







# ISO/IEC17025Accredited Lab.

Report No: FCC 1312137-02 File reference No: 2013-12-27

Applicant: TD Semi,Inc.

Product: Tron Tab Mega

Model No: T4238

Trademark: N/A

Test Standards: FCC Part 15 Subpart C, Paragraph 15.247

Test result:

It is herewith confirmed and found to comply with the

requirements set up by ANSI C63.4&FCC Part 15 Subpart C, Paragraph 15.247 regulations for the evaluation of

Turugrupii 13.217 regulations for the evi

electromagnetic compatibility

Approved By

Jack Chung

withdrawal at

Jack Chung Manager

Dated: December 27, 2013

Results appearing herein relate only to the sample tested The technical reports is issued errors and omissions exempt and is subject to

SHENZHEN TIMEWAY TECHNOLOGY CONSULTING CO LTD

5/F,Block 4, Anhua Industrial Zone.,No.8 TaiRan Rd.CheGongMiao,FuTian District, Shenzhen,CHINA.

Tel (755) 83448688 Fax (755) 83442996

Report No: 1312137-02 Page 2 of 84

Date: 2013-12-27



# **Special Statement:**

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19.

The testing quality system of our laboratory meets with ISO/IEC-17025 requirements, which is approved by CNAS. This approval result is accepted by MRA of APLAC.

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

# **CNAS-LAB Code: L2292**

The EMC Laboratory has been assessed and in compliance with CNAS-CL01 accreditation criteria for testing Laboratories (identical to ISO/IEC 17025:1999 General Requirements) for the Competence of testing Laboratories.

# FCC-Registration No.: 899988

The EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications commission. The acceptance letter from the FCC is maintained in our files. Registration No.:899988.

# IC- Registration No.: IC5205A-02

The EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada. The acceptance letter from the IC is maintained in our files. Registration No.: IC 5205A-02.

Date: 2013-12-27



# **Test Report Conclusion** Content

1.0	General Details	4
1.1	Test Lab Details.	4
1.2	Applicant Details	4
1.3	Description of EUT	4
1.4	Submitted Sample	4
1.5	Test Duration.	4
1.6	Test Uncertainty.	5
1.7	Test By	5
2.0	List of Measurement Equipment	6
3.0	Technical Details	7
3.1	Summary of Test Results.	7
3.2	Test Standards.	7
4.0	EUT Modification.	7
5.0	Power Line Conducted Emission Test.	8
5.1	Schematics of the Test.	8
5.2	Test Method and Test Procedure.	8
5.3	Configuration of the EUT.	8
5.4	EUT Operating Condition.	9
5.5	Conducted Emission Limit.	9
5.6	Test Result.	9
6.0	Radiated Emission test.	12
6.1	Test Method and Test Procedure.	12
6.2	Configuration of the EUT	12
6.3	EUT Operation Condition.	12
6.4	Radiated Emission Limit.	13
7.0	20dB Bandwidth Measurement.	22
8.0	Maximum Peak Output Power	34
9.0	Carrier Frequency Separation.	37
10.0	Number of Hopping Channel	41
11.0	Time of Occupancy (Dwell Time).	45
12.0	Out of Band Measurement.	57
13.0	Antenna Requirement.	71
14.0	FCC Label.	72
15.0	Photo of Test Setup and EUT View.	73

Report No: 1312137-02 Page 4 of 84

Date: 2013-12-27



### 1.0 General Details

### 1.1 Test Lab Details

Name: SHENZHEN TIMEWAY TECHNOLOGY CONSULTING CO LTD

Address: 5/F,Block 4, Anhua Industrial Zone.,No.8 TaiRan Rd.CheGongMiao,FuTian District,

Shenzhen, CHINA.

Telephone: (755) 83448688 Fax: (755) 83442996

Site on File with the Federal Communications Commission – United Sates

Registration Number: 899988

For 3m & 10 m OATS

Site Listed with Industry Canada of Ottawa, Canada

Registration Number: IC: 5205A-02

For 3m & 10 m OATS

# 1.2 Applicant Details

Applicant: TD Semi, Inc.

Address: 3704 Marlborough Ct., Plano, TX 75075, USA

Telephone: (972) 346-1201 Fax: (972) 810-4326

### 1.3 Description of EUT

Product: Tron Tab Mega

Manufacturer: Shenzhen Jizhao Information Technology Co., Ltd

Address: 4th Floor, Yuxing Sanwei Tech Park, HangKong Road, Xixiang Town, Bao'an,

Shenzhen, China.

Brand Name: N/A
Model Number: T4238
Additional Model Name N/A
Additional Trade Name N/A

Type of Modulation GFSK, Л/4QPSK, 8DPSK

Frequency range 2402-2480MHz

Number of Channel 79

Frequency Selection By software

Antenna type Integral Antenna used, the antenna gain is 2.0dBi

Input Voltage: DC 5V 3000mA

Power Supply: 100-240V, 50/60Hz, 0.7A MAX; Output: 5V, 3A

The report refers only to the sample tested and does not apply to the bulk.

Report No: 1312137-02 Page 5 of 84

Date: 2013-12-27



1.4 Submitted Sample: 2 Samples

1.5 Test Duration: 2013-12-25 to 2013-12-27

1.6 Test UncertaintyConducted Emissions Uncertainty =3.6dBRadiated Emissions Uncertainty =4.7dB

1.7 Test Engineer

Terry Tang

The sample tested by

Print Name: Terry Tang

Date: 2013-12-27



2.0		Test Equip	ments		
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESPI Test Receiver	ROHDE&SCHWARZ	ESPI 3	100379	2013-08-23	2014-08-22
TWO Line-V-NETW	ROHDE&SCHWARZ	EZH3-Z5	100294	2013-08-23	2014-08-22
TWO Line-V-NETW	ROHDE&SCHWARZ	EZH3-Z5	100253	2013-08-23	2014-08-22
Ultra Broadband ANT	ROHDE&SCHWARZ	HL562	100157	2013-08-25	2014-08-24
ESDV Test Receiver	ROHDE&SCHWARZ	ESDV	100008	2013-08-23	2014-08-22
Impuls-Begrenzer	ROHDE&SCHWARZ	ESH3-Z2	100281	2013-08-24	2014-08-23
System Controller	CT	SC100	•		
Printer	EPSON	РНОТО ЕХЗ	CFNH234850		
Computer	IBM	8434	1S8434KCE99BLXL O*	-	-
Loop Antenna	EMCO	6502	00042960	2013-08-23	2014-08-22
ESPI Test Receiver	ROHDE&SCHWARZ	ESI26	838786/013	2013-08-23	2014-08-22
3m OATS			N/A	2013-08-22	2014-08-21
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170265	2013-08-24	2014-08-23
Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-631	2013-08-24	2014-08-23
Power meter	Anritsu	ML2487A	6K00003613	2013-08-24	2014-08-23
Power sensor	Anritsu	MA2491A	32263	2013-08-24	2014-08-23
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2013-08-21	2014-08-20
LISN	AFJ	LS16C	10010947251	2013-08-21	2014-08-20
LISN (Three Phase)	Schwarebeck	NSLK 8126	8126453	2013-08-23	2014-08-22
9*6*6 Anechoic			N/A	2013-08-22	2014-08-21
EMI Test Receiver	RS	ESCS30	100139	2013-08-23	2014-08-22
LISN	AFJ	LS16C	10010947251	2013-08-23	2014-08-22
LISN (Three Phase)	Schwarebeck	NSLK 8126	8126453	2013-08-23	2014-08-22

### 2.1 **Auxiliary Equipment**

Name	Model No.	Serial No.	Manufacturer	Cable	FCC ID/DOC
TF Card			Kingston		
Passive Earphone					
LCD Monitor	PH2450		SAMSUNG		DOC

The report refers only to the sample tested and does not apply to the bulk.

This report is issued in confidence to the client and it will be strictly treated as such by the Shenzhen Timeway Technology Consulting Co.,Ltd. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the Shenzhen Timeway Technology Consulting co .,Ltd to his customer. Supplier or others persons directly concerned. Shenzhen Timeway Technology Consulting co., Ltd will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

In the event of the improper use of the report. The Shenzhen Timeway Technology Consulting co .,Ltd reserves the rights to withdraw it and to

adopt any other remedies which may be appropriate.

Report No: 1312137-02 Page 7 of 84

Date: 2013-12-27



# 3.0 Technical Details

# 3.1 Summary of test results

The EUT has been tested according to the following specifications:

Requirement	CFR 47 Section	Result	Notes
Antenna Requirement	15.203, 15.247(b)(4)	PASS	Complies
Maximum Peak Out Power	15.247 (b)(1), (4)	PASS	Complies
Carrier Frequency Separation	15.247(a)(1)	PASS	Complies
20dB Channel Bandwidth	15.247 (a)(1)	PASS	Complies
Number of Hopping Channels	15.247(a)(iii), 15.247(b)(1)	PASS	Complies
Time of Occupancy (Dwell Time)	15.247(a)(iii)	PASS	Complies
Spurious Emission, Band Edge, and	15.247(d),15.205(a),	PASS	Complies
Restricted bands	15.209 (a),15.109		
Conducted Emissions	15.207(a), 15.107	PASS	Complies
RF Exposure	15.247(i), 1.1307(b)(1)	PASS	Complies

# 3.2 Test Standards

FCC Part 15 Subpart & Subpart C, Paragraph 15.247

# 4.0 EUT Modification

No modification by Shenzhen Timeway Technology Consulting Co., Ltd

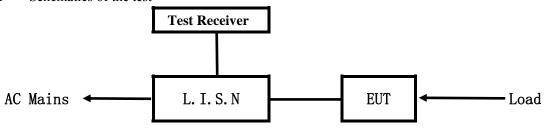
Report No: 1312137-02 Page 8 of 84

Date: 2013-12-27



# 5. Power Line Conducted Emission Test

# 5.1 Schematics of the test

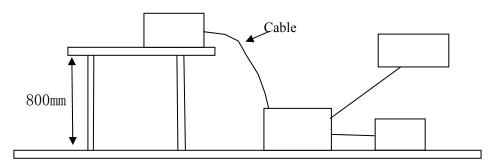


**EUT: Equipment Under Test** 

### 5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.4-2003. The Frequency spectrum From 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.4 –2003.

Test Voltage: 120V~60Hz Block diagram of Test setup



# 5.3 Configuration of The EUT

The EUT was configured according to ANSI C63.4-2003. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

79 channels are provided to the EUT

Page 9 of 84

Report No: 1312137-02

Date: 2013-12-27



### A. EUT

Device	Manufacturer	Model	FCC ID
Torn Tab Mega	Shenzhen Jizhao Information Technology Co., Ltd.	T4238	2AAY2-T4238

# B. Internal Device

Device	Manufacturer	Model	FCC ID/DOC
N/A			

# C. Peripherals

Device	Manufacturer	Model	FCC ID/DOC	Cable

# 5.4 EUT Operating Condition

Operating condition is according to ANSI C63.4 -2003.

- A Setup the EUT and simulators as shown on follow
- B Enable AF signal and confirm EUT active to normal condition

# 5.5 Power line conducted Emission Limit according to Paragraph 15.107, 15.207

Frequency	Class A Lim	its (dB µ V)	Class B Limits (dB $\mu$ V)	
(MHz)	Quasi-peak Level	Average Level	Quasi-peak Level	Average Level
$0.15 \sim 0.50$	79.0	66.0	66.0~56.0*	56.0~46.0*
$0.50 \sim 5.00$	73.0	60.0	56.0	46.0
$5.00 \sim 30.00$	73.0	60.0	60.0	50.0

Notes:

- 1. \*Decreasing linearly with logarithm of frequency.
- 2. The tighter limit shall apply at the transition frequencies

# 5.6 Test Results

The frequency spectrum from 0.15MHz to 30MHz was investigated. All reading are quasi-peak values with a resolution bandwidth of 9kHz.

