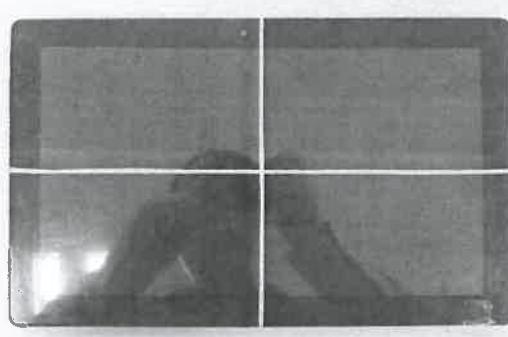


Prüfbericht-Nr.: <i>Test Report No.:</i>	17052720 002	Auftrags-Nr.: <i>Order No.:</i>	164045796	Seite 1 von 44 <i>Page 1 of 44</i>	
Kunden-Referenz-Nr.: <i>Client Reference No.:</i>	N/A	Auftragsdatum: <i>Order date.:</i>	21.09.2015		
Auftraggeber: <i>Client:</i>	Lightcomm Technology Co., Ltd. RM1708-10, 17/F, PROSPERITY CENTRE, 25 CHONG YIP STREET, KWUN TONG, HONG KONG				
Prüfgegenstand: <i>Test item:</i>	11.6" QUAD CODE TABLET				
Bezeichnung / Typ-Nr.: <i>Identification / Type No.:</i>	DL1168A, MID1102-MA				
Auftrags-Inhalt: <i>Order content:</i>	FCC Certification				
Prüfgrundlage: <i>Test specification:</i>	CFR47 FCC Part 15: Subpart C Section 15.247 CFR47 FCC Part 15: Subpart C Section 15.207 CFR47 FCC Part 15: Subpart C Section 15.209				
Wareneingangsdatum: <i>Date of receipt:</i>	18.09.2015				
Prüfmuster-Nr.: <i>Test sample No.:</i>	ES150922017E-1, ES150922017E-2, ES150922017E-3				
Prüfzeitraum: <i>Testing period:</i>	19.09.2015 - 23.09.2015				
Ort der Prüfung: <i>Place of testing:</i>	Shenzhen Emtek Co., Ltd.				
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland (Shenzhen) Co., Ltd.				
Prüfergebnis*: <i>Test result*:</i>	Pass				
geprüft von / tested by: 	kontrolliert von / reviewed by: 				
08.10.2015	Ryan Yang / Senior Project Engineer	08.10.2015	Sam Lin / Technical Certifier		
Datum <i>Date</i>	Name/Stellung <i>Name/Position</i>	Unterschrift <i>Signature</i>	Datum <i>Date</i>	Name/Stellung <i>Name/Position</i>	Unterschrift <i>Signature</i>
Sonstiges / Other: Only evaluate the Wi-Fi function(2.4GHz) in this test report. FCC ID: XMF-MID1102					
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>			Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged:</i>		
* Legende: 1 = sehr gut 2 = gut 3 = befriedigend 4 = ausreichend 5 = mangelhaft P(ass) = entspricht o.g. Prüfgrundlage(n) F(fail) = entspricht nicht o.g. Prüfgrundlage(n) Legend: 1 = very good 2 = good 3 = satisfactory 4 = sufficient 5 = poor P(ass) = passed a.m. test specifications(s) F(fail) = failed a.m. test specifications(s) N/A = nicht anwendbar N/T = nicht getestet N/A = not applicable N/T = not tested					
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines. <i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>					

Prüfbericht - Nr.: 17052720 002
Test Report No.

Seite 2 von 44
Page 2 of 44

Test Summary

5.1.1 ANTENNA REQUIREMENT

RESULT: Pass

5.1.2 MAXIMUM PEAK CONDUCTED OUTPUT POWER

RESULT: Pass

5.1.3 CONDUCTED POWER SPECTRAL DENSITY

RESULT: Pass

5.1.4 6dB BANDWIDTH

RESULT: Pass

5.1.5 CONDUCTED SPURIOUS EMISSIONS MEASURED IN 100 kHz BANDWIDTH

RESULT: Pass

5.1.6 RADIATED SPURIOUS EMISSION

RESULT: Pass

5.1.7 CONDUCTED EMISSION

RESULT: Pass

Prüfbericht - Nr.: 17052720 002

Test Report No.

Seite 3 von 44
Page 3 of 44**Contents**

1	GENERAL REMARKS	4
1.1	COMPLEMENTARY MATERIALS	4
2	TEST SITES	4
2.1	TEST FACILITIES	4
2.2	LIST OF TEST AND MEASUREMENT INSTRUMENTS.....	5
2.3	TRACEABILITY	6
2.4	CALIBRATION	6
2.5	MEASUREMENT UNCERTAINTY.....	6
2.6	LOCATION OF ORIGINAL DATA.....	6
2.7	STATUS OF FACILITY USED FOR TESTING.....	6
3	GENERAL PRODUCT INFORMATION	7
3.1	PRODUCT FUNCTION AND INTENDED USE.....	7
3.2	RATINGS AND SYSTEM DETAILS	7
3.3	INDEPENDENT OPERATION MODES	8
3.4	NOISE GENERATING AND NOISE SUPPRESSING PARTS.....	8
3.5	SUBMITTED DOCUMENTS.....	8
4	TEST SET-UP AND OPERATION MODES	9
4.1	PRINCIPLE OF CONFIGURATION SELECTION	9
4.2	TEST OPERATION AND TEST SOFTWARE.....	9
4.3	SPECIAL ACCESSORIES AND AUXILIARY EQUIPMENT	9
4.4	COUNTERMEASURES TO ACHIEVE EMC COMPLIANCE	9
4.5	TEST SETUP DIAGRAM	10
5	TEST RESULTS	12
5.1	TRANSMITTER REQUIREMENT & TEST SUITES	12
5.1.1	Antenna Requirement	12
5.1.2	Maximum Peak Conducted Output Power.....	13
5.1.3	Conducted Power Spectral Density	14
5.1.4	6dB Bandwidth	21
5.1.5	Conducted Spurious Emissions Measured in 100 kHz Bandwidth	28
5.1.6	Radiated Spurious Emission	39
5.1.7	Conducted Emission	40
6	PHOTOGRAPHS OF THE TEST SET-UP	41
7	LIST OF TABLES.....	44
8	LIST OF PHOTOGRAPHS	44

1 General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix D: Test results of Wi-Fi 802.11 b/g/n mode (2.4 GHz)

2 Test Sites

2.1 Test Facilities

Shenzhen Emtek Co., Ltd.

Bldg. 69, Majialong Industry Zone, Nanshan District, Shenzhen, China

FCC Registration No.: 709623

The tests at the test sites have been conducted under the supervision of a TÜV engineer.

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Shenzhen Emtek Co., Ltd.

Radio Spectrum Test				
Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
Spectrum Analyzer	R&S	FSV40	132.1-3008K39-100967-AP	17.05.2016
Spectrum Analyzer	Agilent	E4407B	88156318	17.05.2016
Spectrum Analyzer	Agilent	N9010A	My53470879	17.05.2016
Conducted Emission				
Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
Test Receiver	R&S	ESCI	26115-010-0027	17.05.2016
L.I.S.N.	R&S	ENV216	101161	17.05.2016
50Ω Coaxial Switch	Anritsu	MP59B	6100175589	17.05.2016
Voltage Probe	R&S	ESH2-Z3	100122	17.05.2016
Radiated Emission & Spurious Emission				
Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
EMI Test Receiver	R&S	ESU	1302.6005.26	17.05.2016
Loop Antenna	Schwarzbeck	FMZB 1519	1519-012	17.05.2016
Pre-Amplifier	HP	8447F	2944A07999	17.05.2016
Bilog Antenna	Schwarzbeck	VULB9163	142	17.05.2016
Pre-Amplifier	A.H.	PAM-0126	1415261	17.05.2016
Horn Antenna	Schwarzbeck	BBHA 9120	707	17.05.2016
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170399	17.05.2016
Cable	N/A	3M SF104-26.5	295838/4	17.05.2016
Cable	N/A	6M SF104-26.5	295840/4	17.05.2016
Cable	Schwarzbeck	AK9513	ACRX1	17.05.2016
Cable	Rosenberger	N/A	FP2RX2	17.05.2016
Cable	Schwarzbeck	AK9513	CRPX1	17.05.2016
Cable	Schwarzbeck	AK9513	CRRX2	17.05.2016
Cable	H+B	0.5M SF104-26.5	289147/4	17.05.2016
Cable	H+B	3M SF104-26.5	295838/4	17.05.2016

2.3 Traceability

All measurement equipment calibrations are traceable to NIM (National Institute of Metrology) or where calibration is performed in other countries, to equivalent nationally recognized standards organizations.

2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

2.5 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements as below table

Table 2: Measurement Uncertainty

Parameter	Uncertainty
Radio Spectrum	± 1.0 dB
Maximum Peak Output Power Test	± 1.0 dB
Conducted Emissions Test	± 2.0 dB
Radiated Emission Test	± 2.0 dB
Power Density	± 2.0 dB
Occupied Bandwidth Test	± 1.0 dB
Band Edge Test	± 3.0 dB
All emission, Radiated	± 3.0 dB
Antenna Port Emission	± 3.0 dB
Temperature	± 0.5 °C
Humidity	± 3.0 %

2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix D of this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Shenzhen) file for certification follow-up purposes.

2.7 Status of Facility Used for Testing

The Shenzhen Emtek Co., Ltd. Test facility located at Bldg. 69, Majialong Industry Zone, Nanshan District, Shenzhen, China is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

3 General Product Information

3.1 Product Function and Intended Use

The EUTs are 11.6" quad code tablet with Wi-Fi, Bluetooth function.

These models are identical except the model name.

Refer to User Manual and Circuit Diagram for further details.

3.2 Ratings and System Details

Table 3: Technical Specification of EUT

Technical Specification	Value
Kind of Equipment	Error! Reference source not found.
Type Designation	DL1168A, MID1102-MA
FCC ID	XMF-MID1102
Operating Frequency	2412 MHz to 2462 MHz for 802.11b/g/n(HT20) 2422 MHz to 2452 MHz for 802.11n(HT40)
Operating Temperature Range	-30 °C ~ +75 °C
Operating Voltage	DC 3.7V via Internal rechargeable lithium battery AC 5.0V via AC/DC adapter
Type of Modulation	DSSS(CCK/DQPSK/DBPSK) for 802.11b OFDM(BPSK/QPSK) for 802.11g OFDM(BPSK/QPSK/16QAM/64QAM) for 802.11n
Data Rate	1/2/5.5/11 Mbps for 802.11b 6/9/12/18/24/36/48/54 Mbps for 802.11g MCS0 ~ MCS7 Mbps for 802.11n(HT20) MCS0 ~ MCS7 Mbps for 802.11n(HT40)
Channel Number	11 channels for 802.11b/g/n(HT20) 9 channels for 802.11n(HT40)
Channel Separation	5 MHz
Antenna Type	PCB Antenna
Antenna Gain	1.56 dBi

Prüfbericht - Nr.: 17052720 002

Test Report No.

Seite 8 von 44
Page 8 of 44**Table 4: RF Channel and Frequency of Wi-Fi**

RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
01	2412	07	2442
02	2417	08	2447
03	2422	09	2452
04	2427	10	2457
05	2432	11	2462
06	2437	/	/

Remark:

1. Test frequencies are lowest channel: 2412 MHz, middle channel: 2437 MHz and highest channel: 2462 MHz for 802.11b/g/n(HT20)
2. Test frequencies are lowest channel: 2422 MHz, middle channel: 2437 MHz and highest channel: 2452 MHz for 802.11n(HT40)

3.3 Independent Operation Modes

The basic operation modes are:

- A. On, Wi-Fi mode (2.4 GHz)
 1. Transmitting
 - a. Low Channel
 - b. Middle Channel
 - c. High Channel
 2. Receiving
- B. Standby
- C. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

3.5 Submitted Documents

- | | |
|--------------------------|--------------------------|
| - Application Form | - Bill of Material |
| - Constructional Drawing | - Instruction Manual |
| - PCB Layout | - FCC Label and Location |
| - Photo Document | - User Manual |

4 Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

Radio Spectrum: The equipment under test (EUT) was configured at its highest power output in order to measure its highest possible radiation and conducted level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5. All testing were performed according to the procedures in ANSI C63.10: 2013

According to clause 3.1, all tests were applied on model MID1102-MA only.

4.3 Special Accessories and Auxiliary Equipment

Table 5: List of Accessories and Auxiliary Equipment

Description	Manufacturer	Model	S/N	Rating
AC/DC Adapter	TEKA	TEKA012-0502000UK	N/A	Input: AC 100-240V, 50/60Hz, 0.35A Output: DC 5V, 2A

The EUT was tested with following cables:

Interface(s)/Port(s):	Max. cable length, shielding	Cable classification
AC Mains of adapter	2 cores, non-shielded port, 3m	AC Power Input
Micro USB port	4 cores, non-shielded port, 3m	DC Power Input

4.4 Countermeasures to Achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Technical Construction File (TCF).

No additional measures were employed to achieve compliance.

4.5 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test (Below 1GHz)

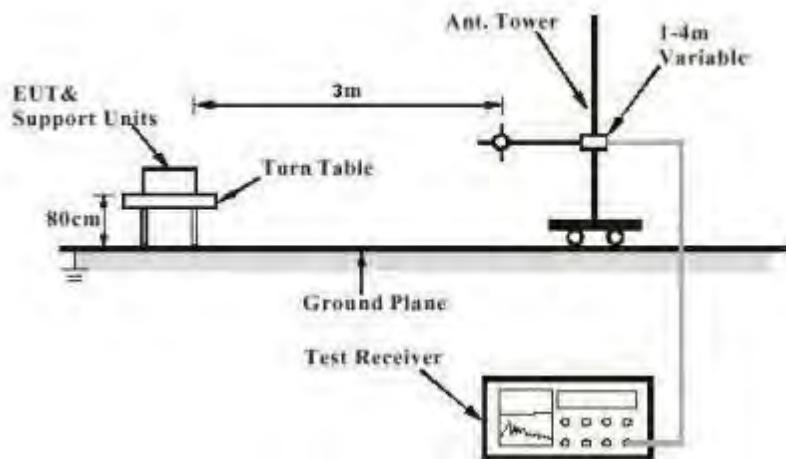
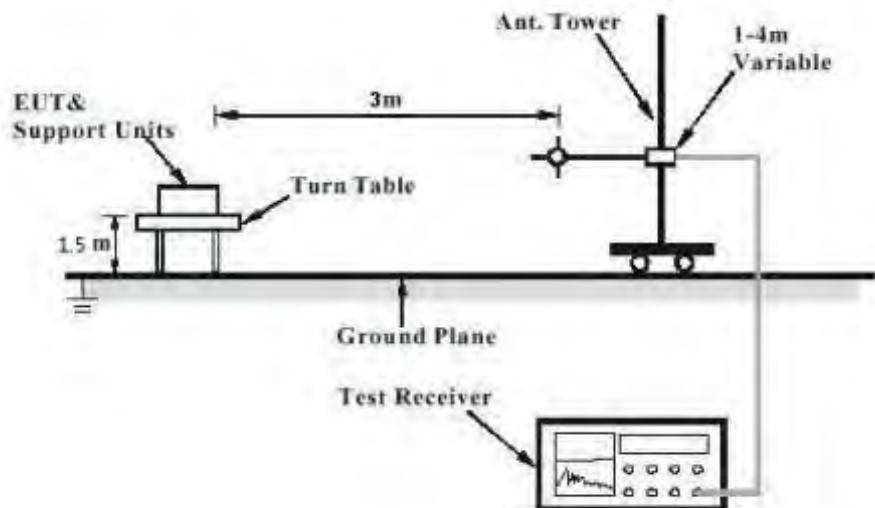


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)



Prüfbericht - Nr.: 17052720 002
Test Report No.

Seite 11 von 44
Page 11 of 44

Diagram of Measurement Configuration for Mains Conduction Measurement

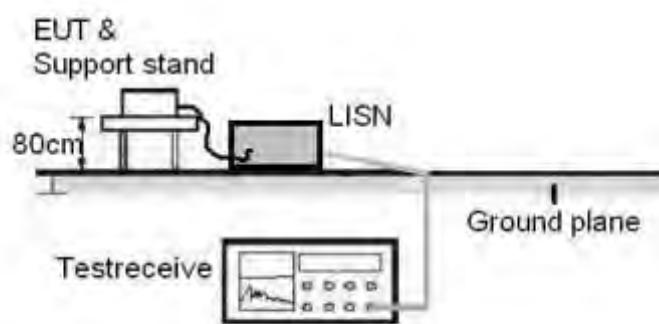
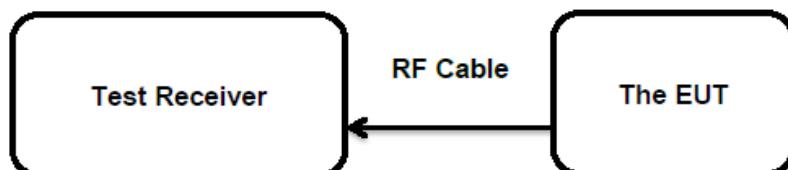


Diagram of Measurement Configuration for Conducted Transmitter Measurement



5 Test Results

5.1 Transmitter Requirement & Test Suites

5.1.1 Antenna Requirement

RESULT: Pass

Test Specification

Test standard	: FCC Part 15.247(b)(4) and Part 15.203
Limits	: the use of antennas with directional gains that do not exceed 6dBi

According to the manufacturer declared, the EUT has an internal antenna, the directional gain of antenna is 1.56 dBi, and the antenna connector is designed with permanent attachment and no consideration of replacement. Therefore the EUT is considered sufficient to comply with the provision.

Therefore the EUT is considered sufficient to comply with the provision.

Refer to EUT Photo for further details.

Prüfbericht - Nr.: 17052720 002

Test Report No.

Seite 13 von 44
Page 13 of 44

5.1.2 Maximum Peak Conducted Output Power

RESULT:

Pass

Test Specification

Test standard	:	FCC Part 15.247(b)(3)
Basic standard	:	ANSI C63.10: 2013
Limits	:	< 1 Watt
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	19.09.2015
Input voltage	:	DC 3.7V via Internal rechargeable lithium battery
Operation mode	:	A.1
Test channel	:	Low / Middle / High
Ambient temperature	:	25 °C
Relative humidity	:	56 %
Atmospheric pressure	:	101 kPa

Table 6: Test Result of Maximum Peak Conducted Output Power

Test Mode	Data Rate	Frequency (MHz)	Measured Power		Limit
			dBm	W	
802.11b	11 Mbps	2412	18.48	0.07047	< 1W(30dBm)
		2437	18.38	0.06887	
		2462	18.32	0.06792	
802.11g	54 Mbps	2412	19.86	0.09683	< 1W(30dBm)
		2437	21.39	0.13772	
		2462	19.86	0.09683	
802.11n (HT20)	MCS7 Mbps	2412	19.95	0.09886	< 1W(30dBm)
		2437	21.37	0.13709	
		2462	19.59	0.09099	
802.11n (HT40)	MCS7 Mbps	2422	17.90	0.06166	< 1W(30dBm)
		2437	21.36	0.13677	
		2452	18.02	0.06339	
Maximum Measured Value			21.39	0.13772	

Note: The cable loss is taken into account in results.
For the measurement records, refer to following test plot:

Prüfbericht - Nr.: 17052720 002

Test Report No.

 Seite 14 von 44
 Page 14 of 44

5.1.3 Conducted Power Spectral Density

RESULT:
Pass
Test Specification

Test standard	:	FCC Part 15.247(e)
Basic standard	:	ANSI C63.10: 2013
Limits	:	< 8 dBm / 3kHz
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	19.09.2015
Input voltage	:	DC 3.7V via Internal rechargeable lithium battery
Operation mode	:	A.1
Test channel	:	Low / Middle / High
Ambient temperature	:	25 °C
Relative humidity	:	56 %
Atmospheric pressure	:	101 kPa

Table 7: Test Result of Power Spectral Density

Test Mode	Data Rate	Frequency (MHz)	Measured Peak Power Spectral Density (dBm/3KHz)	Limit (dBm/3kHz)
802.11b	11 Mbps	2412	-7.20	< 8.0
		2437	-7.09	
		2462	-7.25	
802.11g	54 Mbps	2412	-12.39	< 8.0
		2437	-10.85	
		2462	-12.67	
802.11n (HT20)	MCS7 Mbps	2412	-13.30	< 8.0
		2437	-11.33	
		2462	-11.93	
802.11n (HT40)	MCS7 Mbps	2422	-18.55	< 8.0
		2437	-14.17	
		2452	-18.72	
Maximum Measured Value			-7.09	

Note: The cable loss is taken into account in results.
 For the measurement records, refer to following test plot:

Prüfbericht - Nr.: 17052720 002

Test Report No.

Seite 15 von 44
Page 15 of 44

Test Plot of Power Spectral Density, 802.11b

Low channel:



Middle channel:



Prüfbericht - Nr.: 17052720 002

Test Report No.

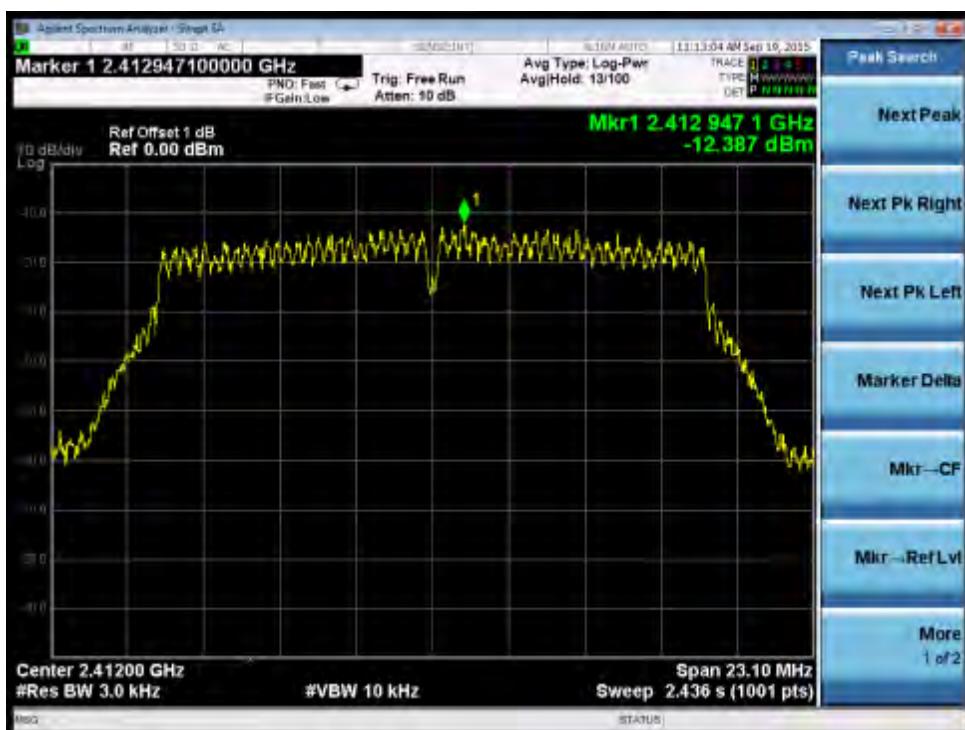
Seite 16 von 44
Page 16 of 44

High channel:



Test Plot of Power Spectral Density, 802.11g

Low channel:



Prüfbericht - Nr.: 17052720 002

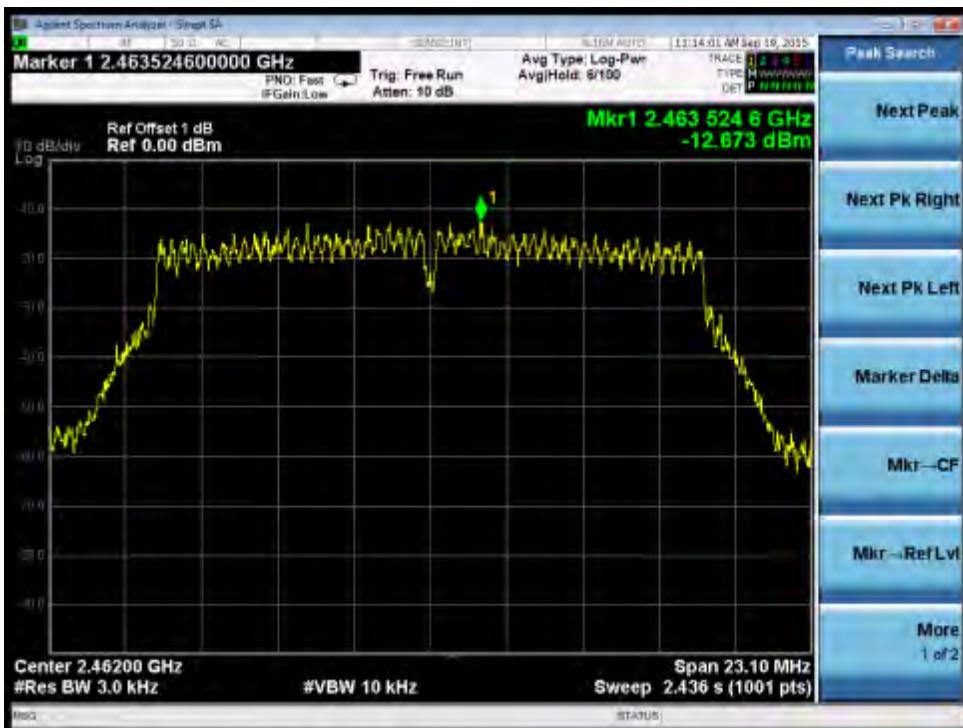
Test Report No.

Seite 17 von 44
Page 17 of 44

Middle channel:



High channel:



Prüfbericht - Nr.: 17052720 002

Test Report No.

Seite 18 von 44
Page 18 of 44

Test Plot of Power Spectral Density, 802.11n(HT20)

Low channel:



Middle channel:



Prüfbericht - Nr.: 17052720 002

Test Report No.

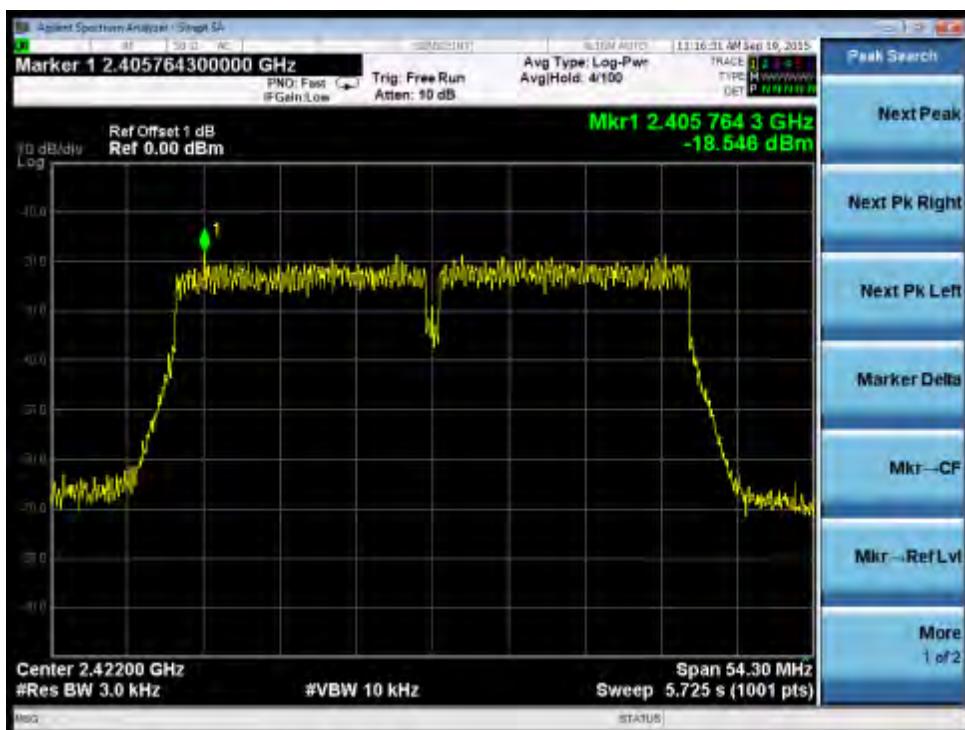
Seite 19 von 44
Page 19 of 44

High channel:



Test Plot of Power Spectral Density, 802.11n(HT40)

Low channel:



Prüfbericht - Nr.: 17052720 002

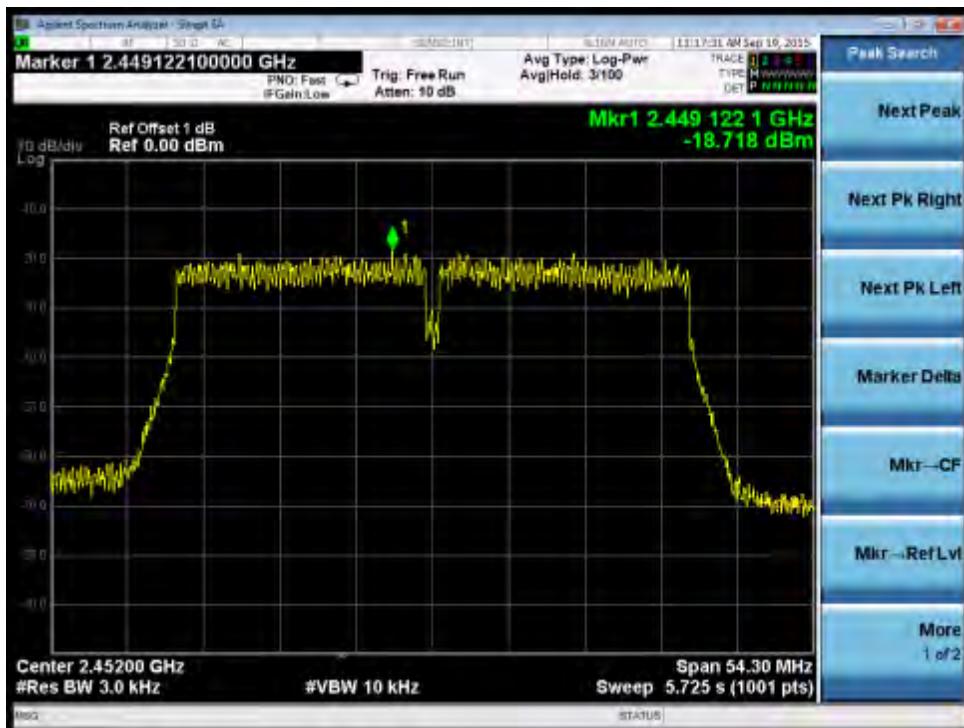
Test Report No.

Seite 20 von 44
Page 20 of 44

Middle channel:



High channel:



Prüfbericht - Nr.: 17052720 002

Test Report No.

 Seite 21 von 44
 Page 21 of 44

5.1.4 6dB Bandwidth

RESULT:
Pass
Test Specification

Test standard	:	FCC Part 15.247(a)(2)
Basic standard	:	ANSI C63.10: 2013
Limits	:	> 500 KHz
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	19.09.2015
Input voltage	:	DC 3.7V via Internal rechargeable lithium battery
Operation mode	:	A.1
Test channel	:	Low / Middle / High
Ambient temperature	:	25 °C
Relative humidity	:	56 %
Atmospheric pressure	:	101 kPa

Table 8: Test Result of 6dB Bandwidth

Test Mode	Data Rate	Frequency (MHz)	-6dB Bandwidth (MHz)	Limit (kHz)
802.11b	11 Mbps	2412	12.334	> 500
		2437	12.336	
		2462	12.400	
802.11g	54 Mbps	2412	16.396	> 500
		2437	16.402	
		2462	16.391	
802.11n (HT20)	MCS7 Mbps	2412	17.541	> 500
		2437	17.552	
		2462	17.557	
802.11n (HT40)	MCS7 Mbps	2422	36.004	> 500
		2437	35.772	
		2452	36.027	
Minimum Measured Value			12.33	

For the measurement records, refer to following test plot:

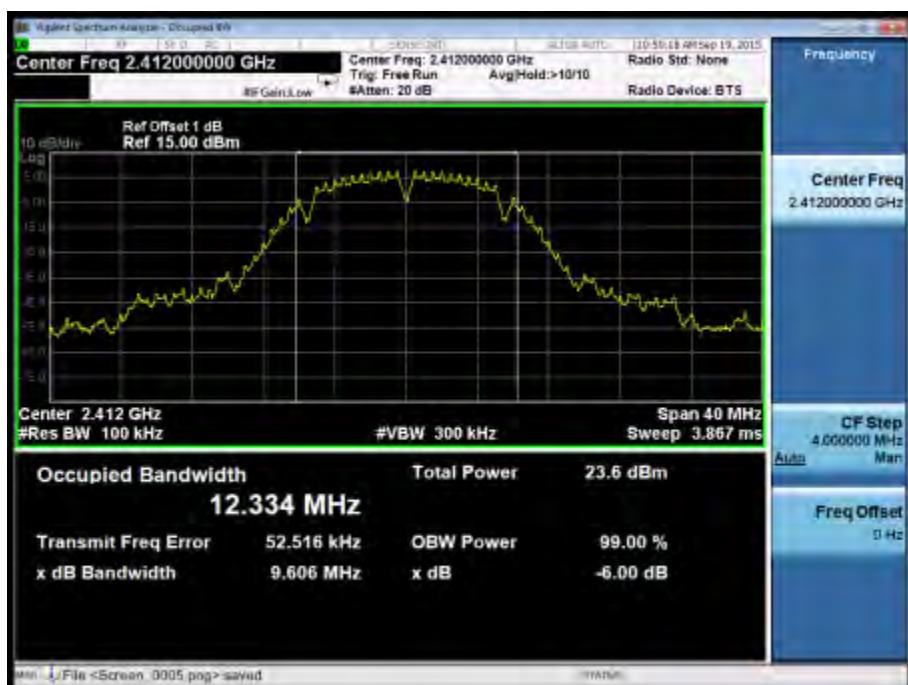
Prüfbericht - Nr.: 17052720 002

Test Report No.

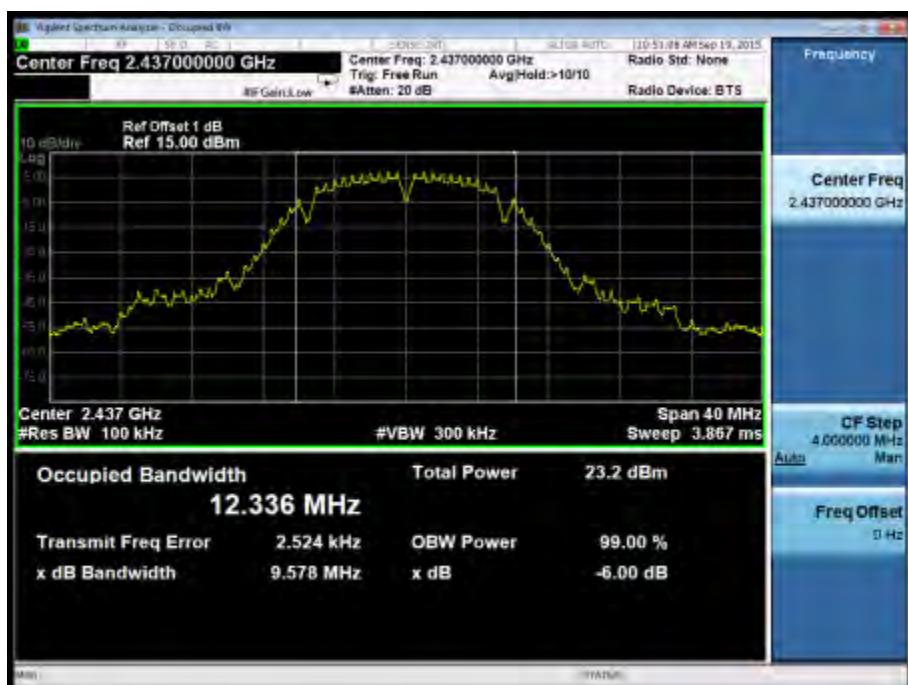
Seite 22 von 44
Page 22 of 44

Test Plot of 6dB Bandwidth, 802.11b

Low channel:



Middle channel:

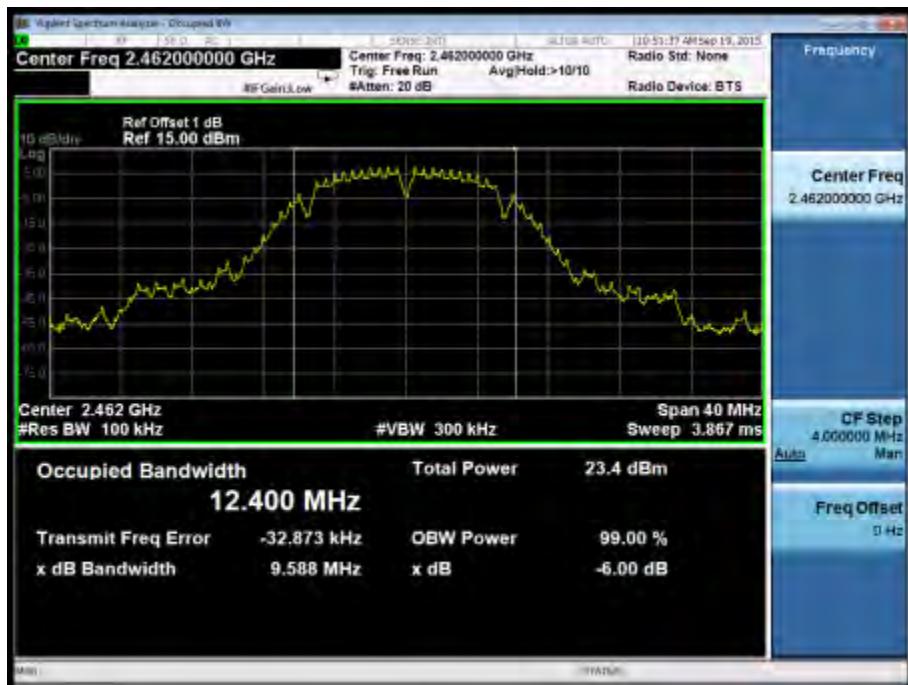


Prüfbericht - Nr.: 17052720 002

Test Report No.

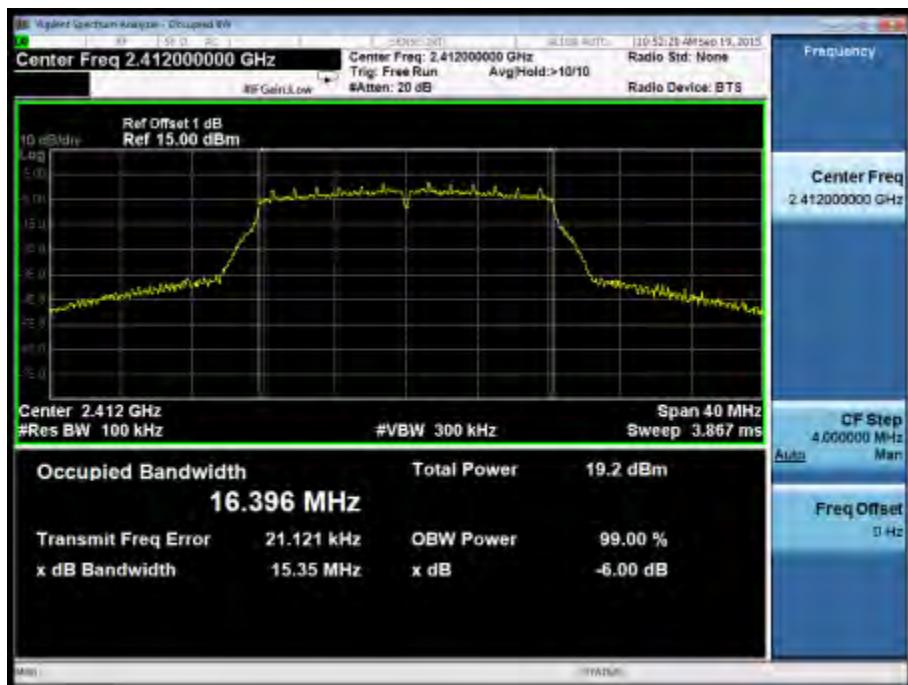
Seite 23 von 44
Page 23 of 44

High channel:



Test Plot of 6dB Bandwidth, 802.11g

Low channel:



Prüfbericht - Nr.: 17052720 002

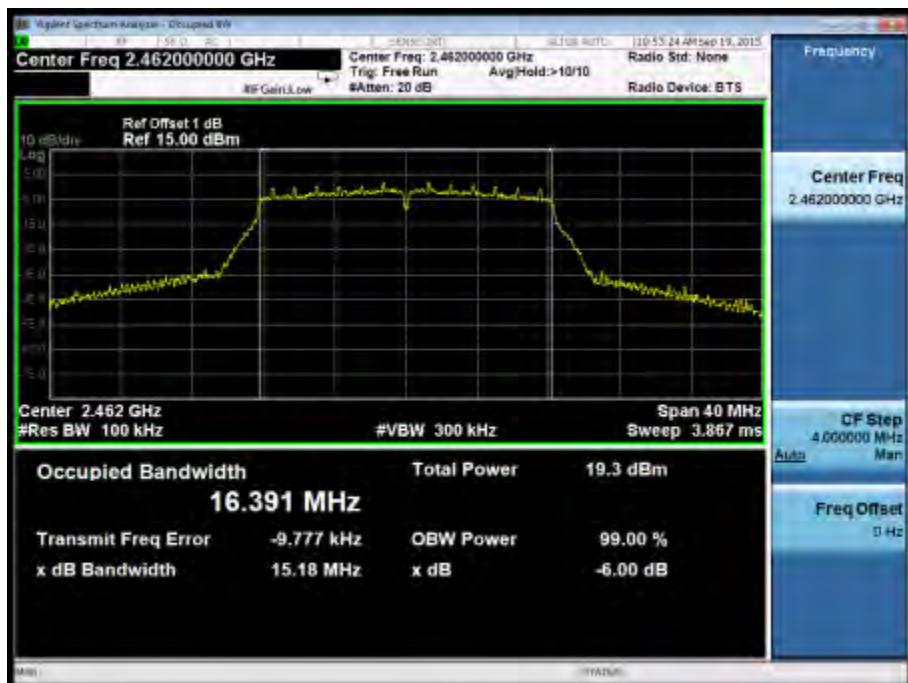
Test Report No.

Seite 24 von 44
Page 24 of 44

Middle channel:



High channel:



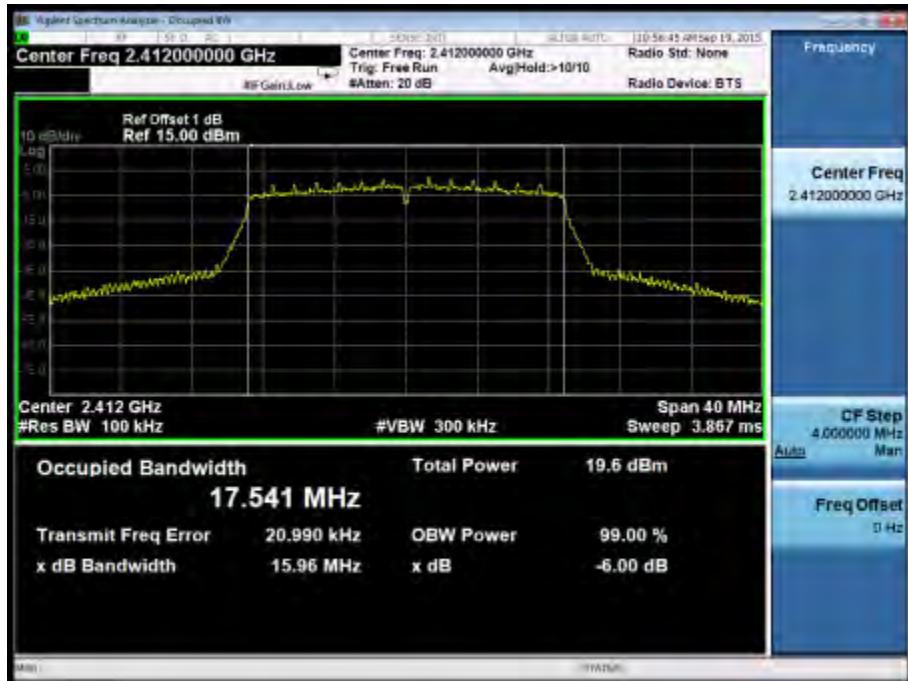
Prüfbericht - Nr.: 17052720 002

Test Report No.

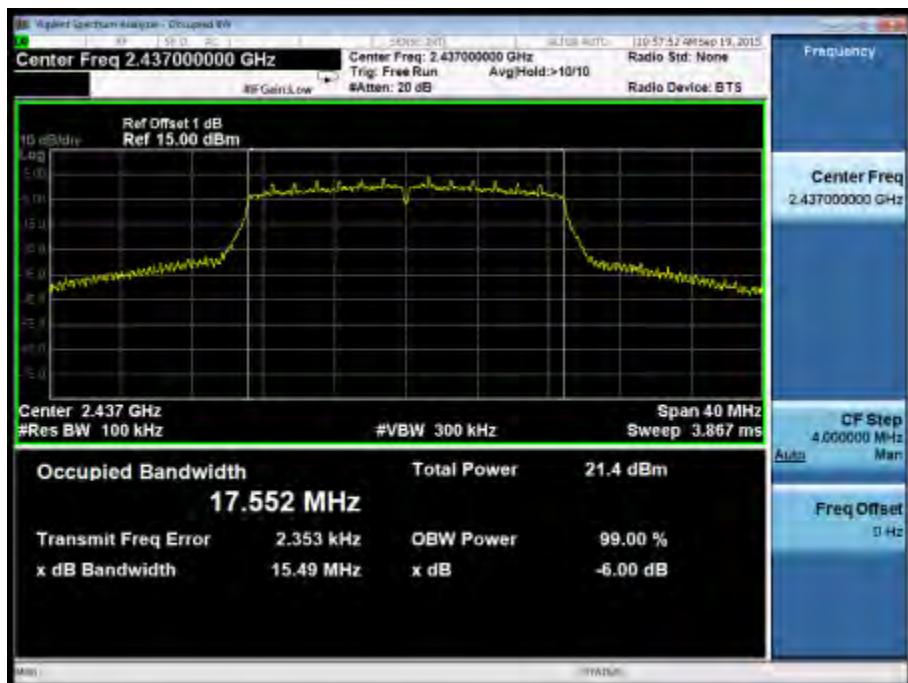
Seite 25 von 44
Page 25 of 44

Test Plot of 6dB Bandwidth, 802.11n(HT20)

Low channel:



Middle channel:



Prüfbericht - Nr.: 17052720 002

Test Report No.

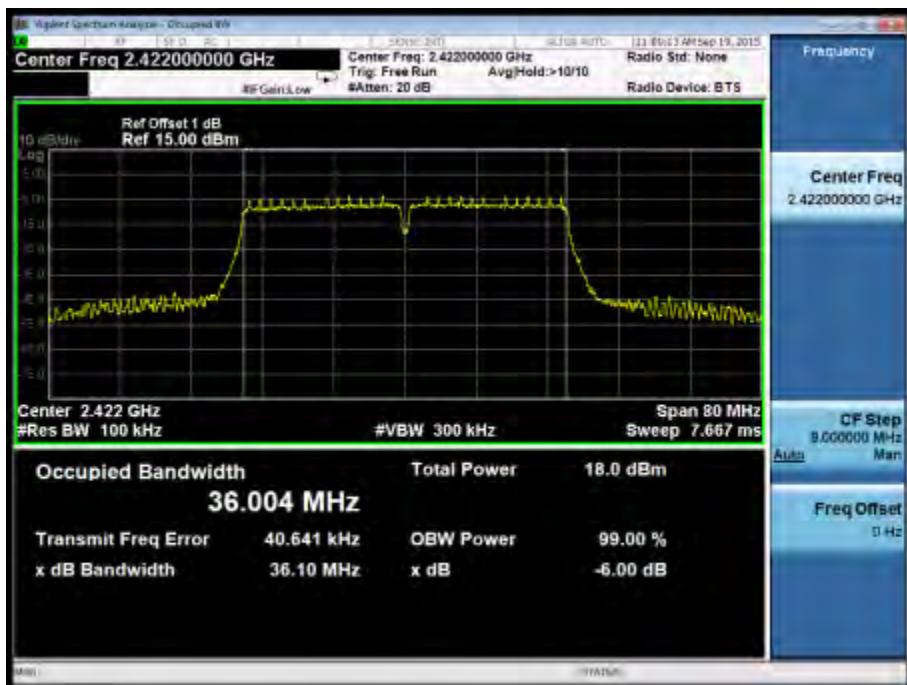
Seite 26 von 44
Page 26 of 44

High channel:



Test Plot of 6dB Bandwidth, 802.11n(HT40)

Low channel:

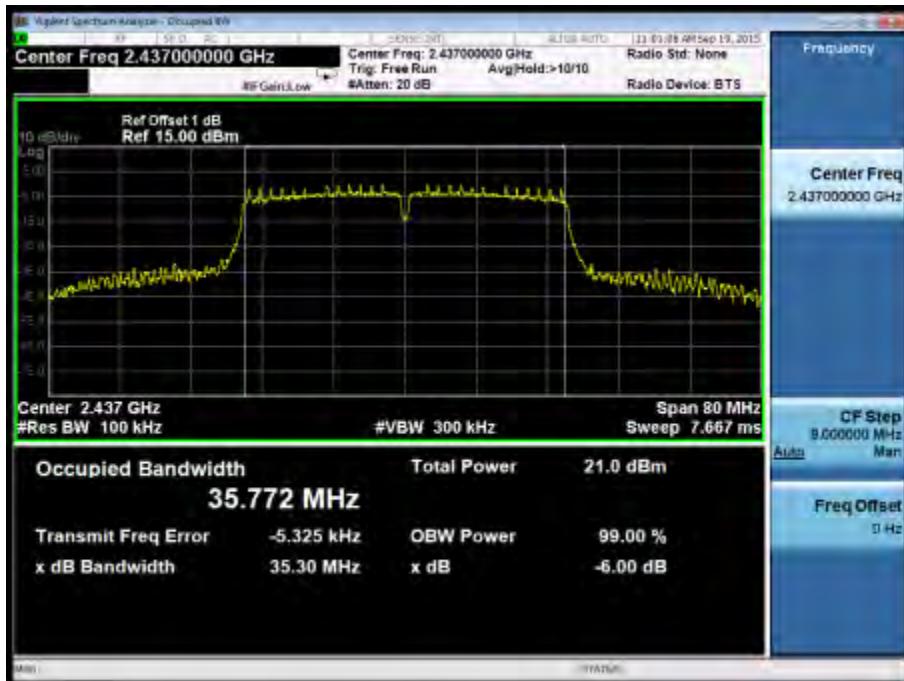


Prüfbericht - Nr.: 17052720 002

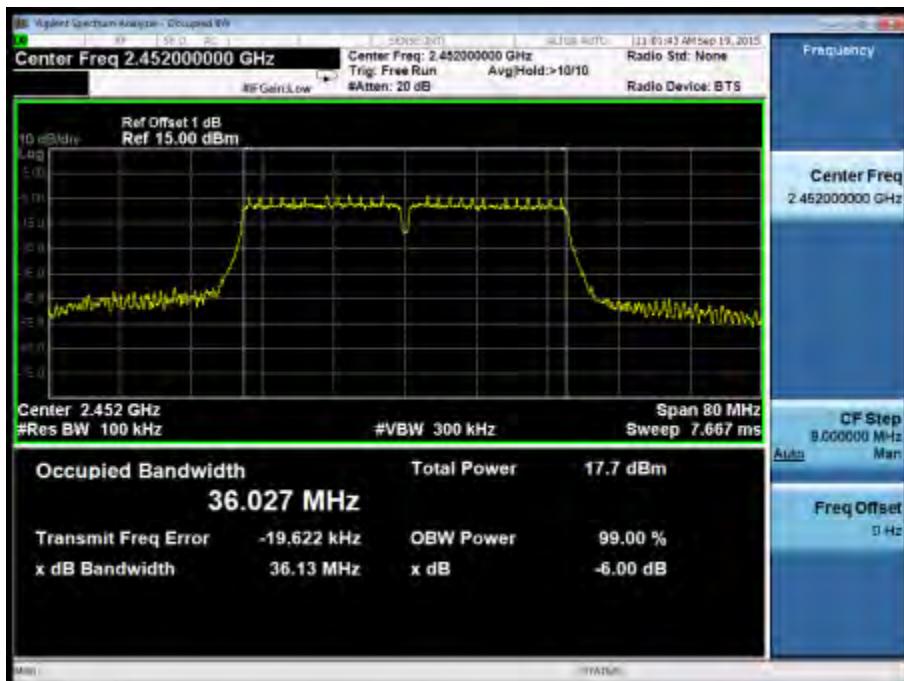
Test Report No.

