



# FCC RADIO TEST REPORT

**Model Name** : MediaAccess TG1700ac High Power  
**Brand Name** : technicolor  
**Model No.** : TG1700dac HP, TG1700ETIdac HP  
**FCC ID** : RSE-TG1700DACHP  
**Standard** : 47 CFR FCC Part 15 Subpart C  
**Frequency Range** : 2400 MHz – 2483.5 MHz  
**Applicant** : Technicolor Delivery Technologies Belgium  
Prins Boudewijnlaan 47, 2650 EDEGEM BELGIUM  
**Manufacturer** : Technicolor Delivery Technologies Belgium  
Prins Boudewijnlaan 47, 2650 EDEGEM BELGIUM

The product sample received on Oct. 07, 2014 and completely tested on Sep. 19, 2016. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with the procedures given in 47 CFR FCC Part 15 Subpart C and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

  
Sam Chen  
SPORTON INTERNATIONAL INC.





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## Summary of Test Result

| 2400~2483.5MHz Band |              |                                   |                                                                              |          |
|---------------------|--------------|-----------------------------------|------------------------------------------------------------------------------|----------|
| Item                | Rule Section | Test Content                      | Measured                                                                     | Result   |
| 2.1                 | 15.207       | AC Power Line Conducted Emissions | 0.1548 dBuV<br>(Margin -13.85 dB)                                            | Complied |
| 2.2                 | 15.247(b)(3) | Maximum Conducted Output Power    | Max. Conducted<br>Power[dBm]: 24.89<br>(11n 20MHz CDD MCS0 CH6)              | Complied |
| 2.3                 | 15.247(e)    | Power Spectral Density            | Max.Total PSD<br>[dBm/3kHz]: -3.36<br>(11b 1Mbps Chain 2 CH1)                | Complied |
| 2.4                 | 15.247(a)(2) | 6dB Spectrum Bandwidth            | 6dB Bandwidth[ MHz]<br>6dB: 7.12 / 99% OCB: 10.08<br>(11b 1Mbps Chain 2 CH1) | Complied |
| 2.5                 | 15.247(d)    | Radiated Emissions                | 53.93 dBuV/m<br>(Margin -0.07dB)<br>(11b Chain 1 CH6)                        | Complied |
| 2.6                 | 15.247(d)    | Band edge Emissions               | 53.87 dBuV/m<br>(Margin 0.13dB)<br>(11n 40MHz CDD MCS0<br>Chain 1 CH3)       | Complied |
| 2.7                 | 15.203       | Antenna Requirements              | -                                                                            | Complied |

## Revision History

[illegible]

# 1 General Description of Equipment under Test

## 1.1 Basic Description of Equipment under Test

Model Name : MediaAccess TG1700ac High Power  
 Model No. : TG1700dac HP, TG1700ETIdac HP  
 Brand Name : technicolor  
 Product Code :

| Model No.       | Product Code | Description                 |
|-----------------|--------------|-----------------------------|
| TG1700dac HP    | DSL CBH843HP | GW TG1700dac HP Gen NAM     |
| TG1700dac HP    | DSL CBH643RJ | GW TG1700dac HP Gen ROW     |
| TG1700ETIdac HP | DSL CBH643EM | GW TG1700dac HP Etisalat AE |

Power Supply :

| <b>Power Adapter (1)</b> |                                      |
|--------------------------|--------------------------------------|
| Model No.                | WAE021 ID:AD1G2                      |
| Product Code             | DSL37309520                          |
| Manufacturer             | AcBel Electronic (Dongguan) CO., LTD |
| Input                    | AC 100-120V ~ 60Hz, 1A               |
| Output                   | DC 12V, 2.8A                         |
| Variant                  | brown box                            |
| AC power cord            | N/A                                  |
| Type                     | Switching                            |
| <b>Power Adapter (2)</b> |                                      |
| Model No.                | WAE021 ID: ADXG2                     |
| Product Code             | DSL37587770                          |
| Manufacturer             | AcBel Electronic (Dongguan) CO., LTD |
| Input                    | AC 100-120V ~ 60Hz, 1A               |
| Output                   | DC 12V, 2.8A                         |
| Variant                  | PE bag                               |
| AC power cord            | N/A                                  |
| Type                     | Switching                            |

Hardware Version : Lab2  
 Firmware Version : 14.40.142

## 1.2 Feature of Equipment under Test

Please refer to user manual.

## 1.3 provided by the manufacturer

Interface Availability

| Interface<br>Model No.                    | GPON            | GIGA<br>LAN    | FXS            | 2.4GHz<br>WLAN<br>(802.11n) | 5GHz<br>WLAN<br>(802.11ac) | RF<br>Video | USB 2.0        |
|-------------------------------------------|-----------------|----------------|----------------|-----------------------------|----------------------------|-------------|----------------|
| TG1700dac HP,<br>TG1700ETIdac HP<br>(EUT) | ●<br>(Diplexer) | ●<br>(4 ports) | ●<br>(2 ports) | ●<br>(2 x 2)                | ●<br>(3 x 3)               | ○           | ●<br>(2 ports) |

● : Equipped

○ : Not Equipped

The tested model (EUT) is listed in the table.

## 1.4 Testing Applied Standards

47 CFR FCC Part 15 Subpart C

ANSI C63.10-2013

KDB558074 D01 DTS Meas Guidance v03r05-04/08/2016

KDB662911 D01 Multiple Transmitter Output v02r01-10/31/2013

## 1.5 Cabling attached to the equipment

Cable and Interconnection

| Interface | Cable type   | Cable length | Internal/external<br>Connection |
|-----------|--------------|--------------|---------------------------------|
| GPON      | SC/APC fiber | 30m          | External                        |
| FXS       | UTP Cat.3    | 10m          | Internal                        |
| LAN       | UTP Cat.5    | 10m          | Internal                        |
| USB2.0    | N/A          | N/A          | Internal                        |
| AC power  | -            | -            | External                        |

**1.6 Product Detail**

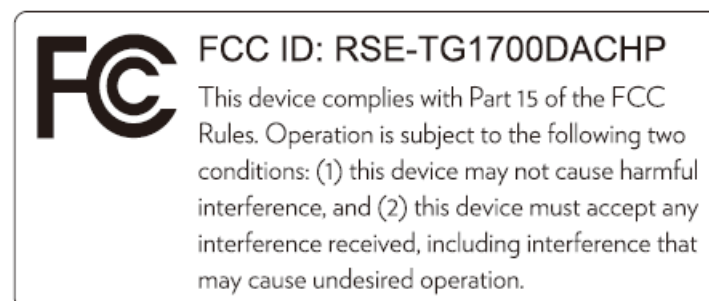
| Items                     | Description                                                                                                                                 |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Model Name                | MediaAccess TG1700ac High Power                                                                                                             |
| I/O Ports                 | FXS port x2<br>LAN port (Ethernet: 10/100/1000Mbps) x4<br>WLAN port (802.11b/g/n 2x2, 802.11a/n/ac 3X3)<br>USB2.0 port x 2<br>GPON Port x 1 |
| Power Type                | From power adapter                                                                                                                          |
| Associated Devices        | (Refer to Section 1.1)                                                                                                                      |
| Product Type              | IEEE 802.11b/g/n20/n40                                                                                                                      |
| Operating Frequency       | 2412-2462MHz                                                                                                                                |
| Nominal Channel Bandwidth | 20MHz / 40MHz                                                                                                                               |
| Number of Channel         | 11 for 20MHz bandwidth<br>7 for 40MHz bandwidth                                                                                             |
| Channel Spacing           | 20MHz / 40MHz                                                                                                                               |
| Max. Output power         | IEEE 802.11b: 23.34dBm                                                                                                                      |
|                           | IEEE 802.11g: 24.87dBm                                                                                                                      |
|                           | IEEE 802.11n20: 24.89dBm                                                                                                                    |
|                           | IEEE 802.11n40: 21.63dBm                                                                                                                    |
| Antenna Type              | Please refer to section 1.9                                                                                                                 |

## 1.7 Panel Drawing



|       |
|-------|
| DC    |
|       |
| USB 2 |
| USB 1 |
|       |
| LAN 4 |
| LAN 3 |
| LAN 2 |
| LAN 1 |
| FXS 2 |
| FXS 1 |
|       |
| GPON  |

## Label of EUT



Power Adapter



Label of Power Adapter



## 1.8 Radio General Information

| Radio Information     |                  |                               |                     |                |
|-----------------------|------------------|-------------------------------|---------------------|----------------|
| Frequency Range (MHz) | IEEE Std. 802.11 | Data rate per stream (Mbit/s) | Ch. Frequency (MHz) | Channel Number |
| 2400-2483.5           | b                | 1, 2, 5.5, 11                 | 2412-2462           | 1-11           |
| 2400-2483.5           | g                | 6, 9, 12, 18, 24, 36, 48, 54  | 2412-2462           | 1-11           |
| 2400-2483.5           | n(HT20)          | MCS0 – MCS15                  | 2412-2462           | 1-11           |
| 2400-2483.5           | n(HT40)          | MCS0 – MCS15                  | 2422-2452           | 3-9            |

Note 1: 802.11b uses a combination of DSSS-DBPSK, DQPSK, CCK modulation.

Note 2: 802.11g/n uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.

| IEEE Std. 802.11n modulation and data rate information |                 |                 |             |                    |          |                |          |
|--------------------------------------------------------|-----------------|-----------------|-------------|--------------------|----------|----------------|----------|
| MCS Index                                              | Spatial Streams | Modulation Type | Coding Rate | Data Rate (Mbit/s) |          |                |          |
|                                                        |                 |                 |             | 20 MHz channel     |          | 40 MHz channel |          |
|                                                        |                 |                 |             | 800ns GI           | 400ns GI | 800ns GI       | 400ns GI |
| 0                                                      | 1               | BPSK            | 1/2         | 6.5                | 7.2      | 13.5           | 15       |
| 1                                                      |                 | QPSK            | 1/2         | 13                 | 14.4     | 27             | 30       |
| 2                                                      |                 | QPSK            | 3/4         | 19.5               | 21.7     | 40.5           | 45       |
| 3                                                      |                 | 16-QAM          | 1/2         | 26                 | 28.9     | 54             | 60       |
| 4                                                      |                 | 16-QAM          | 3/4         | 39                 | 43.3     | 81             | 90       |
| 5                                                      |                 | 64-QAM          | 2/3         | 52                 | 57.8     | 108            | 120      |
| 6                                                      |                 | 64-QAM          | 3/4         | 58.5               | 65       | 121.5          | 135      |
| 7                                                      |                 | 64-QAM          | 5/6         | 65                 | 72.2     | 135            | 150      |
| 8                                                      | 2               | BPSK            | 1/2         | 13                 | 14.4     | 27             | 30       |
| 9                                                      |                 | QPSK            | 1/2         | 26                 | 28.9     | 54             | 60       |
| 10                                                     |                 | QPSK            | 3/4         | 39                 | 43.3     | 81             | 90       |
| 11                                                     |                 | 16-QAM          | 1/2         | 52                 | 57.8     | 108            | 120      |
| 12                                                     |                 | 16-QAM          | 3/4         | 78                 | 86.7     | 162            | 180      |
| 13                                                     |                 | 64-QAM          | 2/3         | 104                | 115.6    | 216            | 240      |
| 14                                                     |                 | 64-QAM          | 3/4         | 117                | 130      | 243            | 270      |
| 15                                                     |                 | 64-QAM          | 5/6         | 130                | 144.4    | 270            | 300      |

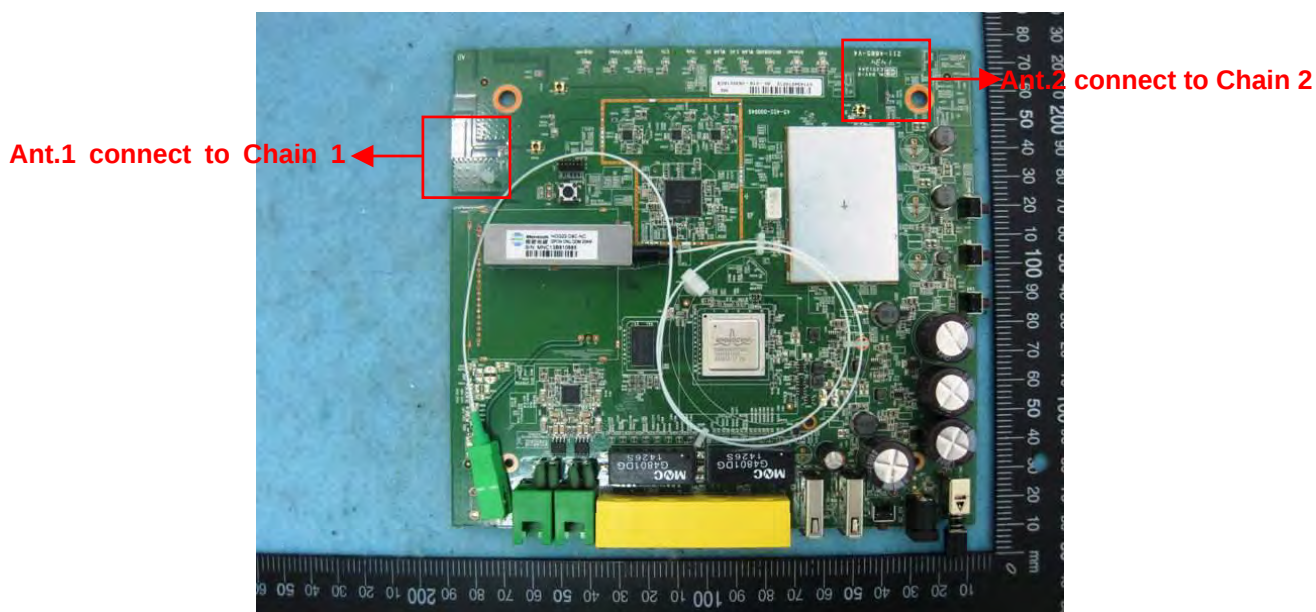
Note1: GI means guard interval.

| RF path transmission and receive function information                                                                                                                                                                                                                                                                                                                       |         |     |         |     |               |     |               |     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-----|---------|-----|---------------|-----|---------------|-----|
| Modulation mode                                                                                                                                                                                                                                                                                                                                                             | 802.11b |     | 802.11g |     | 802.11n(HT20) |     | 802.11n(HT40) |     |
| Chain                                                                                                                                                                                                                                                                                                                                                                       | 1       | 2   | 1       | 2   | 1             | 2   | 1             | 2   |
| Single(Tx)                                                                                                                                                                                                                                                                                                                                                                  | Yes     | Yes | Yes     | Yes | Yes           | Yes | Yes           | Yes |
| Two(Tx)                                                                                                                                                                                                                                                                                                                                                                     |         |     | Yes     | Yes | Yes           | Yes | Yes           | Yes |
| Chain                                                                                                                                                                                                                                                                                                                                                                       | 1       | 2   | 1       | 2   | 1             | 2   | 1             | 2   |
| Single(Rx)                                                                                                                                                                                                                                                                                                                                                                  |         |     |         |     |               |     |               |     |
| Two(Rx)                                                                                                                                                                                                                                                                                                                                                                     | Yes     | Yes | Yes     | Yes | Yes           | Yes | Yes           | Yes |
| Note:<br>1. For 11b, single chain Tx (chain 1 or chain 2)<br>2. For 11g, can be single chain Tx and two-chain Tx (chain 1 and chain 2)<br>3. For 11n MCS0~7, two chain1 and chain 2 Tx which means one stream transmit from both chain with time shift.<br>4. For 11n MCS8~15, two chain 1 and chain 2 Tx which means two stream transmit from both chain in the same time. |         |     |         |     |               |     |               |     |

## 1.9 Antenna Information

| Antenna Information |             |           |                 |           |
|---------------------|-------------|-----------|-----------------|-----------|
| Ant.                | Brand       | Model No. | Antenna Type    | Connector |
| 1                   | technicolor | N/A       | Printed Antenna | N/A       |
| 2                   | technicolor | N/A       | Printed Antenna | N/A       |

| Antenna Gain (dBi) |          |          |          |          |          |         |
|--------------------|----------|----------|----------|----------|----------|---------|
| Chain \ Frequency  | CH1      | CH3      | CH6      | CH9      | CH11     | Remark  |
|                    | 2412 MHz | 2422 MHz | 2437 MHz | 2452 MHz | 2462 MHz |         |
| Chain 1            | 3.47     | 3.40     | 3.36     | 3.36     | 3.01     | Non-CDD |
| Chain 2            | 2.34     | 2.39     | 2.40     | 2.72     | 2.72     | Non-CDD |
| Chain 1+2          | 5.24     | 5.31     | 5.33     | 5.41     | 5.41     | CDD     |
| Chain 1+2          | 2.27     | 2.32     | 2.33     | 2.40     | 2.40     | SDM     |



## 1.10 EUT Operational Condition define in the report

| Conditions     |      |
|----------------|------|
| Supply Voltage | Vnom |
|                | 120V |
| Temperature    | Tnom |
|                | 25°C |

**1.11 Table for the Worst Case Test Modes**

|                                                |
|------------------------------------------------|
| no test, other test results can cover          |
| need test                                      |
| depends on conducted output power test results |
| Selected from Pre-Q data (Need Test)           |

| FCC 2.4G Test Plan mode select |                                   |                                |                                                  |                                                         |                                                         |                                                         |                                                         |
|--------------------------------|-----------------------------------|--------------------------------|--------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|
| Test Items                     | AC Power Line Conducted Emissions | Maximum Conducted Output Power | Power Spectral Density                           | 6dB Bandwidth                                           | Radiated Emissions Below 1GHz                           | Radiated Emissions Above 1GHz                           | Bandedge Emissions                                      |
| 11b Chain1 1Mbps               |                                   | Need Test                      | Use output power table to select which ant chain | Use output power table to select which ant chain        | Use output power table to select which ant chain        | Need Test                                               | Need Test                                               |
| 11b Chain2 1Mbps               |                                   | Need Test                      | need test (select max)                           | chain need test (select max)                            | chain need test (select max)                            | Need Test                                               | Need Test                                               |
| 11g Chain1 (6Mbps)             |                                   | Need Test                      | Use output power table to select which ant chain | 11g CDD mode test result can cover this item.           | 11g CDD mode test result can cover this item.           | 11g CDD mode test result can cover this item.           | 11g CDD mode test result can cover this item.           |
| 11g Chain2 (6Mbps)             |                                   | Need Test                      | need test (select max)                           | chain need test (select max)                            | chain need test (select max)                            | 11g CDD mode test result can cover this item.           | 11g CDD mode test result can cover this item.           |
| 11g CDD Chain1+2 (6Mbps)       |                                   | Need Test                      | Need Test                                        | Need Test                                               | 11n CDD (HT20MHz) mode test result can cover this item. | Need Test (use Max 11g Chain1 or Chain2 power index)    | Need Test (use Max 11g Chain1 or Chain2 power index)    |
| 11n Chain1 (MCS0) (HT20MHz)    |                                   | Need Test                      | Use output power table to select which ant chain | 11n CDD (HT20MHz) mode test result can cover this item. | 11n CDD (HT20MHz) mode test result can cover this item. | Selected from Pre-Q data (Need Test)                    | Selected from Pre-Q data (Need Test)                    |
| 11n Chain2 (MCS0) (HT20MHz)    |                                   | Need Test                      | need test (select max)                           | chain need test (select max)                            | chain need test (select max)                            | 11n CDD (HT20MHz) mode test result can cover this item. | 11n CDD (HT20MHz) mode test result can cover this item. |



|                                            |                      |           |                                                                                     |                                                                     |                                                                     |                                                                       |                                                                       |
|--------------------------------------------|----------------------|-----------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------------|-----------------------------------------------------------------------|
| 11n CDD<br>Chain1+2<br>(MCS0)<br>(HT20MHz) |                      | Need Test | Need Test                                                                           | Need Test                                                           | Need Test                                                           | Need Test<br>(use Max 11n<br>Chain1 or Chain2<br>HT20<br>power index) | Need Test<br>(use Max 11n<br>Chain1 or Chain2<br>HT20<br>power index) |
| 11n SDM<br>Chain1+2<br>(MCS8)<br>(HT20MHz) |                      | Need Test | 11n CDD<br>(HT20MHz) mode<br>test result can<br>cover this item.                    | 11n CDD<br>(HT20MHz)<br>mode test result<br>can cover this<br>item. | 11n CDD<br>(HT20MHz)<br>mode test result<br>can cover this<br>item. | Selected from<br>Pre-Q data<br>(Need Test)                            | Selected from<br>Pre-Q data<br>(Need Test)                            |
| 11n<br>Chain1<br>(MCS0)<br>(HT40MHz)       |                      | Need Test | Use output power<br>table to select<br>which ant chain<br>need test<br>(select max) | 11n CDD<br>(HT40MHz)<br>mode test result<br>can cover this<br>item. | 11n CDD<br>(HT40MHz)<br>mode test result<br>can cover this<br>item. | 11n CDD<br>(HT40MHz) mode<br>test result can<br>cover this item.      | 11n CDD<br>(HT40MHz) mode<br>test result can<br>cover this item.      |
| 11n<br>Chain2<br>(MCS0)<br>(HT40MHz)       |                      | Need Test |                                                                                     |                                                                     |                                                                     | Selected from<br>Pre-Q data<br>(Need Test)                            | Selected from<br>Pre-Q data<br>(Need Test)                            |
| 11n CDD<br>Chain1+2<br>(HT40MHz)           |                      | Need Test | Need Test                                                                           | Need Test                                                           | Need Test                                                           | Need Test<br>(use Max 11n<br>Chain1 or Chain2<br>HT40<br>power index) | Need Test<br>(use Max 11n<br>Chain1 or Chain2<br>HT40<br>power index) |
| 11n SDM<br>Chain1+2<br>(MCS8)<br>(HT40MHz) |                      | Need Test | 11n CDD<br>(HT40MHz) mode<br>test result can<br>cover this item.                    | 11n CDD<br>(HT40MHz)<br>mode test result<br>can cover this<br>item. | 11n CDD<br>(HT40MHz)<br>mode test result<br>can cover this<br>item. | Selected from<br>Pre-Q data<br>(Need Test)                            | Selected from<br>Pre-Q data<br>(Need Test)                            |
| 11n<br>Chain1+2<br>(MCS15)<br>(HT40MHz)    | Normal Link<br>Mode. |           |                                                                                     |                                                                     |                                                                     |                                                                       |                                                                       |

| Test Items                        | Mode        | Channel | Data Rate | Chain | Note                                                                    |
|-----------------------------------|-------------|---------|-----------|-------|-------------------------------------------------------------------------|
| AC Power Line Conducted Emissions | Normal Link | -       | -         | -     | -                                                                       |
| Maximum Conducted Output Power    | 11b         | 1,6,11  | 1Mbps     | 1     | -                                                                       |
|                                   | 11b         | 1,6,11  | 1Mbps     | 2     | -                                                                       |
|                                   | 11g         | 1,6,11  | 6Mbps     | 1     | -                                                                       |
|                                   | 11g         | 1,6,11  | 6Mbps     | 2     | -                                                                       |
|                                   | 11g         | 1,6,11  | CDD 6Mbps | 1+2   | -                                                                       |
|                                   | 11n 20MHz   | 1,6,11  | MCS0      | 1     | -                                                                       |
|                                   | 11n 20MHz   | 1,6,11  | MCS0      | 2     | -                                                                       |
|                                   | 11n 20MHz   | 1,6,11  | CDD MCS0  | 1+2   | -                                                                       |
|                                   | 11n 20MHz   | 1,6,11  | SDM MCS8  | 1+2   | -                                                                       |
|                                   | 11n 40MHz   | 3,6,9   | MCS0      | 1     | -                                                                       |
|                                   | 11n 40MHz   | 3,6,9   | MCS0      | 2     | -                                                                       |
|                                   | 11n 40MHz   | 3,6,9   | CDD MCS0  | 1+2   | -                                                                       |
|                                   | 11n 40MHz   | 3,6,9   | SDM MCS8  | 1+2   | -                                                                       |
| Power Spectral Density            | 11b         | 1,6,11  | 1Mbps     | 2     | Use output power table to select which ant chain need test.(Select Max) |
|                                   | 11g         | 1,6,11  | 6Mbps     | 2     | Use output power table to select which ant chain need test.(Select Max) |
|                                   | 11g         | 1,6,11  | CDD 6Mbps | 1+2   | -                                                                       |
|                                   | 11n 20MHz   | 1,6,11  | MCS0      | 2     | Use output power table to select which ant chain need test.(Select Max) |
|                                   | 11n 20MHz   | 1,6,11  | CDD MCS0  | 1+2   | -                                                                       |
|                                   | 11n 40MHz   | 3,6,9   | MCS0      | 2     | Use output power table to select which ant chain need test.(Select Max) |
|                                   | 11n 40MHz   | 3,6,9   | CDD MCS0  | 1+2   | -                                                                       |



|                               |             |        |           |     |                                                                          |
|-------------------------------|-------------|--------|-----------|-----|--------------------------------------------------------------------------|
| 6dB Spectrum Bandwidth        | 11b         | 1,6,11 | 1Mbps     | 2   | Use output power table to select which ant chain need test. (Select Max) |
|                               | 11g         | 1,6,11 | CDD 6Mbps | 1+2 | -                                                                        |
|                               | 11n 20MHz   | 1,6,11 | CDD MCS0  | 1+2 | -                                                                        |
|                               | 11n 40MHz   | 3,6,9  | CDD MCS0  | 1+2 | -                                                                        |
| Radiated Emissions Below 1GHz | Normal Link | -      | -         | -   | -                                                                        |
| Radiated Emissions Above 1GHz | 11b         | 1,6,11 | 1Mbps     | 1   | -                                                                        |
|                               | 11b         | 1,6,11 | 1Mbps     | 2   | -                                                                        |
|                               | 11g         | 1,6,11 | CDD 6Mbps | 1+2 | -                                                                        |
|                               | 11n 20MHz   | 1,6,11 | MCS0      | 1   | -                                                                        |
|                               | 11n 20MHz   | 1,6,11 | CDD MCS0  | 1+2 | -                                                                        |
|                               | 11n 20MHz   | 1,6,11 | SDM MCS8  | 1+2 | -                                                                        |
|                               | 11n 40MHz   | 3,6,9  | MCS0      | 2   | -                                                                        |
|                               | 11n 40MHz   | 3,6,9  | CDD MCS0  | 1+2 | -                                                                        |
|                               | 11n 40MHz   | 3,6,9  | SDM MCS8  | 1+2 | -                                                                        |
| Band Edge Emissions           | 11b         | 1,6,11 | 1 Mbps    | 1   | -                                                                        |
|                               | 11b         | 1,6,11 | 1 Mbps    | 2   | -                                                                        |
|                               | 11g         | 1,6,11 | CDD 6Mbps | 1+2 | -                                                                        |
|                               | 11n 20MHz   | 1,6,11 | MCS0      | 1   | -                                                                        |
|                               | 11n 20MHz   | 1,6,11 | CDD MCS0  | 1+2 | -                                                                        |
|                               | 11n 20MHz   | 1,6,11 | SDM MCS8  | 1+2 | -                                                                        |
|                               | 11n 40MHz   | 3,6,9  | MCS0      | 2   | -                                                                        |
|                               | 11n 40MHz   | 3,6,9  | CDD MCS0  | 1+2 | -                                                                        |
|                               | 11n 40MHz   | 3,6,9  | SDM MCS8  | 1+2 | -                                                                        |

## 1.12 Parameters of Test Software Setting

The RF output power and its index setting in FW as below table

| Test Software Version |       |                           |                 | Mtool 2.0.1.0 |                       |                        |
|-----------------------|-------|---------------------------|-----------------|---------------|-----------------------|------------------------|
| Worst Modulation Mode |       | Number of Transmit Chains | Data Rate / MCS | Channel       | Power Setting (Index) | Conducted output Power |
| 11b                   | DBPSK | 1                         | 1Mbps           | 1             | 90                    | 22.76                  |
|                       |       |                           |                 | 6             | 91                    | 22.92                  |
|                       |       |                           |                 | 11            | 89                    | 22.47                  |
| 11b                   | DBPSK | 2                         | 1Mbps           | 1             | 90                    | 23.21                  |
|                       |       |                           |                 | 6             | 91                    | 23.34                  |
|                       |       |                           |                 | 11            | 89                    | 22.75                  |
| 11g                   | BPSK  | 1                         | 6Mbps           | 1             | 77                    | 19.42                  |
|                       |       |                           |                 | 6             | 87                    | 21.53                  |
|                       |       |                           |                 | 11            | 78                    | 19.34                  |
| 11g                   | BPSK  | 2                         | 6Mbps           | 1             | 77                    | 19.76                  |
|                       |       |                           |                 | 6             | 87                    | 21.87                  |
|                       |       |                           |                 | 11            | 78                    | 19.47                  |
| 11g                   | BPSK  | 1+2                       | CDD 6Mbps       | 1             | 76                    | 22.44                  |
|                       |       |                           |                 | 6             | 87                    | 24.87                  |
|                       |       |                           |                 | 11            | 76                    | 21.86                  |
| 11n 20MHz             | BPSK  | 1                         | MCS0            | 1             | 77                    | 19.57                  |
|                       |       |                           |                 | 6             | 87                    | 21.73                  |
|                       |       |                           |                 | 11            | 78                    | 19.56                  |
| 11n 20MHz             | BPSK  | 2                         | MCS0            | 1             | 77                    | 19.95                  |
|                       |       |                           |                 | 6             | 87                    | 22.05                  |
|                       |       |                           |                 | 11            | 78                    | 19.68                  |
| 11n 20MHz             | BPSK  | 1+2                       | CDD MCS0        | 1             | 76                    | 22.60                  |
|                       |       |                           |                 | 6             | 87                    | 24.89                  |
|                       |       |                           |                 | 11            | 76                    | 22.02                  |
| 11n 20MHz             | BPSK  | 1+2                       | SDM MCS8        | 1             | 76                    | 22.44                  |
|                       |       |                           |                 | 6             | 87                    | 24.81                  |
|                       |       |                           |                 | 11            | 76                    | 21.91                  |
| 11n 40MHz             | BPSK  | 1                         | MCS0            | 3             | 72                    | 17.89                  |
|                       |       |                           |                 | 6             | 80                    | 19.71                  |
|                       |       |                           |                 | 9             | 74                    | 18.26                  |
| 11n 40MHz             | BPSK  | 2                         | MCS0            | 3             | 72                    | 18.03                  |
|                       |       |                           |                 | 6             | 80                    | 20.01                  |
|                       |       |                           |                 | 9             | 74                    | 18.32                  |
| 11n 40MHz             | BPSK  | 1+2                       | CDD MCS0        | 3             | 63                    | 18.65                  |
|                       |       |                           |                 | 6             | 75                    | 21.63                  |
|                       |       |                           |                 | 9             | 67                    | 19.51                  |
| 11n 40MHz             | BPSK  | 1+2                       | SDM MCS8        | 3             | 63                    | 18.42                  |
|                       |       |                           |                 | 6             | 75                    | 21.63                  |
|                       |       |                           |                 | 9             | 67                    | 19.55                  |

**1.13 EUT Operation during Test**

During the test, "Mtool 2.0.1.0" under WIN XP was executed the test program to control the EUT continuously transmit/receive RF signal.