Date: 2013-12-27



# A: Conducted Emission on Live Terminal (150kHz to 30MHz)

# **EUT Operating Environment**

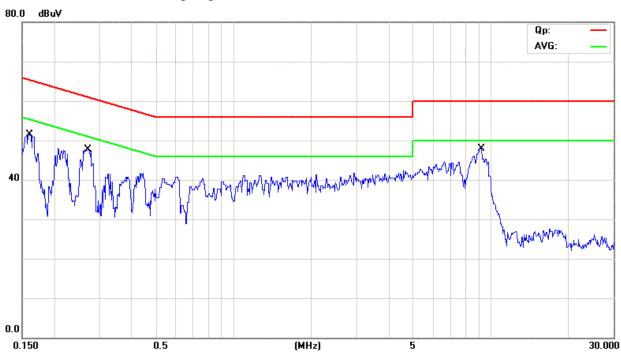
Temperature: 26°C Humidity: 65%RH Atmospheric Pressure: 101 KPa

**EUT set Condition: Charging and Keep Bluetooth Transmitting** 

**Equipment Level: Class B** 

**Results: PASS** 

Please refer to following diagram for individual



Frequency	Line	Reading(	dBμV)	Limit(	dBμV)
(MHz)	Line	Quasi-peak	Average	Quasi-peak	Average
0.1607	Live	48.71	28.71	65.43	55.43
0.2696	Live	45.13	29.43	61.13	51.13
9.1100	Live	42.27	31.27	60.00	50.00

Date: 2013-12-27



# B: Conducted Emission on Neutral Terminal (150kHz to 30MHz)

# **EUT Operating Environment**

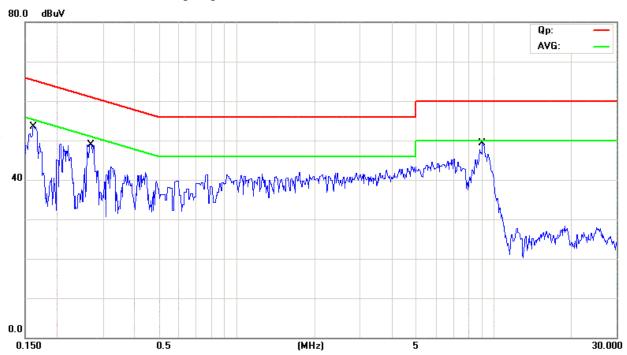
Temperature: 26°C Humidity: 65%RH Atmospheric Pressure: 101 KPa

**EUT set Condition: Charging and Keep Bluetooth Transmitting** 

**Equipment Level: Class B** 

**Results: Pass** 

Please refer to following diagram for individual



Frequency	Line	Reading(	dBμV)	Limit(	dBμV)
(MHz)	Line	Quasi-peak	Average	Quasi-peak	Average
0.1607	Neutral	51.11	28.01	65.43	55.43
0.2680	Neutral	46.02	30.22	61.18	51.18
9.1051	Neutral	41.18	30.68	60.00	50.00

Report No: 1312137-02 Page 12 of 84

Date: 2013-12-27



### 6 Radiated Emission Test

- 6.1 Test Method and test Procedure:
- (1) The EUT was tested according to ANSI C63.4 –2003. The radiated test was performed at Timeway Laboratory. This site is on file with the FCC laboratory division, Registration No.899988
- (2) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.4-2003.
- (3) The frequency spectrum from 30 MHz to 1 GHz was investigated. All readings from 30 MHz to 1 GHz are quasi-peak values with a resolution bandwidth of 120 kHz. For measurement above 1GHz, peak values with RBW=VBW=1MHz and PK detector. AV value with RBW=1MHz, VBW=10Hz and PK detector. Measurements were made at 3 meters.
- (4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (5) Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dB of specification limit), and are distinguished with a "QP" in the data table.
- (6) The antenna polarization : Vertical polarization and Horizontal polarization.

# Block diagram of Test setup Distance = 3m Computer Pre -Amplifier Furn-table Receiver

- 6.2 Configuration of The EUT
  Same as section 5.3 of this report
- 6.3 EUT Operating Condition
  Same as section 5.4 of this report.

Report No: 1312137-02 Page 13 of 84

Date: 2013-12-27



# 6.4 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

# Frequencies in restricted band are complied to limit on Paragraph 15.109. 15.209

Frequency Range (MHz)	Distance (m)	Field strength (dB µ V/m)
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

Note:

- 1. RF Voltage (dBuV) = 20 log RF Voltage (uV)
- 2. In the Above Table, the higher limit applies at the band edges.
- 3. Distance refers to the distance in meters between the measuring instrument antenna and the EUT
- 4. This is a handhold device. The radiated emissions should be tested under 3-axes position (Lying, Side, and Stand), After pre-test. It was found that the worse radiated emission was get at the lying position.
- 5. After pre-scanning, **GFSK** was the worse case. The test data of this mode was recorded.

Report No: 1312137-02 Page 14 of 84

Date: 2013-12-27



### Test result

# General Radiated Emission Data and Harmonics Radiated Emission Data

Radiated Emission In Horizontal/ In Vertical (30MHz----1000MHz)

**EUT set Condition: Charging and Keep Bluetooth Transmitting** 

**Results: Pass** 

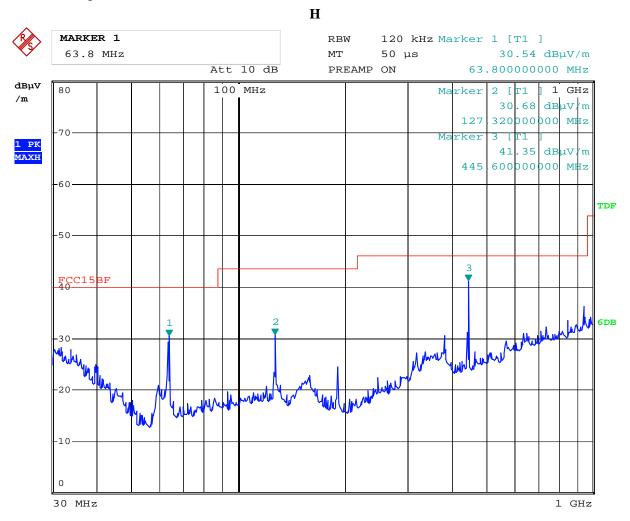
Frequency (MHz)	Level@3m (dB $\mu$ V/m)	Antenna Polarity	Limit@3m (dB \( \mu \)V/m)
63.800	30.54	Н	40.00
127.320	30.68	Н	43.50
445.600	41.35	Н	46.00
63.680	31.91	V	40.00
127.280	39.11	V	43.50
445.800	38.62	V	46.00

Report No: 1312137-02 Page 15 of 84

Date: 2013-12-27



# Test Figure:



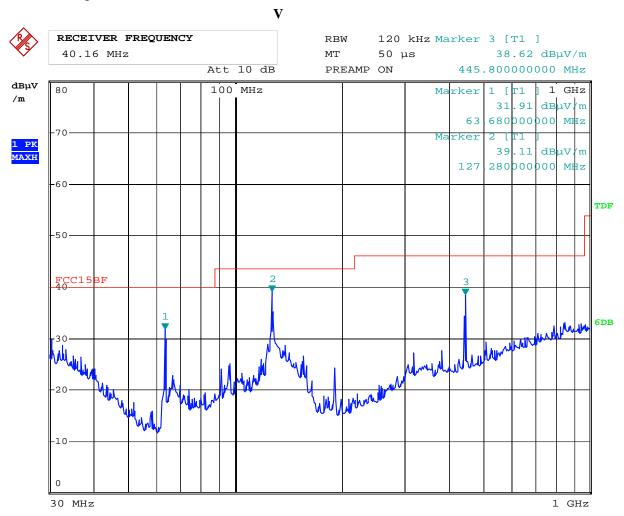
Date: 24.DEC.2013 16:56:03

Report No: 1312137-02 Page 16 of 84

Date: 2013-12-27



# Test Figure:



Date: 24.DEC.2013 16:49:02

Report No: 1312137-02 Page 17 of 84

Date: 2013-12-27



# **Operation Mode: Transmitting under Low Channel (2402MHz)**

Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Ante na olarity	Limit@3m (dB µ V/m)
2402	88.60 (PK)	Н	Fundamental Frequency
2402	89.41 (PK)	V	Fundamental Frequency
4804	1	Н	74(Peak)/ 54(AV)
4804	1	V	74(Peak)/ 54(AV)
7206	1	H/V	74(Peak)/ 54(AV)
9608	1	H/V	74(Peak)/ 54(AV)
12010		H/V	74(Peak)/ 54(AV)
14412		H/V	74(Peak)/ 54(AV)
16814		H/V	74(Peak)/ 54(AV)
19216		H/V	74(Peak)/ 54(AV)
21618	-	H/V	74(Peak)/ 54(AV)
24020	-	H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark "---" means that the emissions level is too low to be measured

# **Operation Mode: Transmitting under Middle Channel (2441MHz)**

Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB \( \mu \) V/m)
2441	89.42 (PK)	Н	Eundomontal Eroguanov
2441	88.97 (PK)	V	Fundamental Frequency
4882	1	Н	74(Peak)/ 54(AV)
4882	-	V	74(Peak)/ 54(AV)
7323	-	H/V	74(Peak)/ 54(AV)
9764	1	H/V	74(Peak)/ 54(AV)
12205	1	H/V	74(Peak)/ 54(AV)
14646	-	H/V	74(Peak)/ 54(AV)
17087		H/V	74(Peak)/ 54(AV)
19528	1	H/V	74(Peak)/ 54(AV)
21969		H/V	74(Peak)/ 54(AV)
24410		H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark "---" means that the emissions level is too low to be measured

Report No: 1312137-02 Page 18 of 84

Date: 2013-12-27



# Operation Mode: Transmitting under High Channel (2480MHz)

Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB µ V/m)
2480	89.42 (PK)	Н	Fundamental Frequency
2480	89.27 (PK)	V	Fundamental Frequency
4960		Н	74(Peak)/ 54(AV)
4960		V	74(Peak)/ 54(AV)
7440		H/V	74(Peak)/ 54(AV)
9920		H/V	74(Peak)/ 54(AV)
12400		H/V	74(Peak)/ 54(AV)
14880		H/V	74(Peak)/ 54(AV)
17360		H/V	74(Peak)/ 54(AV)
19840		H/V	74(Peak)/ 54(AV)
22320		H/V	74(Peak)/ 54(AV)
24800		H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

<sup>2.</sup> Remark "---" means that the emissions level is too low to be measured

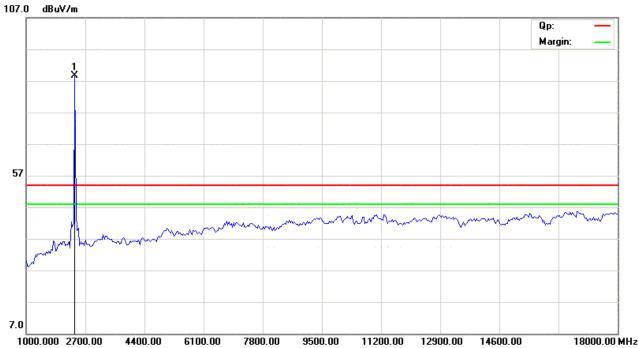
Date: 2013-12-27



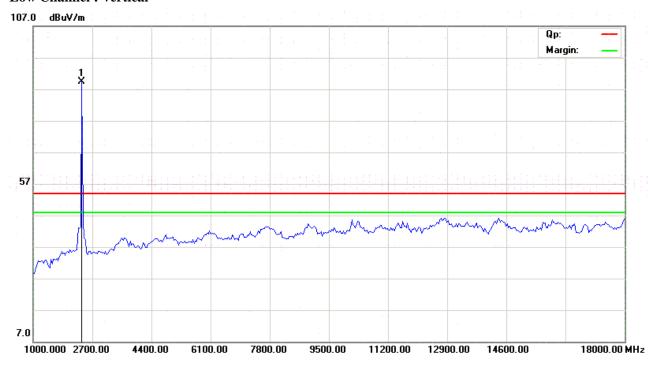
Please refer to the following test plots for details:

### Low Channel: Horizontal





## **Low Channel: Vertical**



The report refers only to the sample tested and does not apply to the bulk.

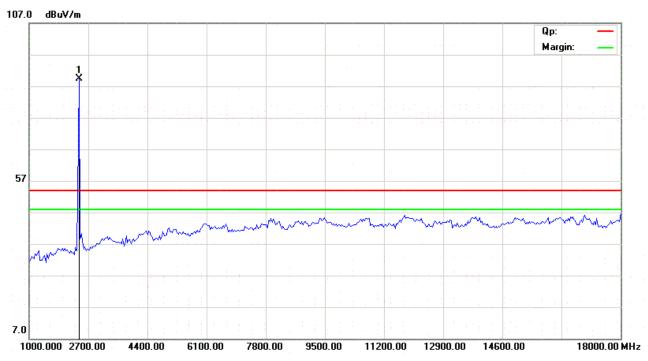
This report is issued in confidence to the client and it will be strictly treated as such by the Shenzhen Timeway Technology Consulting Co.,Ltd. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the Shenzhen Timeway Technology Consulting co.,Ltd to his customer. Supplier or others persons directly concerned. Shenzhen Timeway Technology Consulting co.,Ltd will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

In the event of the improper use of the report. The Shenzhen Timeway Technology Consulting co .,Ltd reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.

