* Above 1GHz, average detector was used. A peak limit of 20dB above the average limit does apply.	

47 CFR FCC Part 15.109 Radiated Emission Test Instrumentation

Instrument	Model	S/No	Cal Due Date
Rohde & Schwarz EMI Test Receiver (20Hz – 26.5GHz)	ESMI	829179/002 829179/005	28 Jul 2011
TDK RF Solutions Hybrid Log Periodic Antenna (30MHz-3GHz)	HLP-3003C	130238	19 Mar 2012
Sonoma Preamplifier (9kHz – 1GHz)	310N	270640	13 Sep 2011
TDK RF Solution Horn Antenna (1GHz-18GHz)	HRN-0118	130256	15 Mar 2012
Schwarzbeck Horn Antenna (2-18GHz) / Pre-amplifier assembly HAP-series	BBHA 9120 C/ HAP06-18W	00000004	25 Mar 2012
Sonoma Preamplifier (9kHz – 1GHz)	310N	270640	13 Sep 2011
Toyo MicroWave Preamplifier (1GHz - 8GHz)	TPA0108-40	0443	02 Feb 2012
ETS Horn Antenna (18GHz – 40GHz)	3116	0004-2474	19 Apr 2012
Micro-Tronics Bandstop Filter (2.4-2.5 GHz)	BRM50701	017	13 Aug 2011

47 CFR FCC Part 15.109 Radiated Emission Test Setup

1. The EUT and supporting equipment were set up in accordance with the requirements of the standard as shown in the setup photos.
2. The filtered power supply for the EUT and supporting equipment were tapped from the appropriate power sockets located on the turntable.
3. The relevant broadband antenna was set at the required test distance away from the EUT and supporting equipment boundary.

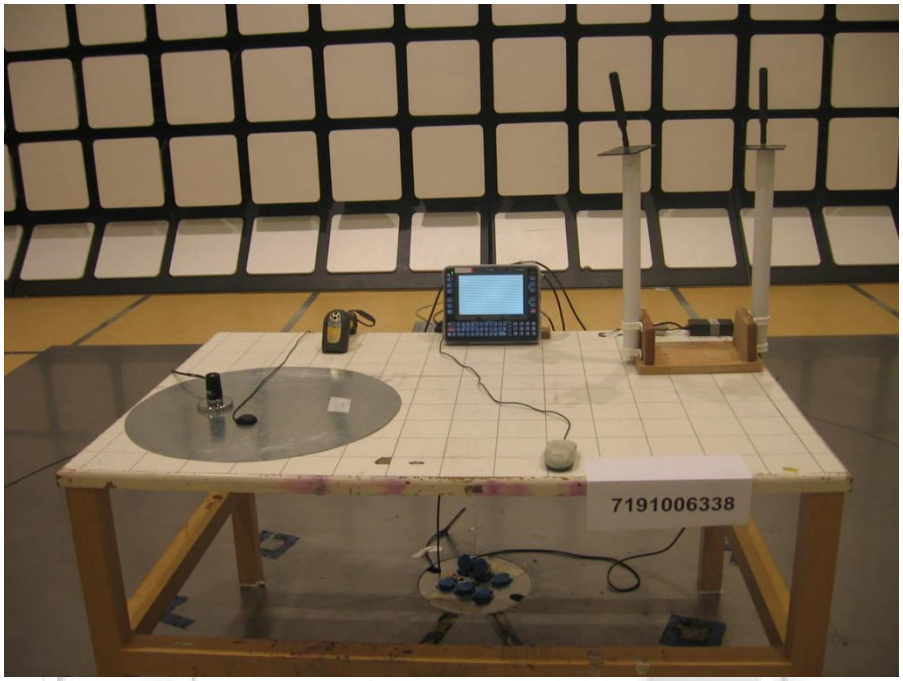
47 CFR FCC Part 15.109 Radiated Emission Test Method

1. The EUT was switched on and allowed to warm up to its normal operating condition.
2. A prescan was carried out to pick the worst emission frequencies from the EUT. For EUT which is a portable device, the prescan was carried out by rotating the EUT through three orthogonal axes to determine which altitude and equipment arrangement produces such emissions.
3. The test was carried out at the selected frequency points obtained from the prescan in step 2. 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.
4. A Quasi-peak measurement was made for that frequency point if it was less than or equal to 1GHz. For frequency point that above 1GHz, both Peak and Average measurements were carried out.
5. Steps 3 and 4 were repeated for the next frequency point, until all selected frequency points were measured.
6. The frequency range covered was from 30MHz to 5th harmonic of the highest frequency used or generated by the EUT, using the Bi-log antenna for frequencies from 30MHz up to 1GHz, and the Horn antenna above 1GHz.

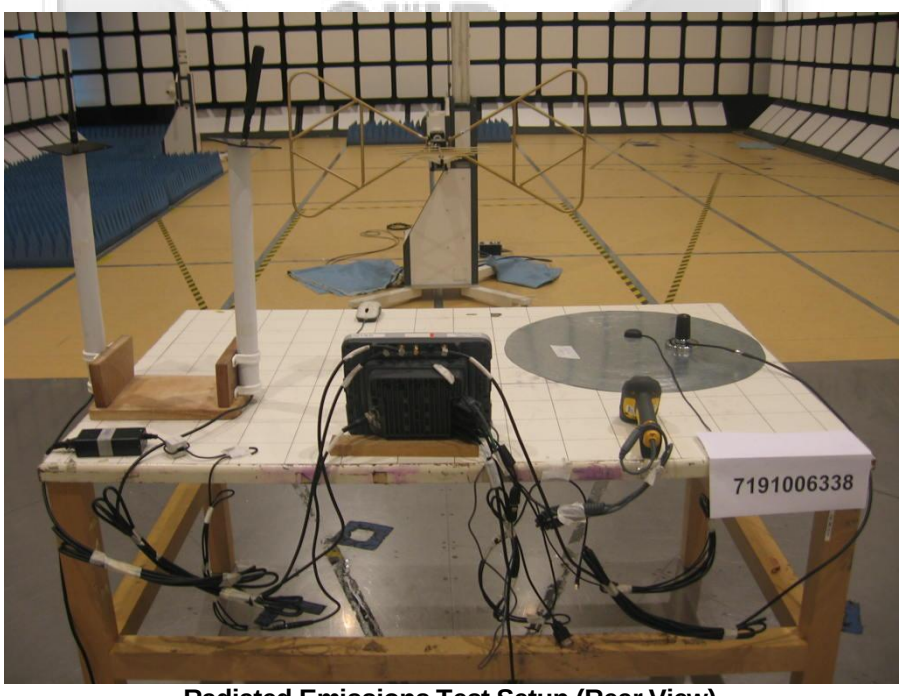
Sample Calculation Example

At 300 MHz	Q-P limit (Class B) = 70.8 μV/m = 37.0 dBμV/m
Log-periodic antenna factor & cable loss at 300 MHz = 18.5 dB	
Q-P reading obtained directly from EMI Receiver = 31.0 dBμV/m (Calibrated level including antenna factors & cable losses)	
Therefore, Q-P margin = 31.0 - 37.0 = -6.0	i.e. 6 dB below Q-P limit

30MHz – 1GHz Test Setup

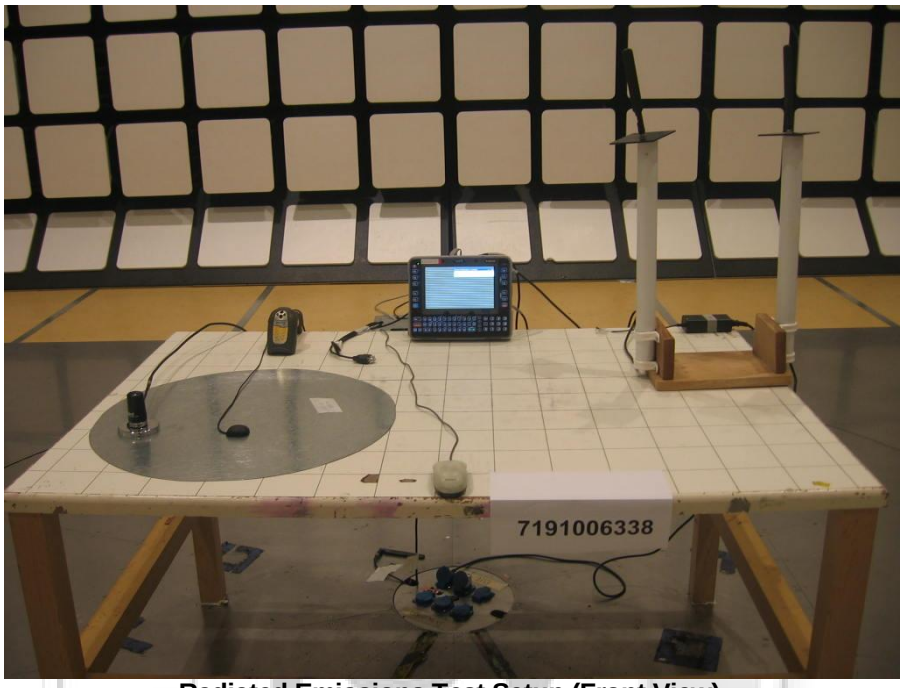


Radiated Emissions Test Setup (Front View)

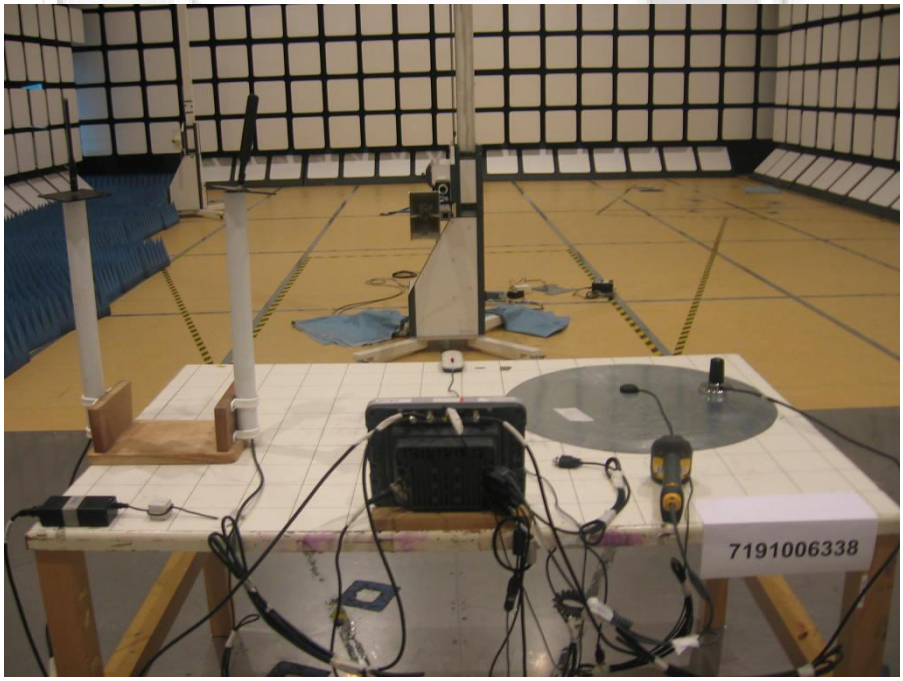


Radiated Emissions Test Setup (Rear View)

1GHz – 40GHz Test Setup



Radiated Emissions Test Setup (Front View)



Radiated Emissions Test Setup (Rear View)

47 CFR FCC Part 15.109 Radiated Emission Results

Operating Mode	Internal Antenna + 802.11b/g/n + ITE + BT + Active Sync + WWAN mode	Temperature	23°C
Test Input Power	110V 60Hz	Relative Humidity	58%
Test Distance	3m	Atmospheric Pressure	1030mbar
Class	B	Tested By	Derrick Ng

Emissions ranging from 30MHz – 1GHz

Frequency (MHz)	Q-P Value (dBµV/m)	Q-P Margin (dB)	Azimuth (Degrees)	Height (cm)	Polarisation (H/V)
68.0900	29.1	-10.9	30	364	H
88.7600	30.3	-13.2	37	281	H
192.0390	31.4	-12.1	3	102	V
396.5760	28.7	-17.3	20	102	H
465.4550	36.3	-9.7	25	118	V
929.0250	32.8	-13.3	13	193	H

Emissions above 1GHz – 25GHz

Frequency (GHz)	Peak Value (dBµV/m)	Peak Margin (dB)	Average Value (dBµV/m)	Average Margin (dB)	Azimuth (Degrees)	Height (cm)	Pol (H/V)
4.9967	36.3	-37.7	36.2	-17.8	319	102	H
7.2358	40.3	-33.7	40.0	-14.0	359	101	H
7.4929	42.3	-31.7	42.3	-11.7	359	118	V
13.2365	47.3	-26.7	47.2	-6.8	27	357	H
14.1269	48.1	-25.9	48.0	-6.0	104	342	V
17.9172	50.2	-23.8	50.2	-3.8	107	379	V

Notes

1. All possible modes of operation were investigated. Only the worst case emissions measured, using the correct CISPR detectors, are reported. All other emissions were relatively insignificant.
2. A "-ve" margin indicates a PASS as it refers to the margin present below the limit line at the particular frequency.
3. EMI receiver Resolution Bandwidth (RBW) and Video Bandwidth (VBW) settings:
   30MHz - 1GHz
   RBW: 120kHz VBW: 1MHz
   >1GHz
   RBW: 1MHz VBW: 1MHz
4. Radiated Emissions Measurement Uncertainty
   All test measurements carried out are traceable to national standards. The uncertainty of the measurement at a confidence level of approximately 95%, with a coverage factor of 2, in the range 30MHz – 40.0GHz is ±4.6dB.