Seite 27 von 44
Page 27 of 44

Middle channel:



High channel:



Prüfbericht - Nr.: 17052720 002
*Test Report No.*Seite 28 von 44
Page 28 of 44**5.1.5 Conducted Spurious Emissions Measured in 100 kHz Bandwidth****RESULT:****Pass****Test Specification**

Test standard	:	FCC Part 15.247(d)
Basic standard	:	ANSI C63.10: 2013 Error! Reference source not found.
Limits	:	20dB (below that in the 100kHz bandwidth within the band that contains the highest level of the desired power); In addition, radiated emissions which fall in the restricted bands, must also comply with the radiated emission limits specified in 15.209(a)
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	02.10.2015
Input voltage	:	DC 3.7V via Internal rechargeable lithium battery
Operation mode	:	A.1
Test channel	:	Low / Middle / High
Ambient temperature	:	25 °C
Relative humidity	:	56 %
Atmospheric pressure	:	101 kPa

Test results of 100kHz Bandwidth of Frequency Band Edge by Conducted method refer to following test plot, and compliance is achieved as well.

For the measurement records, refer to following test plot:

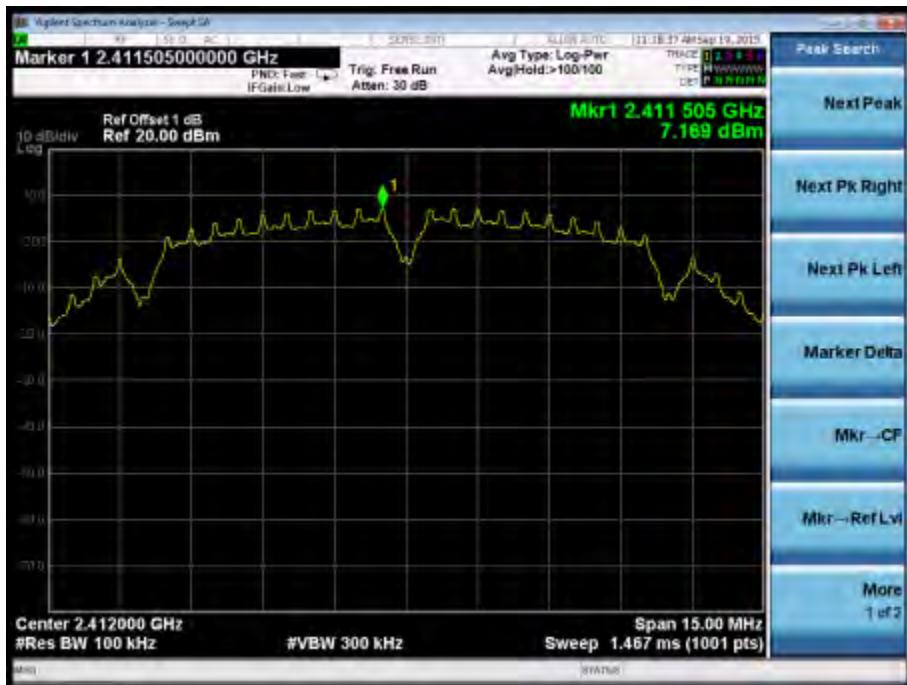
Prüfbericht - Nr.: 17052720 002

Test Report No.

 Seite 29 von 44
 Page 29 of 44

Test Plot of Conducted Spurious Emissions Measured in 100kHz Bandwidth, 802.11b

Low channel:



Middle channel:



Prüfbericht - Nr.: 17052720 002

Test Report No.

Seite 30 von 44
Page 30 of 44

High channel:



Test Plot of 100 kHz Bandwidth of Frequency Band Edge

Low channel:



Prüfbericht - Nr.: 17052720 002

Test Report No.

Seite 31 von 44
Page 31 of 44

High channel:



Test Plot of Conducted Spurious Emissions Measured in 100kHz Bandwidth, 802.11g

Low channel:



Prüfbericht - Nr.: 17052720 002

Test Report No.

Seite 32 von 44
Page 32 of 44

Middle channel:



High channel:



Prüfbericht - Nr.: 17052720 002

Test Report No.

Seite 33 von 44
Page 33 of 44

Test Plot of 100 kHz Bandwidth of Frequency Band Edge

Low channel:



High channel:



Prüfbericht - Nr.: 17052720 002

Test Report No.

Seite 34 von 44
Page 34 of 44

Test Plot of Conducted Spurious Emissions Measured in 100kHz Bandwidth, 802.11n(HT20)

Low channel:



Middle channel:



Prüfbericht - Nr.: 17052720 002

Test Report No.

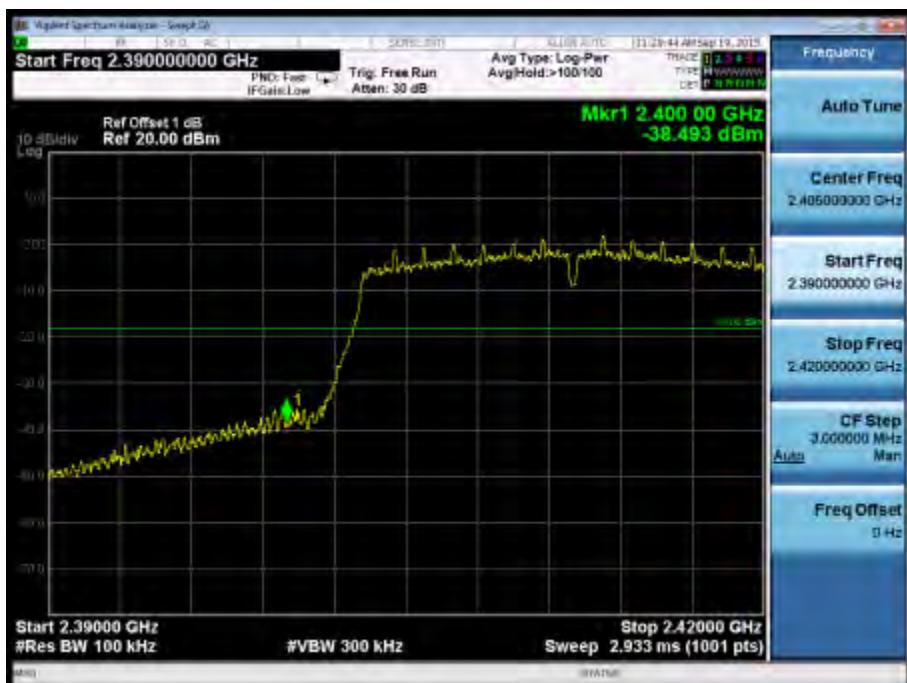
Seite 35 von 44
Page 35 of 44

High channel:



Test Plot of 100 kHz Bandwidth of Frequency Band Edge

Low channel:



Prüfbericht - Nr.: 17052720 002

Test Report No.

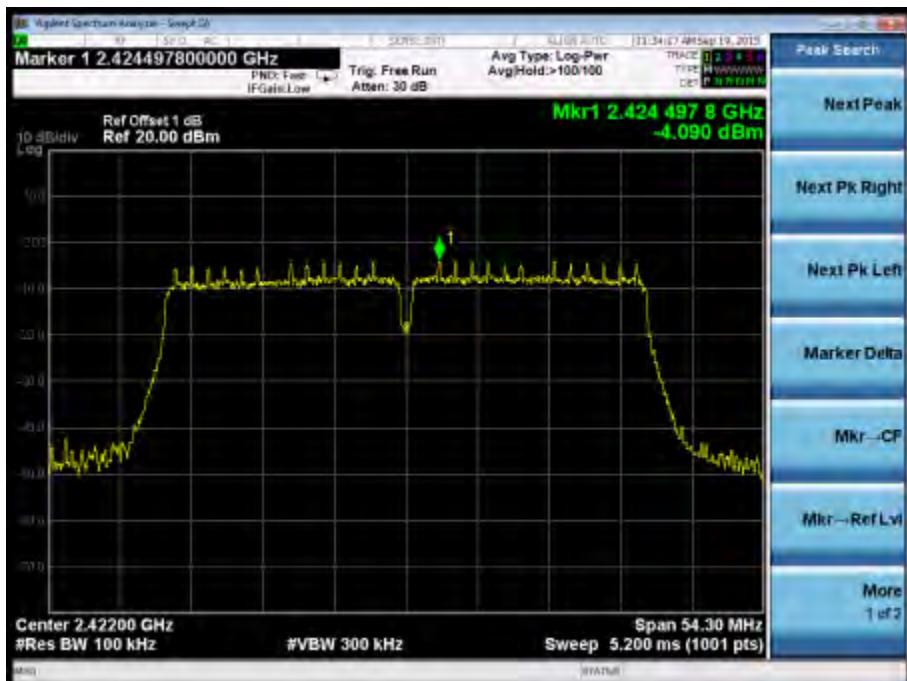
Seite 36 von 44
Page 36 of 44

High channel:



Test Plot of Conducted Spurious Emissions Measured in 100kHz Bandwidth, 802.11n(HT40)

Low channel:



Prüfbericht - Nr.: 17052720 002

Test Report No.

Seite 37 von 44
Page 37 of 44

Middle channel:



High channel:



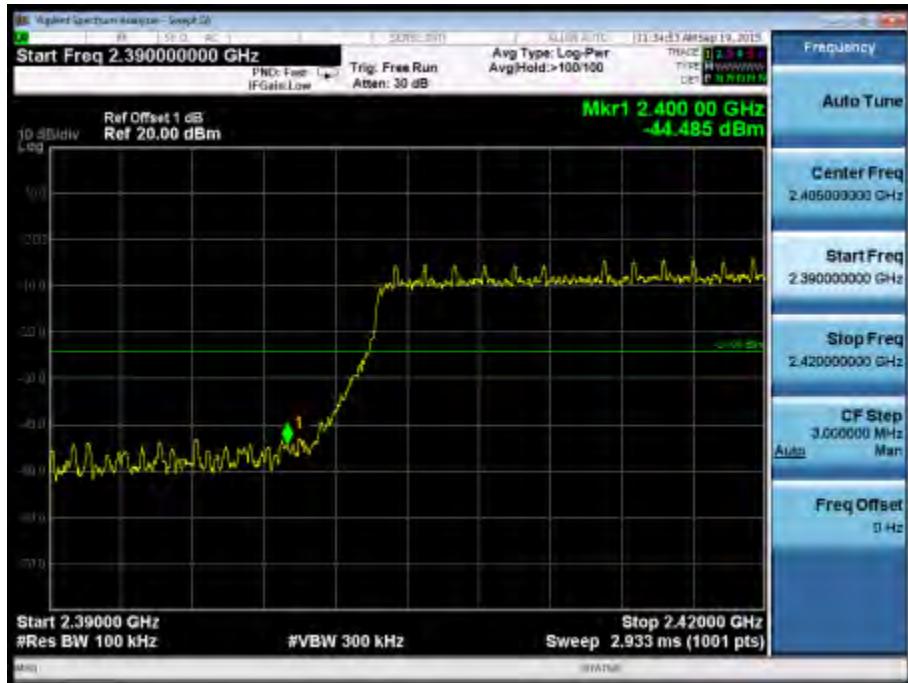
Prüfbericht - Nr.: 17052720 002

Test Report No.

 Seite 38 von 44
 Page 38 of 44

Test Plot of 100 kHz Bandwidth of Frequency Band Edge

Low channel:



High channel:



Prüfbericht - Nr.: 17052720 002
*Test Report No.*Seite 39 von 44
Page 39 of 44**5.1.6 Radiated Spurious Emission****RESULT:****Pass****Test Specification**

Test standard	: FCC Part 15.247(d) & FCC Part 15.205
Basic standard	: ANSI C63.10: 2013
Limits	: Refer to 15.209(a) of FCC part 15.247(d)
Kind of test site	: 3m Semi-anechoic Chamber

Test Setup

Date of testing	: 21.09.2015
Input voltage	: DC 3.7V via Internal rechargeable lithium battery
Operation mode	: A.1
Test channel	: Low / Middle / High
Ambient temperature	: 25 °C
Relative humidity	: 56 %
Atmospheric pressure	: 101 kPa

Remark:

During the pretest the EUT was rotated through three orthogonal axes to determine the attitude that maximizes the emissions. After that the EUT was manually handled to find the orientation that has the maximum emission, which is the orientation shown in the test set-up photos.

Testing was carried out within frequency range 9kHz to the tenth harmonics.

For the measurement records, refer to the appendix D.

Prüfbericht - Nr.: 17052720 002
*Test Report No.*Seite 40 von 44
Page 40 of 44**5.1.7 Conducted Emission****RESULT:** Pass**Test Specification**

Test standard	:	FCC Part 15.207(a)
Basic standard	:	ANSI C63.10: 2013
Frequency range	:	0.15 – 30MHz
Limits	:	FCC Part 15.207(a)
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	22.09.2015
Input voltage	:	DC 3.7V via Internal rechargeable lithium battery
Operation mode	:	A.1
Earthing	:	Low / Middle / High
Ambient temperature	:	25 °C
Relative humidity	:	56 %
Atmospheric pressure	:	101 kPa

For the measurement records, refer to the appendix D.

6 Photographs of the Test Set-Up

Photograph 1: Set-up for Radiated Spurious Emission (9kHz ~ 30MHz)



Photograph 2: Set-up for Radiated Spurious Emission (30MHz ~ 1GHz)



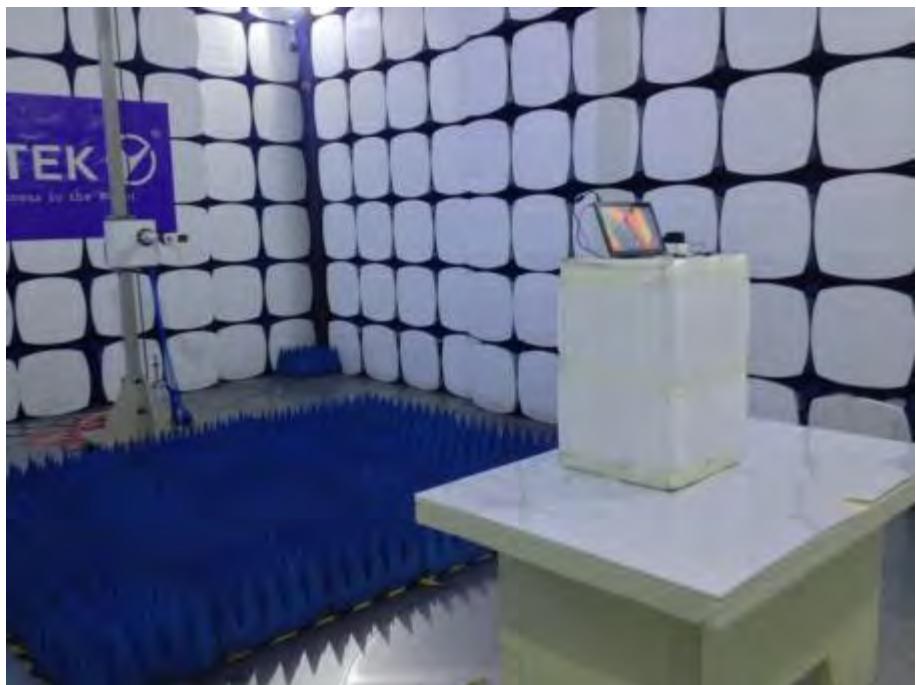
Prüfbericht - Nr.: 17052720 002
Test Report No.

Seite 42 von 44
Page 42 of 44

Photograph 3: Set-up for Radiated Spurious Emission (1GHz ~ 18GHz)



Photograph 4: Set-up for Radiated Spurious Emission (18GHz ~ 26GHz)



Prüfbericht - Nr.: 17052720 002
Test Report No.

Seite 43 von 44
Page 43 of 44

Photograph 5: Set-up for Conducted Emission



7 List of Tables

Table 1: List of Test and Measurement Equipment.....	5
Table 2: Measurement Uncertainty.....	6
Table 3: Technical Specification of EUT	7
Table 4: RF Channel and Frequency of Wi-Fi.....	8
Table 5: List of Accessories and Auxiliary Equipment.....	9
Table 6: Test Result of Maximum Peak Conducted Output Power.....	13
Table 7: Test Result of Power Spectral Density.....	14
Table 8: Test Result of 6dB Bandwidth.....	21

8 List of Photographs

Photograph 1: Set-up for Radiated Spurious Emission (9kHz ~ 30MHz)	41
Photograph 2: Set-up for Radiated Spurious Emission (30MHz ~ 1GHz)	41
Photograph 3: Set-up for Radiated Spurious Emission (1GHz ~ 18GHz).....	42
Photograph 4: Set-up for Radiated Spurious Emission (18GHz ~ 26GHz).....	42
Photograph 5: Set-up for Conducted Emission	43

Test Figures of 2.4G Wi-Fi

Figure 1: Test figure of Radiated Spurious Emissions (9kHz – 30M Hz), 802.11b, (Low).....	2
Figure 2: Test figure of Radiated Spurious Emissions (30MHz – 1GHz), 802.11b, (Low).....	3
Figure 3: Test figure of Radiated Spurious Emissions (1GHz –25GHz), 802.11b, (Low)	5
Figure 4: Test figure of Radiated Spurious Emissions (9kHz – 30MHz), 802.11b, (Mid).....	9
Figure 5: Test figure of Radiated Spurious Emissions (30MHz – 1GHz), 802.11b, (Mid)	10
Figure 6: Test figure of Radiated Spurious Emissions (1GHz –25GHz), 802.11b, (Mid)	12
Figure 7: Test figure of Radiated Spurious Emissions (9kHz – 30MHz), 802.11b, (High).....	16
Figure 8: Test figure of Radiated Spurious Emissions (30MHz – 1GHz), 802.11b, (High)	17
Figure 9: Test figure of Radiated Spurious Emissions (1GHz –25GHz), 802.11b, (High)	19
Figure 10: Test figure of Radiated Spurious Emissions (30MHz – 1GHz), 802.11g, (Low)	23
Figure 11: Test figure of Radiated Spurious Emissions (1GHz –25GHz), 802.11g, (Low)	25
Figure 12: Test figure of Radiated Spurious Emissions (30MHz – 1GHz), 802.11g, (Mid)	29
Figure 13: Test figure of Radiated Spurious Emissions (1GHz –25GHz), 802.11g, (Mid)	31
Figure 14: Test figure of Radiated Spurious Emissions (30MHz – 1GHz), 802.11g, (High)	35
Figure 15: Test figure of Radiated Spurious Emissions (1GHz –25GHz), 802.11g, (High)	37
Figure 16: Test figure of Radiated Spurious Emissions (30MHz – 1GHz), 802.11n(HT20), (Low).....	41
Figure 17: Test figure of Radiated Spurious Emissions (1GHz –25GHz), 802.11n(HT20), (Low).....	43
Figure 18: Test figure of Radiated Spurious Emissions (30MHz – 1GHz), 802.11n(HT20), (Mid).....	47
Figure 19: Test figure of Radiated Spurious Emissions (1GHz –25GHz), 802.11n(HT20), (Mid).....	50
Figure 20: Test figure of Radiated Spurious Emissions (30MHz – 1GHz), 802.11n(HT20), (High).....	54
Figure 21: Test figure of Radiated Spurious Emissions (1GHz –25GHz), 802.11n(HT20), (High)	56
Figure 22: Test figure of Radiated Spurious Emissions (30MHz – 1GHz), 802.11n(HT40), (Low).....	60
Figure 23: Test figure of Radiated Spurious Emissions (1GHz –25GHz), 802.11n(HT40), (Low).....	62
Figure 24: Test figure of Radiated Spurious Emissions (30MHz – 1GHz), 802.11n(HT40), (Mid).....	66
Figure 25: Test figure of Radiated Spurious Emissions (1GHz –25GHz), 802.11n(HT40), (Mid).....	68
Figure 26: Test figure of Radiated Spurious Emissions (30MHz – 1GHz), 802.11n(HT40), (High)	72
Figure 27: Test figure of Radiated Spurious Emissions (1GHz –25GHz), 802.11n(HT40), (High)	74
Figure 28: Test figure of Radiated Emissions in Restricted Bands, 802.11b, (Low).....	79
Figure 29: Test figure of Radiated Emissions in Restricted Bands, 802.11b, (High)	83
Figure 30: Test figure of Radiated Emissions in Restricted Bands, 802.11g, (Low).....	87
Figure 31: Test figure of Radiated Emissions in Restricted Bands, 802.11g, (High)	91
Figure 32: Test figure of Radiated Emissions in Restricted Bands, 802.11n(HT20), (Low)	95
Figure 33: Test figure of Radiated Emissions in Restricted Bands, 802.11n(HT20), (High)	99
Figure 34: Test figure of Radiated Emissions in Restricted Bands, 802.11n(HT40), (Low)	103
Figure 35: Test figure of Radiated Emissions in Restricted Bands, 802.11n(HT40), (High)	107
Figure 36: Test figure of Conducted Emissions	111

Note: The measurements with active loop antenna were greater than 20dB below the limit, so Radiated Spurious Emissions (9kHz – 30MHz) tests were applied on 802.11b mode only.

Figure 1: Test figure of Radiated Spurious Emissions (9kHz – 30M Hz), 802.11b, (Low)

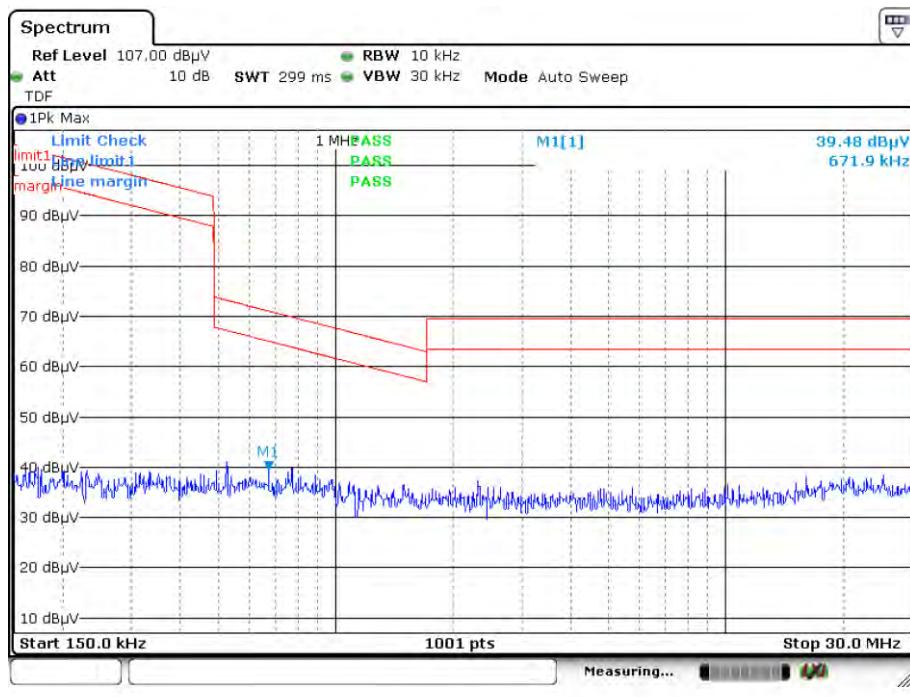
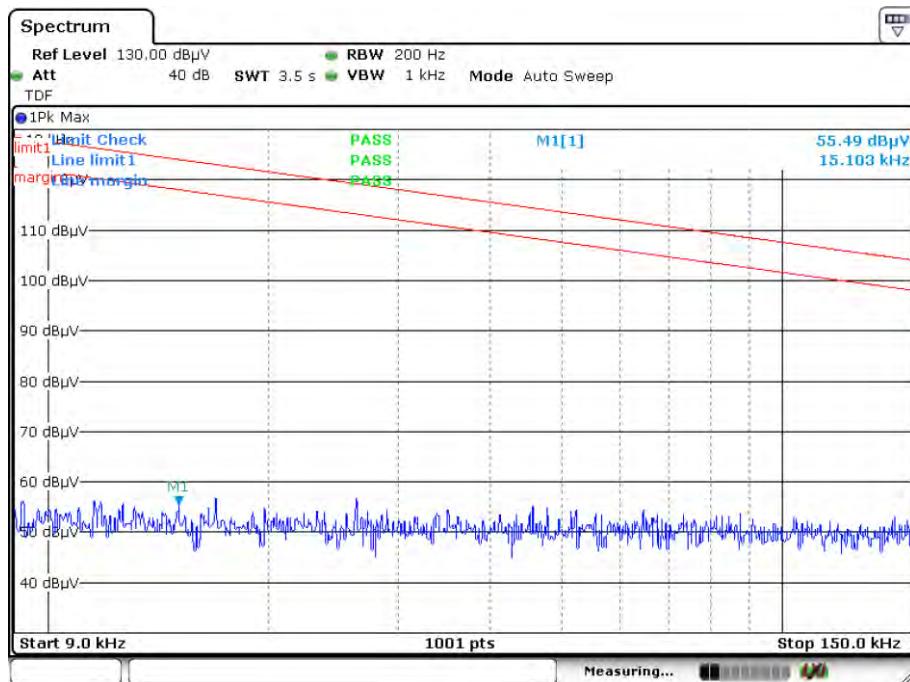
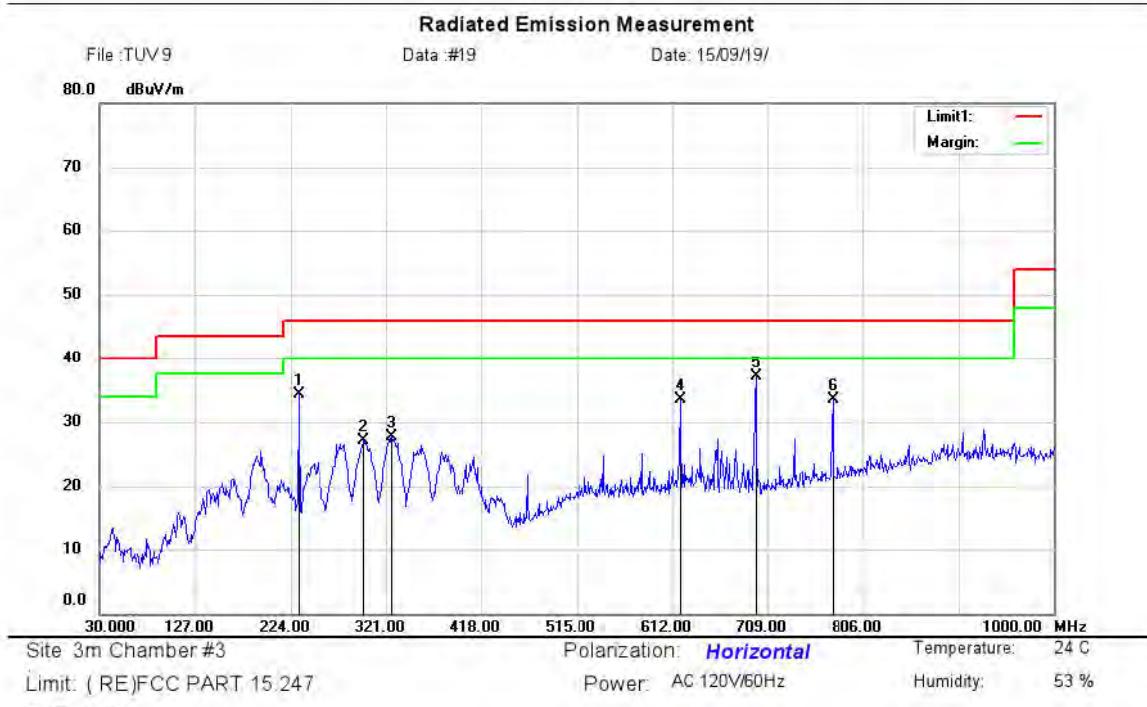


Figure 2: Test figure of Radiated Spurious Emissions (30MHz – 1GHz), 802.11b, (Low)

Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282


EMTEK Access to the World



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree	Comment
1		231.7600	49.11	-14.88	34.23	46.00	-11.77	QP		
2		297.7200	40.83	-13.69	27.14	46.00	-18.86	QP		
3		326.8200	40.93	-13.15	27.78	46.00	-18.22	QP		
4		619.7600	40.24	-6.79	33.45	46.00	-12.55	QP		
5	*	697.3600	43.15	-6.00	37.15	46.00	-8.85	QP		
6		774.9600	37.23	-3.64	33.59	46.00	-12.41	QP		

Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel:+86-755-2695 4280 Fax:+86-755-2695 4282

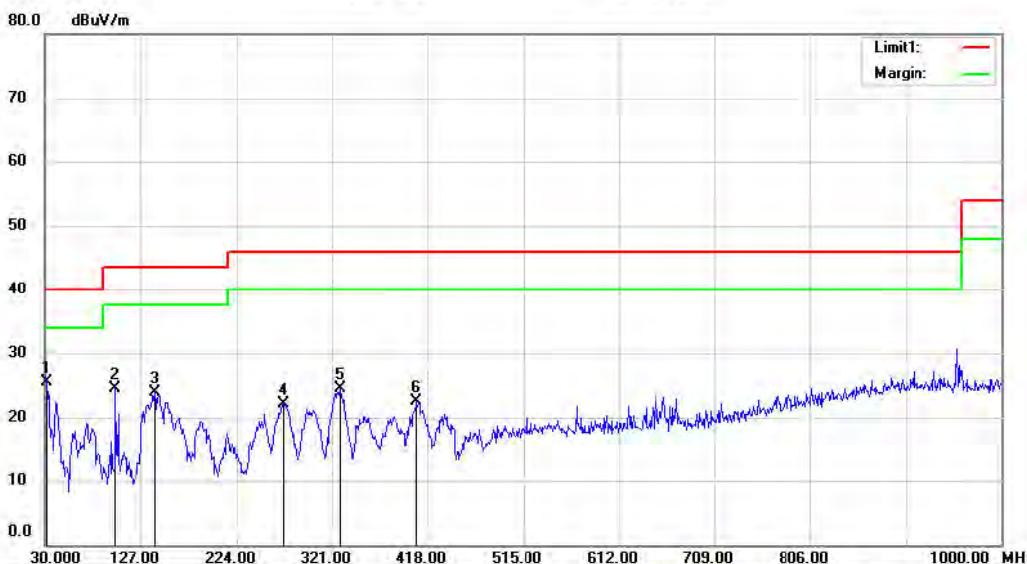


Radiated Emission Measurement

File : TUV 9

Data #20

Date: 15/09/19



Site: 3m Chamber #3

Polarization: **Vertical**

Temperature: 24 C

Limit: (RE)FCC PART 15.247

Power: AC 120V/60Hz

Humidity: 53 %

EUT: MID

M/N: MID1102-MA; DL1168A

Mode: 11B 2412

Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree	Comment
1	*	31.9400	41.25	-15.81	25.44	40.00	-14.56	QP		
2		100.8100	38.62	-14.02	24.60	43.50	-18.90	QP		
3		141.5500	41.79	-17.84	23.95	43.50	-19.55	QP		
4		272.5000	34.85	-12.65	22.20	46.00	-23.80	QP		
5		328.7600	37.49	-13.04	24.45	46.00	-21.55	QP		
6		407.3300	31.51	-9.07	22.44	46.00	-23.56	QP		

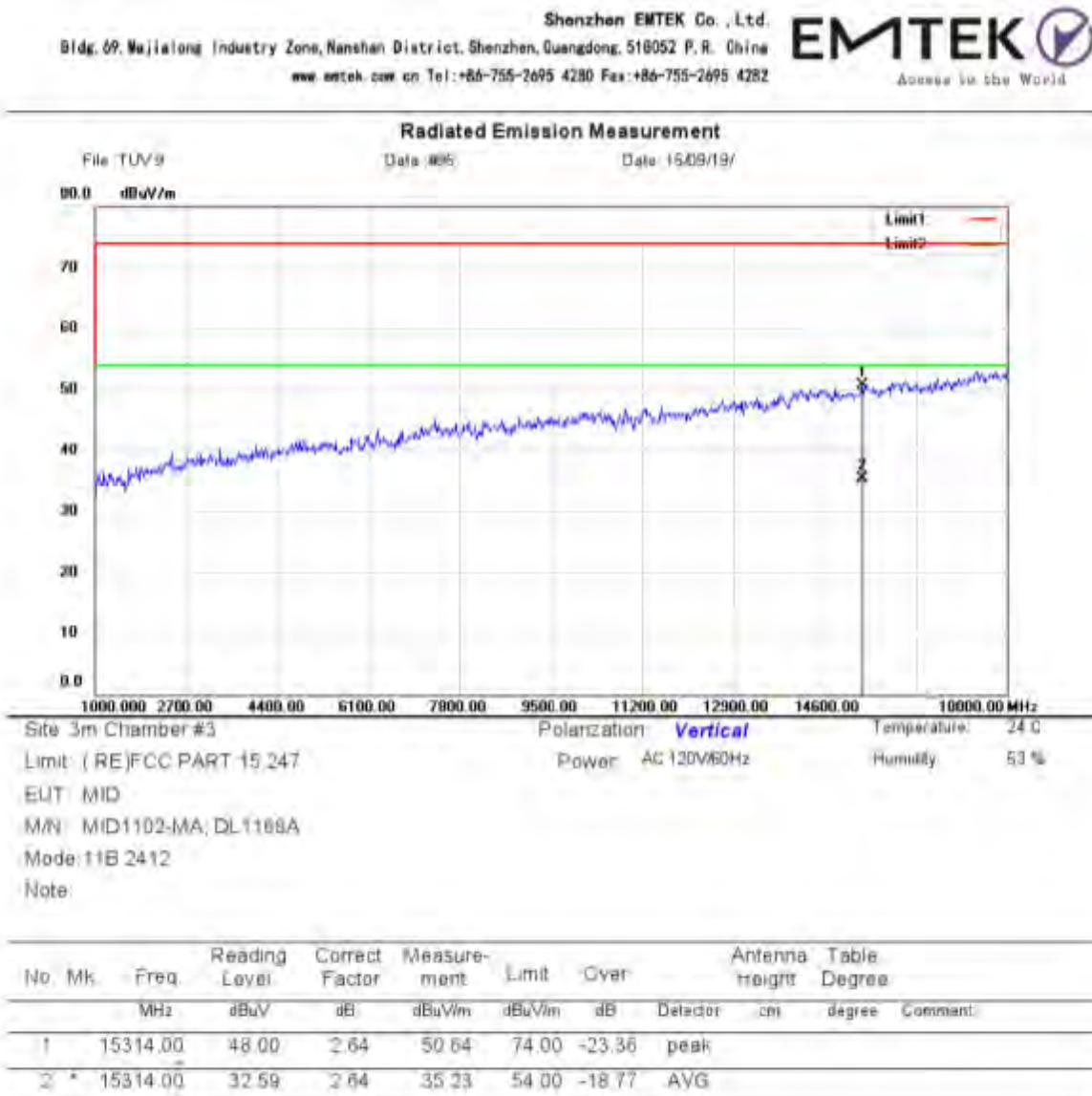
*:Maximum data x:Over limit !:over margin

Operator: KK

File: TUV 9/Data #20

Page: 1

Figure 3: Test figure of Radiated Spurious Emissions (1GHz –25GHz), 802.11b, (Low)



Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282



Radiated Emission Measurement

File TÜV 9

Data #96

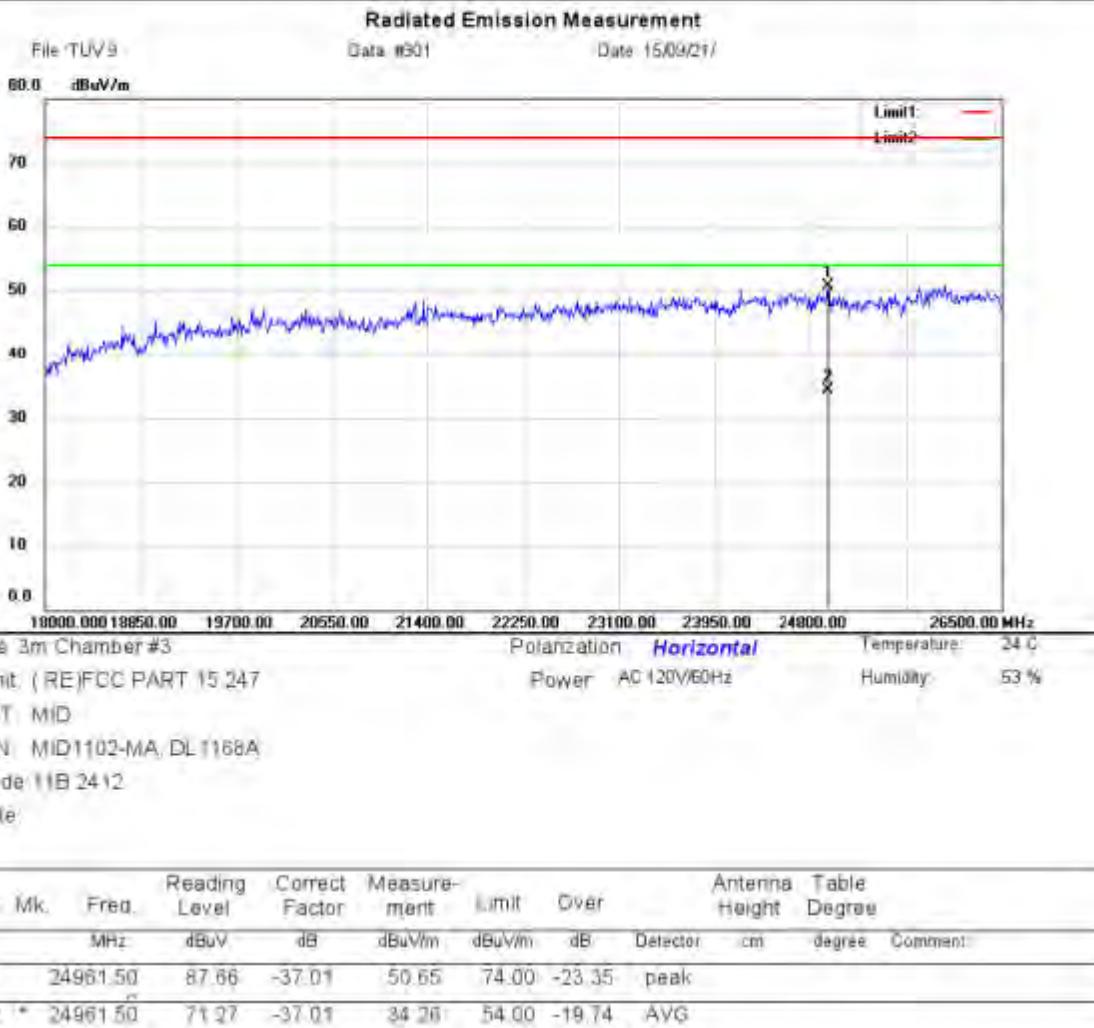
Date 15/09/19



Site 3m Chamber #3 Polarization **Horizontal** Temperature: 24.0
Limit: (RE)FCC PART 15.247 Power AC (20V/60Hz) Humidity: 53 %
EUT: MID
MN: MID1102-MA, DL1168A
Mode: 11B 2412
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1		15059.00	47.30	3.57	50.87	74.00	-23.13	peak		
2	*	15059.00	30.66	3.57	34.23	54.00	-19.77	Avg		

Shenzhen EMTEK Co., Ltd.
Bldg.69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel:+86-755-2695 4280 Fax:+86-755-2695 4282



Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282

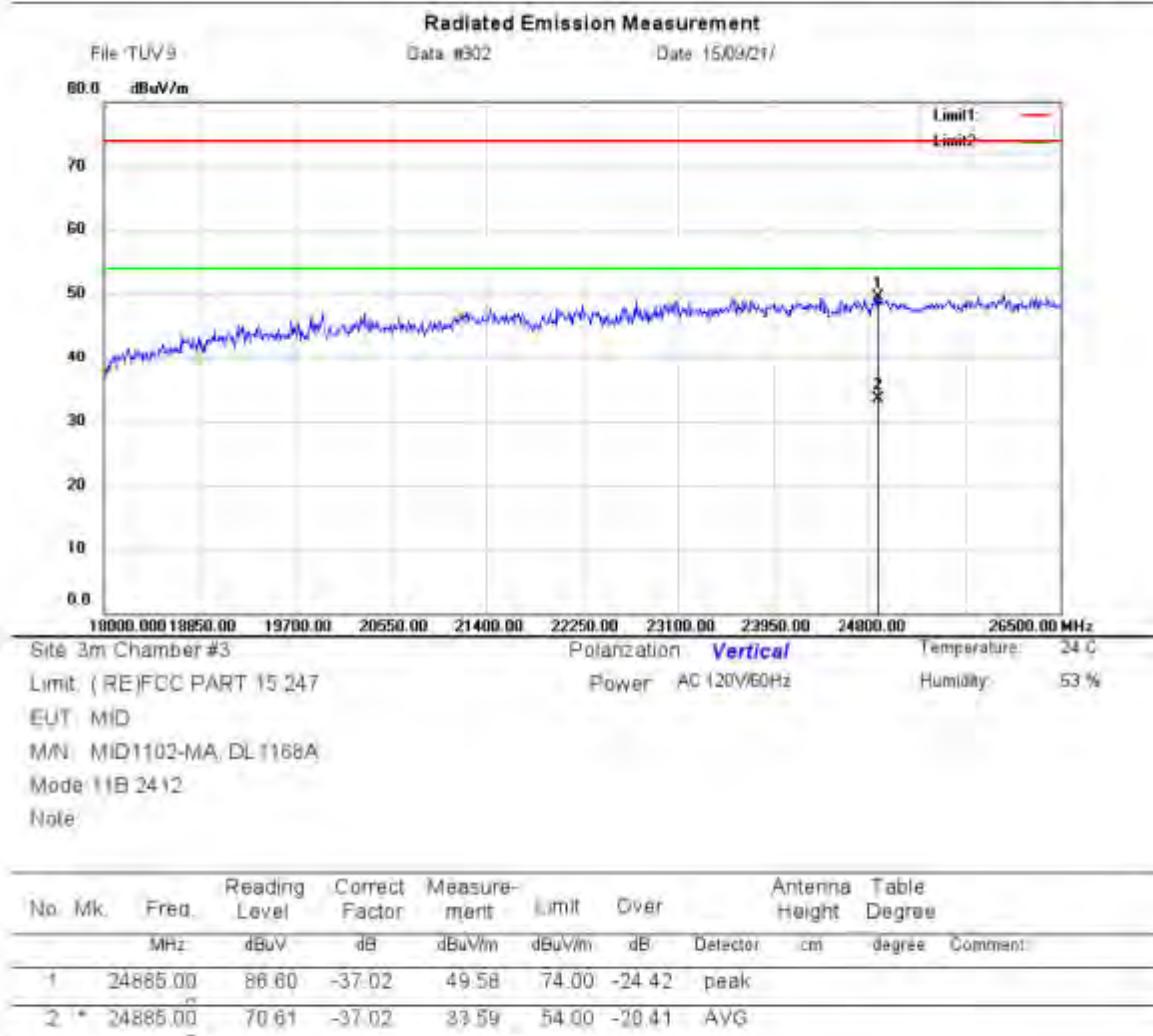


Figure 4: Test figure of Radiated Spurious Emissions (9kHz – 30MHz), 802.11b, (Mid)

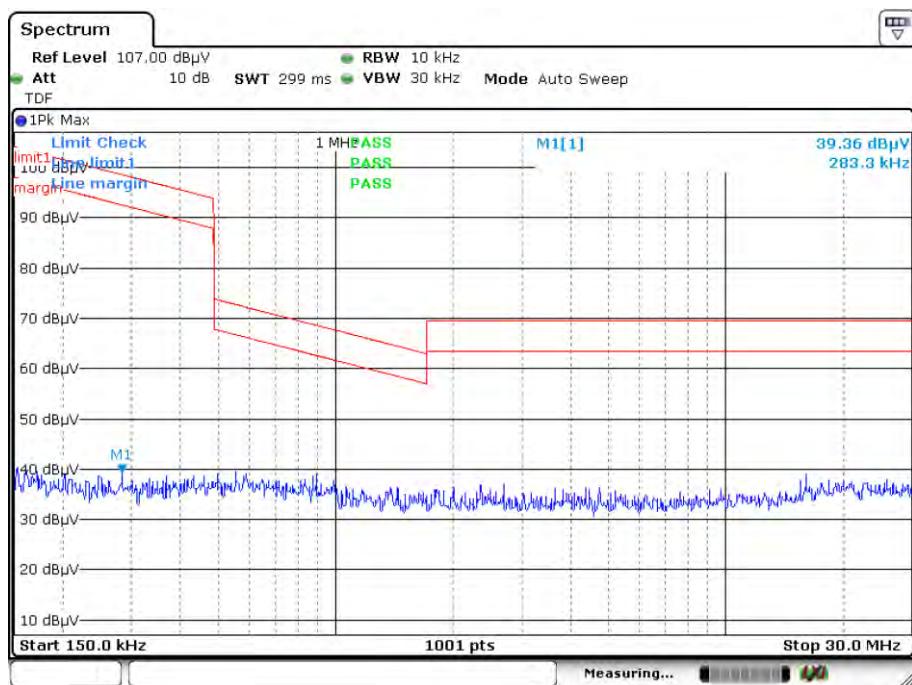
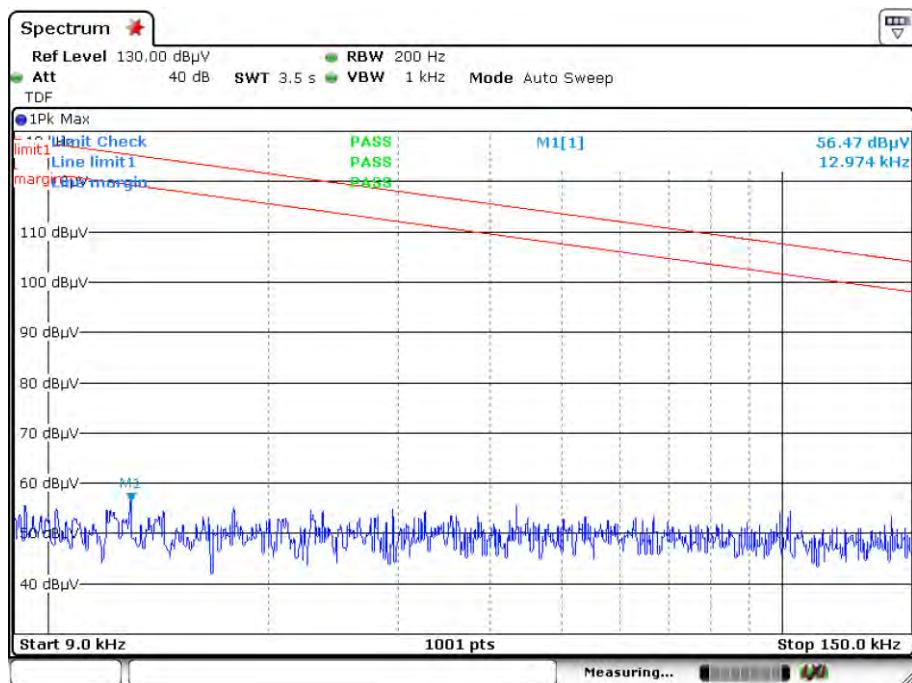
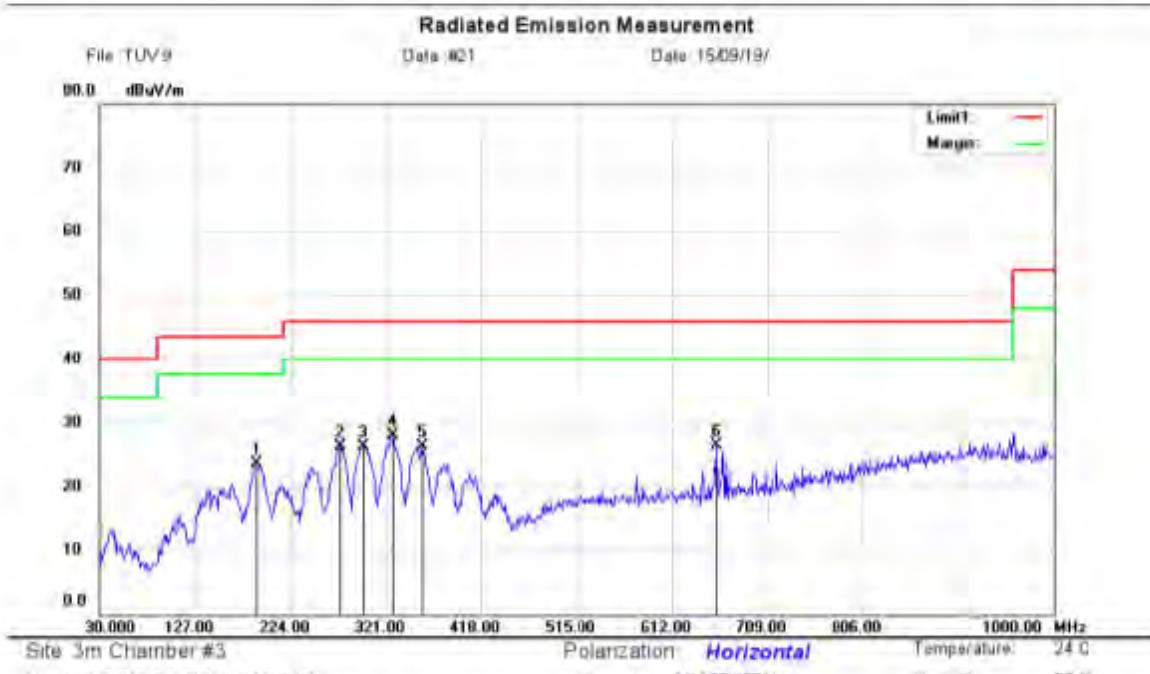


Figure 5: Test figure of Radiated Spurious Emissions (30MHz – 1GHz), 802.11b, (Mid)

