



HYPER Taiwan Technology Inc.

Bluetooth Qualification Report

Customer: Unigrand Ltd

Date: 2009/05/14



CNLA/TAF Accredited Laboratory to ISO/IEC 17025

- for the scope of *Bluetooth* Testing

Certificate Number 0916



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HYPER Taiwan Technology Inc.
HYPER Taiwan Technology Inc. is a BLUETOOTH Qualification Test
Facility (BQTF)

Job Number: 0164-2009May05

Signature

The below listed HYPER Taiwan Technology Inc.

Personnel take responsibility for the contents of this Test Report.

Date : 2009/05/14

Reviewed/Approved by :

Paul Lee

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1. List of Revisions

Version	Date	Author(s)	Description
001	2009/05/14	Min-Hsun Chiang	Initial Version

2. Disclaimer Notice

This test report applies only to the IUT (Implementation Under Test) and the results of the specifications called out in this report.

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3. Company Information

3.1. Test Lab information

Company Detail	
Company Name	HYPER Taiwan Technology Inc., LTD
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TEL	+886-3-3961088
FAX	+886-3-3960669
URL	http://www.hypertaiwan.com.tw/

3.2. Customer information

Company Detail	
Company Name	Unigrand Ltd
Address	6th Fl., 108-3, Ming-Chuan Rd., Hsin Tien City, Taipei Hsien, Taiwan
Contact Person	Pary Wu
TEL	886-2-22180069
Email	sales@unigrand.com.tw



4. Implementation Under Test

4.1. IUT Information

IUT Detail	
Product Name	BM1200
Product General Description	Generic HID module
Product ID	BM1200
Date received	2009/03/11
Date(s) tested	2009/04/28
Condition of IUT	The IUT was received in good condition.
Hardware Version	0503
Software Version	0100
Specification Version	2.0
Product Type	End Product

4.2. List of Bluetooth Core Protocols supported

Bluetooth Core Protocols		
<input checked="" type="checkbox"/>	RF	Radio Frequency
<input checked="" type="checkbox"/>	BB	BaseBand
<input checked="" type="checkbox"/>	LMP	Link Manager
<input checked="" type="checkbox"/>	L2CAP	Logical Link Control and Adaptation Protocol
<input checked="" type="checkbox"/>	SDP	Service Discovery Protocol
<input checked="" type="checkbox"/>	GAP	Generic Access Profile
<input type="checkbox"/>	HCI	Host Controller Interface



4.3. List of Bluetooth External to Core Protocols and Profiles supported

Bluetooth External to Core Protocols and Profiles		
<input type="checkbox"/>	A2DP 1.0	Advanced Audio Distribution Profile 1.0
<input type="checkbox"/>	AVCTP 1.0	Audio / Video Control Transport Protocol 1.0
<input type="checkbox"/>	AVDTP 1.0	Audio / Video Distribution Transport Protocol 1.0
<input type="checkbox"/>	AVRCP 1.0	Audio / Video Remote Control Profile 1.0
<input type="checkbox"/>	BIP	Basic Imaging Profile
<input type="checkbox"/>	BNEP	Bluetooth Network Encapsulation Protocol
<input type="checkbox"/>	BPP	Basic Printing Profile
<input type="checkbox"/>	BPP1.2	Basic Printing Profile 1.2
<input type="checkbox"/>	CTP	Cordless Telephony Profile
<input type="checkbox"/>	DUN	Dial Up Networking Profile
<input type="checkbox"/>	DID	Device ID
<input type="checkbox"/>	FAX	FAX Profile
<input type="checkbox"/>	FTP	File Transfer Profile
<input type="checkbox"/>	GAVDP 1.0	Generic Audio/Video Distribution Profile 1.0
<input type="checkbox"/>	HCRP	Hard Copy Cable Replacement Profile
<input type="checkbox"/>	HCRP1.2	Hard Copy Cable Replacement Profile 1.2
<input type="checkbox"/>	HFP1.5	Hands-Free Profile 1.5
<input type="checkbox"/>	HDP	Health Device Profile
<input checked="" type="checkbox"/>	HID	Human Interface Device Profile
<input type="checkbox"/>	HSP	Headset Profile
<input type="checkbox"/>	ICP	Intercom Profile
<input type="checkbox"/>	IOPT	Interoperability Test Specification
<input type="checkbox"/>	OPP	Object Push Profile
<input type="checkbox"/>	MCAP	Multi-Channel Adaptation Protocol
<input type="checkbox"/>	PAN	Personal Area Networking Profile
<input type="checkbox"/>	PBAP	Phone Book Access Profile
<input checked="" type="checkbox"/>	RFCOMM	RF COMM Protocol
<input type="checkbox"/>	SAP	SIM Access Profile
<input type="checkbox"/>	SDAP	Service Discovery Application Profile
<input type="checkbox"/>	SPP	Serial Port Profile
<input type="checkbox"/>	SYNC	Synchronization Profile
<input type="checkbox"/>	VDP	Video Distribution Profile