47 CFR FCC Part 15.109 Radiated Emission Results

Operating Mode	Internal Antenna + 802.11a + ITE + BT + Active Sync + WWAN mode	Temperature	23°C
Test Input Power	110V 60Hz	Relative Humidity	58%
Test Distance	3m	Atmospheric Pressure	1030mbar
Class	B	Tested By	Derrick Ng

Emissions ranging from 30MHz – 1GHz

Frequency (MHz)	Q-P Value (dBµV/m)	Q-P Margin (dB)	Azimuth (Degrees)	Height (cm)	Polarisation (H/V)
33.5450	20.5	-19.5	99	399	V
63.7900	32.8	-7.2	122	313	H
192.0050	33.7	-9.8	9	102	V
332.4400	35.3	-10.7	32	100	H
465.4220	35.6	-10.4	30	104	V
923.7040	37.2	-8.8	324	225	H

Emissions above 1GHz – 40GHz

Frequency (GHz)	Peak Value (dBµV/m)	Peak Margin (dB)	Average Value (dBµV/m)	Average Margin (dB)	Azimuth (Degrees)	Height (cm)	Pol (H/V)
3.2549	45.5	-28.5	38.9	-15.1	158	142	H
4.9971	56.0	-18.0	39.8	-14.2	329	114	H
7.4934	43.0	-31.0	41.8	-12.2	359	102	V
12.3433	44.8	-29.2	44.7	-9.4	6	393	V
13.3351	47.6	-26.4	47.6	-6.4	5	255	V
17.7163	49.4	-24.6	49.3	-4.7	18	394	V

Notes

1. All possible modes of operation were investigated. Only the worst case emissions measured, using the correct CISPR detectors, are reported. All other emissions were relatively insignificant.
2. A "-ve" margin indicates a PASS as it refers to the margin present below the limit line at the particular frequency.
3. EMI receiver Resolution Bandwidth (RBW) and Video Bandwidth (VBW) settings:
   30MHz - 1GHz
   RBW: 120kHz VBW: 1MHz
   >1GHz
   RBW: 1MHz VBW: 1MHz
4. Radiated Emissions Measurement Uncertainty
   All test measurements carried out are traceable to national standards. The uncertainty of the measurement at a confidence level of approximately 95%, with a coverage factor of 2, in the range 30MHz – 40.0GHz is ±4.6dB.

47 CFR FCC Part 15.109 Radiated Emission Results

Operating Mode	External Antenna + 802.11b/g/n + ITE + BT + Active Sync + WWAN mode	Temperature	23°C
Test Input Power	110V 60Hz	Relative Humidity	58%
Test Distance	3m	Atmospheric Pressure	1030mbar
Class	B	Tested By	Derrick Ng

Emissions ranging from 30MHz – 1GHz

Frequency (MHz)	Q-P Value (dBµV/m)	Q-P Margin (dB)	Azimuth (Degrees)	Height (cm)	Polarisation (H/V)
45.6840	31.8	-8.2	35	100	V
60.7230	34.9	-5.1	353	100	V
456.0910	41.9	-4.1	359	100	V
465.3890	43.0	-3.0	359	100	V
922.1820	39.3	-6.7	310	147	H
963.6600	32.0	-22.0	20	167	H

Emissions above 1GHz – 25GHz

Frequency (GHz)	Peak Value (dBµV/m)	Peak Margin (dB)	Average Value (dBµV/m)	Average Margin (dB)	Azimuth (Degrees)	Height (cm)	Pol (H/V)
1.6273	52.3	-21.7	49.9	-4.2	325	177	H
7.4685	41.4	-32.6	41.1	-12.9	1	111	V
12.2238	44.1	-29.9	44.0	-10.0	42	237	V
13.5513	47.7	-26.3	47.7	-6.3	272	383	H
16.3171	47.3	-26.7	47.2	-6.8	141	398	V
17.9193	50.3	-23.8	50.2	-3.8	259	390	V

Notes

1. All possible modes of operation were investigated. Only the worst case emissions measured, using the correct CISPR detectors, are reported. All other emissions were relatively insignificant.
2. A "-ve" margin indicates a PASS as it refers to the margin present below the limit line at the particular frequency.
3. EMI receiver Resolution Bandwidth (RBW) and Video Bandwidth (VBW) settings:
   30MHz - 1GHz
   RBW: 120kHz VBW: 1MHz
   >1GHz
   RBW: 1MHz VBW: 1MHz
4. Radiated Emissions Measurement Uncertainty
   All test measurements carried out are traceable to national standards. The uncertainty of the measurement at a confidence level of approximately 95%, with a coverage factor of 2, in the range 30MHz – 40.0GHz is ±4.6dB.

47 CFR FCC Part 15.109 Radiated Emission Results

Operating Mode	External Antenna + 802.11a + ITE + BT + Active Sync + WWAN mode	Temperature	23°C
Test Input Power	110V 60Hz	Relative Humidity	58%
Test Distance	3m	Atmospheric Pressure	1030mbar
Class	B	Tested By	Derrick Ng

Emissions ranging from 30MHz – 1GHz

Frequency (MHz)	Q-P Value (dBµV/m)	Q-P Margin (dB)	Azimuth (Degrees)	Height (cm)	Polarisation (H/V)
45.9060	32.5	-7.5	92	100	V
60.7460	34.7	-5.3	9	101	V
144.0090	33.6	-9.9	16	100	V
456.0470	39.4	-6.6	120	187	H
465.4550	37.8	-8.2	105	183	H
922.4260	39.9	-6.1	316	225	H

Emissions above 1GHz – 40GHz

Frequency (GHz)	Peak Value (dBµV/m)	Peak Margin (dB)	Average Value (dBµV/m)	Average Margin (dB)	Azimuth (Degrees)	Height (cm)	Pol (H/V)
1.6275	49.8	-24.2	49.7	-4.3	355	355	V
3.2547	47.1	-26.9	41.8	-12.2	43	43	V
7.4681	41.2	-32.8	40.9	-13.1	312	312	V
13.5347	47.6	-26.4	47.6	-6.4	152	152	V
16.5173	47.7	-26.3	47.6	-6.4	129	129	V
17.8547	50.2	-23.8	50.1	-3.9	96	96	H

Notes

1. All possible modes of operation were investigated. Only the worst case emissions measured, using the correct CISPR detectors, are reported. All other emissions were relatively insignificant.
2. A "-ve" margin indicates a PASS as it refers to the margin present below the limit line at the particular frequency.
3. EMI receiver Resolution Bandwidth (RBW) and Video Bandwidth (VBW) settings:
   30MHz - 1GHz
   RBW: 120kHz VBW: 1MHz
   >1GHz
   RBW: 1MHz VBW: 1MHz
4. Radiated Emissions Measurement Uncertainty
   All test measurements carried out are traceable to national standards. The uncertainty of the measurement at a confidence level of approximately 95%, with a coverage factor of 2, in the range 30MHz – 40.0GHz is ±4.6dB.

This Report is issued under the following conditions:

1. Results of the testing/calibration in the form of a report will be issued immediately after the service has been completed or terminated.

2. Unless otherwise requested, this report shall contain only technical results carried out by TÜV SÜD PSB. Analysis and interpretation of the results and professional opinion and recommendations expressed thereupon, if required, shall be clearly indicated and additional fee paid for, by the Client.

3. This report applies to the sample of the specific product/equipment given at the time of its testing/calibration. The results are not used to indicate or imply that they are applicable to other similar items. In addition, such results must not be used to indicate or imply that TÜV SÜD PSB approves, recommends or endorses the manufacturer, supplier or user of such product/equipment, or that TÜV SÜD PSB in any way "guarantees" the later performance of the product/equipment. Unless otherwise stated in this report, no tests were conducted to determine long term effects of using the specific product/equipment.

4. The sample/s mentioned in this report is/are submitted/supplied/manufactured by the Client. TÜV SÜD PSB therefore assumes no responsibility for the accuracy of information on the brand name, model number, origin of manufacture, consignment or any information supplied.

5. Additional copies of the report are available to the Client at an additional fee. No third party can obtain a copy of this report through TÜV SÜD PSB, unless the Client has authorised TÜV SÜD PSB in writing to do so.

6. TÜV SÜD PSB may at its sole discretion add to or amend the conditions of the report at the time of issue of the report and such report and such additions or amendments shall be binding on the Client.

7. All copyright in the report shall remain with TÜV SÜD PSB and the Client shall, upon payment of TÜV SÜD PSB's fees for the carrying out of the tests/calibrations, be granted a license to use or publish the report to the third parties subject to the terms and conditions herein, provided always that TÜV SÜD PSB may at its absolute discretion be entitled to impose such conditions on the license as it sees fit.

8. Nothing in this report shall be interpreted to mean that TÜV SÜD PSB has verified or ascertained any endorsement or marks from any other testing authority or bodies that may be found on that sample.

9. This report shall not be reproduced wholly or in parts and no reference shall be made by the Client to TÜV SÜD PSB or to the report or results furnished by TÜV SÜD PSB in any advertisements or sales promotion.

10. Unless otherwise stated, the tests were carried out in TÜV SÜD PSB Pte Ltd, No.1 Science Park Drive Singapore 118221.