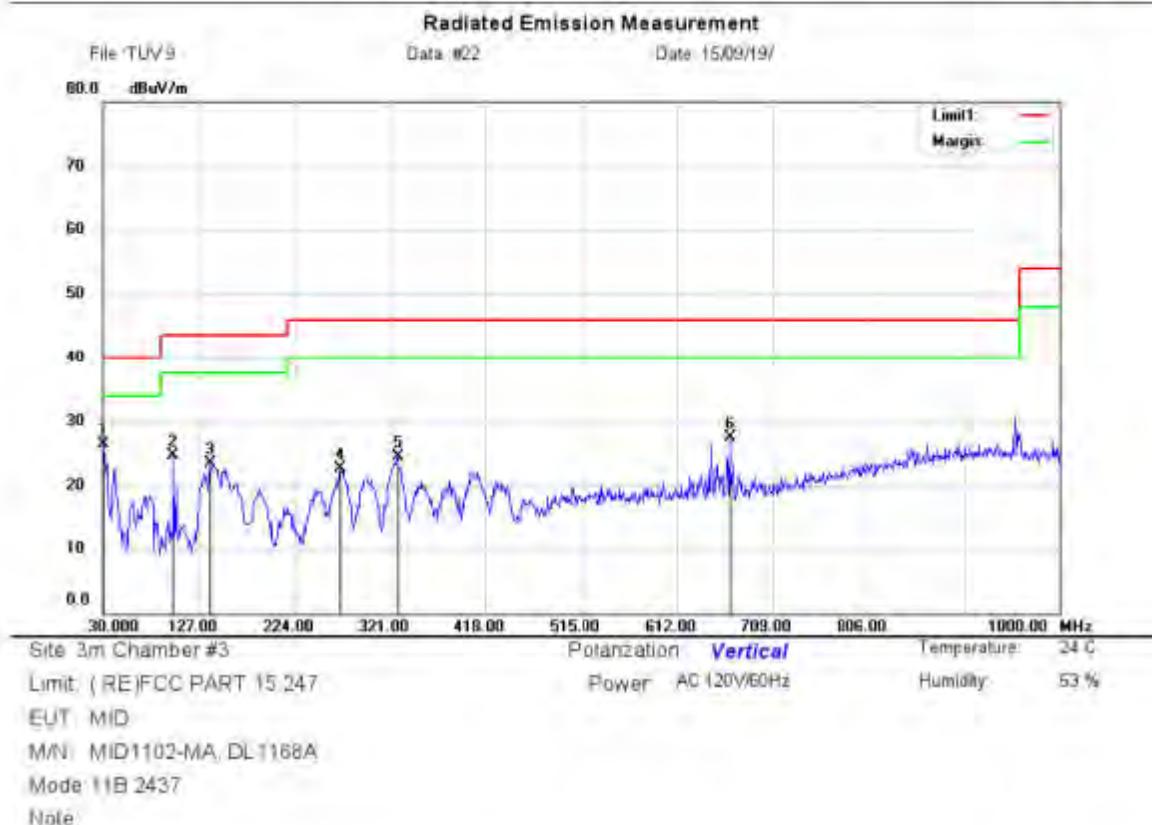
Shenzhen EMTEK Co., Ltd.
Bldg. 69, Meijialong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree	Comment
1		189.0800	41.15	-17.44	23.71	43.50	-19.79	QP		
2		275.4100	38.86	-12.62	26.24	46.00	-19.76	QP		
3		298.6900	39.99	-13.74	26.25	46.00	-19.75	QP		
4	*	327.7900	41.19	-13.09	28.10	46.00	-17.90	QP		
5		357.8600	37.19	-10.92	26.27	46.00	-19.73	QP		
6		657.5900	32.81	-6.40	26.41	46.00	-19.59	QP		

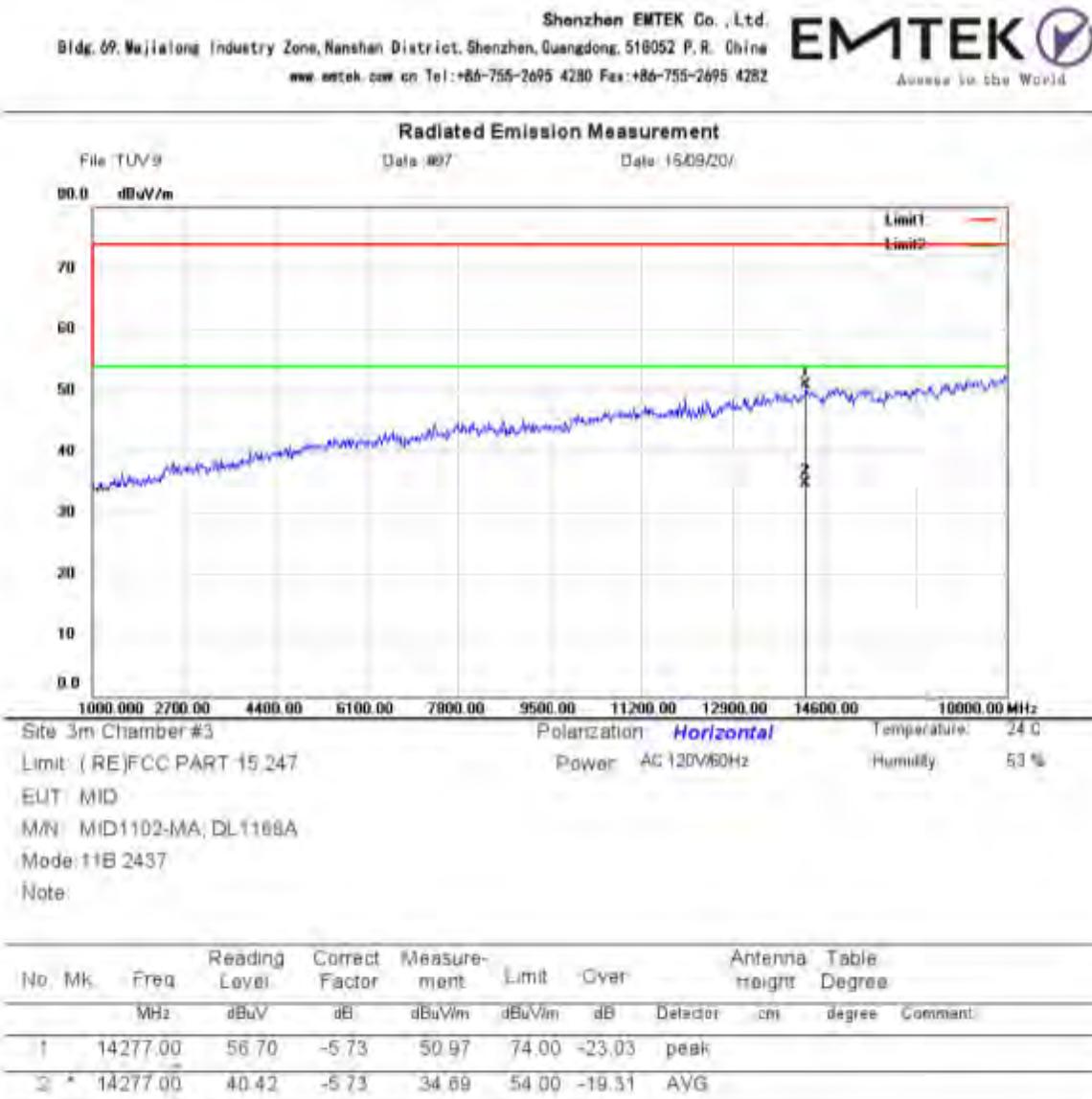
Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282


EMTEK Across the World

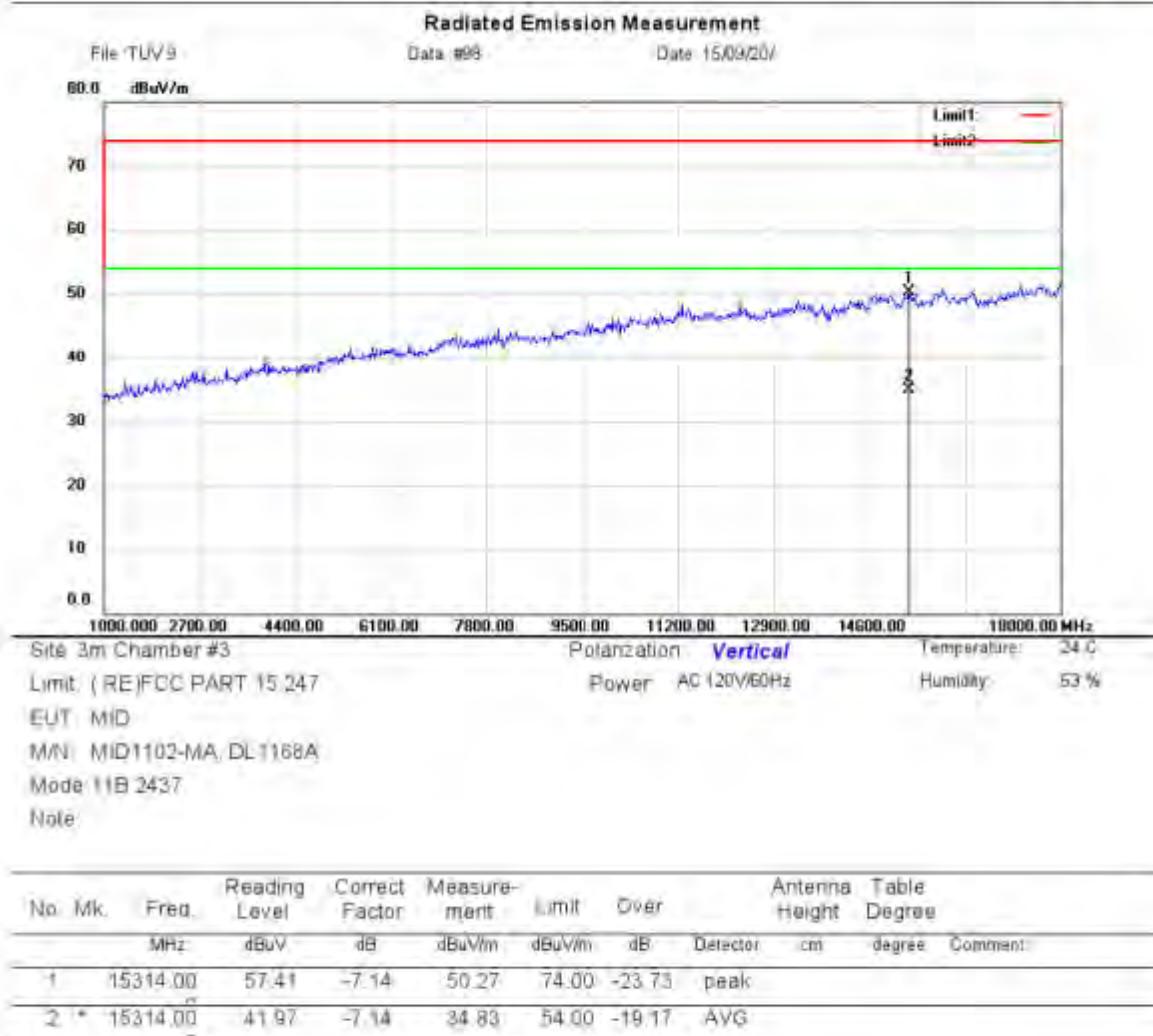


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Antenna Height cm	Table Degree	Comment:
1	*	30.0000	42.92	-16.46	26.46	40.00	-13.54	QP			
2		100.8100	38.68	-14.02	24.66	43.50	-18.84	QP			
3		139.6100	41.22	-17.76	23.46	43.50	-20.04	QP			
4		270.5600	35.34	-12.68	22.66	46.00	-23.34	QP			
5		328.7600	37.47	-13.04	24.43	46.00	-21.57	QP			
6		666.3200	33.90	-6.33	27.57	46.00	-18.43	QP			

Figure 6: Test figure of Radiated Spurious Emissions (1GHz –25GHz), 802.11b, (Mid)



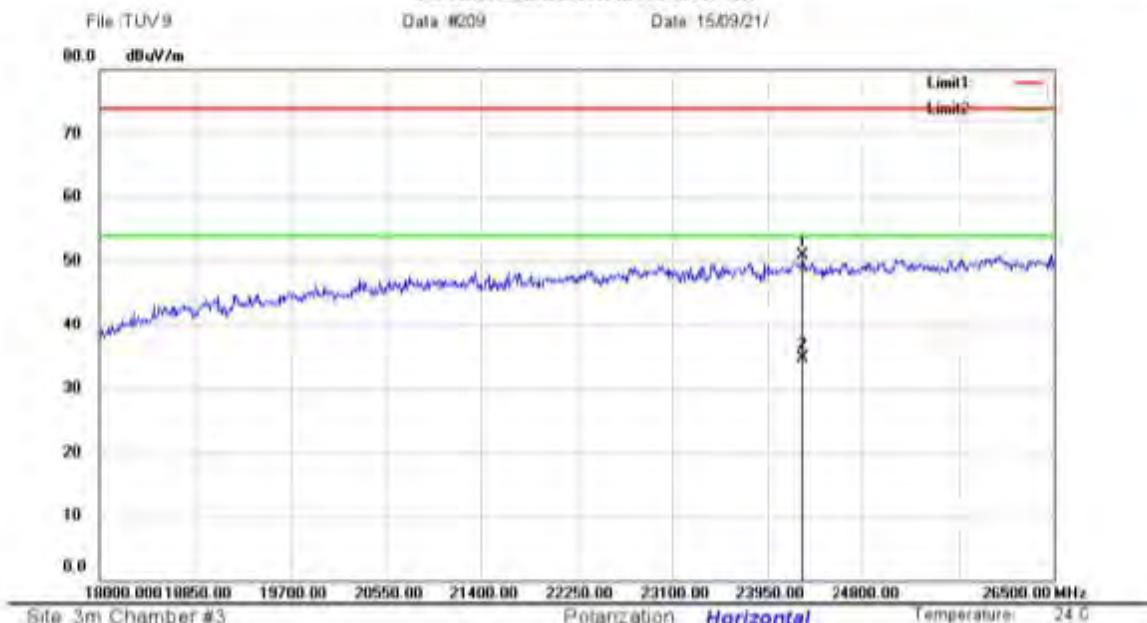
Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282



Shenzhen EMTEK Co., Ltd.
Bldg.69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282


EMTEK Access to the World

Radiated Emission Measurement



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1		24264.50	87.95	-37.10	50.85	74.00	-23.15	peak		
2	*	24264.50	71.72	-37.10	34.62	54.00	-19.38	AVG		

Shenzhen EMTEK Co., Ltd.
Bldg.69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel:+86-755-2695 4280 Fax:+86-755-2695 4282

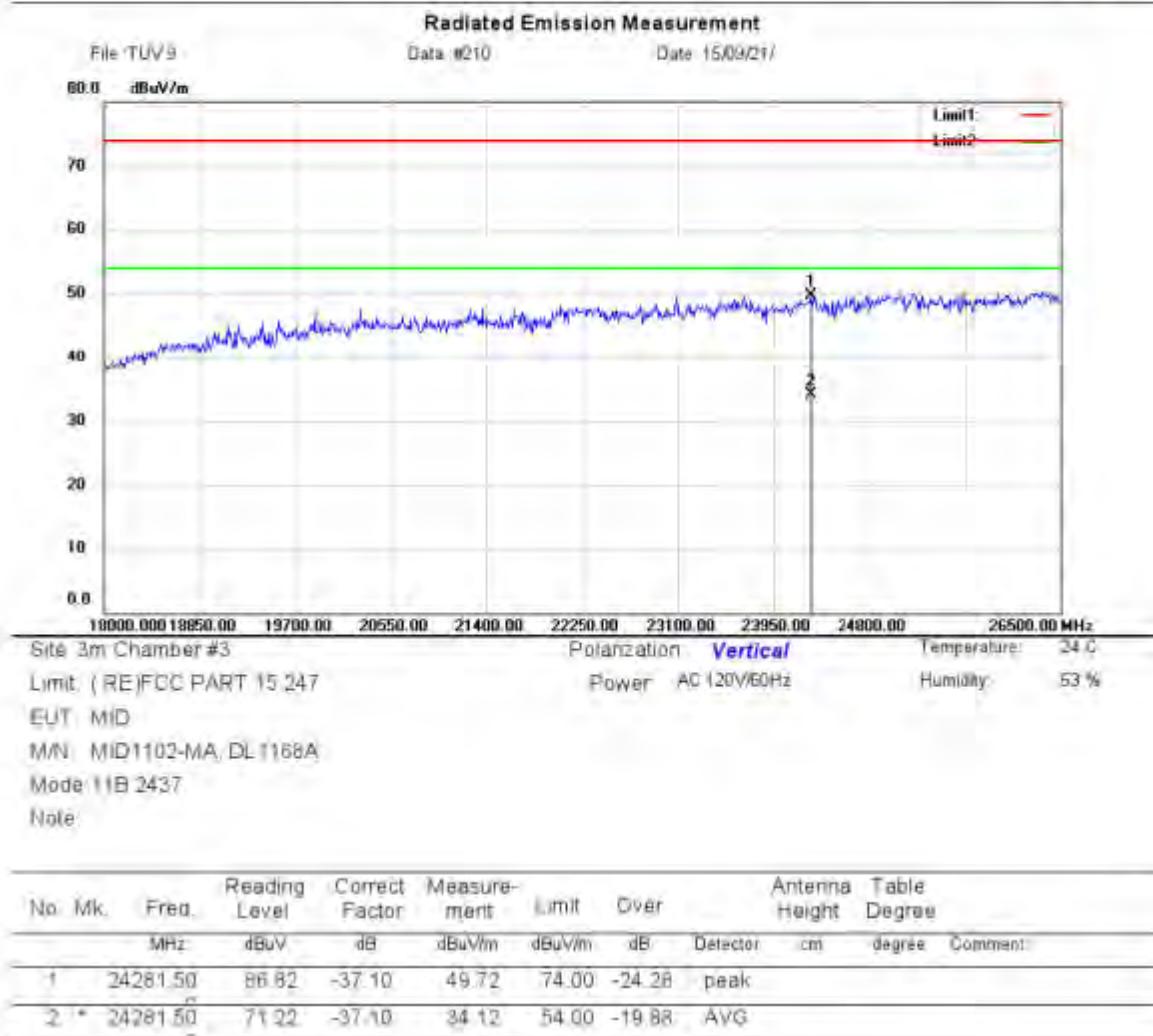


Figure 7: Test figure of Radiated Spurious Emissions (9kHz – 30MHz), 802.11b, (High)

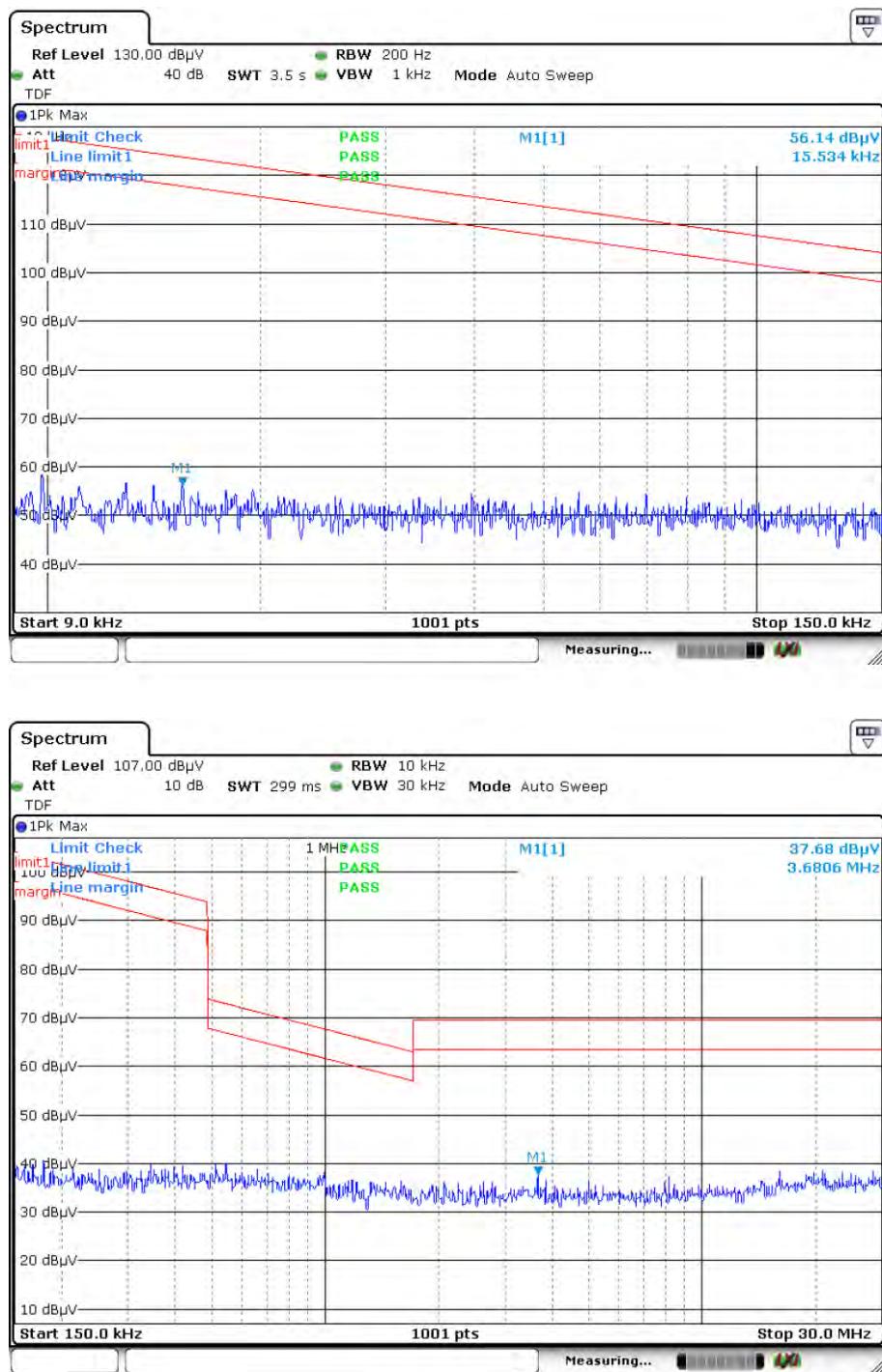
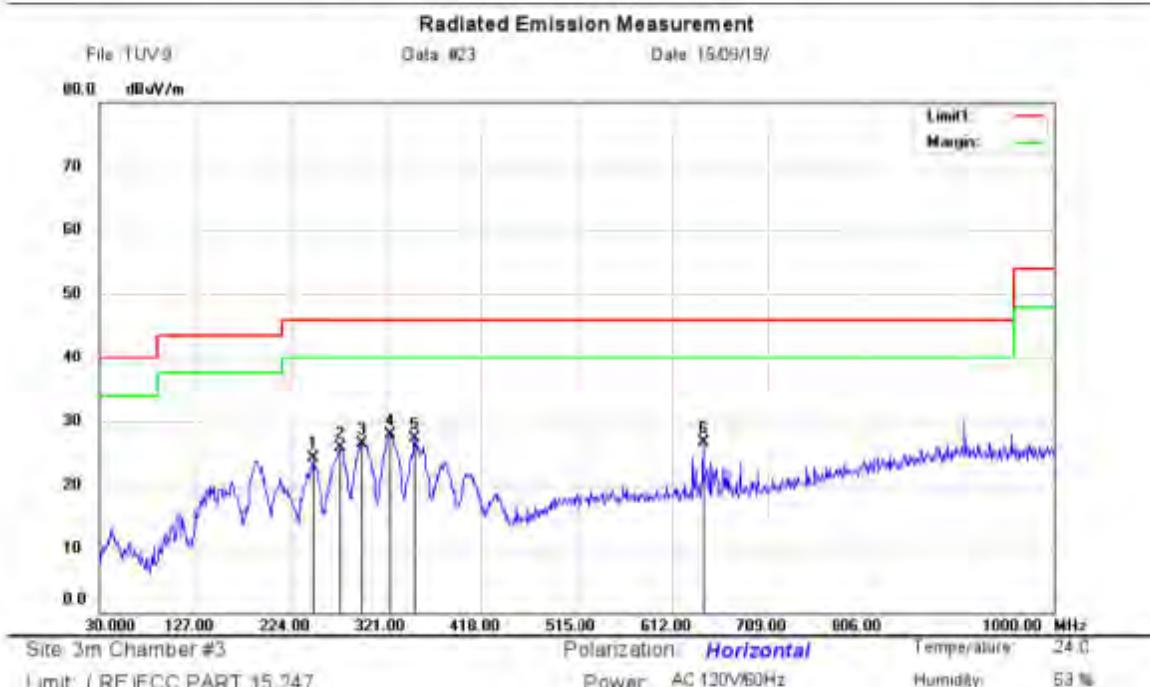


Figure 8: Test figure of Radiated Spurious Emissions (30MHz – 1GHz), 802.11b, (High)

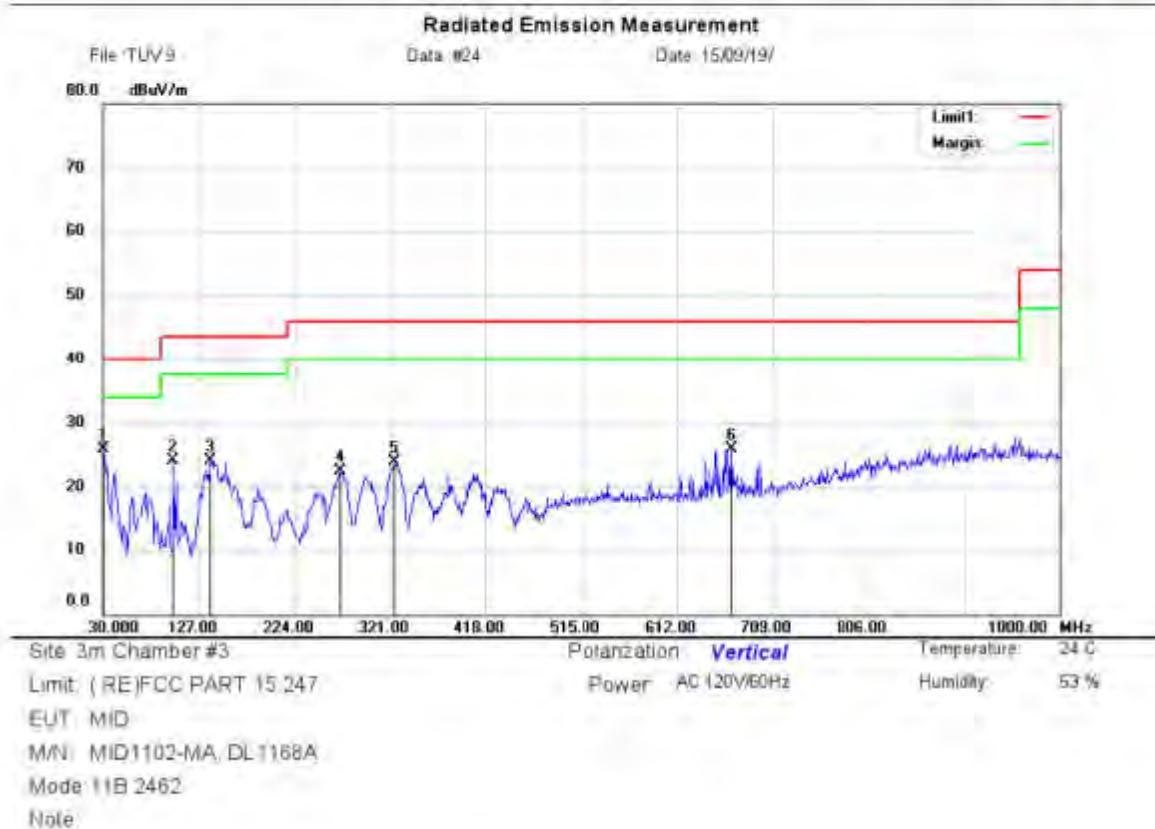
Shenzhen EMTEK Co., Ltd.
Bldg.69, Nujialong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052, P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Overs dB	Antenna Detector	Height cm	Table Degree	Comment
1		246.3100	37.72	-13.50	24.22	46.00	-21.78	QP			
2		275.4100	38.49	-12.62	25.87	46.00	-20.13	QP			
3		296.7500	40.17	-13.83	26.54	46.00	-19.46	QP			
4	*	325.8500	41.10	-13.20	27.90	46.00	-18.10	QP			
5		350.1000	38.85	-11.58	27.27	46.00	-18.73	QP			
6		643.0400	33.17	-6.55	26.62	46.00	-19.38	QP			

Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282

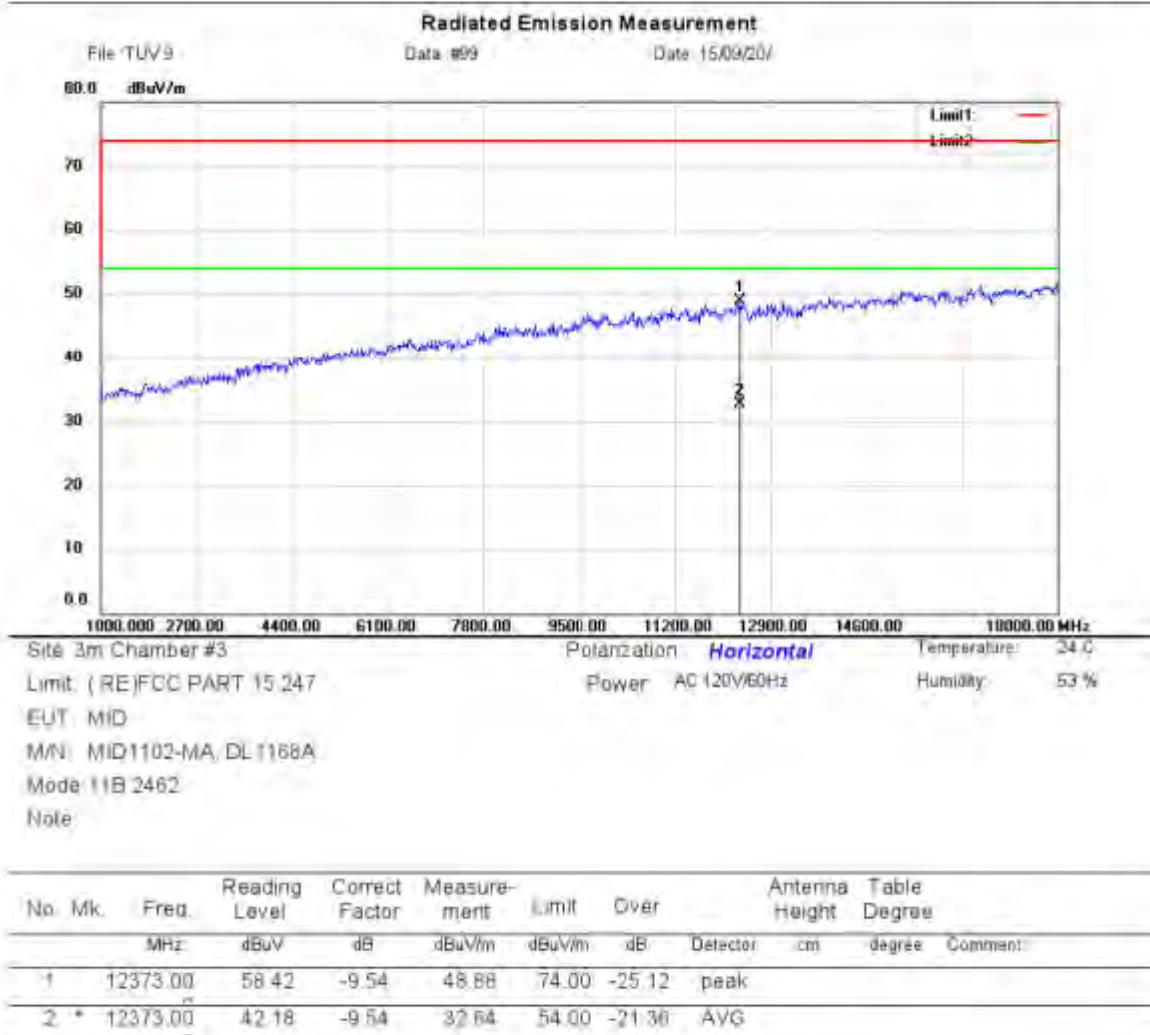

EMTEK Across the World



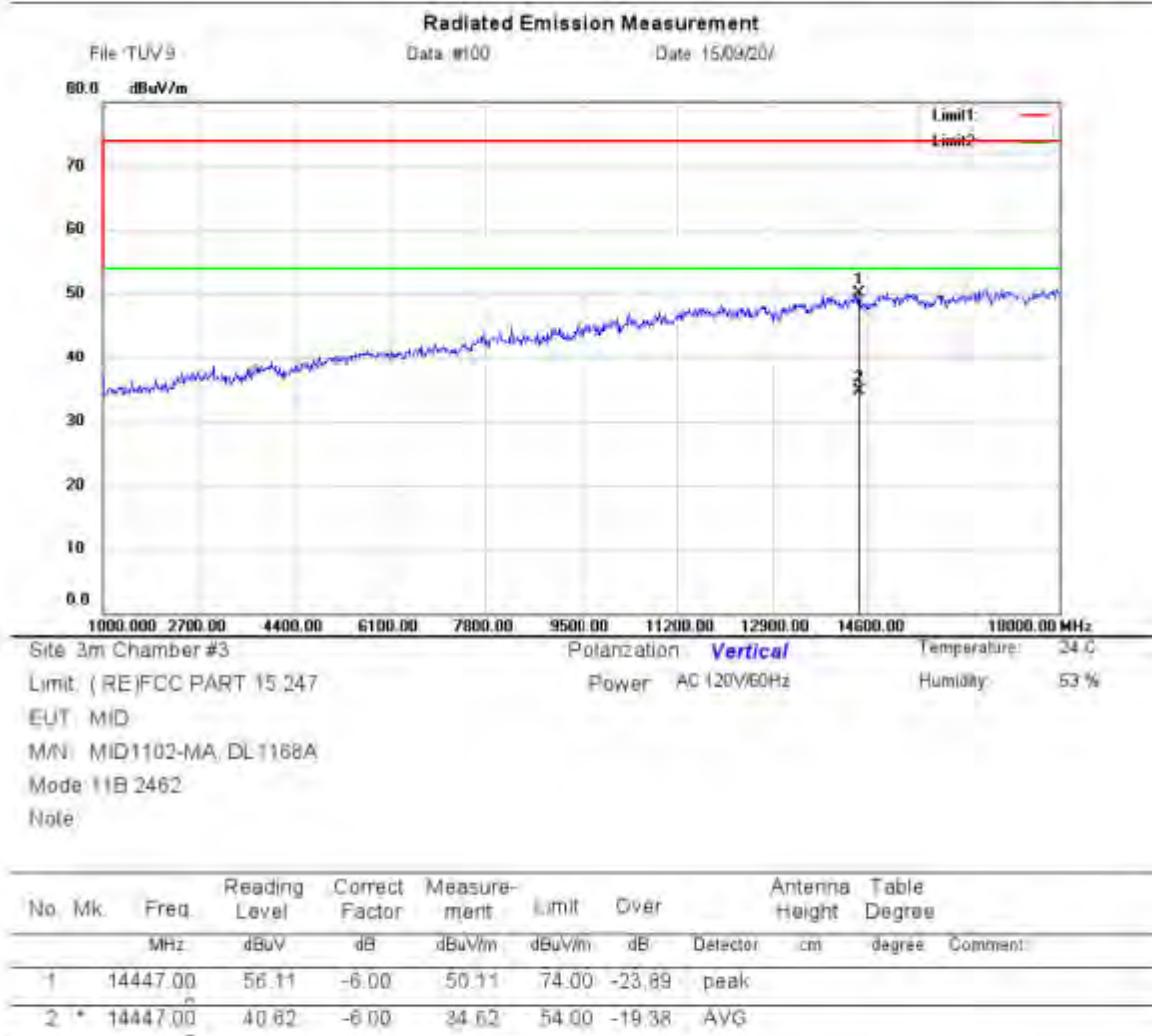
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	Comment:
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1	*	30.0000	42.32	-16.46	25.86	40.00	-14.14	QP		
2		100.8100	38.20	-14.02	24.18	43.50	-19.32	QP		
3		139.6100	41.80	-17.76	24.04	43.50	-19.46	QP		
4		271.5300	35.25	-12.67	22.58	46.00	-23.42	QP		
5		325.8500	37.16	-13.20	23.96	46.00	-22.04	QP		
6		668.2600	32.17	-6.30	26.87	46.00	-20.13	QP		

Figure 9: Test figure of Radiated Spurious Emissions (1GHz –25GHz), 802.11b, (High)

Shenzhen EMTEK Co., Ltd.
Bldg. 69, Naijiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282



Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282



Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282


EMTEK Access to the World.

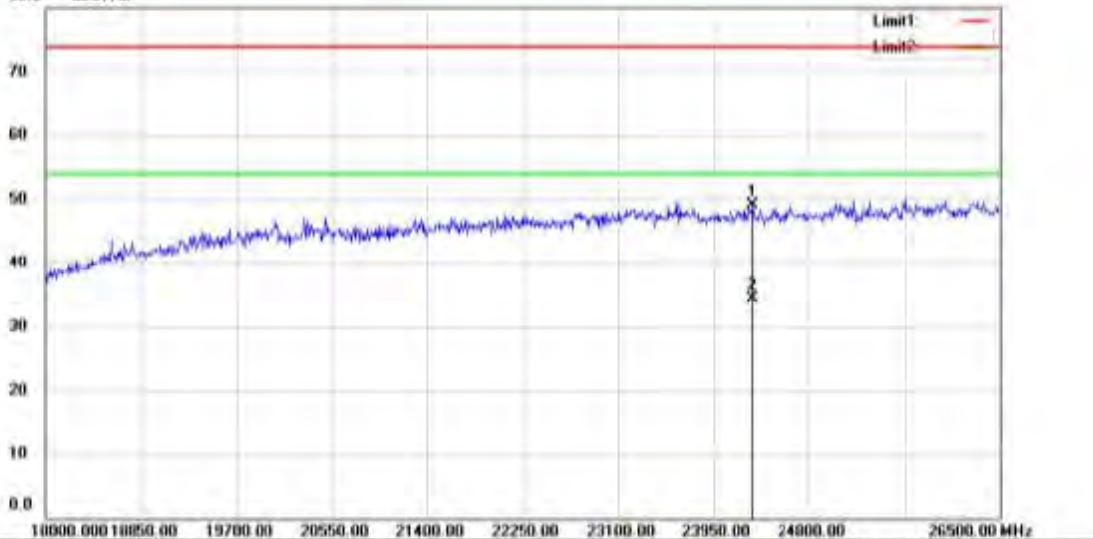
Radiated Emission Measurement

File: TUV 9

Date: #011

Date: 15/09/21

90.0 dBuV/m



Site: 3m Chamber #3

Polarization: Horizontal

Temperature: 24 °C

Limit: (RE)FCC PART 15.247

Power: AC 120V/60Hz

Humidity: 63 %

EUT: MID

M/N.: MID1102-MA; DL1168A

Mode 11B 2462

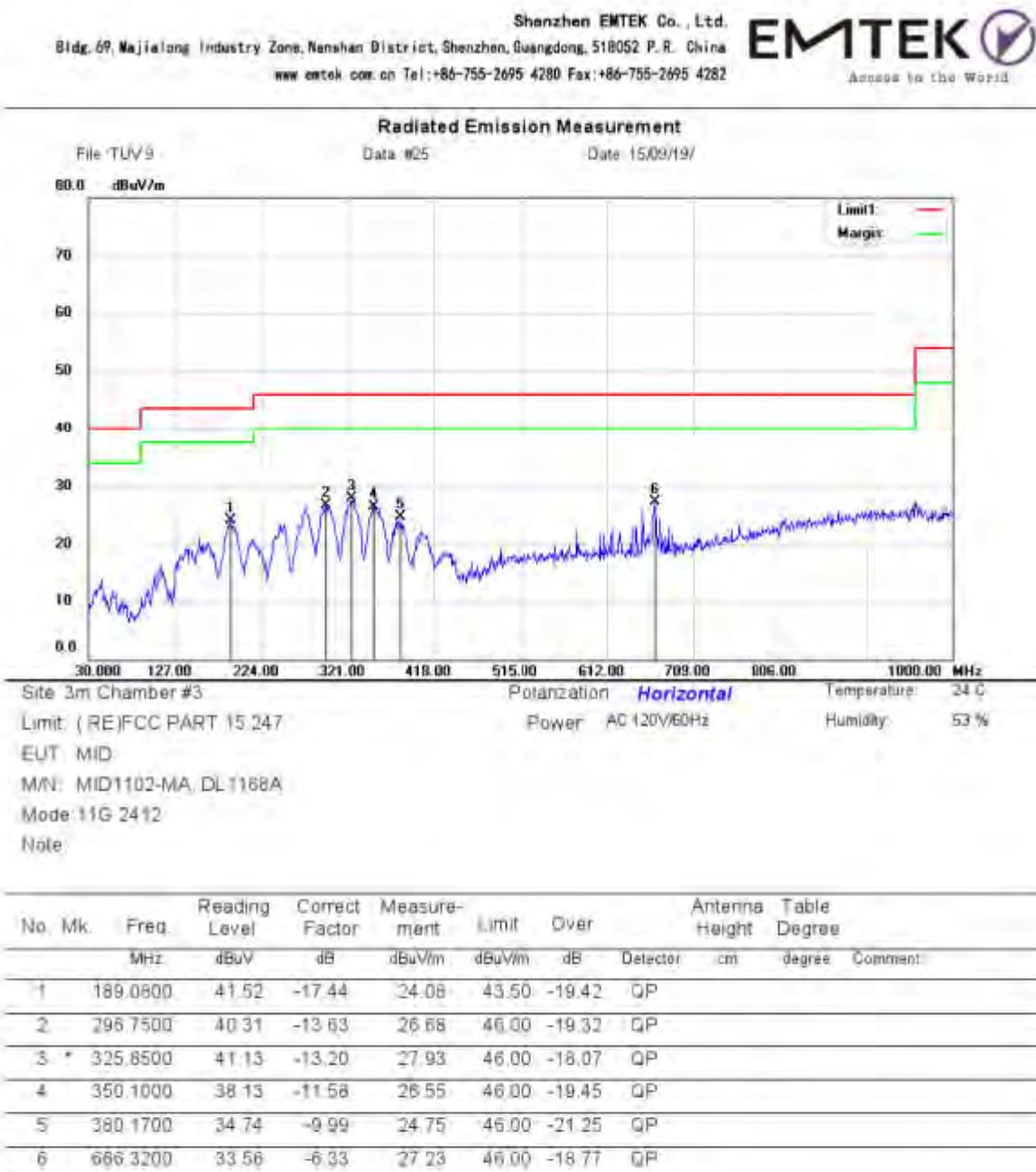
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	Comment	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	
1		24298.50	86.28	-37.09	49.19	74.00	-24.81	peak			
2	*	24298.50	71.32	-37.09	34.23	54.00	-19.77	AVG			

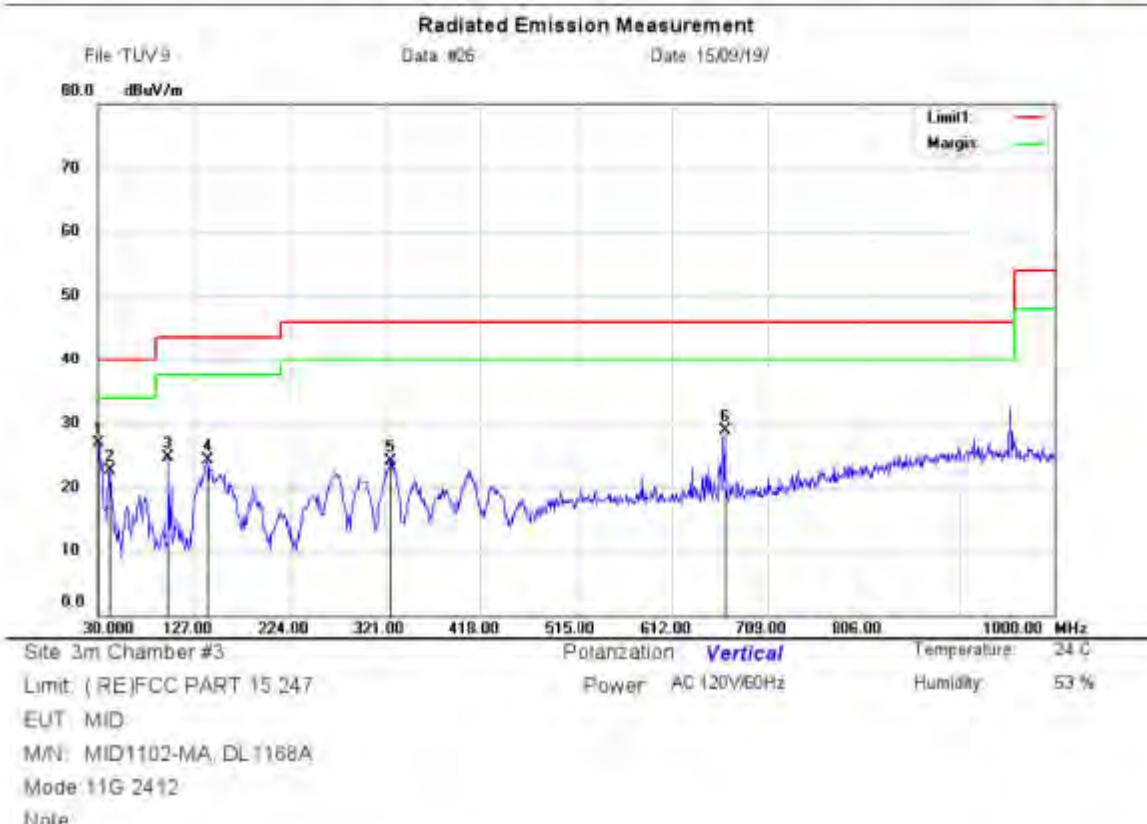
Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282



Figure 10: Test figure of Radiated Spurious Emissions (30MHz – 1GHz), 802.11g, (Low)



Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Antenna Height cm	Table Degree	Comment
1	*	30.9700	43.06	-16.13	26.93	40.00	-13.07	QP			
2		41.6400	35.72	-12.93	22.79	40.00	-17.21	QP			
3		100.8100	38.70	-14.02	24.68	43.50	-18.82	QP			
4		141.5500	42.20	-17.84	24.36	43.50	-19.14	QP			
5		326.6200	37.21	-13.15	24.06	46.00	-21.94	QP			
6		666.3200	35.29	-6.33	28.96	46.00	-17.04	QP			

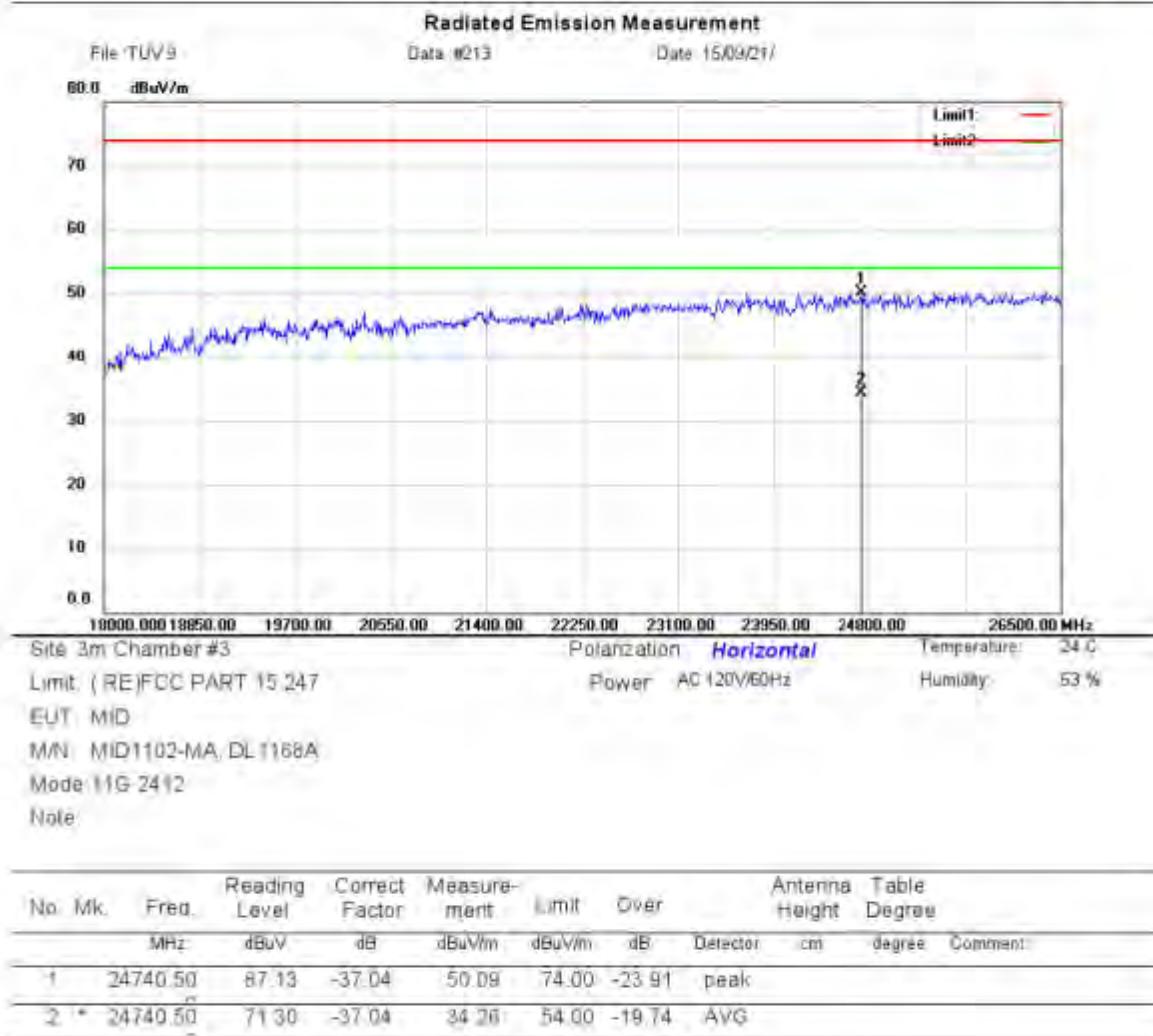
Figure 11: Test figure of Radiated Spurious Emissions (1GHz –25GHz), 802.11g, (Low)



Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282



Shenzhen EMTEK Co., Ltd.
Bldg.69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel:+86-755-2695 4280 Fax:+86-755-2695 4282



Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282

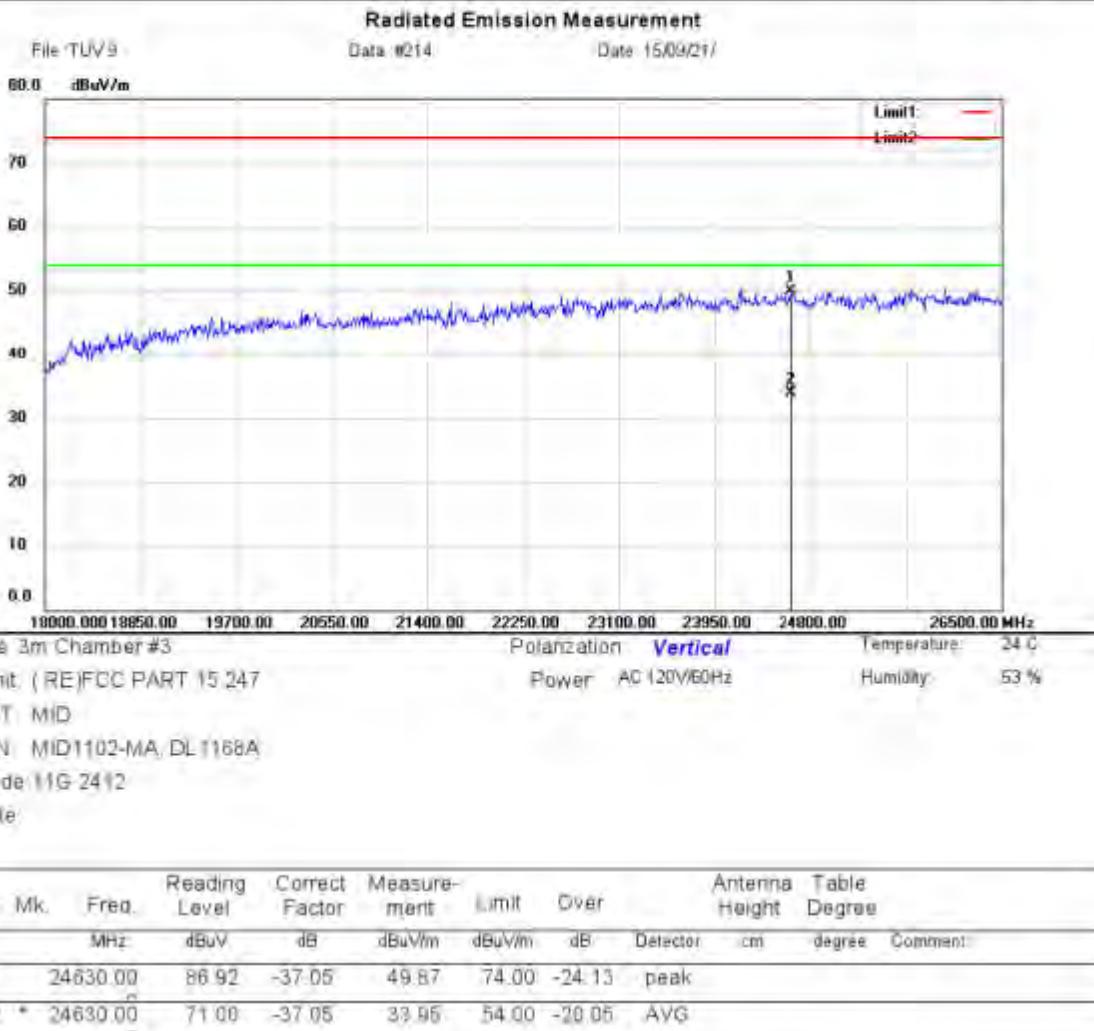
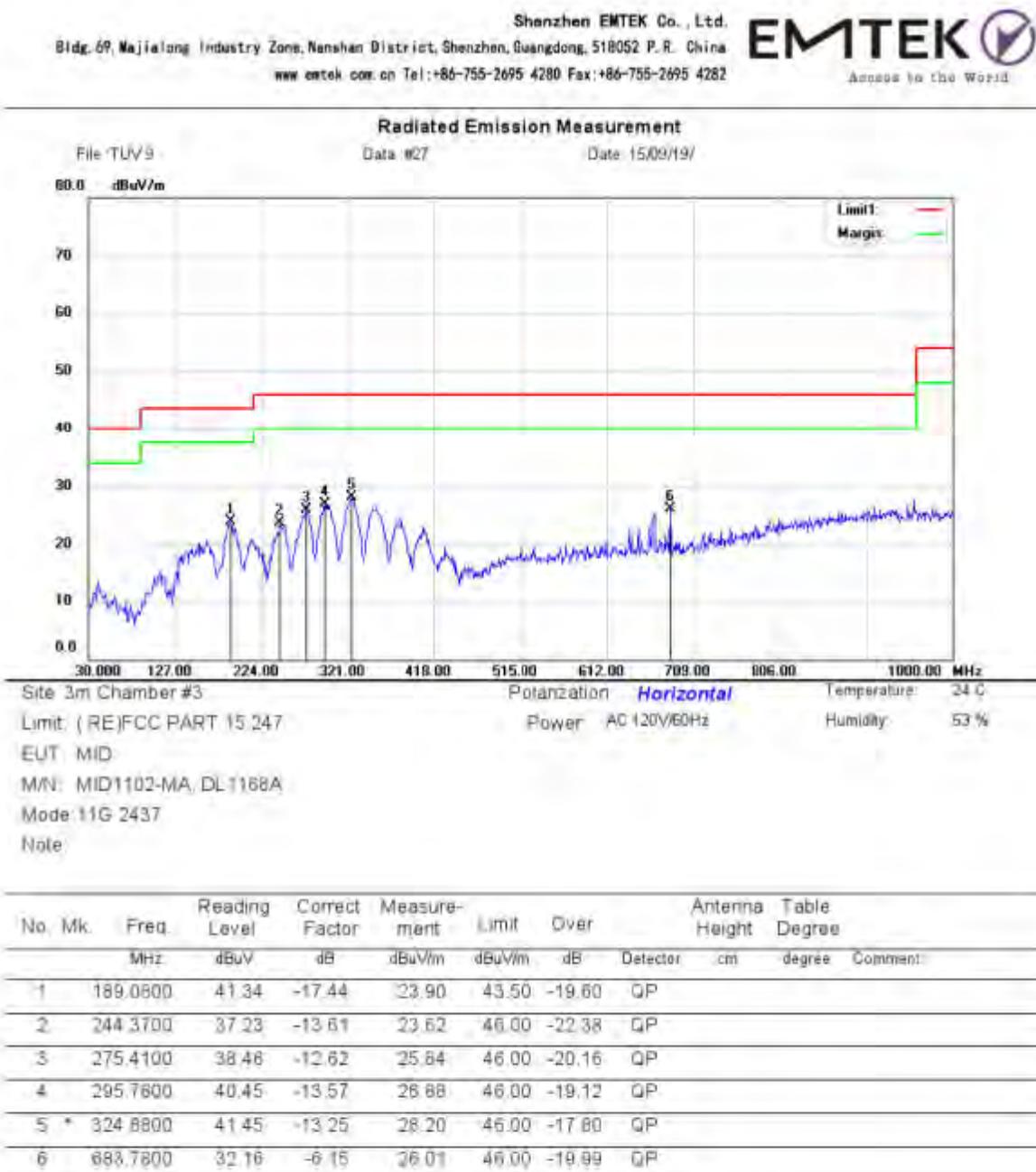
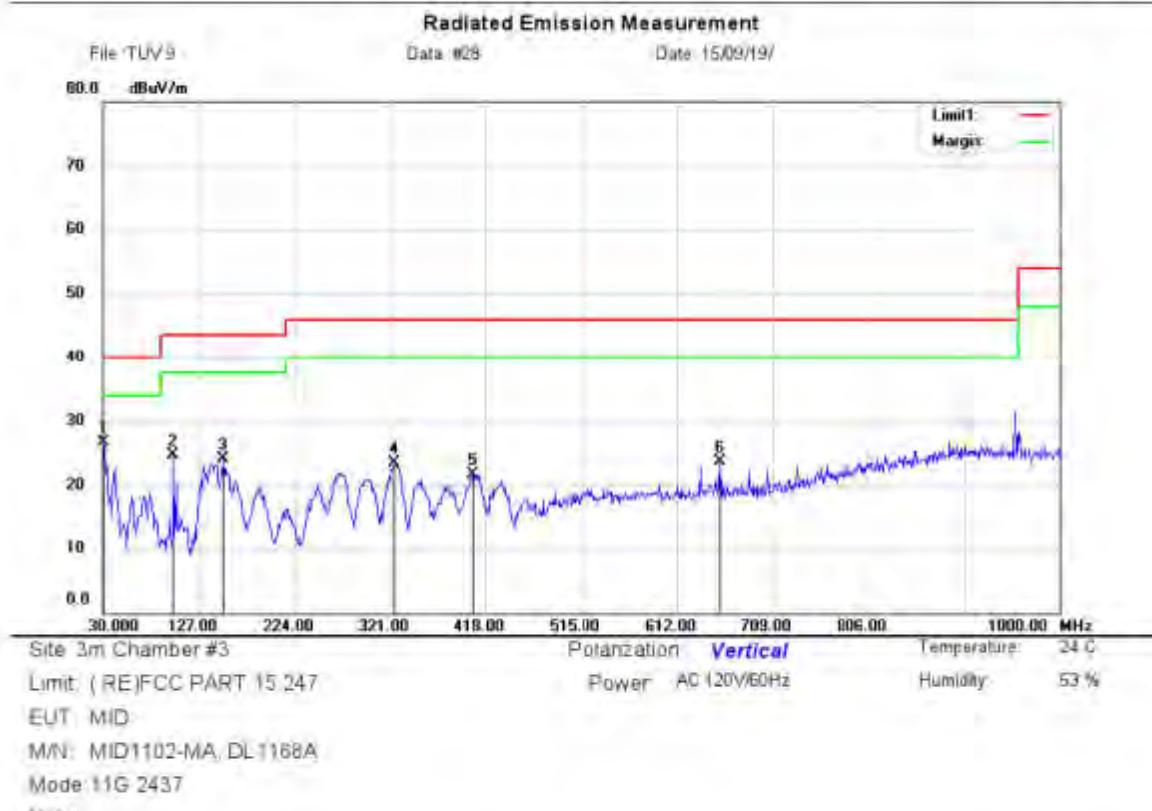


Figure 12: Test figure of Radiated Spurious Emissions (30MHz – 1GHz), 802.11g, (Mid)



Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282


EMTEK Across the World

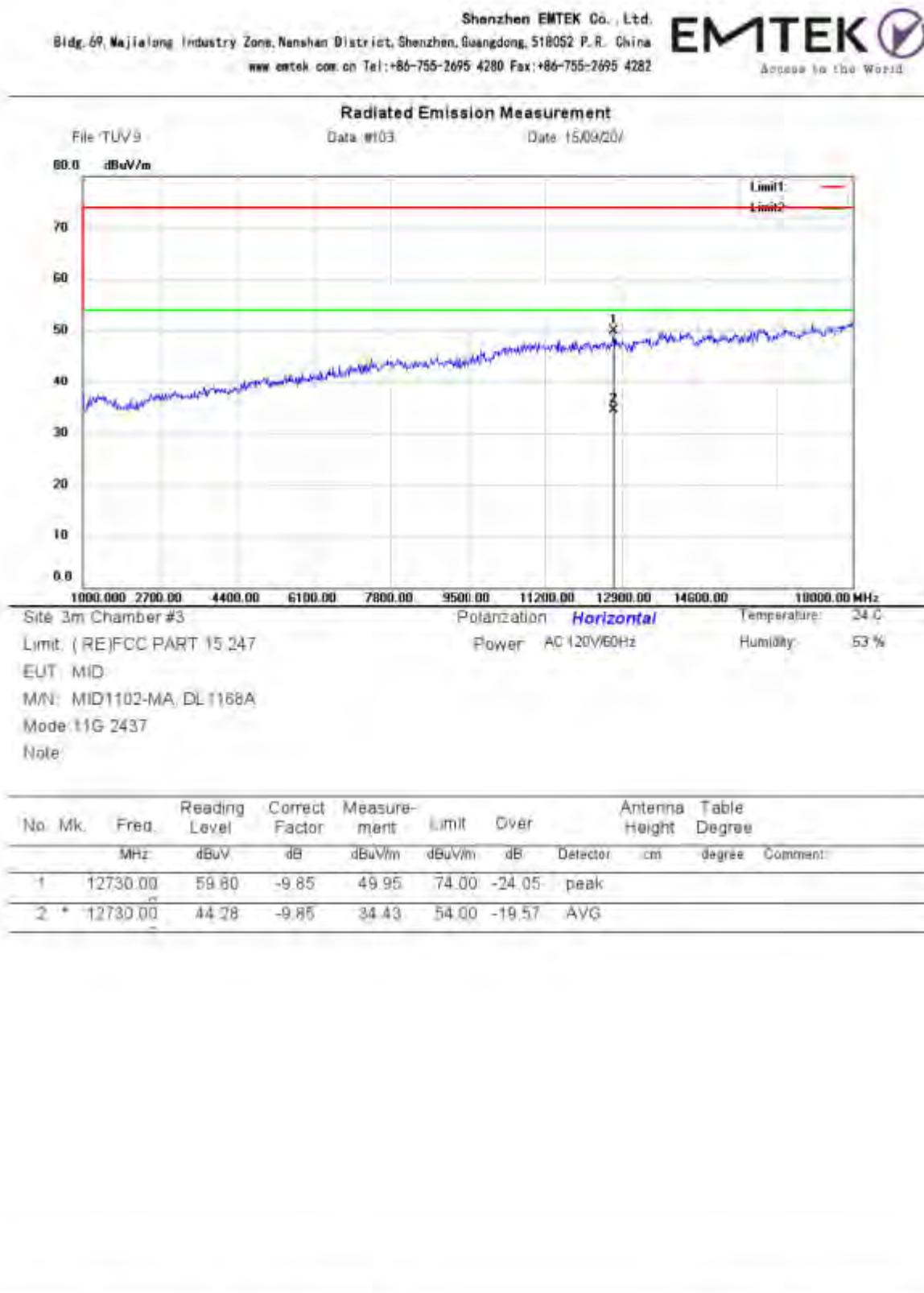


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree	Comment:
1	*	30.9700	42.76	-16.13	26.63	40.00	-13.37	QP		
2		100.8100	38.70	-14.02	24.68	43.50	-18.82	QP		
3		152.2200	42.37	-16.24	24.13	43.50	-19.37	QP		
4		325.6500	36.66	-13.20	23.46	46.00	-22.54	QP		
5		405.3900	30.68	-9.02	21.66	46.00	-24.34	QP		
6		656.6200	30.13	-6.42	23.71	46.00	-22.29	QP		

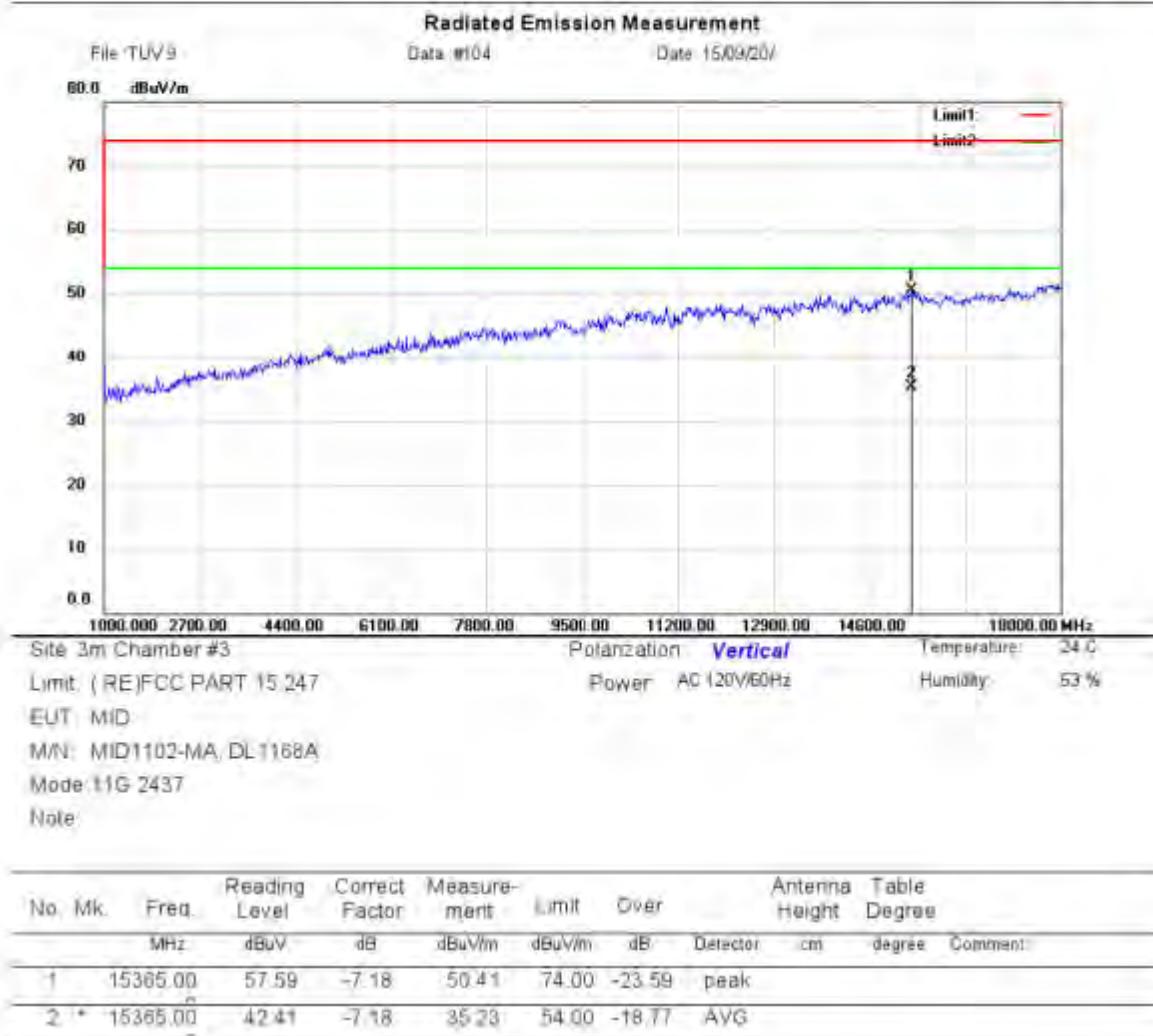
* Maximum data X Over limit | over margin

Operator: HKV

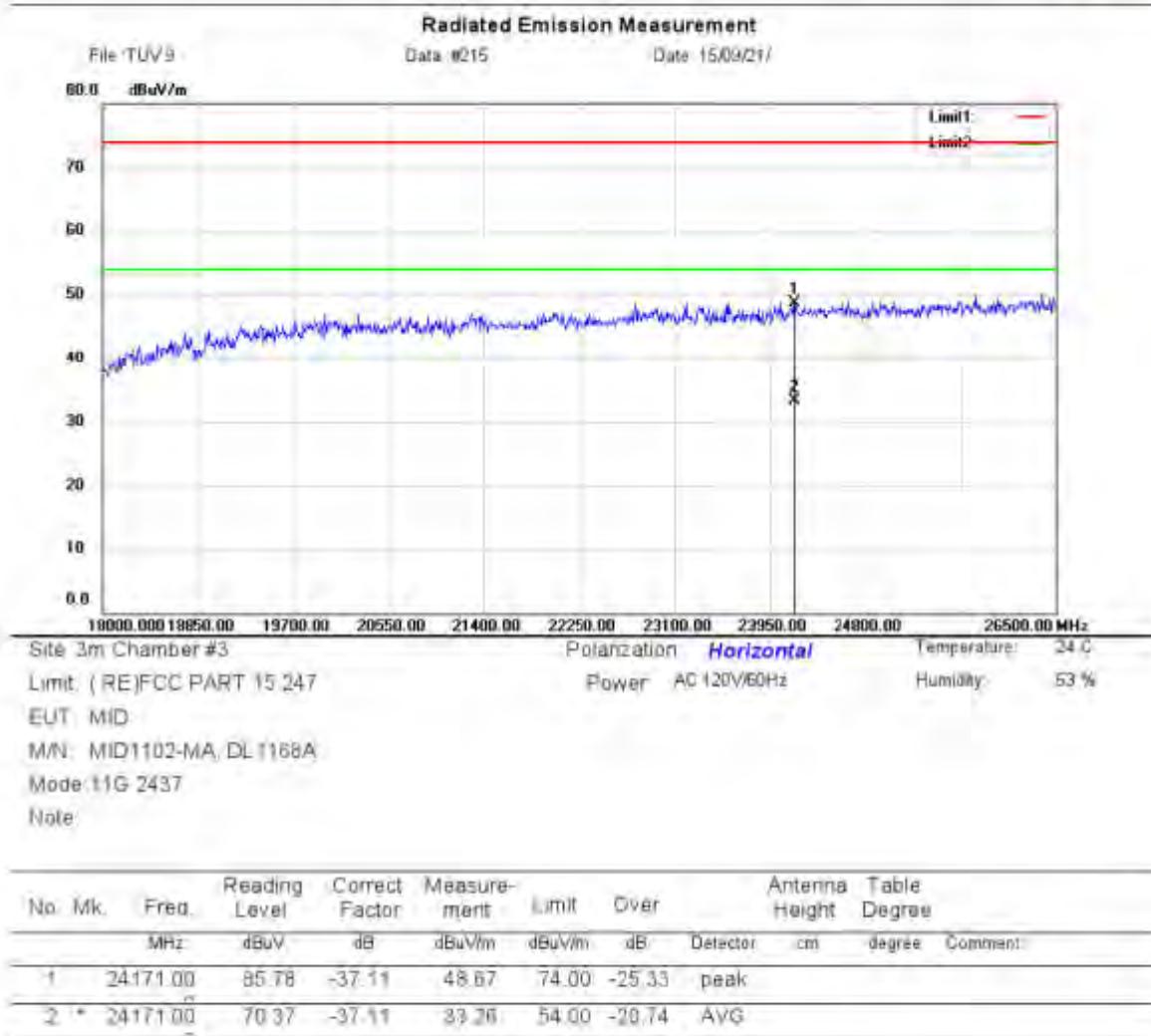
Figure 13: Test figure of Radiated Spurious Emissions (1GHz –25GHz), 802.11g, (Mid)



Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282



Shenzhen EMTEK Co., Ltd.
Bldg.69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282



Shenzhen EMTEK Co., Ltd.
Bldg.69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel:+86-755-2695 4280 Fax:+86-755-2695 4282

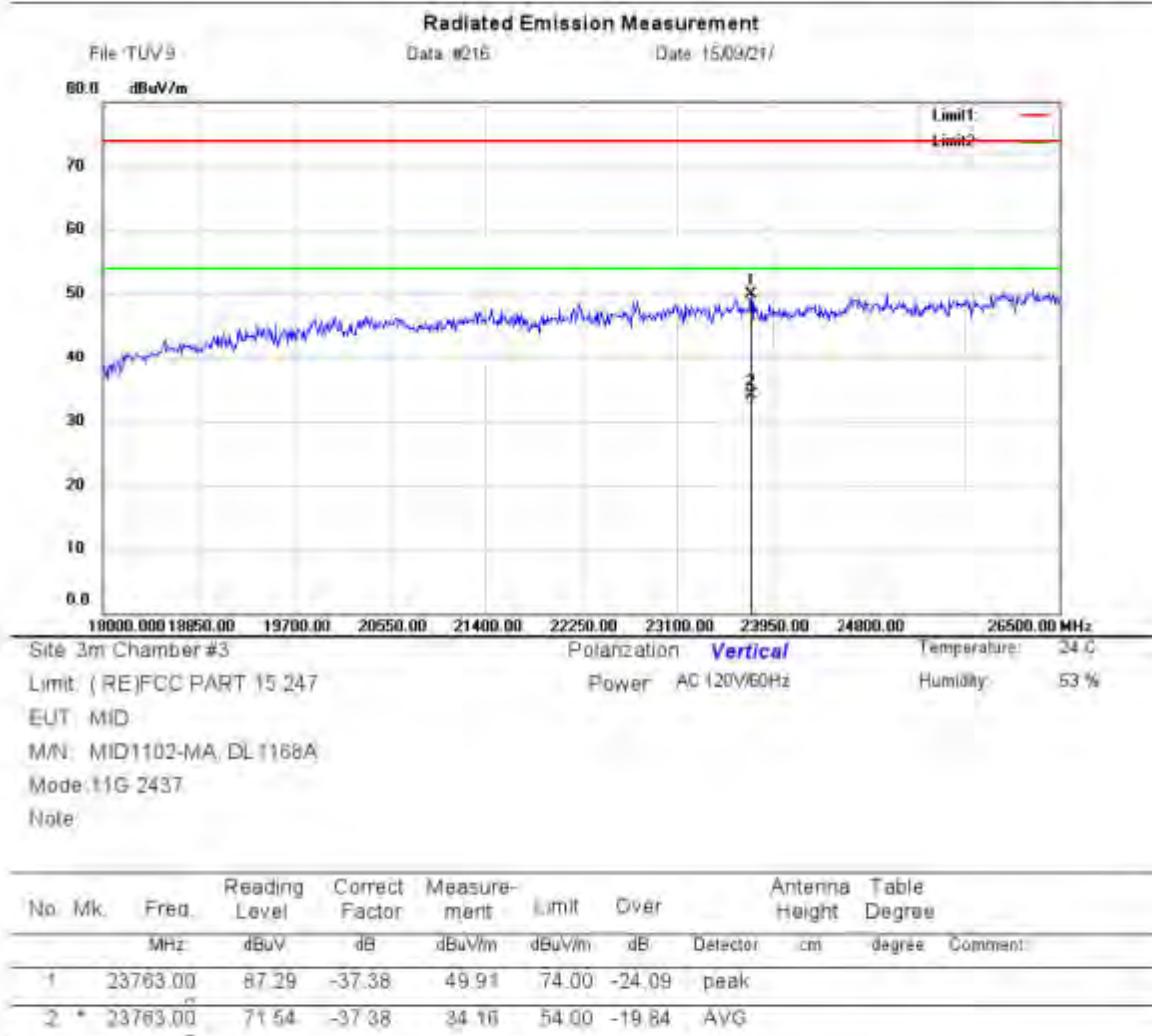
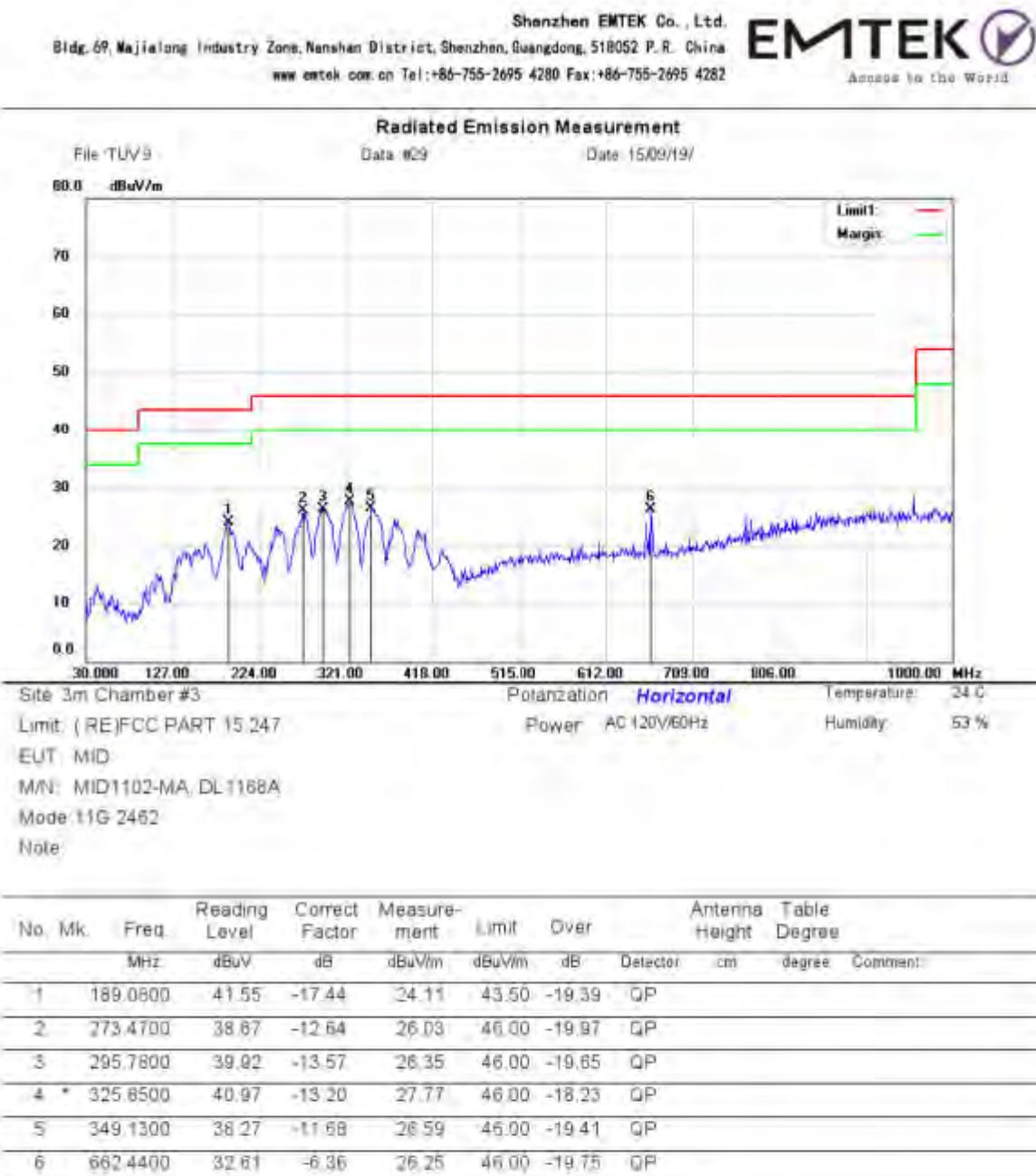


Figure 14: Test figure of Radiated Spurious Emissions (30MHz – 1GHz), 802.11g, (High)



Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282

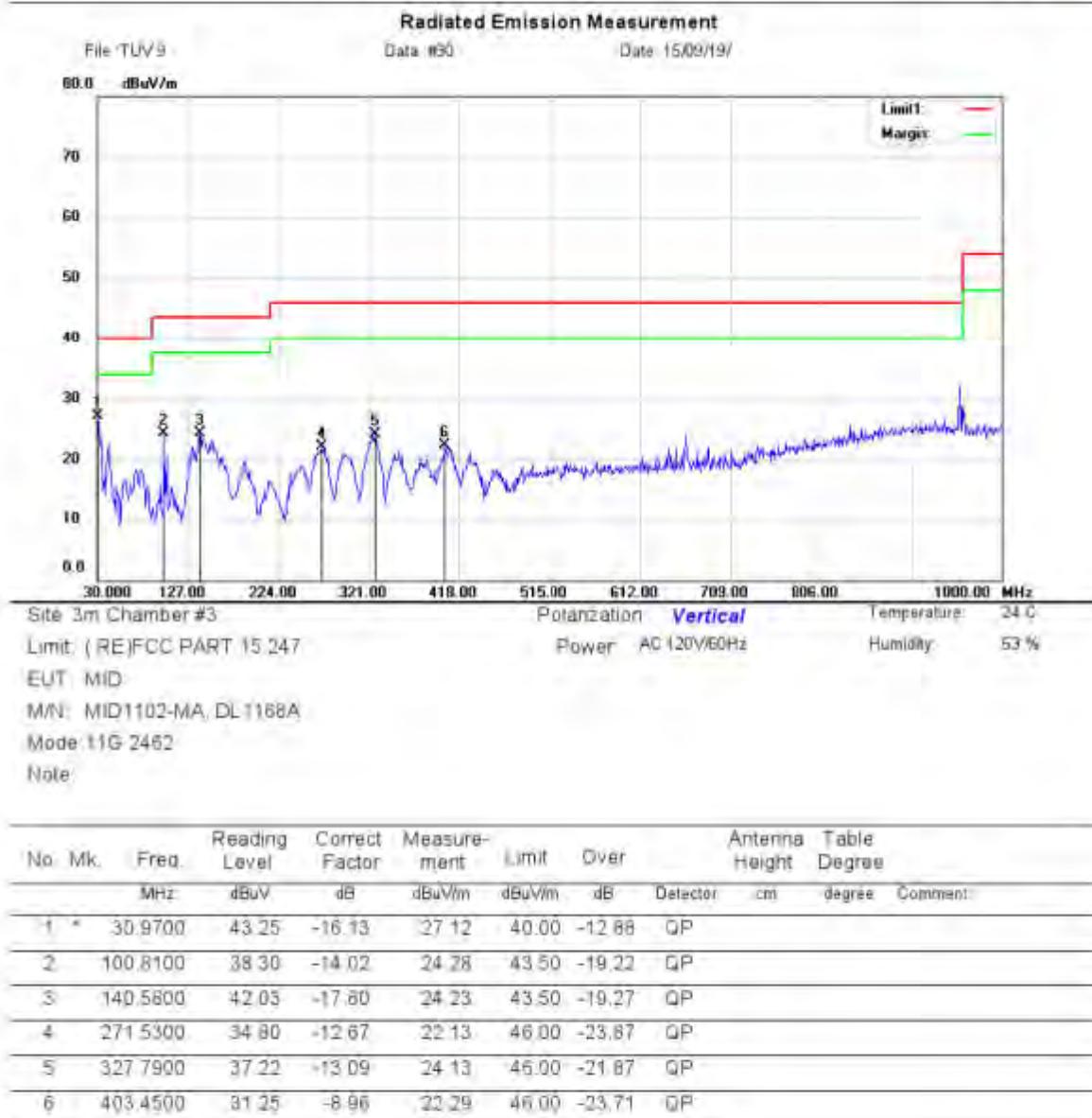
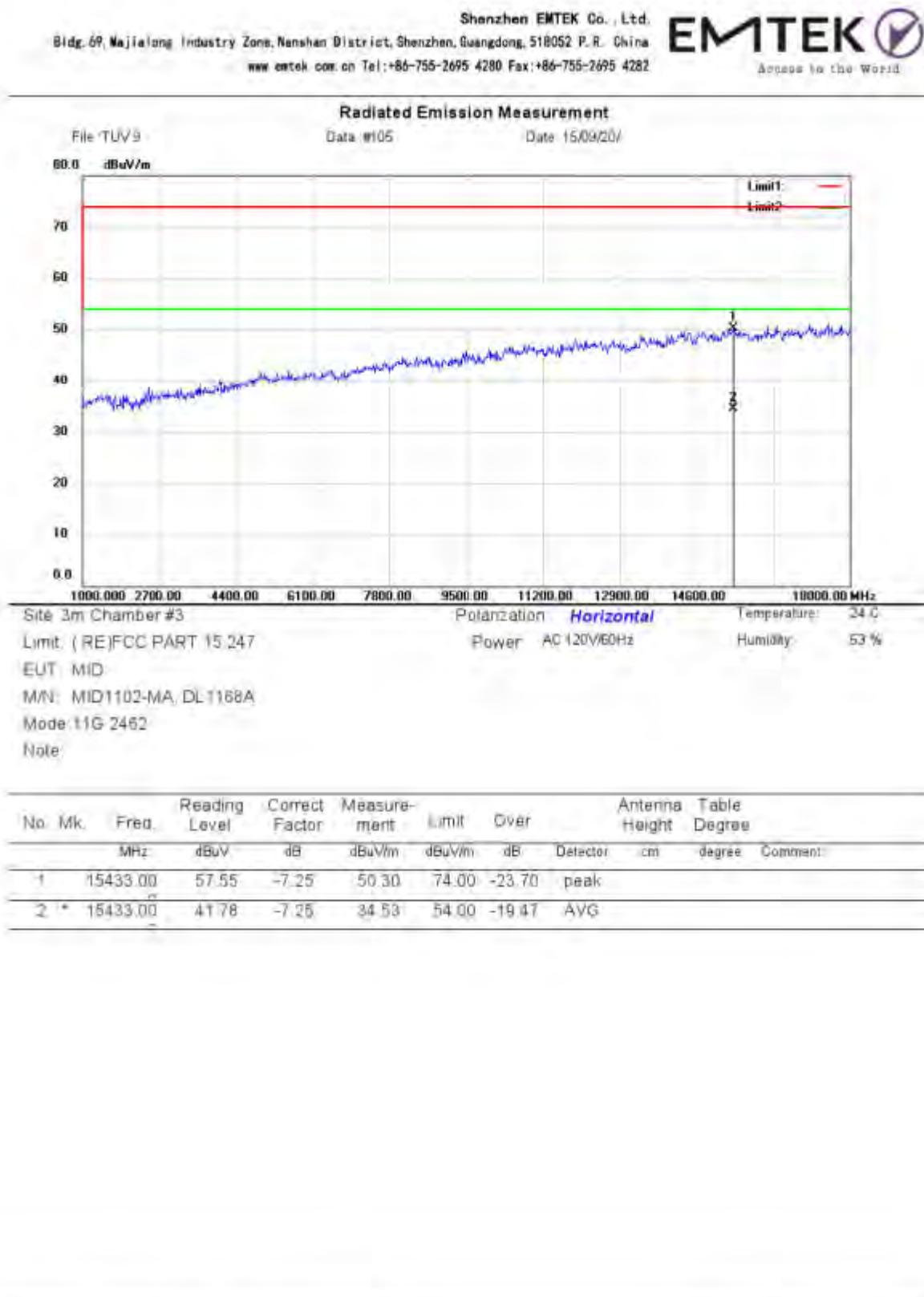
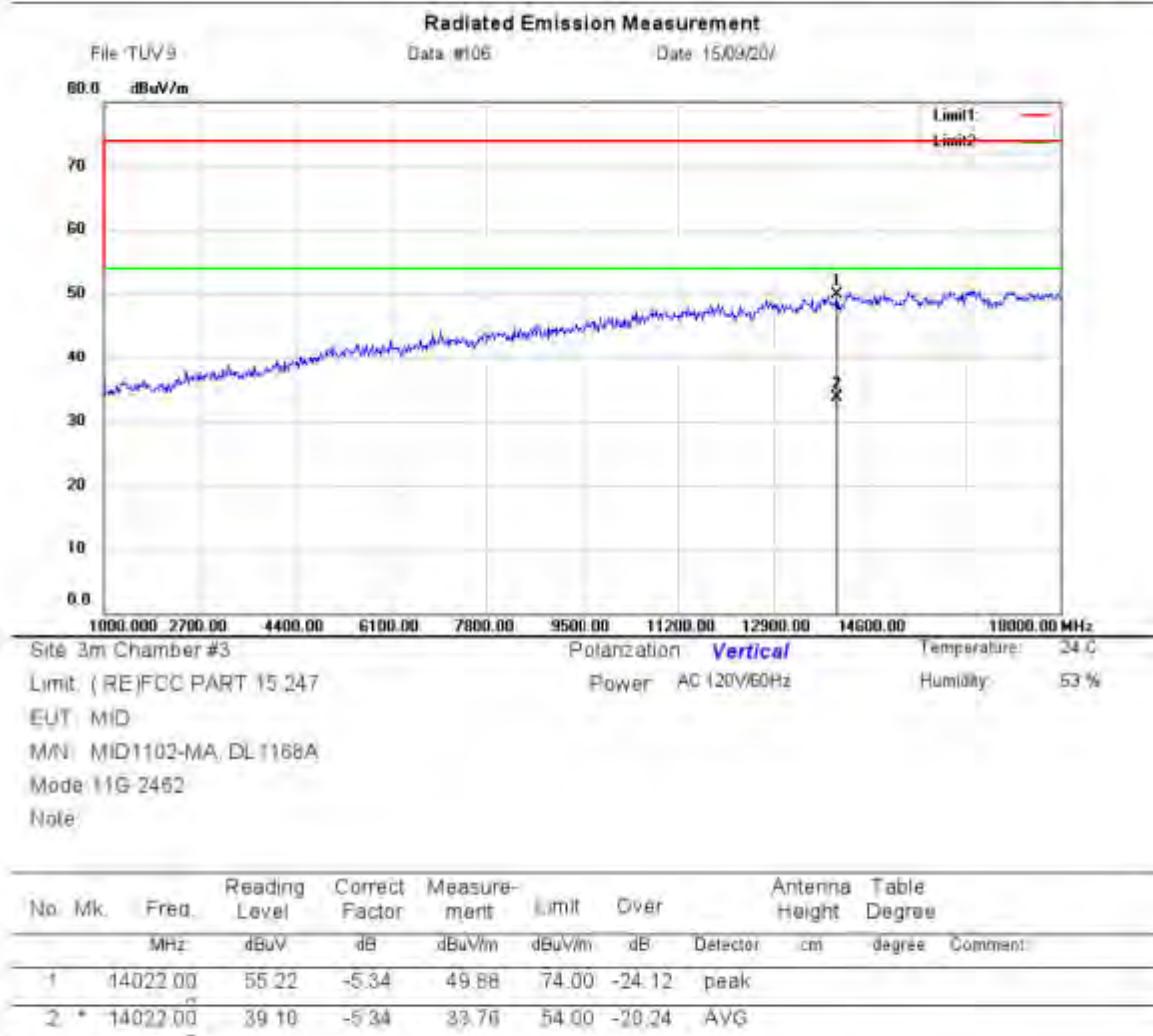


Figure 15: Test figure of Radiated Spurious Emissions (1GHz –25GHz), 802.11g, (High)



Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282



Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282

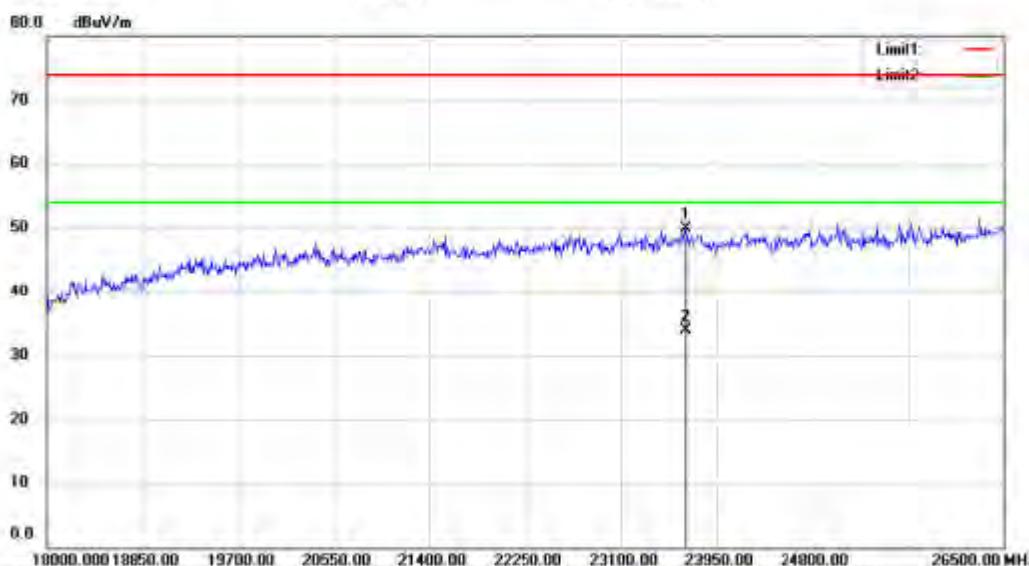


Radiated Emission Measurement

File TÜV 9

Date 02/17

Date 15/09/21



Site 3m Chamber #3

Polarization **Horizontal**

Temperature: 24 °C

Limit: (RE)FCC PART 15 247

Power AC 120V/60Hz

Humidity: 53 %

EUT: MID

MN: MID1102-MA, DL1168A

Mode: 11G-2462

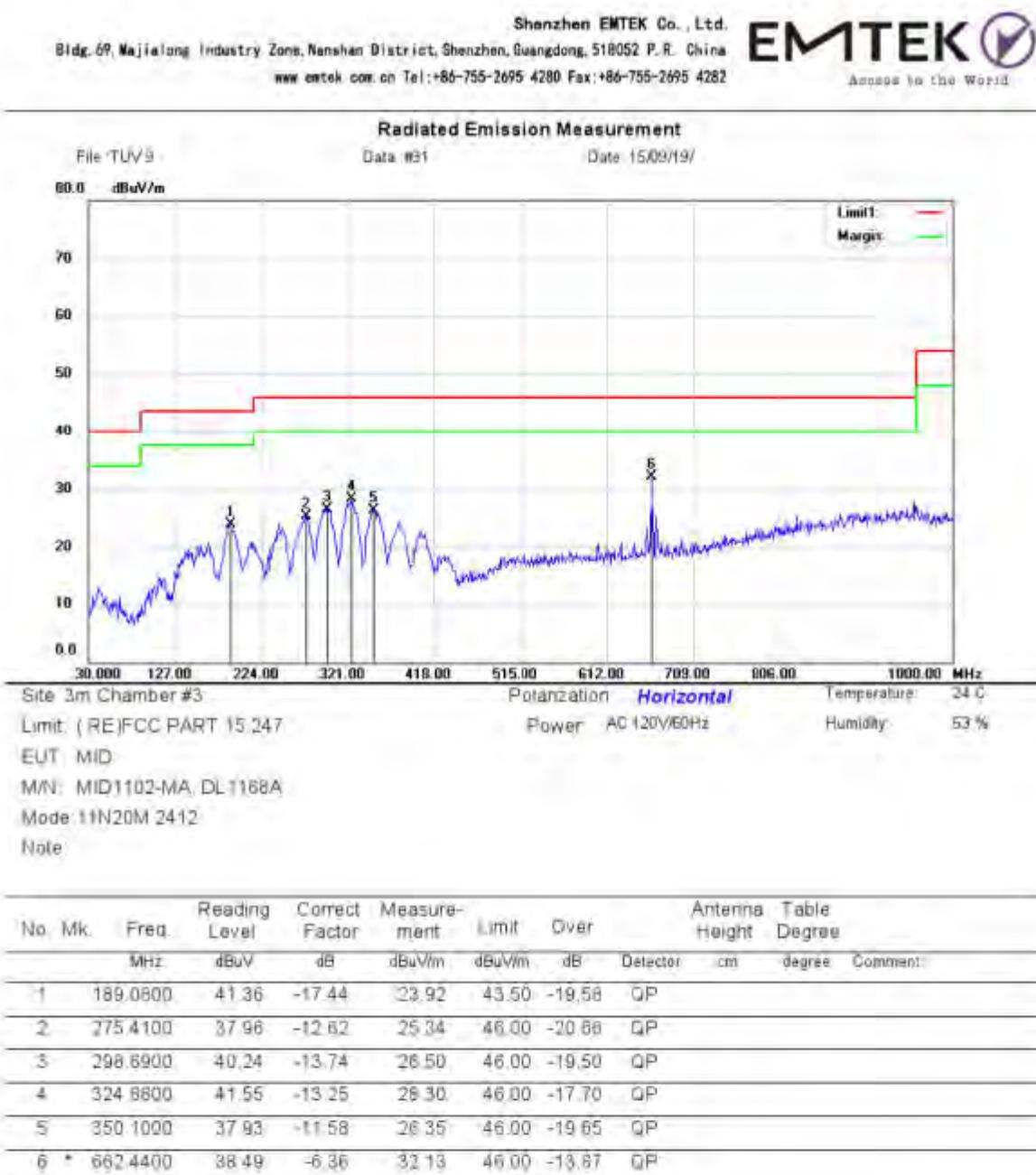
Note:

No	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Detector	Height cm	Table degree	Comment:
1		23686.50	87.38	-37.48	49.92	74.00	-24.08	peak			
2	*	23686.50	71.31	-37.48	33.86	54.00	-20.16	Avg			

Shenzhen EMTEK Co., Ltd.
Bldg.69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel:+86-755-2695 4280 Fax:+86-755-2695 4282



Figure 16: Test figure of Radiated Spurious Emissions (30MHz – 1GHz), 802.11n(HT20), (Low)



Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282

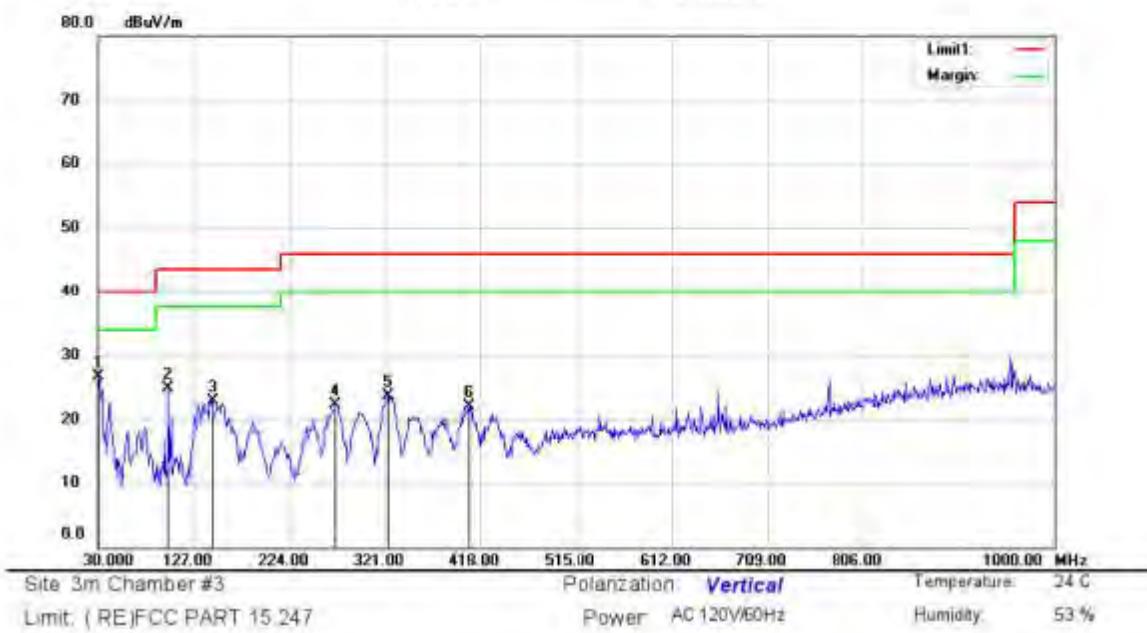


Radiated Emission Measurement

File: TUV 9

Data: #32

Date: 15/09/19



Site: 3m Chamber #3

Polarization: **Vertical**

Temperature: 24 °C

Limit: (RE)FCC PART 15.247

Power: AC 120V/60Hz

Humidity: 53 %

EUT: MID

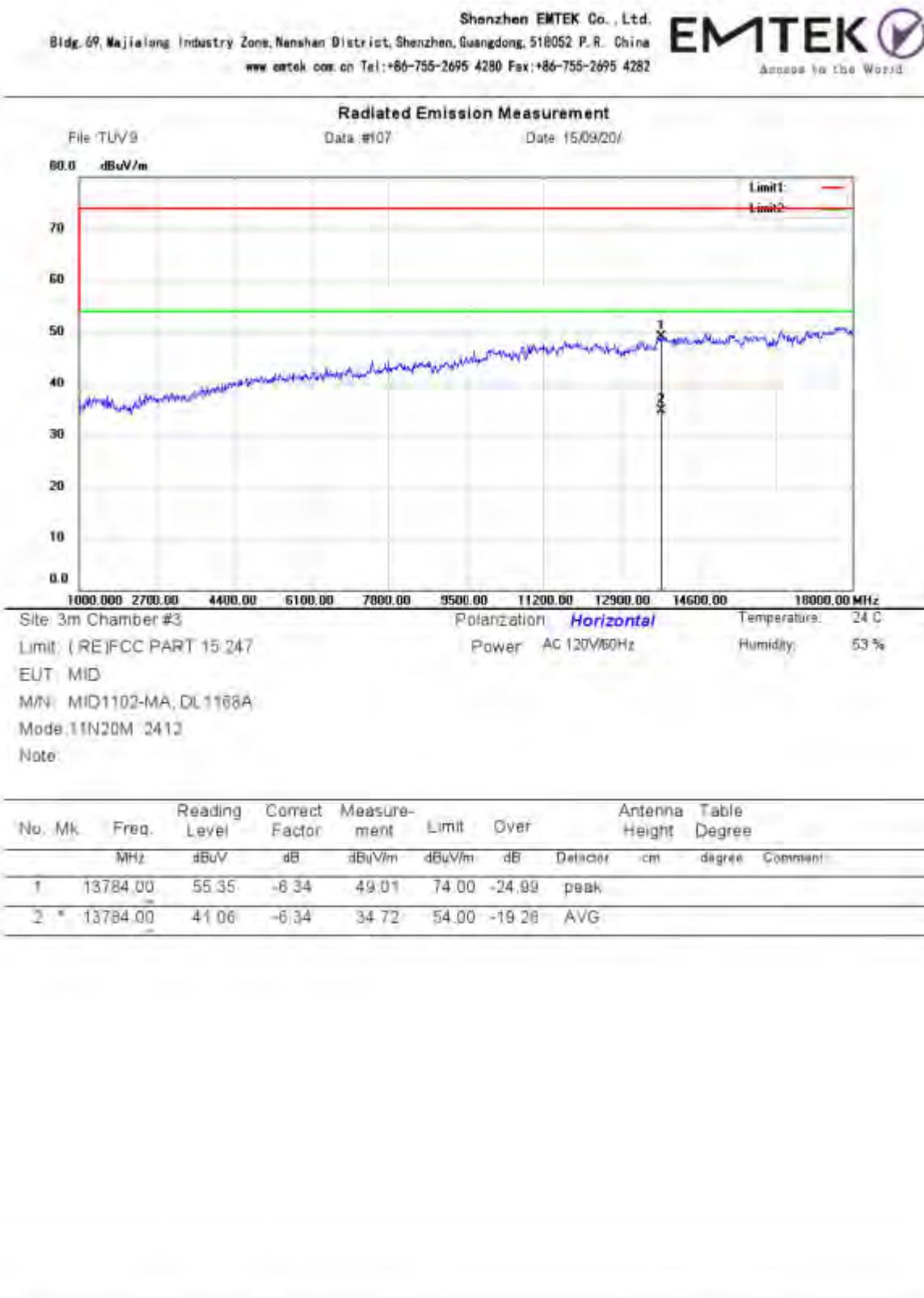
M/N: MID1102-MA; DL1168A

Mode: 11N20M 2412

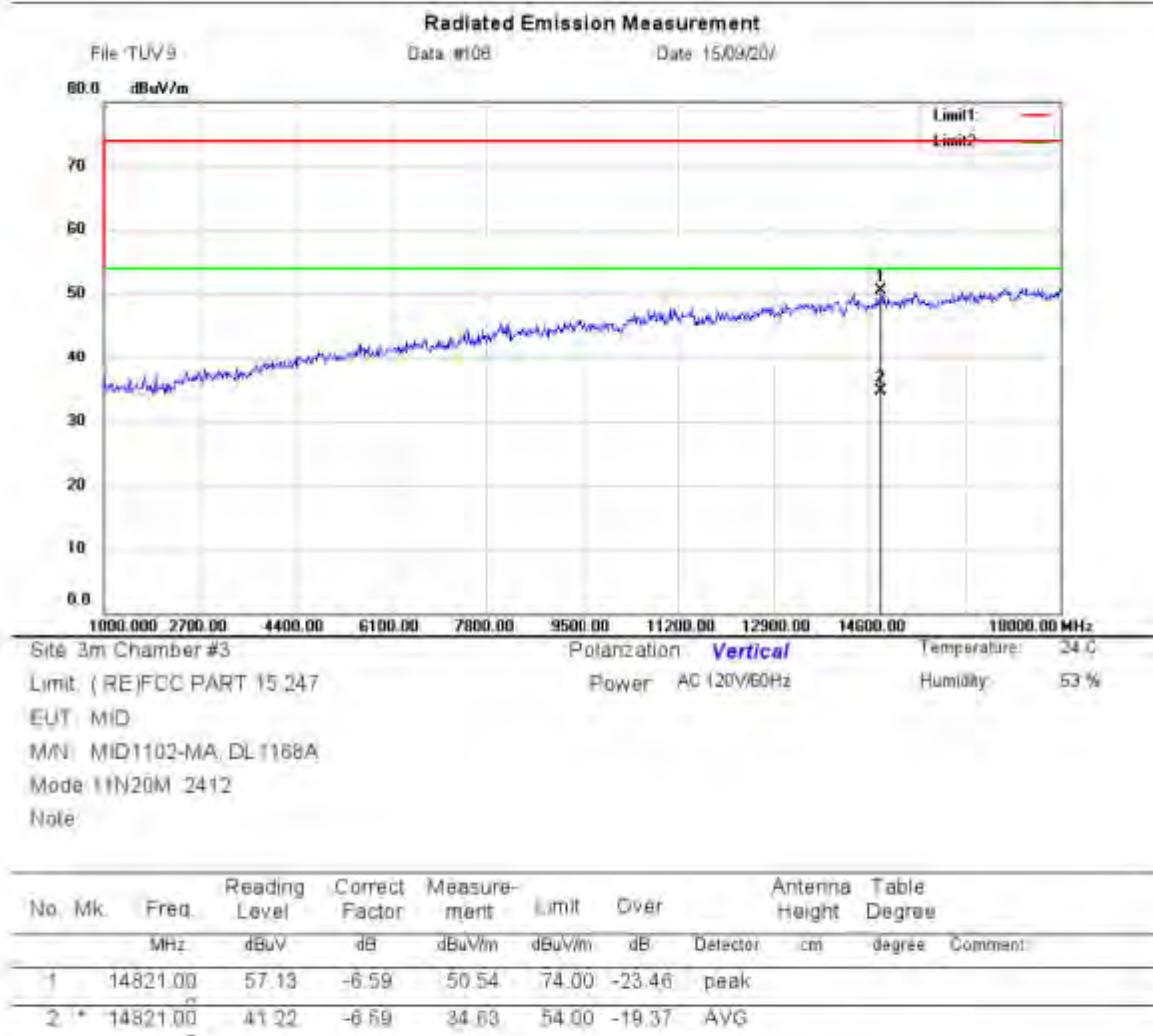
Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB	Over Detector	Antenna Height cm	Table degree	Comment
1	*	30.9700	42.90	-16.13	26.77	40.00	-13.23	QP		
2		100.8100	38.90	-14.02	24.88	43.50	-18.62	QP		
3		146.4000	40.92	-17.99	22.93	43.50	-20.57	QP		
4		271.5300	35.01	-12.67	22.34	46.00	-23.66	QP		
5		323.9100	36.96	-13.30	23.66	46.00	-22.34	QP		
6		406.3600	31.21	-9.04	22.17	46.00	-23.83	QP		