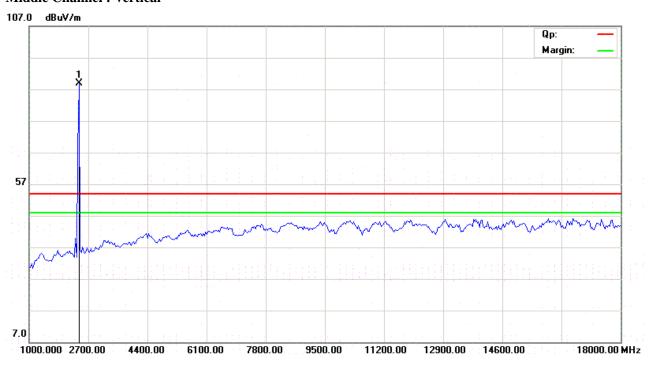
Date: 2013-12-27



# **Middle Channel: Horizontal**



# **Middle Channel: Vertical**



The report refers only to the sample tested and does not apply to the bulk.

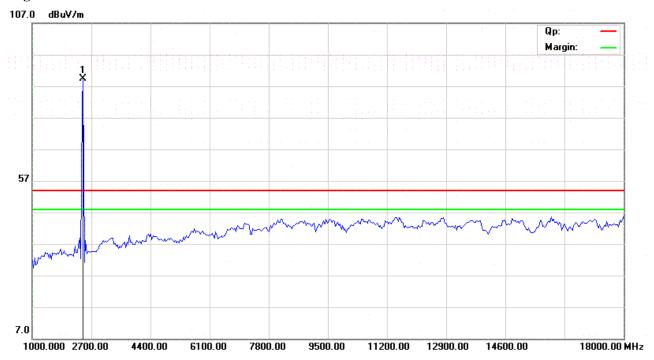
This report is issued in confidence to the client and it will be strictly treated as such by the Shenzhen Timeway Technology Consulting Co.,Ltd. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the Shenzhen Timeway Technology Consulting co.,Ltd to his customer. Supplier or others persons directly concerned. Shenzhen Timeway Technology Consulting co.,Ltd will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

In the event of the improper use of the report. The Shenzhen Timeway Technology Consulting co .,Ltd reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.

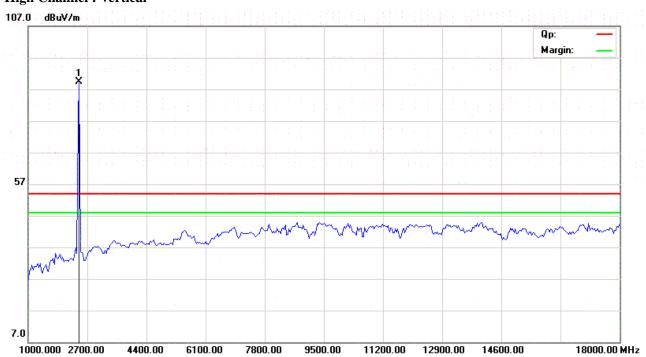
Date: 2013-12-27



# **High Channel: Horizontal**



# **High Channel: Vertical**



Note: for the radiated emissions above 18G, it is the floor noise.

The report refers only to the sample tested and does not apply to the bulk.

This report is issued in confidence to the client and it will be strictly treated as such by the Shenzhen Timeway Technology Consulting Co.,Ltd. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the Shenzhen Timeway Technology Consulting co.,Ltd to his customer. Supplier or others persons directly concerned. Shenzhen Timeway Technology Consulting co.,Ltd will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

In the event of the improper use of the report. The Shenzhen Timeway Technology Consulting co .,Ltd reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.

Report No: 1312137-02 Page 22 of 84

Date: 2013-12-27



# 7.0 20dB Bandwidth Measurement

# 7.1 Regulation

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

# 7.2 Limits of 20dB Bandwidth Measurement

N/A

# 7.3 Test Procedure.

- 1. Check the calibration of the measuring instrument (spectrum analyzer) using either an internal calibrator or a known signal from an external generator.
- 2. Set the spectrum analyzer as follows: Span =3MHz, VBW =30 kHz, RBW=100 kHz, Sweep = auto Detector function = peak, Trace = max hold
- 3. Measure the highest amplitude appearing on spectral display and record the level to calculate results. 6. Repeat above procedures until all frequencies measured were complete.

## 7.4 Test Result

# Type of Modulation: GFSK

• •				
EUT	Tron Tab Mega		Model	T4238
Mode	Keep Transmitting		Input Voltage	DC3.7V
Temperature	24 deg. C,		Humidity	56% RH
Channel	Channel Frequency (MHz)	20 dB Bandwidth (kHz)	Maximum Limit (kHz)	Pass/ Fail
Low	2402	852		Pass
Middle	2441	840		Pass
High	2480	846		Pass

Page 23 of 84

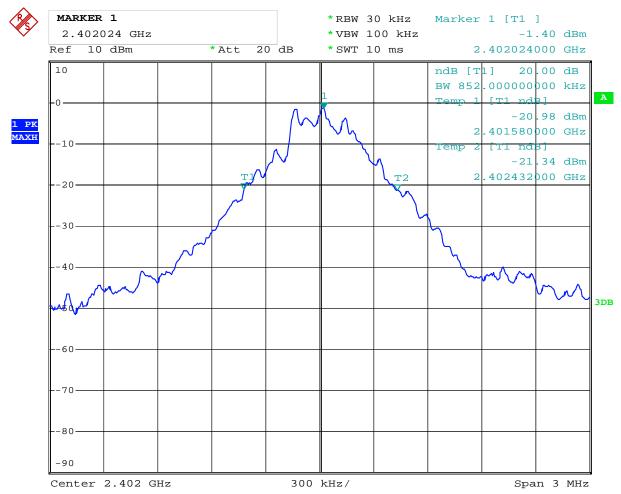
Date: 2013-12-27



# Test Figure:

### 1. Condition: Low Channel

Report No: 1312137-02



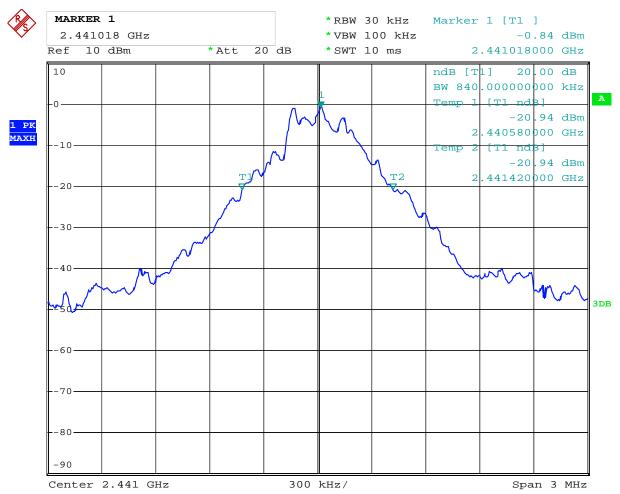
Date: 25.DEC.2013 10:39:38

Report No: 1312137-02 Page 24 of 84

Date: 2013-12-27



# 2. Condition: Middle Channel



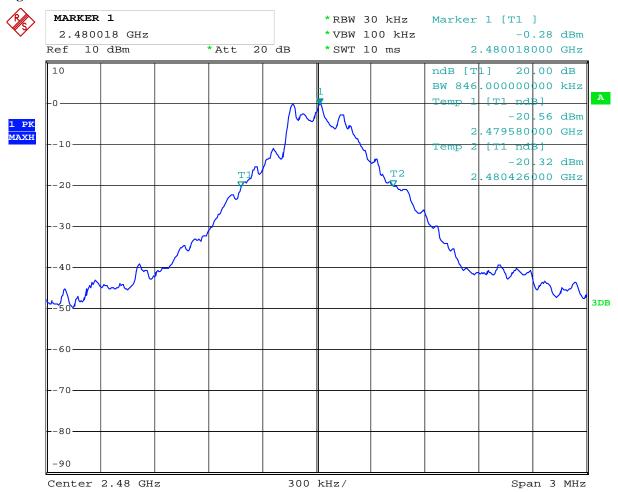
Date: 25.DEC.2013 10:38:57

Report No: 1312137-02 Page 25 of 84

Date: 2013-12-27



# 3. High Channel



Date: 25.DEC.2013 10:38:21

Report No: 1312137-02 Page 26 of 84

Date: 2013-12-27



# **Test Result**

Type of Modulation: JI/4QPSK

EUT	Tron Tab Mega		Model	T4238
Mode	Keep Transmitting		Input Voltage	DC3.7V
Temperature	24 deg. C,		Humidity	56% RH
Channel	Channel Frequency (MHz)	20 dB Bandwidth (kHz)	Maximum Limit (kHz)	Pass/ Fail
Low	2402	1224		Pass
Middle	2441	1224		Pass
High	2480	1218		Pass

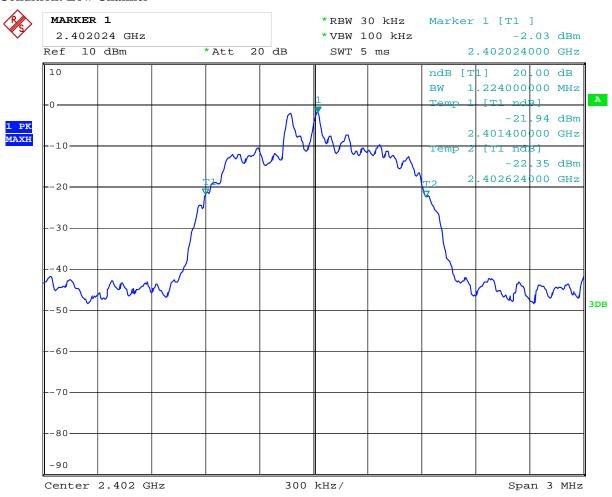
Page 27 of 84

Report No: 1312137-02 Date: 2013-12-27



# Test Figure:

### 1. Condition: Low Channel



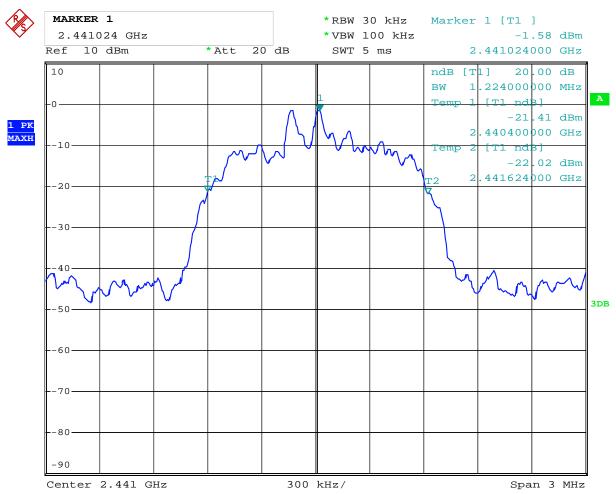
Date: 25.DEC.2013 09:45:00

Report No: 1312137-02 Page 28 of 84

Date: 2013-12-27



# 2. Condition: Middle Channel



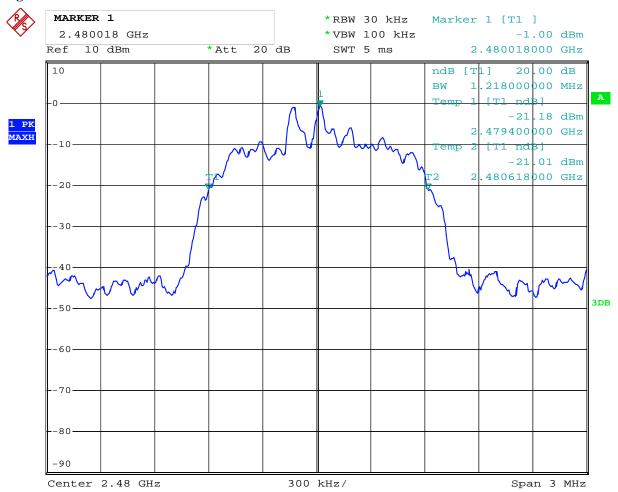
Date: 25.DEC.2013 09:45:53

Report No: 1312137-02 Page 29 of 84

Date: 2013-12-27



# 3. High Channel



Date: 25.DEC.2013 09:46:28

Report No: 1312137-02 Page 30 of 84

Date: 2013-12-27



# **Test Result**

**Type of Modulation: 8DPSK** 

EUT	,	Tron Tab Mega		T4238
Mode	K	Keep Transmitting		DC3.7V
Temperat	ure	e 24 deg. C,		56% RH
Channel	Channel Frequency (MHz)	20 dB Bandwidth (kHz)	Maximum Limit (kHz)	Pass/ Fail
Low	2402	1212		Pass
Middle	2441	1212		Pass
High	2480	1212		Pass