March 2010

ANNEX A

EUT PHOTOGRAPHS / DIAGRAMS

EUT PHOTOGRAPHS / DIAGRAMS — ANNEX A

EUT PHOTOGRAPHS

Front View

Rear View

EUT PHOTOGRAPHS / DIAGRAMS — ANNEX A

EUT PHOTOGRAPHS

Left View

Right View

EUT PHOTOGRAPHS / DIAGRAMS — ANNEX A

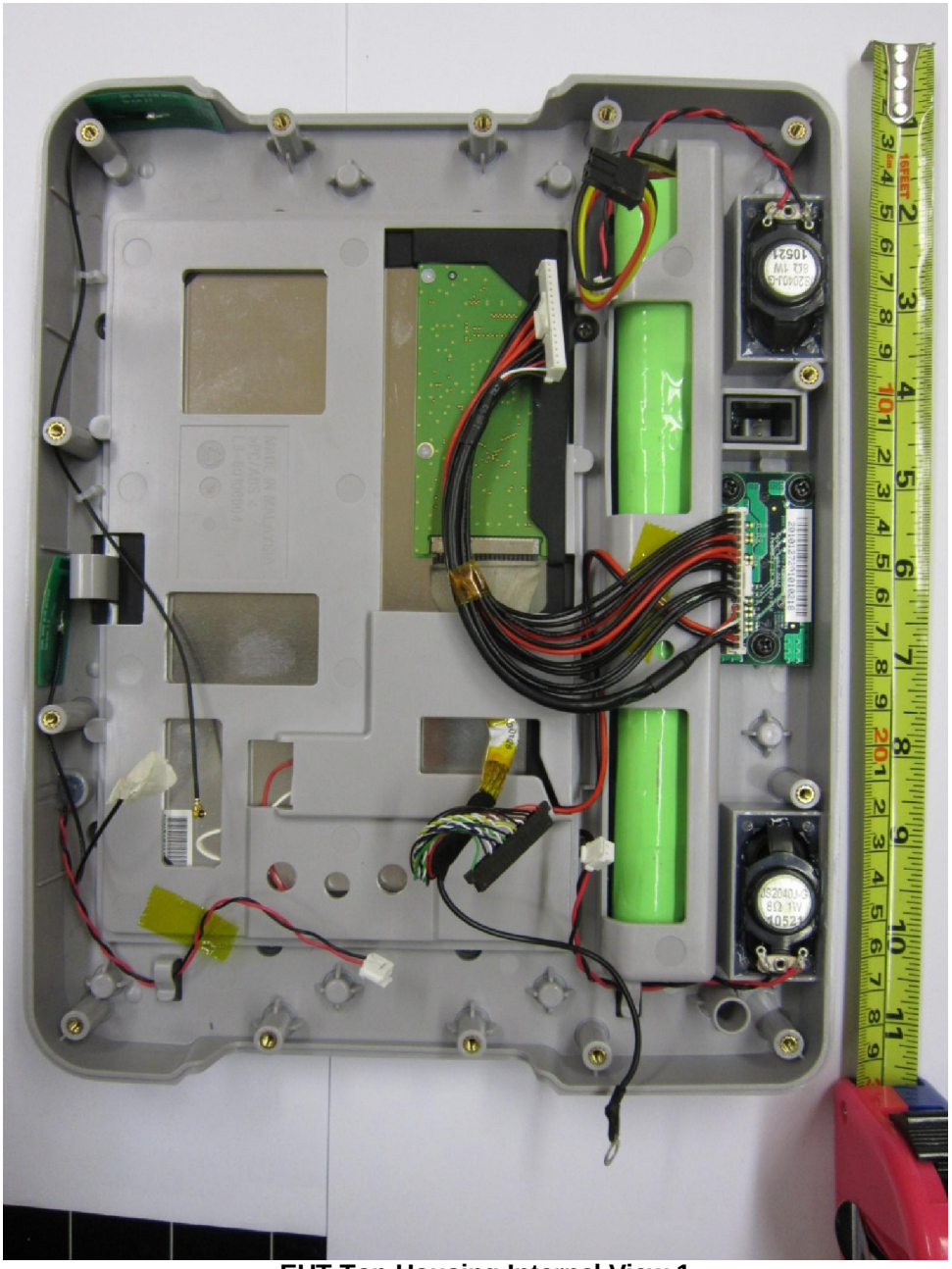
EUT PHOTOGRAPHS

Top View

Bottom View

EUT PHOTOGRAPHS / DIAGRAMS — ANNEX A

EUT PHOTOGRAPHS



EUT Top Housing Internal View 1

PSB Singapore

EUT PHOTOGRAPHS / DIAGRAMS — ANNEX A

EUT PHOTOGRAPHS

EUT Top Housing Internal View 2

PSB Singapore

EUT PHOTOGRAPHS / DIAGRAMS ANNEX A

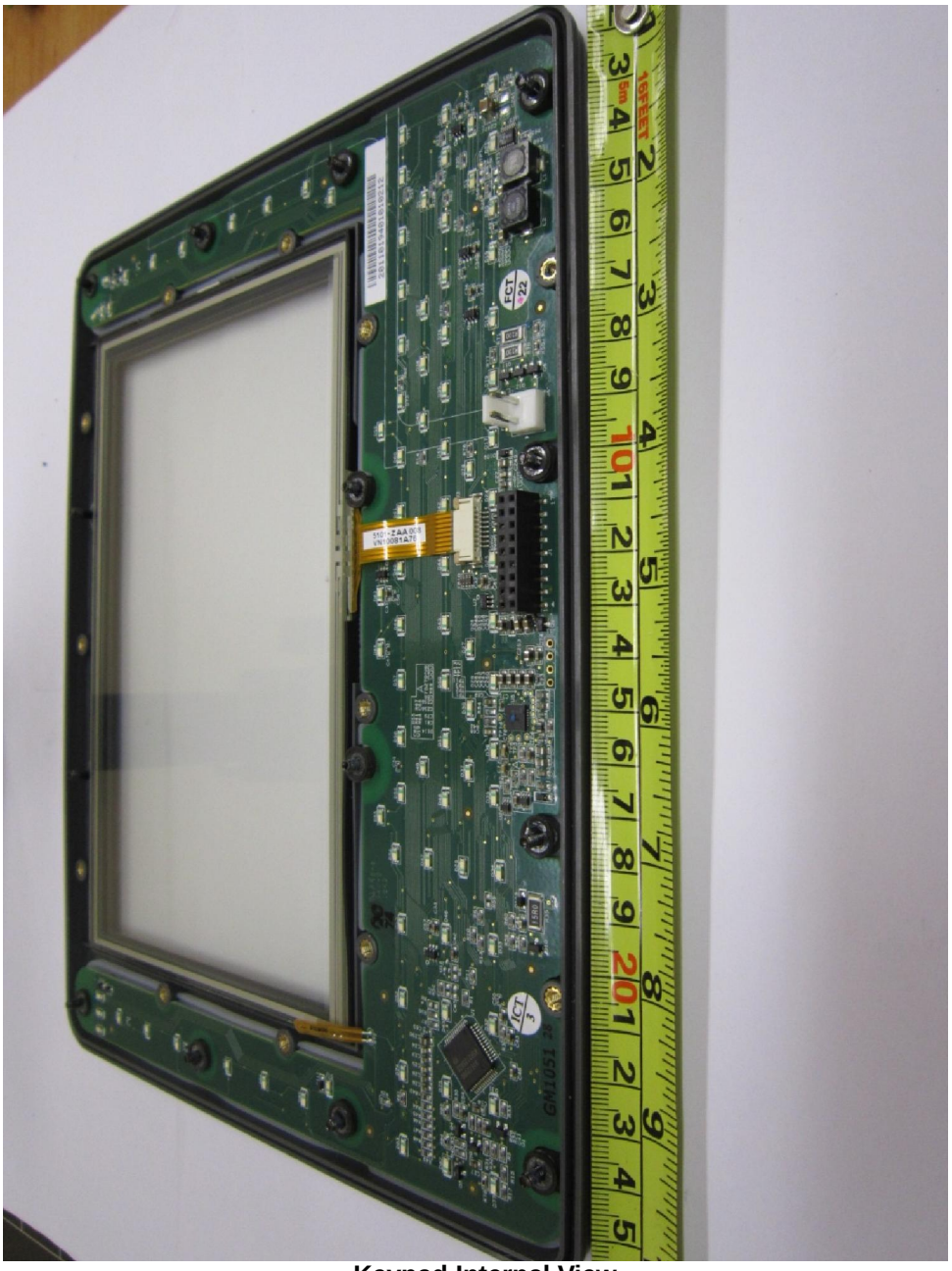
EUT PHOTOGRAPHS

EUT Top Housing Internal View 3

PSB Singapore

EUT PHOTOGRAPHS / DIAGRAMS — ANNEX A

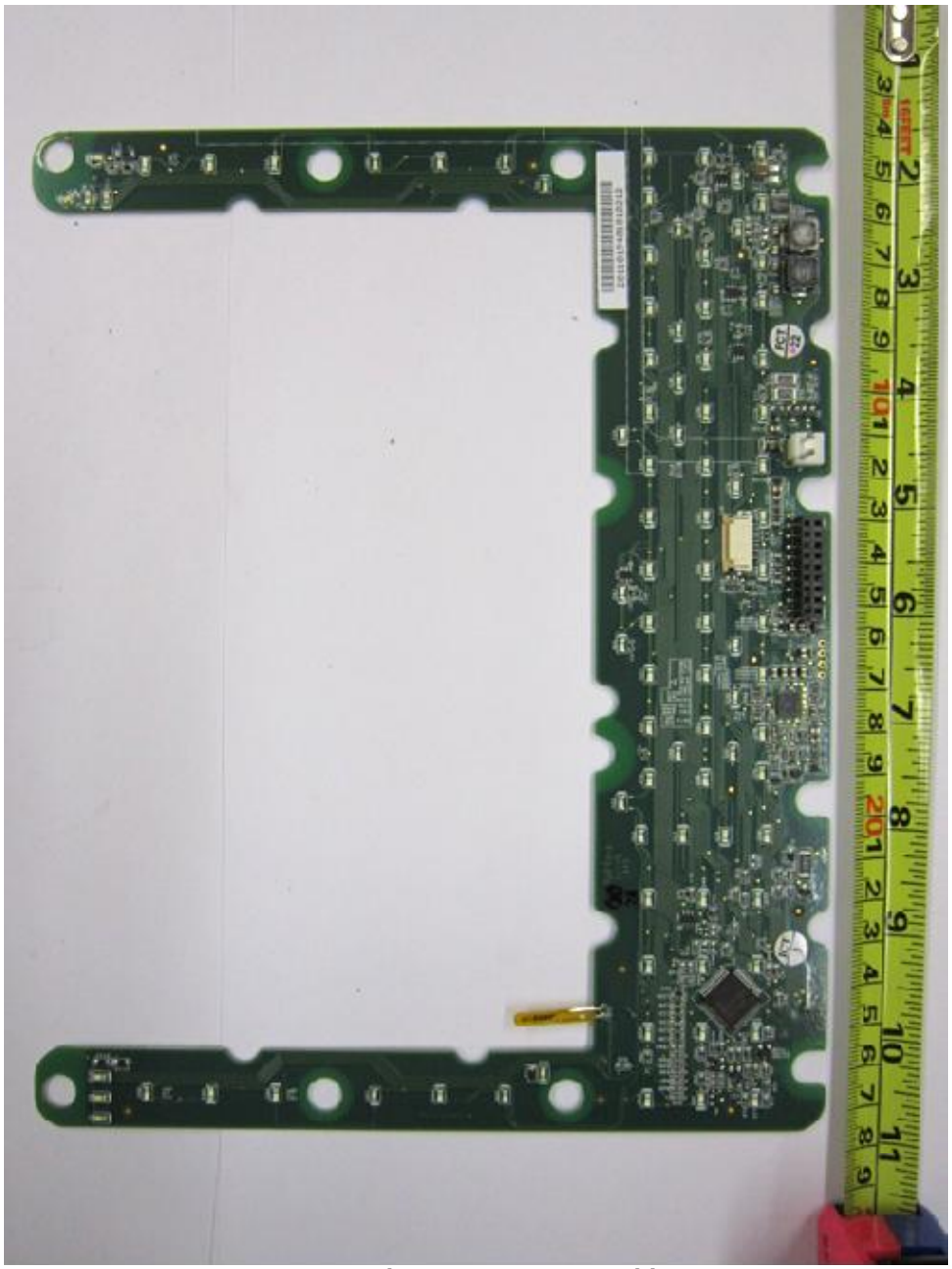
EUT PHOTOGRAPHS



Keypad Internal View

EUT PHOTOGRAPHS / DIAGRAMS — ANNEX A