**1.14 Support Equipment**

**For Conducted Emissions and Radiated Emissions (Below 1GHz) Test:**

| Support Equipment |                          |            |            |        |
|-------------------|--------------------------|------------|------------|--------|
| No.               | Equipment                | Brand Name | Model Name | FCC ID |
| 1                 | NB*4                     | DELL       | E6430      | DoC    |
| 2                 | OLT<br>(Terminal System) | HUAWEI     | MA5600T    | DoC    |
| 3                 | Phone*2                  | H-T-T      | F-689      | N/A    |
| 4                 | Flash Disk*2             | Silicon    | I-Series   | DoC    |

**For Radiated Emissions (Above 1GHz) Test :**

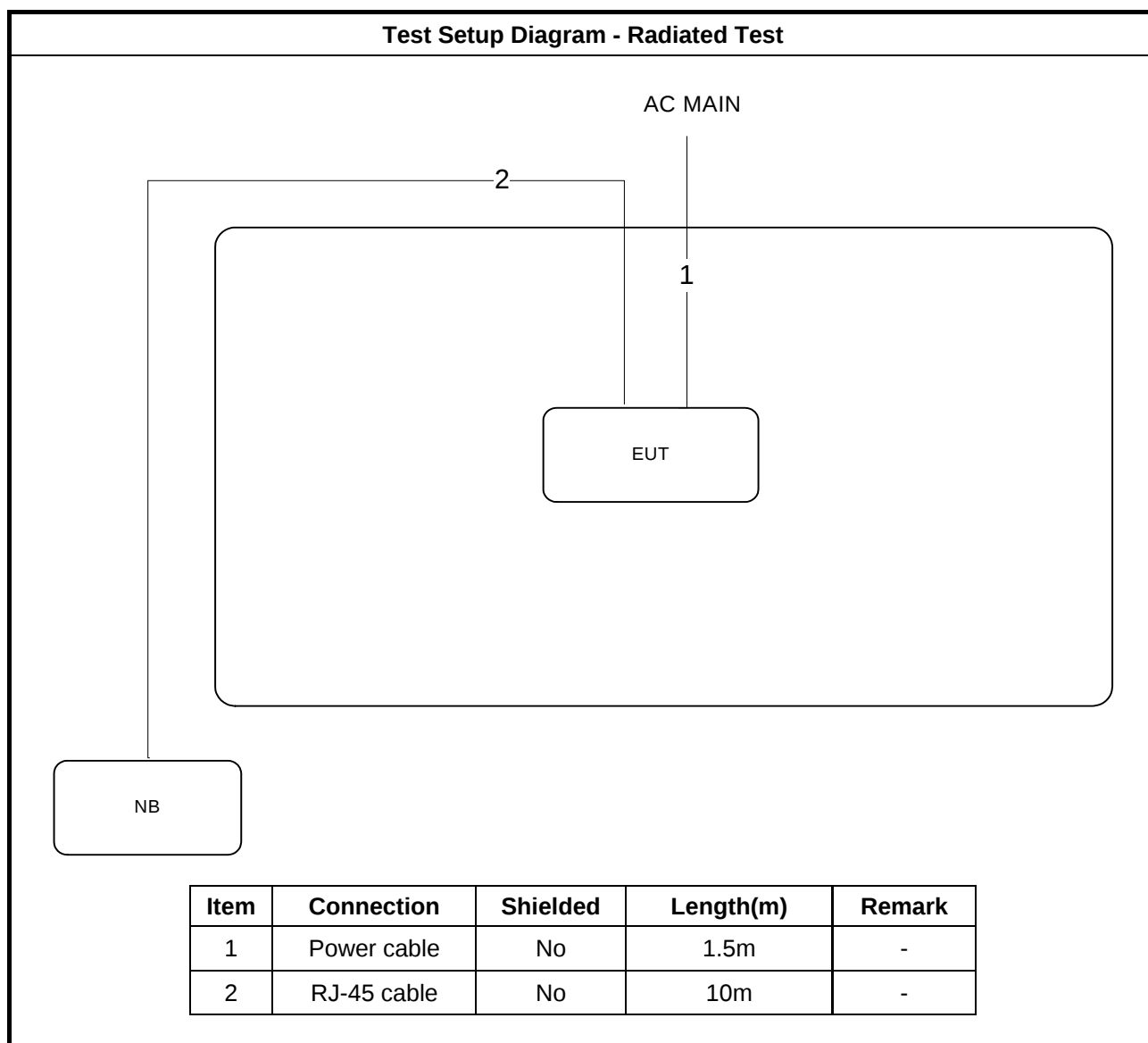
| Support Equipment |           |            |            |        |
|-------------------|-----------|------------|------------|--------|
| No.               | Equipment | Brand Name | Model Name | FCC ID |
| 1                 | NB        | DELL       | E6430      | DoC    |
| 2                 | Adapter   | AcBel      | WAC011     | N/A    |

**For RF Conducted Test:**

| Support Equipment |           |            |            |        |
|-------------------|-----------|------------|------------|--------|
| No.               | Equipment | Brand Name | Model Name | FCC ID |
| 1                 | NB        | DELL       | E6430      | DoC    |
| 2                 | Adapter   | AcBel      | WAC011     | N/A    |

**1.15 Testing Location Information**

| Testing Location                    |        |                                                                                                                               |
|-------------------------------------|--------|-------------------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/>            | HWA YA | ADD : No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.<br>TEL : 886-3-327-3456 FAX : 886-3-327-0973   |
| <input checked="" type="checkbox"/> | JHUBEI | ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C.<br>TEL : 886-3-656-9065 FAX : 886-3-656-9085 |
| Test Condition                      |        | Test Site No.                                                                                                                 |
| Conducted Emissions                 |        | CO01-CB                                                                                                                       |
| RF Conducted                        |        | TH01-CB                                                                                                                       |
| Radiated Emission                   |        | 03CH01-CB                                                                                                                     |

**1.16 Test Setup Diagram**


## 2 Test Results

### 2.1 AC Power Line Conducted Emissions Measurement

#### 2.1.1 Limit

For this product which is designed to be connected to the AC power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed below limits table.

| Frequency of Emission (MHz) | Quasi-Peak Limit (dBuV) | Average Limit (dBuV) |
|-----------------------------|-------------------------|----------------------|
| 0.15~0.5                    | 66~56                   | 56~46                |
| 0.5~5                       | 56                      | 46                   |
| 5~30                        | 60                      | 50                   |

#### 2.1.2 Measuring Instruments

Please refer to this test plan section 3 of equipment list in this report.

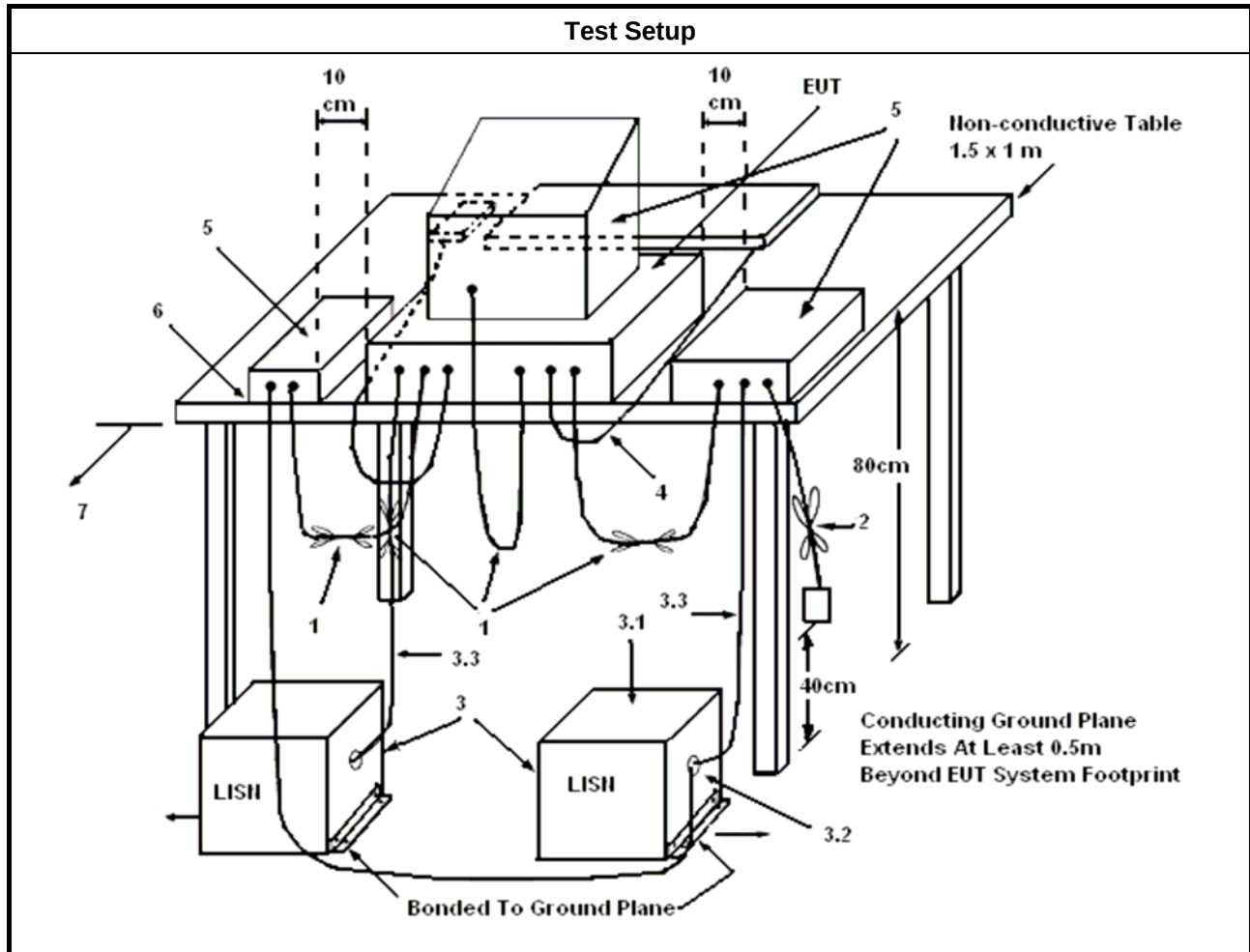
#### 2.1.3 Test method

1. The following table is the setting of the receiver.

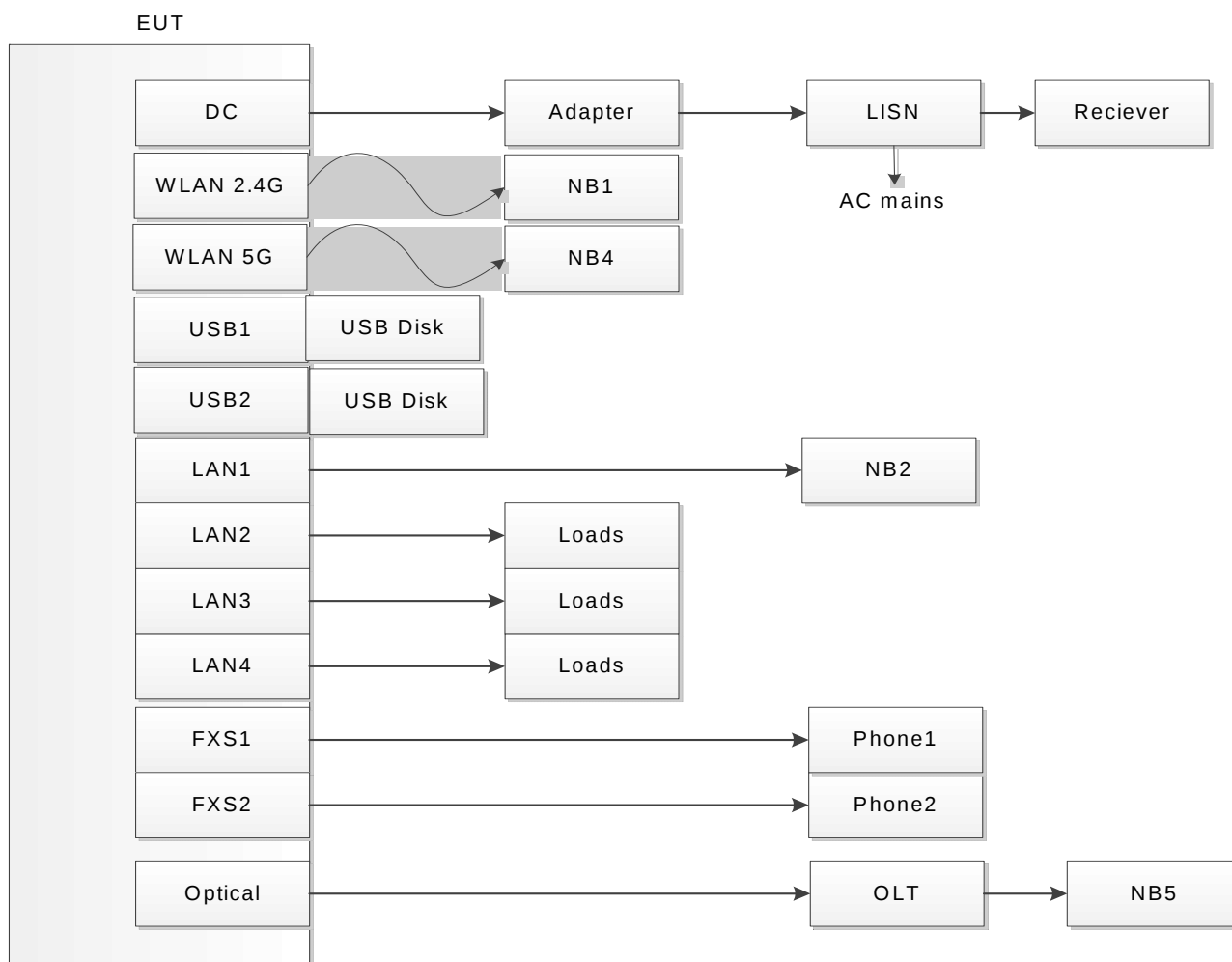
| Receiver Parameters | Setting  |
|---------------------|----------|
| Attenuation         | 10 dB    |
| Start Frequency     | 0.15 MHz |
| Stop Frequency      | 30 MHz   |
| IF Bandwidth        | 9 kHz    |

- Configure the EUT according to ANSI C63.10. The EUT or host of EUT has to be placed 0.4 meter far from the conducting wall of the shielding room and at least 80 centimeters from any other grounded conducting surface.
- Connect EUT or host of EUT to the power mains through a line impedance stabilization network (LISN).
- All the support units are connected to the other LISNs. The LISN should provide 50uH/50ohms coupling impedance.
- The frequency range from 150 kHz to 30 MHz was searched.
- Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- The measurement has to be done between each power line and ground at the power terminal.

## 2.1.4 Test Setup



1. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
2. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
3. EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50  $\Omega$ . LISN can be placed on top of, or immediately beneath, reference ground plane.
  - 3.1 All other equipment powered from additional LISN(s).
  - 3.2 Multiple outlet strip can be used for multiple power cords of non-EUT equipment.
  - 3.3 LISN at least 80 cm from nearest part of EUT chassis.
4. Cables of hand-operated devices, such as keyboards, mice, etc., shall be placed as for normal use.
5. Non-EUT components of EUT system being tested.
6. Rear of EUT, including peripherals, shall all be aligned and flush with rear of tabletop.  
Rear of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane.



### Connection

| Interface | Connection      | Operation                                                                    |
|-----------|-----------------|------------------------------------------------------------------------------|
| DC        | power adapter   | Set output of AC Power Source to 120V/60Hz.                                  |
| WLAN      | NoteBook1 (NB1) | Link at 802.11n HT40 MCS15 mode with NB1 to NB2 traffic 30Mbps by IxChariot. |
| USB1-2    | USB disk        | Run FTP test.                                                                |
| LAN1      | NoteBook2 (NB2) | Link at 1000Mbps mode and the traffic 30Mbps by IxChariot.                   |
| LAN2-4    | Loads           | N/A (connect to 100Ω resistive loading)                                      |
| FXS1-2    | Phone1 & 2      | Establish a connection between two phones, off-hook                          |
| GPON      | COE GPON        | NB3 Link and the total traffic 90Mbps to NB2.                                |

### 2.1.5 Test Deviation

There is no deviation with the original standard.

### 2.1.6 EUT Operation during Test

The EUT was placed on the test table and programmed in normal function.

### 2.1.7 Test Results



# FCC RADIO TEST REPORT

Report No. : FR402168-02AA

|               |                       |          |     |
|---------------|-----------------------|----------|-----|
| Temperature   | 23°C                  | Humidity | 54% |
| Test Engineer | Hank Yang, Gavin Peng |          |     |

Test Phase

Line

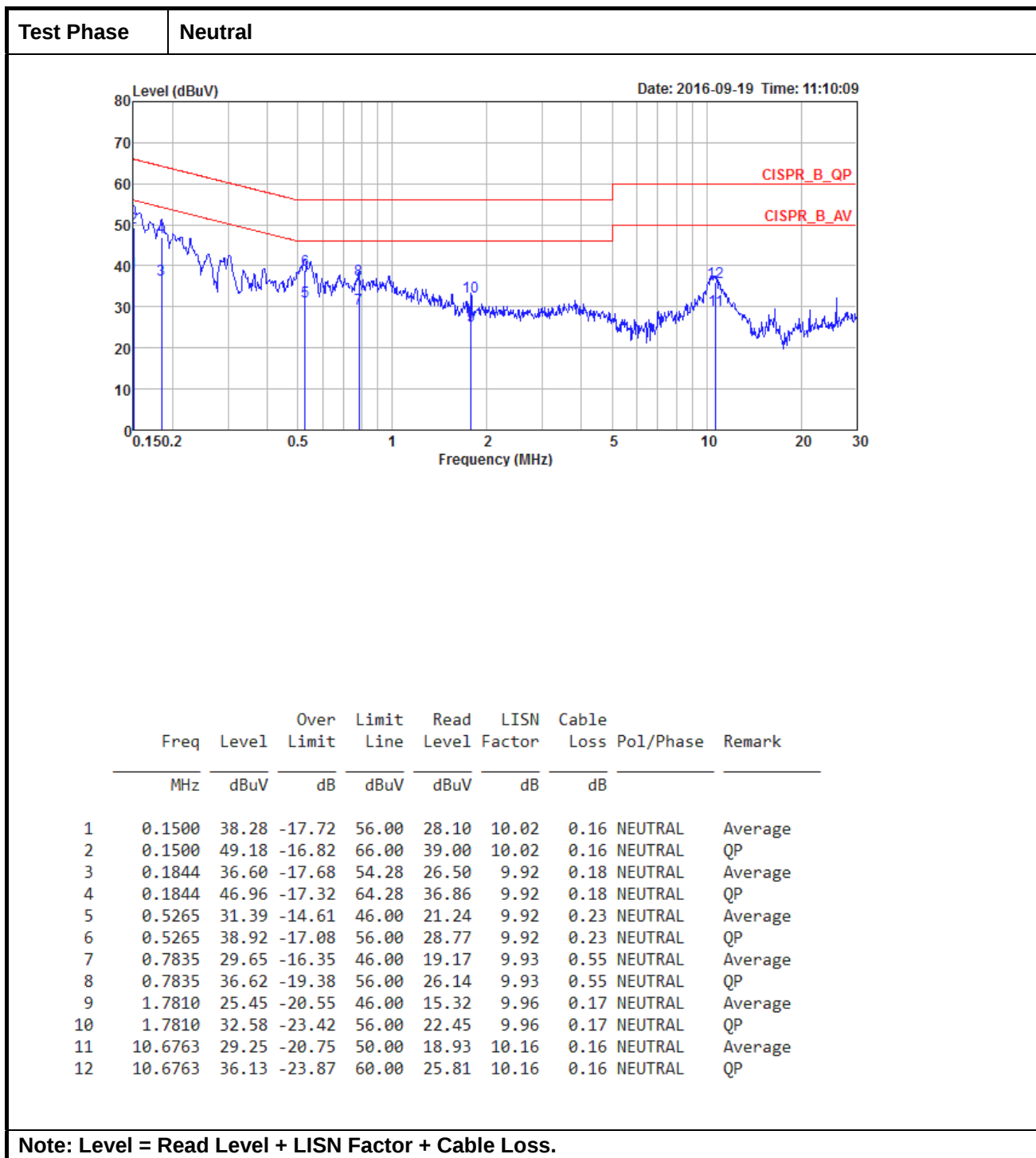
Level (dBuV)

Date: 2016-09-19 Time: 11:07:04

|    | Freq    | Level | Over Limit | Limit Line | Read Level | LISN Factor | Cable Loss | Pol/Phase | Remark  |
|----|---------|-------|------------|------------|------------|-------------|------------|-----------|---------|
|    | MHz     | dBuV  | dB         | dBuV       | dBuV       | dB          | dB         |           |         |
| 1  | 0.1548  | 39.76 | -15.98     | 55.74      | 29.58      | 10.02       | 0.16       | LINE      | Average |
| 2  | 0.1548  | 51.89 | -13.85     | 65.74      | 41.71      | 10.02       | 0.16       | LINE      | QP      |
| 3  | 0.3035  | 34.09 | -16.06     | 50.15      | 24.09      | 9.92        | 0.08       | LINE      | Average |
| 4  | 0.3035  | 42.85 | -17.30     | 60.15      | 32.85      | 9.92        | 0.08       | LINE      | QP      |
| 5  | 0.5128  | 31.20 | -14.80     | 46.00      | 21.08      | 9.92        | 0.20       | LINE      | Average |
| 6  | 0.5128  | 38.63 | -17.37     | 56.00      | 28.51      | 9.92        | 0.20       | LINE      | QP      |
| 7  | 0.7752  | 30.24 | -15.76     | 46.00      | 19.78      | 9.93        | 0.53       | LINE      | Average |
| 8  | 0.7752  | 37.04 | -18.96     | 56.00      | 26.58      | 9.93        | 0.53       | LINE      | QP      |
| 9  | 2.0879  | 24.94 | -21.06     | 46.00      | 14.92      | 9.96        | 0.06       | LINE      | Average |
| 10 | 2.0879  | 29.90 | -26.10     | 56.00      | 19.88      | 9.96        | 0.06       | LINE      | QP      |
| 11 | 10.6763 | 30.75 | -19.25     | 50.00      | 20.43      | 10.16       | 0.16       | LINE      | Average |
| 12 | 10.6763 | 36.72 | -23.28     | 60.00      | 26.40      | 10.16       | 0.16       | LINE      | QP      |

Note: Level = Read Level + LISN Factor + Cable Loss.

Note: Level = Read Level + LISN Factor + Cable Loss.



## 2.2 Maximum Conducted Output Power Measurement

### 2.2.1 Limit

For systems using digital modulation in the 2400-2483.5MHz, the limit for output power is 30dBm. The limited has to be reduced by the amount in dB that the gain of the antenna exceed 6dBi. For of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

### 2.2.2 Measuring Instruments

Please refer to this test plan section 3 of equipment list in this report.

### 2.2.3 Test method

1. The following table is the setting of the power meter.

| Power Meter Parameter | Setting |
|-----------------------|---------|
| Detector              | Average |

2. Test procedures refer KDB558074 D01 v03r05 section 9.2.3.2 Measurement using a power meter (PM).
3. The transmitter output (antenna port) was connected to Spectrum,
4. Measure duty cycle and record each antenna port results
5. The transmitter output (antenna port) was connected to the power meter.
6. Turn on the wideband RF Power meter's gate function. (The measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.)
7. Multiple antenna systems was performed in accordance with KDB 662911 D01 v02r01 Emissions Testing of Transmitters with Multiple Outputs in the Same Band.
8. When measuring maximum conducted output power with multiple antenna system, add every result of the values by mathematic formula example as below.
9. Total Conducted Output Power =  $10\log[(\text{Chain1(m W)} + \text{chain2(m W)})]$

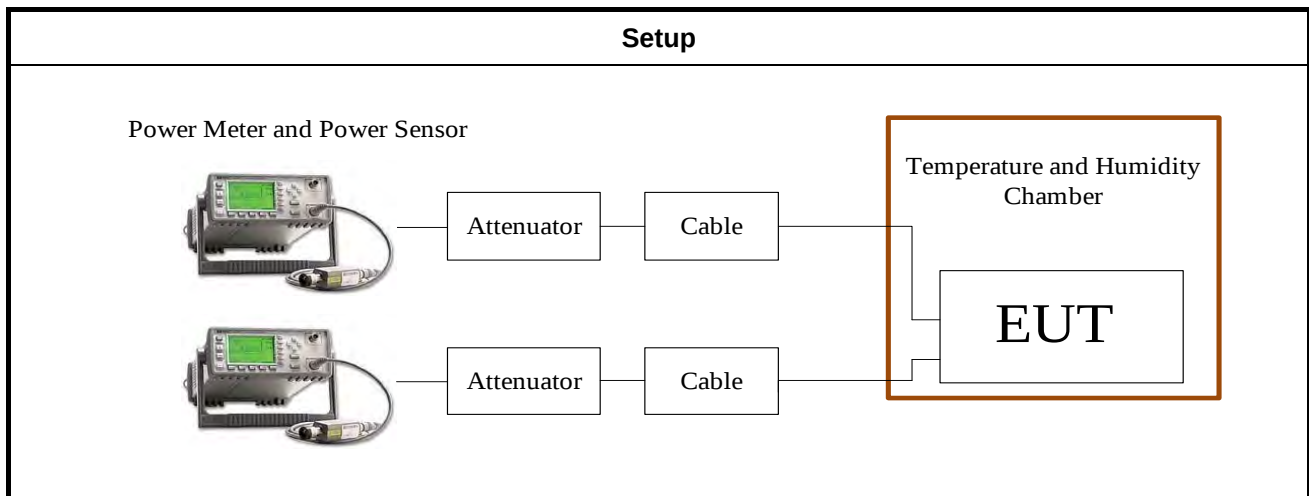
Example :

Chain 1 max conducted Power = 7.23dBm ; (5.284mW)

Chain 2 max conducted Power = 8.12dBm ; (6.486mW)

Total Conducted Power =  $10\log(5.284\text{mW} + 6.486\text{mW}) = 11.51\text{dBm}$

## 2.2.4 Test Setup



## 2.2.5 Test Deviation

There is no deviation with the original standard.

## 2.2.6 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode using Mtool 2.0.1.0(refer to APPENDIX C. List of test command).