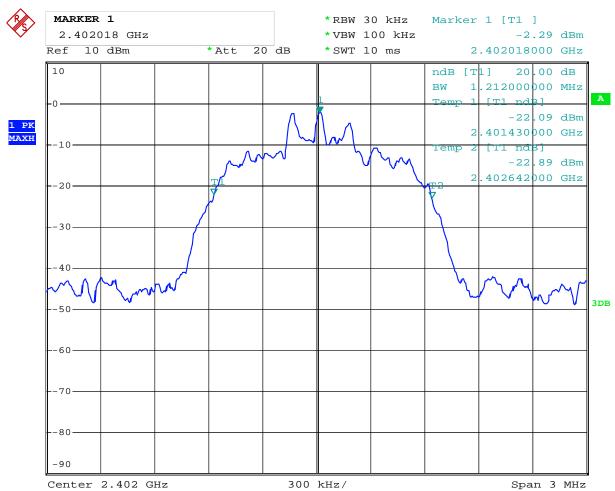
Report No: 1312137-02 Page 31 of 84

Date: 2013-12-27



# Test Figure:

### 1. Condition: Low Channel



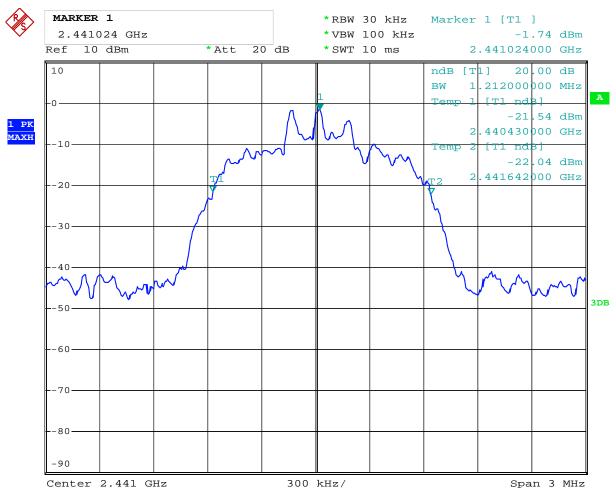
Date: 25.DEC.2013 09:55:25

Report No: 1312137-02 Page 32 of 84

Date: 2013-12-27



# 2. Condition: Middle Channel



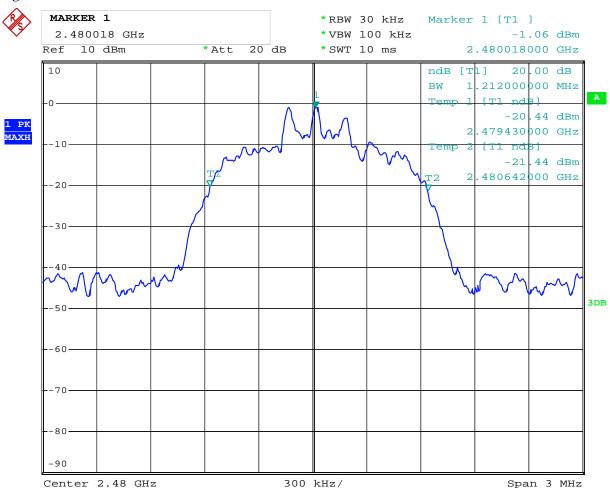
Date: 25.DEC.2013 09:56:05

Report No: 1312137-02 Page 33 of 84

Date: 2013-12-27



# 3. High Channel



Date: 25.DEC.2013 09:56:40

Report No: 1312137-02 Page 34 of 84

Date: 2013-12-27



# 8. Maximum Peak Output Power

# 8.1 Regulation

According to §15.247(b)(1), for frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5MHz band:0.125 watts. According to §15.247(b)(4), the conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

# 8.2 Limits of Maximum Peak Output Power

The Maximum Peak Output Power Measurement is 30dBm.

### **8.3 Test Procedure**

- 1. Check the calibration of the measuring instrument (spectrum analyzer) using either an internal calibrator or a known signal from an external generator.
- 2. Set the spectrum analyzer as follows: Span = approximately 5 times the 20 dB bandwidth, centered on a hopping channel; RBW > the 20 dB bandwidth of the emission being measured; VBW = RBW=3MHz; Sweep = auto; Detector function = peak; Trace = max hold
- 3. Measure the highest amplitude appearing on spectral display and record the level to calculate results.
- 4. Repeat above procedures until all frequencies measured were complete.

Page 35 of 84

Report No: 1312137-02

Date: 2013-12-27



# **8.4Test Results**

# Type of Modulation: GFSK

EUT	Т	Tron Tab Mega		Model	T4238
Mode	Ke	Keep Transmitting		ıt Voltage	DC3.7V
Temperatur	re	24 deg. C,		umidity	56% RH
Channel	Channel Frequency (MHz)	Peak Power Output (dBm	)	Peak Power Limit (dBm)	Pass/ Fail
Low	2402	0.66		30	Pass
Middle	2441	1.24		30	Pass
High	2480	1.79		30	Pass

Note: 1. the result basic equation calculation as follow:

Peak Power Output = Peak Power Reading + Cable loss + Attenuator

2. Worse case was recorded

# Type of Modulation: Л/4QPSK

EUT	Т	Tron Tab Mega		Model	T4238
Mode	Ke	Keep Transmitting		ıt Voltage	DC3.7V
Temperatur	re	24 deg. C,		umidity	56% RH
Channel	Channel Frequency (MHz)	Peak Power Output (dBm	)	Peak Power Limit (dBm)	Pass/ Fail
Low	2402	0.17		30	Pass
Middle	2441	0.72		30	Pass
High	2480	1.33		30	Pass

Note: 1. the result basic equation calculation as follow:

Peak Power Output = Peak Power Reading + Cable loss + Attenuator

2. Worse case was recorded

Report No: 1312137-02 Page 36 of 84

Date: 2013-12-27



# **Type of Modulation: 8DPSK**

EUT	Т	Tron Tab Mega		Model	T4238
Mode	Ke	Keep Transmitting		ıt Voltage	DC3.7V
Temperatur	те	24 deg. C,		umidity	56% RH
Channel	Channel Frequency (MHz)	Peak Power Output (dBm	)	Peak Power Limit (dBm)	Pass/ Fail
Low	2402	0.23		30	Pass
Middle	2441	0.75		30	Pass
High	2480	1.30		30	Pass

Note: 1. the result basic equation calculation as follow:

Peak Power Output = Peak Power Reading + Cable loss + Attenuator

2. Worse case was recorded

Report No: 1312137-02 Page 37 of 84

Date: 2013-12-27



# 9. Carrier Frequency Separation

### 9.1 Regulation

According to §15.247(a)(1), frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

### 9.2 Limits of Carrier Frequency Separation

The Maximum Power Spectral Density Measurement is 25kHz or two-thirds of the 20dB bandwidth of the hopping Channel which is great.

#### 9.3 Test Procedure

- 1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
- 2. Set the spectrum analyzer as follows: Span = wide enough to capture the peaks of two adjacent channels: Resolution (or IF) Bandwidth (RBW)  $\geq$  1% of the span; Video (or Average) Bandwidth (VBW)  $\geq$  RBW; Sweep = auto; Detector function = peak; Trace = max hold
- 3. Measure the separation between the peaks of the adjacent channels using the marker-delta function.
- 4. Repeat above procedures until all frequencies measured were complete.

Date: 2013-12-27

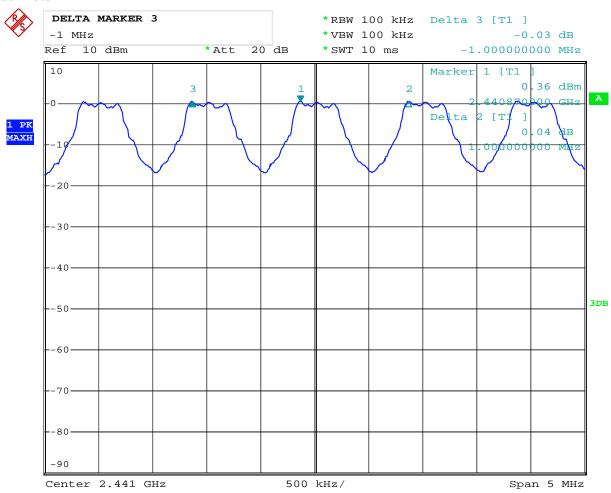


### 9.4Test Result

### Type of Modulation: GFSK

EUT	Tron Tab Me	Model		T4238			
Mode	Hopping On		Input Voltage		DC3.7V		
Temperature	24 deg. C,		Humidity		56% RH		
Carrier Frequency Separation			Limit		Pass/ Fail		
1000kHz		≥ 25 kHz or 2	/3 of 20 dB bands	width	Pass		

## **Test Plots**



Date: 25.DEC.2013 10:24:30

Page 39 of 84

Report No: 1312137-02

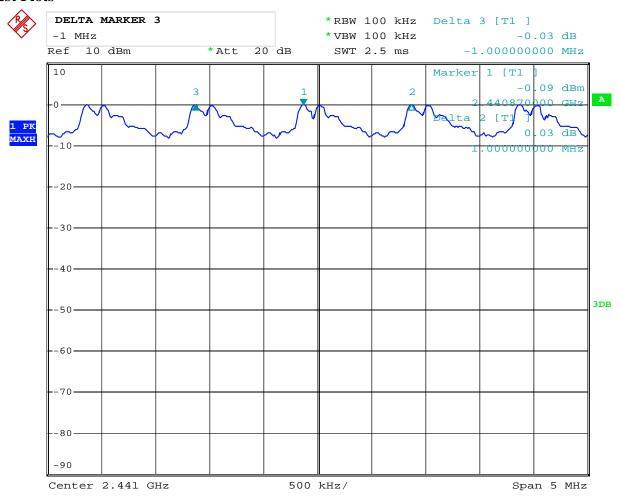
Date: 2013-12-27



### Type of Modulation: Л/4QPSK

EUT	Tron Tab Me	Model		T4238		
Mode	Hopping On		Input Voltage		DC3.7V	
Temperature	24 deg. C,	Humidity		56% RH		
Carrier Frequency Separation			Limit		Pass/ Fail	
1000kHz		≥ 25 kHz or 2	≥ 25 kHz or 2/3 of 20 dB bandwidth		Pass	

### **Test Plots**



Date: 25.DEC.2013 09:35:19

Page 40 of 84

Report No: 1312137-02

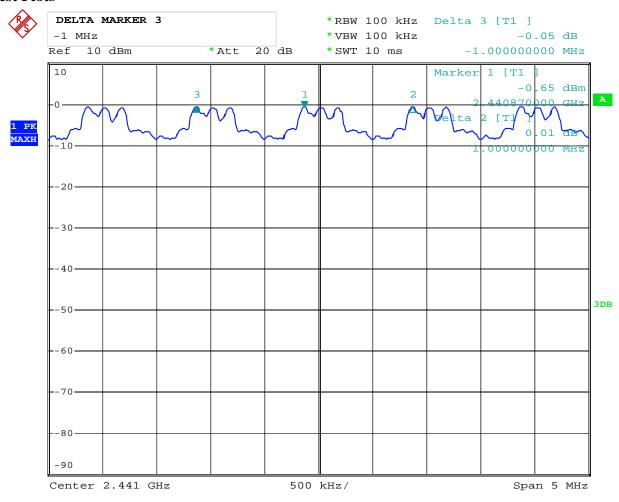
Date: 2013-12-27



### **Type of Modulation: 8DPSK**

EUT	Tron Tab Me	Model		T4238			
Mode	Hopping On		Input Voltage		DC3.7V		
Temperature	24 deg. C,		Humidity		56% RH		
Carrier Frequency Separation		Limit			Pass/ Fail		
1000kHz		≥ 25 kHz or 2	2/3 of 20 dB bandy	width	Pass		

### **Test Plots**



Date: 25.DEC.2013 10:22:48

Date: 2013-12-27



Page 41 of 84

## 10. Number of Hopping Channels

### 10.1 Regulation

According to §15.247(a)(1)(iii), frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used. According to §15.247(b)(1), for frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

### 10.2 Limits of Number of Hopping Channels

The frequency hopping systems in the 2400-2483.5MHz band shall use at least 15 channels.