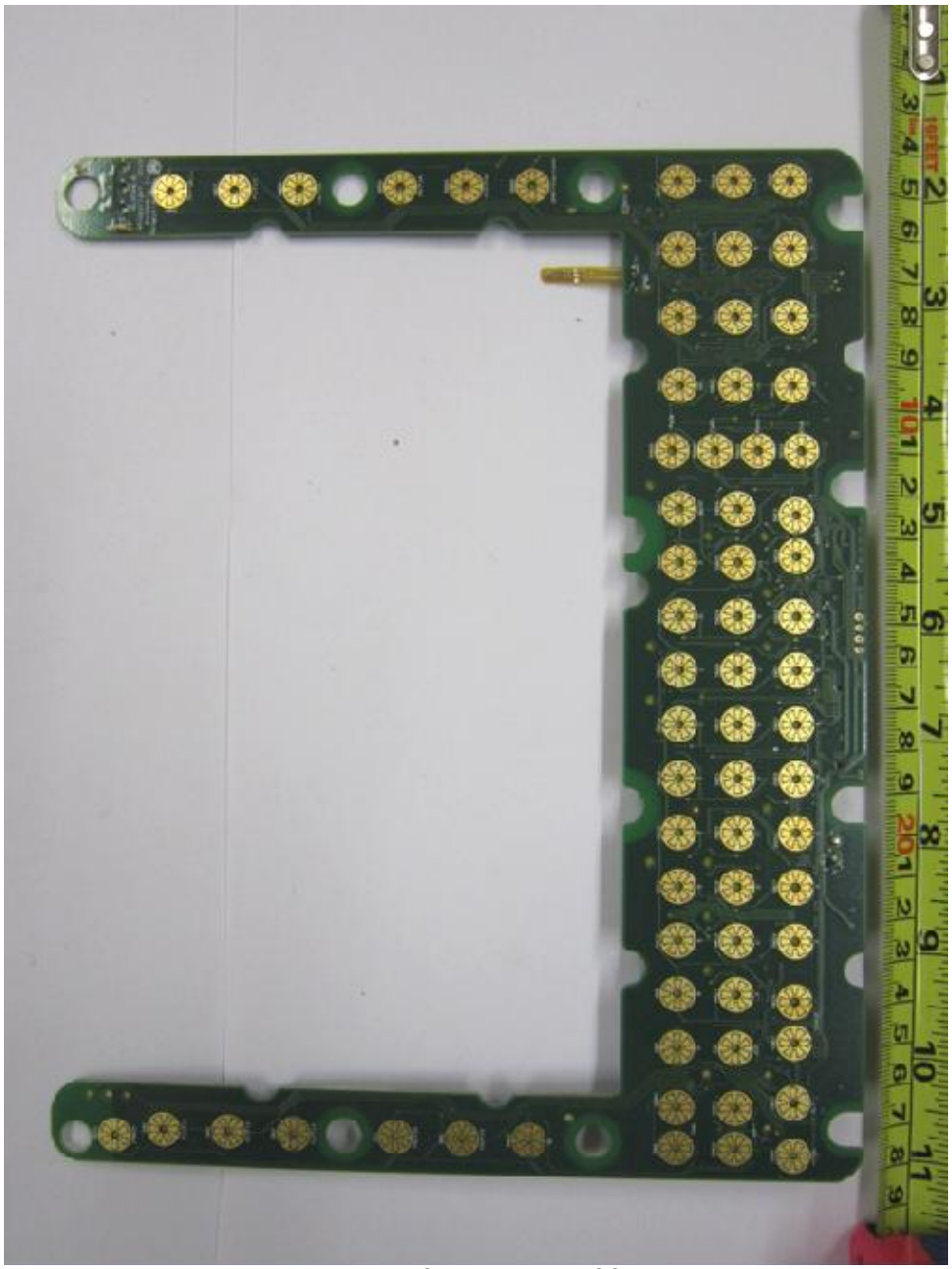
EUT PHOTOGRAPHS



Keypad PCB Component Side

EUT PHOTOGRAPHS / DIAGRAMS — ANNEX A

EUT PHOTOGRAPHS



Keypad PCB Trace Side

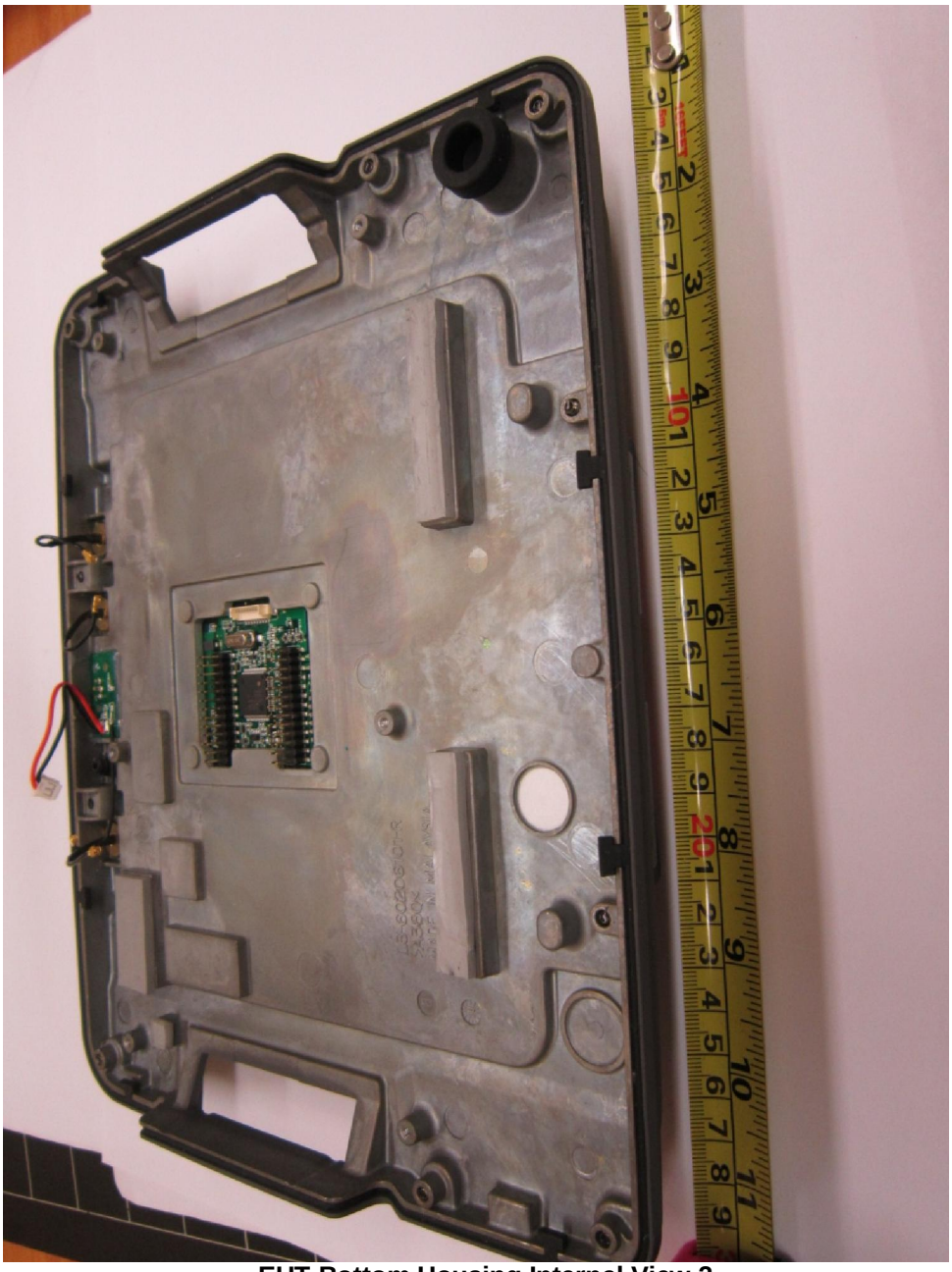
EUT PHOTOGRAPHS / DIAGRAMS — ANNEX A

EUT PHOTOGRAPHS

EUT Bottom Housing Internal View 1

EUT PHOTOGRAPHS / DIAGRAMS — ANNEX A

EUT PHOTOGRAPHS



EUT Bottom Housing Internal View 2

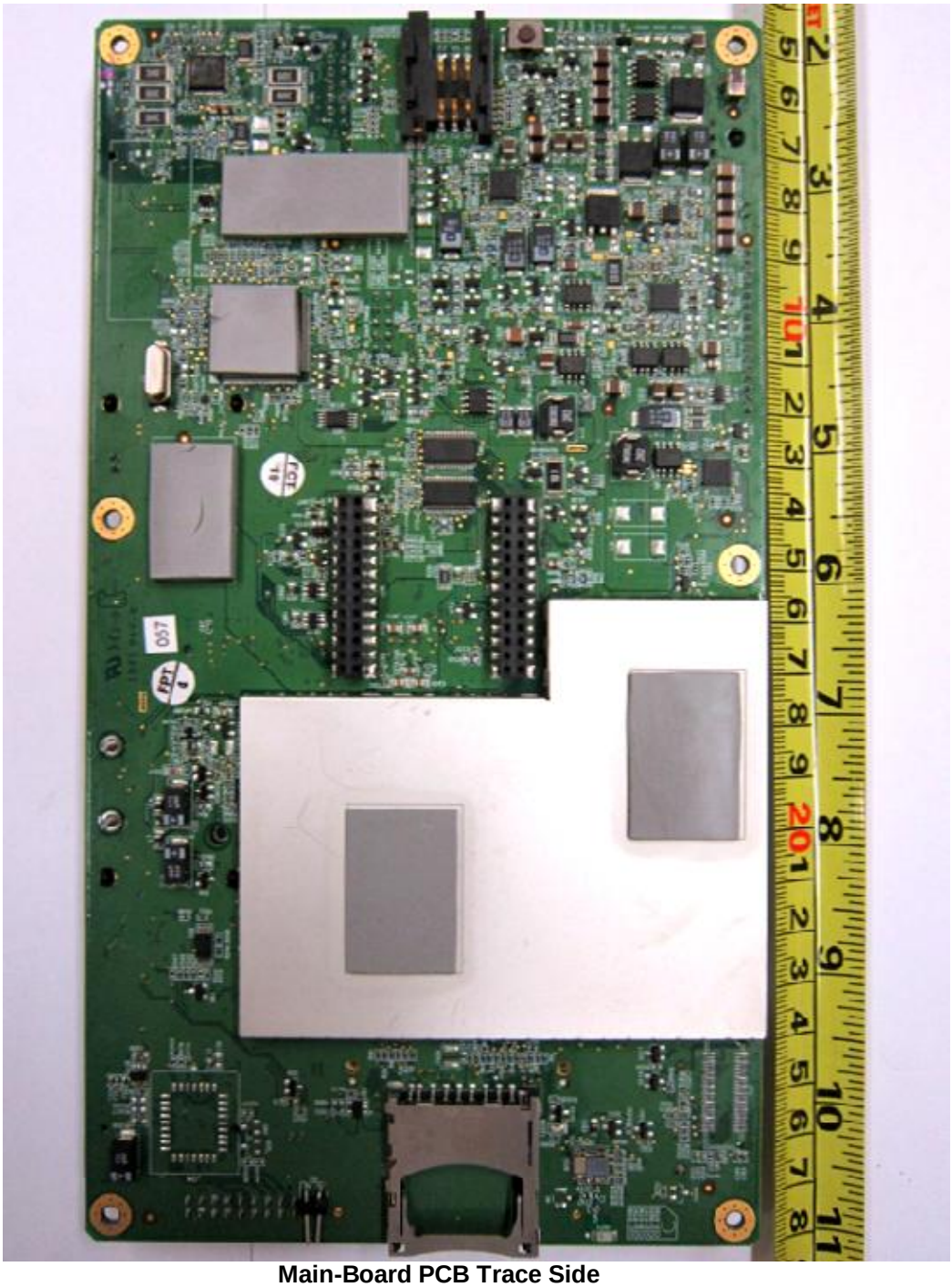
EUT PHOTOGRAPHS / DIAGRAMS — ANNEX A

EUT PHOTOGRAPHS

Main-Board PCB Component Side

EUT PHOTOGRAPHS / DIAGRAMS — ANNEX A

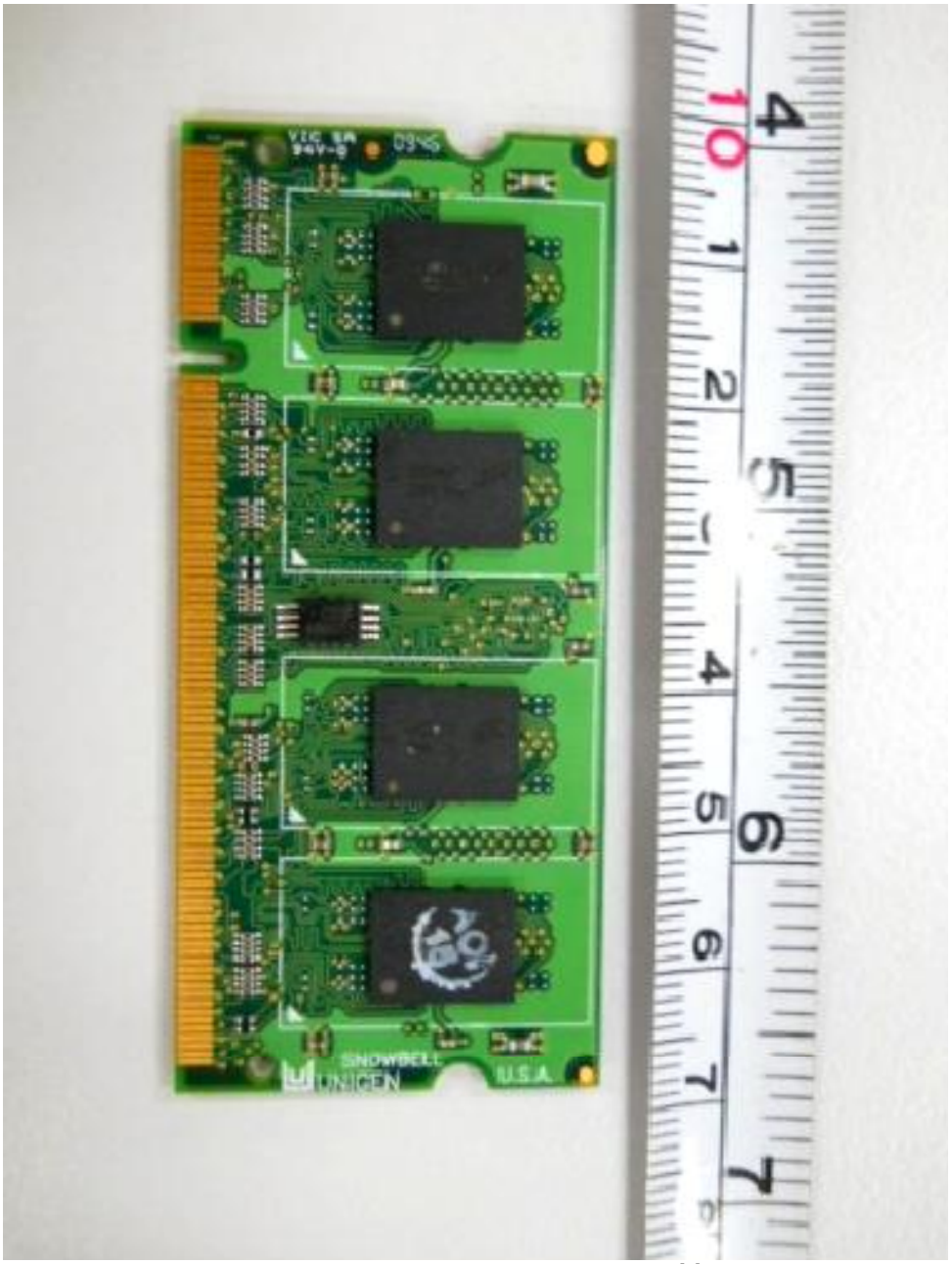
EUT PHOTOGRAPHS



Main-Board PCB Trace Side

EUT PHOTOGRAPHS / DIAGRAMS — ANNEX A

EUT PHOTOGRAPHS

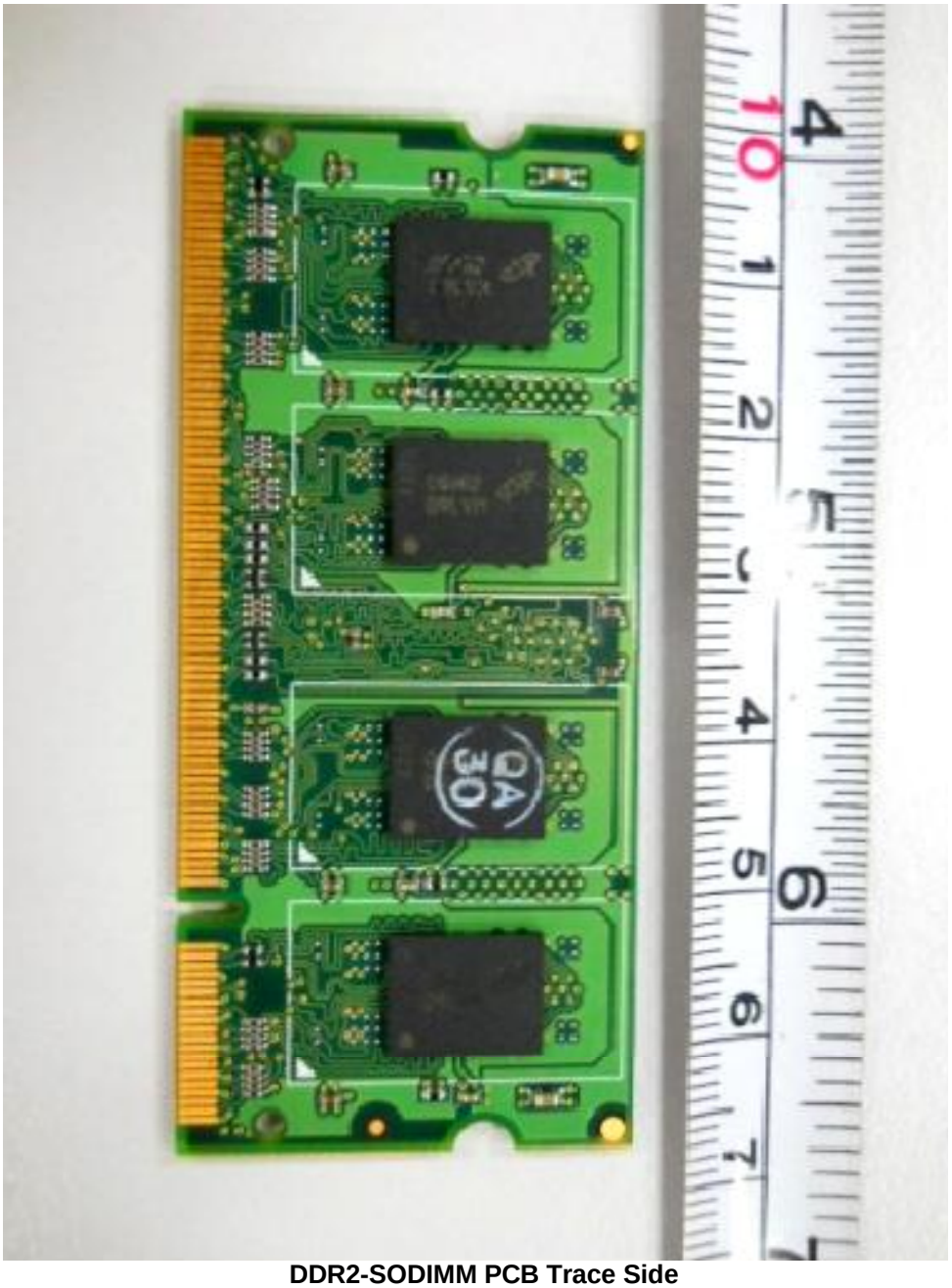


DDR2-SODIMM PCB Component Side

PSB Singapore