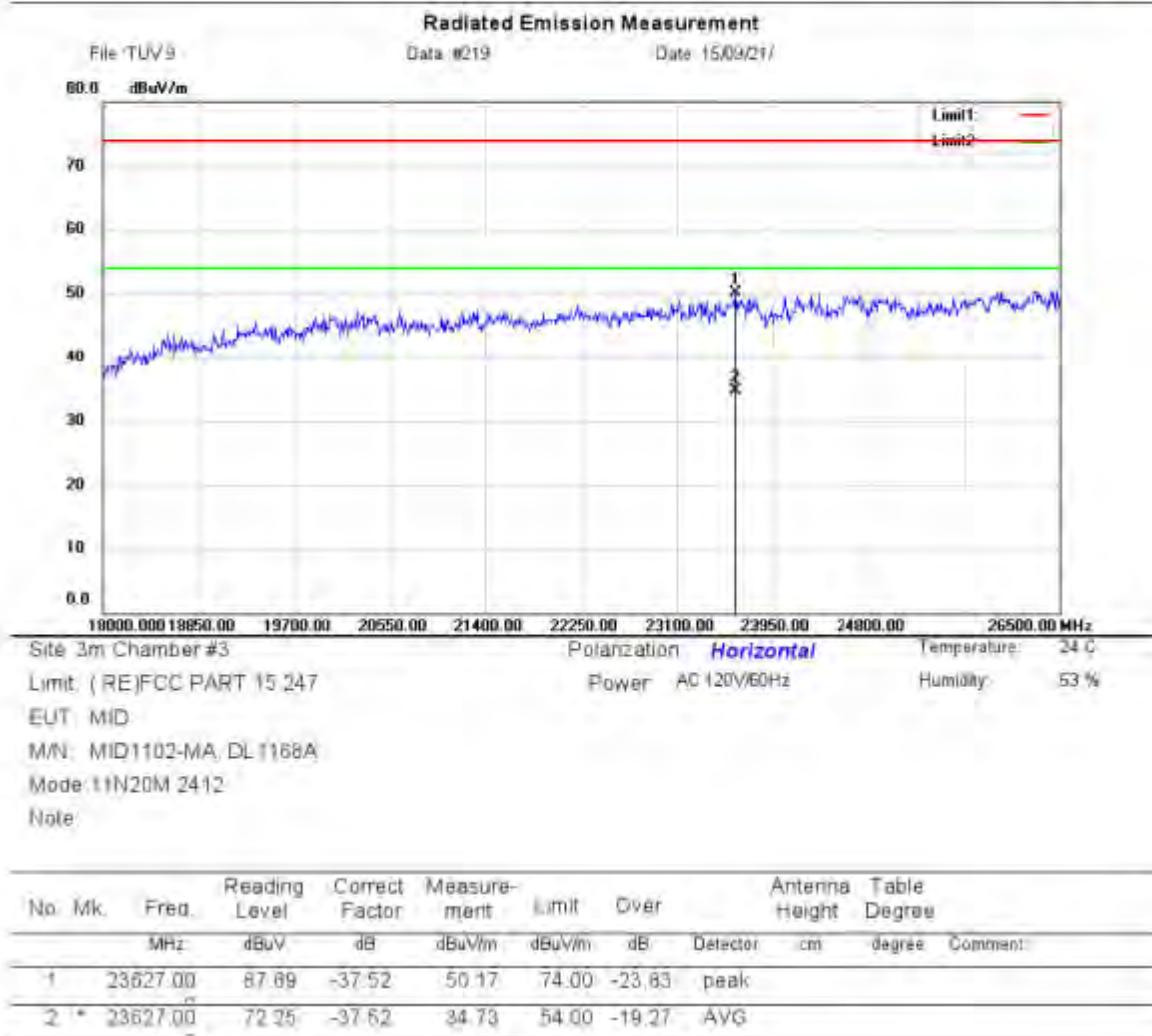
Figure 17: Test figure of Radiated Spurious Emissions (1GHz –25GHz), 802.11n(HT20), (Low)



Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282



Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282



Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282

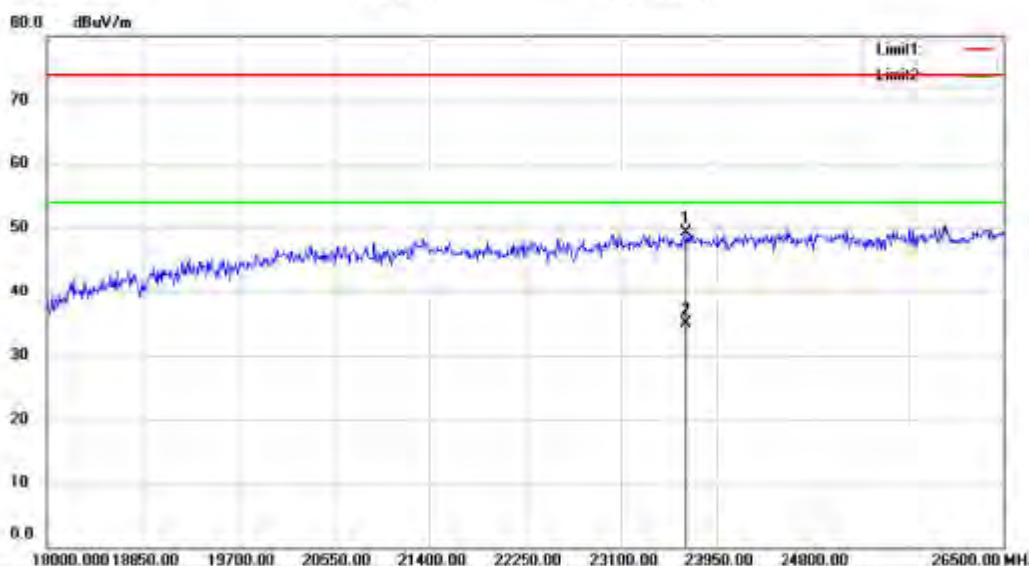


Radiated Emission Measurement

File TÜV 9

Date 02/20

Date 15/09/21



Site: 3m Chamber #3

Polarization: **Vertical**

Temperature: 24 °C

Limit: (RE)FCC PART 15 247

Power: AC (20V/60Hz)

Humidity: 53 %

EUT: MID

M/N: MID1102-MA, DL1168A

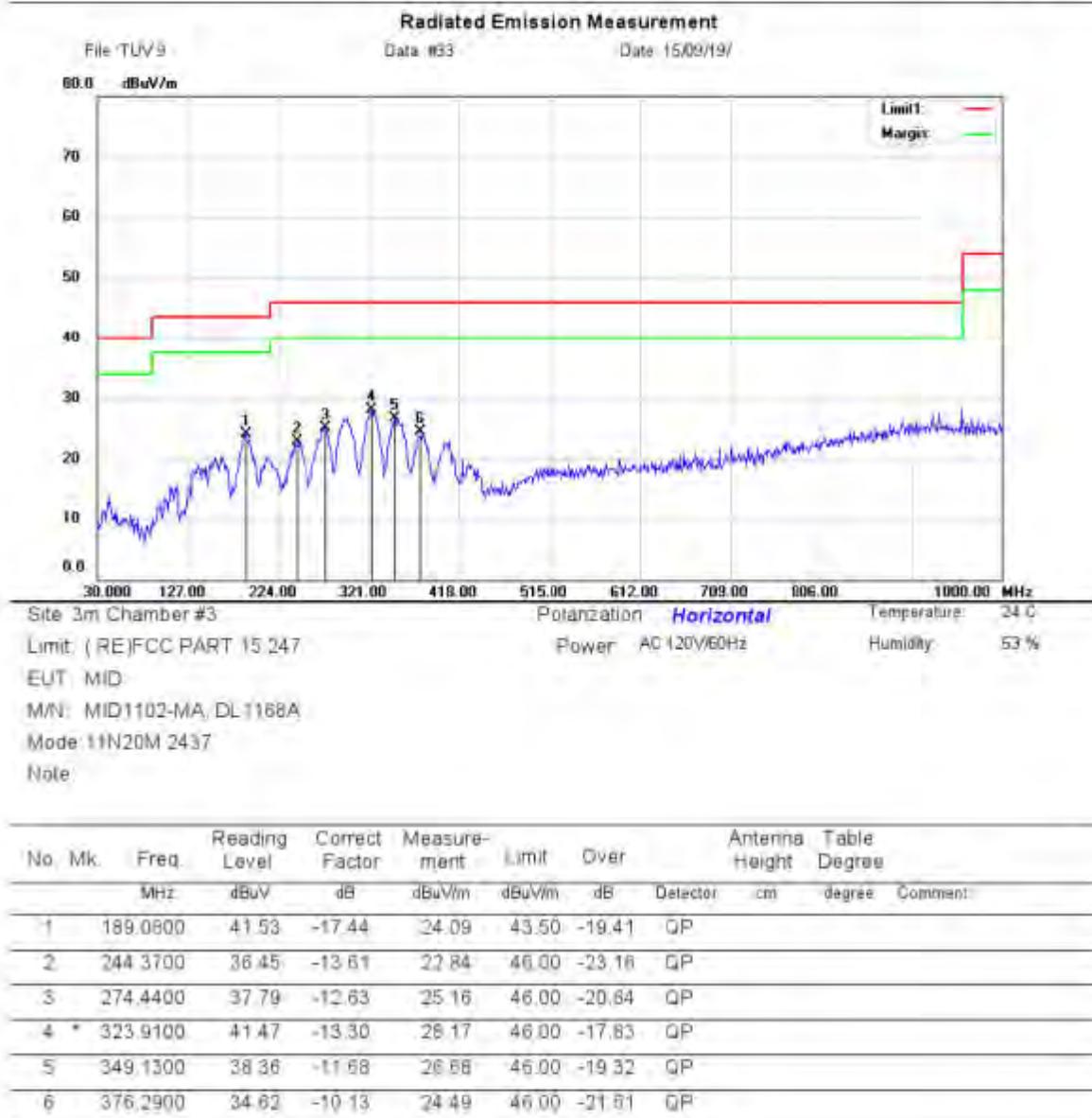
Model: TN20M 2412

Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector peak	Antenna Height cm	Table degree	Comment:
1		23686.50	86.71	-37.48	49.25	74.00	-24.75	peak			
2	*	23686.50	72.34	-37.48	34.88	54.00	-19.12	Avg			

Figure 18: Test figure of Radiated Spurious Emissions (30MHz – 1GHz), 802.11n(HT20), (Mid)

Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282



Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282


EMTEK Across the World

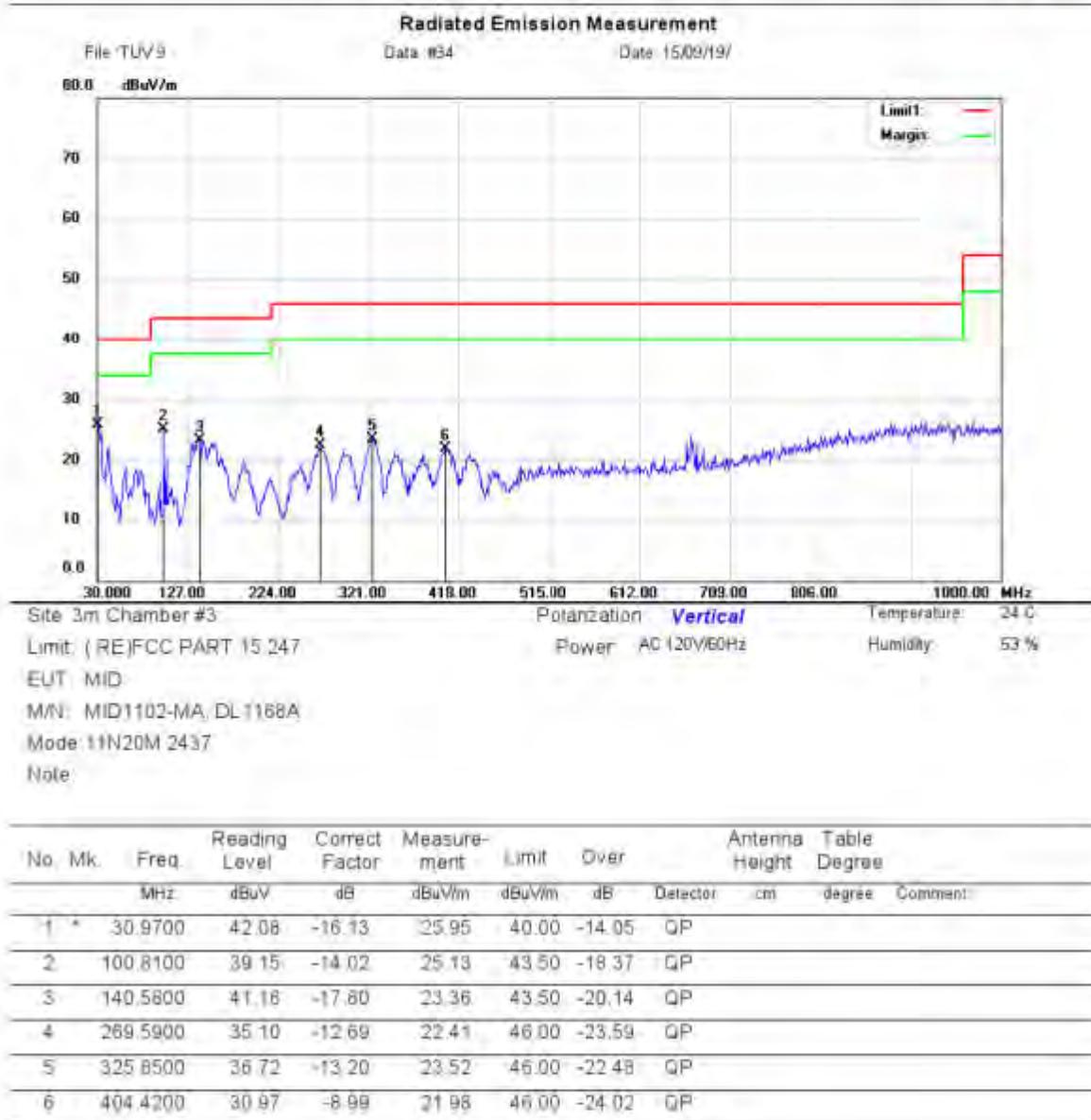
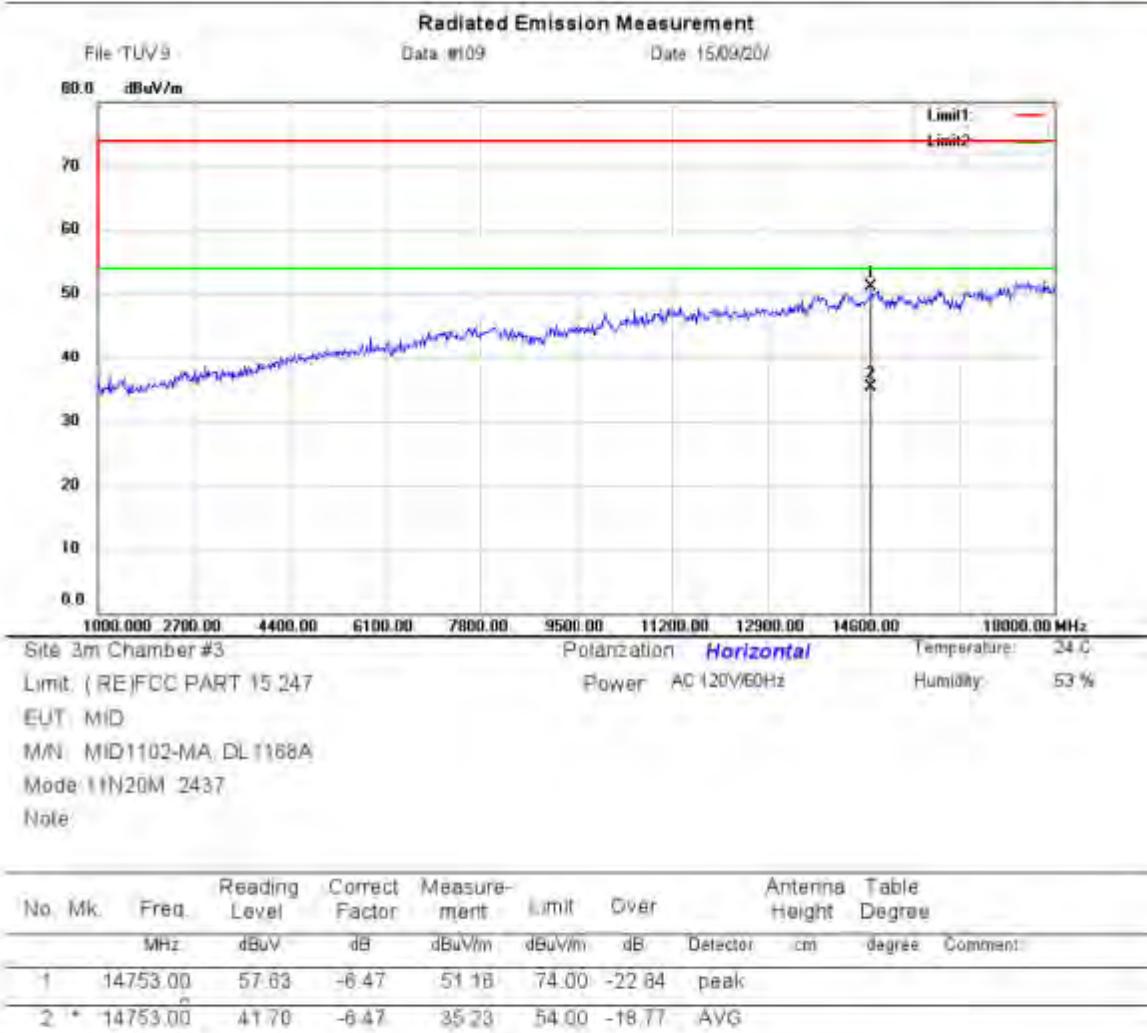
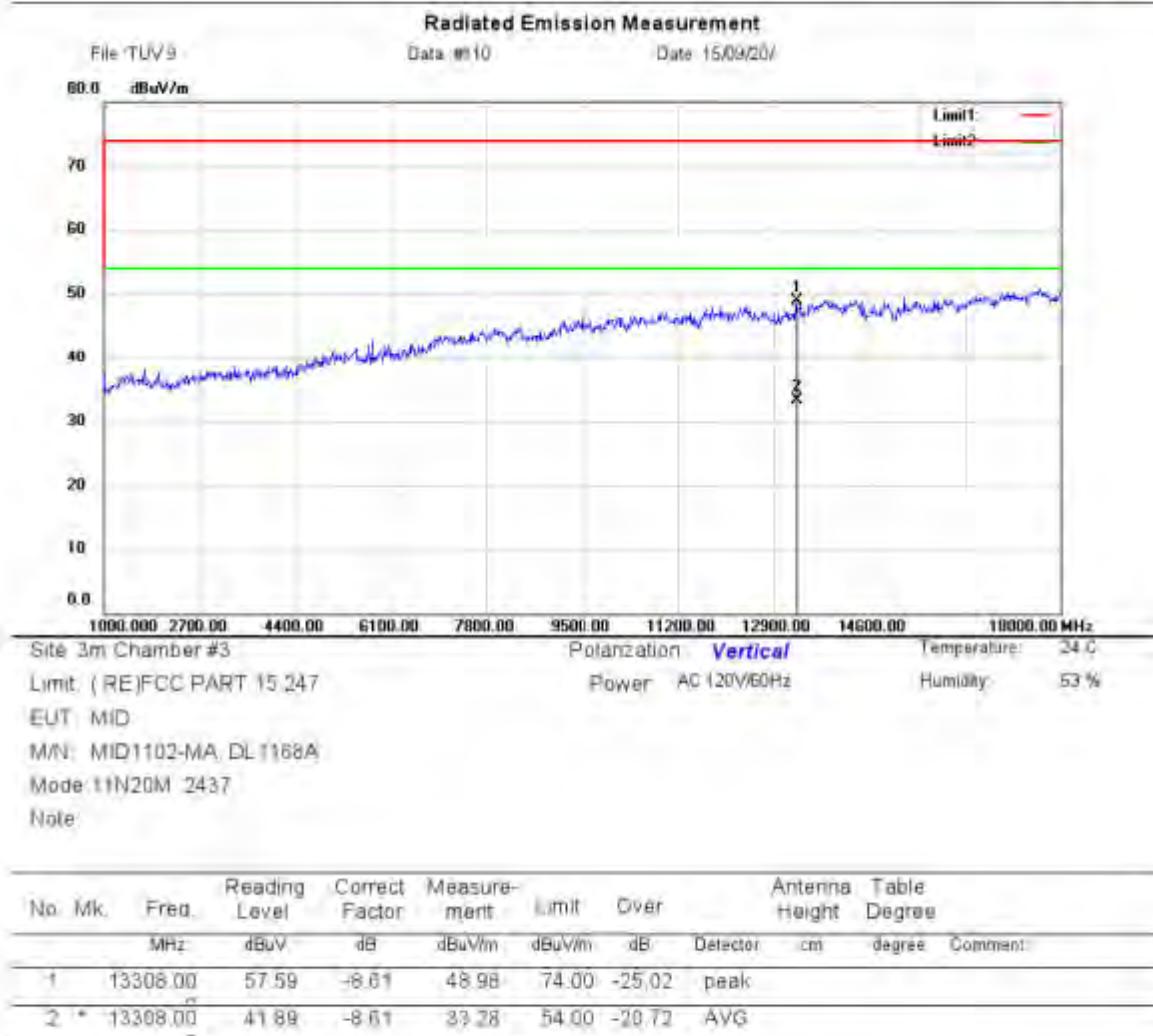


Figure 19: Test figure of Radiated Spurious Emissions (1GHz –25GHz), 802.11n(HT20), (Mid)

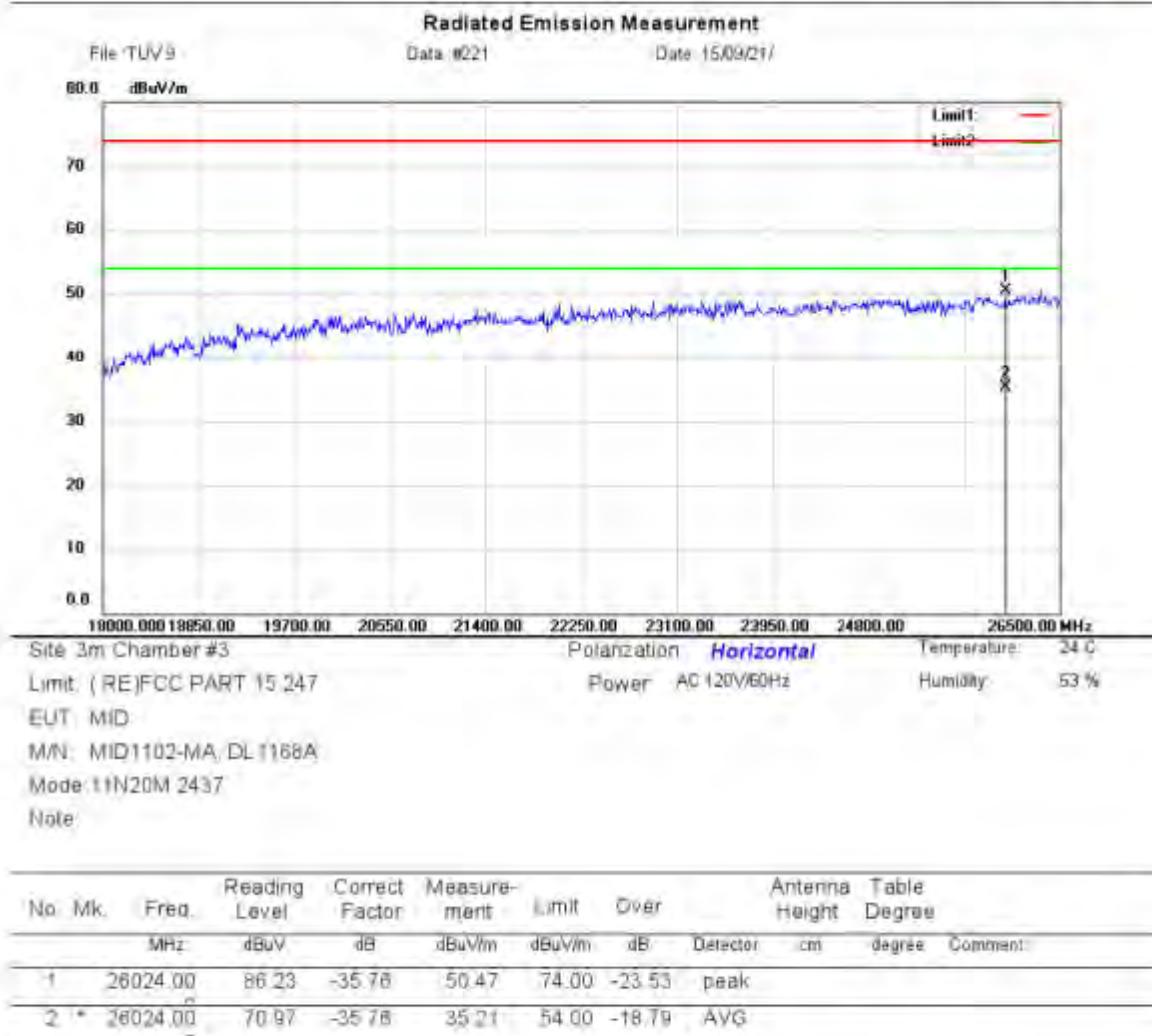
Shenzhen EMTEK Co., Ltd.
Bldg.69, Naijiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel:+86-755-2695 4280 Fax:+86-755-2695 4282



Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282



Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282



Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282

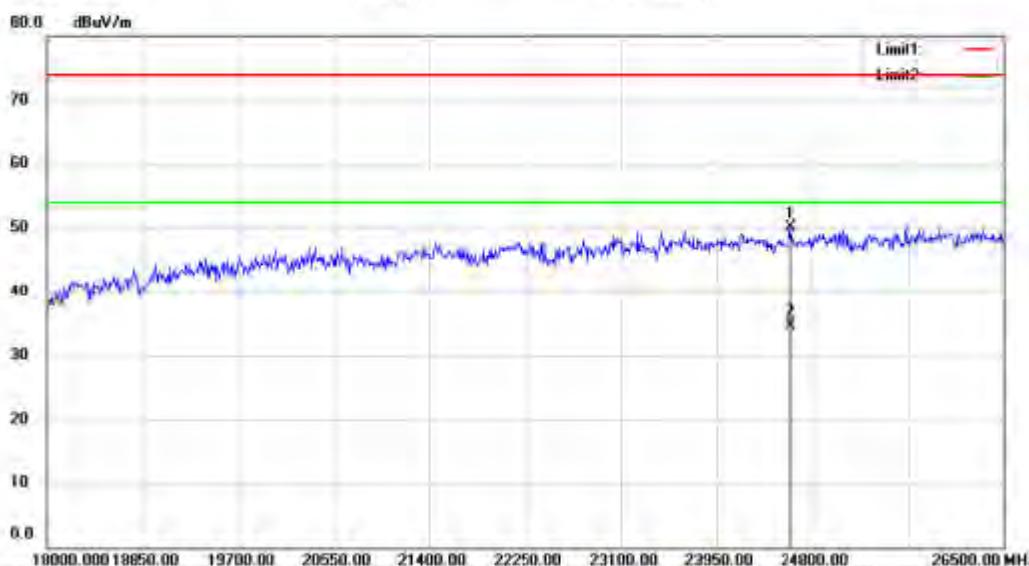


Radiated Emission Measurement

File TÜV 9

Date 02/22

Date 15/09/21



Site 3m Chamber #3

Polarization **Vertical**

Temperature: 24 C

Limit: (RE)FCC PART 15 247

Power AC (20V/60Hz)

Humidity: 53 %

EUT: MID

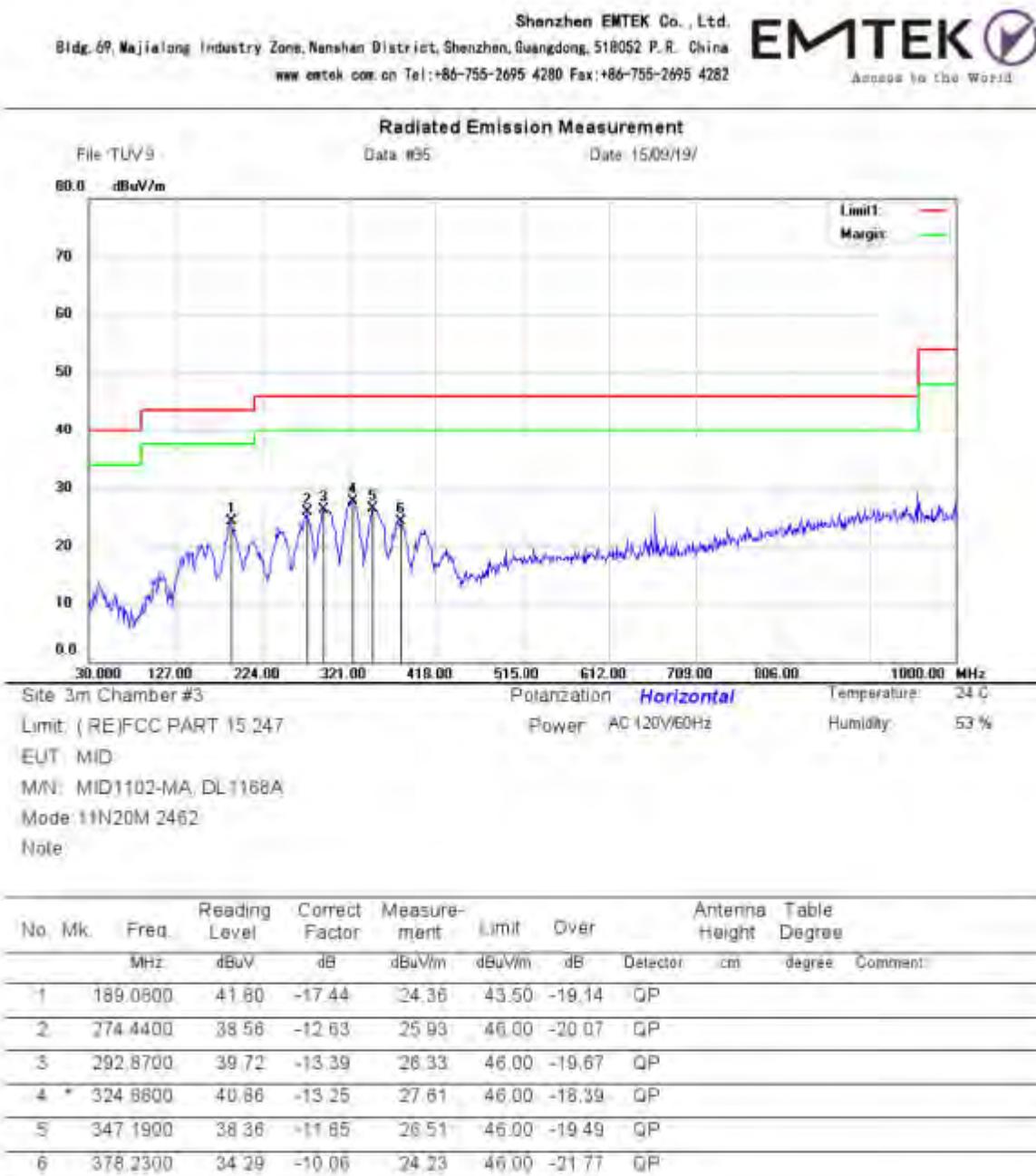
M/N: MID1102-MA/DL1168A

Mode: 11N20M 2437

Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Antenna Height cm	Table Degree	Comment:
1		24613.00	87.10	-37.06	50.04	74.00	-23.96	peak			
2	*	24613.00	71.71	-37.06	34.66	54.00	-19.35	Avg			

Figure 20: Test figure of Radiated Spurious Emissions (30MHz – 1GHz), 802.11n(HT20), (High)



Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282


EMTEK Across the World

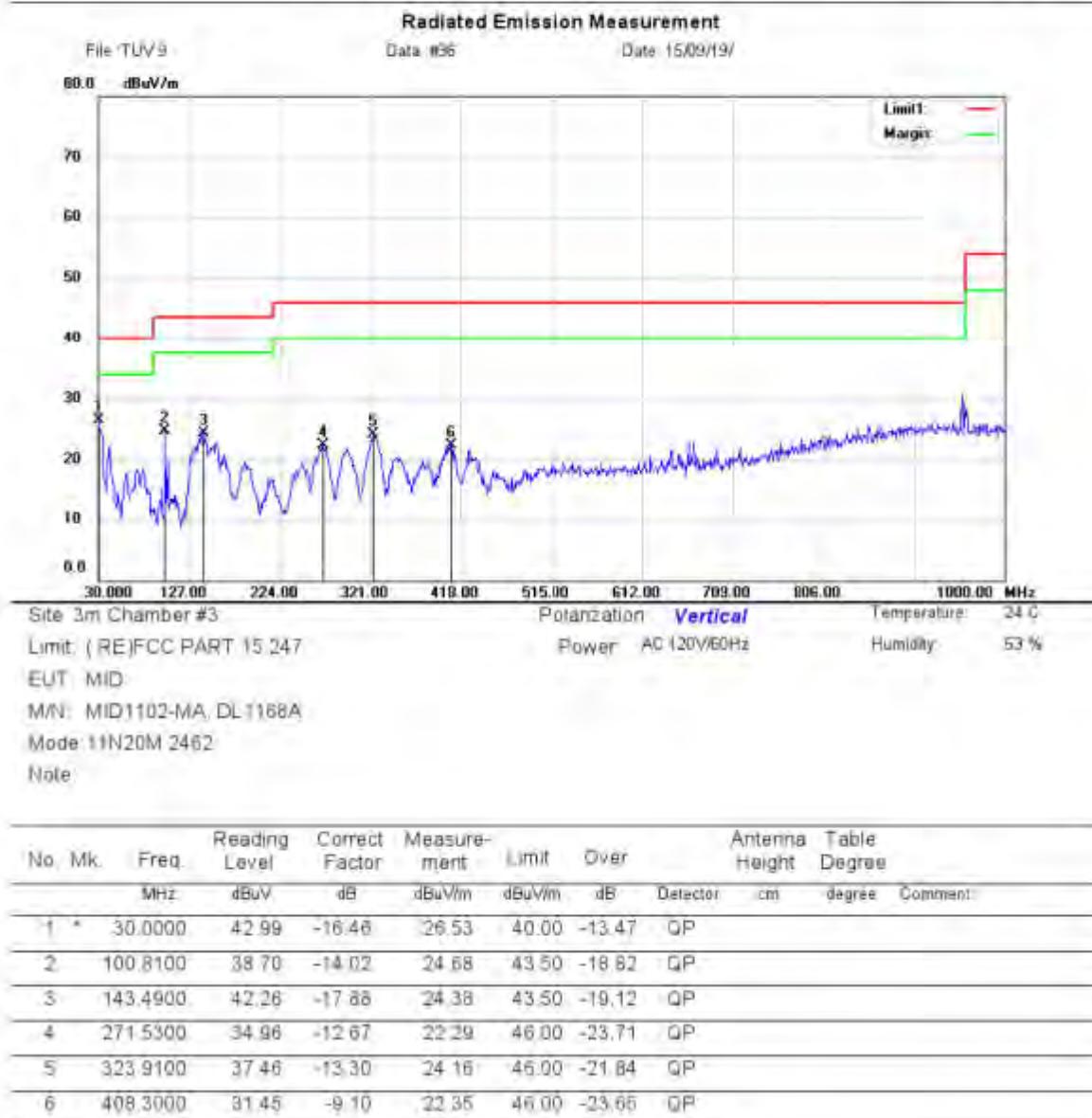
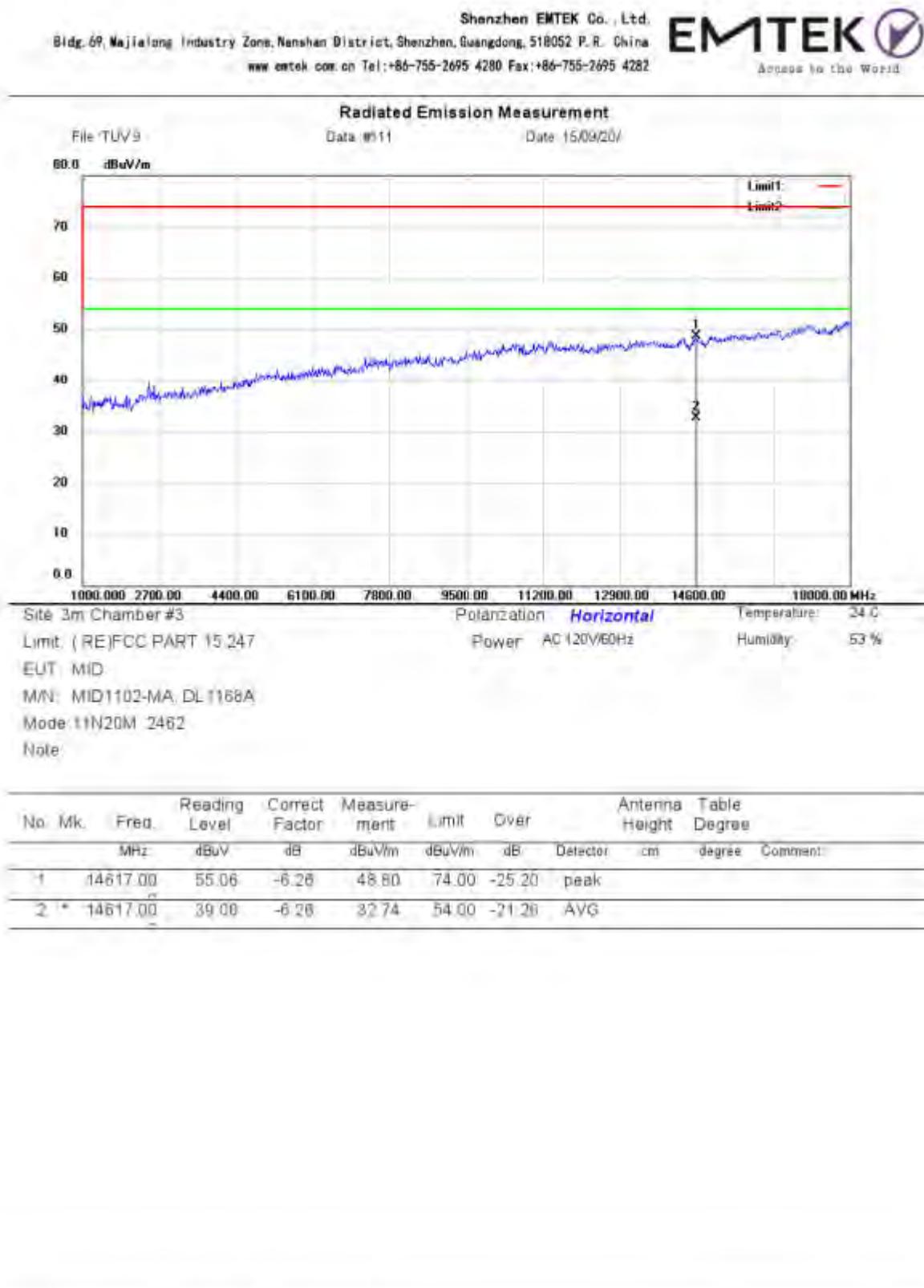
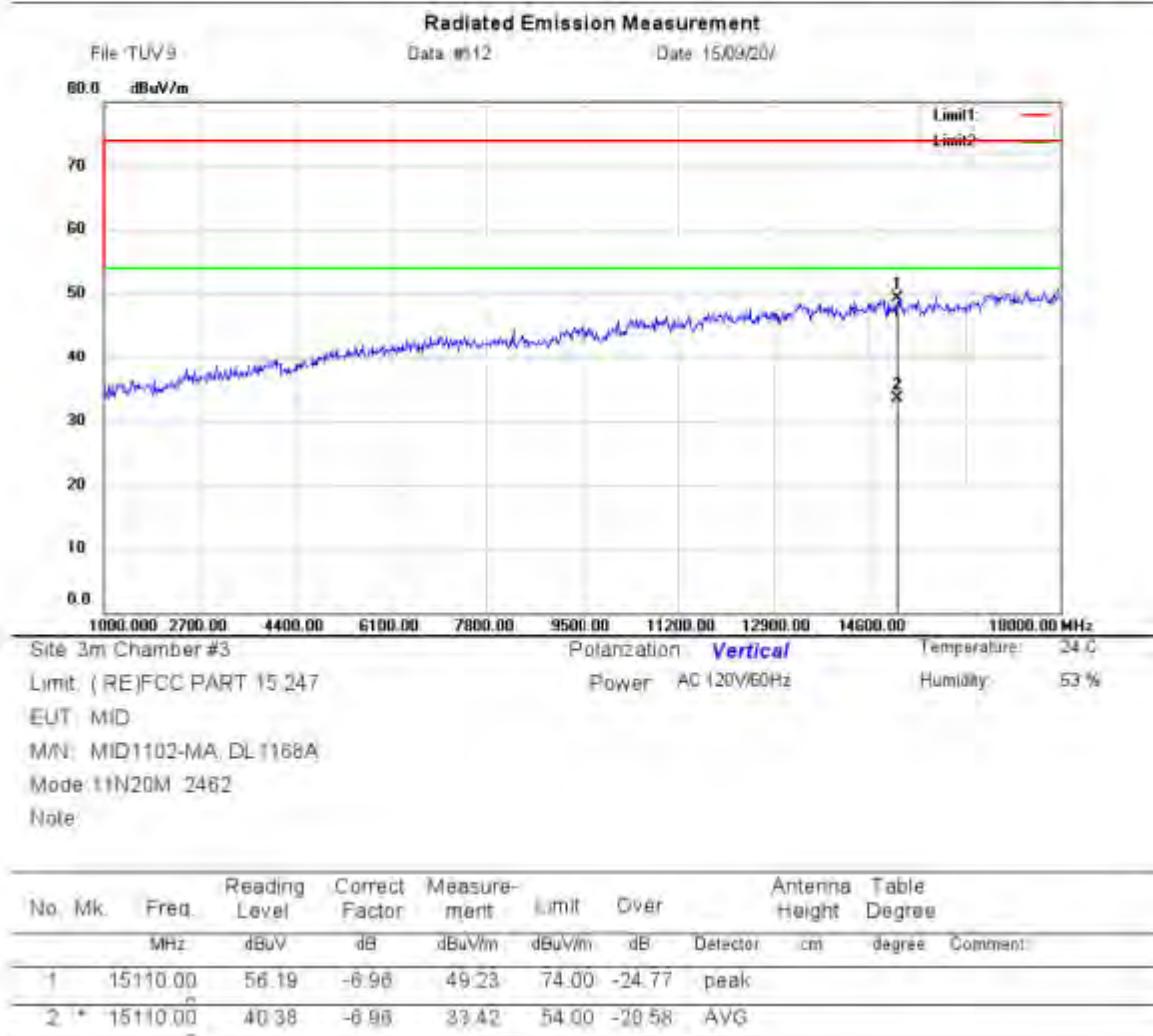


Figure 21: Test figure of Radiated Spurious Emissions (1GHz –25GHz), 802.11n(HT20), (High)



Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282



Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282

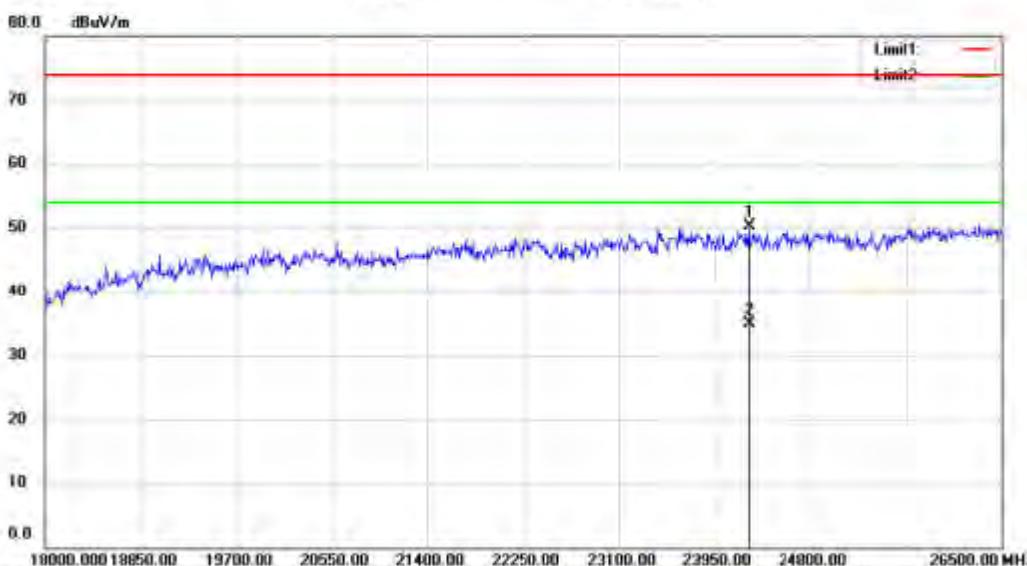


Radiated Emission Measurement

File TÜV 9

Date 02/23

Date 15/09/21



Site 3m Chamber #3

Polarization **Horizontal**

Temperature: 24 C

Limit: (RE)FCC PART 15 247

Power AC 120V/60Hz

Humidity: 53 %

EUT: MID

M/N: MID1102-MA, DL1168A

Mode: 11N20M 2462

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	Antenna Height	Table Degree	Comment:
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1		24256.00	87.37	-37.10	50.27	74.00	-23.73	peak		
2	*	24256.00	71.95	-37.10	34.86	54.00	-19.15	Avg		

Shenzhen EMTEK Co., Ltd.
Bldg.69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel:+86-755-2695 4280 Fax:+86-755-2695 4282