#### 10.3 Test Procedure

- 1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
- 2. Set the spectrum analyzer as follows: Span = the frequency band of operation; RBW=100 kHz, VBW= 100 kHz;

Sweep = auto; Detector function = peak; Trace = max hold

3. Record the number of hopping channels.

Date: 2013-12-27

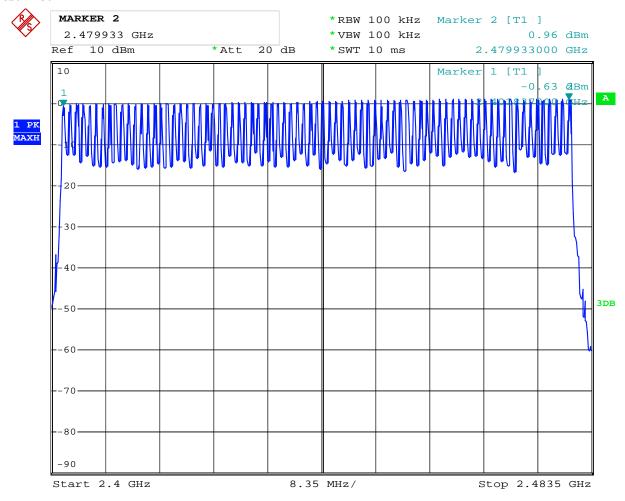


#### 10.4Test Result

### **Type of Modulation: GFSK**

EUT	Т	ron Tab Mega	M	odel	T4238	
Mode		Hopping On	Input	Voltage	DC3.7V	
Temperature	24 deg. C,		Humidity		56% RH	
Operating Frequ	perating Frequency Number of hopp channels		ing	Lin	nit	Pass/ Fail
2402-2480MHz		79		≥ 1	.5	Pass

## **Test Plot**



Date: 25.DEC.2013 10:31:55

Page 43 of 84

Report No: 1312137-02

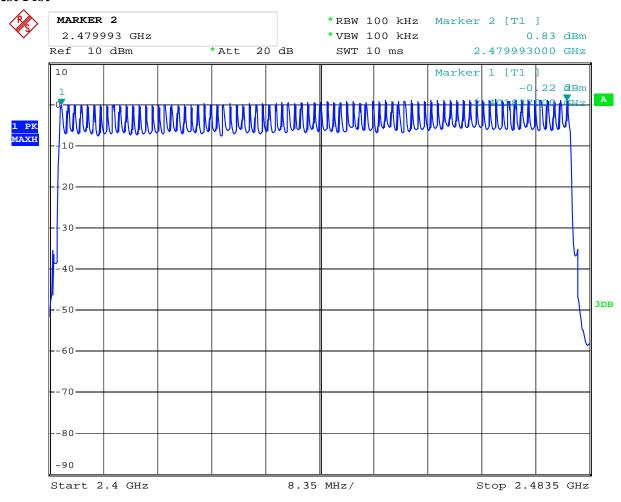
Date: 2013-12-27



### Type of Modulation: JI/4QPSK

EUT	Т	ron Tab Mega	M	odel		T4238
Mode		Hopping On	Input	Voltage	DC3.7V	
Temperature	24 deg. C,		Humidity		56% RH	
Operating Frequ	quency Number of hopp channels		ing	Lin	nit	Pass/ Fail
2402-2480MHz		79		≥ 1	15	Pass

#### **Test Plot**



Date: 25.DEC.2013 09:30:59

Report No: 1312137-02 Page 44 of 84

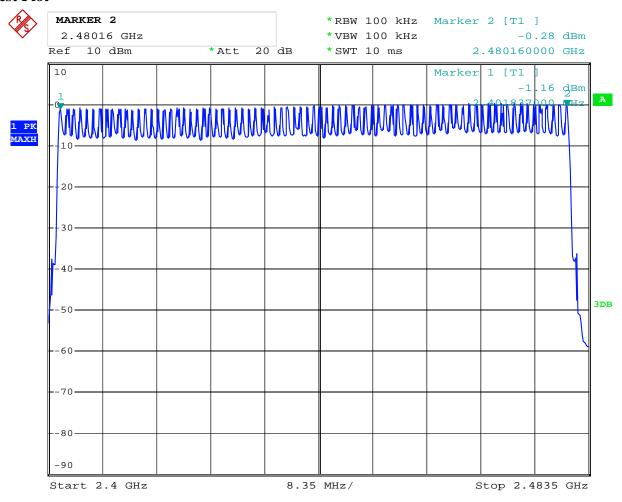
Date: 2013-12-27



### **Type of Modulation: 8DPSK**

EUT	Т	ron Tab Mega	M	odel		T4238
Mode		Hopping On	Input	Voltage	DC3.7V	
Temperature	24 deg. C,		Humidity		56% RH	
Operating Frequ	perating Frequency Number of hopp channels		ing	Lin	nit	Pass/ Fail
2402-2480MHz		79		≥ 1	.5	Pass

#### **Test Plot**



Date: 25.DEC.2013 10:21:01

Report No: 1312137-02 Page 45 of 84

Date: 2013-12-27



# 11. Time of Occupancy (Dwell Time)

### 11.1 Regulation

According to §15.247(a)(1)(iii), frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

#### 11.2 Limits of Carrier Frequency Separation

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed

### 11.3 Test Procedure

- 1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
- 2. Set the spectrum analyzer as follows: Span = zero span, centered on a hopping channel; RBW = 1 MHz; VBW
- ≥ RBW; Sweep = as necessary to capture the entire dwell time per hopping channel; Detector function = peak; Trace = max hold
- 3. Measure the dwell time using the marker-delta function.
- 4. Repeat above procedures until all frequencies measured were complete.
- 5. Repeat this test for different modes of operation (e.g., data rate, modulation format, etc.), if applicable.

Report No: 1312137-02 Page 46 of 84

Date: 2013-12-27



### 11.4 Test Result

### Type of Modulation: GFSK

EUT		Tron Tab Mega	on Tab Mega Moo			T4238		
Mode		Keep Transmitti	ng	Input Voltage		DC3.7V		
Temperatur	re	24 deg. C,		Humidity		4	56% RH	
Channel		Reading		Hoping Rate	Act	ual	Limit	
Low		2.96		266.667 hop/s	0.3	16	0.4s	
Middle		2.96		266.667 hop/s	0.3	16	0.4s	
High		2.96		266.667 hop/s	0.3	16	0.4s	

Actual = Reading  $\times$  (Hopping rate / Number of channels)  $\times$  Test period, Test period = 0.4 [seconds / channel]  $\times$  79 [channel] = 31.6 [seconds] NOTE: The EUT makes worst case 1600 hops per second or 1 time slot has a length of 625 $\mu$ s with 79 channels. A DH5 Packet needs 5 time slot for transmitting and 1 time slot for receiving. Then the EUT makes worst case 266.667 hops per second with 79 channels.

Note: DH5 was the worse case

Page 47 of 84

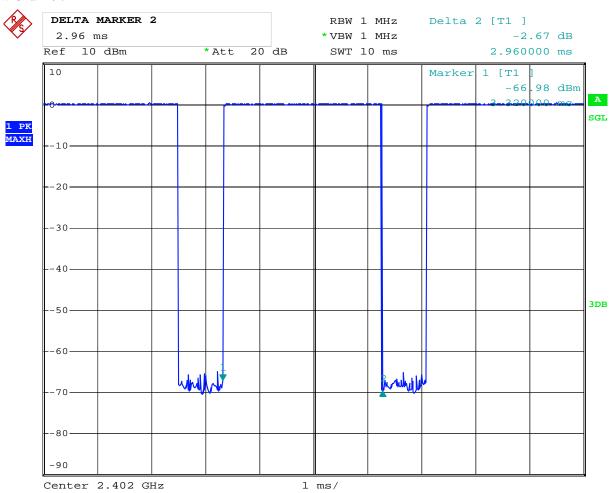
Report No: 1312137-02

Date: 2013-12-27



### Test Plots:

### Low Channel:



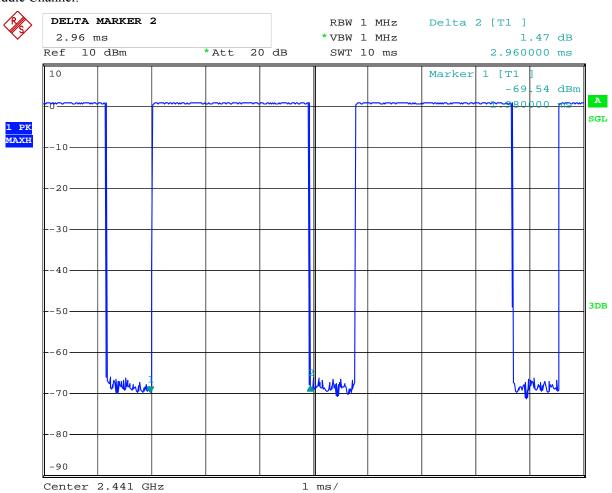
Date: 25.DEC.2013 10:43:24

Report No: 1312137-02 Page 48 of 84

Date: 2013-12-27



### Middle Channel:



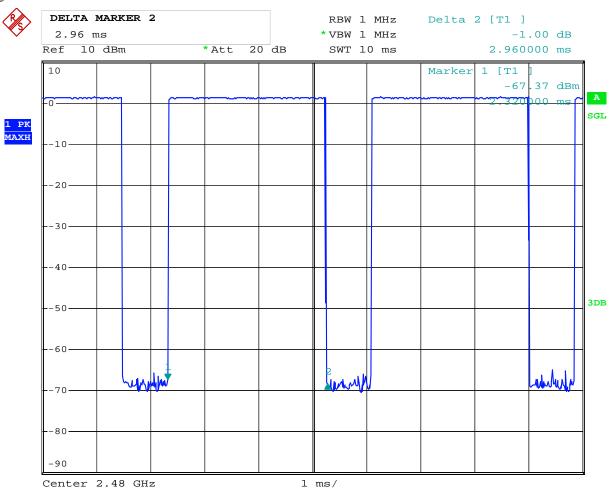
Date: 25.DEC.2013 10:42:18

Report No: 1312137-02 Page 49 of 84

Date: 2013-12-27



### High Channel



Date: 25.DEC.2013 10:41:23

Report No: 1312137-02 Page 50 of 84

Date: 2013-12-27



### **Test Result**

## Type of Modulation: $\pi/4QPSK$

EUT		Tron Tab Meg	Tron Tab Mega			T4238	
Mode		Keep Transmitti	ng	Input Voltage		DC3.7V	
Temperature		24 deg. C,		Humidity		56% RH	
Channel		Reading		Hoping Rate	Act	ual	Limit
Low		2.96		266.667 hop/s	0.3	16	0.4s
Middle		2.96		266.667 hop/s	0.3	16	0.4s
High		2.96		266.667 hop/s	0.3	16	0.4s

Actual = Reading  $\times$  (Hopping rate / Number of channels)  $\times$  Test period ,Test period = 0.4 [seconds / channel]  $\times$  79 [channel] = 31.6 [seconds] NOTE: The EUT makes worst case 1600 hops per second or 1 time slot has a length of 625 $\mu$ s with 79 channels. A DH5 Packet needs 5 time slot for transmitting and 1 time slot for receiving. Then the EUT makes worst case 266.667 hops per second with 79 channels.