4.4. List of Applicable Qualified Pre-tested Components

Bluetooth QDID	Product ID	Manufacturer		
B011073	BCM2042 controller	Bluetooth®	HID	Broadcom Corporation

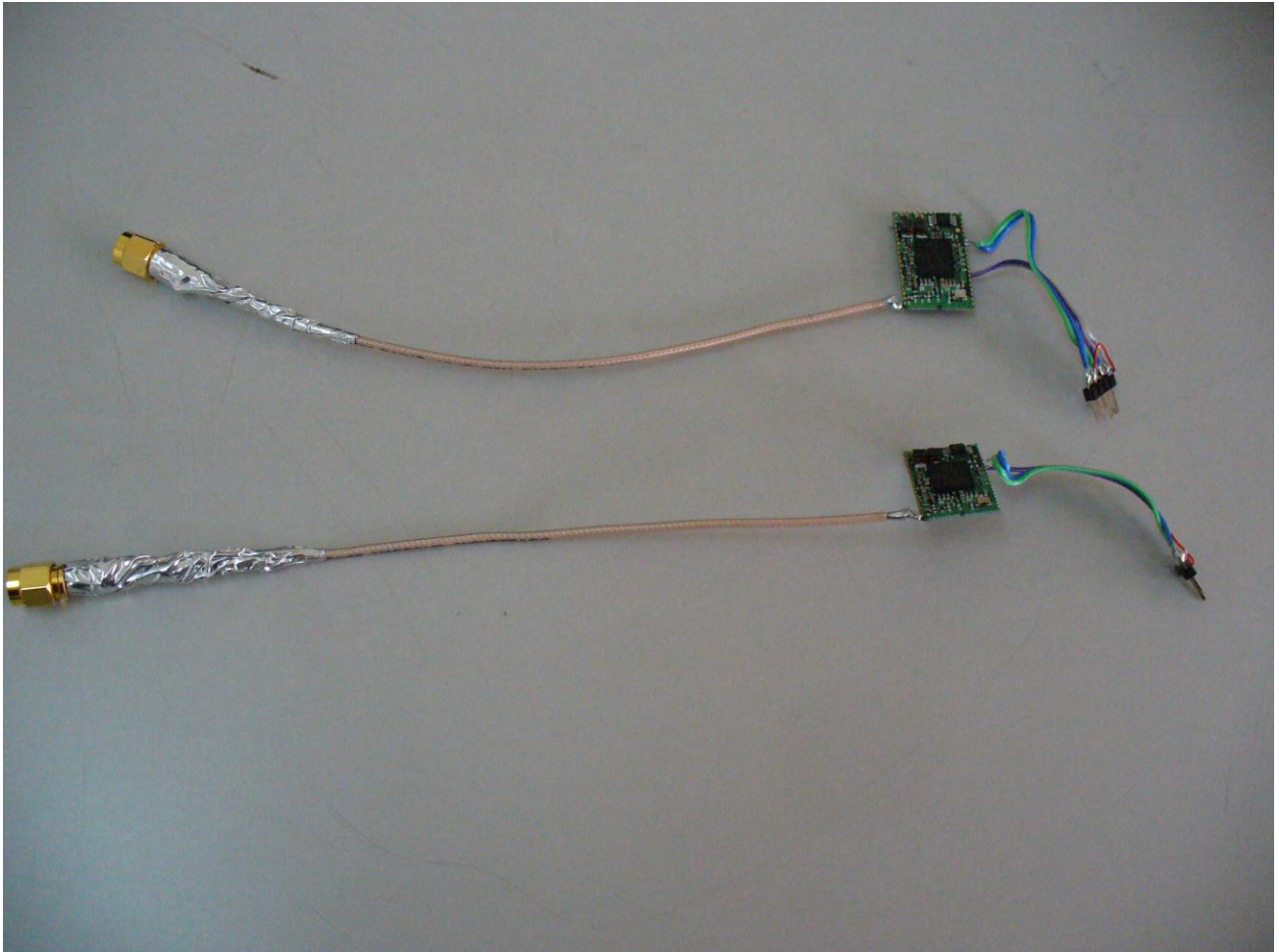
4.5. PIXIT for RF Conformance Test

Parameter Name	Type	Test case reference	Value
Timer for TX power control	ms	TRM/CA/03 Power Control	N/A
In band Image frequency	MHz	RCV/CA/03 C/I Performance	N/A
Value n for Intermodulation test	Integer	RCV/CA/05 Intermodulation Performance	N/A
Nominal power source voltage	V	Chapter 6.3, RF Test Specification	5V
Operating temperature range	°C	Chapter 6.4, RF Test Specification	N/A
Extreme power source voltage	V	Chapter 6.4, RF Test Specification	N/A
Antenna gain	dB	Chapter 6.4, RF Test Specification	0dB
Nominal Temperature	°C	Chapter 6.4, RF Test Specification	25-28°C
Nominal Humidity	%	Chapter 6.4, RF Test Specification	25% – 65%



4.6. IUT Photograph

RF





5. List of Test Equipment Used

5.1. Test Equipment for RF

Description	Manufacturer	Cal Date	Cal Due
BRITS-R	Hyper Taiwan Technology	2008/07/15	2009/07/14