EMTEK Across the World

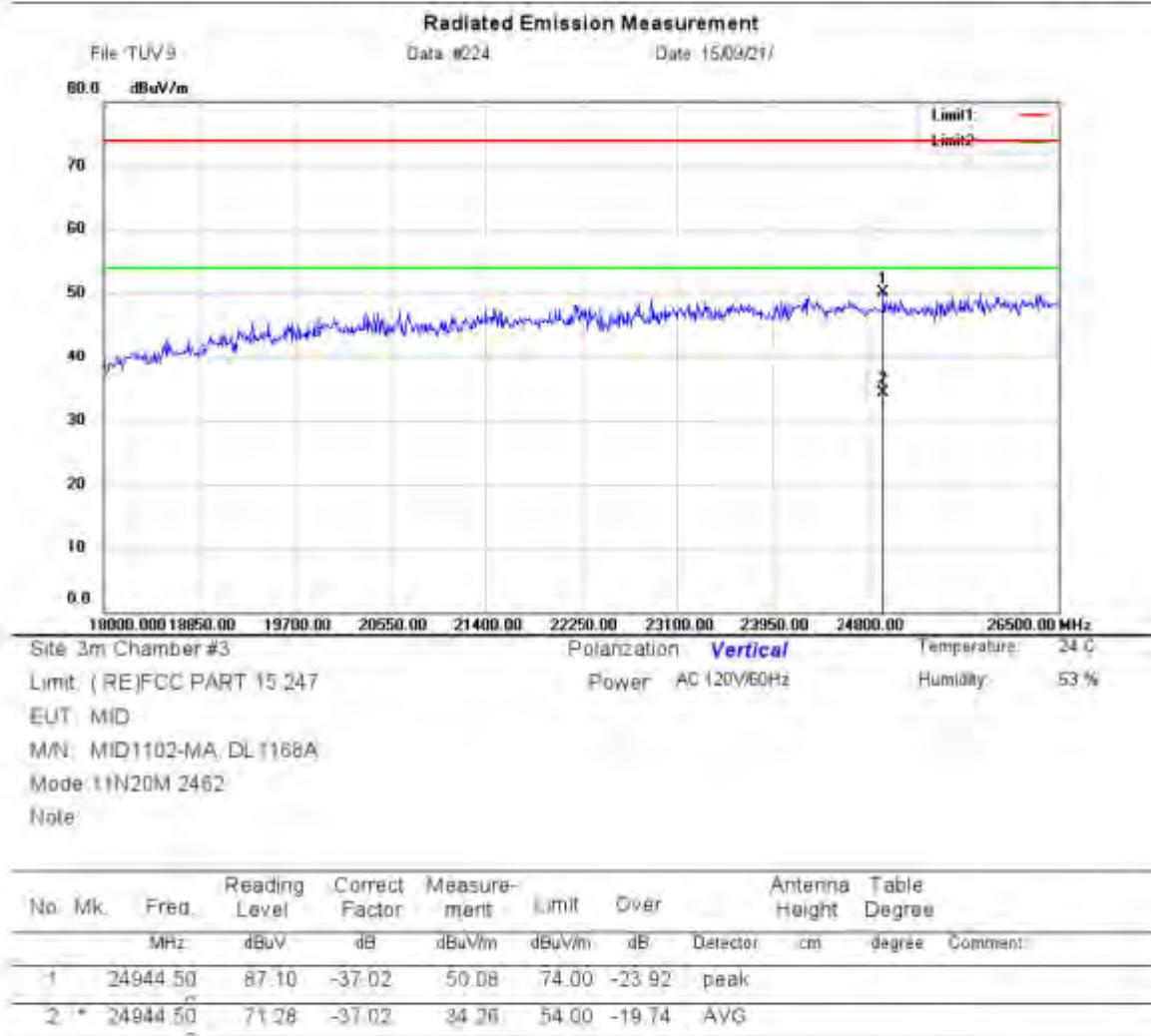
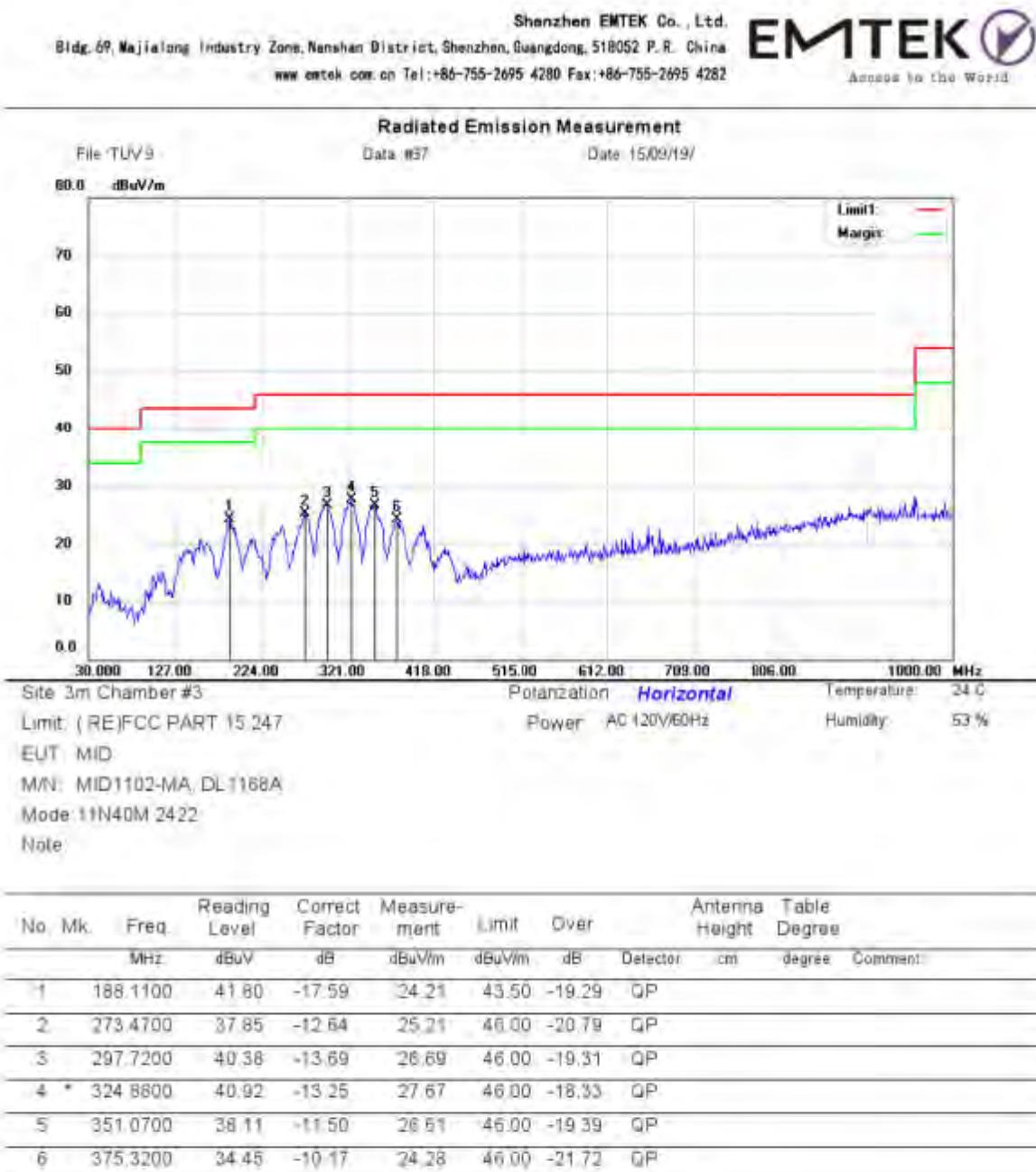


Figure 22: Test figure of Radiated Spurious Emissions (30MHz – 1GHz), 802.11n(HT40), (Low)



Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282

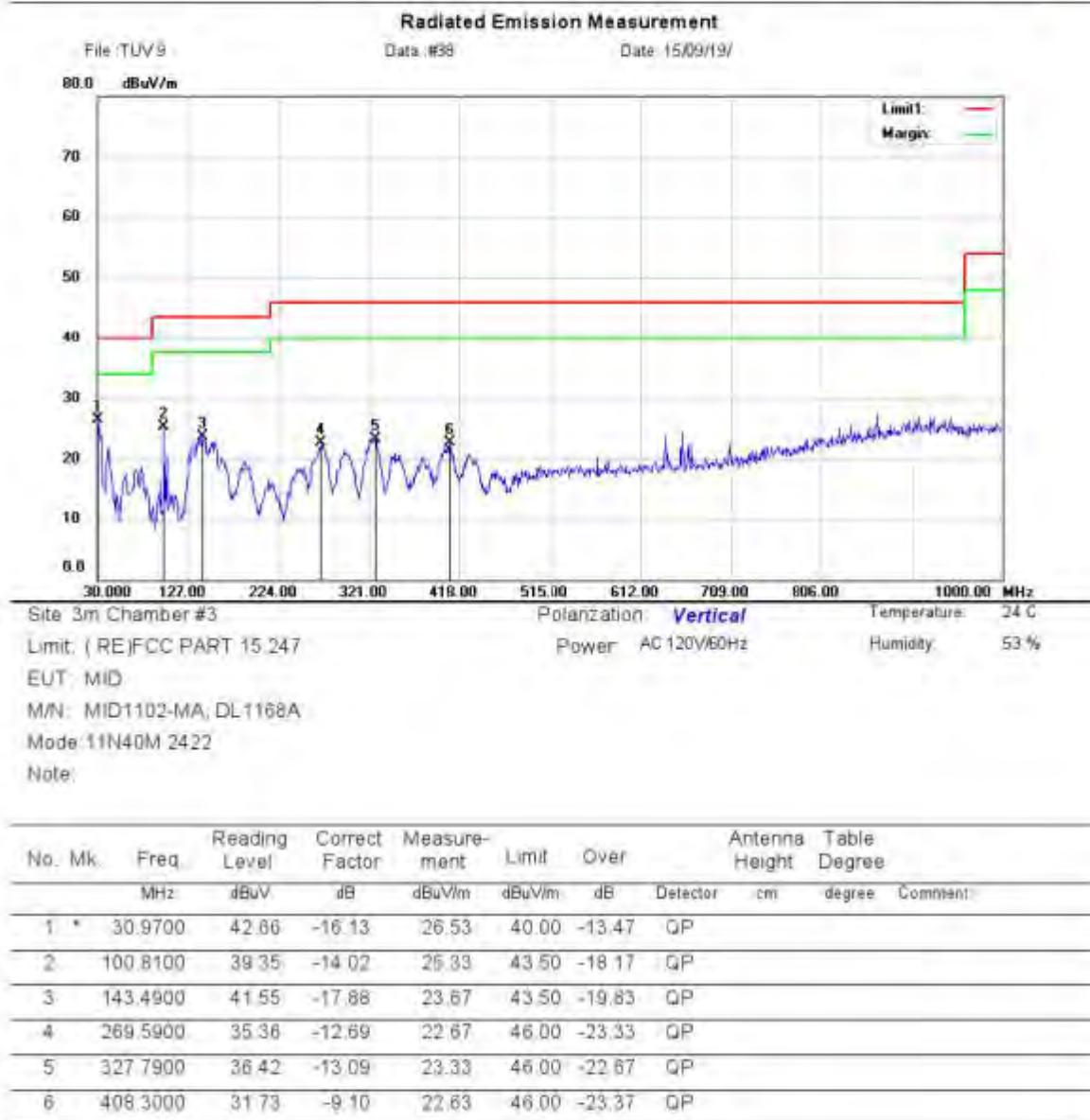
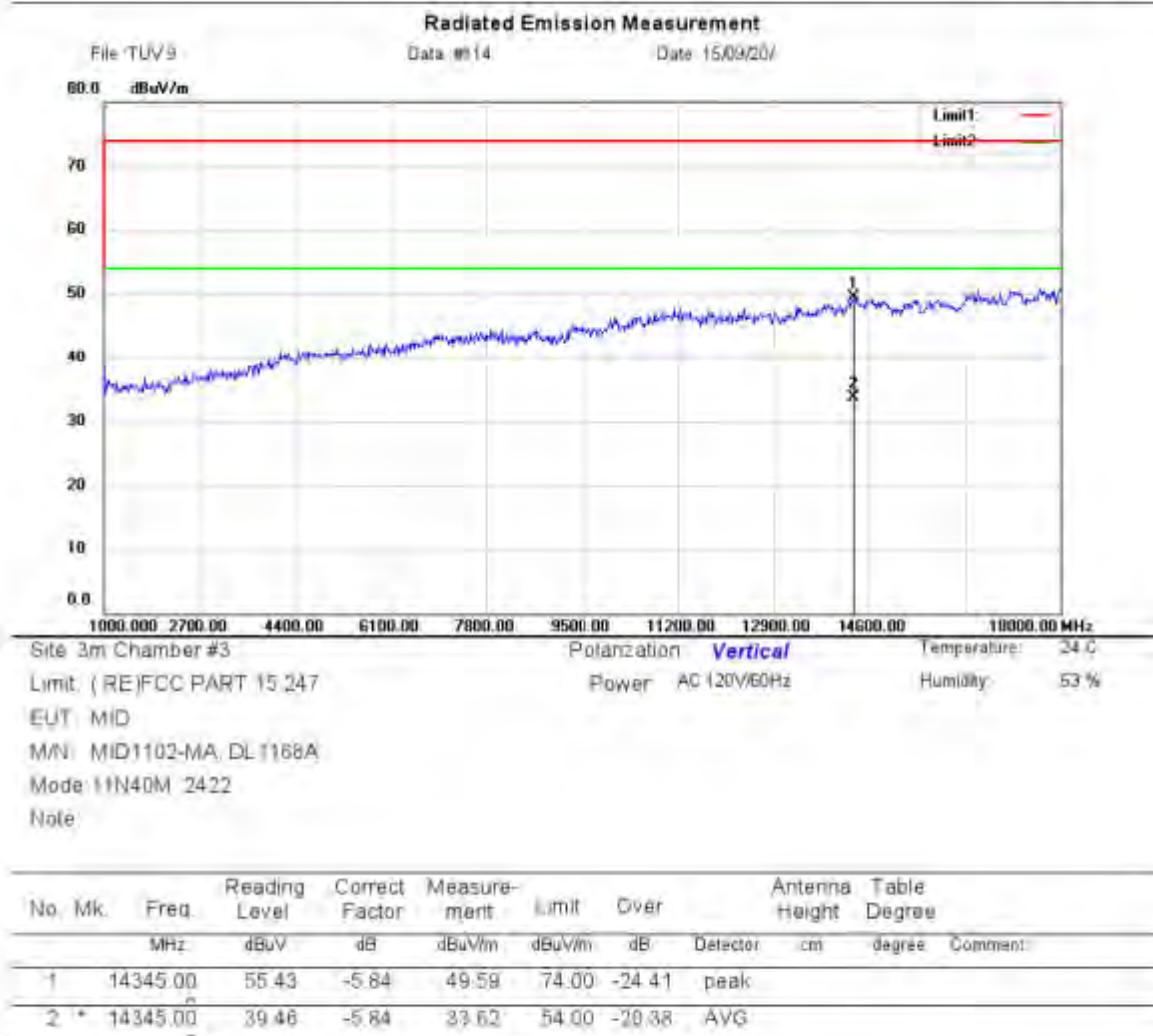


Figure 23: Test figure of Radiated Spurious Emissions (1GHz –25GHz), 802.11n(HT40), (Low)

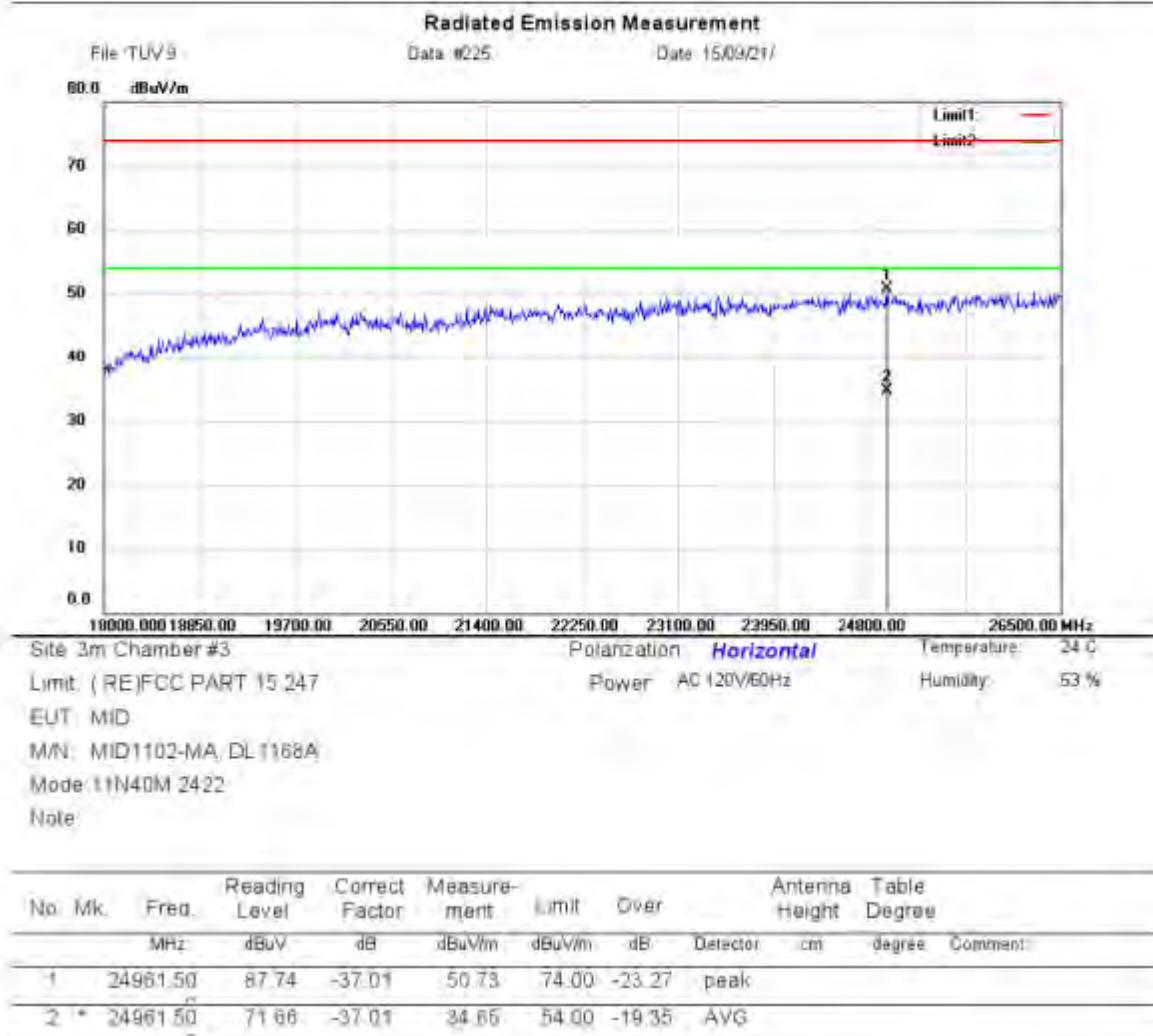
Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282



Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282



Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282



Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282

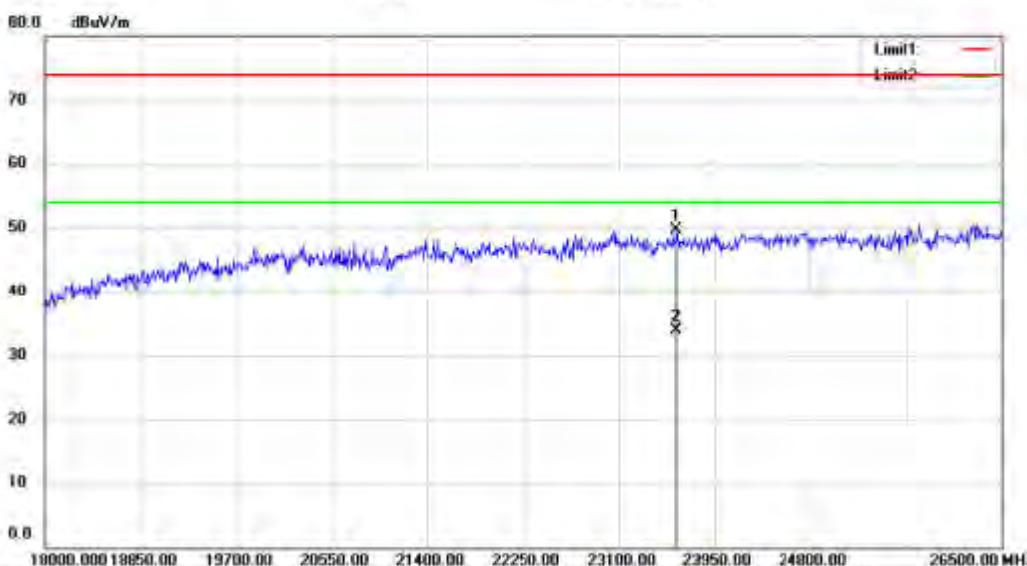


Radiated Emission Measurement

File TÜV 9

Date 02/26

Date 15/09/21



Site 3m Chamber #3

Polarization **Vertical**

Temperature: 24 °C

Limit: (RE)FCC PART 15 247

Power AC (20V/60Hz)

Humidity: 53 %

EUT: MID

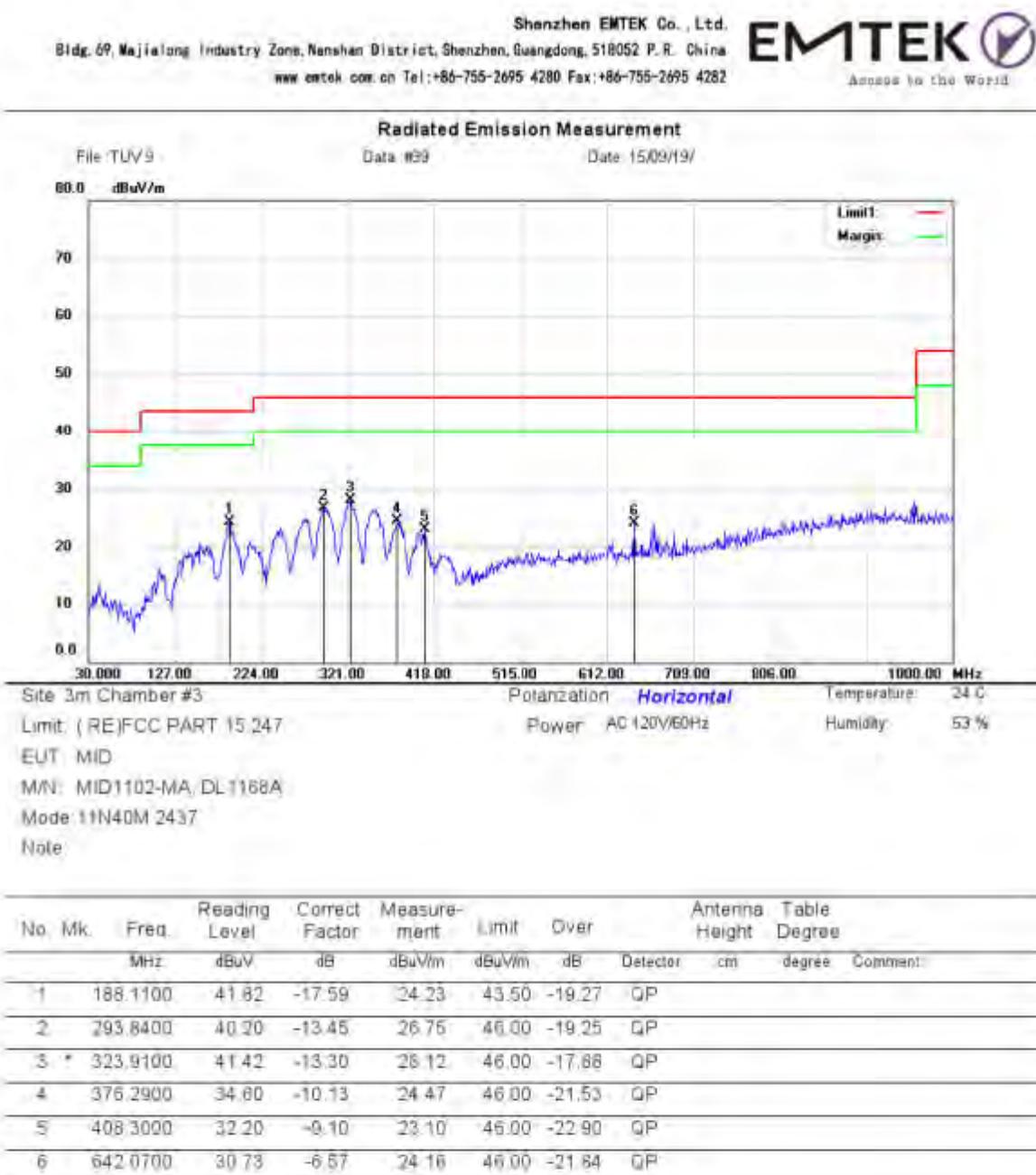
M/N: MID1102-MA, DL1168A

Mode: 11N40M 2422

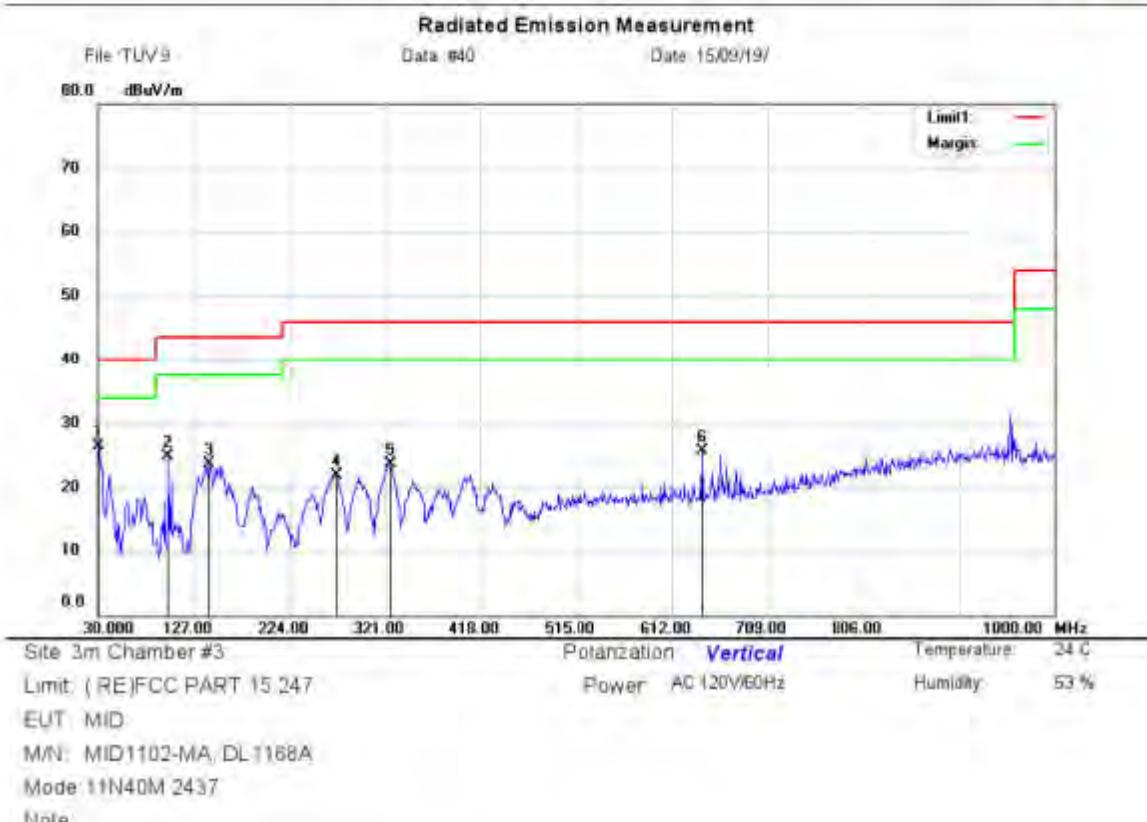
Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Detector cm	Table Degree	Comment:
1		23618.50	87.21	-37.53	49.68	74.00	-24.32	peak		
2	*	23618.50	71.51	-37.53	33.98	54.00	-20.02	Avg		

Figure 24: Test figure of Radiated Spurious Emissions (30MHz – 1GHz), 802.11n(HT40), (Mid)

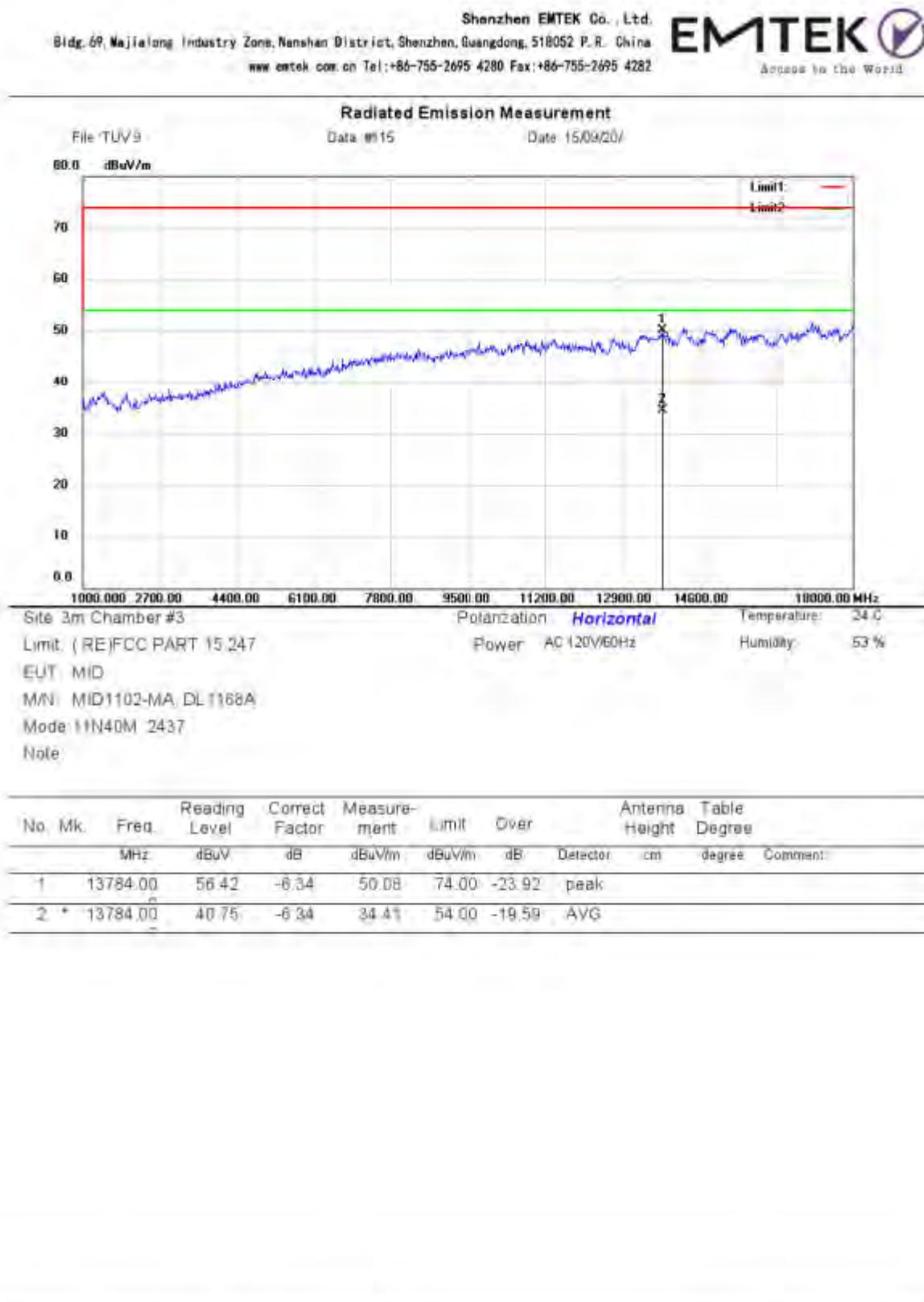


Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282

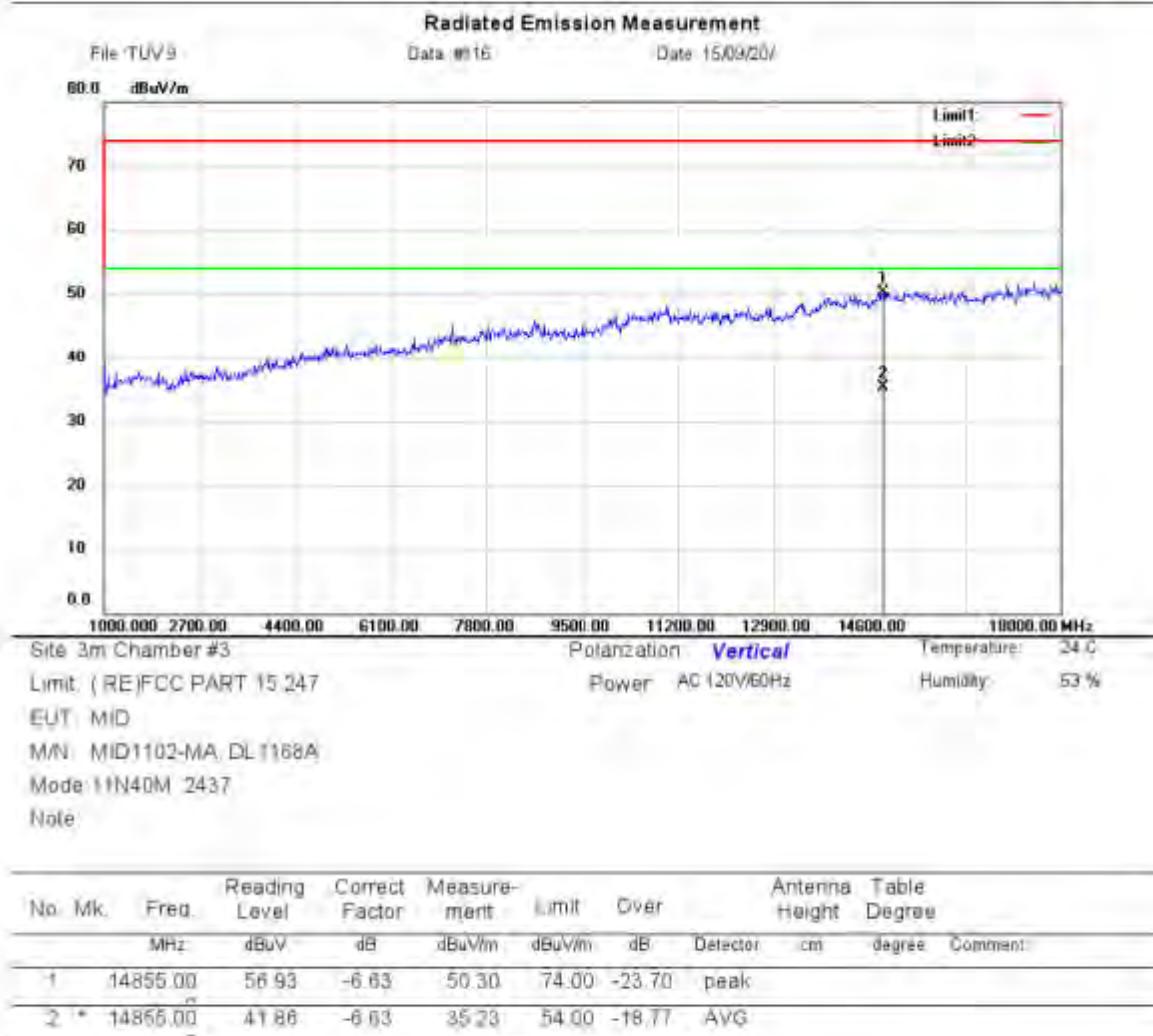


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1	*	30.9700	42.65	-16.13	26.52	40.00	-13.48	QP		
2		100.8100	38.83	-14.02	24.81	43.50	-18.69	QP		
3		143.4900	41.52	-17.88	23.64	43.50	-19.86	QP		
4		272.5000	34.63	-12.65	21.98	46.00	-24.02	QP		
5		326.8200	36.92	-13.15	23.77	46.00	-22.23	QP		
6		642.0700	32.22	-6.57	25.65	46.00	-20.36	QP		

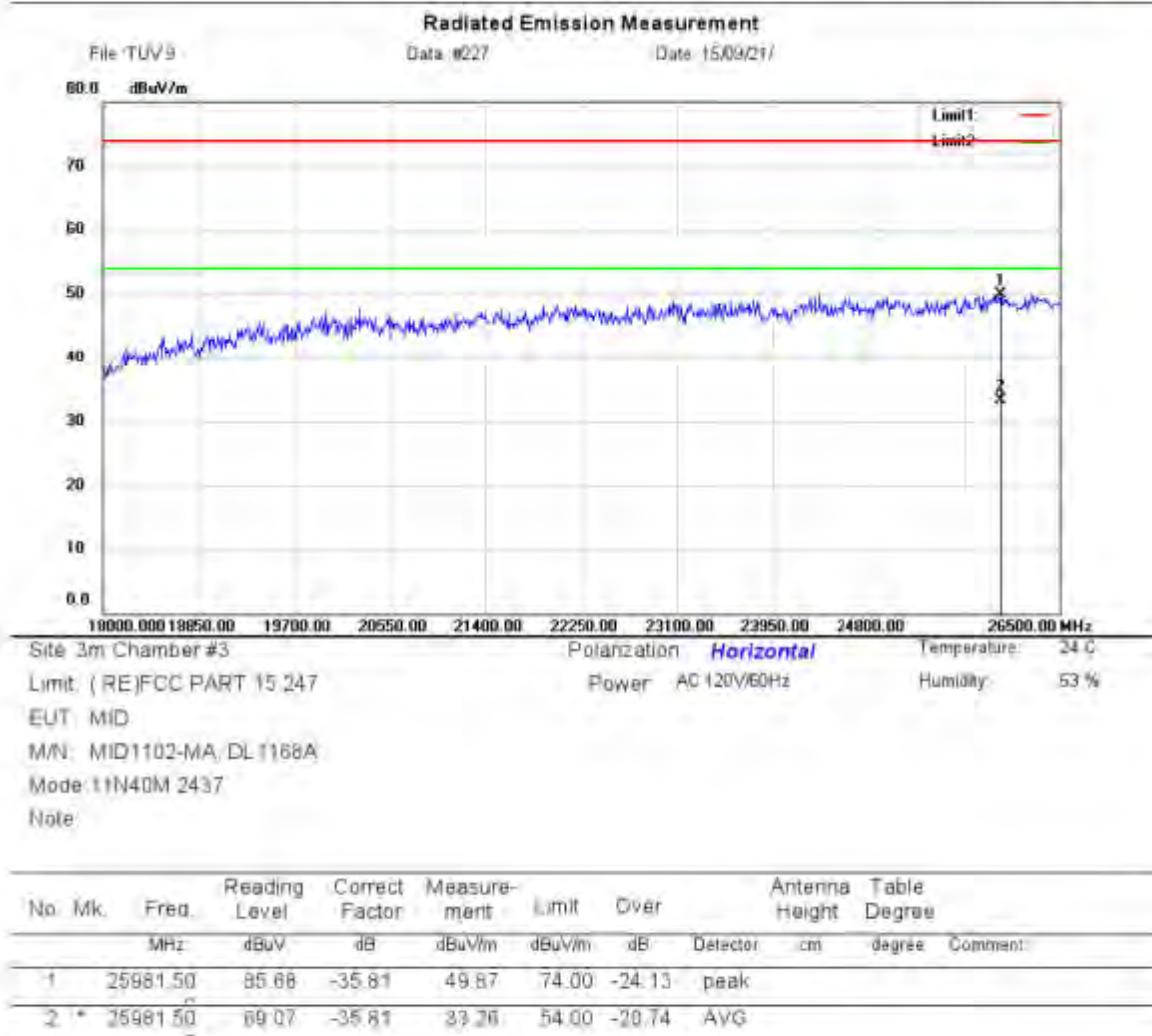
Figure 25: Test figure of Radiated Spurious Emissions (1GHz –25GHz), 802.11n(HT40), (Mid)



Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282



Shenzhen EMTEK Co., Ltd.
Bldg.69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel:+86-755-2695 4280 Fax:+86-755-2695 4282



Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282

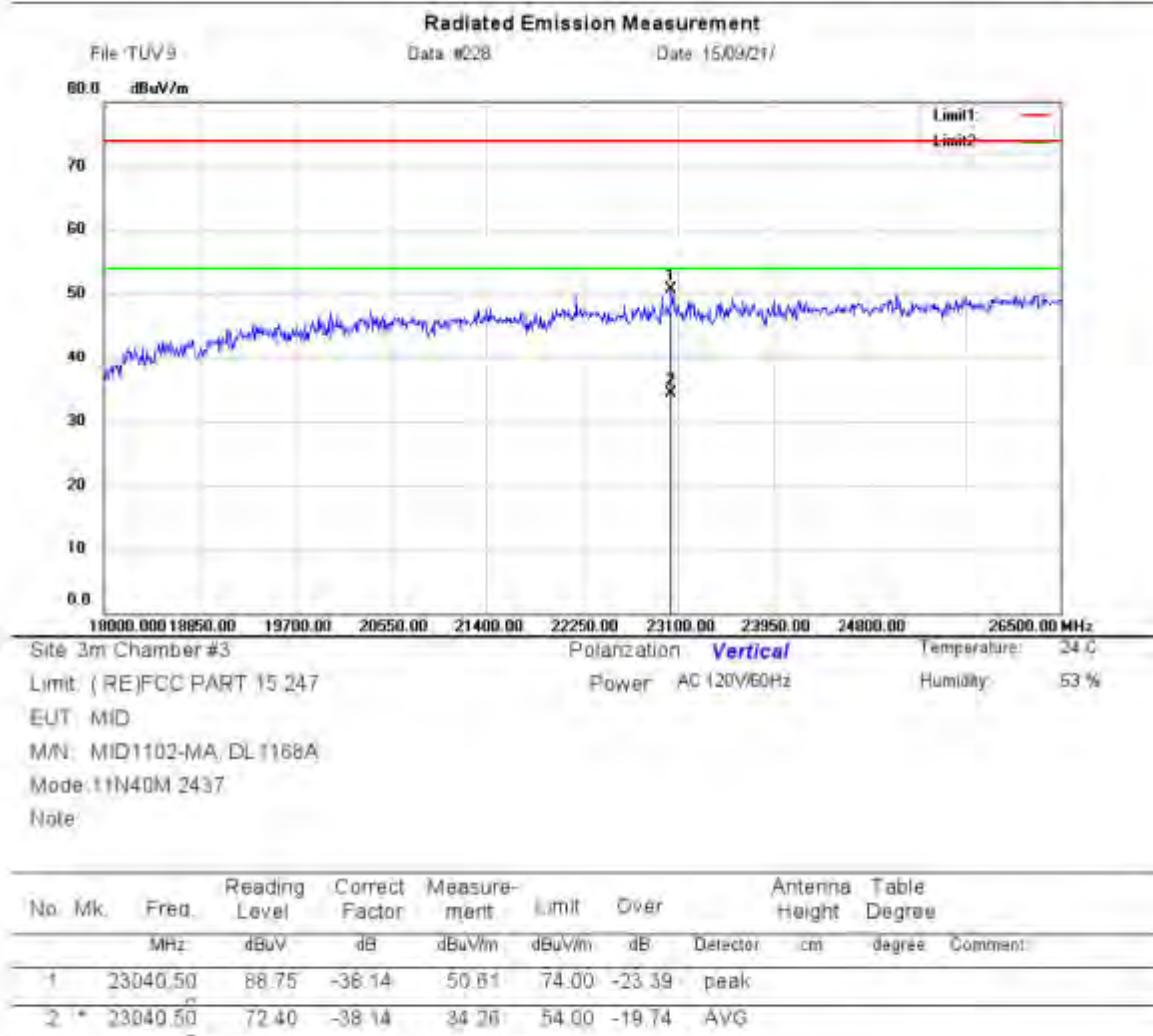
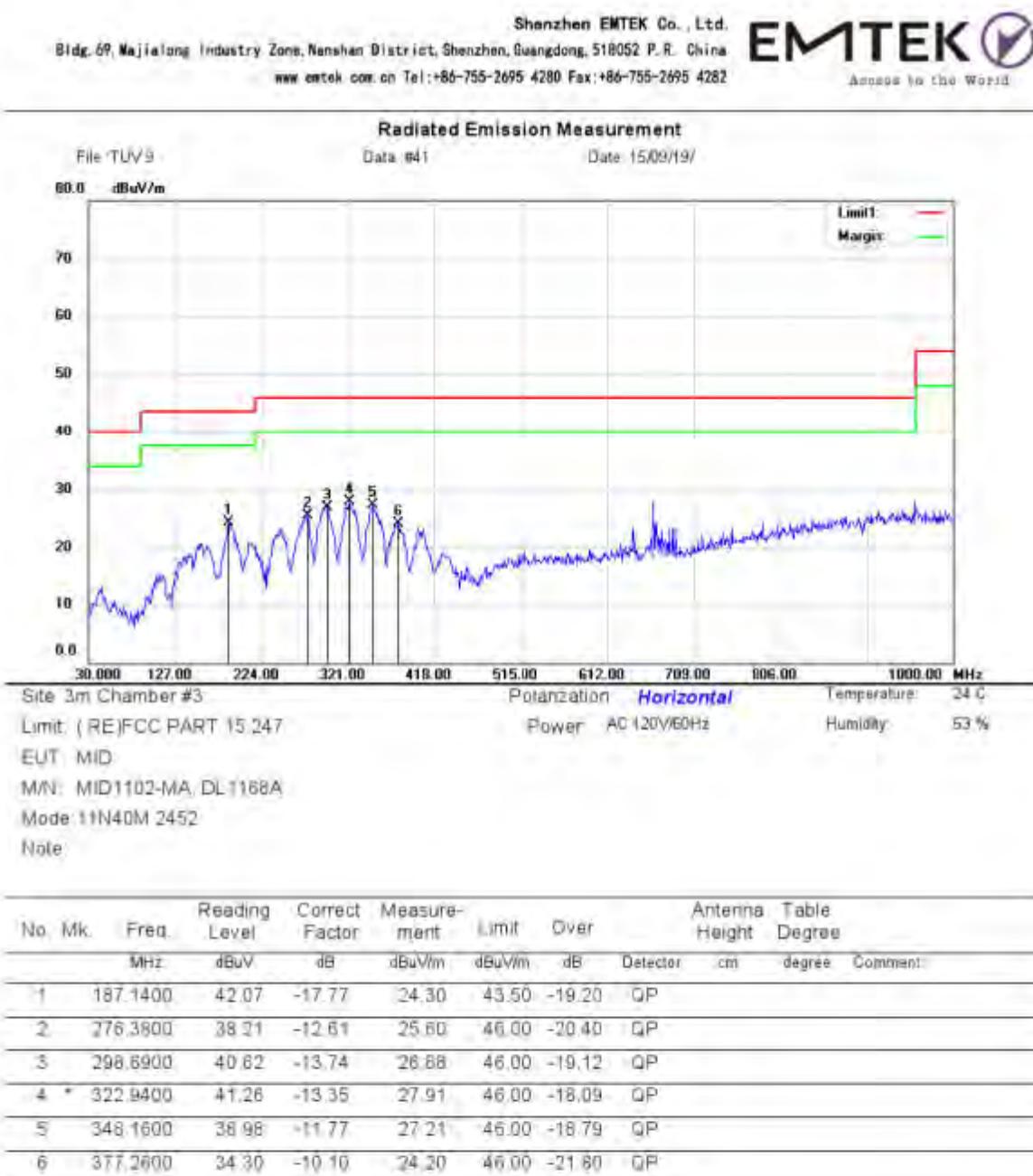


Figure 26: Test figure of Radiated Spurious Emissions (30MHz – 1GHz), 802.11n(HT40), (High)



Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282

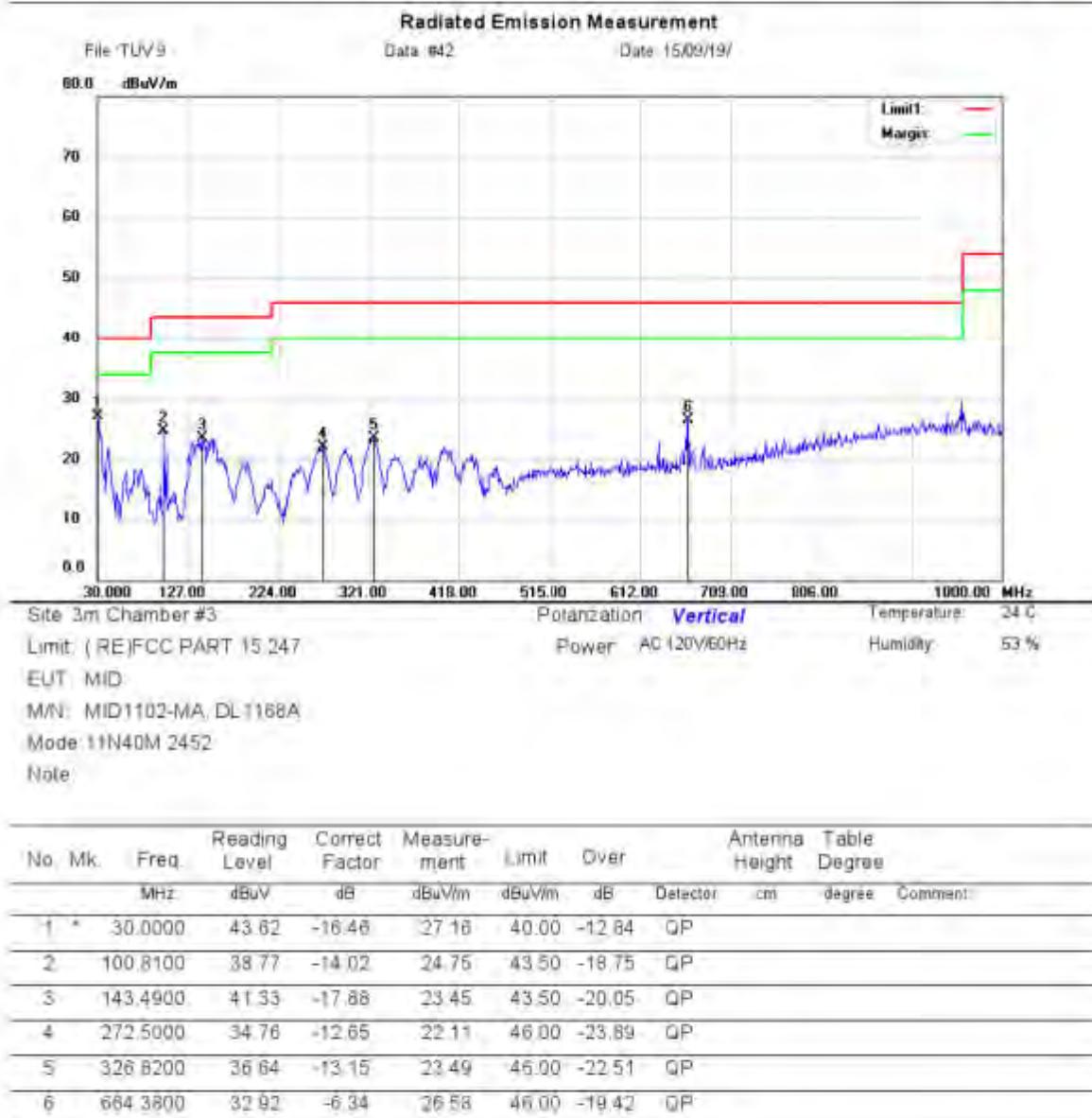
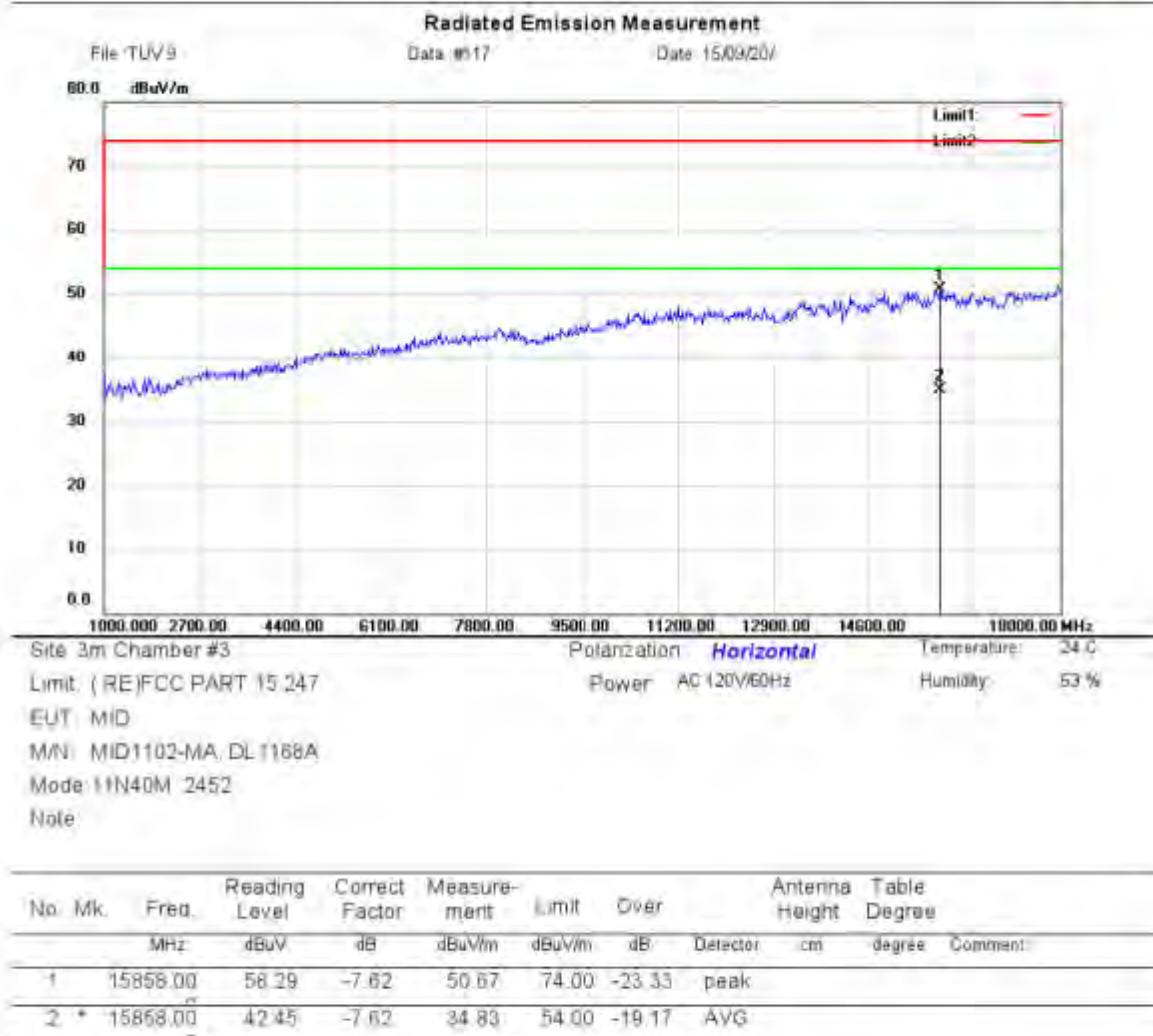
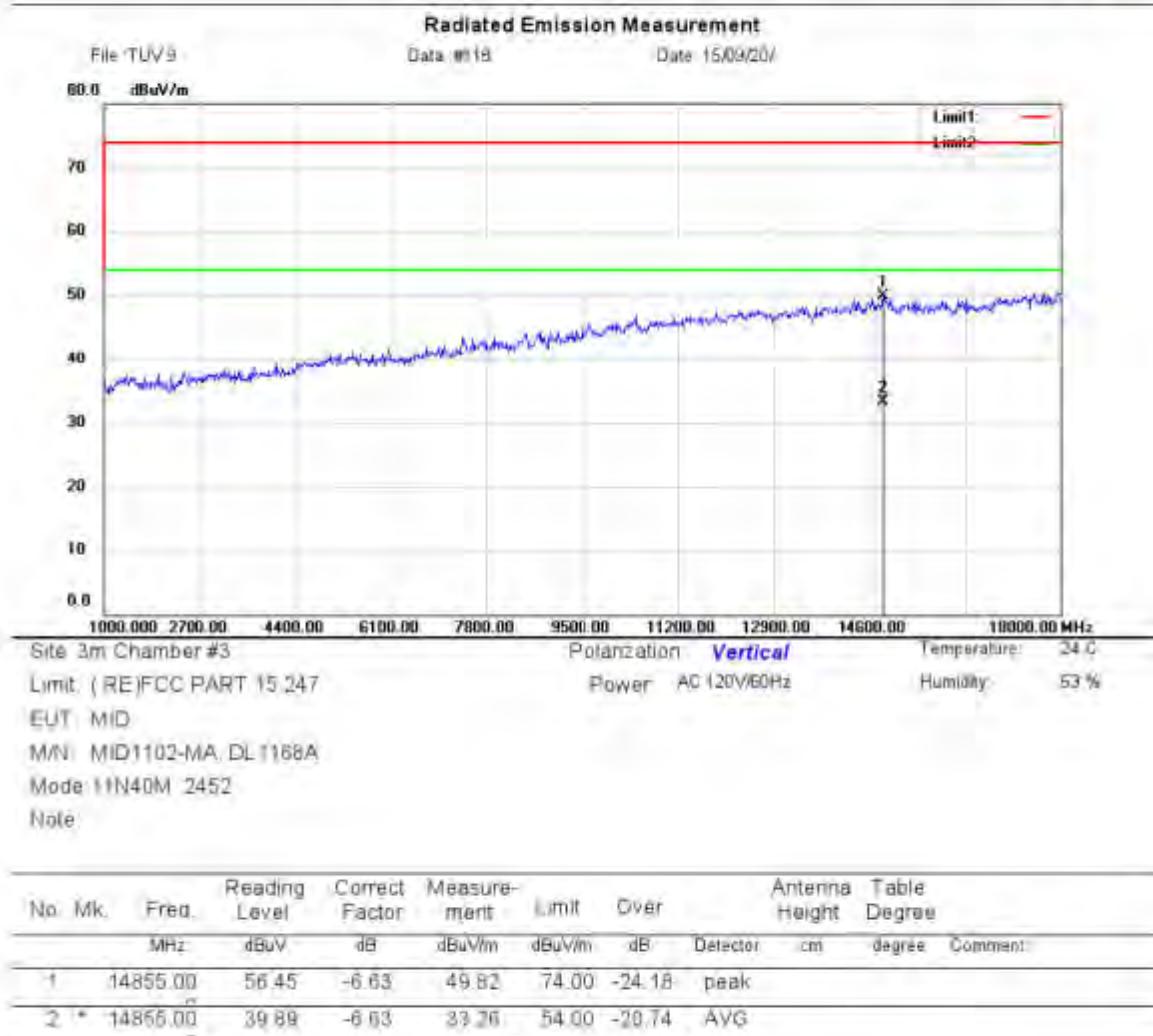


Figure 27: Test figure of Radiated Spurious Emissions (1GHz –25GHz), 802.11n(HT40), (High)

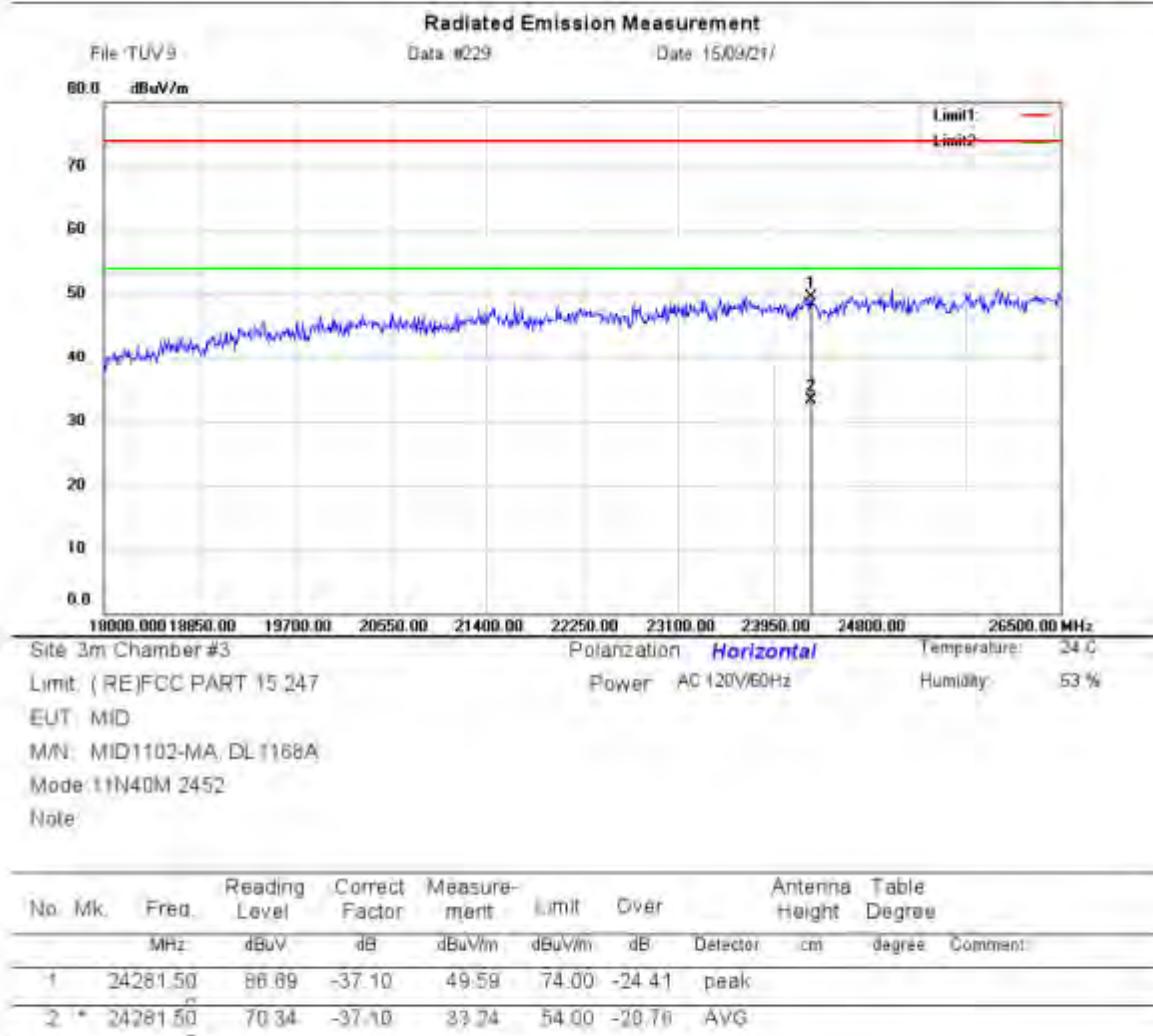
Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282



Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282



Shenzhen EMTEK Co., Ltd.
Bldg.69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel:+86-755-2695 4280 Fax:+86-755-2695 4282



Shenzhen EMTEK Co., Ltd.
Bldg.69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel:+86-755-2695 4280 Fax:+86-755-2695 4282

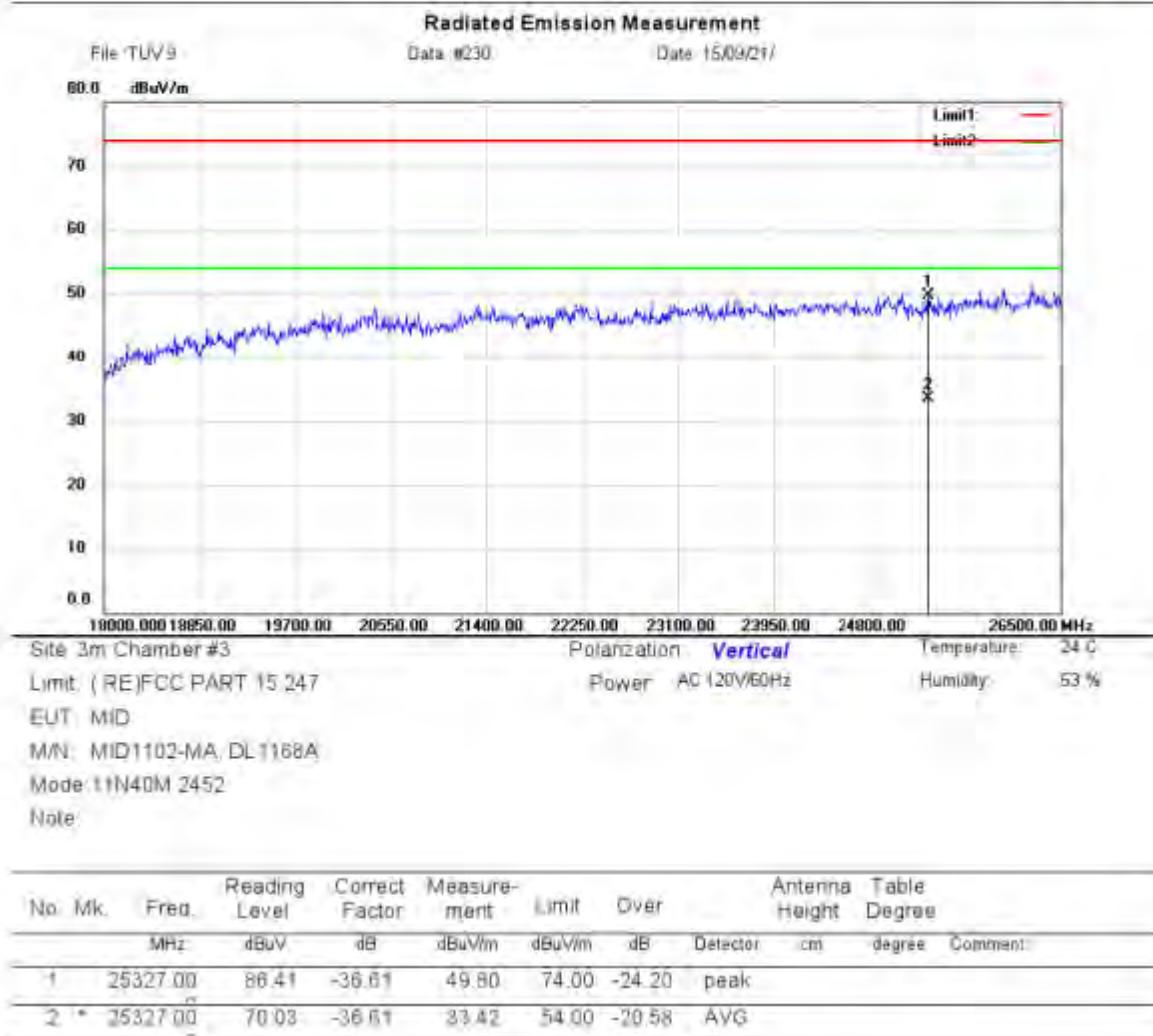


Figure 28: Test figure of Radiated Emissions in Restricted Bands, 802.11b, (Low)



Shenzhen EMTEK Co., Ltd.
Bldg.69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282

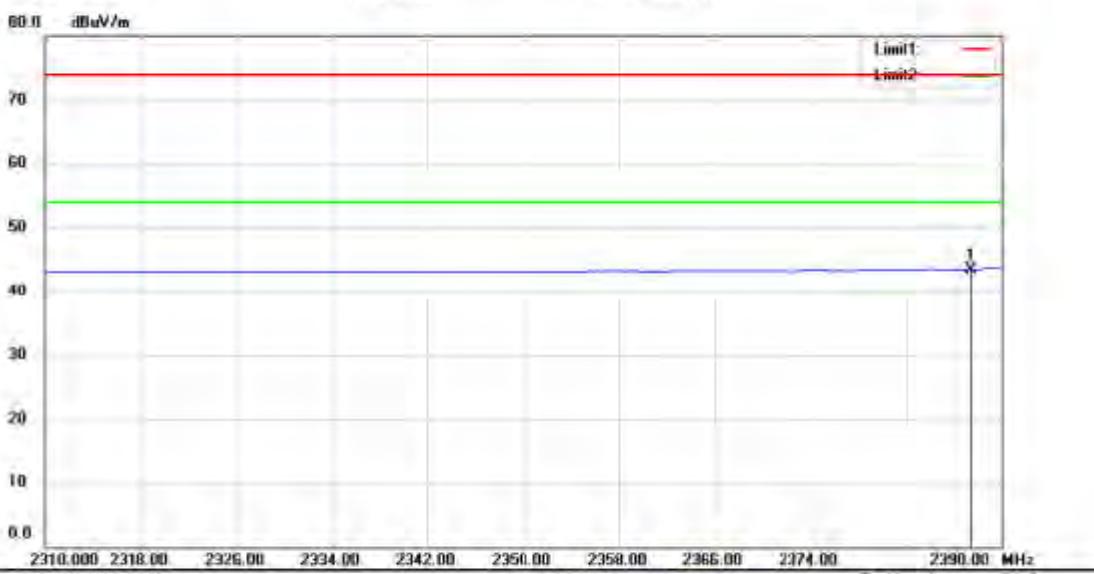


Radiated Emission Measurement

File TÜV9

Date 09/05

Date 15/09/22



Site 3m Chamber #3 Polarization **Vertical** Temperature: 24 °C

Limit: (RE)FCC PART 15 247 Power AC (20V/60Hz) Humidity: 53 %

EUT: MID

MN: MID1102-MA, DL1168A

Mode: 11B 2412

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	2387.520	13.29	30.27	43.56	54.00	-10.44	AVG			

Shenzhen EMTEK Co., Ltd.
Bldg.69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel:+86-755-2695 4280 Fax:+86-755-2695 4282



Shenzhen EMTEK Co., Ltd.
Bldg.69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel:+86-755-2695 4280 Fax:+86-755-2695 4282

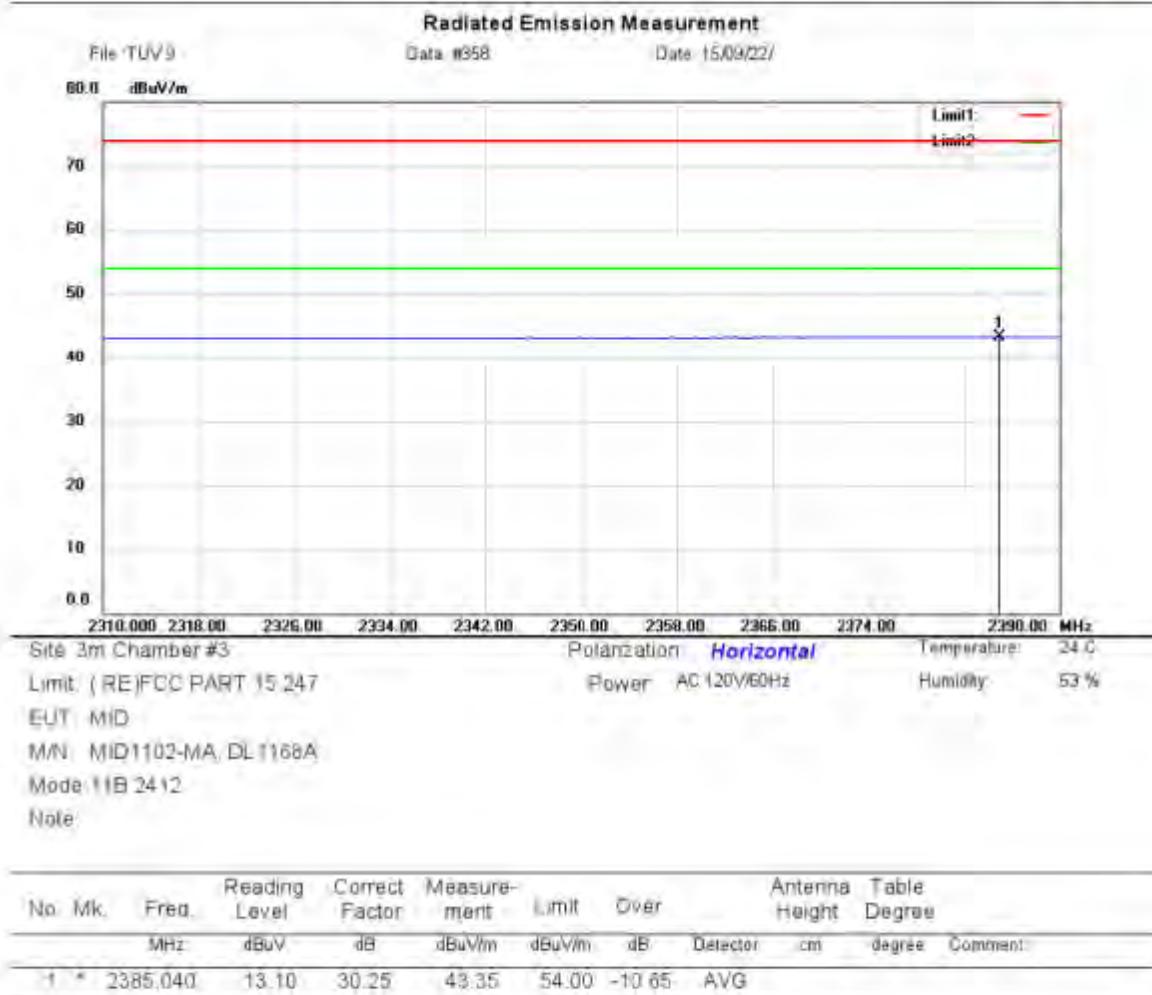
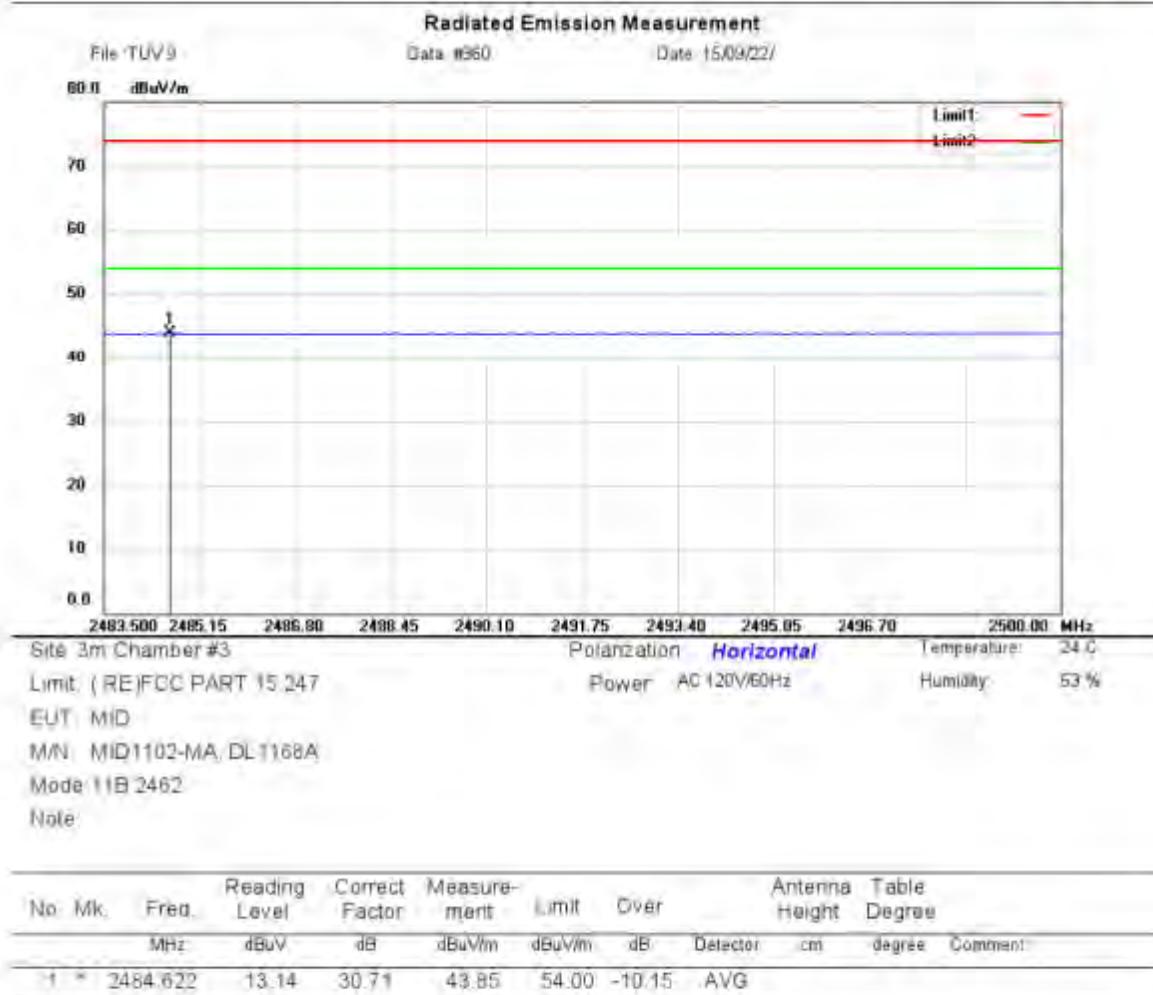


Figure 29: Test figure of Radiated Emissions in Restricted Bands, 802.11b, (High)



Shenzhen EMTEK Co., Ltd.
Bldg.69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel:+86-755-2695 4280 Fax:+86-755-2695 4282



Shenzhen EMTEK Co., Ltd.
Bldg.69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel:+86-755-2695 4280 Fax:+86-755-2695 4282

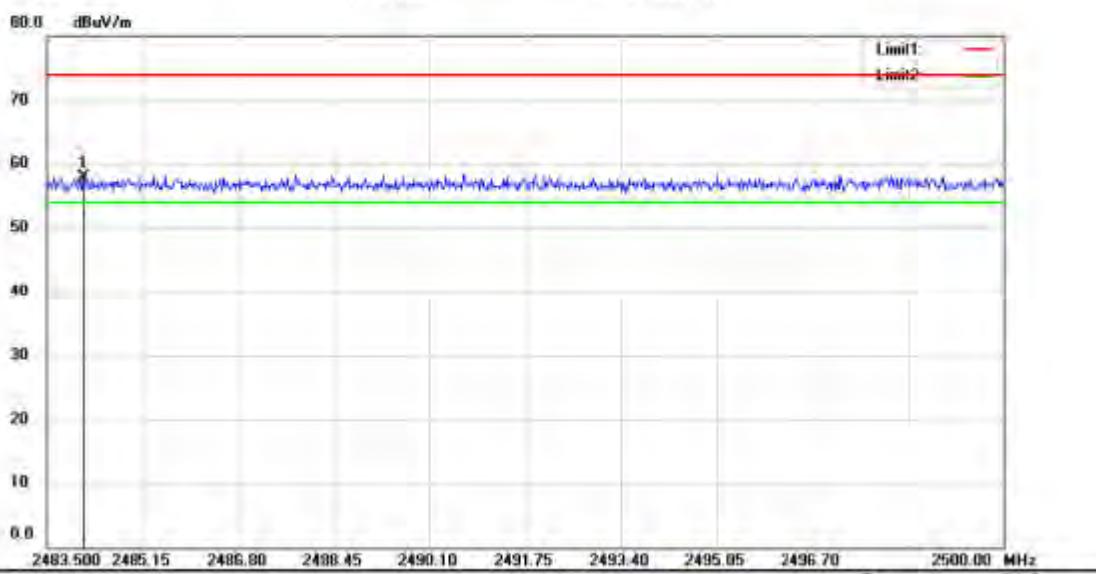


Radiated Emission Measurement

File TÜV 9

Date #361

Date 15/09/22/



Site 3m Chamber #3 Polarization **Vertical** Temperature: 24.0

Limit: (RE)FCC PART 15.247 Power AC (20V/60Hz) Humidity: 53 %

EUT: MID

M/N: MID1102-MA, DL1168A

Mode: 11B 2462

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment:
1	*	2484.127	27.16	30.71	57.87	74.00	-16.13	peak			

Shenzhen EMTEK Co., Ltd.
Bldg.69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282

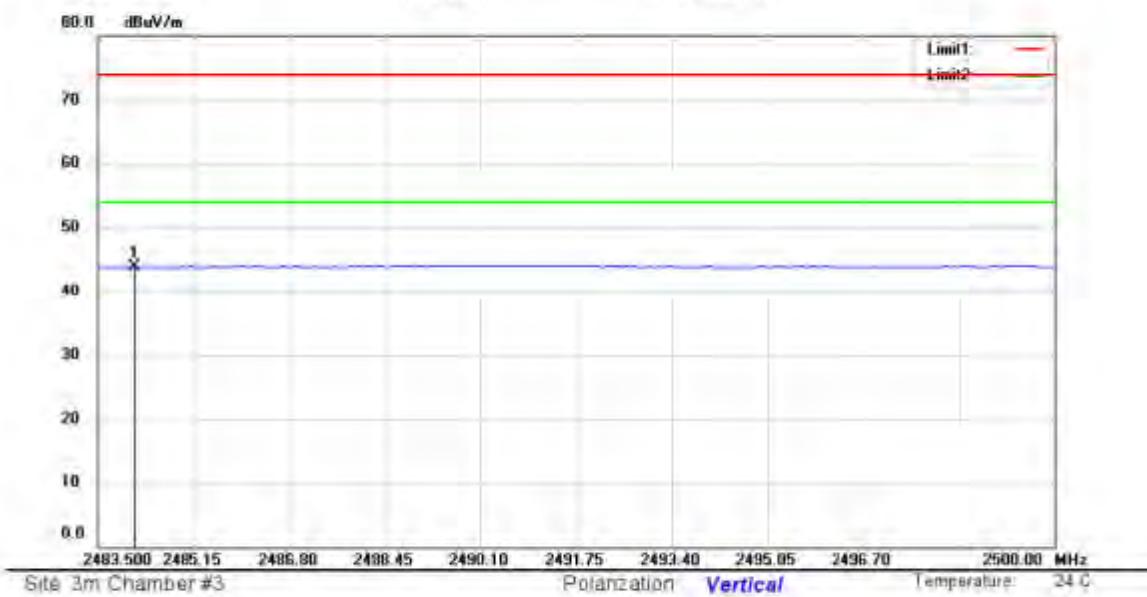


Radiated Emission Measurement

File TÜV 9

Date 03/02

Date 15/09/22



Site 3m Chamber #3

Polarization **Vertical**

Temperature: 24 °C

Limit: (RE)FCC PART 15.247

Power AC (20V/60Hz)

Humidity: 53 %

EUT: MID

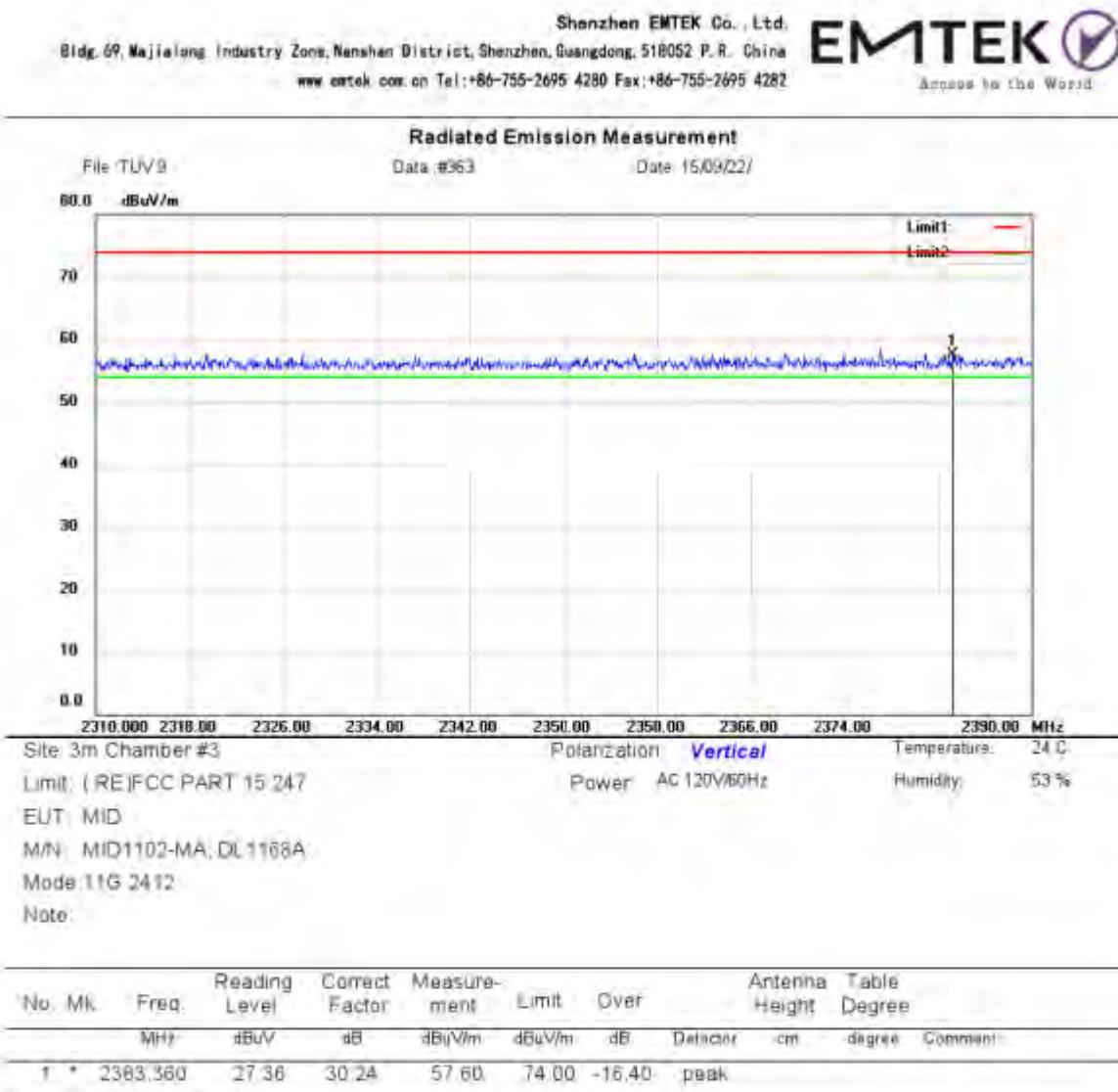
MN: MID1102-MA, DLT168A

Mode: 11B 2462

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	Comment:
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1	*	2484.127	13.28	30.71	43.98	54.00	-10.01	AVG		

Figure 30: Test figure of Radiated Emissions in Restricted Bands, 802.11g, (Low)



Shenzhen EMTEK Co., Ltd.
Bldg.69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel:+86-755-2695 4280 Fax:+86-755-2695 4282

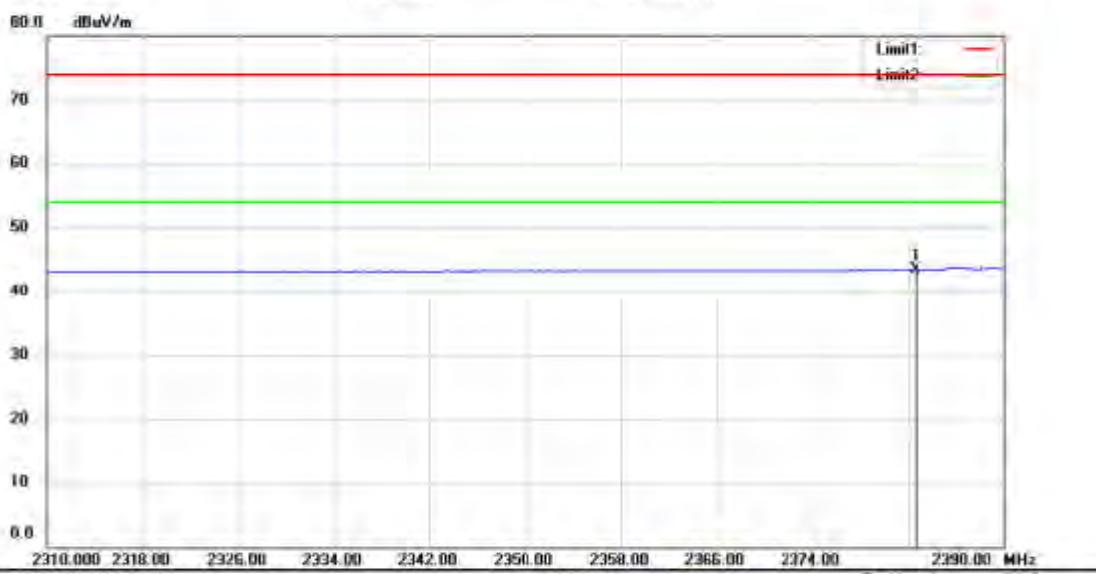


Radiated Emission Measurement

File TÜV9

Date 03/04

Date 15/09/22/



Site 3m Chamber #3

Polarization **Vertical**

Temperature: 24.0

Limit: (RE)FCC PART 15 247

Power AC (20V/60Hz)

Humidity: 53 %

EUT: MID

MN: MID1102-MA, DL/T168A

Mode: 11G-2412

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1	*	2382.720	13.32	30.24	43.56	54.00	-10.44	AVG		

Shenzhen EMTEK Co., Ltd.
Bldg.69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel:+86-755-2695 4280 Fax:+86-755-2695 4282



Shenzhen EMTEK Co., Ltd.
Bldg.69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel:+86-755-2695 4280 Fax:+86-755-2695 4282



Radiated Emission Measurement

File TÜV 9

Date 03/05

Date 15/09/22



Site 3m Chamber #3 Polarization: **Horizontal** Temperature: 24.0 °C

Limit: (RE)FCC PART 15 247 Power: AC 120V/60Hz Humidity: 53 %

EUT: MID

M/N: MID1102-MA, DL1168A

Mode: 1G-2412

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1	*	2384.960	12.99	30.25	43.24	54.00	-10.76	AVG		

Figure 31: Test figure of Radiated Emissions in Restricted Bands, 802.11g, (High)

Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282



Shenzhen EMTEK Co., Ltd.
Bldg.69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282

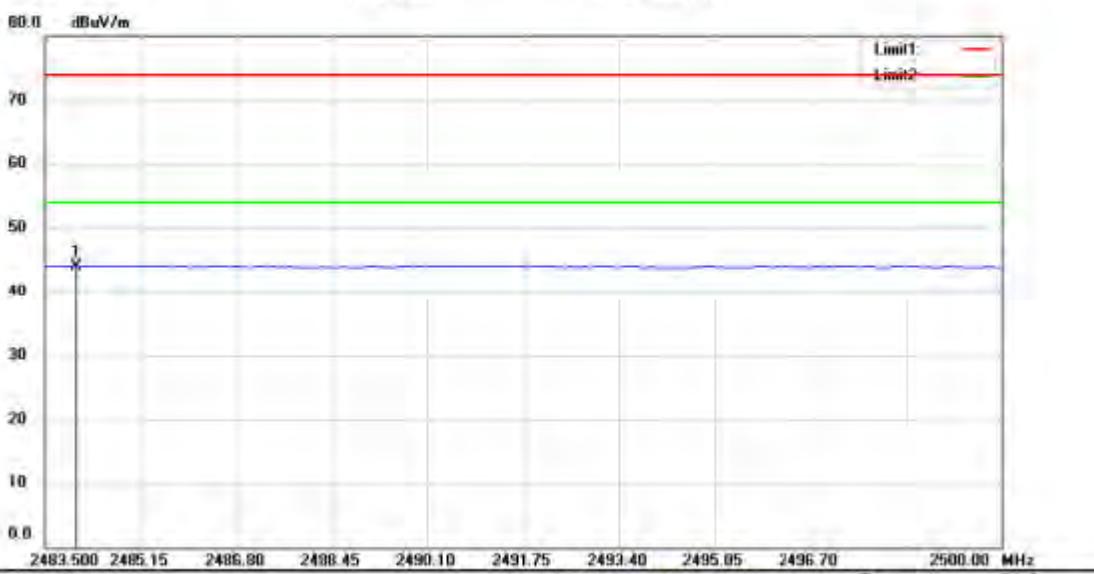


Radiated Emission Measurement

File TÜV 9

Date 03/08

Date 15/09/22



Site 3m Chamber #3 Polarization **Horizontal** Temperature: 24 °C

Limit: (RE)FCC PART 15.247 Power AC 120V/60Hz Humidity: 53 %

EUT: MID

M/N: MID1102-MA, DL1168A

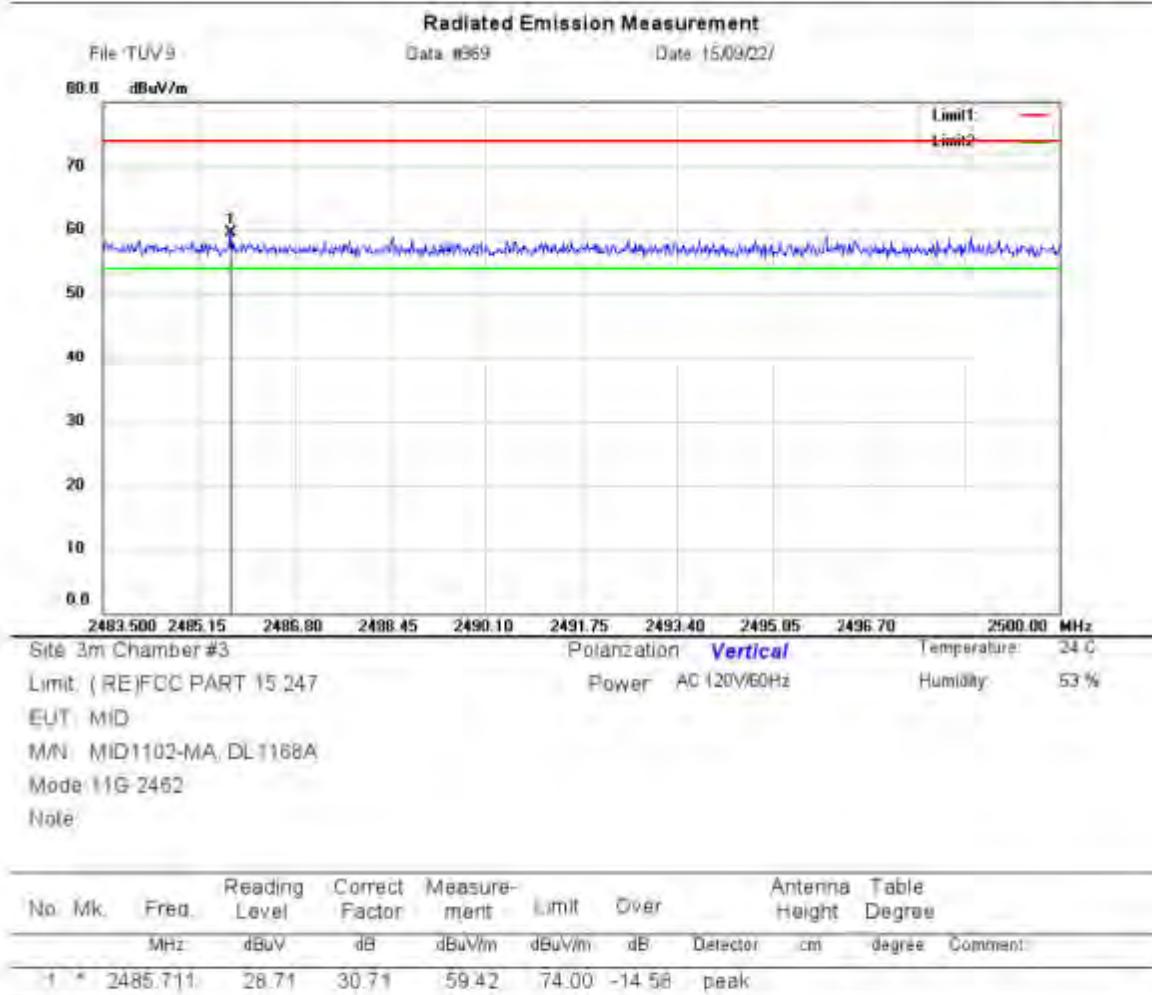
Mode: 11G-2462

Note:

No	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Detector	Height cm	Table degree	Comment:
1	*	2484.044	13.40	30.71	44.11	54.00	-9.89	AVG			

Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282


EMTEK Across the World



Shenzhen EMTEK Co., Ltd.
Bldg.69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282



Radiated Emission Measurement

File TUV 9

Date #370

Date 15/09/22

60.0 dBuV/m



Site 3m Chamber #3

Polarization **Vertical**

Temperature: 24.0

Limit: (RE)FCC PART 15.247

Power AC (20V/60Hz)

Humidity: 53 %

EUT: MID

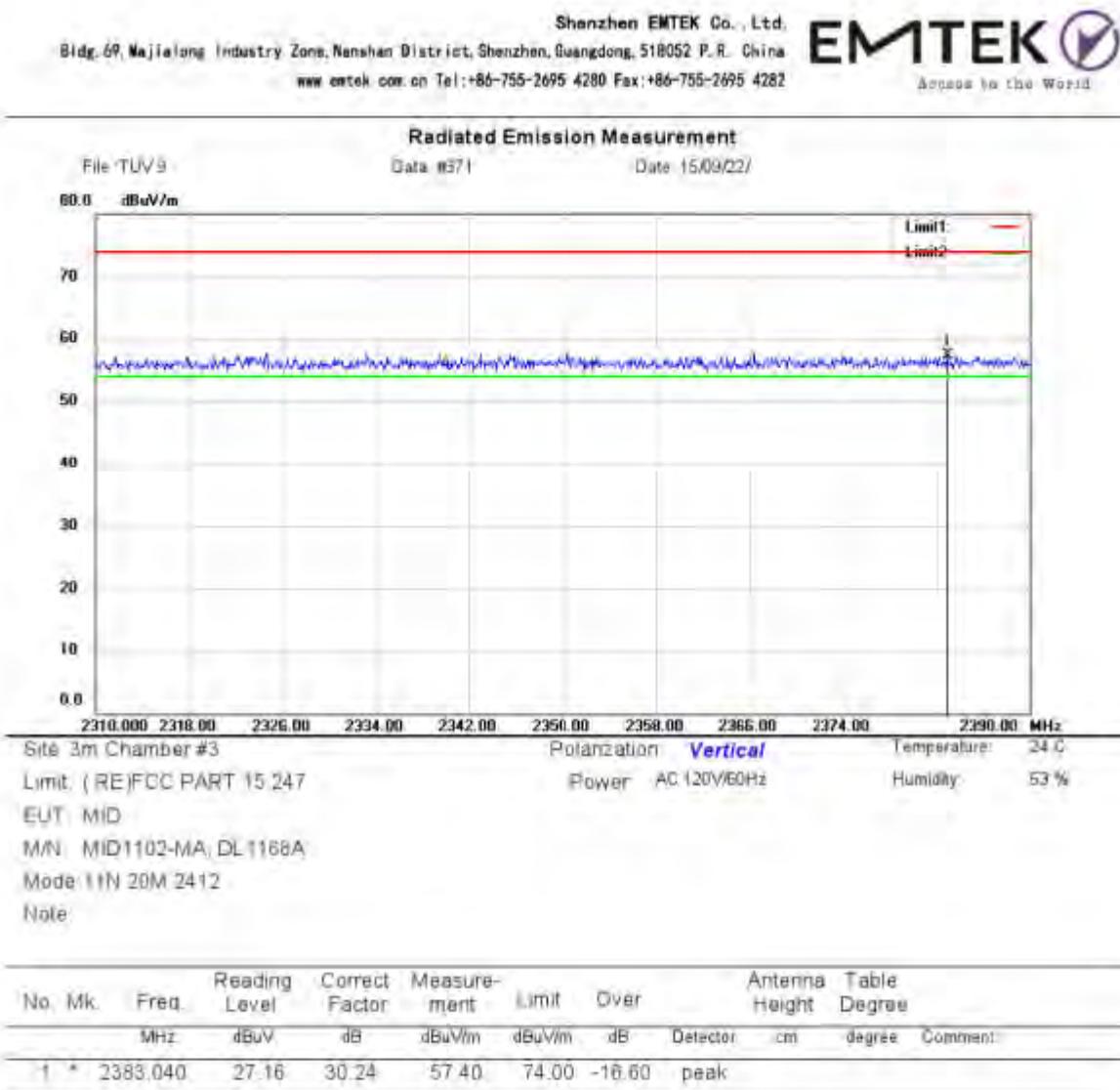
M/N: MID1102-MA, DL1168A

Model:t1G-2462

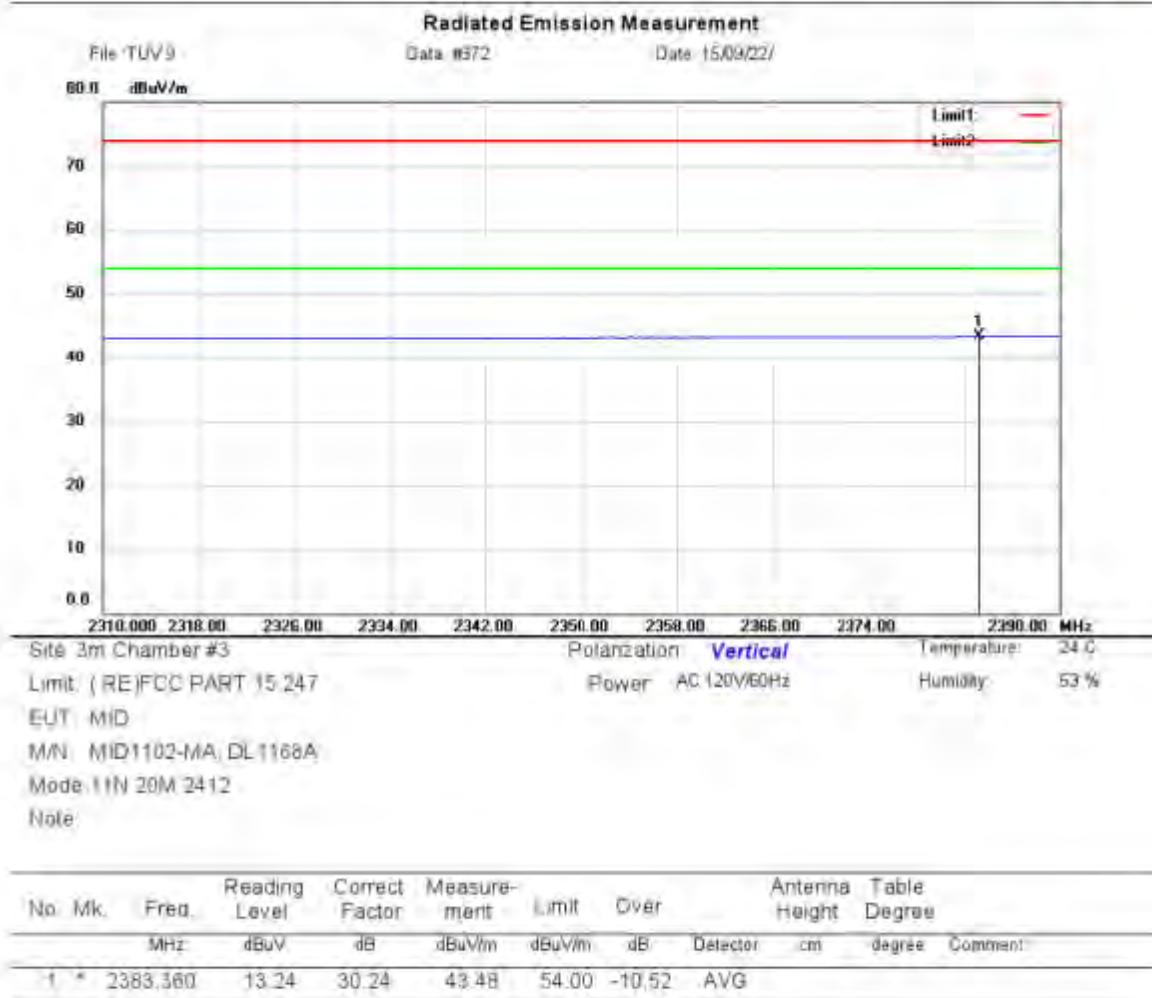
Note:

No.	Me.	Reading	Correct	Measure-	Limit	Over	Antenna	Table	
	Freq.	Level	Factor	ment	dBuV/m	dB	Detector	Height	Degree
	MHz	dBuV	dB					cm	degree
1	* 2484.160	13.49	30.71	44.20	54.00	+9.80	Avg		