Note: DH5 was the worse case

Page 51 of 84

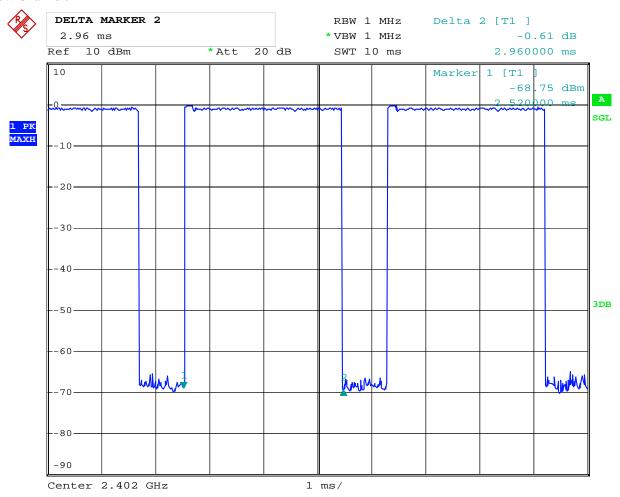
Date: 2013-12-27

Report No: 1312137-02



### Test Plots:

### Low Channel:



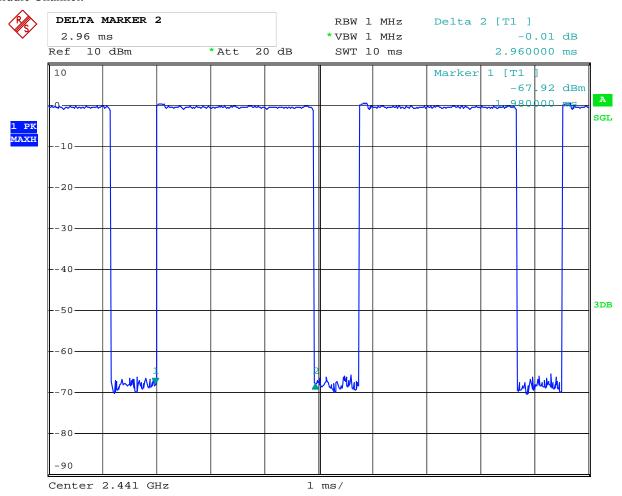
Date: 25.DEC.2013 09:48:43

Report No: 1312137-02 Page 52 of 84

Date: 2013-12-27



### Middle Channel:



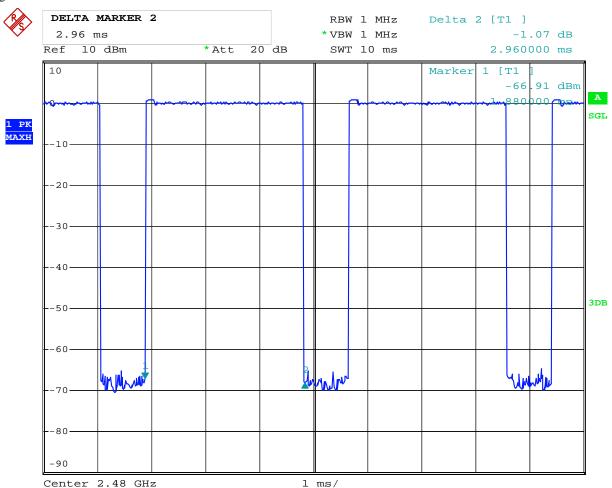
Date: 25.DEC.2013 09:49:31

Report No: 1312137-02 Page 53 of 84

Date: 2013-12-27



### High Channel



Date: 25.DEC.2013 09:50:11

Report No: 1312137-02 Page 54 of 84

Date: 2013-12-27



### **Type of Modulation: 8DPSK**

EUT		Tron Tab Mega	ab Mega Mode			T4238		
Mode		Keep Transmitting		ing Input Voltage		DC3.7V		
Temperatu	re	24 deg. C,		Humidity		4	56% RH	
Channel		Reading		Hoping Rate	Acti	ual	Limit	
Low		2.96		266.667 hop/s	0.3	16	0.4s	
Middle		2.96		266.667 hop/s	0.3	16	0.4s	
High		2.96		266.667 hop/s	0.3	16	0.4s	

Actual = Reading  $\times$  (Hopping rate / Number of channels)  $\times$  Test period, Test period = 0.4 [seconds / channel]  $\times$  79 [channel] = 31.6 [seconds] NOTE: The EUT makes worst case 1600 hops per second or 1 time slot has a length of 625 $\mu$ s with 79 channels. A DH5 Packet needs 5 time slot for transmitting and 1 time slot for receiving. Then the EUT makes worst case 266.667 hops per second with 79 channels.

Note: DH5 was the worse case

Page 55 of 84

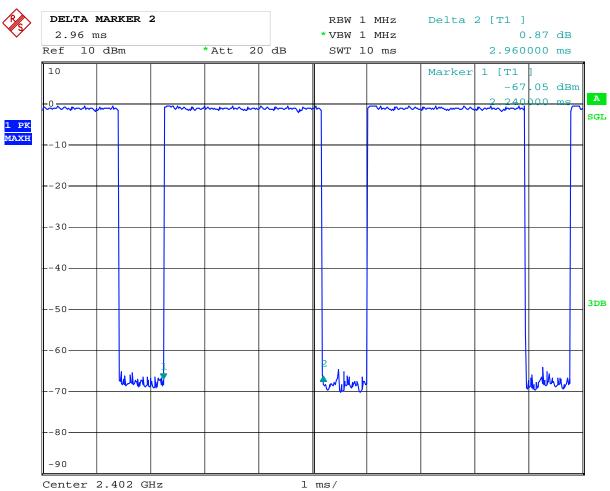
Report No: 1312137-02

Date: 2013-12-27



### Test Plots:

### Low Channel:



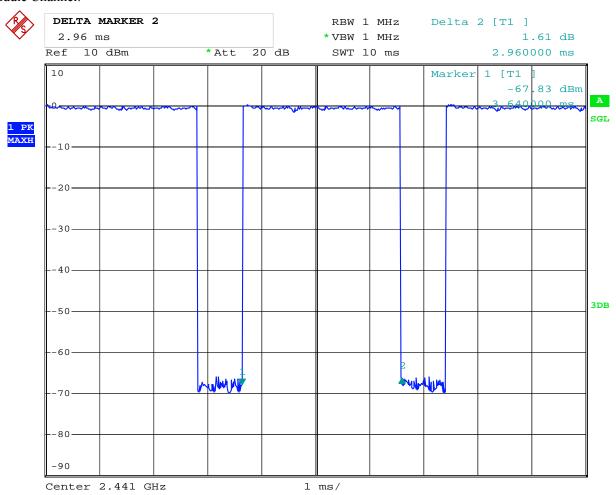
Date: 25.DEC.2013 09:54:08

Report No: 1312137-02 Page 56 of 84

Date: 2013-12-27



### Middle Channel:



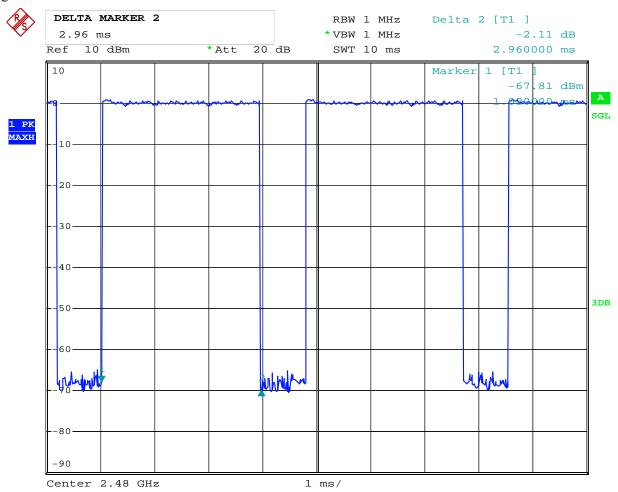
Date: 25.DEC.2013 09:52:16

Report No: 1312137-02 Page 57 of 84

Date: 2013-12-27



### High Channel



Date: 25.DEC.2013 09:51:23

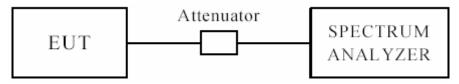
Report No: 1312137-02 Page 58 of 84

Date: 2013-12-27



### 12 Out of Band Measurement

## 12.1 Test Setup



The restricted band requirement based on radiated emission test; please see the clause 6 for the test setup

#### 12.2 Limits of Out of Band Emissions Measurement

- 1. Below –20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).
- 2. Fall in the restricted bands listed in section 15.205. The maximum permitted average field strength is listed in section 15.209.

#### 12.3 Test Procedure

For signals in the restricted bands above and below the 2.4-2.483GHz allocated band a measurement was made of Radiated emission test. Peak values with RBW=VBW=1MHz and PK detector.

For bandage test, the spectrum set as follows: RBW=VBW=100 kHz. A conducted measurement used

Note: 1. For band-edge measurement, the frequency from 30MHz-25GHz was tested. And It met the FCC rule.

2. This is a handhold device. The radiated emissions should be tested under 3-axes position (Lying, Side, and Stand), After pre-test. It was found that the worse radiated emission was get at the lying position.

Page 59 of 84

Report No: 1312137-02

Date: 2013-12-27

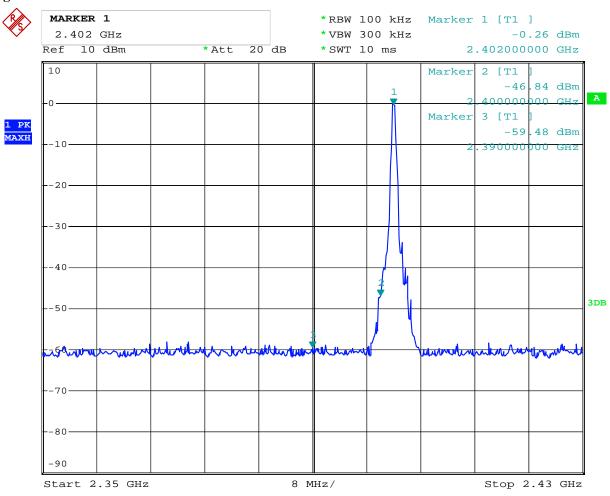


### Type of Modulation: GFSK

### 12.4 Out of Band Test Result

EUT	Т	Tron Tab Mega	Test Mode:	Low Channel
Mode	Kee	ping Transmitting	Input Voltage	DC3.7V
Temperature		24 deg. C	Humidity	56% RH
Test Result:		Pass	Detector	PK
The Max. FS in	PK (dBµV/m)	38.2		$74(dB\mu V/m)$
Restrict Band	$AV(dB\mu V/m)$	BμV/m)		$54(dB\mu V/m)$
2390MHz				

### **Test Figure:**



Date: 25.DEC.2013 10:35:28

Date: 2013-12-27

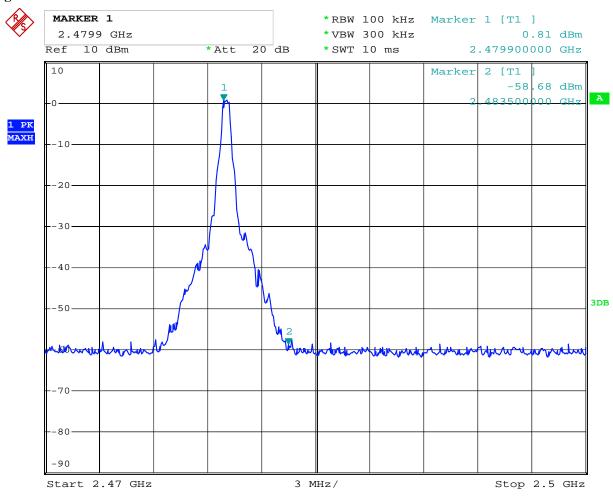


### Type of Modulation: GFSK

### 12.4 Out of Band Test Result

EUT	T	ron Tab Mega	Test Mode:	High Channel
Mode	Kee	ping Transmitting	Input Voltage	DC3.7V
Temperature		24 deg. C	Humidity	56% RH
Test Result:		Pass	Detector	PK
The Max. FS in	PK (dBμV/m)	39.5		$74(dB\mu V/m)$
Restrict Band	AV(dBμV/m)		Limit	$54(dB\mu V/m)$
2483.5MHz				

### **Test Figure:**



Date: 25.DEC.2013 10:36:02

Date: 2013-12-27

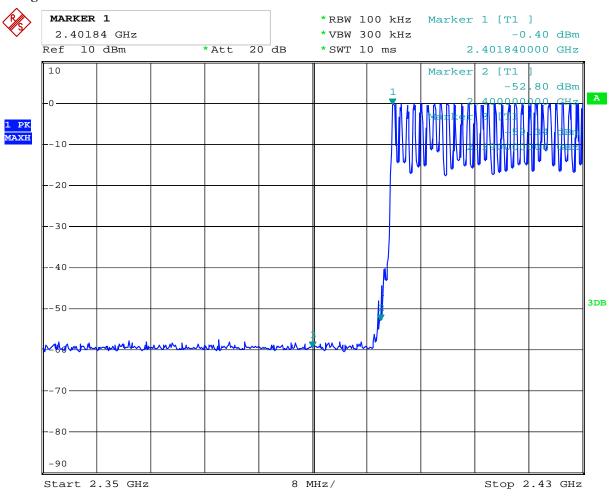


### Type of Modulation: GFSK

### 12.4 Out of Band Test Result

EUT	Τ	ron Tab Mega	Test Mode:	Hopping mode
Mode		Hopping ON	Input Voltage	DC3.7V
Temperature		24 deg. C	Humidity	56% RH
Test Result:		Pass	Detector	PK
The Max. FS in	PK (dBμV/m)	37.1		$74(dB\mu V/m)$
Restrict Band 2390MHz	$AV(dB\mu V/m)$		Limit	54(dBµV/m)