EUT PHOTOGRAPHS / DIAGRAMS — ANNEX A

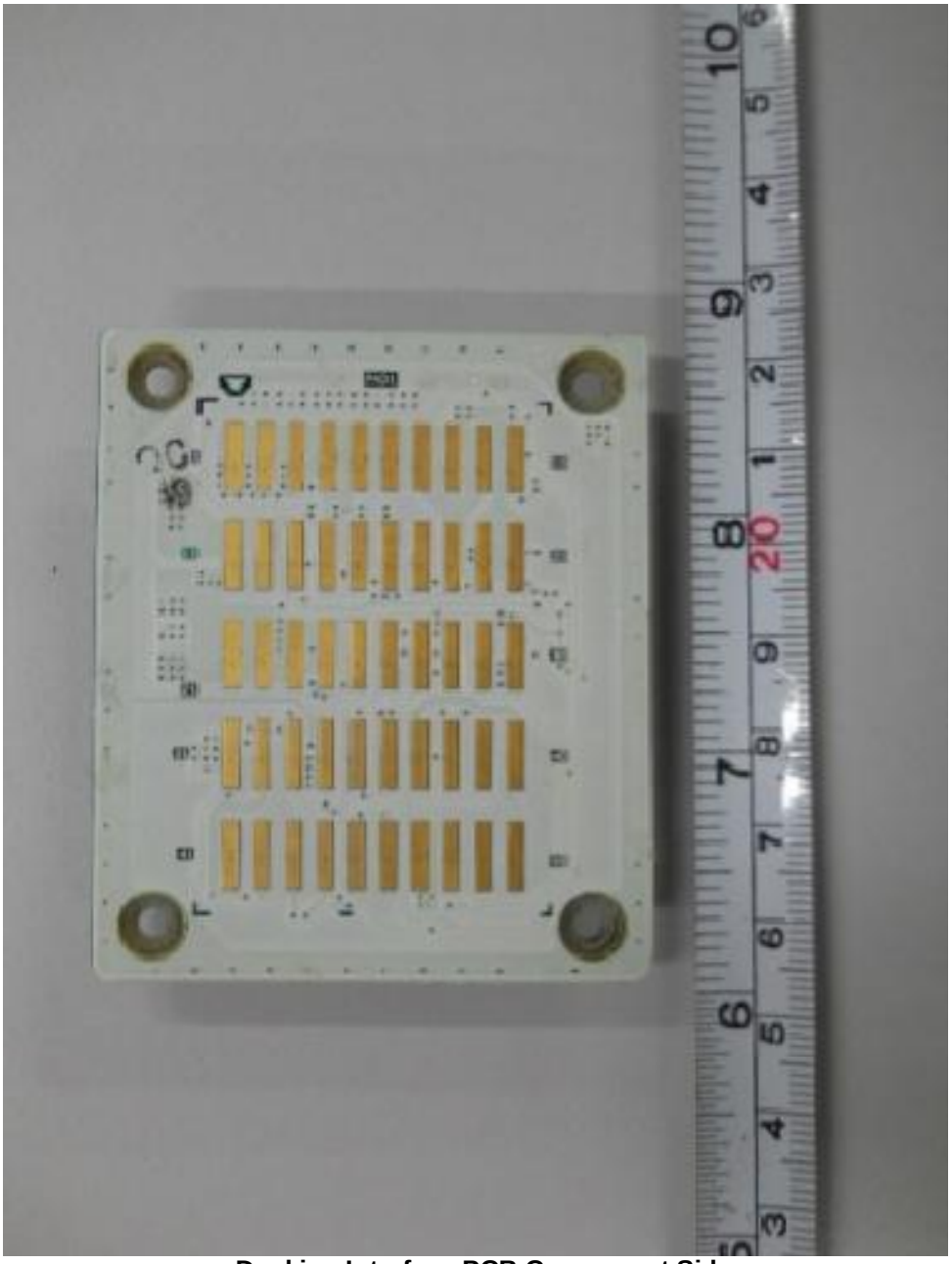
EUT PHOTOGRAPHS



DDR2-SODIMM PCB Trace Side

EUT PHOTOGRAPHS / DIAGRAMS — ANNEX A

EUT PHOTOGRAPHS



Docking Interface PCB Component Side

EUT PHOTOGRAPHS / DIAGRAMS — ANNEX A

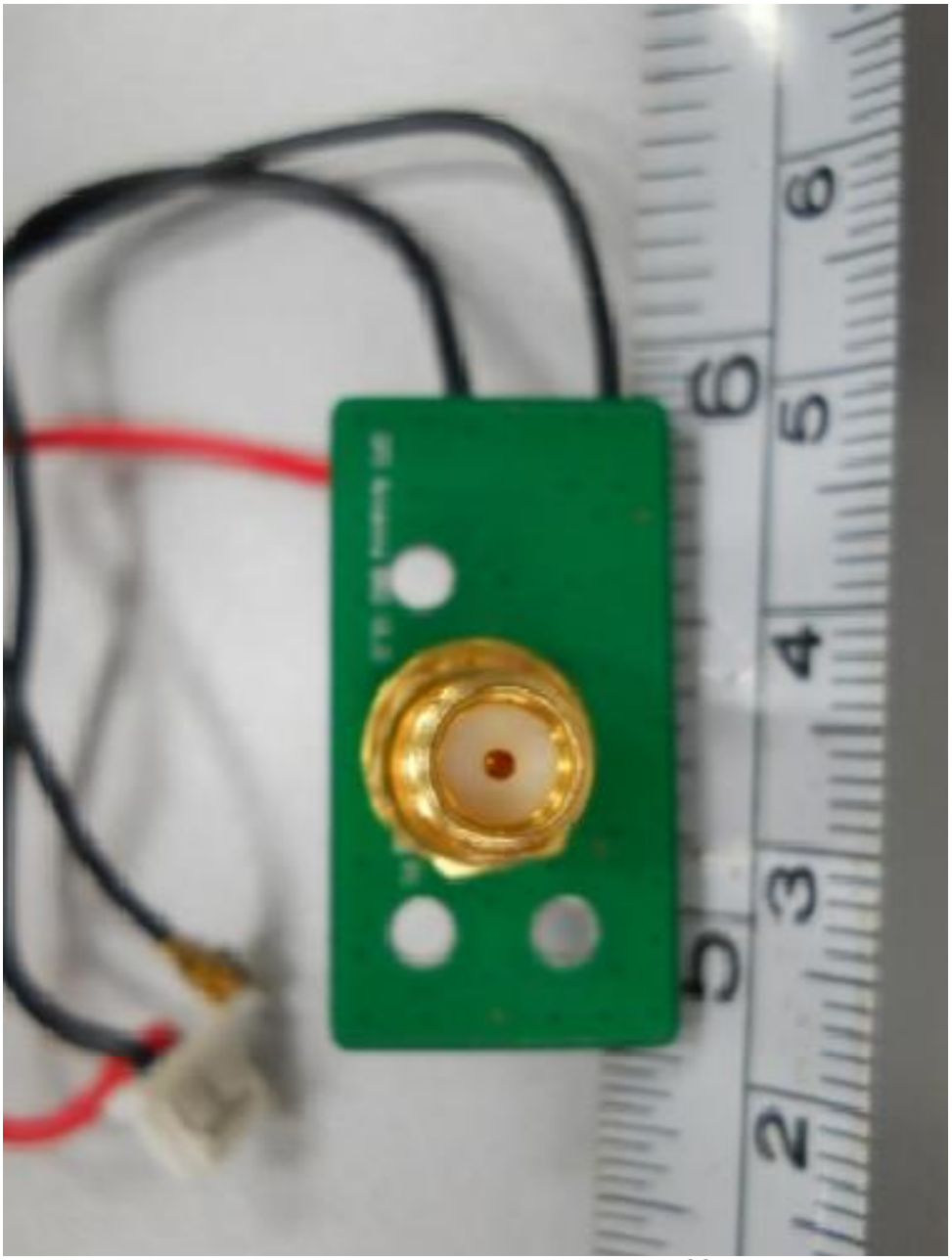
EUT PHOTOGRAPHS

Docking Interface PCB Trace Side

PSB Singapore

EUT PHOTOGRAPHS / DIAGRAMS — ANNEX A

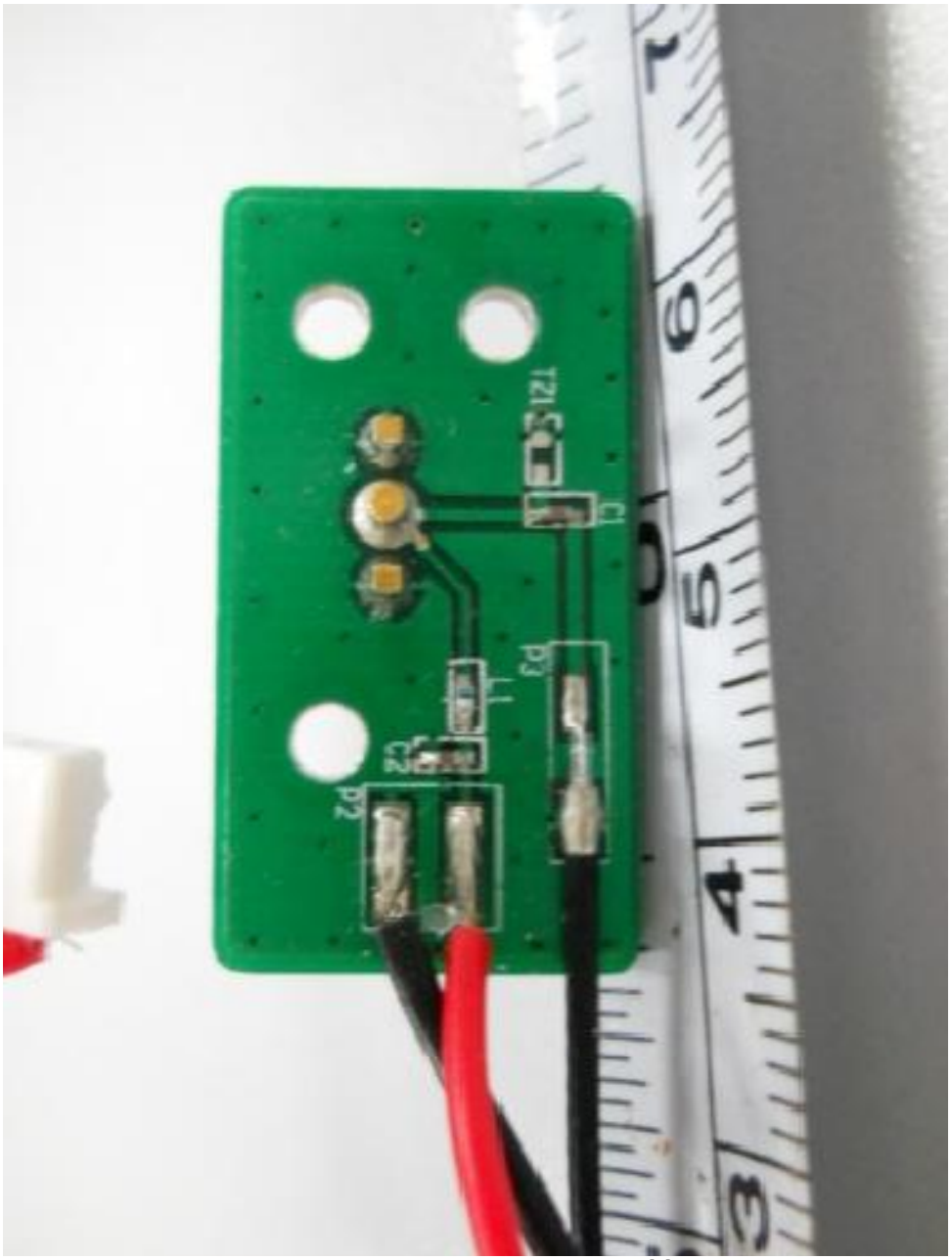
EUT PHOTOGRAPHS



GPS Power-3.3V PCB Component Side

EUT PHOTOGRAPHS / DIAGRAMS — ANNEX A

EUT PHOTOGRAPHS



GPS Power-3.3V PCB Trace Side

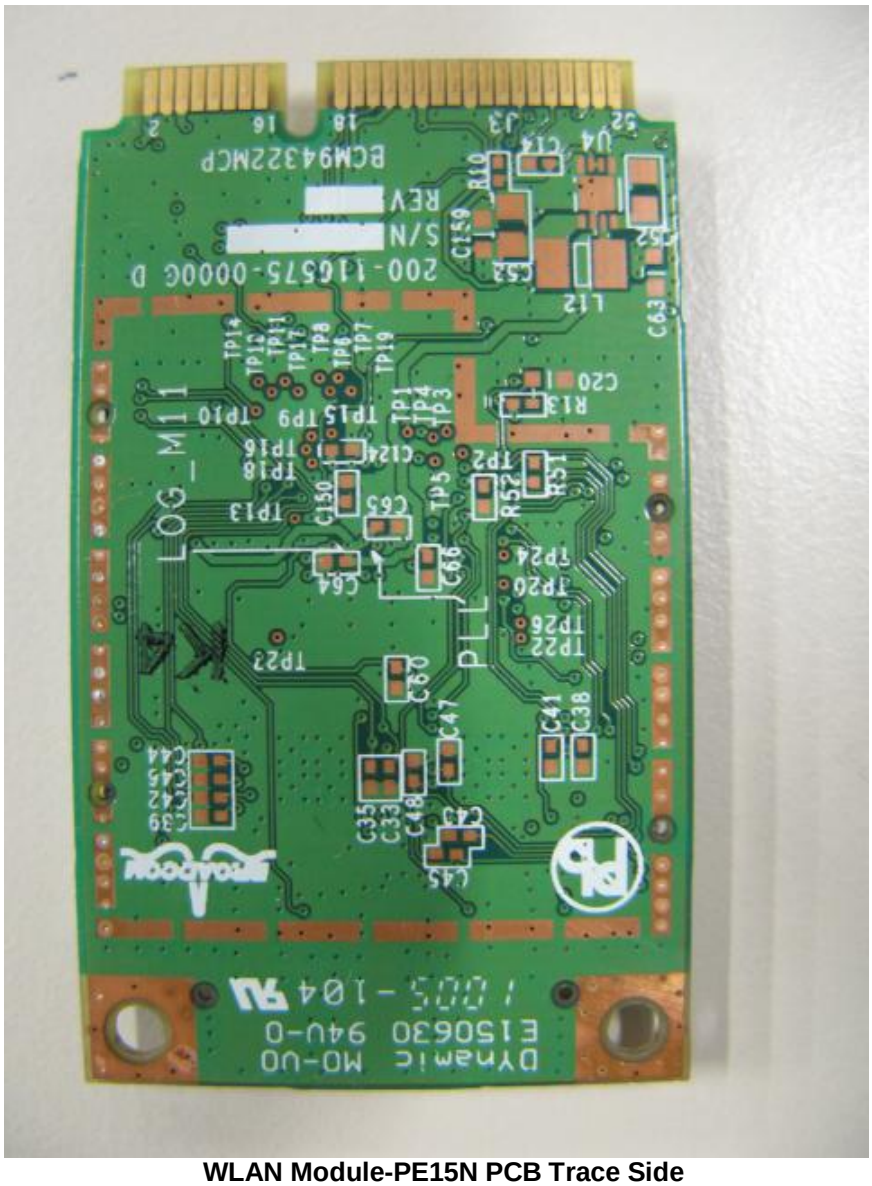
EUT PHOTOGRAPHS / DIAGRAMS — ANNEX A

EUT PHOTOGRAPHS

WLAN Module-PE15N PCB Component Side

EUT PHOTOGRAPHS / DIAGRAMS — ANNEX A

EUT PHOTOGRAPHS



WLAN Module-PE15N PCB Trace Side