**2.2.7 Test Results**

|               |           |           |               |
|---------------|-----------|-----------|---------------|
| Temperature   | 26°C      | Humidity  | 63%           |
| Test Engineer | Jim Huang | Test Date | Oct. 27, 2014 |

**Configuration IEEE 802.11b 1Mbps / Chain 1**

| Channel | Frequency (MHz) | Duty Cycle (%) | Conducted Power (dBm) | Max. Limit (dBm) | Result   |
|---------|-----------------|----------------|-----------------------|------------------|----------|
| 1       | 2412            | 100.00%        | 22.76                 | 30               | Complies |
| 6       | 2437            | 100.00%        | 22.92                 | 30               | Complies |
| 11      | 2462            | 100.00%        | 22.47                 | 30               | Complies |

**Configuration IEEE 802.11b 1Mbps / Chain 2**

| Channel | Frequency (MHz) | Duty Cycle (%) | Conducted Power (dBm) | Max. Limit (dBm) | Result   |
|---------|-----------------|----------------|-----------------------|------------------|----------|
| 1       | 2412            | 100.00%        | 23.21                 | 30               | Complies |
| 6       | 2437            | 100.00%        | 23.34                 | 30               | Complies |
| 11      | 2462            | 100.00%        | 22.75                 | 30               | Complies |

**Configuration IEEE 802.11g 6Mbps / Chain 1**

| Channel | Frequency (MHz) | Duty Cycle (%) | Conducted Power (dBm) | Max. Limit (dBm) | Result   |
|---------|-----------------|----------------|-----------------------|------------------|----------|
| 1       | 2412            | 98.85%         | 19.42                 | 30               | Complies |
| 6       | 2437            | 98.85%         | 21.53                 | 30               | Complies |
| 11      | 2462            | 98.85%         | 19.34                 | 30               | Complies |

**Configuration IEEE 802.11g 6Mbps / Chain 2**

| Channel | Frequency (MHz) | Duty Cycle (%) | Conducted Power (dBm) | Max. Limit (dBm) | Result   |
|---------|-----------------|----------------|-----------------------|------------------|----------|
| 1       | 2412            | 99.28%         | 19.76                 | 30               | Complies |
| 6       | 2437            | 99.28%         | 21.87                 | 30               | Complies |
| 11      | 2462            | 99.28%         | 19.47                 | 30               | Complies |

**Configuration IEEE 802.11g / CDD 6Mbps / Chain 1 + Chain 2**

| Channel                                                                                                      | Frequency (MHz) | Duty Cycle (%) | Conducted Power (dBm) |         | Total Conducted Power (dBm) | Max. Limit (dBm) | Result   |
|--------------------------------------------------------------------------------------------------------------|-----------------|----------------|-----------------------|---------|-----------------------------|------------------|----------|
|                                                                                                              |                 |                | Chain 1               | Chain 2 |                             |                  |          |
| 1                                                                                                            | 2412            | 99.28%         | 19.41                 | 19.45   | 22.44                       | 30               | Complies |
| 6                                                                                                            | 2437            | 99.28%         | 21.63                 | 22.08   | 24.87                       | 30               | Complies |
| 11                                                                                                           | 2462            | 99.28%         | 18.87                 | 18.82   | 21.86                       | 30               | Complies |
| Note: Total Conducted Output Power = Conducted Output Power [TX 1(unit in W) + TX 2(unit in W)](unit in dBm) |                 |                |                       |         |                             |                  |          |

**Configuration IEEE 802.11n 20MHz / MCS0 / Chain 1**

| Channel | Frequency (MHz) | Duty Cycle (%) | Conducted Power (dBm) | Max. Limit (dBm) | Result   |
|---------|-----------------|----------------|-----------------------|------------------|----------|
| 1       | 2412            | 98.60%         | 19.57                 | 30               | Complies |
| 6       | 2437            | 98.60%         | 21.73                 | 30               | Complies |
| 11      | 2462            | 98.60%         | 19.56                 | 30               | Complies |

**Configuration IEEE 802.11n 20MHz / MCS0 / Chain 2**

| Channel | Frequency (MHz) | Duty Cycle | Conducted Power (dBm) | Max. Limit (dBm) | Result   |
|---------|-----------------|------------|-----------------------|------------------|----------|
| 1       | 2412            | 99.23%     | 19.95                 | 30               | Complies |
| 6       | 2437            | 99.23%     | 22.05                 | 30               | Complies |
| 11      | 2462            | 99.23%     | 19.68                 | 30               | Complies |

**Configuration IEEE 802.11n 20MHz / CDD MCS0 / Chain 1 + Chain 2**

| Channel                                                                                                       | Frequency (MHz) | Duty Cycle (%) | Conducted Power(dBm) |         | Total Conducted Power (dBm) | Max. Limit (dBm) | Result   |
|---------------------------------------------------------------------------------------------------------------|-----------------|----------------|----------------------|---------|-----------------------------|------------------|----------|
|                                                                                                               |                 |                | Chain 1              | Chain 2 |                             |                  |          |
| 1                                                                                                             | 2412            | 98.85%         | 19.35                | 19.82   | 22.60                       | 30               | Complies |
| 6                                                                                                             | 2437            | 98.85%         | 21.78                | 21.97   | 24.89                       | 30               | Complies |
| 11                                                                                                            | 2462            | 98.85%         | 18.75                | 19.26   | 22.02                       | 30               | Complies |
| Note: Total Conducted Output Power = Conducted Output Power [TX 1(unit in W) + TX 2(unit in W) ](unit in dBm) |                 |                |                      |         |                             |                  |          |



**Configuration IEEE 802.11n 20MHz / SDM MCS8 / Chain 1 + Chain 2**

| Channel                                                                                                      | Frequency (MHz) | Duty Cycle (%) | Conducted Power(dBm) |         | Total Conducted Power (dBm) | Max. Limit (dBm) | Result   |
|--------------------------------------------------------------------------------------------------------------|-----------------|----------------|----------------------|---------|-----------------------------|------------------|----------|
|                                                                                                              |                 |                | Chain 1              | Chain 2 |                             |                  |          |
| 1                                                                                                            | 2412            | 97.30%         | 19.33                | 19.52   | 22.44                       | 30               | Complies |
| 6                                                                                                            | 2437            | 97.30%         | 21.57                | 22.02   | 24.81                       | 30               | Complies |
| 11                                                                                                           | 2462            | 97.30%         | 18.72                | 19.07   | 21.91                       | 30               | Complies |
| Note: Total Conducted Output Power = Conducted Output Power [TX 1(unit in W) + TX 2(unit in W)](unit in dBm) |                 |                |                      |         |                             |                  |          |

**Configuration IEEE 802.11n 40MHz / MCS0 / Chain 1**

| Channel | Frequency (MHz) | Duty Cycle (%) | Conducted Power (dBm) | Max. Limit (dBm) | Result   |
|---------|-----------------|----------------|-----------------------|------------------|----------|
| 3       | 2422            | 98.40%         | 17.89                 | 30               | Complies |
| 6       | 2437            | 98.40%         | 19.71                 | 30               | Complies |
| 9       | 2452            | 98.40%         | 18.26                 | 30               | Complies |

**Configuration IEEE 802.11n 40MHz / MCS0 / Chain 2**

| Channel | Frequency (MHz) | Duty Cycle (%) | Conducted Power (dBm) | Max. Limit (dBm) | Result   |
|---------|-----------------|----------------|-----------------------|------------------|----------|
| 3       | 2422            | 97.20%         | 18.03                 | 30               | Complies |
| 6       | 2437            | 97.20%         | 20.01                 | 30               | Complies |
| 9       | 2452            | 97.20%         | 18.32                 | 30               | Complies |

**Configuration IEEE 802.11n 40MHz / CDD MCS0 / Chain 1 + Chain 2**

| Channel                                                                                                      | Frequency (MHz) | Duty Cycle (%) | Conducted Power(dBm) |         | Total Conducted Power (dBm) | Max. Limit (dBm) | Result   |
|--------------------------------------------------------------------------------------------------------------|-----------------|----------------|----------------------|---------|-----------------------------|------------------|----------|
|                                                                                                              |                 |                | Chain 1              | Chain 2 |                             |                  |          |
| 1                                                                                                            | 2412            | 97.58%         | 15.71                | 15.56   | 18.65                       | 30               | Complies |
| 6                                                                                                            | 2437            | 97.58%         | 18.47                | 18.76   | 21.63                       | 30               | Complies |
| 11                                                                                                           | 2462            | 97.58%         | 16.33                | 16.67   | 19.51                       | 30               | Complies |
| Note: Total Conducted Output Power = Conducted Output Power [TX 1(unit in W) + TX 2(unit in W)](unit in dBm) |                 |                |                      |         |                             |                  |          |

**Configuration IEEE 802.11n 40MHz / SDM MCS8 / Chain 1 + Chain 2**

| Channel                                                                                                      | Frequency (MHz) | Duty Cycle (%) | Conducted Power(dBm) |         | Total Conducted Power (dBm) | Max. Limit (dBm) | Result   |
|--------------------------------------------------------------------------------------------------------------|-----------------|----------------|----------------------|---------|-----------------------------|------------------|----------|
|                                                                                                              |                 |                | Chain 1              | Chain 2 |                             |                  |          |
| 3                                                                                                            | 2422            | 95.41%         | 15.46                | 15.35   | 18.42                       | 30               | Complies |
| 6                                                                                                            | 2437            | 95.41%         | 18.26                | 18.96   | 21.63                       | 30               | Complies |
| 9                                                                                                            | 2452            | 95.41%         | 16.43                | 16.64   | 19.55                       | 30               | Complies |
| Note: Total Conducted Output Power = Conducted Output Power [TX 1(unit in W) + TX 2(unit in W)](unit in dBm) |                 |                |                      |         |                             |                  |          |

Note:

CDD directional Gain calculation formula as below:

$$\text{Directional Gain} = 10 \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$$

where

Each antenna is driven by no more than one spatial stream:

$N_{SS}$  = the number of independent spatial streams of data;

$N_{ANT}$  = the total number of antennas

$g_{j,k} = \begin{cases} G_k & \text{if the } k\text{th antenna is being fed by spatial stream } j, \\ 0 & \text{if it is not;} \end{cases}$   
 $G_k$  is the gain in dBi of the  $k$ th antenna.

SDM directional Gain calculation formula as below:

If all transmit signals are completely uncorrelated, then

$$\text{Directional gain} = 10 \log[(10^{G_1/10} + 10^{G_2/10} + \dots + 10^{G_N/10})/N_{ANT}]_{\text{dBi}}$$

## 2.3 Power Spectral Density Measurement

### 2.3.1 Limit

For digitally modulated systems, the conductive measured power spectral density(PSD) shall not be greater than 8 dBm in any 3 kHz bandwidth during any time interval of continuous transmission.

### 2.3.2 Measuring Instruments

Please refer to this test plan section 3 of equipment list in this report.

### 2.3.3 Test method

1. The following table is the setting of the spectrum analyzer.

| Spectrum Parameter | Setting                                              |
|--------------------|------------------------------------------------------|
| Attenuation        | Auto                                                 |
| Span Frequency     | Set the span to 1.5 times the DTS channel bandwidth. |
| RBW                | Set the RBW $\geq 3$ kHz                             |
| VBW                | Set the VBW $\geq 3 \times$ RBW                      |
| Detector           | RMS                                                  |
| Trace              | Average sweep count 100                              |
| Sweep Time         | Auto couple                                          |

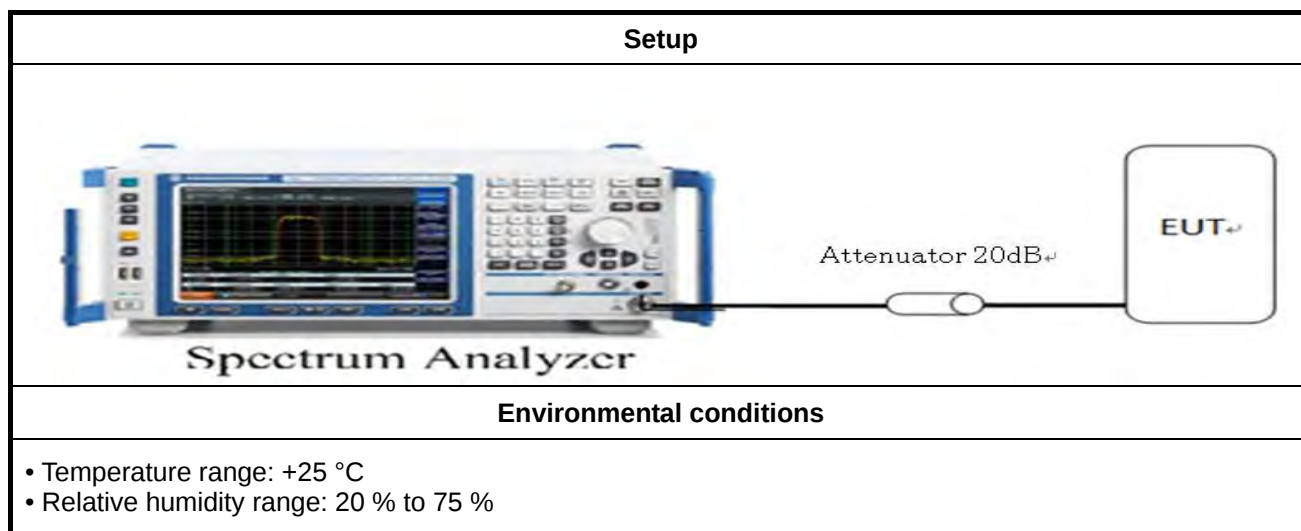
- Test was performed in accordance with KDB558074 D01 v03r05 for Performing Compliance Measurements on Digital Transmission Systems (DTS) - section 10.2 Method PKPSD (peak PSD) and KDB 662911 D01 v02r01 section In-Band Power Spectral Density (PSD) Measurements option (b) Measure and sum spectral maximal across the outputs.
- The transmitter output (antenna port) was connected to the spectrum analyzer.
- EUT parameters is set as maximum conducted power measurements. (refer to clause 1.12)
- Ensure that the number of measurement points in the sweep need  $\geq 2 \times \text{span/RBW}$
- Find the peak value of the trace and remark this peak point.
- Record the spectrum's power reading level.
- When measuring power spectral density with multiple antenna systems, add every result of the values by mathematic formula as below.

$$\text{Total PSD} = 10\log (\text{Chain1( mW / 3kHz)} + \text{Chain2( mW / 3kHz)})$$

Example: Chain 1 = -3.62dBm/3kHz ; Chain 2 = -4.52dBm/3kHz ;

$$\text{Total PSD} = 10 \log ( 0.435\text{mW} + 0.353\text{mW} ) = -1.034\text{dBm/3kHz}$$

### 2.3.4 Test Setup



### 2.3.5 Test Deviation

There is no deviation with the original standard.

### 2.3.6 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode using Mtool 2.0.1.0(refer to APPENDIX C. List of test command).



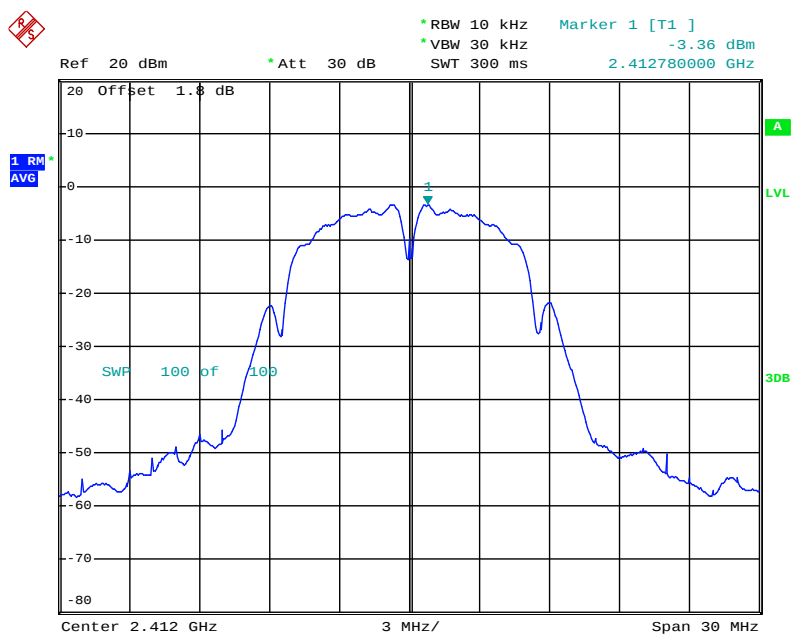
## 2.3.7 Test Results

|               |           |          |     |
|---------------|-----------|----------|-----|
| Temperature   | 26°C      | Humidity | 63% |
| Test Engineer | Jim Huang |          |     |

## Power Density Configuration IEEE 802.11b 1Mbps / Chain 2

| Channel | Frequency (MHz) | Power Density (dBm/10kHz) | Limit (8dBm/3kHz) | Result |
|---------|-----------------|---------------------------|-------------------|--------|
| 1       | 2412            | -3.36                     | 8                 | PASS   |
| 6       | 2437            | -3.42                     | 8                 | PASS   |
| 11      | 2462            | -4.24                     | 8                 | PASS   |

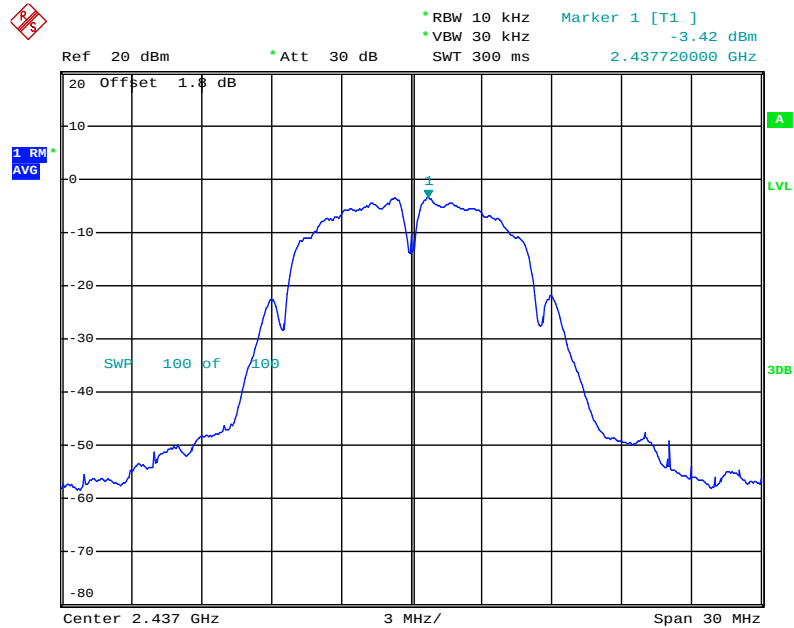
## Power Density Plot on Configuration IEEE 802.11b 1Mbps / Chain 2 / 2412 MHz



Date: 28.OCT.2014 09:09:58

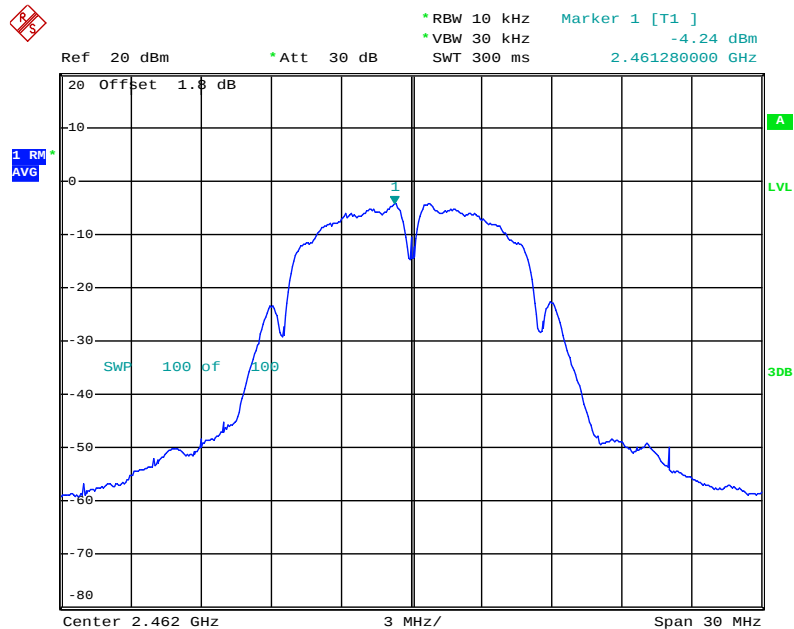


Power Density Plot on Configuration IEEE 802.11b 1Mbps / Chain 2 / 2437 MHz



Date: 28.OCT.2014 09:12:50

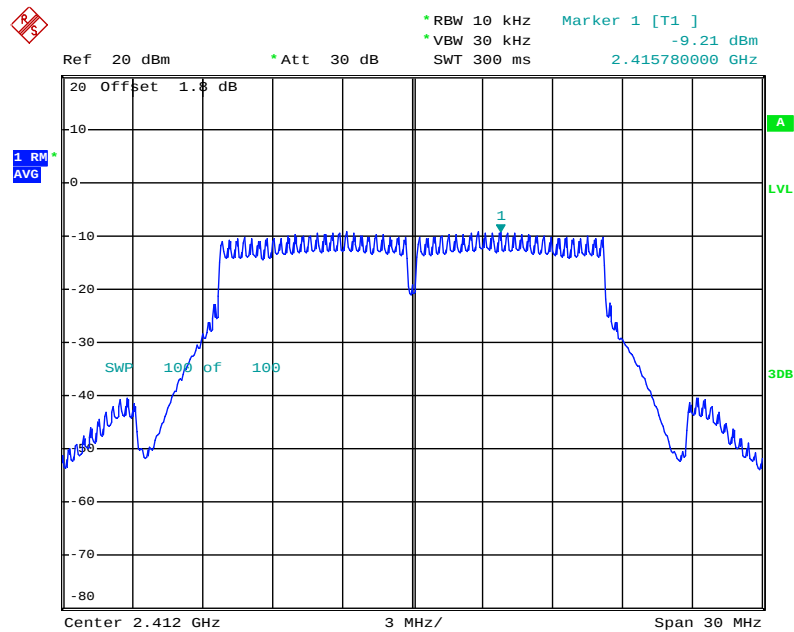
Power Density Plot on Configuration IEEE 802.11b 1Mbps / Chain 2 / 2462 MHz



Date: 28.OCT.2014 09:13:58

**Power Density Configuration IEEE 802.11g 6Mbps / Chain 2**

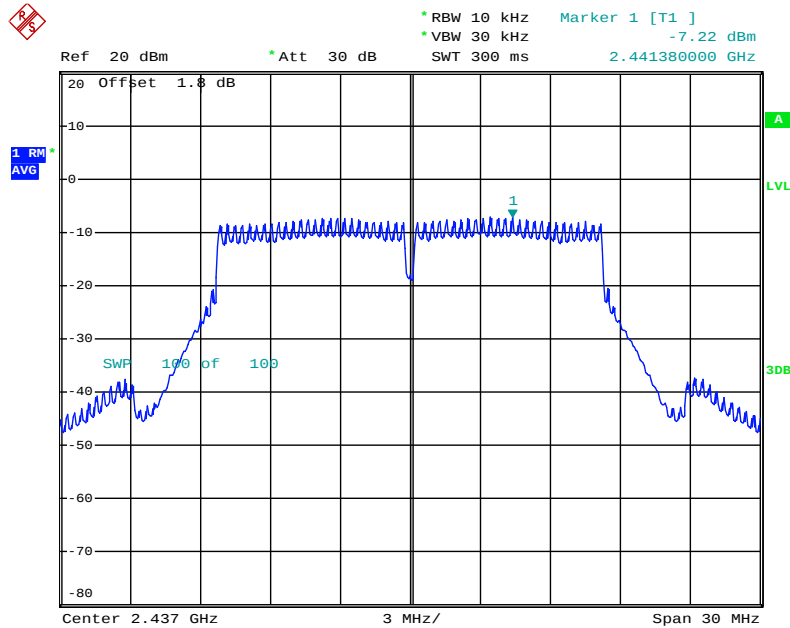
| Channel | Frequency<br>(MHz) | Power Density<br>(dBm/10kHz) | Limit<br>(8dBm/3kHz) | Result |
|---------|--------------------|------------------------------|----------------------|--------|
| 1       | 2412               | -9.21                        | 8                    | PASS   |
| 6       | 2437               | -7.22                        | 8                    | PASS   |
| 11      | 2462               | -9.72                        | 8                    | PASS   |

**Power Density Plot on Configuration IEEE 802.11g 6Mbps / Chain 2 / 2412 MHz**

Date: 28.OCT.2014 09:15:17

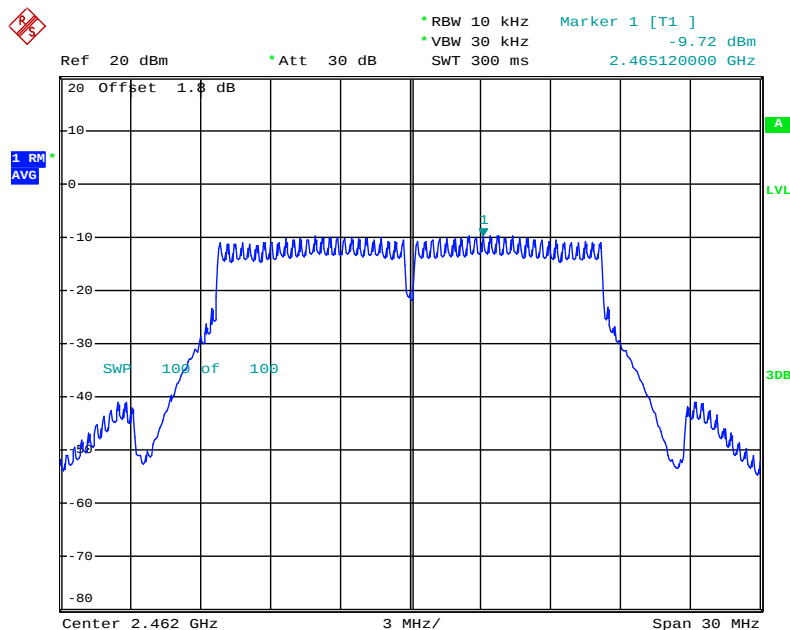


Power Density Plot on Configuration IEEE 802.11g 6Mbps / Chain 2 / 2437 MHz



Date: 28.OCT.2014 09:16:18

Power Density Plot on Configuration IEEE 802.11g 6Mbps / Chain 2 / 2462 MHz



Date: 28.OCT.2014 09:17:12

**Configuration IEEE 802.11g 6Mbps CDD / Chain 1 + Chain 2**

| Channel | Frequency (MHz) | Power Density (dBm/10kHz) | Power Density (dBm/10kHz) | Total Power Density (dBm/10kHz) | Limit (8dBm/3kHz) | Result |
|---------|-----------------|---------------------------|---------------------------|---------------------------------|-------------------|--------|
|         |                 | Chain 1                   | Chain 2                   |                                 |                   |        |
| 1       | 2412            | -10.11                    | -9.59                     | -6.83                           | 8                 | PASS   |
| 6       | 2437            | -7.68                     | -7.14                     | -4.39                           | 8                 | PASS   |
| 11      | 2462            | -10.34                    | -10.18                    | -7.25                           | 8                 | PASS   |

Note: For CDD refer to KDB 662911 F 2) d)

(ii) If PSD Directional Gain almost near to 6dBi can use below formula.

$$\text{Directional Gain} = 10 \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$$

$N_{SS}$  = the number of independent spatial streams of data;

$N_{ANT}$  = the total number of antennas

$g_{j,k} = \frac{G_k}{10^{G_k/10}}$  if the kth antenna is being fed by spatial stream j, or zero if it is not;

$G_k$  is the gain in dBi of the kth antenna.

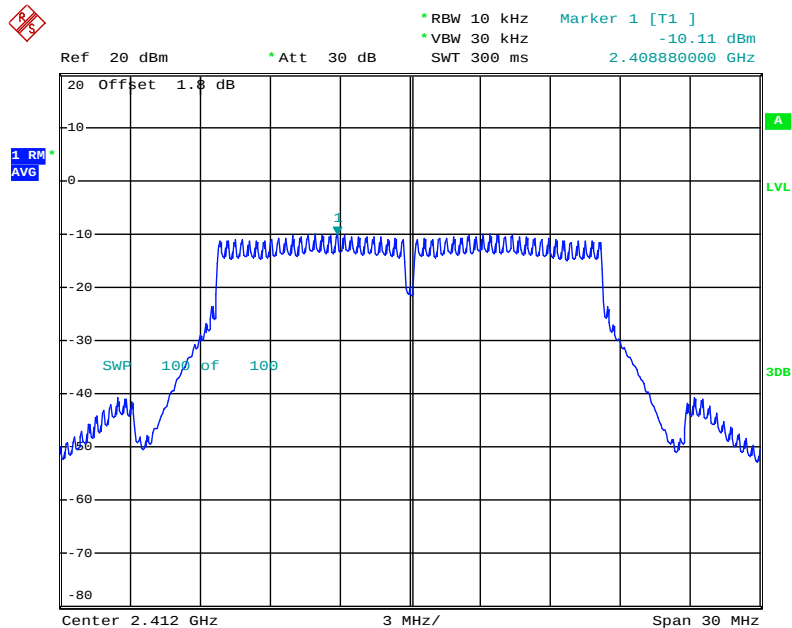
If Directional gain > 6dBi, the power spectrum density limit to be reduce.

Example:  $G_1 = 3.1\text{dBi}$  ;  $G_2 = 2.8\text{dBi}$

Use (ii) formula calculation Directional Gain =  $10 \log \frac{(1.38 + 1.4288)^2}{2} = 10 \log 3.95 = 5.96\text{dBi}$ .