### **Test Figure:**



Date: 25.DEC.2013 10:34:55

Date: 2013-12-27

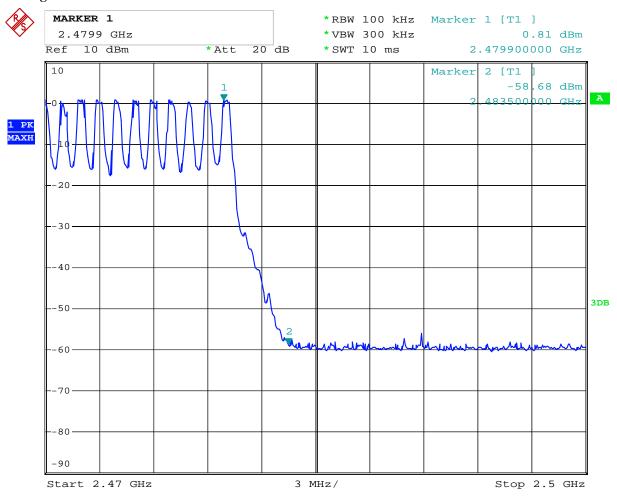


# **Type of Modulation: GFSK**

### 12.4 Out of Band Test Result

EUT	Tron Tab Mega		Test Mode:	Hopping mode
Mode	Hopping ON		Input Voltage	DC3.7V
Temperature	24 deg. C		Humidity	56% RH
Test Result:	Pass		Detector	PK
The Max. FS in	PK (dBμV/m)	39.0		$74(dB\mu V/m)$
Restrict Band 2483.5MHz	$AV(dB\mu V/m)$		Limit	54(dBμV/m)

### **Test Figure:**



Date: 25.DEC.2013 10:37:24

Date: 2013-12-27

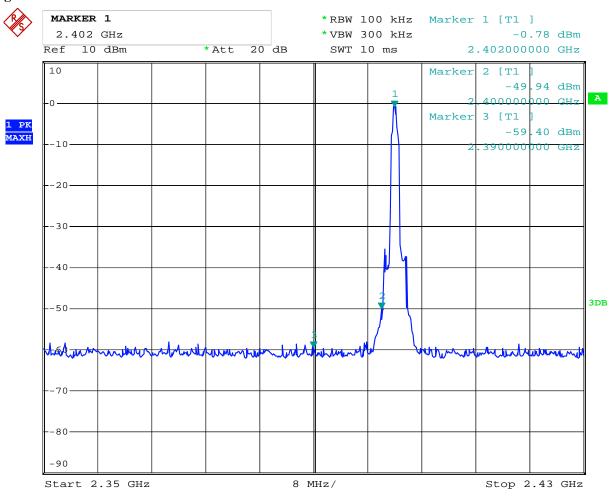


## Type of Modulation: JI/4QPSK

### 12.4 Out of Band Test Result

EUT	Tron Tab Mega		Test Mode:	Low Channel
Mode	Keeping Transmitting		Input Voltage	DC3.7V
Temperature	24 deg. C		Humidity	56% RH
Test Result:	Pass		Detector	PK
The Max. FS in	PK (dBμV/m) 37.4			74(dBμV/m)
Restrict Band 2390MHz	AV(dBμV/m)		Limit	54(dBμV/m)

### **Test Figure:**



Date: 25.DEC.2013 09:40:08

Date: 2013-12-27

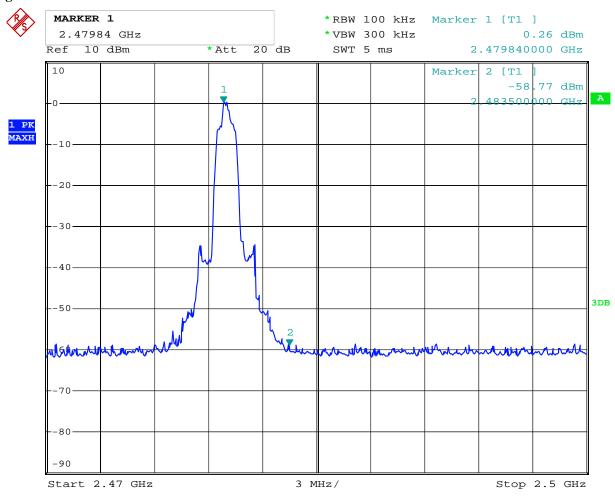


### Type of Modulation: JI/4QPSK

### 12.4 Out of Band Test Result

EUT	Tron Tab Mega		Test Mode:	High Channel
Mode	Keeping Transmitting		Input Voltage	DC3.7V
Temperature	24 deg. C		Humidity	56% RH
Test Result:	Pass		Detector	PK
The Max. FS in	PK (dBμV/m) 39.5			$74(dB\mu V/m)$
Restrict Band	AV(dBμV/m)		Limit	54(dBμV/m)
2483.5MHz				

### **Test Figure:**



Date: 25.DEC.2013 09:40:52

Date: 2013-12-27

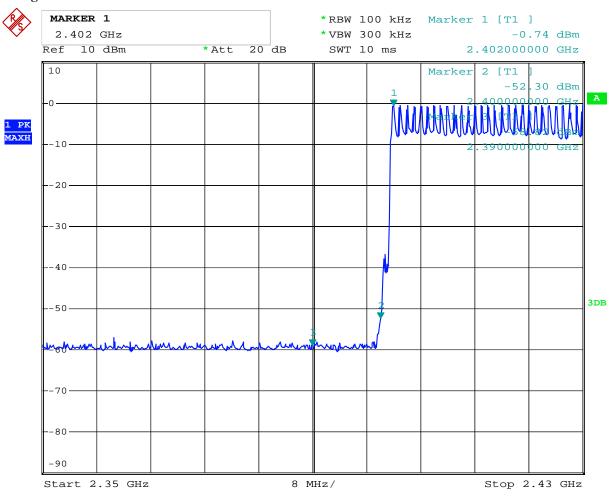


## Type of Modulation: JI/4QPSK

### 12.4 Out of Band Test Result

EUT	Tron Tab Mega		Test Mode:	Hopping mode
Mode	Hopping ON		Input Voltage	DC3.7V
Temperature	24 deg. C		Humidity	56% RH
Test Result:	Pass		Detector	PK
The Max. FS in	PK (dBμV/m) 36.8			$74(dB\mu V/m)$
Restrict Band	AV(dBμV/m)		Limit	54(dBμV/m)
2390MHz				

### **Test Figure:**



Date: 25.DEC.2013 09:39:35

Date: 2013-12-27



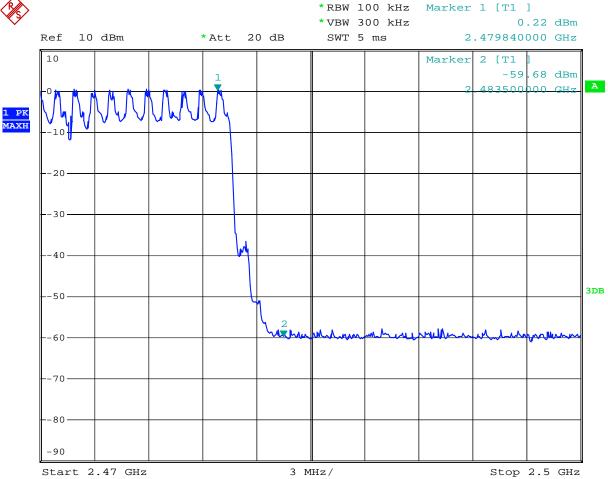
## Type of Modulation: JI/4QPSK

### Out of Band Test Result

Product:	Tablet PC		Test Mode:	Hopping mode
Mode	Hopping ON I		Input Voltage	DC3.7V
Temperature	24 deg. C		Humidity	56% RH
Test Result:	Pass		Detector	PK
The Max. FS in	PK (dBμV/m)	39.2		$74(dB\mu V/m)$
Restrict Band	AV(dBμV/m)		Limit	54(dBμV/m)
2483.5MHz				

### **Test Figure:**





Date: 25.DEC.2013 09:43:42

Date: 2013-12-27

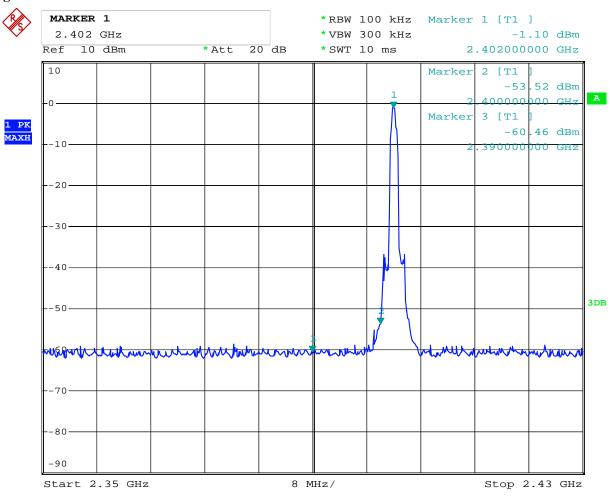


### **Type of Modulation: 8DPSK**

### 12.4 Out of Band Test Result

EUT	Tron Tab Mega		Test Mode:	Low Channel
Mode	Keeping Transmitting		Input Voltage	DC3.7V
Temperature	24 deg. C		Humidity	56% RH
Test Result:	Pass		Detector	PK
The Max. FS in	PK (dBμV/m) 37.4			$74(dB\mu V/m)$
Restrict Band 2390MHz	AV(dBμV/m)		Limit	$54(dB\mu V/m)$

### **Test Figure:**



Date: 25.DEC.2013 09:58:33

Date: 2013-12-27

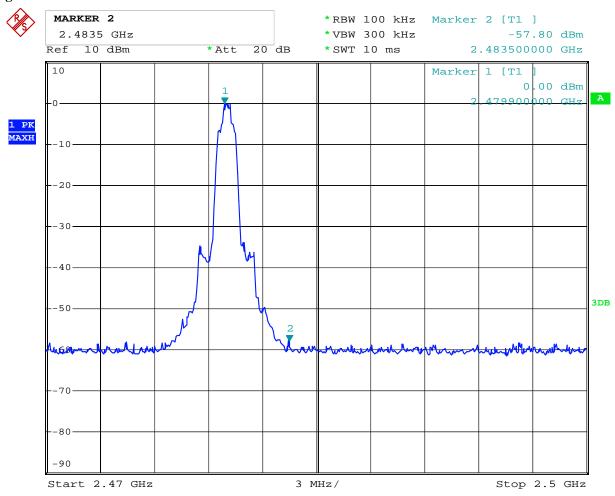


## **Type of Modulation: 8DPSK**

### 12.4 Out of Band Test Result

EUT	Tron Tab Mega		Test Mode:	High Channel
Mode	Keeping Transmitting		Input Voltage	DC3.7V
Temperature	24 deg. C		Humidity	56% RH
Test Result:	Pass		Detector	PK
The Max. FS in	PK (dBμV/m) 39.7			$74(dB\mu V/m)$
Restrict Band	AV(dBμV/m)		Limit	$54(dB\mu V/m)$
2483.5MHz				

### **Test Figure:**



Date: 25.DEC.2013 10:05:21

Date: 2013-12-27

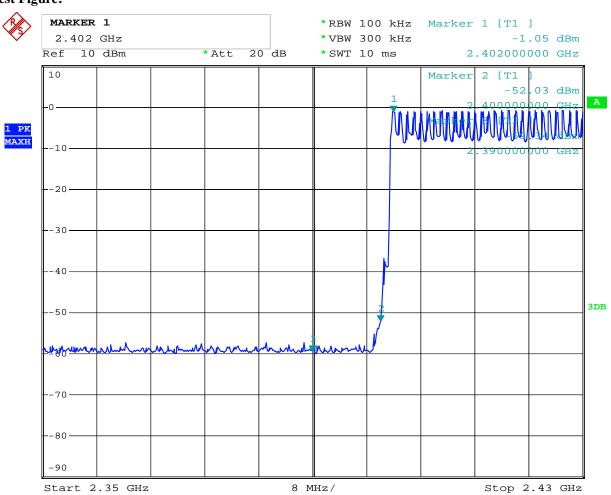


# **Type of Modulation: 8DPSK**

### 12.4 Out of Band Test Result

EUT	Tron Tab Mega		Test Mode:	Hopping mode
Mode	Hopping ON		Input Voltage	DC3.7V
Temperature	24 deg. C		Humidity	56% RH
Test Result:	Pass		Detector	PK
The Max. FS in	PK (dBμV/m) 37.7			$74(dB\mu V/m)$
Restrict Band	AV(dBμV/m)		Limit	54(dBµV/m)
2390MHz				