EUT PHOTOGRAPHS / DIAGRAMS — ANNEX A

EUT PHOTOGRAPHS

WWAN Module PCB Component Side

EUT PHOTOGRAPHS / DIAGRAMS — ANNEX A

EUT PHOTOGRAPHS

WWAN Module PCB Trace Side

EUT PHOTOGRAPHS / DIAGRAMS — ANNEX A

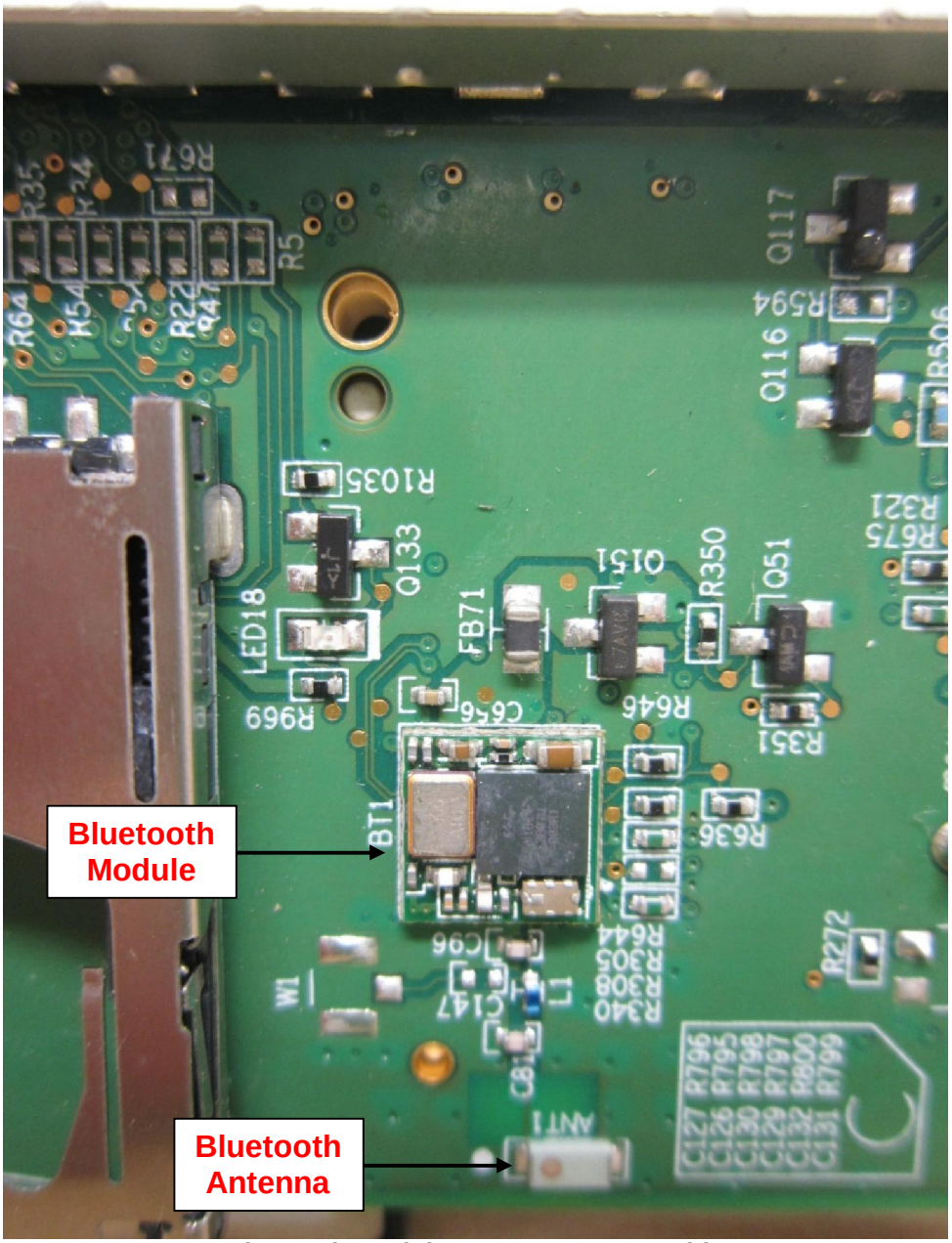
EUT PHOTOGRAPHS

Bluetooth-Module PCB Component Side

PSB Singapore

EUT PHOTOGRAPHS / DIAGRAMS — ANNEX A

EUT PHOTOGRAPHS

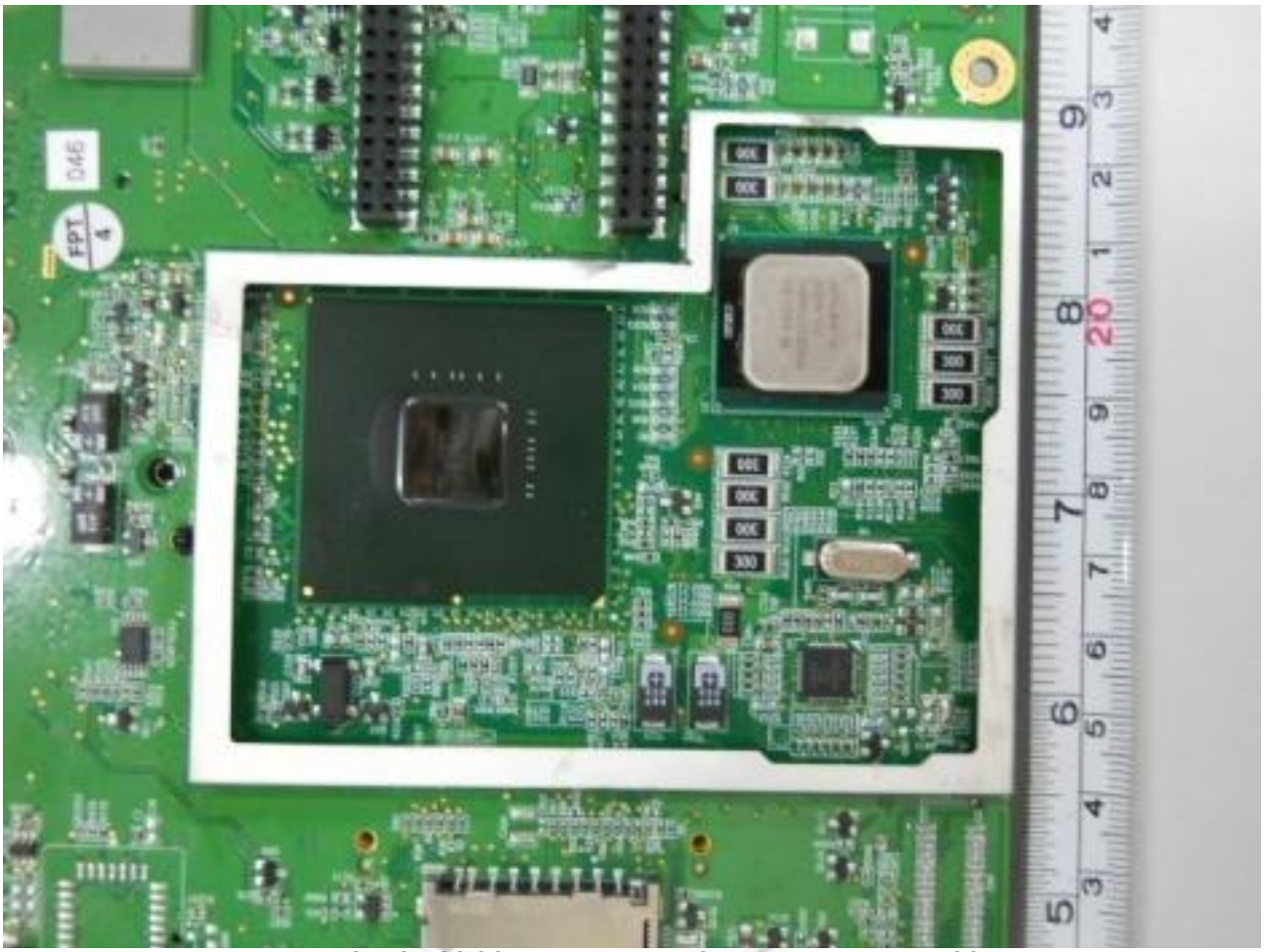


Bluetooth-Module PCB Component Side

PSB Singapore

EUT PHOTOGRAPHS / DIAGRAMS ANNEX A

EUT PHOTOGRAPHS



CPU Circuit Shield Cover Removed PCB Component Side

EUT PHOTOGRAPHS / DIAGRAMS — ANNEX A

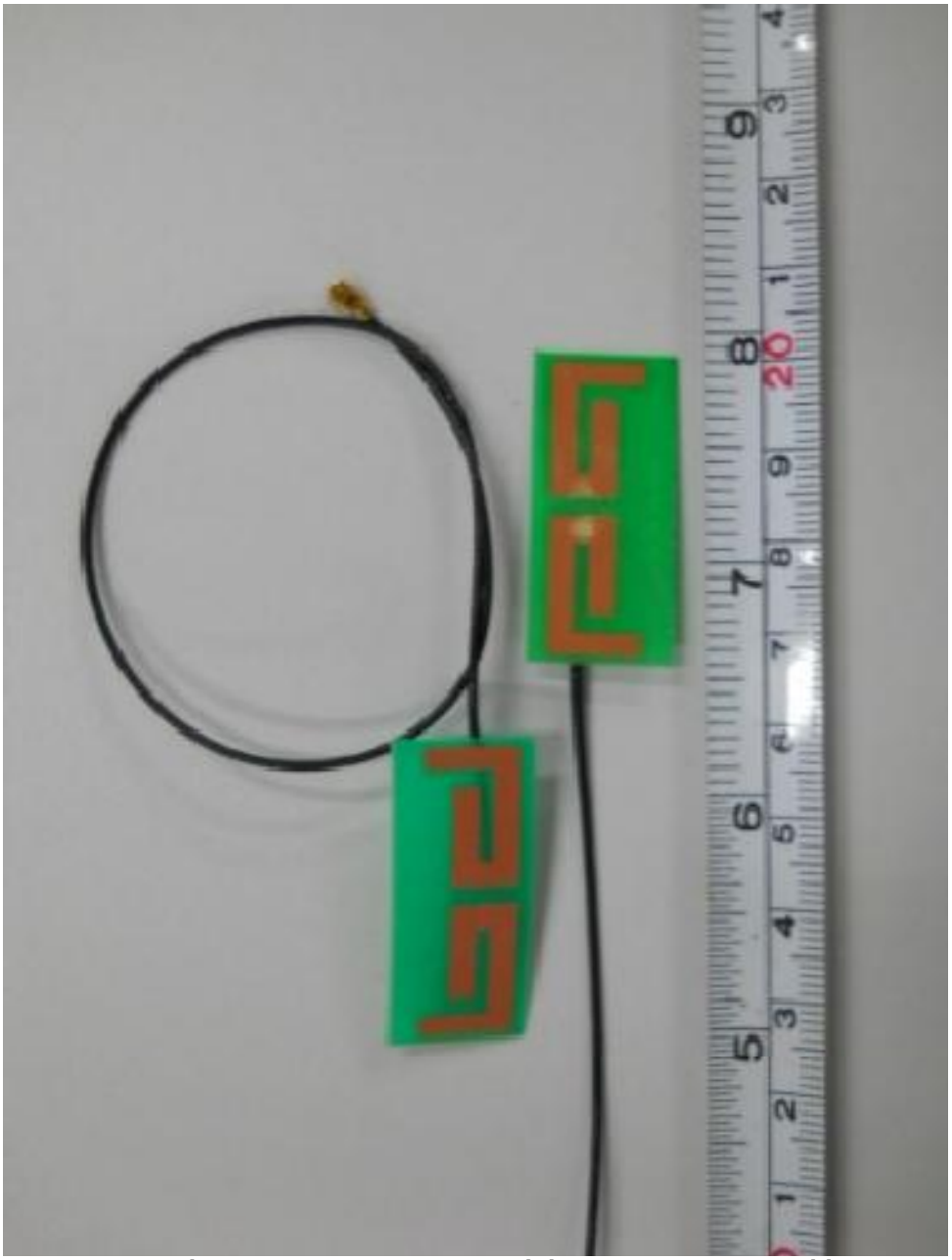
EUT PHOTOGRAPHS

Memory DDR2-SDIO Shield Cover Removed Module PCB Component Side

PSB Singapore

EUT PHOTOGRAPHS / DIAGRAMS ANNEX A

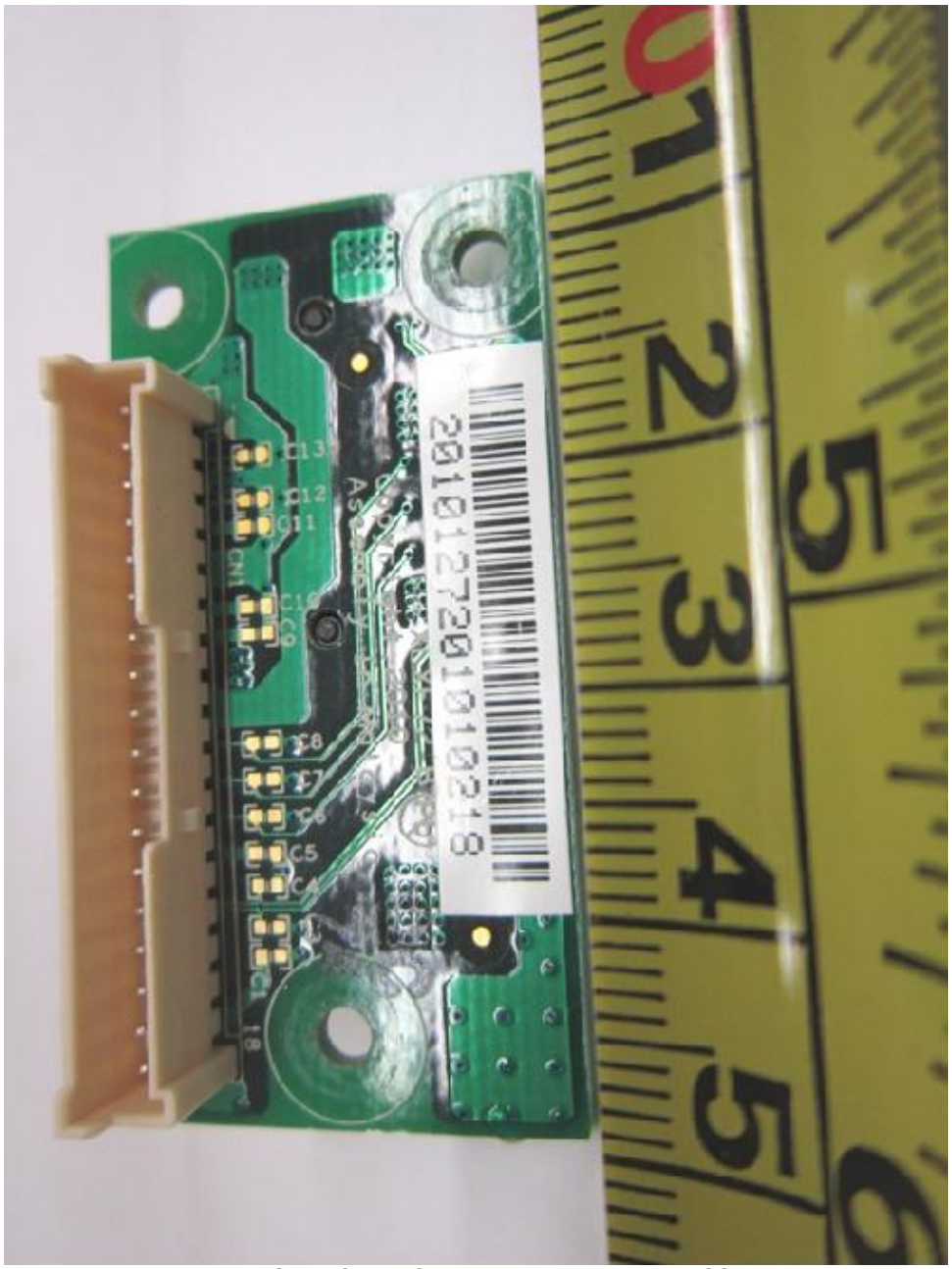