6. Reference Test Requirement Document

Description	Document Version
TCRL	TCRL_2.0_EDR_2008-2
RF Test Spec	RF.TS/2.1.E.3



7. Test Summary

Test Item	Test Verdict	Note
RF	PASS	See detail test result in Part A

Part A: RF Conformance Test Report

Part A


RF Conformance Test Report

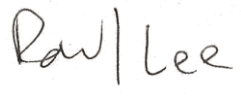
Product Name : BM1200

Signature

The below listed HYPER Taiwan Technology Inc.

Date : 2009/05/14

Test Engineer : 

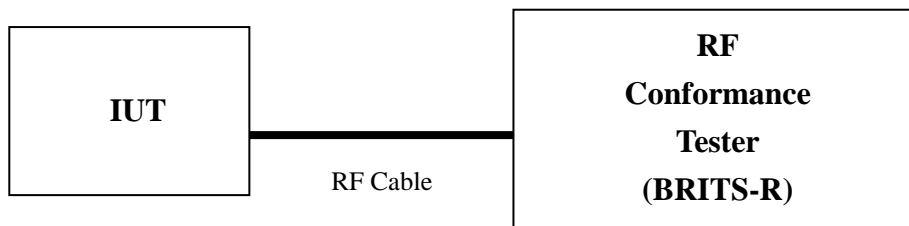
Reviewed/Approved by : 

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1. RF Test Platform



2. Test Case Result Summary

Test Case	Description	Cat.	Verdict
TRM/CA/01/C	Output Power	A	Pass
TRM/CA/04/C	TX Output Spectrum - Frequency Range	A	Pass
RCV/CA/01/C	Sensitivity - Single Slot Packets	A	Pass
RCV/CA/02/C	Sensitivity - Multi-Slot Packets	A	Pass



2.1. Test Case List for Normal Condition

2.1.1. RF Description

EUT Power Class	Class 2
EUT Antenna Gain	0 dBi
Test Condition	Normal Condition
EUT To Spectrum Loss (Low)	8.68
EUT To Spectrum Loss (Mid)	8.56
EUT To Spectrum Loss (High)	8.73