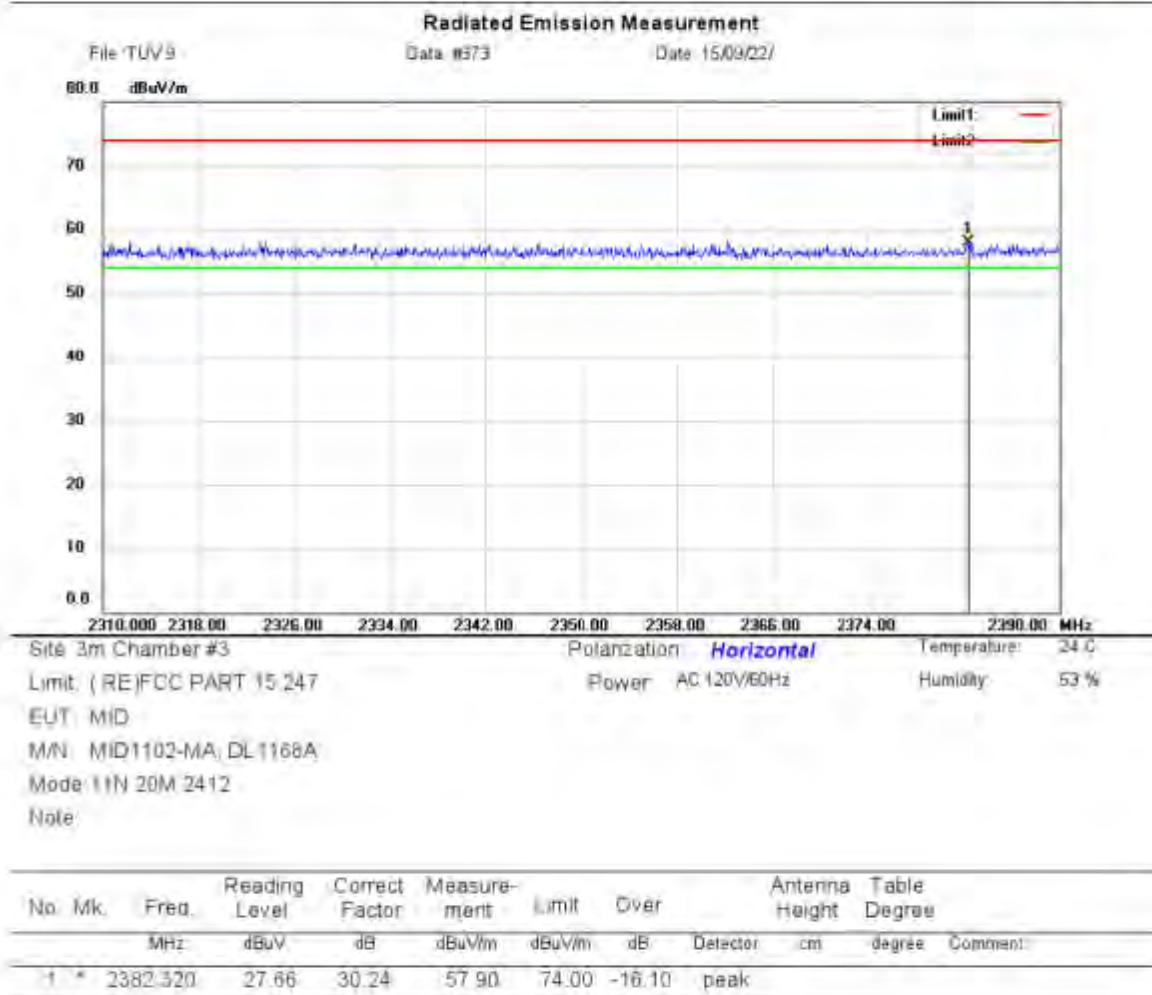
Figure 32: Test figure of Radiated Emissions in Restricted Bands, 802.11n(HT20), (Low)



Shenzhen EMTEK Co., Ltd.
Bldg.69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282



Shenzhen EMTEK Co., Ltd.
Bldg.69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282



Shenzhen EMTEK Co., Ltd.
Bldg.69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282

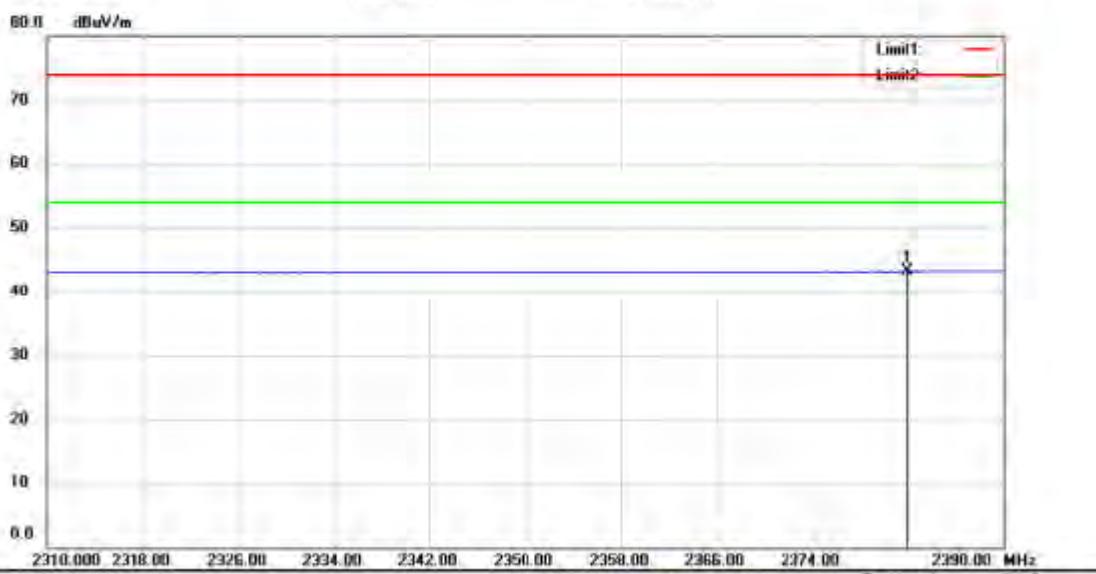


Radiated Emission Measurement

File TÜV 9

Date #374

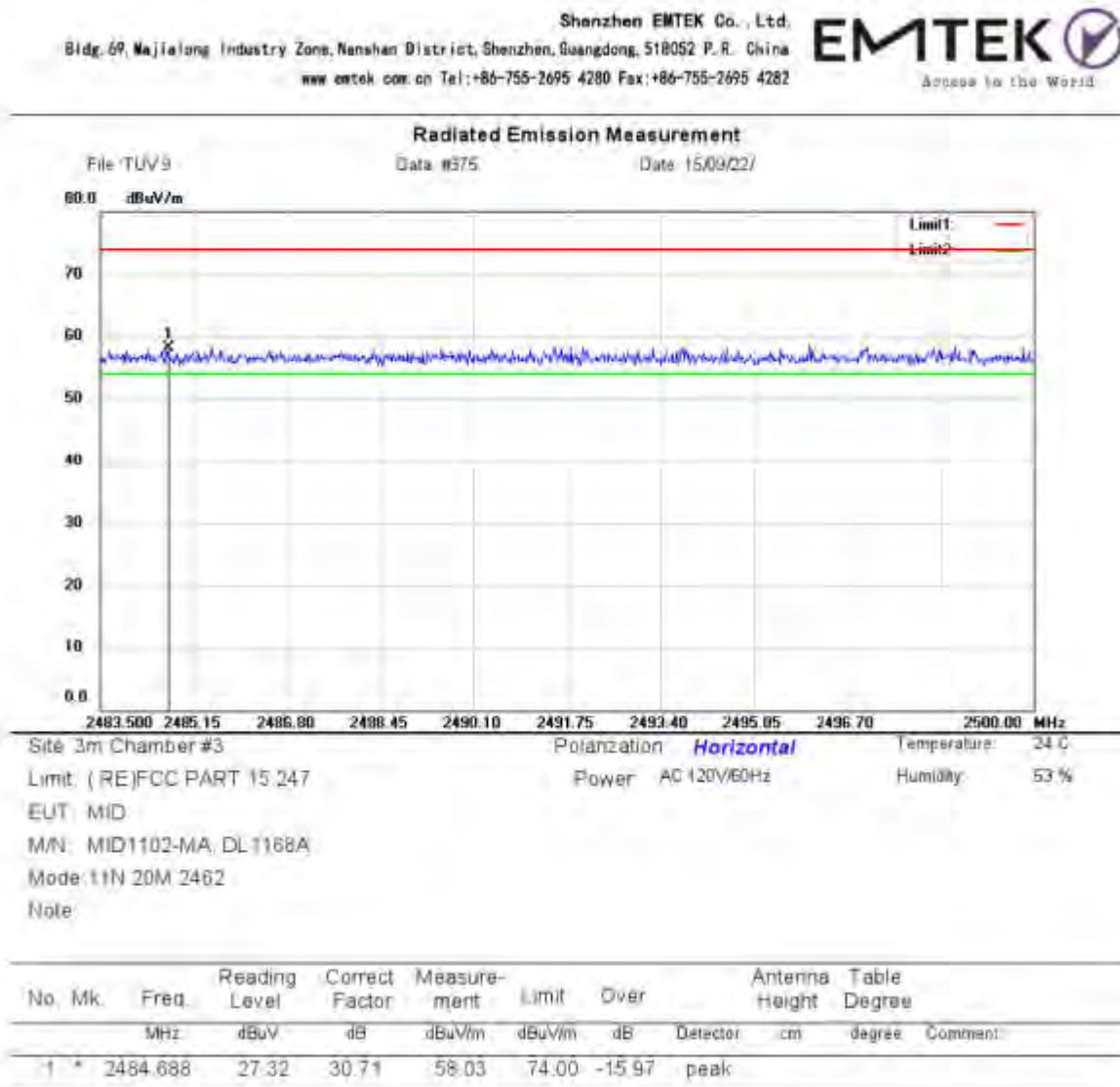
Date 15/09/22/



Site 3m Chamber #3 Polarization: **Horizontal** Temperature: 24 °C
Limit: (RE)FCC PART 15.247 Power: AC 120V/60Hz Humidity: 53 %
EUT: MID
MN: MID1102-MA; DL1168A
Mode: IIN 20M 2412
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1	*	2381.920	13.01	30.24	43.25	54.00	-10.75	AVG		

Figure 33: Test figure of Radiated Emissions in Restricted Bands, 802.11n(HT20), (High)



Shenzhen EMTEK Co., Ltd.
Bldg.69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel:+86-755-2695 4280 Fax:+86-755-2695 4282

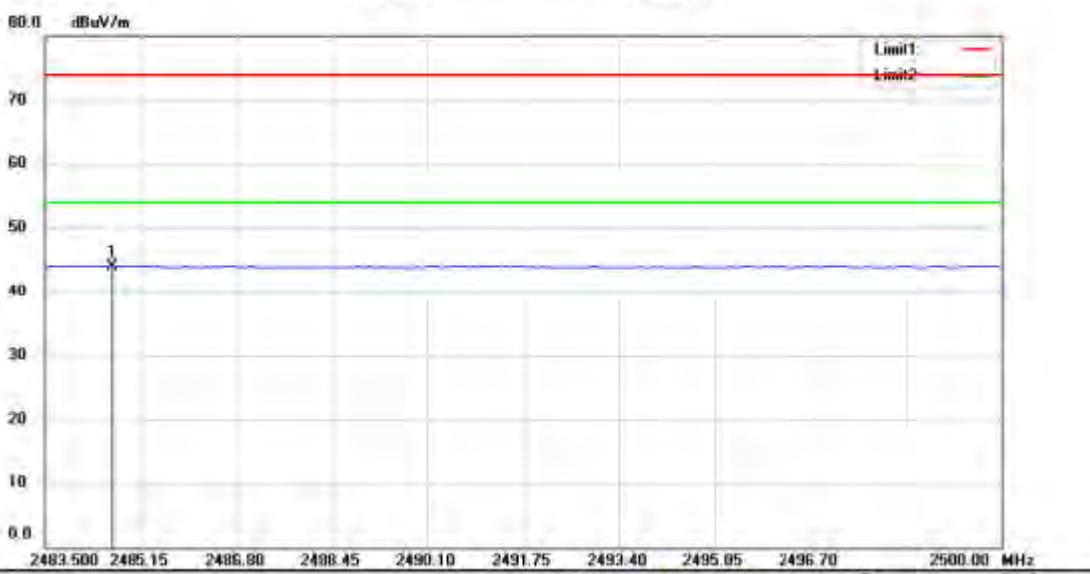


Radiated Emission Measurement

File TÜV 9

Date 03/76

Date 15/09/22



Site 3m Chamber #3 Polarization **Horizontal** Temperature: 24 °C

Limit: (RE)FCC PART 15 247 Power AC 120V/60Hz Humidity: 53 %

EUT: MID

M/N: MID1102-MA, DL1168A

Mode: 1 FN 20M 2462

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	Comment:
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1	*	2484.655	13.37	30.71	44.08	54.00	-9.92	AVG		

Shenzhen EMTEK Co., Ltd.
Bldg.69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel:+86-755-2695 4280 Fax:+86-755-2695 4282

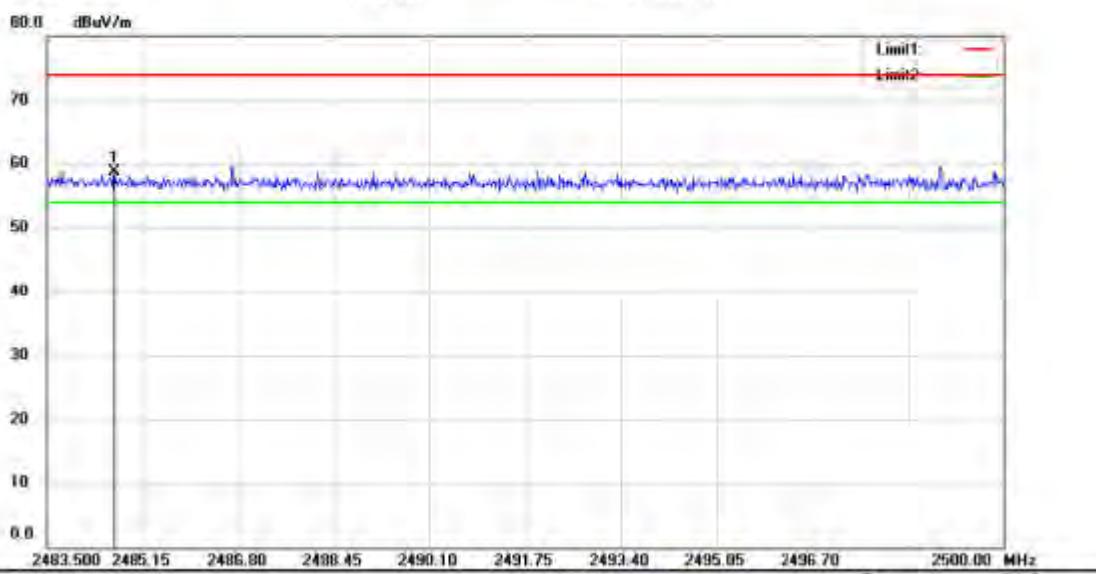


Radiated Emission Measurement

File TÜV 9

Date 03/77

Date 15/09/22/



Site: 3m Chamber #3 Polarization: **Vertical** Temperature: 24 °C

Limit: (RE)FCC PART 15.247 Power: AC (20V/60Hz) Humidity: 53 %

EUT: MID

M/N: MID1102-MA, DL1168A

Mode: 1+N 20M 2462

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	Comment:
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1	*	2484.655	27.94	30.71	58.65	74.00	-15.35	peak		

Shenzhen EMTEK Co., Ltd.
Bldg.69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel:+86-755-2695 4280 Fax:+86-755-2695 4282

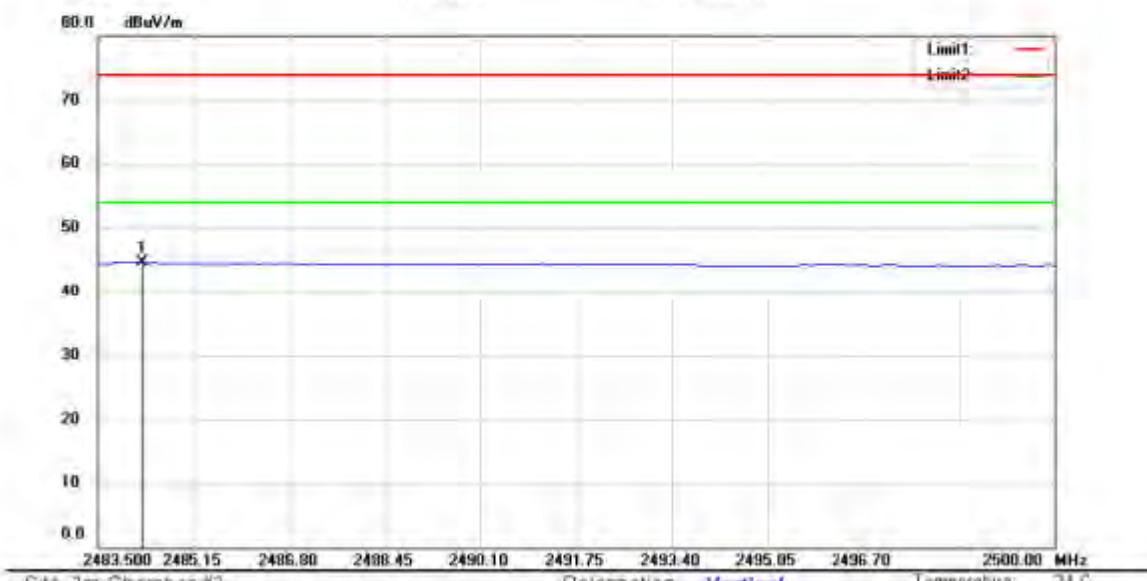


Radiated Emission Measurement

File TÜV 9

Date 05/09/22

Date 15/09/22/



Site 3m Chamber #3

Polarization **Vertical**

Temperature: 24.0

Limit: (RE)FCC PART 15 247

Power AC (20V/60Hz)

Humidity: 53 %

EUT: MID

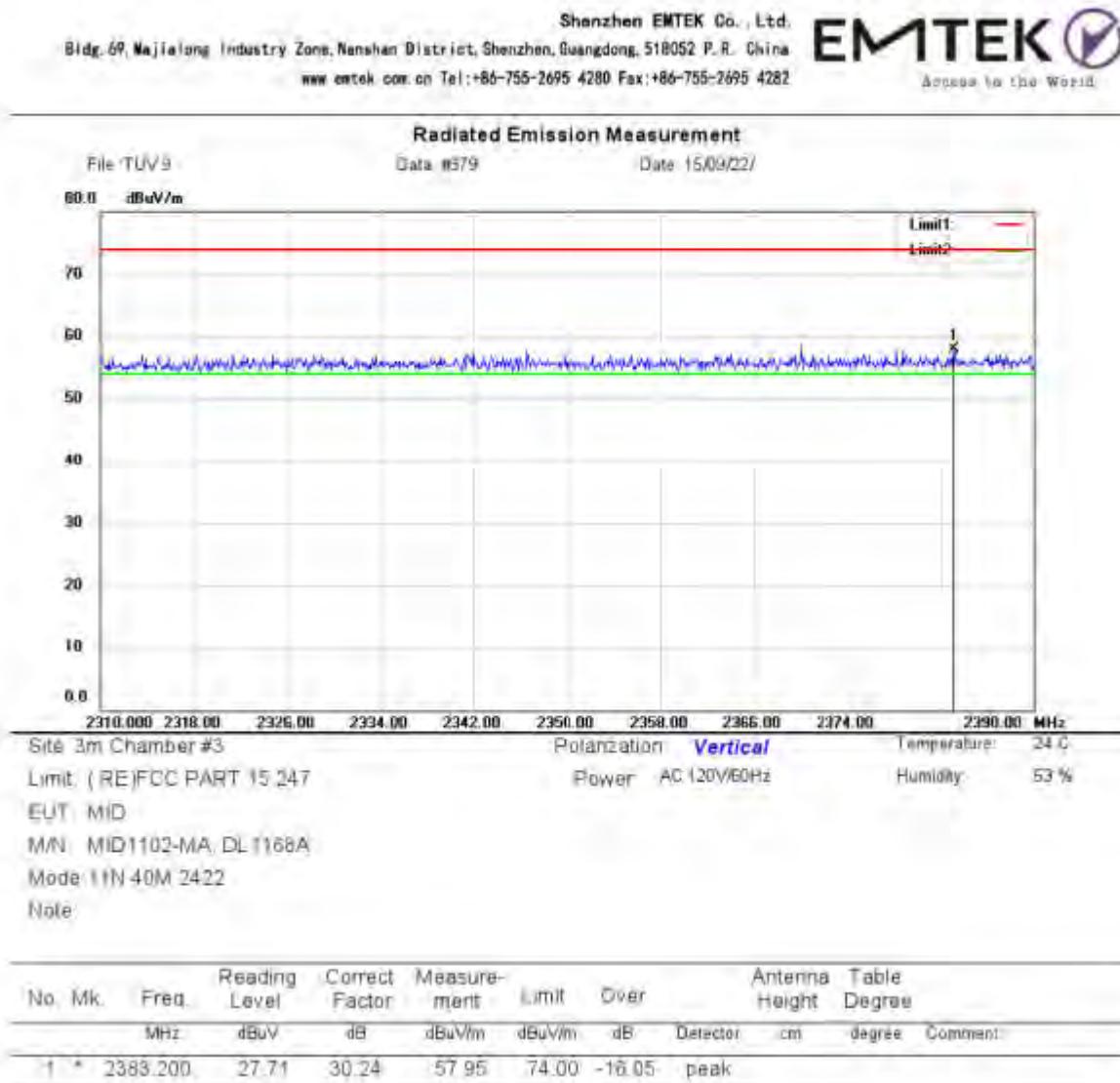
M/N: MID1102-MA, DL1168A

Mode: IIN 20M 2462

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	Comment:
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1	*	2484.259	13.96	30.71	44.67	54.00	+9.33	Avg		

Figure 34: Test figure of Radiated Emissions in Restricted Bands, 802.11n(HT40), (Low)



Shenzhen EMTEK Co., Ltd.
Bldg.69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282

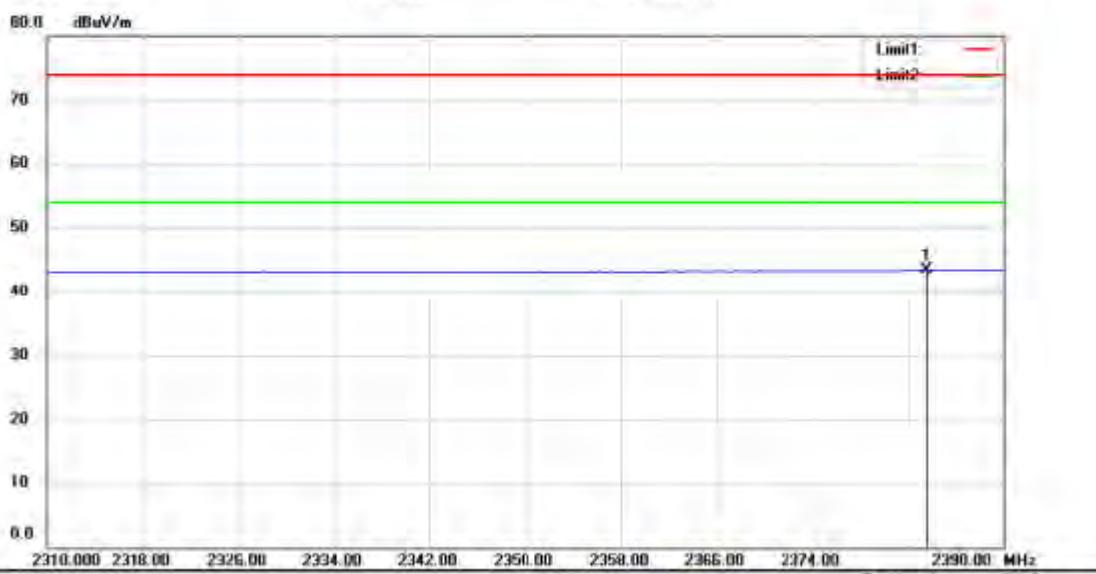


Radiated Emission Measurement

File TÜV 9

Date 03/09

Date 15/09/22



Site 3m Chamber #3 Polarization **Vertical** Temperature: 24 °C

Limit: (RE)FCC PART 15 247 Power AC (20V/60Hz) Humidity: 53 %

EUT: MID

M/N: MID1102-MA_DL1168A

Mode: FN 40M 2422

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	Comment:
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1	*	2383.680	13.23	30.24	43.47	54.00	-10.53	AVG		

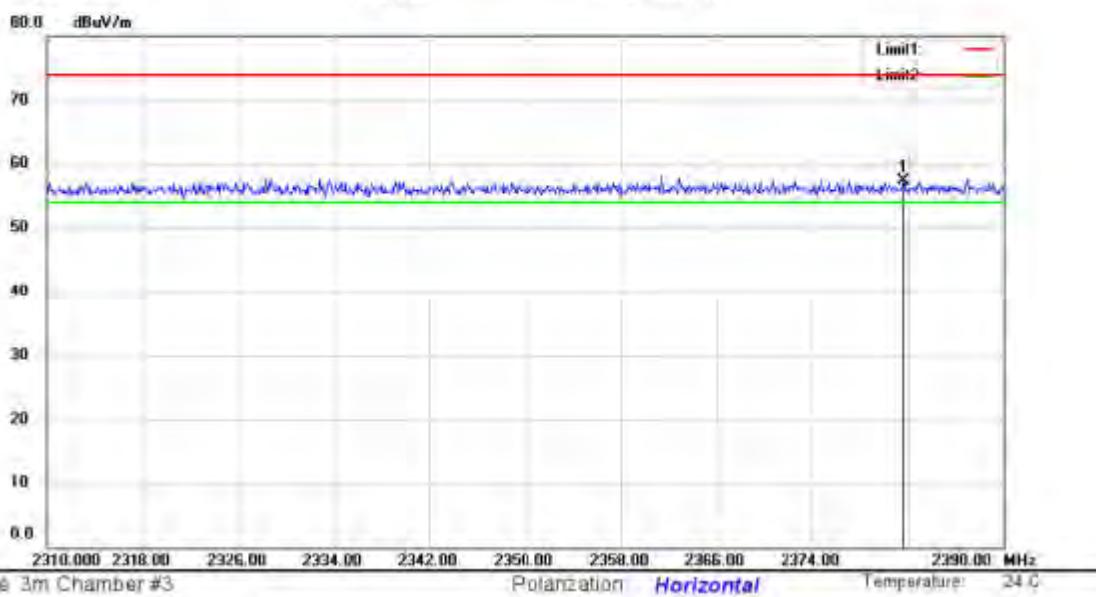
Shenzhen EMTEK Co., Ltd.
Bldg.69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel:+86-755-2695 4280 Fax:+86-755-2695 4282



Radiated Emission Measurement

File TÜV 9

Date 16/09/22



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1	*	2381.600	27.03	30.24	57.27	74.00	-16.73	peak		

Shenzhen EMTEK Co., Ltd.
Bldg.69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282

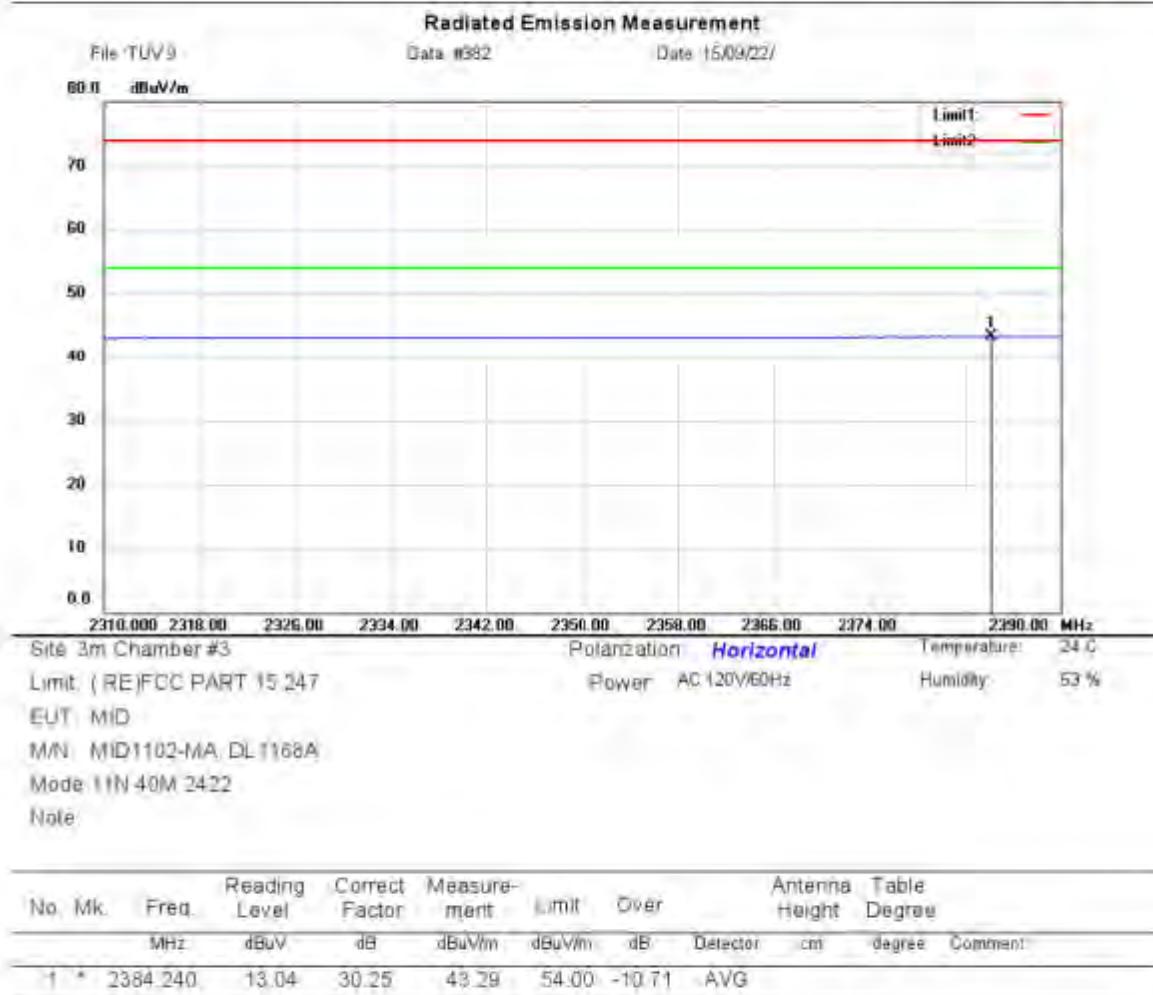
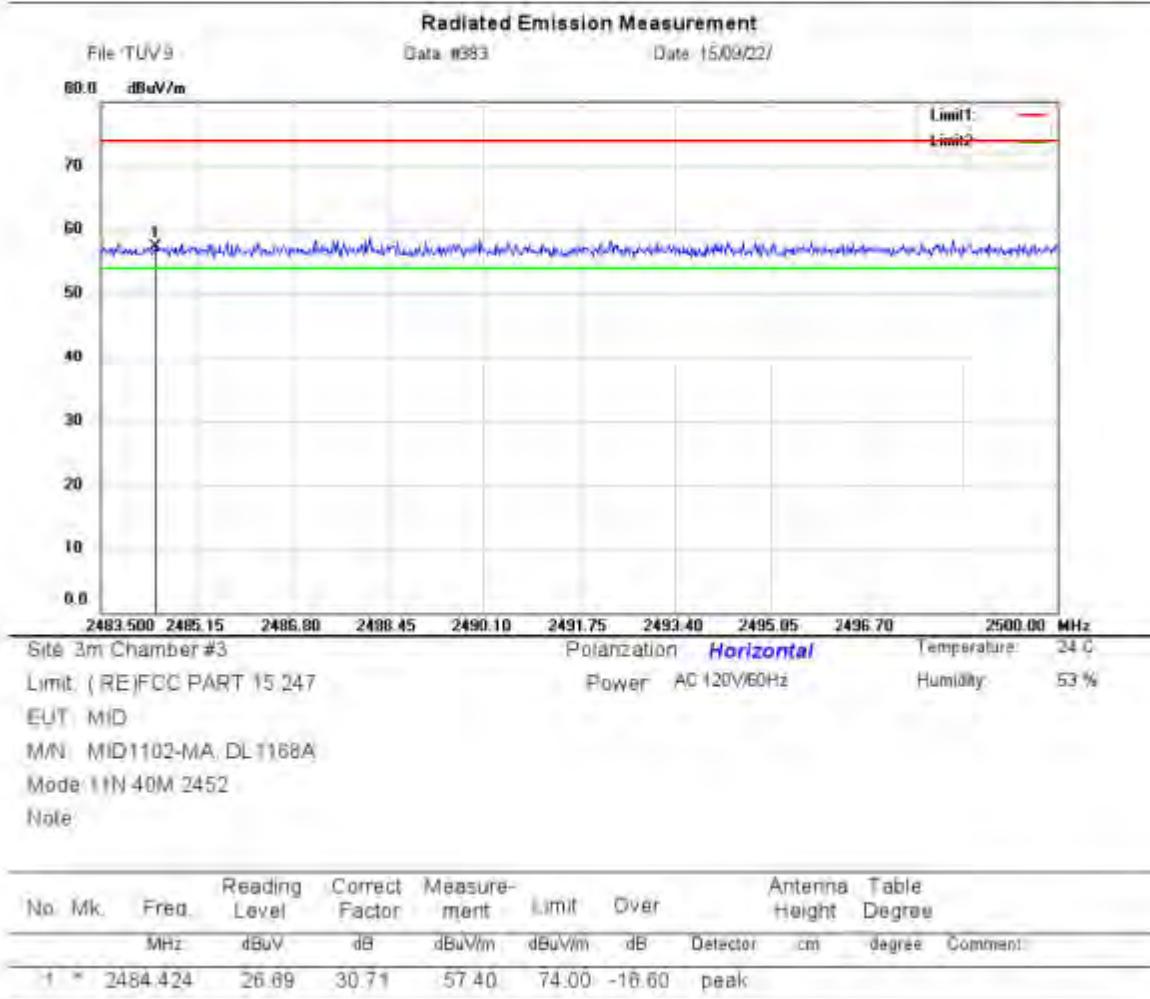
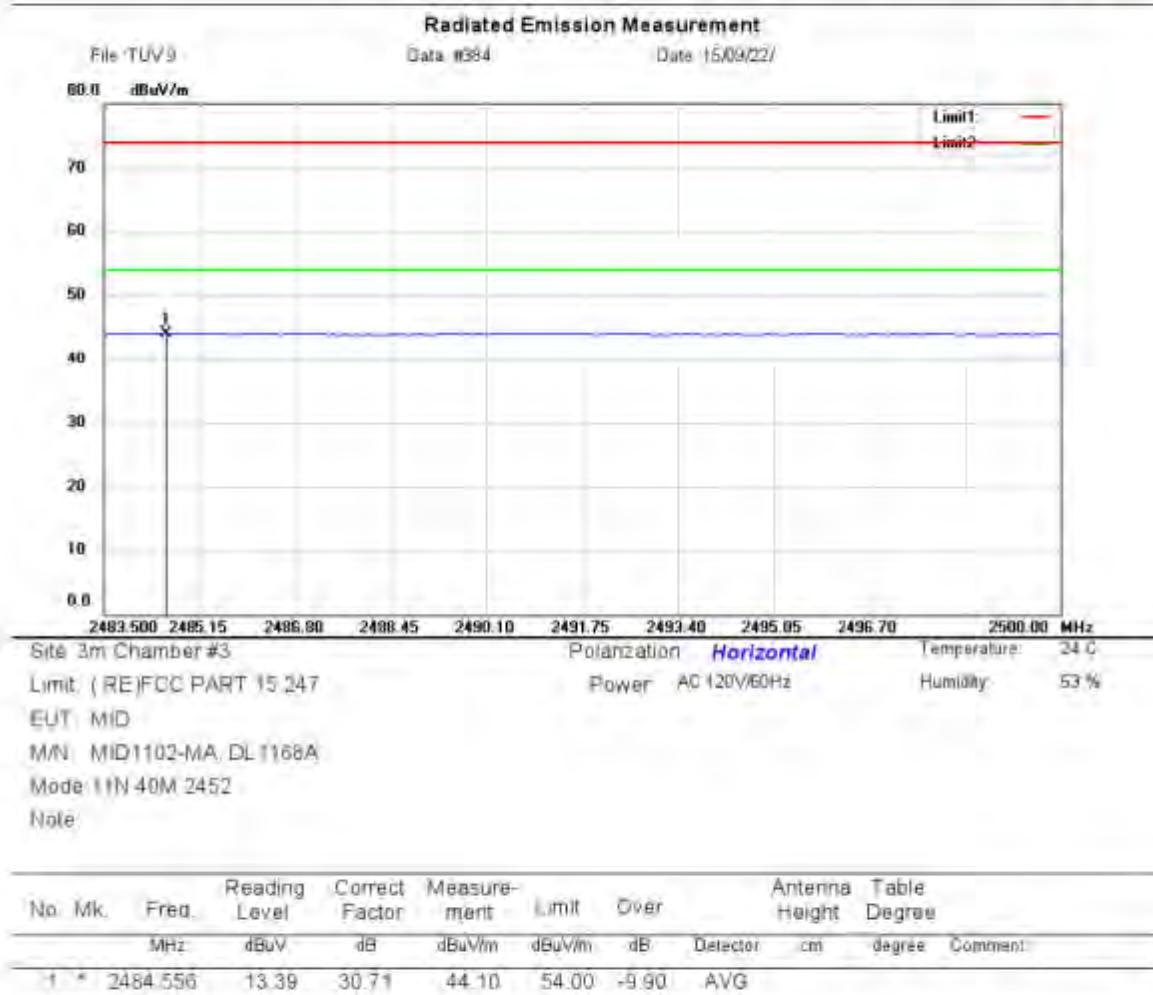


Figure 35: Test figure of Radiated Emissions in Restricted Bands, 802.11n(HT40), (High)

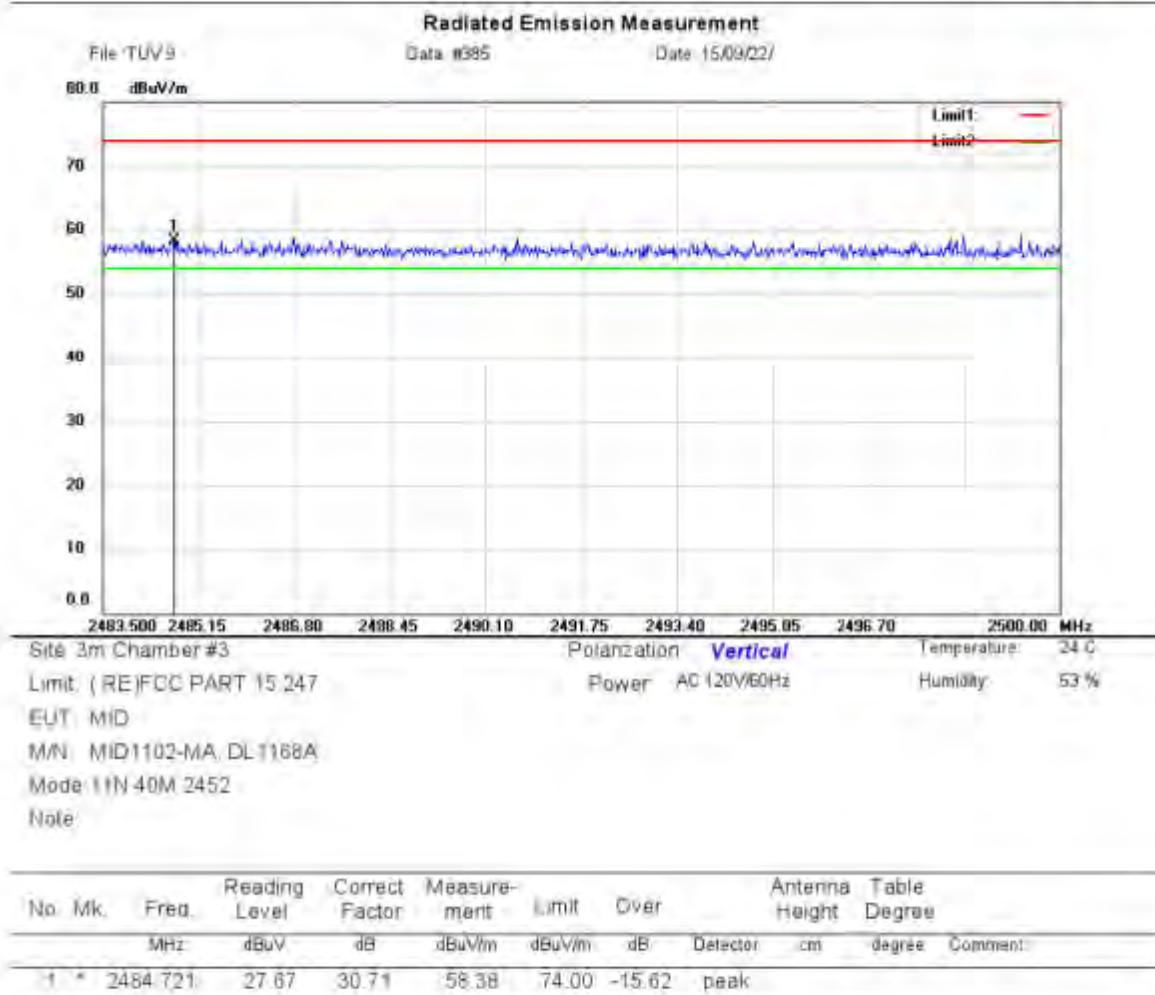
Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282



Shenzhen EMTEK Co., Ltd.
Bldg.69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282



Shenzhen EMTEK Co., Ltd.
Bldg.69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel:+86-755-2695 4280 Fax:+86-755-2695 4282



Shenzhen EMTEK Co., Ltd.
Bldg.69, Naijiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282

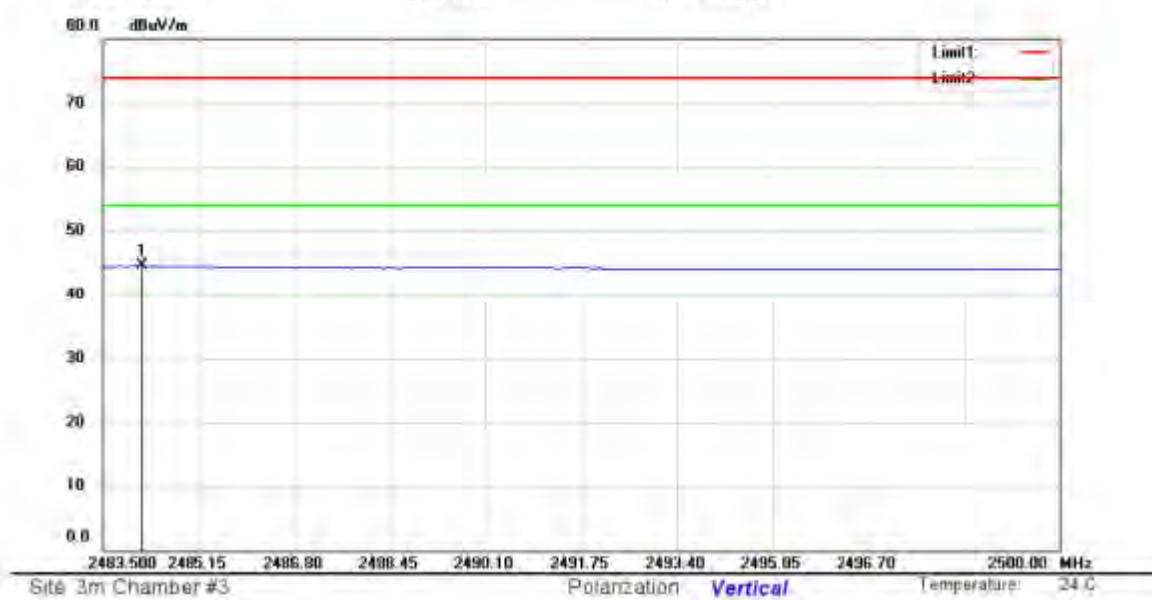


Radiated Emission Measurement

File TÜV 9

Date 03/06

Date 15/09/22



Site: 3m Chamber #3

Polarization: **Vertical**

Temperature: 24.0

Limit: (RE)FCC PART 15 247

Power: AC (20V/60Hz)

Humidity: 53 %

EUT: MID

M/N: MID1102-MA_DL1168A

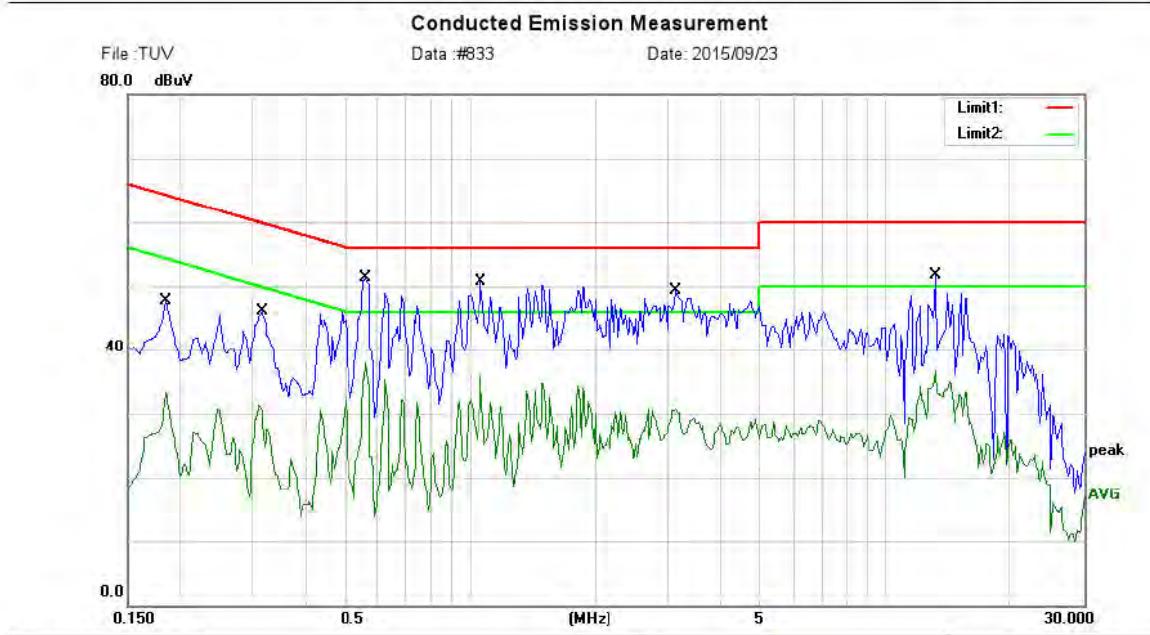
Mode: IIN 40M 2452

Note:

No.	Mk.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	Comment
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1	*	2484.177	13.91	30.71	44.62	54.00	-9.38	AVG	

Figure 36: Test figure of Conducted Emissions

Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel:+86-755-2695 4280 Fax:+86-755-2695 4282



Site Conduction #2

Phase: L1

Temperature: 26

Limit: (CE)FCC PART 15 class C_QP

Power: AC 120V/60Hz

Humidity: 55 %

EUT: MID

M/N: MID1102-MA; DL1168A

Mode: WIFI 2.4G

Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dB	Over Detector	Comment
1		0.1850	47.66	0.00	47.66	64.26	-16.60	QP
2		0.1850	33.28	0.00	33.28	54.26	-20.98	AVG
3		0.3150	46.16	0.00	46.16	59.84	-13.68	QP
4		0.3150	31.36	0.00	31.36	49.84	-18.48	AVG
5		0.5600	47.20	0.00	47.20	56.00	-8.80	QP
6		0.5600	37.99	0.00	37.99	46.00	-8.01	AVG
7	*	1.0600	48.10	0.00	48.10	56.00	-7.90	QP
8		1.0600	35.91	0.00	35.91	46.00	-10.09	AVG
9		3.1200	47.30	0.00	47.30	56.00	-8.70	QP
10		3.1200	30.72	0.00	30.72	46.00	-15.28	AVG
11		13.1750	49.80	0.00	49.80	60.00	-10.20	QP
12		13.1750	36.74	0.00	36.74	50.00	-13.26	AVG

*:Maximum data

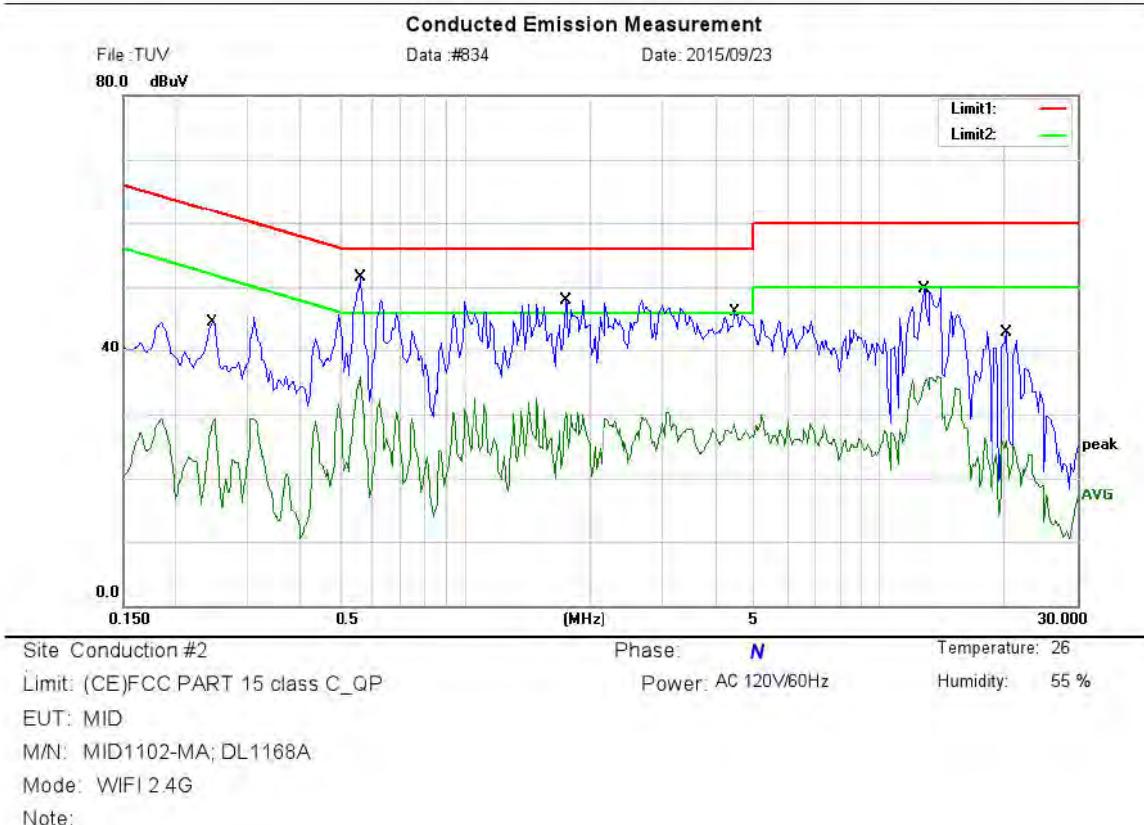
x:Over limit

!:over margin

Comment: Factor build in receiver.

Operator: CSL

Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dB	Over dB	Detector	Comment
1		0.2450	44.57	0.00	44.57	61.92	-17.35	QP	
2		0.2450	29.27	0.00	29.27	51.92	-22.65	AVG	
3 *		0.5600	47.90	0.00	47.90	56.00	-8.10	QP	
4		0.5600	35.99	0.00	35.99	46.00	-10.01	AVG	
5		1.7500	45.30	0.00	45.30	56.00	-10.70	QP	
6		1.7500	30.32	0.00	30.32	46.00	-15.68	AVG	
7		4.4600	44.60	0.00	44.60	56.00	-11.40	QP	
8		4.4600	28.46	0.00	28.46	46.00	-17.54	AVG	
9		12.8500	47.20	0.00	47.20	60.00	-12.80	QP	
10		12.8500	35.78	0.00	35.78	50.00	-14.22	AVG	
11		20.3000	42.91	0.00	42.91	60.00	-17.09	QP	
12		20.3000	25.93	0.00	25.93	50.00	-24.07	AVG	

*:Maximum data x:Over limit !:over margin Comment: Factor build in receiver. Operator: CSL