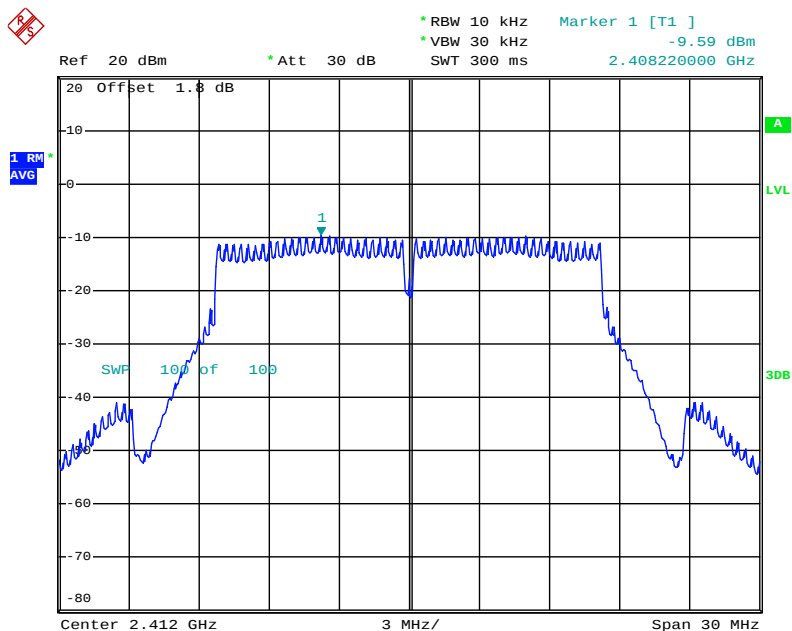


## Power Density Plot on Configuration IEEE 802.11g 6Mbps CDD / Chain 1 / 2412 MHz



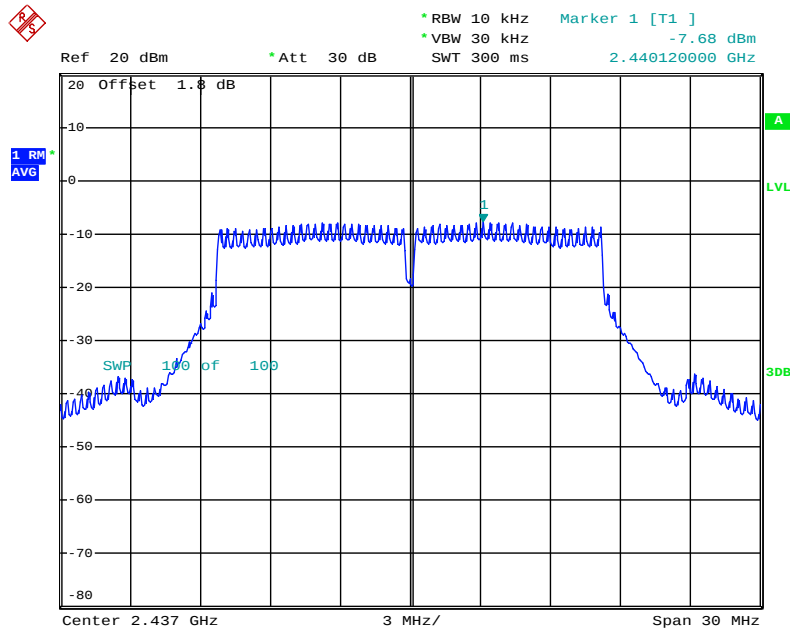
Date: 28.OCT.2014 10:07:51

## Power Density Plot on Configuration IEEE 802.11g 6Mbps CDD / Chain 2 / 2412 MHz



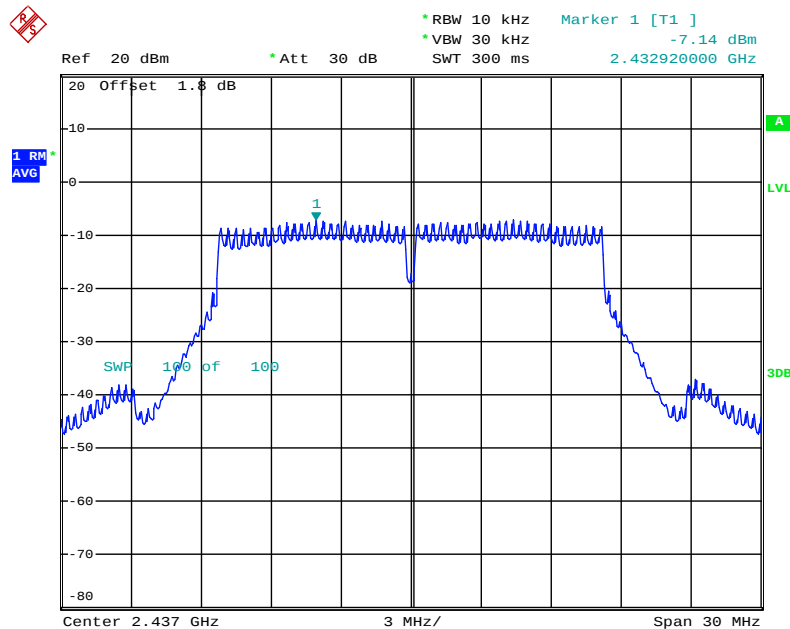
Date: 28.OCT.2014 10:09:01

## Power Density Plot on Configuration IEEE 802.11g 6Mbps CDD / Chain 1 / 2437 MHz



Date: 28.OCT.2014 10:11:06

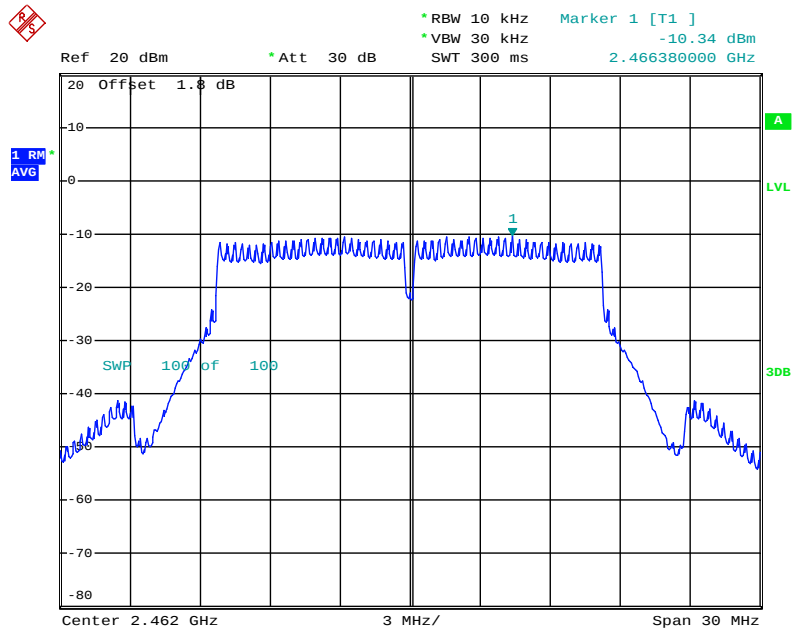
## Power Density Plot on Configuration IEEE 802.11g 6Mbps CDD / Chain 2 / 2437 MHz



Date: 28.OCT.2014 10:10:04

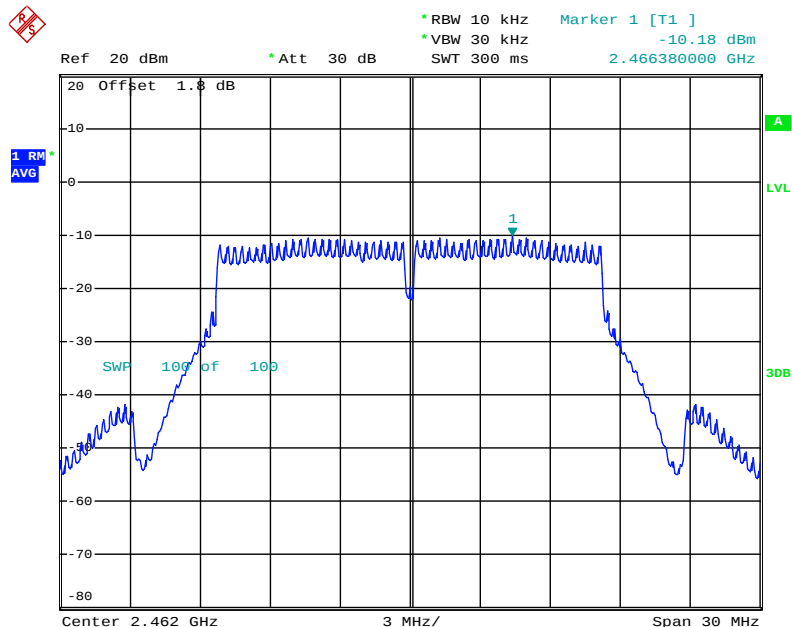


## Power Density Plot on Configuration IEEE 802.11g 6Mbps CDD / Chain 1 / 2462 MHz



Date: 28.OCT.2014 10:12:06

## Power Density Plot on Configuration IEEE 802.11g 6Mbps CDD / Chain 2 / 2462 MHz



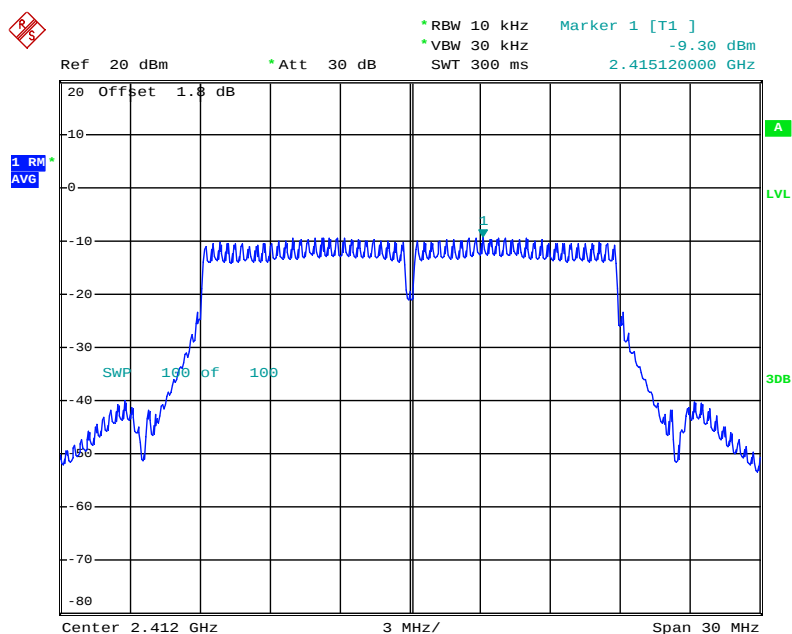
Date: 28.OCT.2014 10:13:07



Power Density Configuration IEEE 802.11n 20MHz / MCS0 / Chain 2

| Channel | Frequency (MHz) | Power Density (dBm/10kHz) | Limit (8dBm/3kHz) | Result |
|---------|-----------------|---------------------------|-------------------|--------|
| 1       | 2412            | -9.30                     | 8                 | PASS   |
| 6       | 2437            | -7.23                     | 8                 | PASS   |
| 11      | 2462            | -10.09                    | 8                 | PASS   |

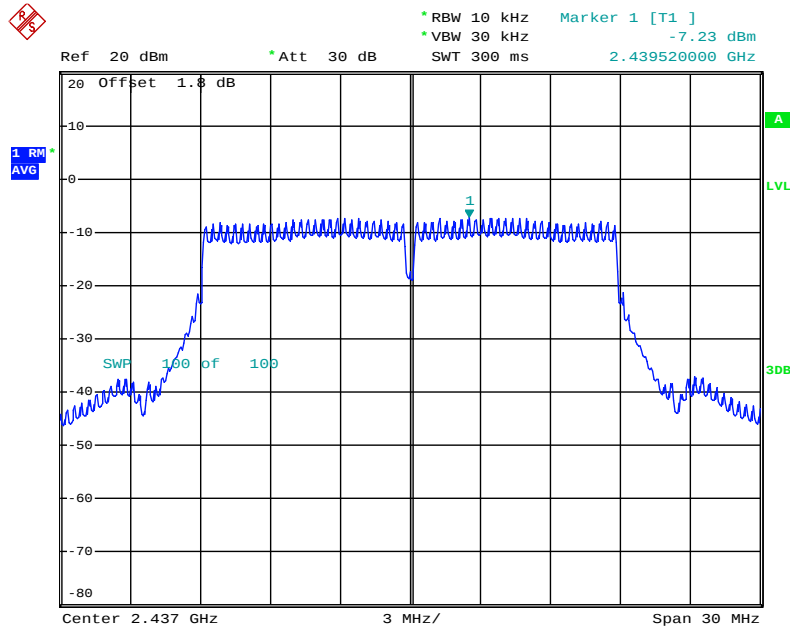
Power Density Plot on Configuration IEEE 802.11n 20MHz / MCS0 / Chain 2 / 2412 MHz



Date: 28.OCT.2014 09:18:28

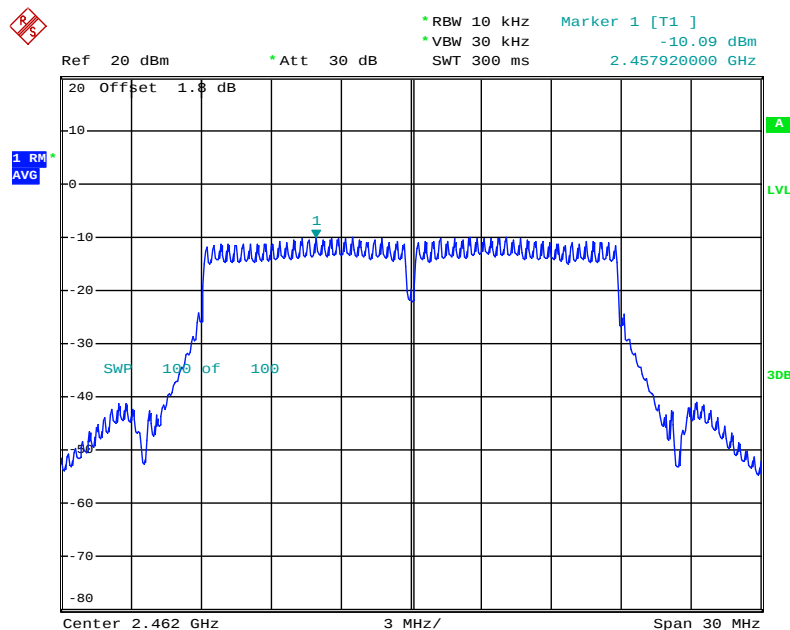


Power Density Plot on Configuration IEEE 802.11n 20MHz / MCS0 / Chain 2 / 2437 MHz



Date: 28.OCT.2014 09:19:26

Power Density Plot on Configuration IEEE 802.11n 20MHz / MCS0 / Chain 2 / 2462 MHz



Date: 28.OCT.2014 09:20:41

**Power Density Configuration IEEE 802.11n 20MHz / CDD MCS0 / Chain 1 + Chain 2**

| Channel | Frequency<br>(MHz) | Power<br>Density<br>(dBm/10kHz) | Power<br>Density<br>(dBm/10kHz) | Total<br>Power<br>Density<br>(dBm/10kHz) | Limit<br>(8dBm/3kHz) | Result |
|---------|--------------------|---------------------------------|---------------------------------|------------------------------------------|----------------------|--------|
|         |                    | Chain 1                         | Chain 2                         |                                          |                      |        |
| 1       | 2412               | -10.40                          | -9.56                           | -6.95                                    | 8                    | PASS   |
| 6       | 2437               | -7.81                           | -7.30                           | -4.54                                    | 8                    | PASS   |
| 11      | 2462               | -10.73                          | -10.34                          | -7.52                                    | 8                    | PASS   |

Note: Note 1: Refer to KDB 662911 F 2) d)

(ii) If PSD Directional Gain almost near to 6dBi can use below formula.

$$\text{Directional Gain} = 10 \log \left[ \frac{\sum_{j=1}^{N_{ss}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$$

N SS = the number of independent spatial streams of data; N ANT = the total number of antennas

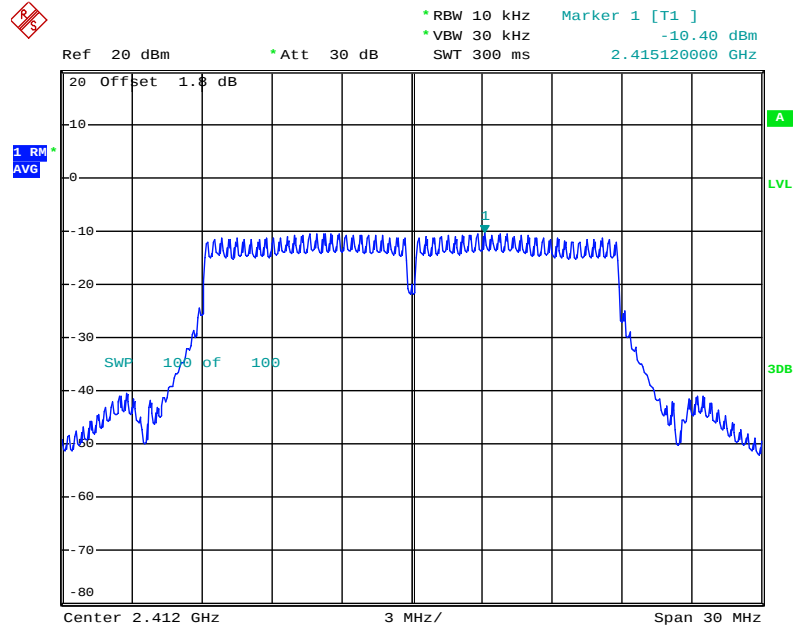
$g_{j,k} = \frac{G_k}{10^{\frac{6}{10}}}$  if the kth antenna is being fed by spatial stream j, or zero if it is not; G k is the gain in dBi of the kth antenna. If Directional gain > 6dBi, the power spectrum density limit to be reduce.

Example: G1 = 3.1dBi ; G2 = 2.8dBi

$$\text{Use (ii) formula calculation Directional Gain} = 10 \log \frac{(1.38 + 1.4288)^2}{2} = 10 \log 3.95 = 5.96 \text{dBi.}$$

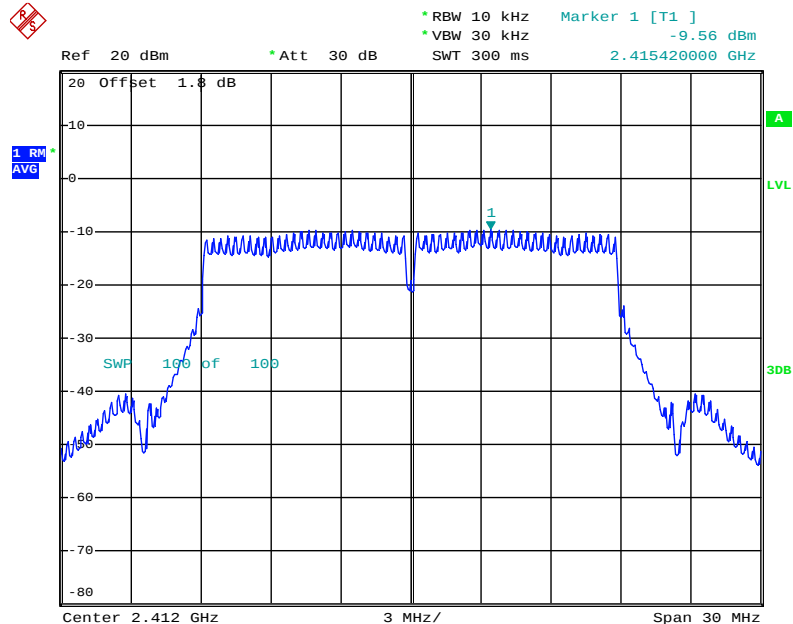


Power Density Plot on Configuration IEEE 802.11n 20MHz / CDD MCS0 / Chain 1 / 2412 MHz



Date: 28.OCT.2014 10:16:55

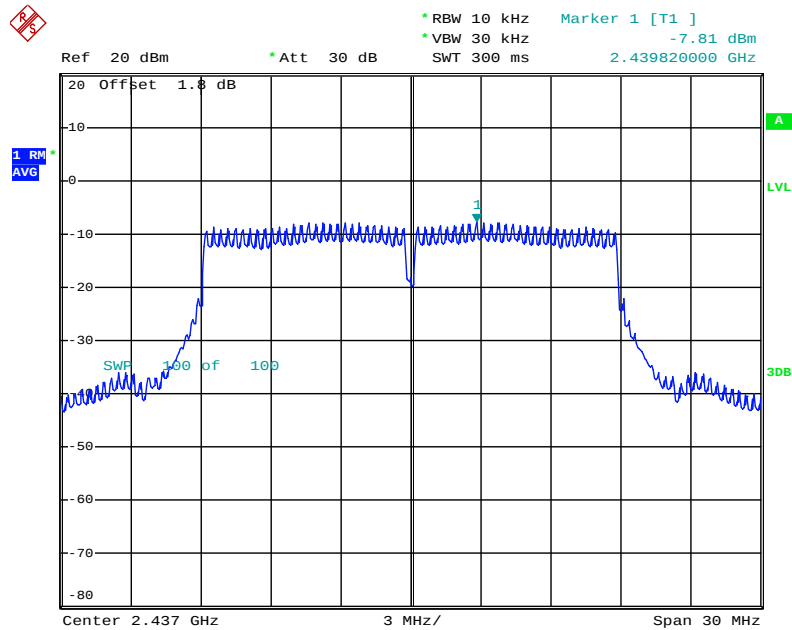
Power Density Plot on Configuration IEEE 802.11n 20MHz / CDD MCS0 / Chain 2 / 2412 MHz



Date: 28.OCT.2014 10:15:50

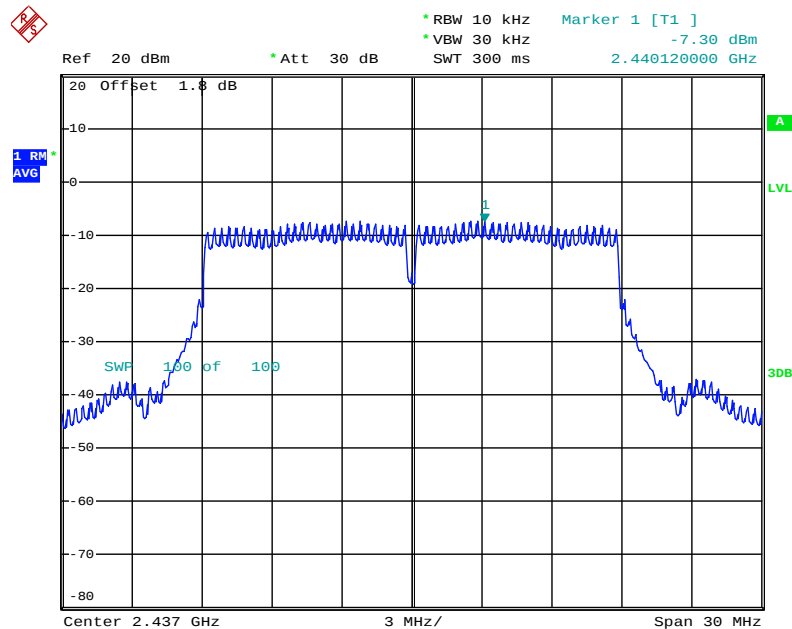


Power Density Plot on Configuration IEEE 802.11n 20MHz / CDD MCS0 / Chain 1 / 2437 MHz



Date: 28.OCT.2014 10:17:54

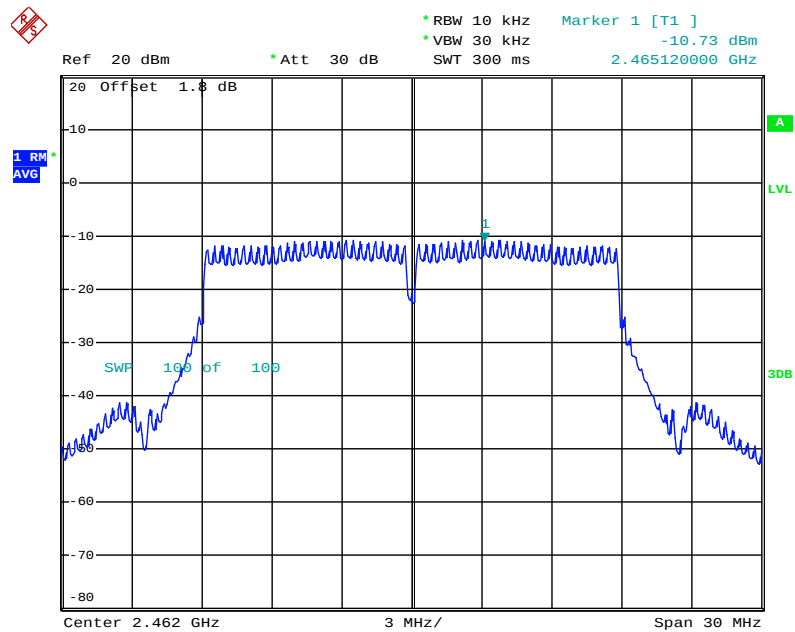
Power Density Plot on Configuration IEEE 802.11n 20MHz / CDD MCS0 / Chain 2 / 2437 MHz



Date: 28.OCT.2014 10:19:01

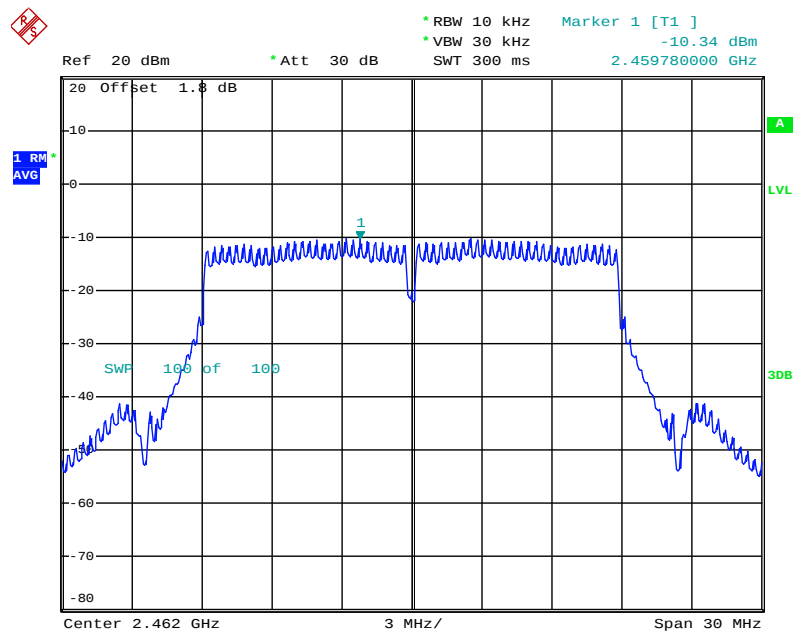


## Power Density Plot on Configuration IEEE 802.11n 20MHz / CDD MCS0 / Chain 1 / 2462 MHz



Date: 28.OCT.2014 10:21:45

## Power Density Plot on Configuration IEEE 802.11n 20MHz / CDD MCS0 / Chain 2 / 2462 MHz



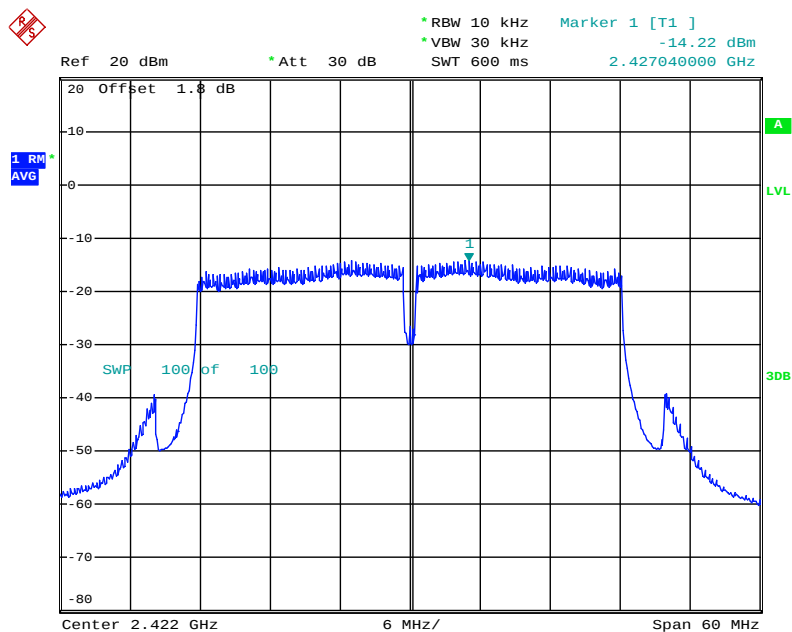
Date: 28.OCT.2014 10:20:38



Power Density Configuration IEEE 802.11n 40MHz / MCS0 / Chain 2

| Channel | Frequency (MHz) | Power Density (dBm/10kHz) | Limit (8dBm/3kHz) | Result |
|---------|-----------------|---------------------------|-------------------|--------|
| 3       | 2422            | -14.22                    | 8                 | PASS   |
| 6       | 2437            | -12.35                    | 8                 | PASS   |
| 9       | 2452            | -14.18                    | 8                 | PASS   |

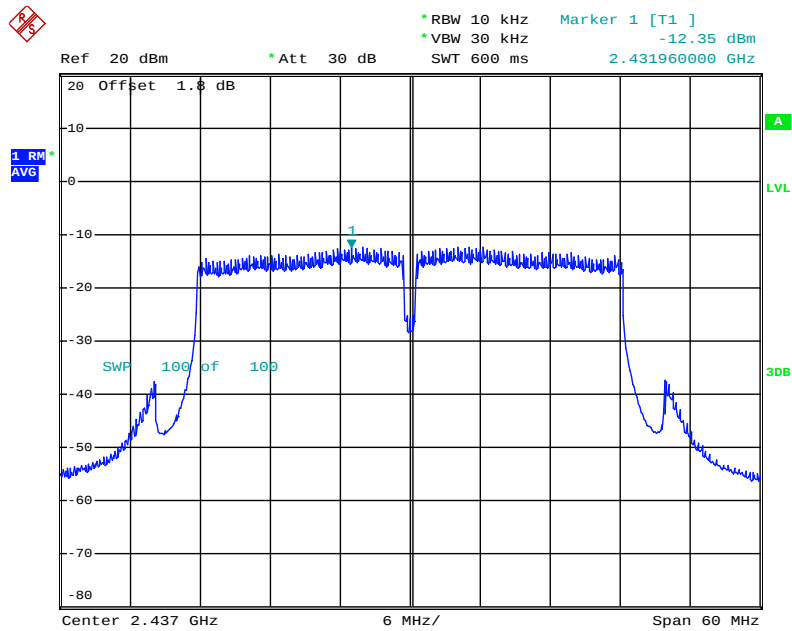
Power Density Plot on Configuration IEEE 802.11n 40MHz / MCS0 / Chain 2 / 2422 MHz



Date: 28.OCT.2014 09:22:22

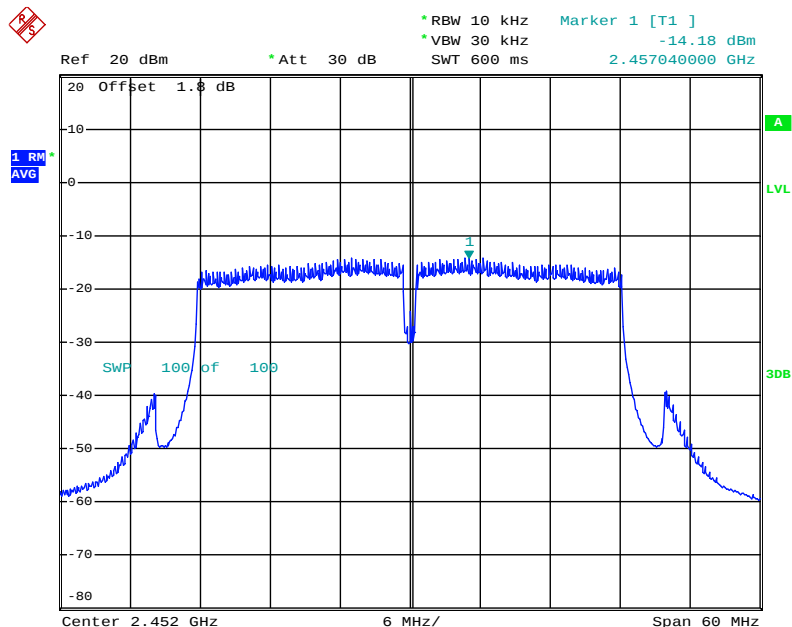


Power Density Plot on Configuration IEEE 802.11n 40MHz / MCS0 / Chain 2 / 2437 MHz



Date: 28.OCT.2014 09:23:58

Power Density Plot on Configuration IEEE 802.11n 40MHz / MCS0 / Chain 2 / 2452 MHz



Date: 28.OCT.2014 09:25:28

**Power Density Configuration IEEE 802.11n 40MHz / CDD MCS0 / Chain 1 + Chain 2**

| Channel | Frequency (MHz) | Power Density (dBm/10kHz) | Power Density (dBm/10kHz) | Total Power Density (dBm/10kHz) | Limit (8dBm/3kHz) | Result |
|---------|-----------------|---------------------------|---------------------------|---------------------------------|-------------------|--------|
|         |                 | Chain 1                   | Chain 2                   |                                 |                   |        |
| 3       | 2422            | -16.53                    | -16.36                    | -13.43                          | 8.00              | PASS   |
| 6       | 2437            | -13.89                    | -13.43                    | -10.64                          | 8.00              | PASS   |
| 9       | 2452            | -15.94                    | -15.51                    | -12.71                          | 8.00              | PASS   |

Note : Refer to KDB 662911 F 2) d)

(ii) If PSD Directional Gain almost near to 6dBi can use below formula.

$$\text{Directional Gain} = 10 \log \left[ \frac{\sum_{j=1}^{N_{ss}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$$

N SS = the number of independent spatial streams of data; N ANT = the total number of antennas

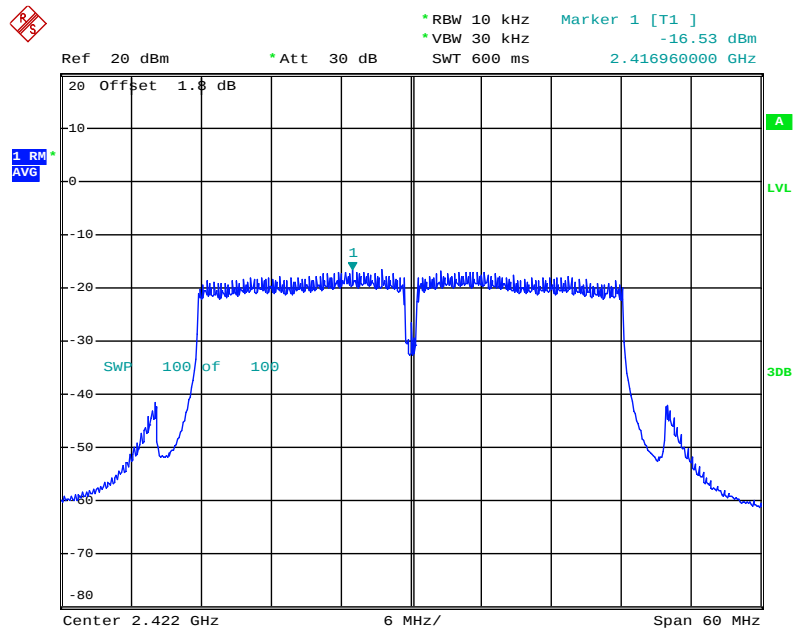
$g_{j,k} = \frac{G_k}{10^{\frac{6}{10}}}$  if the kth antenna is being fed by spatial stream j, or zero if it is not; G k is the gain in dBi of the kth antenna. If Directional gain > 6dBi, the power spectrum density limit to be reduce.