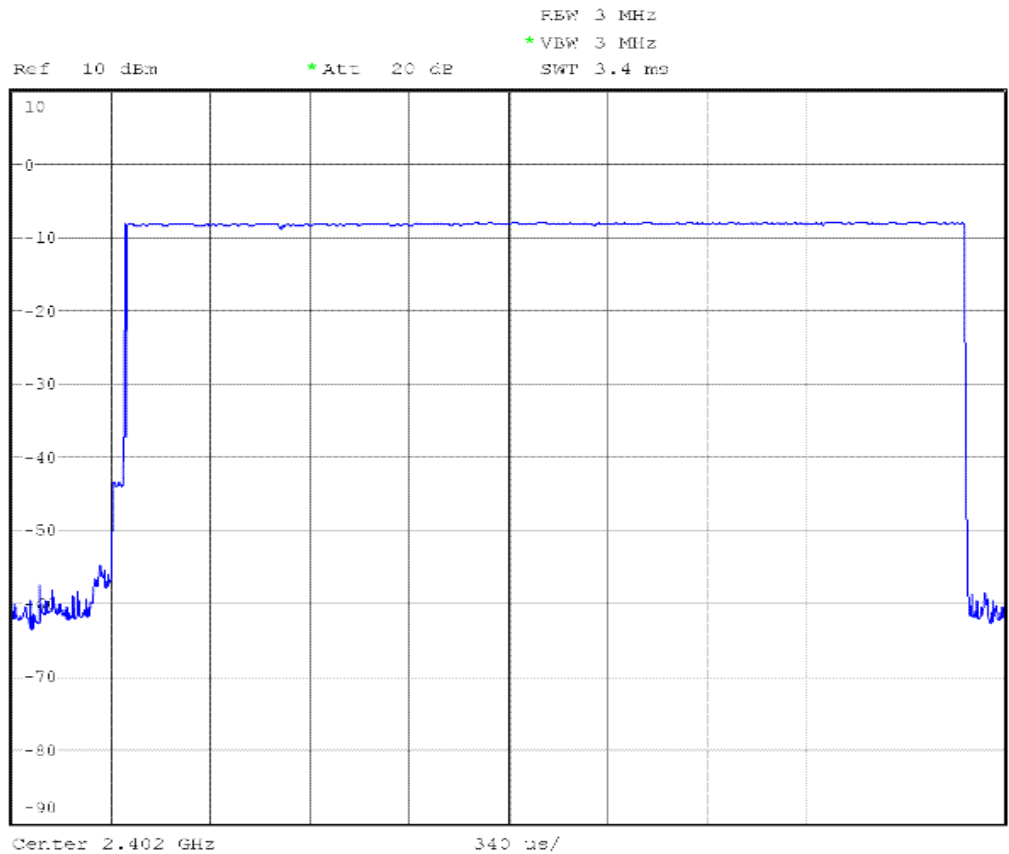
2.1.2. Test Case: TRM/CA/01/C - Output Power

Expected Outcome:

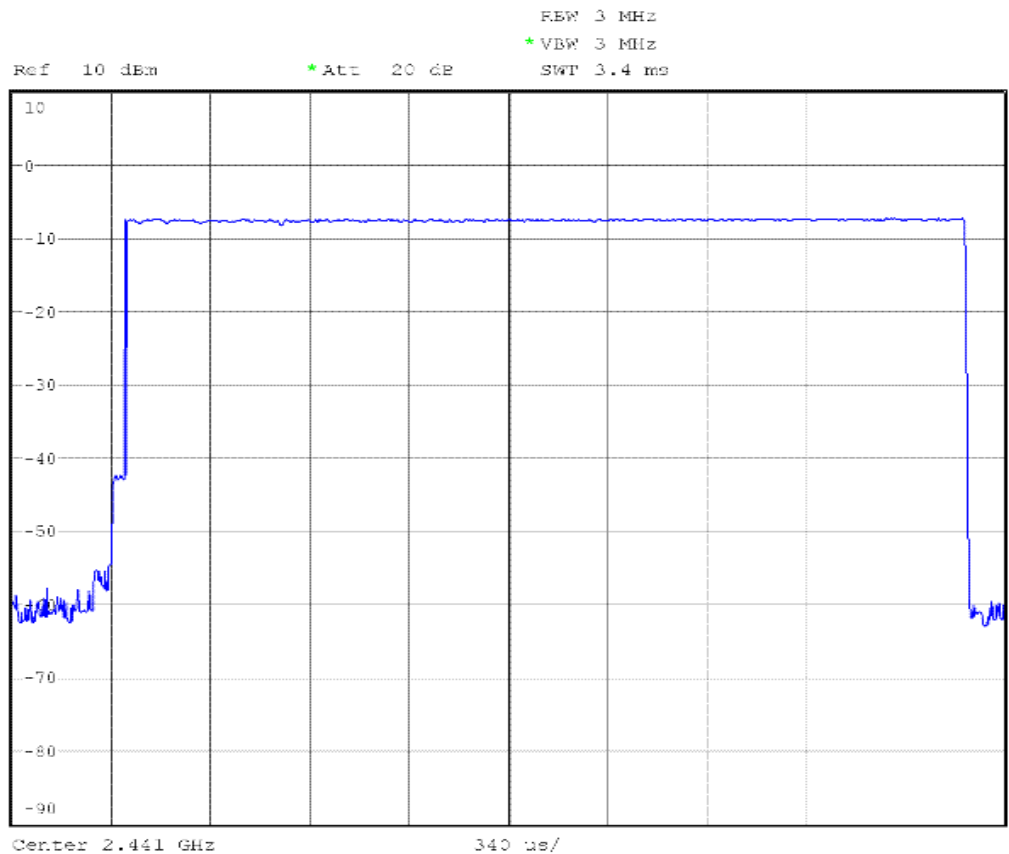
All values as measured must fulfill the following conditions:

1. $P_{av} < 100\text{mW}$ (20 dBm) EIRP
2. $P_{pk} < 200\text{mW}$ (23 dBm) EIRP
3. If the EUT is a power class 1 equipment : $P_{av} > 1\text{mW}$ (0dBm)
4. If the EUT is a power class 2 equipment : 0.25mW (-6 dBm) $< P_{av} < 2.5\text{mW}$ (4dBm)
5. If the EUT is a power class 3 equipment : $P_{av} < 1\text{mW}$ (0dBm)

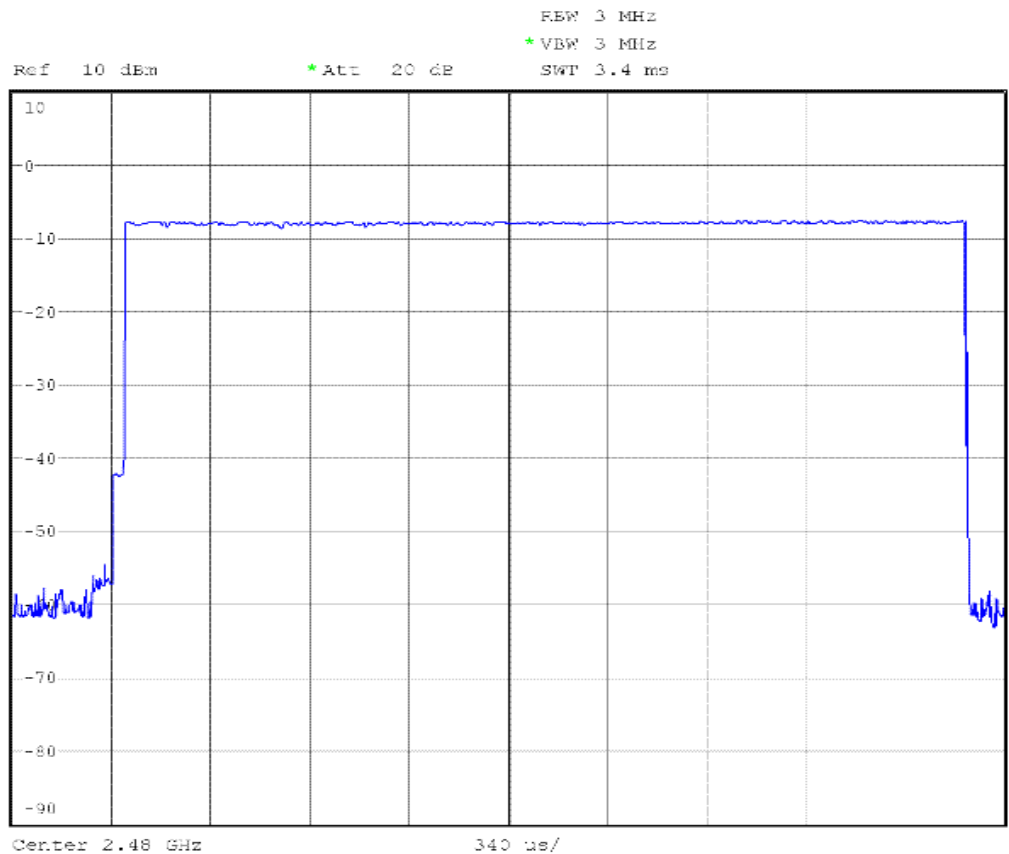
Test Frequency	Item	Value(mW)	Verdict
Low operating frequency (2402MHz)	Peak Power	1.14	N/A
	Average Power	1.08	Pass
	Peak Power (EIRP)	1.14	Pass
	Average Power (EIRP)	1.08	Pass
Mid operating frequency (2441MHz)	Peak Power	1.31	N/A
	Average Power	1.22	Pass
	Peak Power (EIRP)	1.31	Pass
	Average Power (EIRP)	1.22	Pass
High operating frequency (2480MHz)	Peak Power	1.26	N/A
	Average Power	1.15	Pass
	Peak Power (EIRP)	1.26	Pass
	Average Power (EIRP)	1.15	Pass