### **Test Figure:**



Date: 25.DEC.2013 10:04:32

Date: 2013-12-27

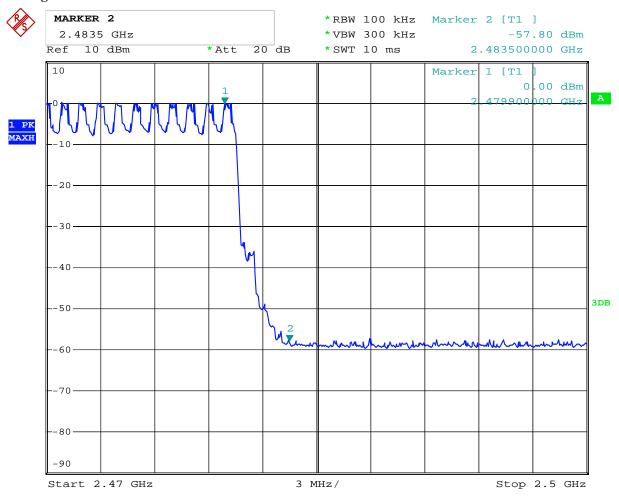


# **Type of Modulation: 8DPSK**

### 12.4 Out of Band Test Result

EUT	Tron Tab Mega		Test Mode:	Hopping mode
Mode	Hopping ON		Input Voltage	DC3.7V
Temperature	24 deg. C		Humidity	56% RH
Test Result:	Pass		Detector	PK
The Max. FS in	PK (dBμV/m) 40.1			$74(dB\mu V/m)$
Restrict Band 2483.5MHz	AV(dBμV/m)		Limit	54(dBµV/m)

### **Test Figure:**



Date: 25.DEC.2013 10:13:05

Report No: 1312137-02 Page 71 of 84

Date: 2013-12-27



### 13.0 Antenna Requirement

## 13.1 Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.247 (b), if transmitter antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the mount in dB that the directional gain of the antenna exceeds 6 dBi.

### 13.2 Antenna Connected constructions

Integral Antenna used. The maximum Gain of this antenna is 2.0dBi

Report No: 1312137-02 Page 72 of 84

Date: 2013-12-27



### 14.0 FCC ID Label

### **FCC ID: 2AAY2-T4238**

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

#### **Mark Location:**



Report No: 1312137-02 Page 73 of 84

Date: 2013-12-27



## 15.0 Photo of testing

Conducted Emission Test Setup:

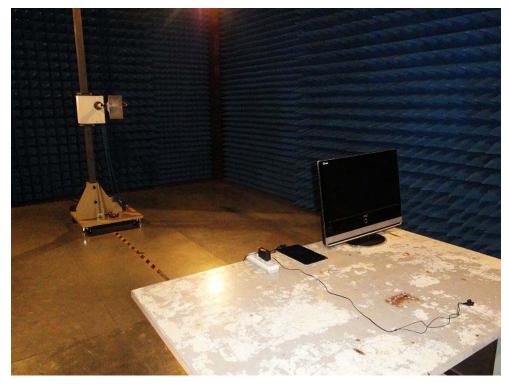


Date: 2013-12-27



## Radiated Emission Test Setup:





The report refers only to the sample tested and does not apply to the bulk.

This report is issued in confidence to the client and it will be strictly treated as such by the Shenzhen Timeway Technology Consulting Co.,Ltd. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the Shenzhen Timeway Technology Consulting co.,Ltd to his customer. Supplier or others persons directly concerned. Shenzhen Timeway Technology Consulting co.,Ltd will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

of correspondence with any third party concerning the contents of the report.

In the event of the improper use of the report. The Shenzhen Timeway Technology Consulting co .,Ltd reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.

Date: 2013-12-27



### Photo for the EUT





The report refers only to the sample tested and does not apply to the bulk.

This report is issued in confidence to the client and it will be strictly treated as such by the Shenzhen Timeway Technology Consulting Co.,Ltd. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the Shenzhen Timeway Technology Consulting co.,Ltd to his customer. Supplier or others persons directly concerned. Shenzhen Timeway Technology Consulting co., Ltd will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

In the event of the improper use of the report. The Shenzhen Timeway Technology Consulting co .,Ltd reserves the rights to withdraw it and to

Date: 2013-12-27



### Photo for the EUT





The report refers only to the sample tested and does not apply to the bulk.

This report is issued in confidence to the client and it will be strictly treated as such by the Shenzhen Timeway Technology Consulting Co., Ltd. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the Shenzhen Timeway Technology Consulting co .,Ltd to his customer. Supplier or others persons directly concerned. Shenzhen Timeway Technology Consulting co., Ltd will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

In the event of the improper use of the report. The Shenzhen Timeway Technology Consulting co .,Ltd reserves the rights to withdraw it and to

Date: 2013-12-27



### Photo for the EUT





The report refers only to the sample tested and does not apply to the bulk.

This report is issued in confidence to the client and it will be strictly treated as such by the Shenzhen Timeway Technology Consulting Co.,Ltd. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the Shenzhen Timeway Technology Consulting co .,Ltd to his customer. Supplier or others persons directly concerned. Shenzhen Timeway Technology Consulting co.,Ltd will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

In the event of the improper use of the report. The Shenzhen Timeway Technology Consulting co.,Ltd reserves the rights to withdraw it and to

Date: 2013-12-27



## Photo for the EUT





The report refers only to the sample tested and does not apply to the bulk.

This report is issued in confidence to the client and it will be strictly treated as such by the Shenzhen Timeway Technology Consulting Co.,Ltd. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it. or a certified copy there of prepared by the Shenzhen Timeway Technology Consulting co.,Ltd to his customer. Supplier or others persons directly concerned. Shenzhen Timeway Technology Consulting co.,Ltd will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

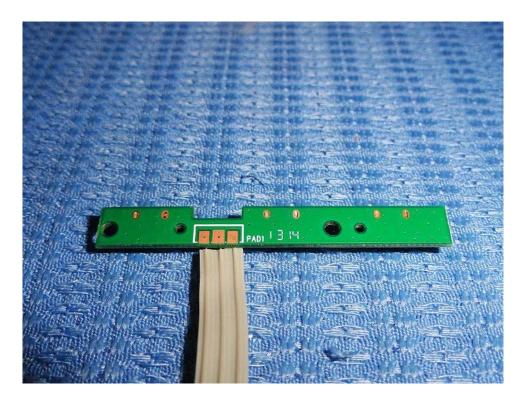
In the event of the improper use of the report. The Shenzhen Timeway Technology Consulting co.,Ltd reserves the rights to withdraw it and to

Date: 2013-12-27



## Photo for the EUT





The report refers only to the sample tested and does not apply to the bulk.

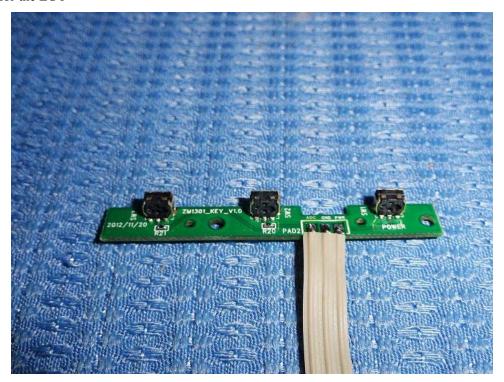
This report is issued in confidence to the client and it will be strictly treated as such by the Shenzhen Timeway Technology Consulting Co.,Ltd. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the Shenzhen Timeway Technology Consulting co .,Ltd to his customer. Supplier or others persons directly concerned. Shenzhen Timeway Technology Consulting co., Ltd will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

In the event of the improper use of the report. The Shenzhen Timeway Technology Consulting co .,Ltd reserves the rights to withdraw it and to

Date: 2013-12-27



## Photo for the EUT





The report refers only to the sample tested and does not apply to the bulk.

This report is issued in confidence to the client and it will be strictly treated as such by the Shenzhen Timeway Technology Consulting Co.,Ltd. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it. or a certified copy there of prepared by the Shenzhen Timeway Technology Consulting co.,Ltd to his customer. Supplier or others persons directly concerned. Shenzhen Timeway Technology Consulting co.,Ltd vill not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

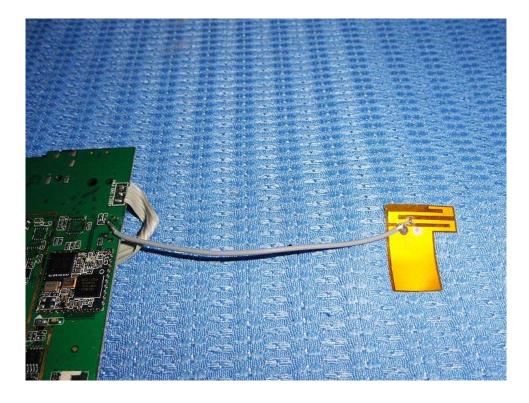
In the event of the improper use of the report. The Shenzhen Timeway Technology Consulting co.,Ltd reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.

Date: 2013-12-27



## Photo for the EUT





The report refers only to the sample tested and does not apply to the bulk.

This report is issued in confidence to the client and it will be strictly treated as such by the Shenzhen Timeway Technology Consulting Co.,Ltd. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it. or a certified copy there of prepared by the Shenzhen Timeway Technology Consulting co.,Ltd to his customer. Supplier or others persons directly concerned. Shenzhen Timeway Technology Consulting co.,Ltd vill not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

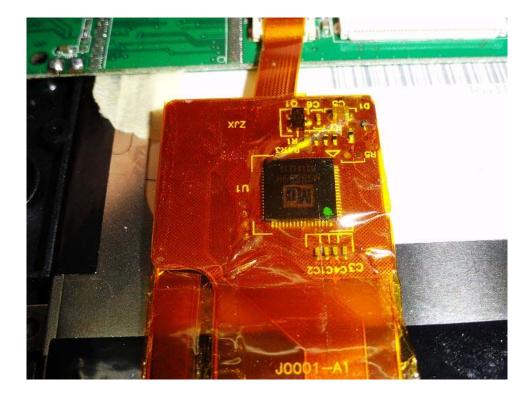
In the event of the improper use of the report. The Shenzhen Timeway Technology Consulting co.,Ltd reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.

Date: 2013-12-27



## Photo for the EUT





The report refers only to the sample tested and does not apply to the bulk.

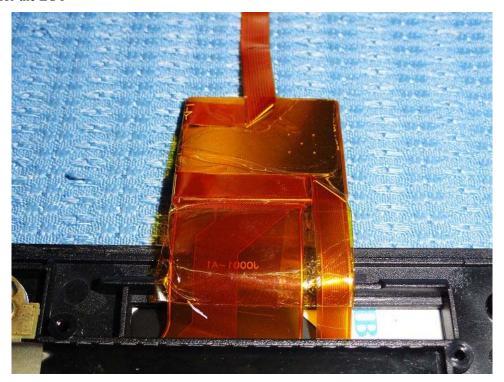
This report is issued in confidence to the client and it will be strictly treated as such by the Shenzhen Timeway Technology Consulting Co.,Ltd. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it. or a certified copy there of prepared by the Shenzhen Timeway Technology Consulting co.,Ltd to his customer. Supplier or others persons directly concerned. Shenzhen Timeway Technology Consulting co., Ltd will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

In the event of the improper use of the report. The Shenzhen Timeway Technology Consulting co .,Ltd reserves the rights to withdraw it and to

Date: 2013-12-27



# Photo for the EUT





The report refers only to the sample tested and does not apply to the bulk.

This report is issued in confidence to the client and it will be strictly treated as such by the Shenzhen Timeway Technology Consulting Co.,Ltd. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it. or a certified copy there of prepared by the Shenzhen Timeway Technology Consulting co.,Ltd to his customer. Supplier or others persons directly concerned. Shenzhen Timeway Technology Consulting co.,Ltd vill not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

In the event of the improper use of the report. The Shenzhen Timeway Technology Consulting co.,Ltd reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.

Report No: 1312137-02 Page 84 of 84

Date: 2013-12-27



## Photo for the EUT



End of the report