Example: G1 = 3.1dBi ; G2 = 2.8dBi

Use (ii) formula calculation Directional Gain =  $10 \log \frac{(1.30 + 1.4200)^2}{2}$  = 10log 3.95 = 5.96dBi.

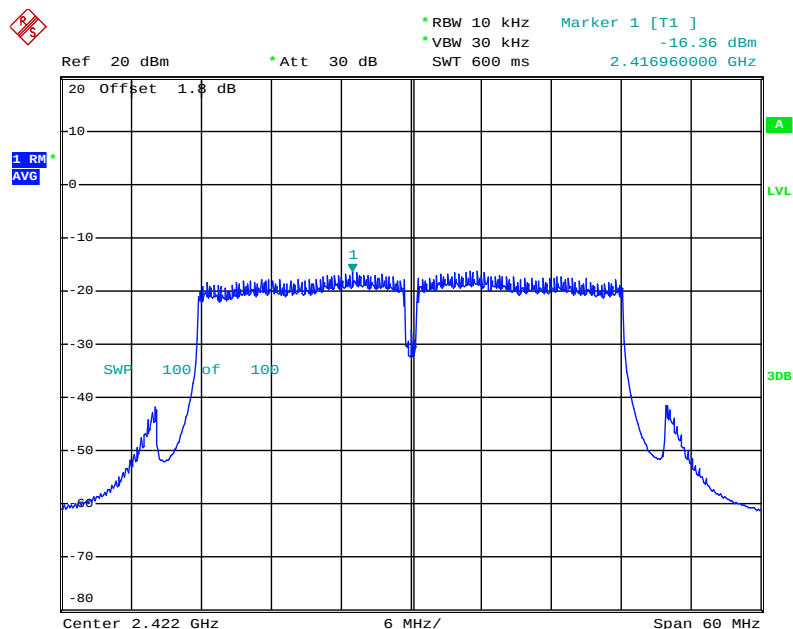


Power Density Plot on Configuration IEEE 802.11n 40MHz / CDD MCS0 / Chain 1 / 2422 MHz



Date: 28.OCT.2014 10:41:23

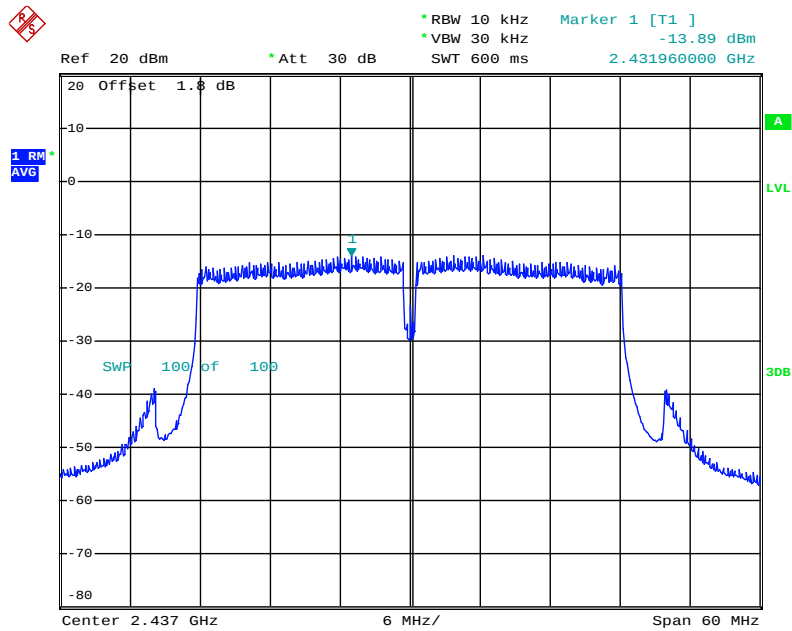
Power Density Plot on Configuration IEEE 802.11n 40MHz / CDD MCS0 / Chain 2 / 2422 MHz



Date: 28.OCT.2014 10:43:00

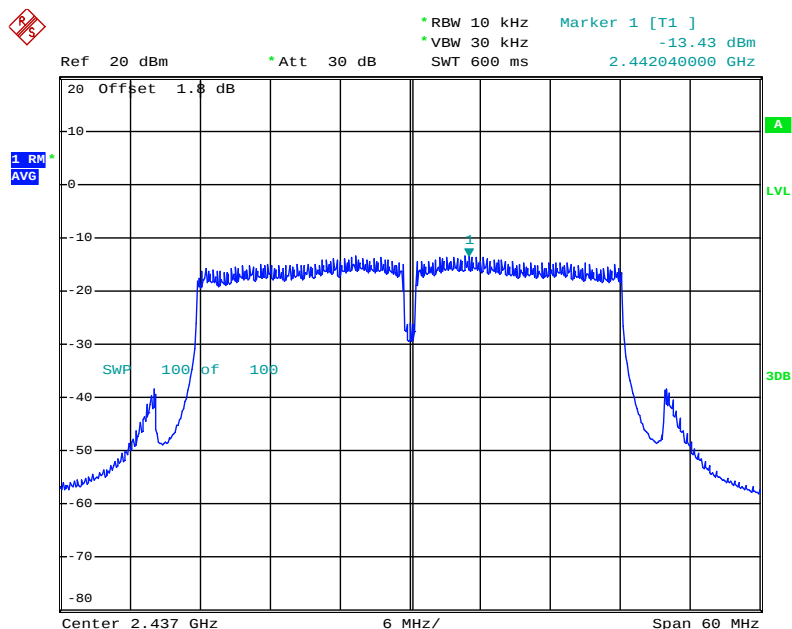


Power Density Plot on Configuration IEEE 802.11n 40MHz / CDD MCS0 / Chain 1 / 2437 MHz



Date: 28.OCT.2014 10:46:09

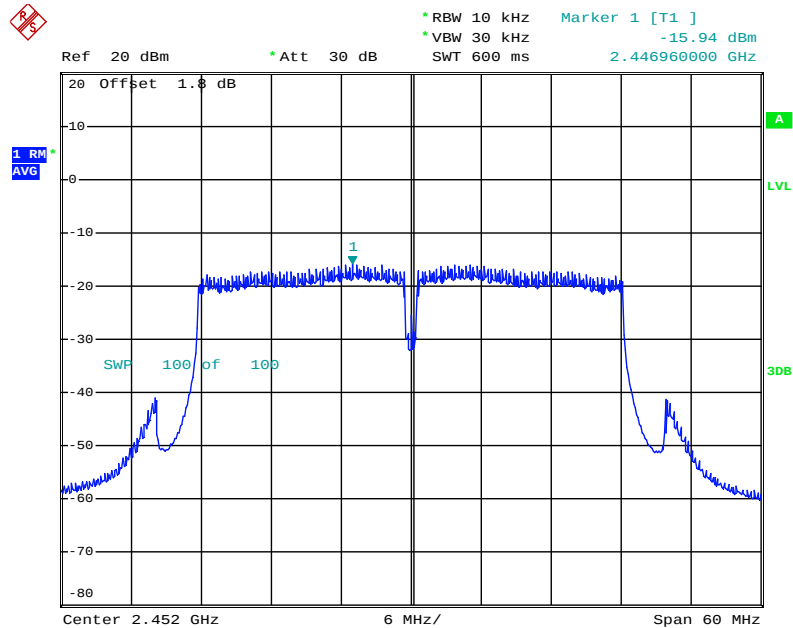
Power Density Plot on Configuration IEEE 802.11n 40MHz / CDD MCS0 / Chain 2 / 2437 MHz



Date: 28.OCT.2014 10:44:37

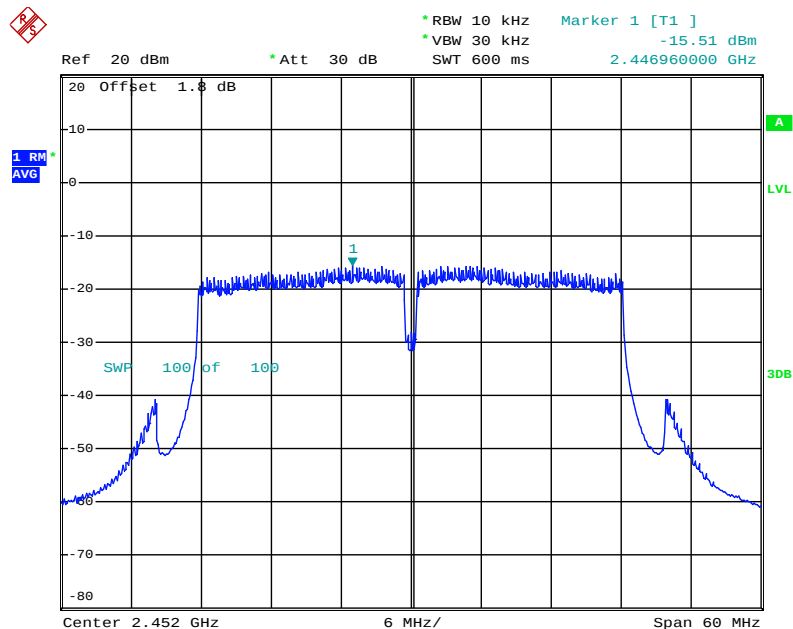


Power Density Plot on Configuration IEEE 802.11n 40MHz / CDD MCS0 / Chain 1 / 2452 MHz



Date: 28.OCT.2014 10:53:10

Power Density Plot on Configuration IEEE 802.11n 40MHz / CDD MCS0 / Chain 2 / 2452 MHz



Date: 28.OCT.2014 10:51:37

## 2.4 6dB Spectrum Bandwidth Measurement

### 2.4.1 Limit

The minimum of 6dB Bandwidth Measurement is 0.5 MHz

### 2.4.2 Measuring Instruments

Please refer to this test plan section 3 of equipment list in this report.

### 2.4.3 Test method

1. The following table is the setting of the Spectrum Analyzer.

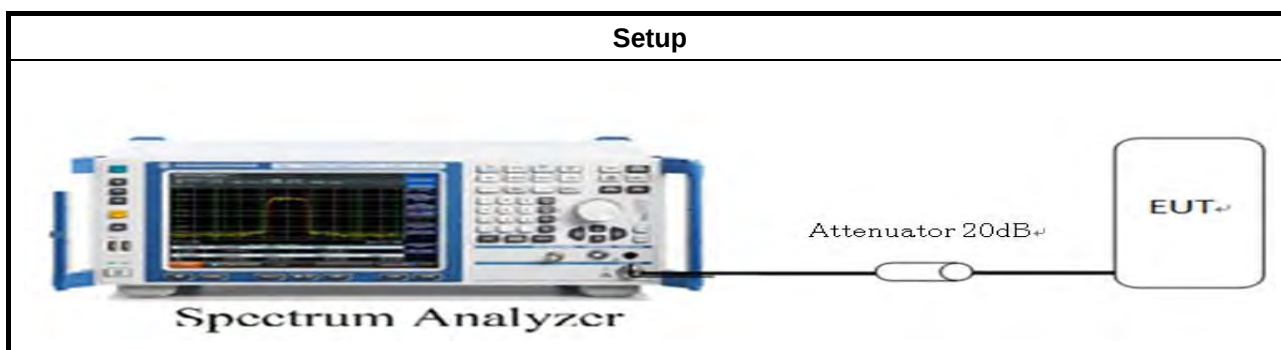
| Spectrum Parameter | Setting                    |
|--------------------|----------------------------|
| Attenuation        | Auto                       |
| Span Frequency     | > 6dB Bandwidth            |
| RBW                | 100KHz                     |
| VBW                | $\geq 3 \times \text{RBW}$ |
| Detector           | Peak                       |
| Trace              | Max Hold                   |
| Sweep Time         | Auto couple                |

2. The transmitter output (antenna port) was connected to the spectrum analyzer in peak, Max hold mode.

3. For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier frequency. A PEAK reading was taken, two markers were set 6 dB below the maximum level on the right and the left side of the emission.

4. The 6 dB bandwidth is the frequency difference between the two markers.

### 2.4.4 Test Setup



### 2.4.5 Test Deviation

There is no deviation with the original standard.

### 2.4.6 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode using Mtool 2.0.1.0(refer to APPENDIX C. List of test command).



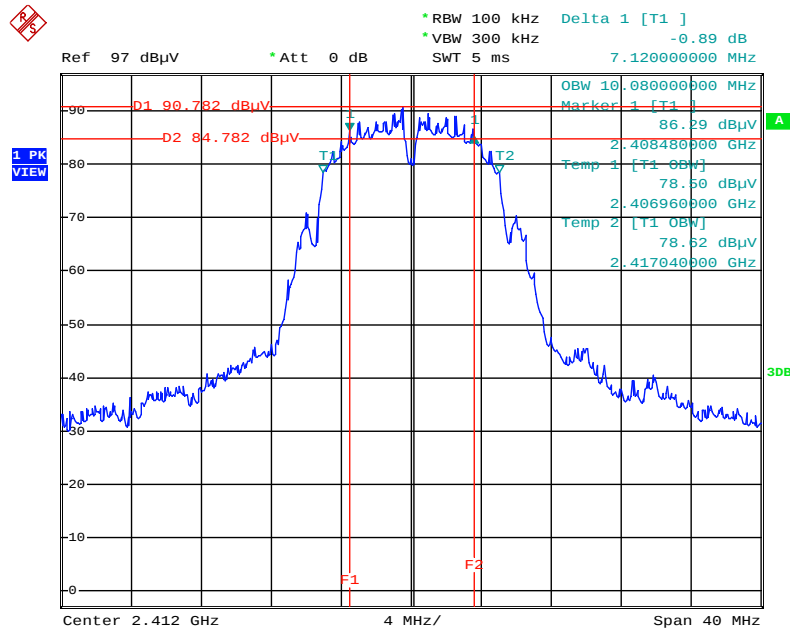
## 2.4.7 Test Results

|               |           |          |     |
|---------------|-----------|----------|-----|
| Temperature   | 26°C      | Humidity | 63% |
| Test Engineer | Jim Huang |          |     |

## Configuration IEEE 802.11b 1Mbps / Chain 2

| Channel | Frequency | 6dB Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) | Min. Limit (kHz) | Test Result |
|---------|-----------|---------------------|------------------------------|------------------|-------------|
| 1       | 2412      | 7.12                | 10.08                        | 500              | PASS        |
| 6       | 2437      | 8.16                | 10.08                        | 500              | PASS        |
| 11      | 2462      | 8.08                | 10.08                        | 500              | PASS        |

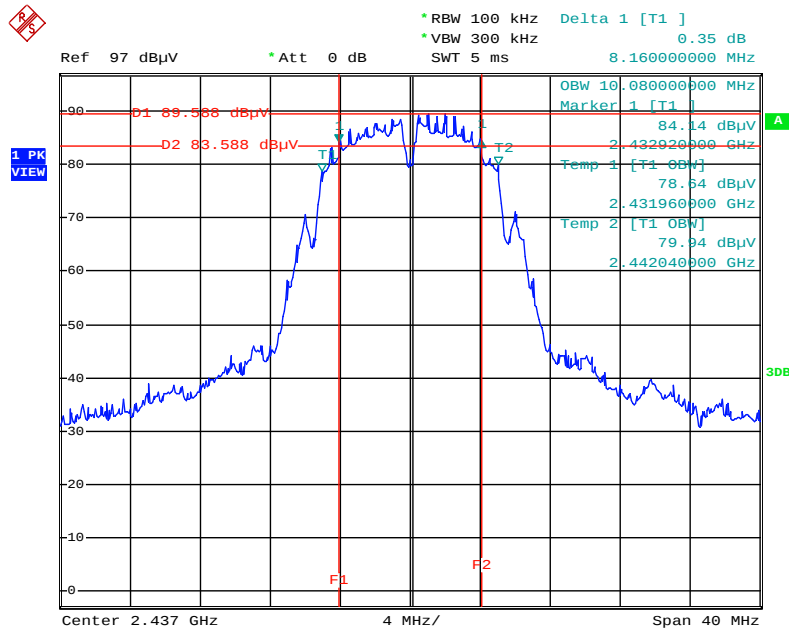
## 6 dB Bandwidth Plot on Configuration IEEE 802.11b 1Mbps / Chain 2 / 2412MHz



Date: 28.OCT.2014 09:44:48

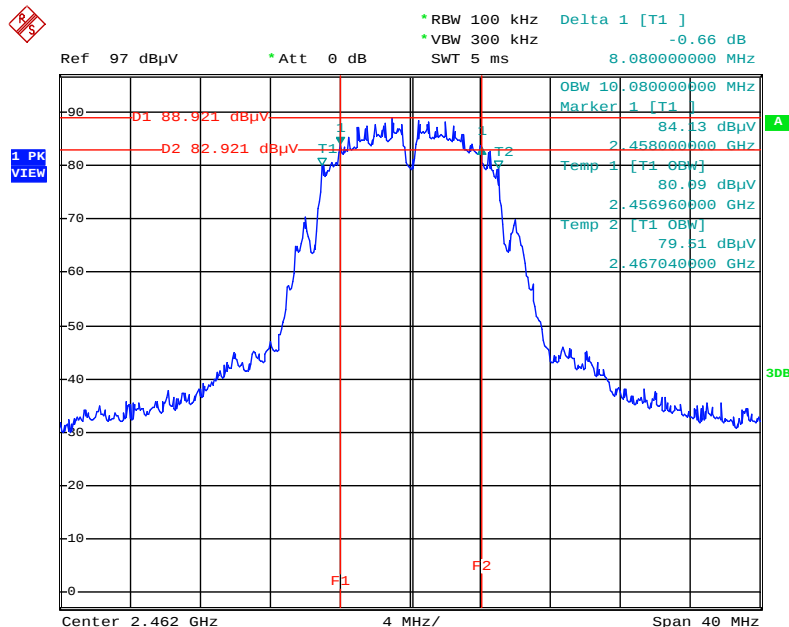


## 6 dB Bandwidth Plot on Configuration IEEE 802.11b 1Mbps / Chain 2 / 2437MHz



Date: 28.OCT.2014 09:45:26

## 6 dB Bandwidth Plot on Configuration IEEE 802.11b 1Mbps / Chain 2 / 2462MHz

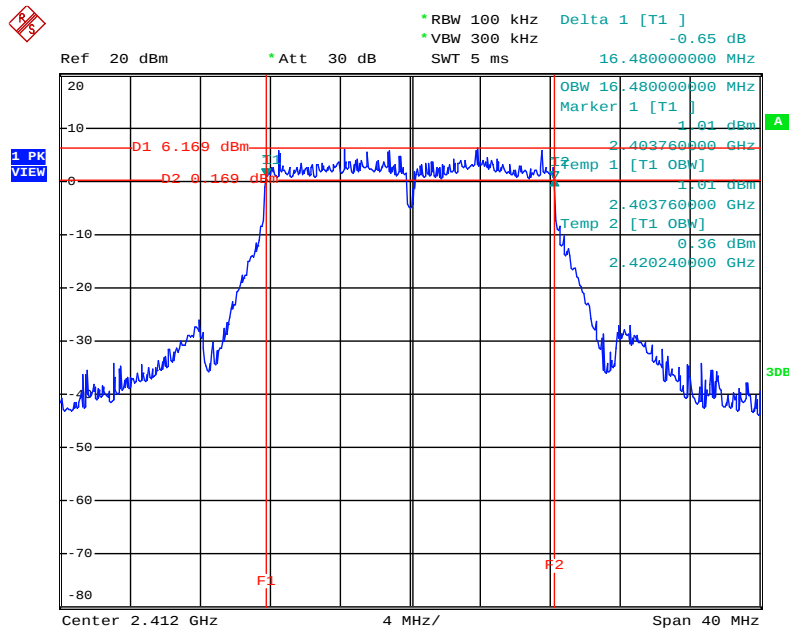


Date: 28.OCT.2014 09:45:56



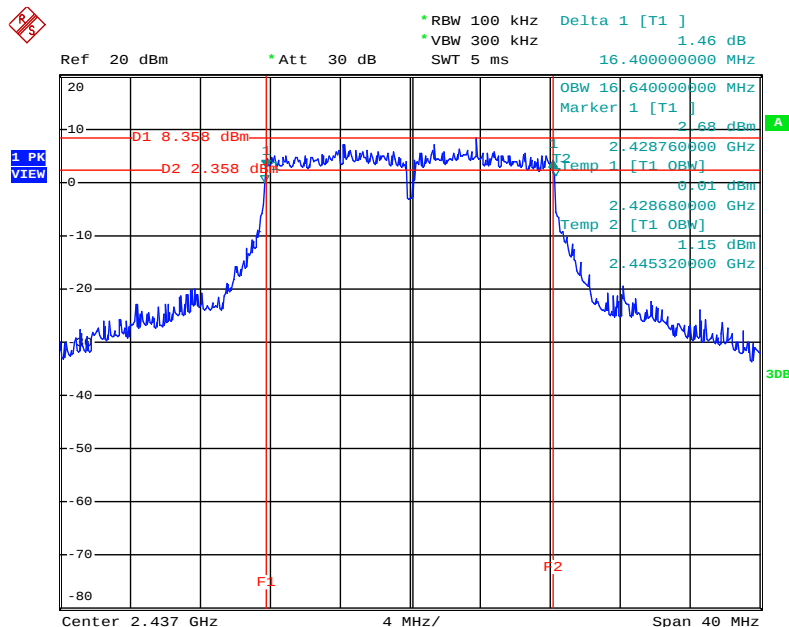


## 6 dB Bandwidth Plot on Configuration IEEE 802.11g 6Mbps CDD / Chain 2 / 2412 MHz



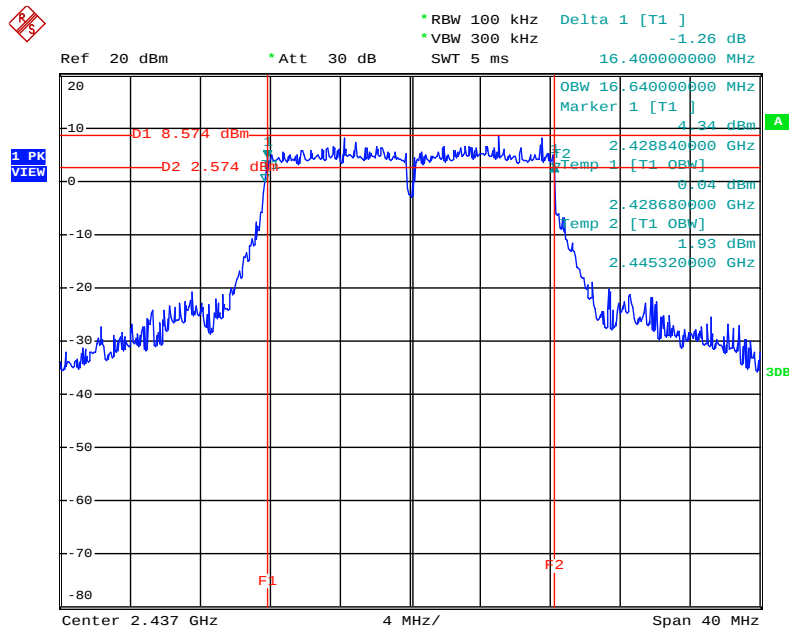
Date: 11.NOV.2014 19:07:43

## 6 dB Bandwidth Plot on Configuration IEEE 802.11g 6Mbps CDD / Chain 1 / 2437 MHz



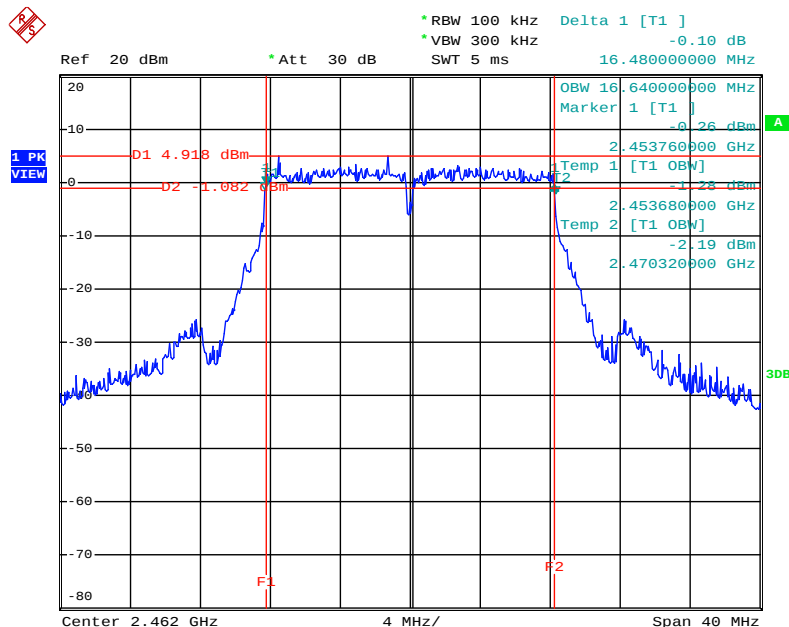
Date: 11.NOV.2014 19:09:58

## 6 dB Bandwidth Plot on Configuration IEEE 802.11g 6Mbps CDD / Chain 2 / 2437 MHz



Date: 11.NOV.2014 19:09:05

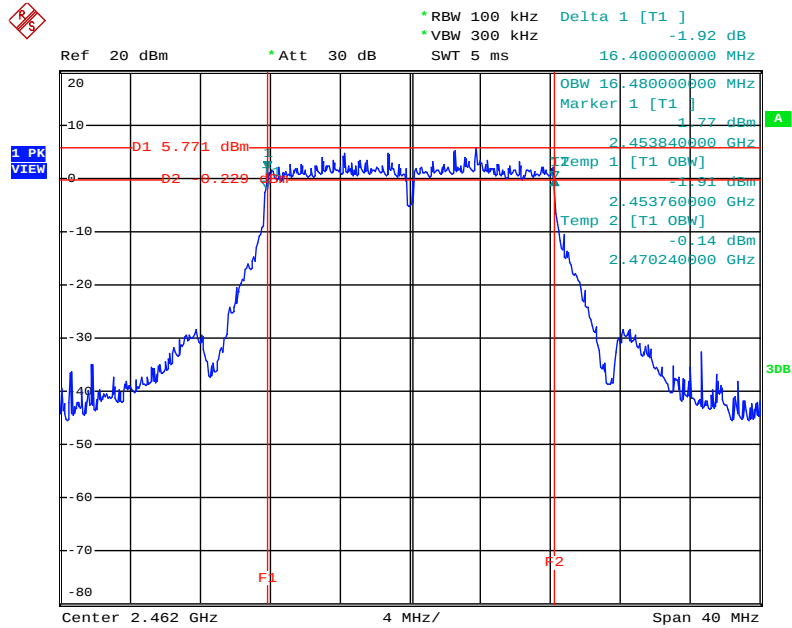
## 6 dB Bandwidth Plot on Configuration IEEE 802.11g 6Mbps CDD / Chain 1 / 2462 MHz