Output Power (Low operating frequency)



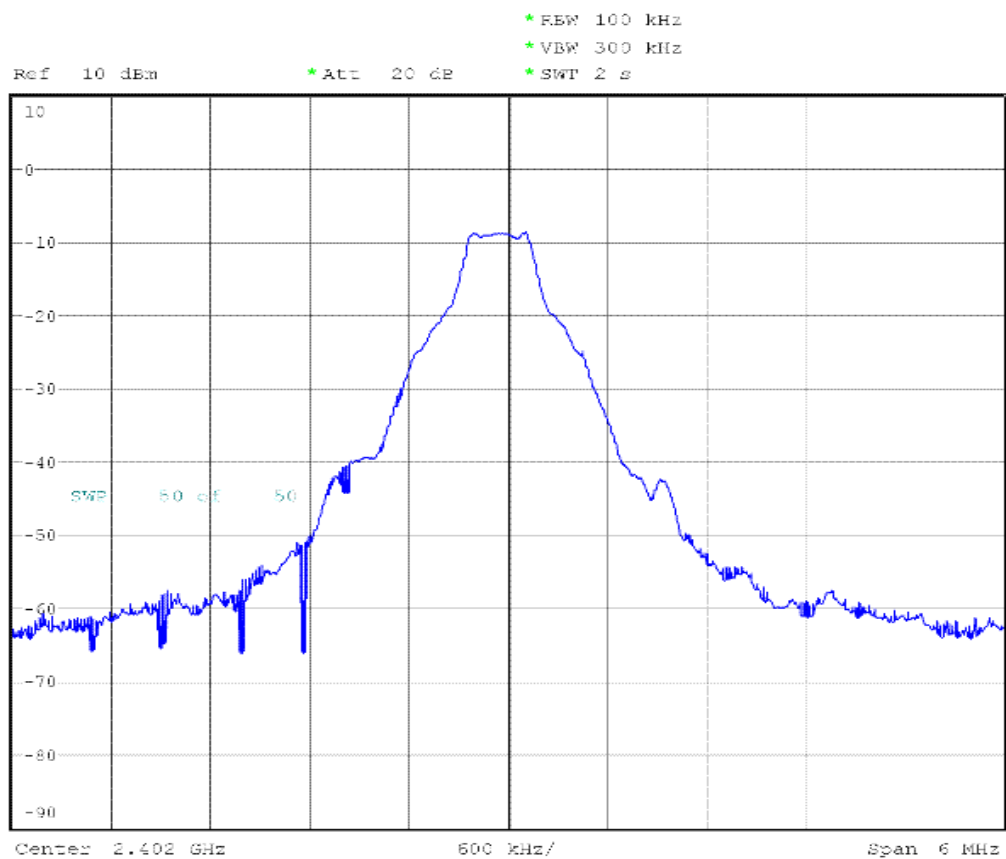
Output Power (Mid operating frequency)