EUT PHOTOGRAPHS



Internal WLAN Antennas-PCB Module PCB Component Side

EUT PHOTOGRAPHS / DIAGRAMS — ANNEX A

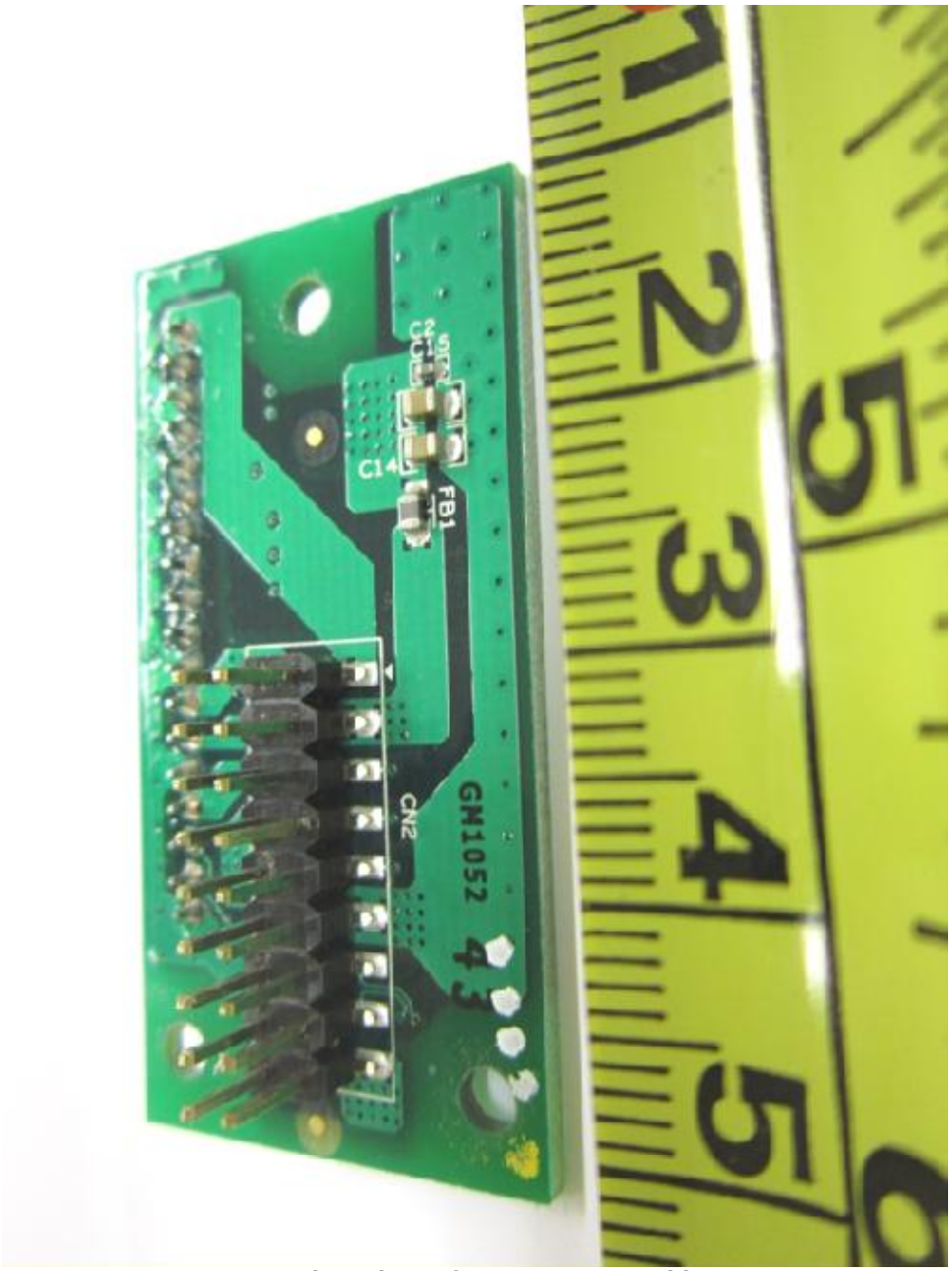
EUT PHOTOGRAPHS



Keyboard Interface PCB Component Side

EUT PHOTOGRAPHS / DIAGRAMS — ANNEX A

EUT PHOTOGRAPHS



Keyboard Interface PCB Trace Side

ANNEX B

FCC LABEL & POSITION

FCC LABEL & POSITION — ANNEX B

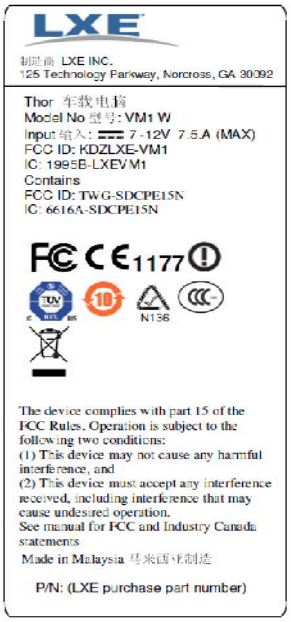
Labelling requirements per Section 2.925 & 15.19

The label shown will be permanently affixed at a conspicuous location on the device and be readily visible to the user at the time of purchase.

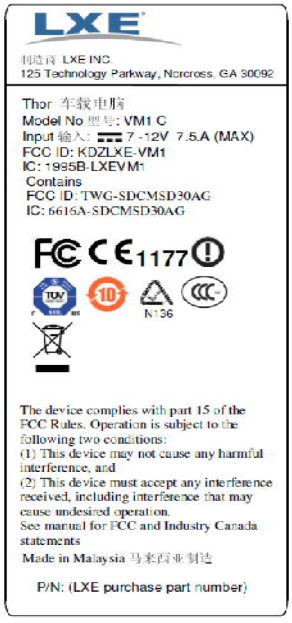
VM1 Terminal Product Label

(1) Size; 120mm X50mm
(2) Specification: Printed Polyester, Maximum surface temperature specified, or 40 degree C if not specified.
(3) UL-CCN: PGDQ2 or PGJI2