Date: 11.NOV.2014 19:10:55



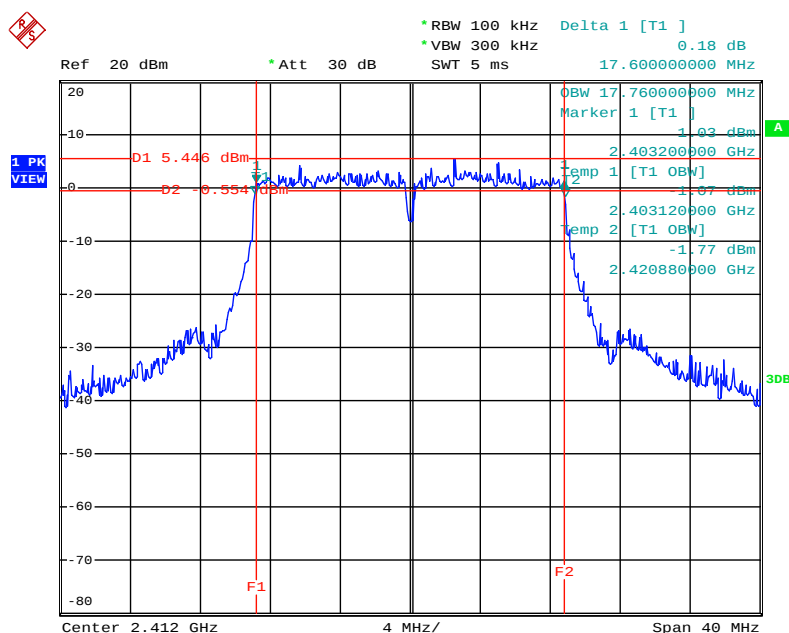
6 dB Bandwidth Plot on Configuration IEEE 802.11g 6Mbps CDD / Chain 2 / 2462 MHz



Date: 11.NOV.2014 19:11:50

**Configuration IEEE 802.11n 20MHz / CDD MCS0 / Chain 1 + Chain 2**

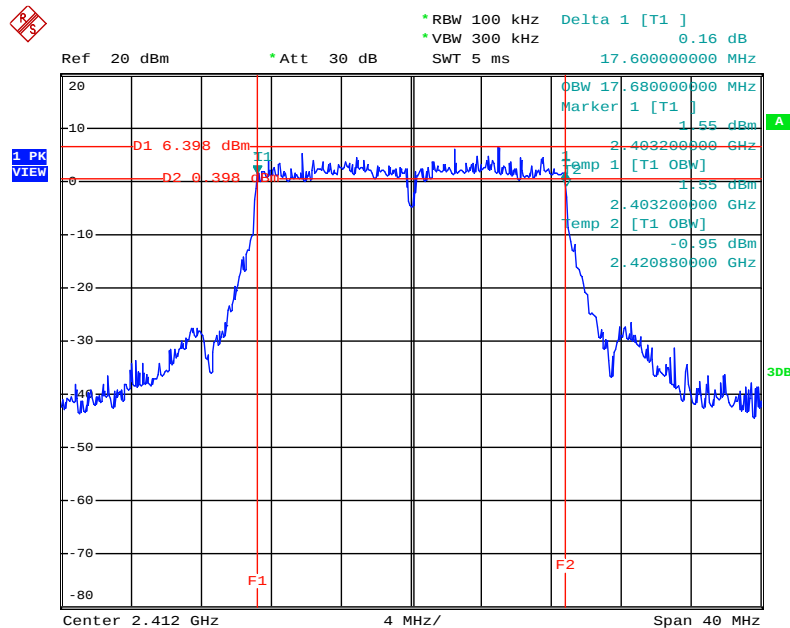
| Channel | Frequency | 6dB Bandwidth (MHz) |         | 99% Occupied Bandwidth (MHz) |         | Min. Limit (kHz) | Test Result |
|---------|-----------|---------------------|---------|------------------------------|---------|------------------|-------------|
|         |           | Chain 1             | Chain 2 | Chain 1                      | Chain 2 |                  |             |
| 1       | 2412      | 17.60               | 17.60   | 17.76                        | 17.68   | 500              | PASS        |
| 6       | 2437      | 17.60               | 17.60   | 17.76                        | 17.76   | 500              | PASS        |
| 11      | 2462      | 17.60               | 17.60   | 17.76                        | 17.68   | 500              | PASS        |

**6 dB Bandwidth Plot on Configuration IEEE 802.11n 20MHz / CDD MCS0 / Chain 1 / 2412 MHz**


Date: 11.NOV.2014 19:18:08

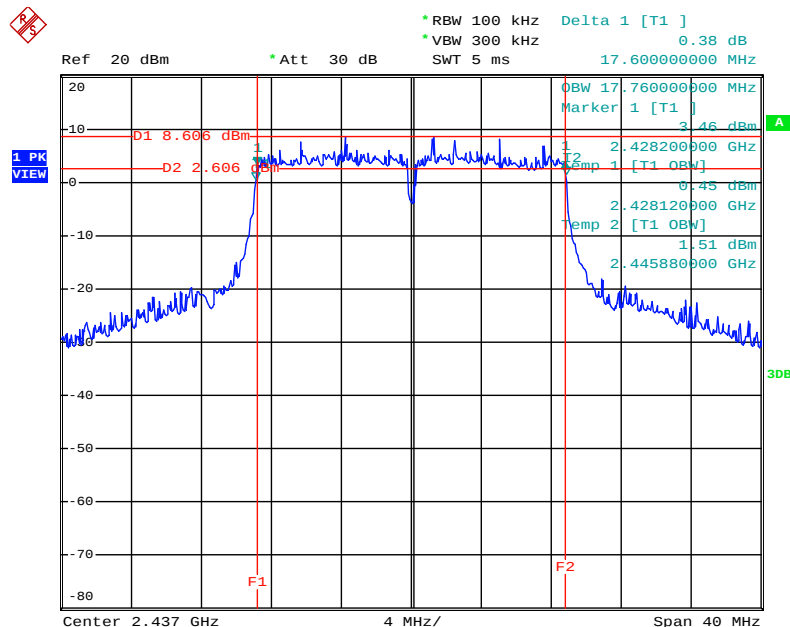


## 6 dB Bandwidth Plot on Configuration IEEE 802.11n 20MHz / CDD MCS0 / Chain 2 / 2412 MHz



Date: 11.NOV.2014 19:16:58

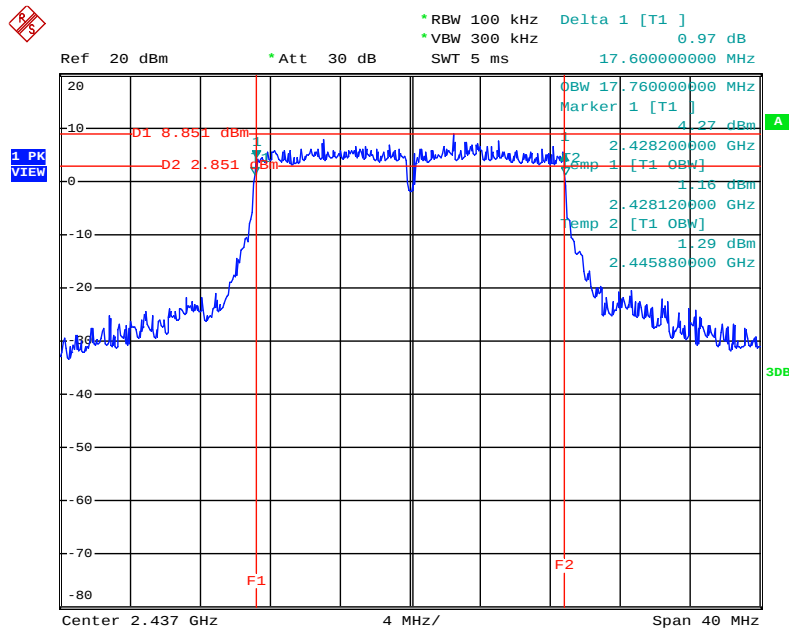
## 6 dB Bandwidth Plot on Configuration IEEE 802.11n 20MHz / CDD MCS0 / Chain 1 / 2437 MHz



Date: 11.NOV.2014 19:14:44

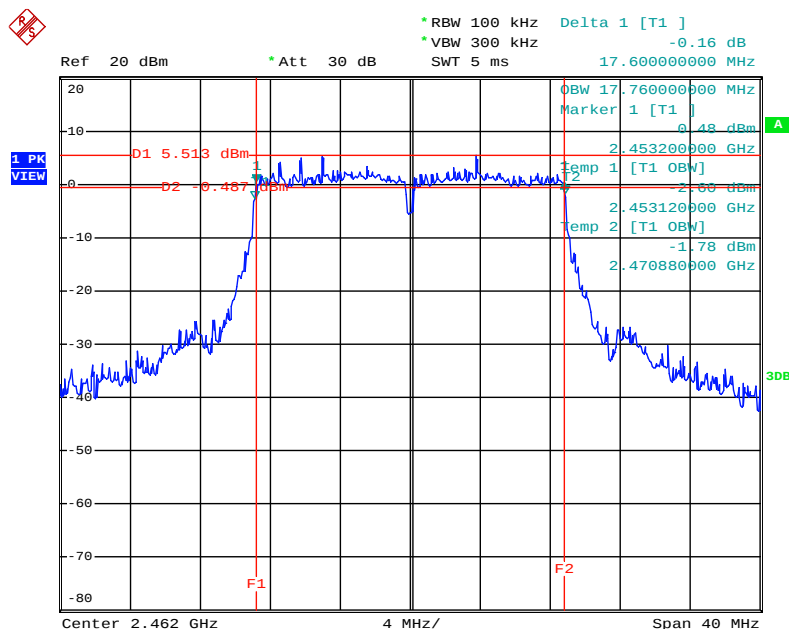


## 6 dB Bandwidth Plot on Configuration IEEE 802.11n 20MHz / CDD MCS0 / Chain 2 / 2437 MHz



Date: 11.NOV.2014 19:16:18

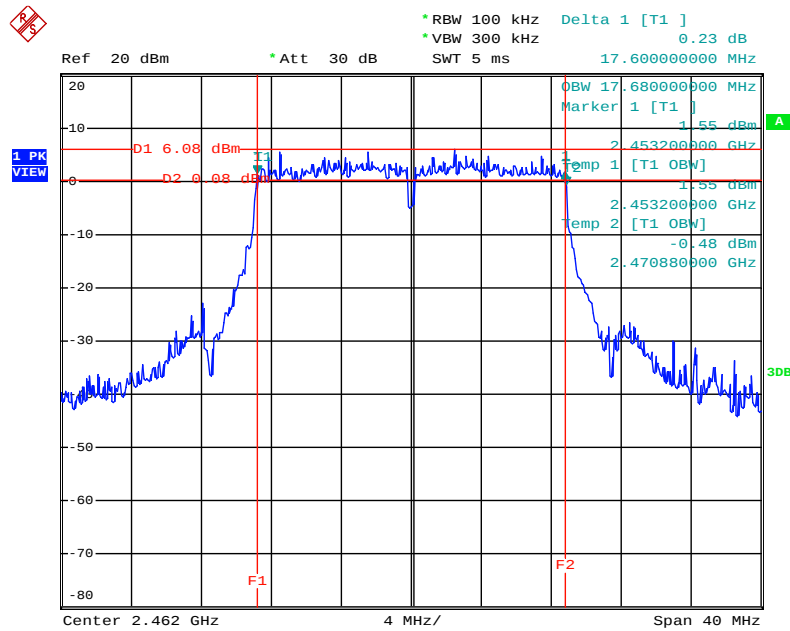
## 6 dB Bandwidth Plot on Configuration IEEE 802.11n 20MHz / CDD MCS0 / Chain 1 / 2462 MHz



Date: 11.NOV.2014 19:13:53



6 dB Bandwidth Plot on Configuration IEEE 802.11n 20MHz / CDD MCS0 / Chain 2 / 2462 MHz

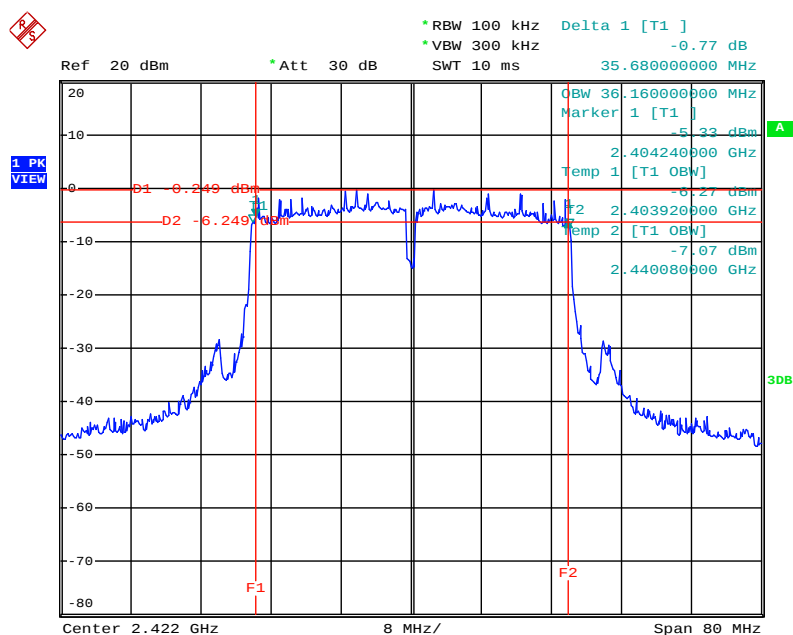


Date: 11.NOV.2014 19:13:14

### Configuration IEEE 802.11n 40MHz / CDD MCS0 / Chain 1 + Chain 2

| Channel | Frequency | 6dB Bandwidth (MHz) |         | 99% Occupied Bandwidth (MHz) |         | Min. Limit (kHz) | Test Result |
|---------|-----------|---------------------|---------|------------------------------|---------|------------------|-------------|
|         |           | Chain 1             | Chain 2 | Chain 1                      | Chain 2 |                  |             |
| 3       | 2422      | 35.68               | 33.92   | 36.16                        | 36.16   | 500              | PASS        |
| 6       | 2437      | 35.36               | 35.36   | 36.16                        | 36.16   | 500              | PASS        |
| 9       | 2452      | 35.68               | 36.00   | 36.16                        | 36.16   | 500              | PASS        |

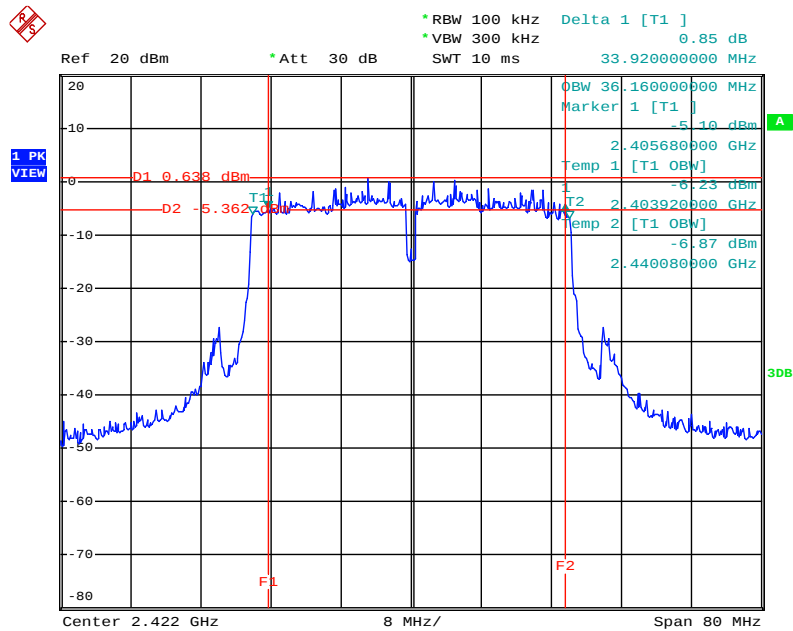
## 6 dB Bandwidth Plot on Configuration IEEE 802.11n 40MHz / CDD MCS0 / Chain 1 / 2422 MHz



Date: 11.NOV.2014 19:20:06

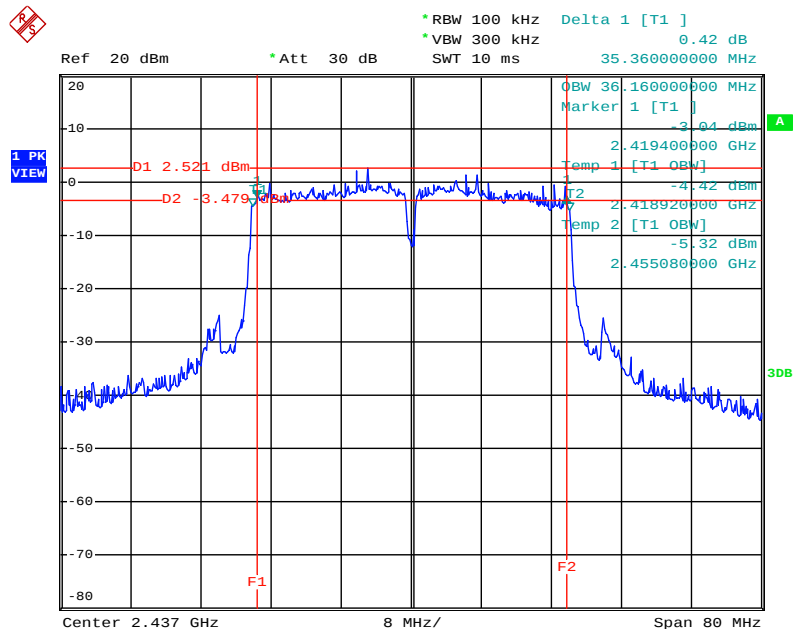


## 6 dB Bandwidth Plot on Configuration IEEE 802.11n 40MHz / CDD MCS0 / Chain 2 / 2422 MHz

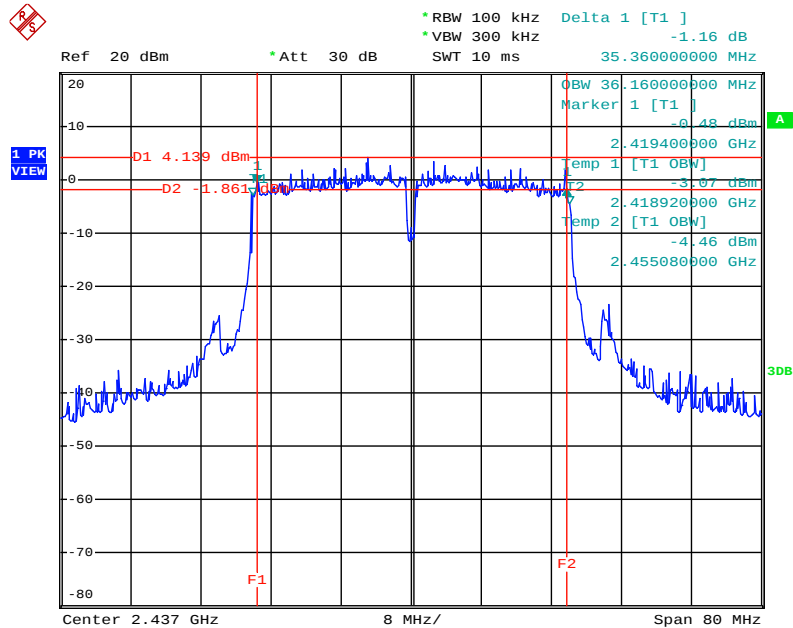


Date: 11.NOV.2014 19:21:00

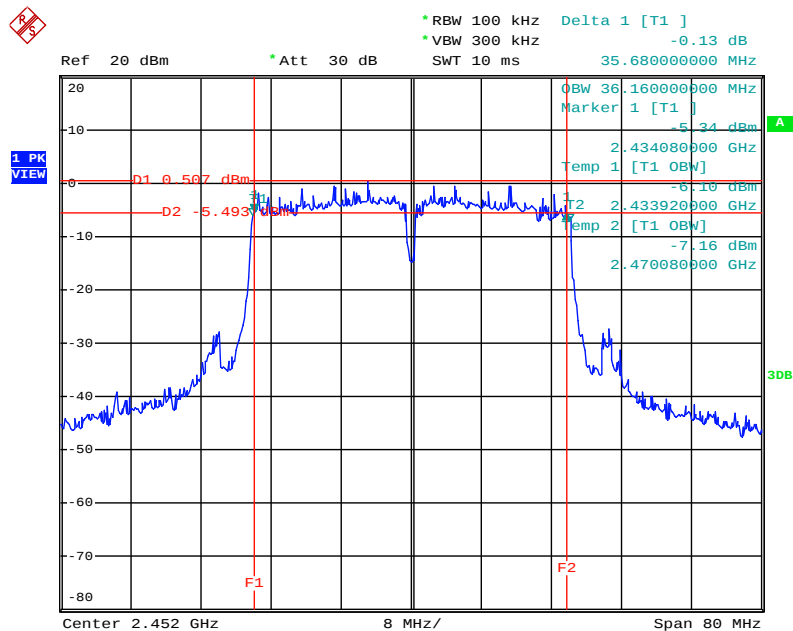
## 6 dB Bandwidth Plot on Configuration IEEE 802.11n 40MHz / CDD MCS0 / Chain 1 / 2437 MHz



Date: 11.NOV.2014 19:22:28

**6 dB Bandwidth Plot on Configuration IEEE 802.11n 40MHz / CDD MCS0 / Chain 2 / 2437 MHz**

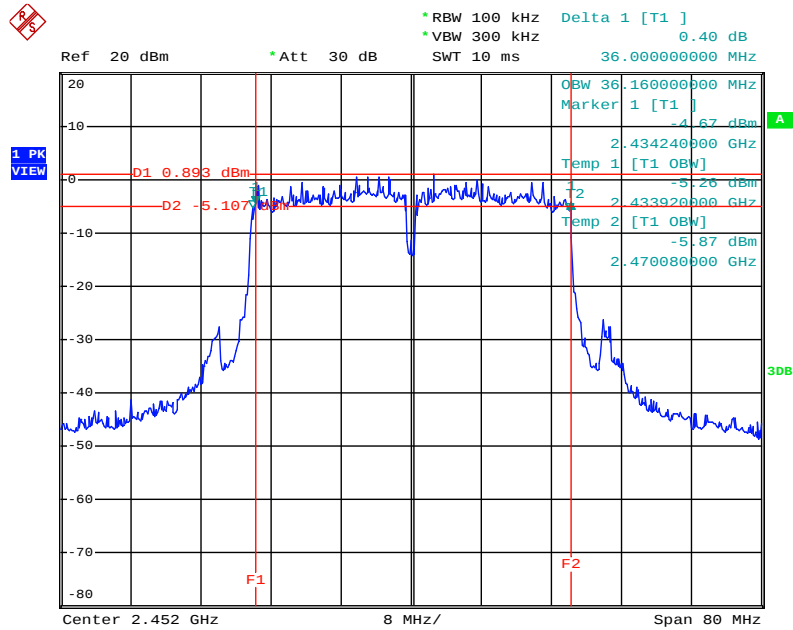
Date: 11.NOV.2014 19:21:53

**6 dB Bandwidth Plot on Configuration IEEE 802.11n 40MHz / CDD MCS0 / Chain 1 / 2452 MHz**

Date: 11.NOV.2014 19:23:37



6 dB Bandwidth Plot on Configuration IEEE 802.11n 40MHz / CDD MCS0 / Chain 2 / 2452 MHz



Date: 11.NOV.2014 19:24:27

## 2.5 Radiated Emissions Measurement

### 2.5.1 Limit

30dBc in any 100 kHz bandwidth outside the operating frequency band. Emissions radiated outside of the specified bands, shall be according to the general radiated limits as following:

| Frequency range<br>(MHz) | Field Strength<br>(mV/meter) | Measurement Distance<br>(m) |
|--------------------------|------------------------------|-----------------------------|
| 0.009~0.490              | 2400/F(kHz)                  | 300                         |
| 0.490~1.705              | 24000/F(kHz)                 | 30                          |
| 1.705~30.0               | 30                           | 30                          |
| 30~88                    | 100                          | 3                           |
| 88~216                   | 150                          | 3                           |
| 216~960                  | 200                          | 3                           |
| Above 960                | 500                          | 3                           |

### 2.5.2 Measuring Instruments

Please refer to this test plan section 3 of equipment list in this report.

### 2.5.3 Test method

- The following table is the setting of spectrum analyzer.

| Spectrum Parameter                          | Setting                                        |
|---------------------------------------------|------------------------------------------------|
| Attenuation                                 | Auto                                           |
| Start Frequency                             | 1000 MHz                                       |
| Stop Frequency                              | 10th carrier harmonic                          |
| RBW / VBW (Emission in restricted band)     | 1MHz / 3MHz for Peak, 1 MHz / 10Hz for Average |
| RBW / VBW (Emission in non-restricted band) | 100kHz / 300kHz for peak                       |

- The following table is the setting of receiver.

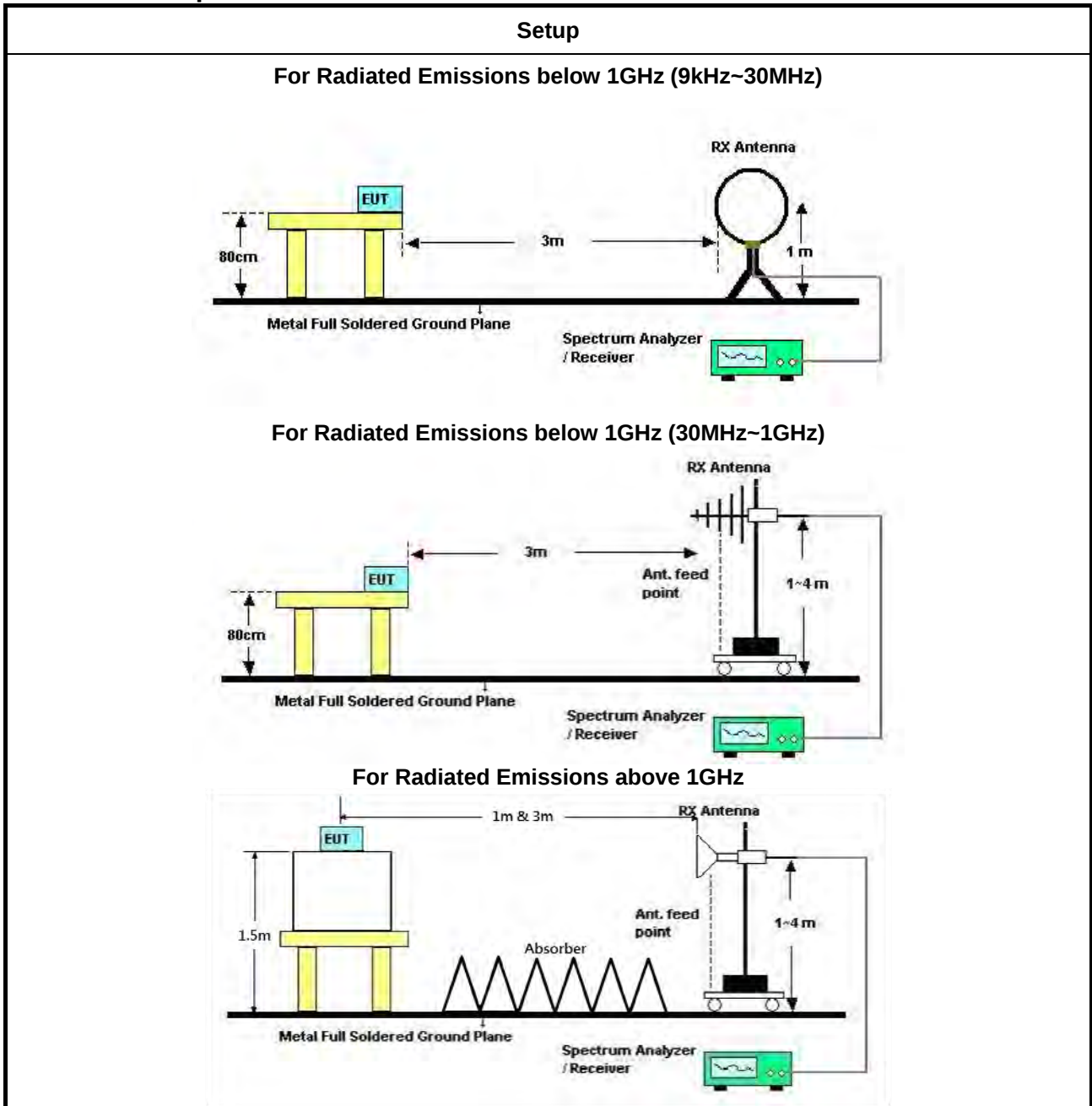
| Spectrum Parameter     | Setting                           |
|------------------------|-----------------------------------|
| Attenuation            | Auto                              |
| Start ~ Stop Frequency | 9kHz~150kHz / RBW 200Hz for QP    |
| Start ~ Stop Frequency | 150kHz~30MHz / RBW 9kHz for QP    |
| Start ~ Stop Frequency | 30MHz~1000MHz / RBW 120kHz for QP |

- Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
- Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
- The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
- For each suspected emissions, the antenna tower was scan (from 1 m to 4 m) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.



7. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
8. For emissions above 1GHz, use 1MHz VBW and 3MHz RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.
9. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.
10. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
11. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
12. As the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High – Low scan is not required in this case.

## 2.5.4 Test Setup



## 2.5.5 Test Deviation

There is no deviation with the original standard.

## 2.5.6 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode using Mtool 2.0.1.0(refer to APPENDIX C. List of test command).

**2.5.7 Results of Radiated Emissions (9kHz~30MHz)**

|                      |               |                       |             |
|----------------------|---------------|-----------------------|-------------|
| <b>Temperature</b>   | 23°C          | <b>Humidity</b>       | 56%         |
| <b>Test Engineer</b> | Kane Liu      | <b>Configurations</b> | Normal Link |
| <b>Test Date</b>     | Sep. 19, 2016 |                       |             |

| <b>Freq.<br/>(MHz)</b> | <b>Level<br/>(dBuV)</b> | <b>Over Limit<br/>(dB)</b> | <b>Limit Line<br/>(dBuV)</b> | <b>Remark</b> |
|------------------------|-------------------------|----------------------------|------------------------------|---------------|
| -                      | -                       | -                          | -                            | See Note      |

**Note 1:** The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

**Note 2:** Emission level (dBuV/m) = 20 log Emission level (uV/m).

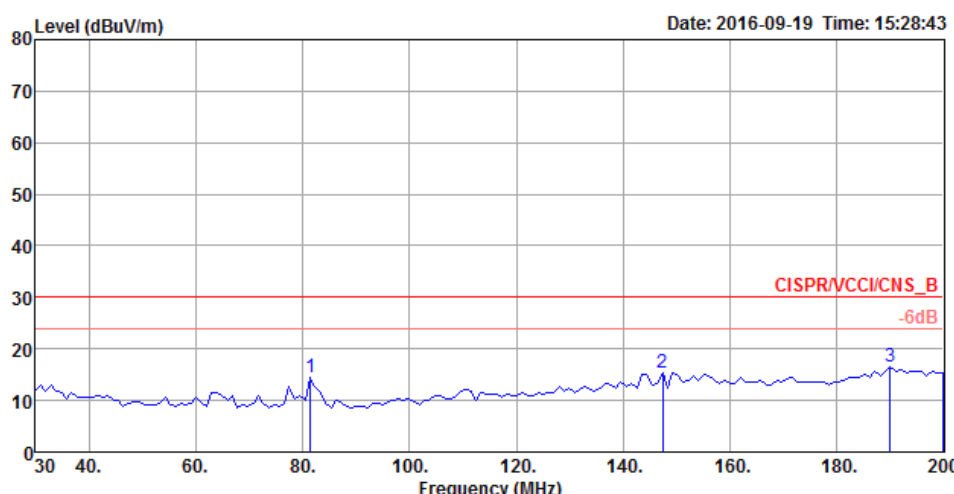
**Note 3:** Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

**2.5.8 Results of Radiated Emissions (30MHz~1GHz)**

| Radiated Emissions (30MHz~200MHz) |  |             |          |  |     |               |  |              |  |   |
|-----------------------------------|--|-------------|----------|--|-----|---------------|--|--------------|--|---|
| Operating Mode                    |  | Normal Link |          |  |     |               |  | Polarization |  | H |
| Temperature                       |  | 23℃         | Humidity |  | 56% | Test Engineer |  | Kane Liu     |  |   |

Level (dBuV/m)

Date: 2016-09-19 Time: 15:28:43

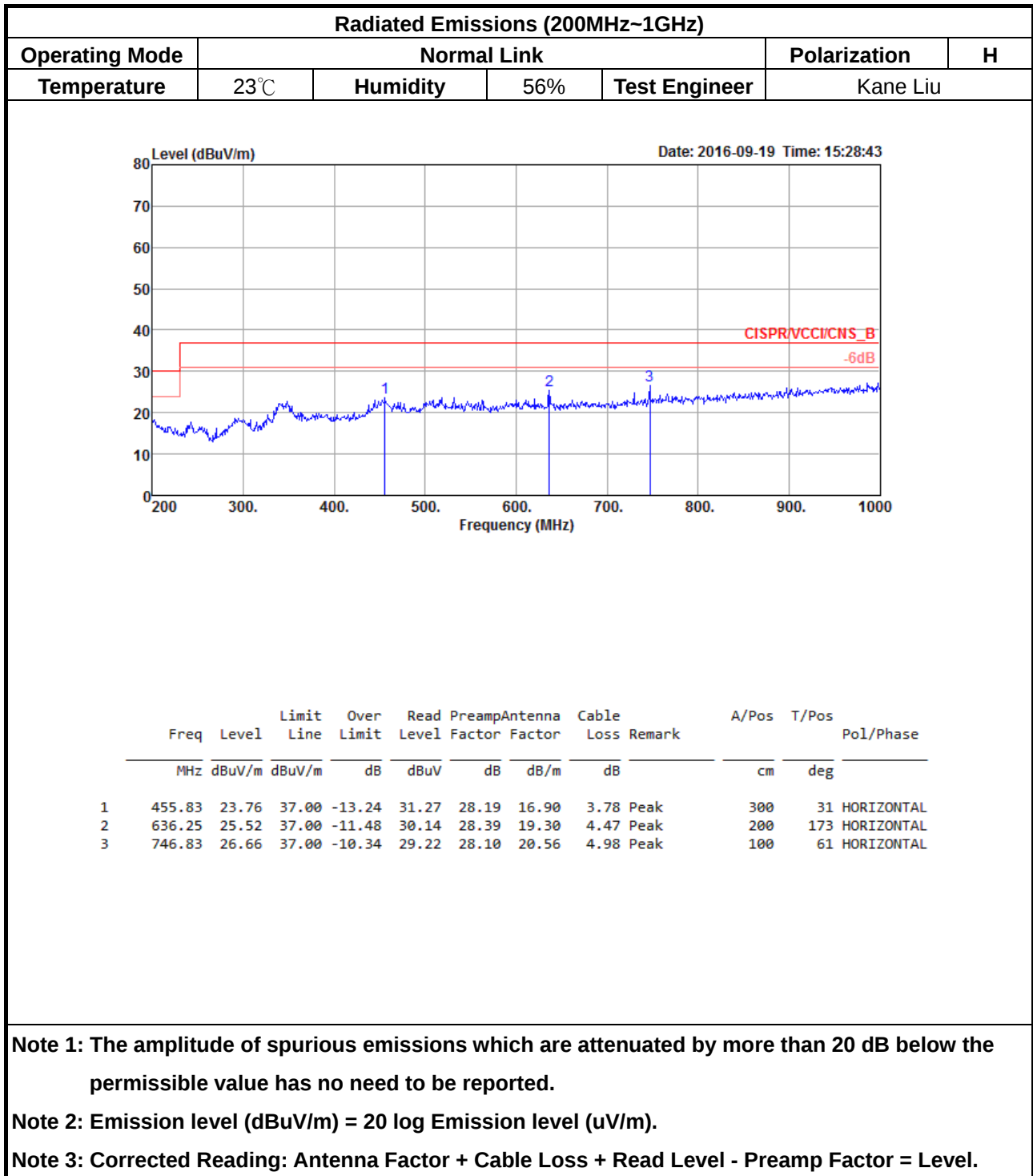


|   | Freq   | Level  | Limit  | Over   | Read  | Preamp | Antenna | Cable | Remark | A/Pos | T/Pos | Pol/Phase  |
|---|--------|--------|--------|--------|-------|--------|---------|-------|--------|-------|-------|------------|
|   | MHz    | dBuV/m | dBuV/m | dB     | dBuV  | dB     | dB/m    | dB    |        | cm    | deg   |            |
| 1 | 81.41  | 14.59  | 30.00  | -15.41 | 31.63 | 28.51  | 9.00    | 2.47  | Peak   | 300   | 2     | HORIZONTAL |
| 2 | 147.37 | 15.48  | 30.00  | -14.52 | 28.44 | 28.24  | 11.95   | 3.33  | Peak   | 400   | 91    | HORIZONTAL |
| 3 | 190.05 | 16.59  | 30.00  | -13.41 | 26.63 | 28.03  | 14.20   | 3.79  | Peak   | 200   | 93    | HORIZONTAL |

**Note 1:** The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

**Note 2:** Emission level (dBuV/m) = 20 log Emission level (uV/m).

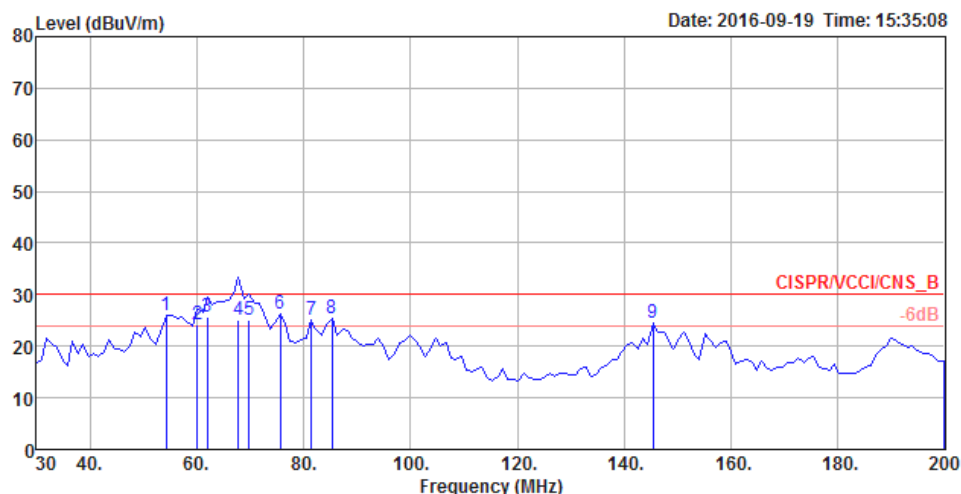
**Note 3:** Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.





Radiated Emissions (30MHz~200MHz)

| Operating Mode | Normal Link |          |     | Polarization  | V        |
|----------------|-------------|----------|-----|---------------|----------|
| Temperature    | 23°C        | Humidity | 56% | Test Engineer | Kane Liu |



|   | Freq   | Level  | Limit  | Over  | Read  | Preamp | Antenna | Cable | Remark | A/Pos | T/Pos | Pol/Phase |
|---|--------|--------|--------|-------|-------|--------|---------|-------|--------|-------|-------|-----------|
|   | MHz    | dBuV/m | dBuV/m | dB    | dBuV  | dB     | dB/m    | dB    |        | cm    | deg   |           |
| 1 | 54.25  | 26.12  | 30.00  | -3.88 | 42.68 | 28.57  | 10.00   | 2.01  | Peak   | 200   | 104   | VERTICAL  |
| 2 | 60.07  | 24.16  | 30.00  | -5.84 | 41.00 | 28.56  | 9.59    | 2.13  | QP     | 300   | 193   | VERTICAL  |
| 3 | 62.01  | 25.61  | 30.00  | -4.39 | 42.48 | 28.55  | 9.52    | 2.16  | QP     | 400   | 180   | VERTICAL  |
| 4 | 67.83  | 25.20  | 30.00  | -4.80 | 42.20 | 28.54  | 9.28    | 2.26  | QP     | 100   | 240   | VERTICAL  |
| 5 | 69.77  | 25.11  | 30.00  | -4.89 | 42.15 | 28.54  | 9.21    | 2.29  | QP     | 400   | 151   | VERTICAL  |
| 6 | 75.59  | 26.24  | 30.00  | -3.76 | 43.29 | 28.52  | 9.09    | 2.38  | Peak   | 100   | 98    | VERTICAL  |
| 7 | 81.41  | 25.10  | 30.00  | -4.90 | 42.14 | 28.51  | 9.00    | 2.47  | Peak   | 100   | 324   | VERTICAL  |
| 8 | 85.29  | 25.25  | 30.00  | -4.75 | 42.23 | 28.50  | 9.00    | 2.52  | Peak   | 200   | 79    | VERTICAL  |
| 9 | 145.43 | 24.56  | 30.00  | -5.44 | 37.59 | 28.25  | 11.91   | 3.31  | Peak   | 100   | 186   | VERTICAL  |

**Note 1:** The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

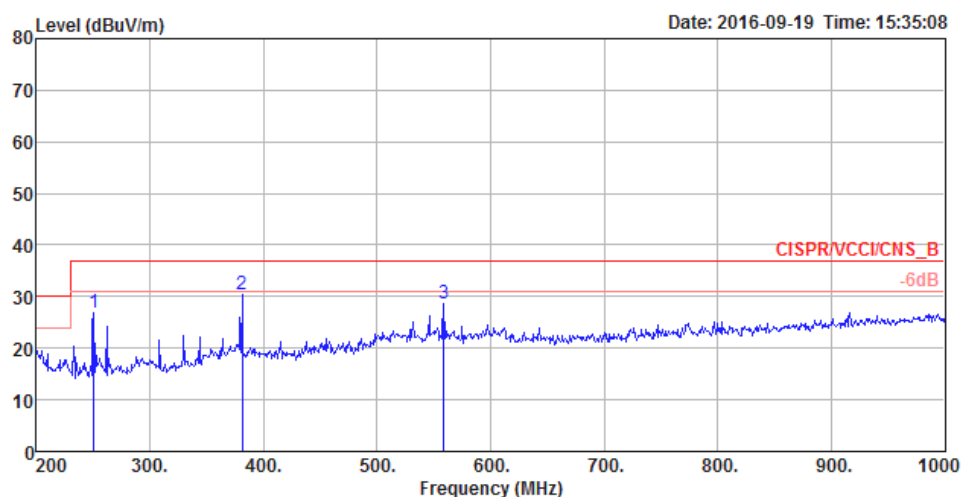
**Note 2:** Emission level (dBuV/m) = 20 log Emission level (uV/m).

**Note 3:** Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.



Radiated Emissions (200MHz~1GHz)

| Operating Mode | Normal Link |          |     | Polarization  | V        |
|----------------|-------------|----------|-----|---------------|----------|
| Temperature    | 23°C        | Humidity | 56% | Test Engineer | Kane Liu |



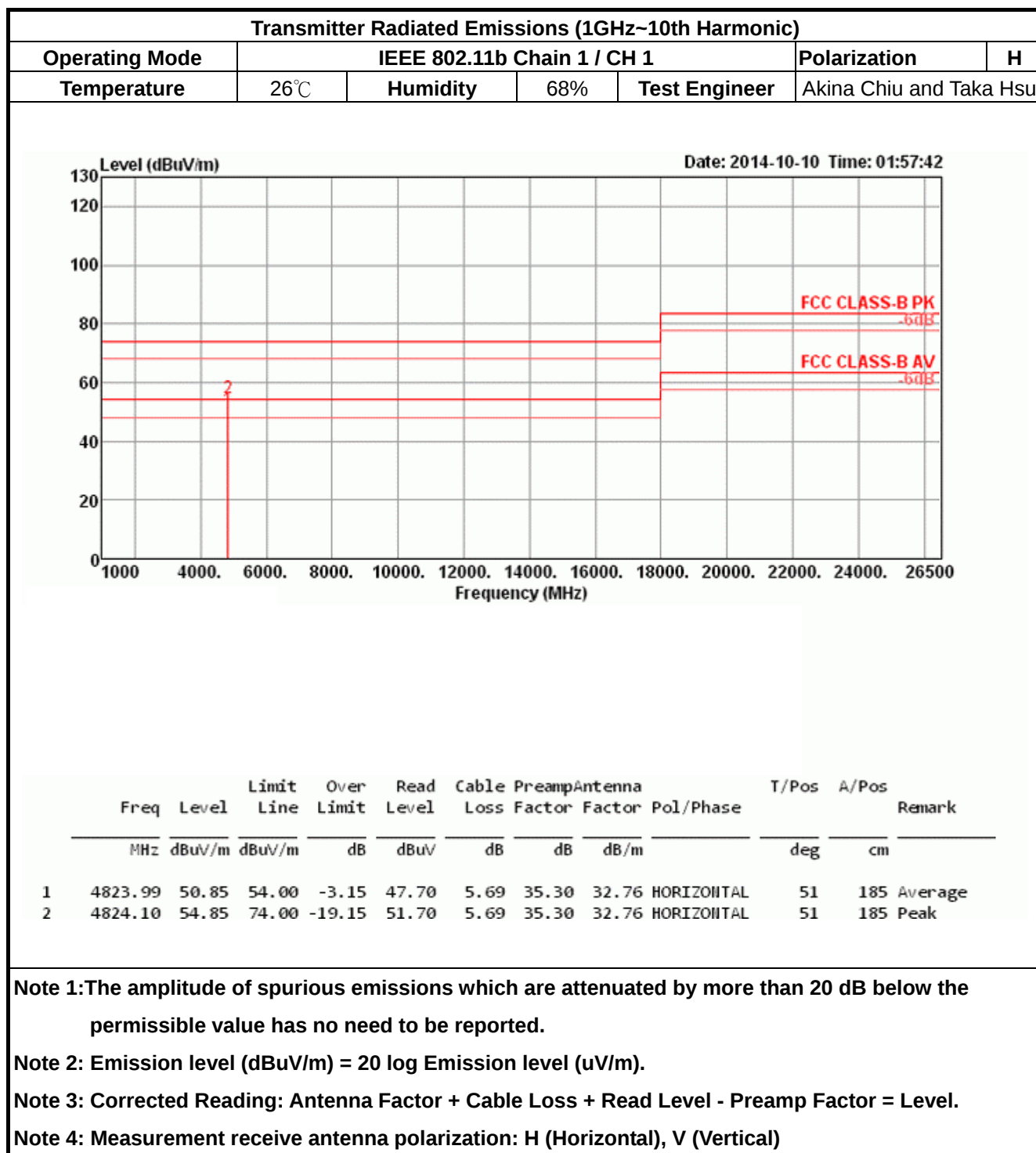
|   | Freq   | Level  | Limit  | Over   | Read  | Preamp | Antenna | Cable | Remark | A/Pos | T/Pos | Pol/Phase |
|---|--------|--------|--------|--------|-------|--------|---------|-------|--------|-------|-------|-----------|
|   | MHz    | dBuV/m | dBuV/m | dB     | dBuV  | dB     | dB/m    | dB    |        | cm    | deg   |           |
| 1 | 250.19 | 26.88  | 37.00  | -10.12 | 38.82 | 27.22  | 12.48   | 2.80  | Peak   | 200   | 56    | VERTICAL  |
| 2 | 381.14 | 30.31  | 37.00  | -6.69  | 38.63 | 27.72  | 15.93   | 3.47  | Peak   | 200   | 120   | VERTICAL  |
| 3 | 558.65 | 28.72  | 37.00  | -8.28  | 34.56 | 28.47  | 18.46   | 4.17  | Peak   | 200   | 234   | VERTICAL  |

**Note 1:** The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

**Note 2:** Emission level (dBuV/m) = 20 log Emission level (uV/m).

**Note 3:** Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

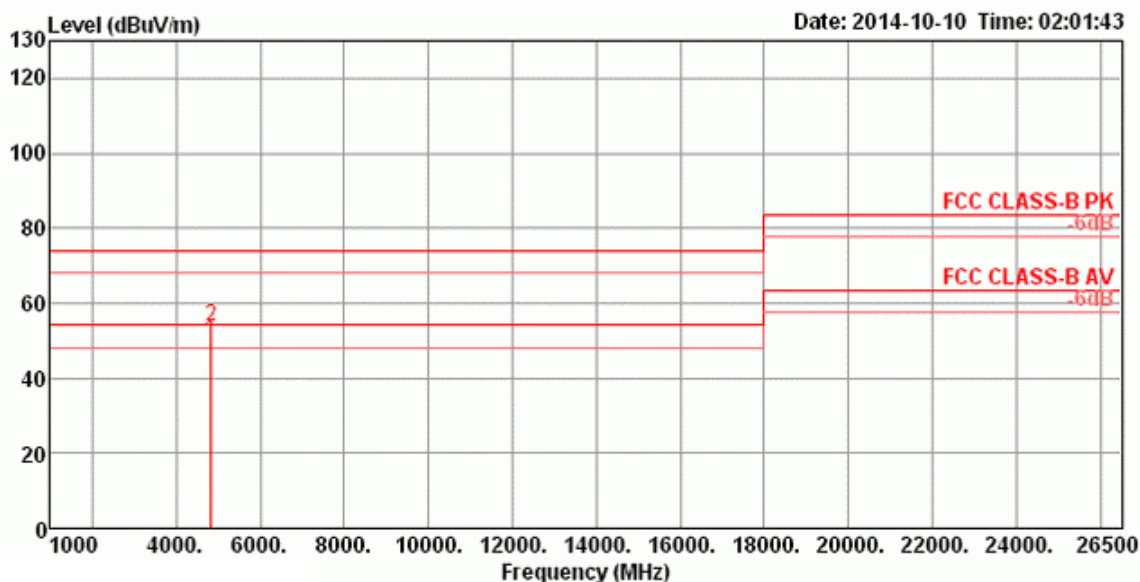
### 2.5.8 Results for Radiated Emissions (1GHz~10<sup>th</sup> Harmonic)





Transmitter Radiated Emissions (1GHz~10th Harmonic)

|                |                             |          |     |               |                         |   |
|----------------|-----------------------------|----------|-----|---------------|-------------------------|---|
| Operating Mode | IEEE 802.11b Chain 1 / CH 1 |          |     |               | Polarization            | V |
| Temperature    | 26°C                        | Humidity | 68% | Test Engineer | Akina Chiu and Taka Hsu |   |



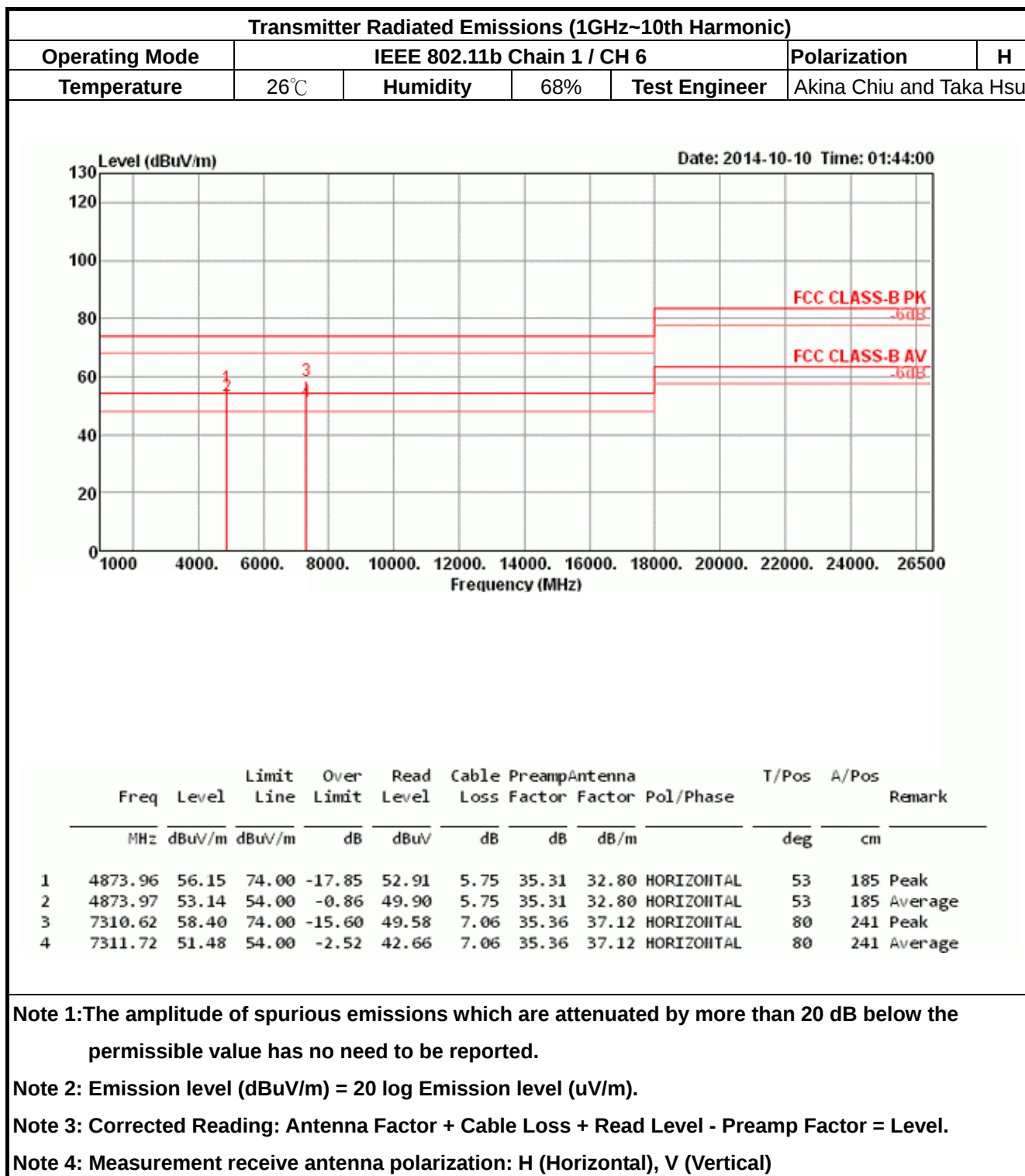
|   | Freq    | Level  | Limit  | Over   | Read  | Cable | Preamp | Antenna |           | T/Pos | A/Pos | Remark  |
|---|---------|--------|--------|--------|-------|-------|--------|---------|-----------|-------|-------|---------|
|   | MHz     | dBuV/m | dBuV/m | dB     | dBuV  | dB    | dB     | dB/m    | Pol/Phase | deg   | cm    |         |
| 1 | 4823.99 | 49.87  | 54.00  | -4.13  | 46.72 | 5.69  | 35.30  | 32.76   | VERTICAL  | 87    | 189   | Average |
| 2 | 4823.99 | 53.63  | 74.00  | -20.37 | 50.48 | 5.69  | 35.30  | 32.76   | VERTICAL  | 87    | 189   | Peak    |

Note 1: The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

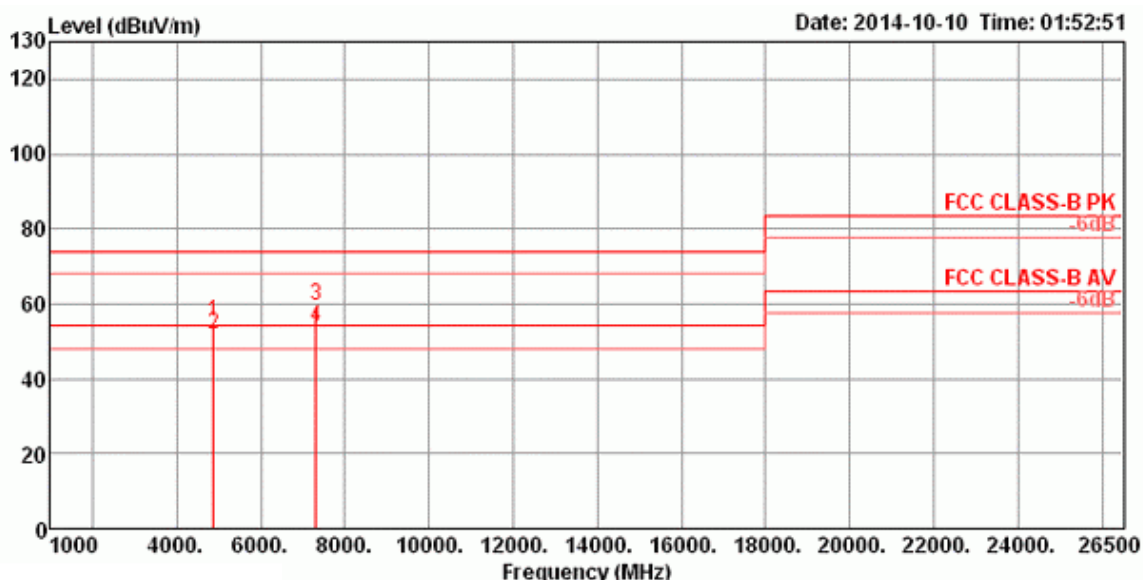
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Note 4: Measurement receive antenna polarization: H (Horizontal), V (Vertical)



**Transmitter Radiated Emissions (1GHz~10th Harmonic)**

|                       |                                    |                 |     |                      |                         |          |
|-----------------------|------------------------------------|-----------------|-----|----------------------|-------------------------|----------|
| <b>Operating Mode</b> | <b>IEEE 802.11b Chain 1 / CH 6</b> |                 |     |                      | <b>Polarization</b>     | <b>V</b> |
| <b>Temperature</b>    | 26°C                               | <b>Humidity</b> | 68% | <b>Test Engineer</b> | Akina Chiu and Taka Hsu |          |



|   | Freq    | Level  | Limit  | Over   | Read  | Cable | Preamp | Antenna |           | T/Pos | A/Pos | Remark  |
|---|---------|--------|--------|--------|-------|-------|--------|---------|-----------|-------|-------|---------|
|   | MHz     | dBuV/m | dBuV/m | Limit  | Level | Loss  | Factor | Factor  | Pol/Phase | deg   | cm    |         |
| 1 | 4873.90 | 55.34  | 74.00  | -18.66 | 52.10 | 5.75  | 35.31  | 32.80   | VERTICAL  | 89    | 185   | Peak    |
| 2 | 4873.99 | 51.99  | 54.00  | -2.01  | 48.75 | 5.75  | 35.31  | 32.80   | VERTICAL  | 89    | 185   | Average |
| 3 | 7311.41 | 59.41  | 74.00  | -14.59 | 50.59 | 7.06  | 35.36  | 37.12   | VERTICAL  | 114   | 100   | Peak    |
| 4 | 7311.72 | 53.93  | 54.00  | -0.07  | 45.11 | 7.06  | 35.36  | 37.12   | VERTICAL  | 114   | 100   | Average |

**Note 1:**The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

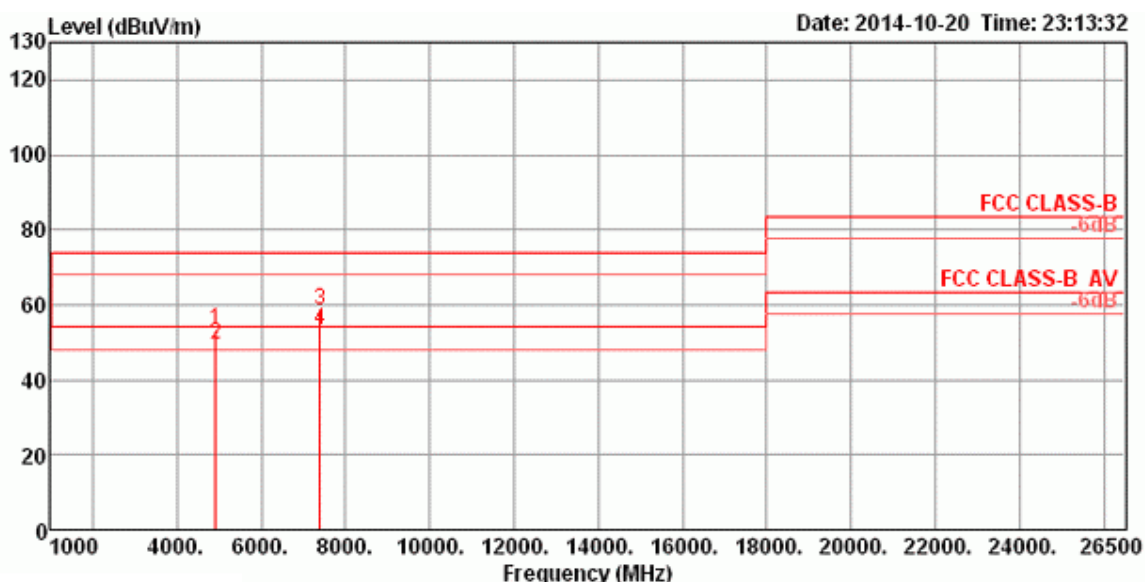
**Note 2:** Emission level (dBuV/m) = 20 log Emission level (uV/m).