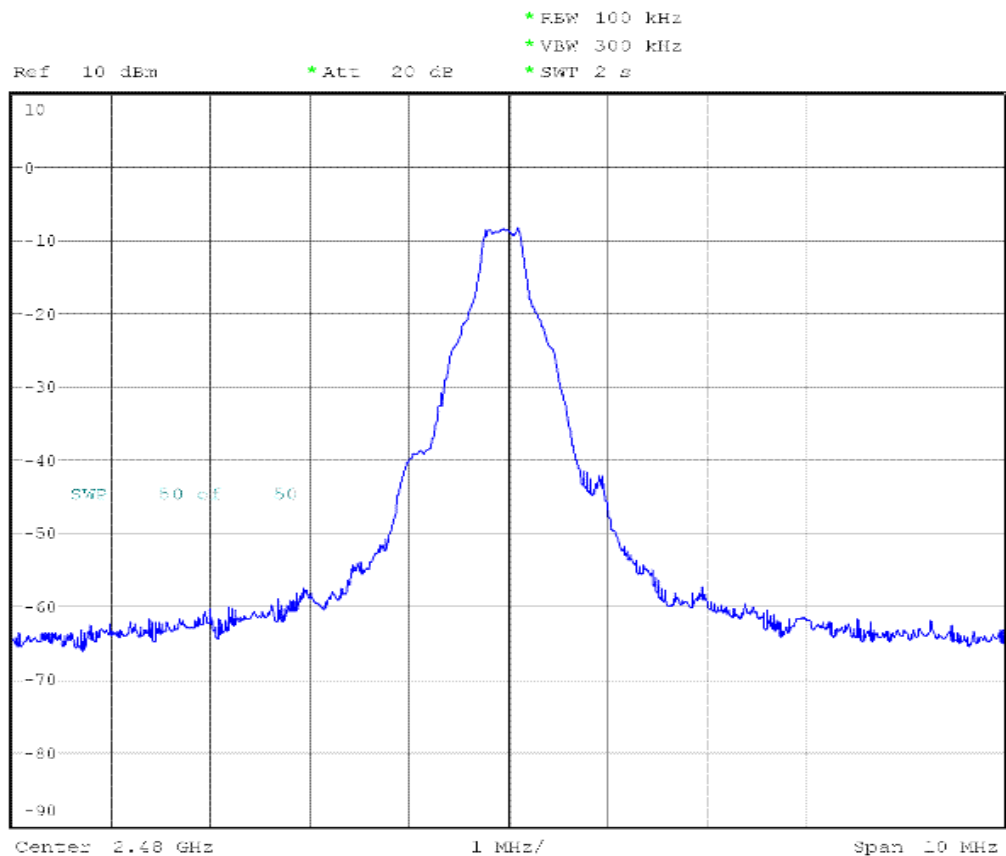
Output Power (High operating frequency)

2.1.3. Test Case: TRM/CA/04/C - TX Output Spectrum - Frequency Range

Expected Outcome:			
All values as measured must fulfill the following conditions:			
1. fL, fH within the allowed frequency band :2.4 GHz – 2.4835 GHz			
Frequency (MHz)		Limit(MHz)	Verdict
Lowest(fL)	2401.22	fL>2400.0	Pass
Highest(fH)	2478.41	fH <2483.5	Pass



TX Output Spectrum – Frequency range (fL)



TX Output Spectrum – Frequency range (fH)

**2.1.4. Test Case: RCV/CA/01/C - Sensitivity - Single Slot Packets**

Expected Outcome:

All values as measured must fulfill the following conditions.

1. $BER \leq 0.1\%$ (minimum number of samples, 1,600,000 returned payload bits.)

Test Frequency (MHz)	BER (%)	Limit (%)	Verdict
2402	0.00	≤ 0.1	Pass
2441	0.00	≤ 0.1	Pass
2480	0.00	≤ 0.1	Pass

2.1.5. Test Case: RCV/CA/02/C - Sensitivity - Multi-Slot Packets

Expected Outcome:

All values as measured must fulfill the following conditions.

1. $BER \leq 0.1\%$ (minimum number of samples, 1,600,000 returned payload bits.)

Test Frequency (MHz)	BER (%)	Limit (%)	Verdict
2402	0.00	≤ 0.1	Pass
2441	0.00	≤ 0.1	Pass
2480	0.00	≤ 0.1	Pass



Appendix: Test Data

Test Data for RF Testing : [Test Evidence for RF Test.zip](#)