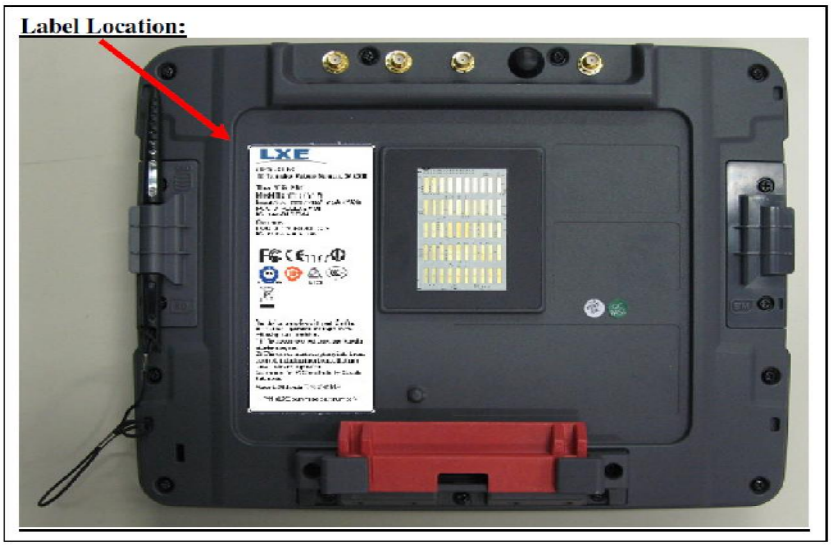
(1) Windows OS with PE15N wifi module



(2) Windows CE with MSD30AG wifi module



Label Location:



FCC LABEL & POSITION — ANNEX B

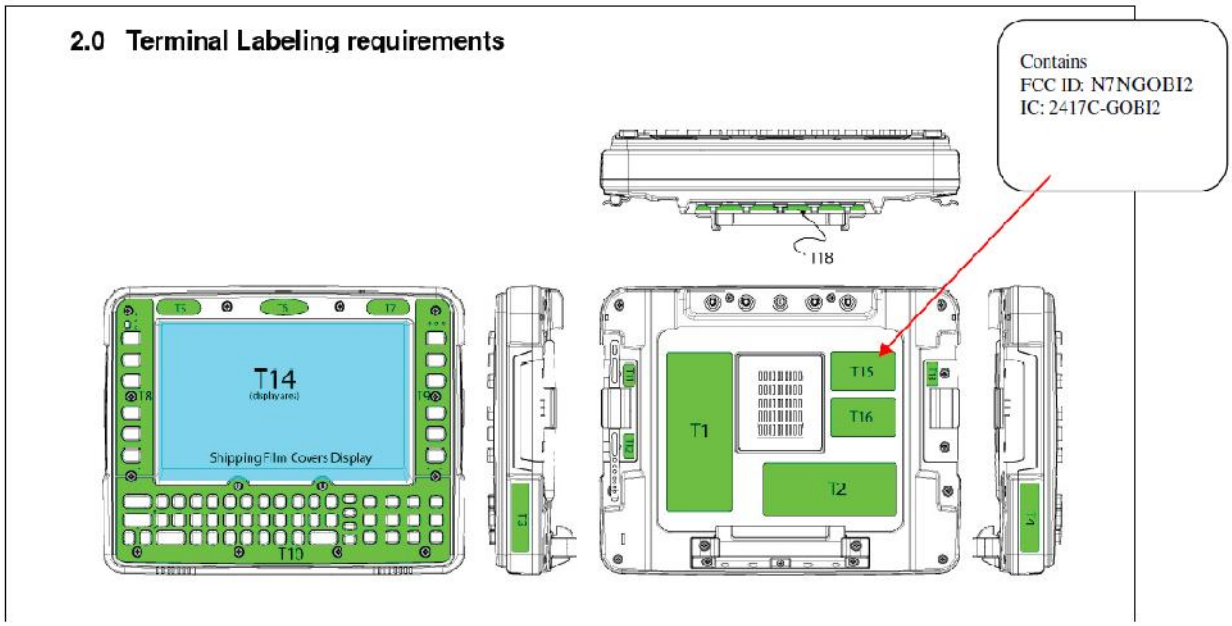
Labelling requirements per Section 2.925 & 15.19

The label shown will be permanently affixed at a conspicuous location on the device and be readily visible to the user at the time of purchase.

WWAN ID label

(1) Size; 50mm X30mm
(2) Specification: Printed Polyester, Maximum surface temperature specified, or 40 degree C if not specified.
(3) Location T15,

Contains
FCC ID: N7NGOBI2
IC: 2417C-GOBI2



USER MANUAL TECHINCAL DESCRIPTION BLOCK & CIRCUIT DIAGRAM **ANNEX C**

ANNEX C

USER MANUAL TECHNICAL DESCRIPTION BLOCK & CIRCUIT DIAGRAMS

(Please refer to manufacturer for details)