**Note 3:** Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

**Note 4:** Measurement receive antenna polarization: H (Horizontal), V (Vertical)

**Transmitter Radiated Emissions (1GHz~10th Harmonic)**

|                       |                                     |                 |     |                      |                         |          |
|-----------------------|-------------------------------------|-----------------|-----|----------------------|-------------------------|----------|
| <b>Operating Mode</b> | <b>IEEE 802.11b Chain 1 / CH 11</b> |                 |     |                      | <b>Polarization</b>     | <b>H</b> |
| <b>Temperature</b>    | 26°C                                | <b>Humidity</b> | 68% | <b>Test Engineer</b> | Akina Chiu and Taka Hsu |          |



|   | Freq    | Level  | Limit  | Over   | Read  | Cable | Antenna | Preamp | T/Pos | A/Pos | Remark  | Pol/Phase  |
|---|---------|--------|--------|--------|-------|-------|---------|--------|-------|-------|---------|------------|
|   | MHz     | dBuV/m | dBuV/m | Limit  | Level | Loss  | Factor  | Factor | deg   | cm    |         |            |
| 1 | 4923.89 | 53.02  | 74.00  | -20.98 | 48.12 | 6.05  | 33.76   | 34.91  | 45    | 184   | Peak    | HORIZONTAL |
| 2 | 4924.00 | 49.46  | 54.00  | -4.54  | 44.56 | 6.05  | 33.76   | 34.91  | 45    | 184   | Average | HORIZONTAL |
| 3 | 7385.06 | 58.52  | 74.00  | -15.48 | 48.54 | 8.34  | 36.85   | 35.21  | 64    | 203   | Peak    | HORIZONTAL |
| 4 | 7385.23 | 53.11  | 54.00  | -0.89  | 43.13 | 8.34  | 36.85   | 35.21  | 64    | 203   | Average | HORIZONTAL |

**Note 1:**The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

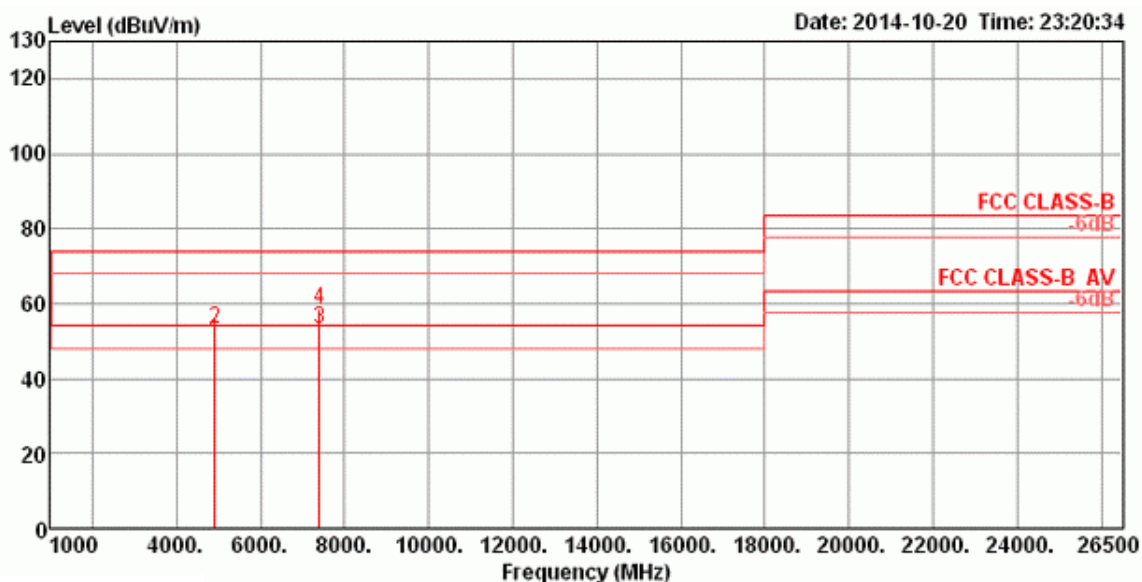
**Note 2:** Emission level (dBuV/m) = 20 log Emission level (uV/m).

**Note 3:** Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

**Note 4:** Measurement receive antenna polarization: H (Horizontal), V (Vertical)

**Transmitter Radiated Emissions (1GHz~10th Harmonic)**

|                       |                                     |                 |     |                      |                         |          |
|-----------------------|-------------------------------------|-----------------|-----|----------------------|-------------------------|----------|
| <b>Operating Mode</b> | <b>IEEE 802.11b Chain 1 / CH 11</b> |                 |     |                      | <b>Polarization</b>     | <b>V</b> |
| <b>Temperature</b>    | 26°C                                | <b>Humidity</b> | 68% | <b>Test Engineer</b> | Akina Chiu and Taka Hsu |          |



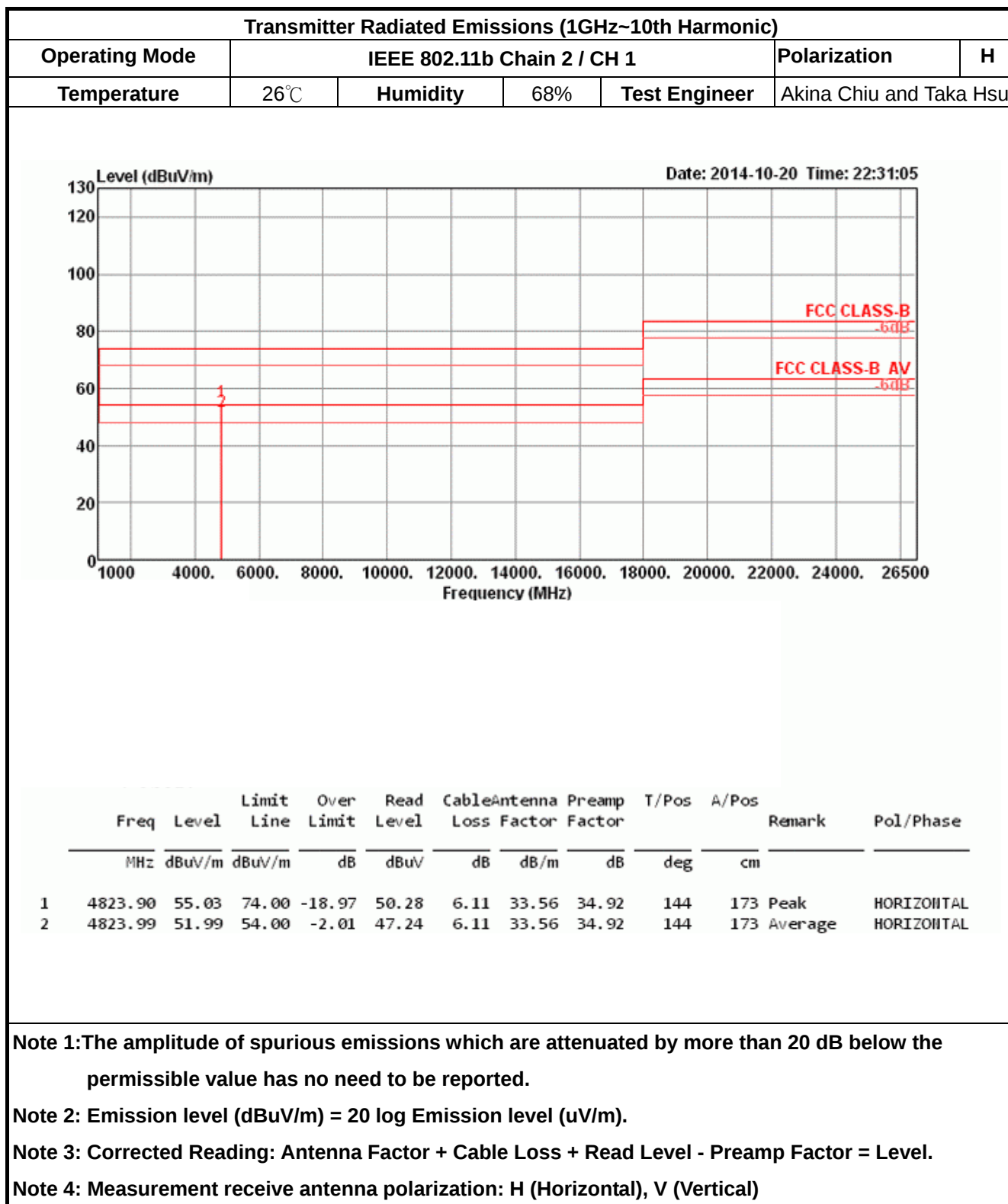
|   | Freq    | Level  | Limit  | Over   | Read  | Cable | Antenna | Preamp | T/Pos | A/Pos | Remark  | Pol/Phase |
|---|---------|--------|--------|--------|-------|-------|---------|--------|-------|-------|---------|-----------|
|   | MHz     | dBuV/m | dBuV/m | dB     | dBuV  | dB    | dB/m    | dB     | deg   | cm    |         |           |
| 1 | 4923.97 | 49.92  | 54.00  | -4.08  | 45.02 | 6.05  | 33.76   | 34.91  | 98    | 183   | Average | VERTICAL  |
| 2 | 4924.01 | 53.29  | 74.00  | -20.71 | 48.39 | 6.05  | 33.76   | 34.91  | 98    | 183   | Peak    | VERTICAL  |
| 3 | 7385.24 | 53.44  | 54.00  | -0.56  | 43.46 | 8.34  | 36.85   | 35.21  | 72    | 281   | Average | VERTICAL  |
| 4 | 7386.87 | 58.43  | 74.00  | -15.57 | 48.45 | 8.34  | 36.85   | 35.21  | 72    | 281   | Peak    | VERTICAL  |

**Note 1:** The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

**Note 2:** Emission level (dBuV/m) = 20 log Emission level (uV/m).

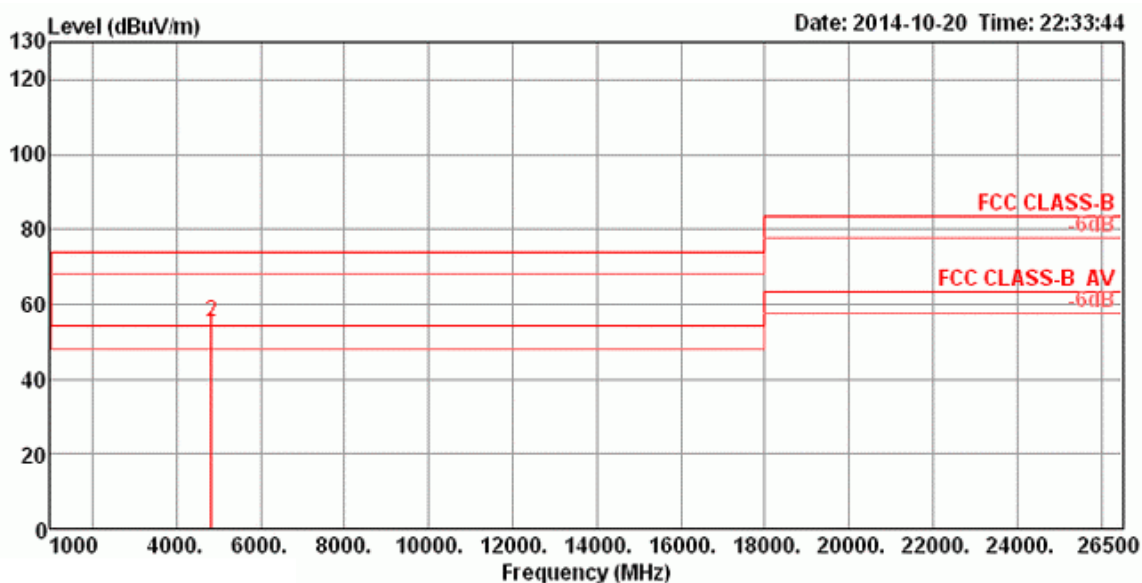
**Note 3:** Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

**Note 4:** Measurement receive antenna polarization: H (Horizontal), V (Vertical)



**Transmitter Radiated Emissions (1GHz~10th Harmonic)**

|                |                             |          |     |               |                         |   |
|----------------|-----------------------------|----------|-----|---------------|-------------------------|---|
| Operating Mode | IEEE 802.11b Chain 2 / CH 1 |          |     |               | Polarization            | V |
| Temperature    | 26°C                        | Humidity | 68% | Test Engineer | Akina Chiu and Taka Hsu |   |



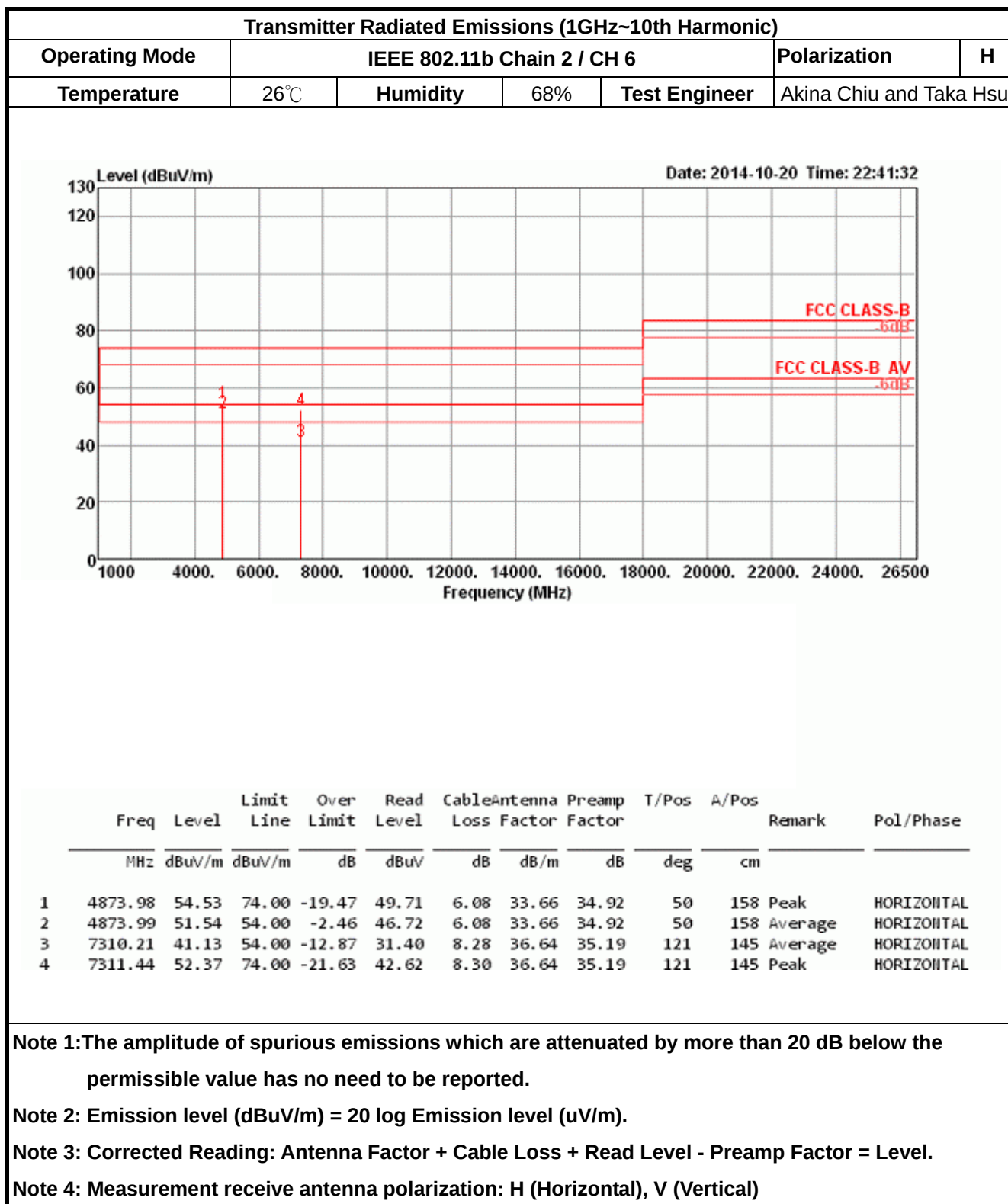
|   | Freq    | Level  | Limit  | Over   | Read  | Cable | Antenna | Preamp | T/Pos | A/Pos | Remark  | Pol/Phase |
|---|---------|--------|--------|--------|-------|-------|---------|--------|-------|-------|---------|-----------|
|   | MHz     | dBuV/m | dBuV/m | dB     | dBuV  | dB    | dB/m    | dB     | deg   | cm    |         |           |
| 1 | 4823.98 | 52.45  | 54.00  | -1.55  | 47.70 | 6.11  | 33.56   | 34.92  | 109   | 271   | Average | VERTICAL  |
| 2 | 4824.00 | 55.12  | 74.00  | -18.88 | 50.37 | 6.11  | 33.56   | 34.92  | 109   | 271   | Peak    | VERTICAL  |

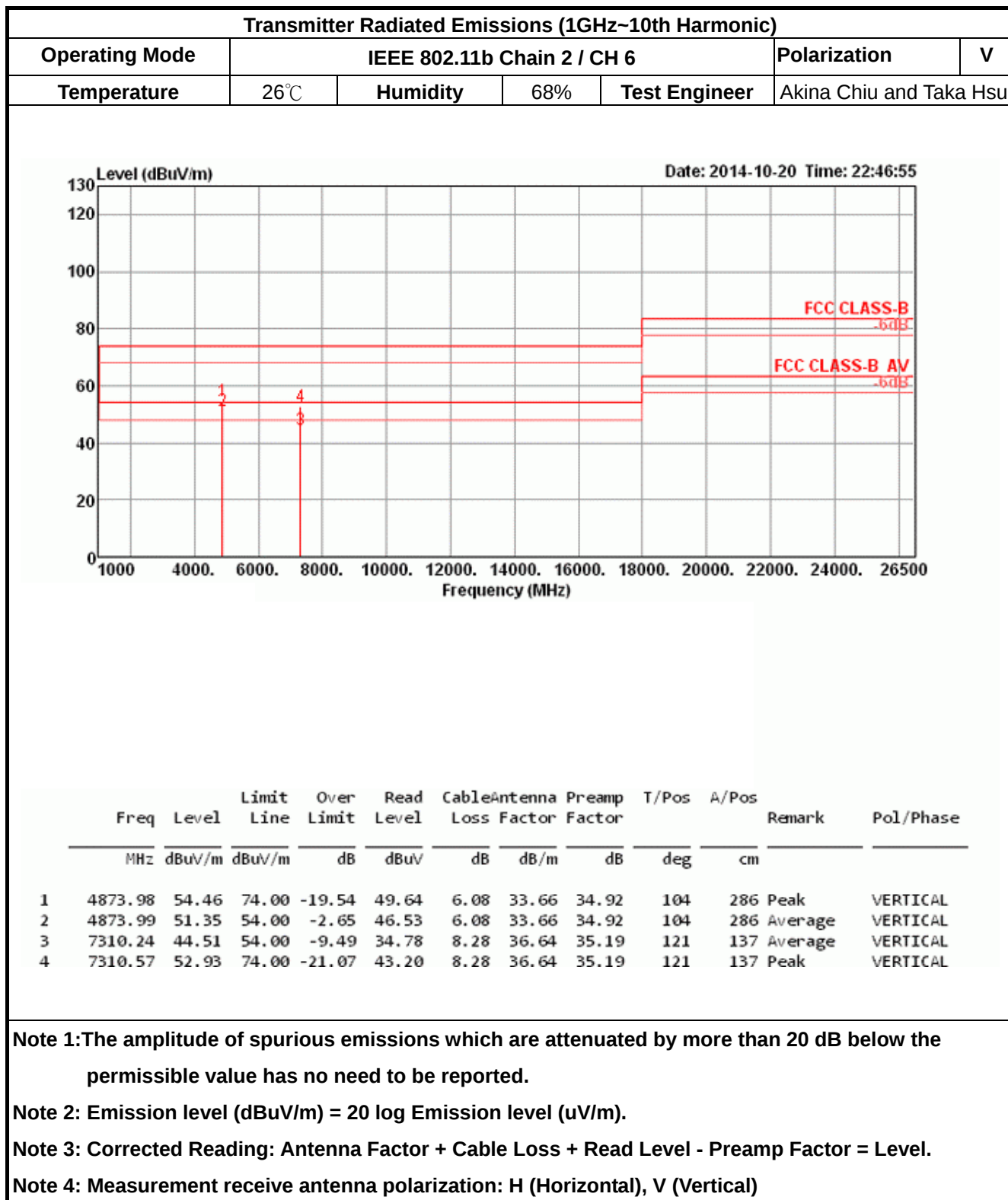
**Note 1:** The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

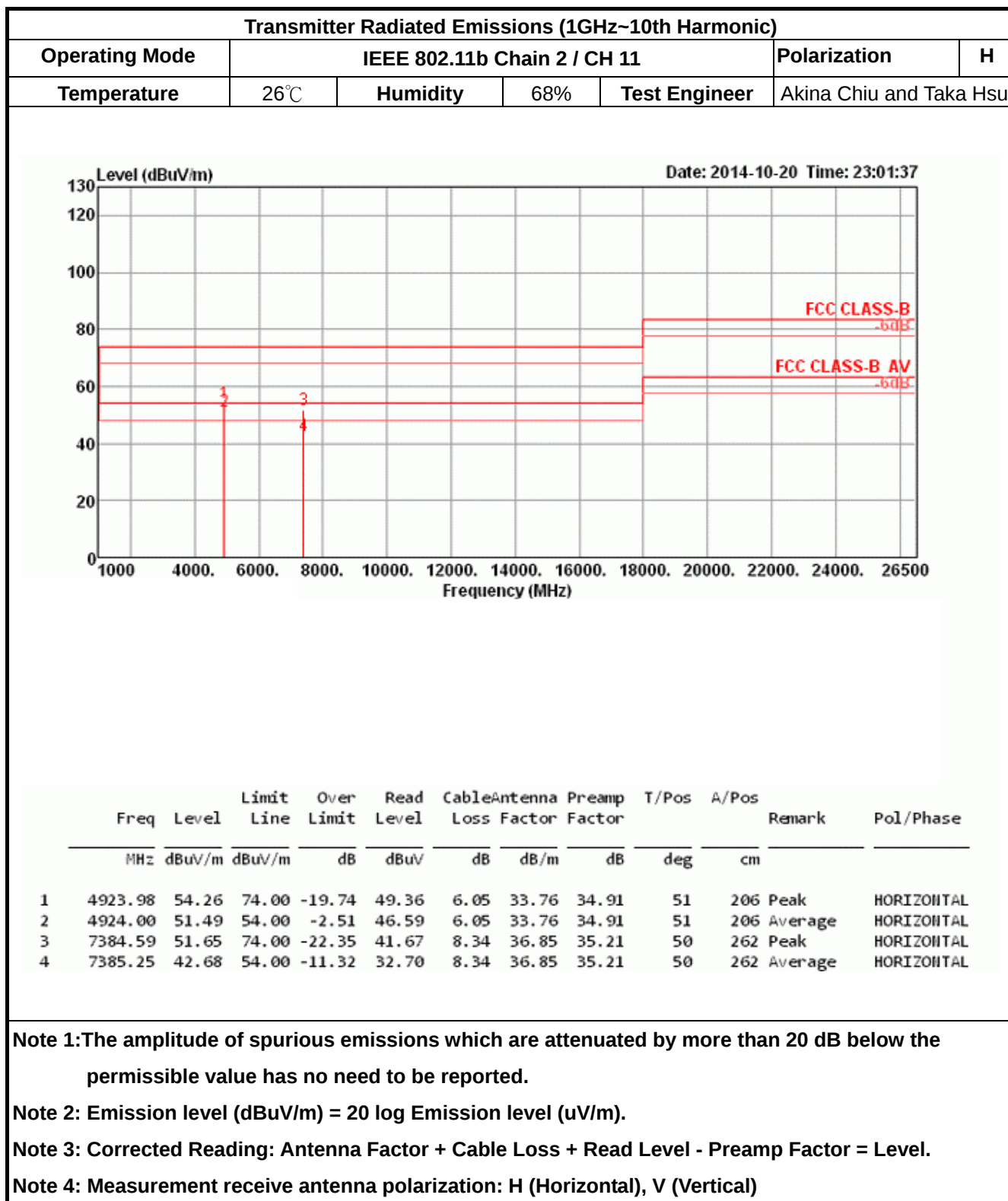
**Note 2:** Emission level (dBuV/m) = 20 log Emission level (uV/m).

**Note 3:** Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

**Note 4:** Measurement receive antenna polarization: H (Horizontal), V (Vertical)

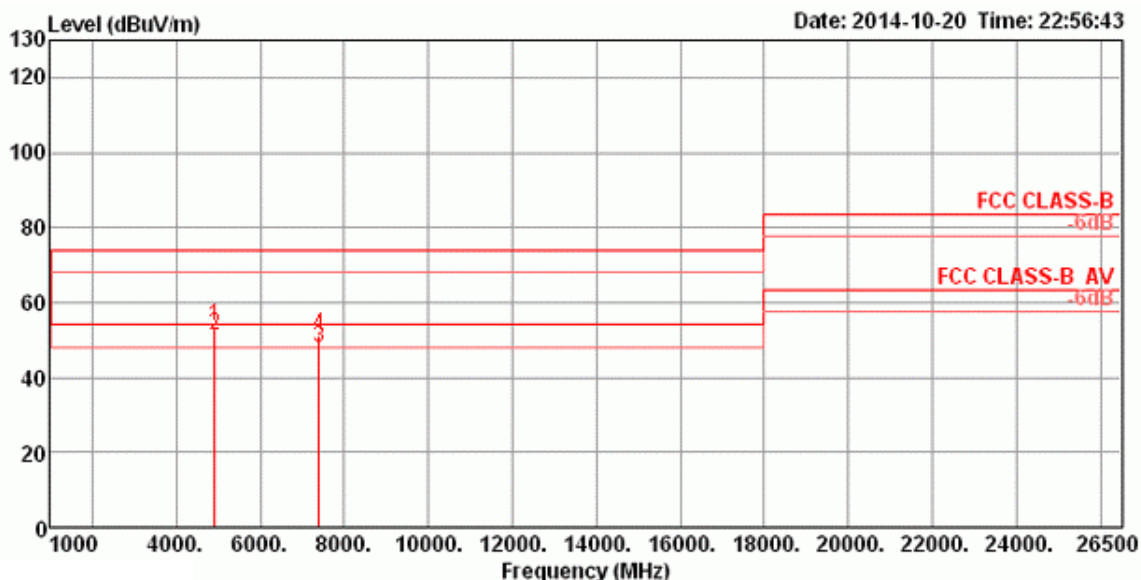






**Transmitter Radiated Emissions (1GHz~10th Harmonic)**

|                       |                                     |                 |     |                      |                         |          |
|-----------------------|-------------------------------------|-----------------|-----|----------------------|-------------------------|----------|
| <b>Operating Mode</b> | <b>IEEE 802.11b Chain 2 / CH 11</b> |                 |     |                      | <b>Polarization</b>     | <b>V</b> |
| <b>Temperature</b>    | 26°C                                | <b>Humidity</b> | 68% | <b>Test Engineer</b> | Akina Chiu and Taka Hsu |          |



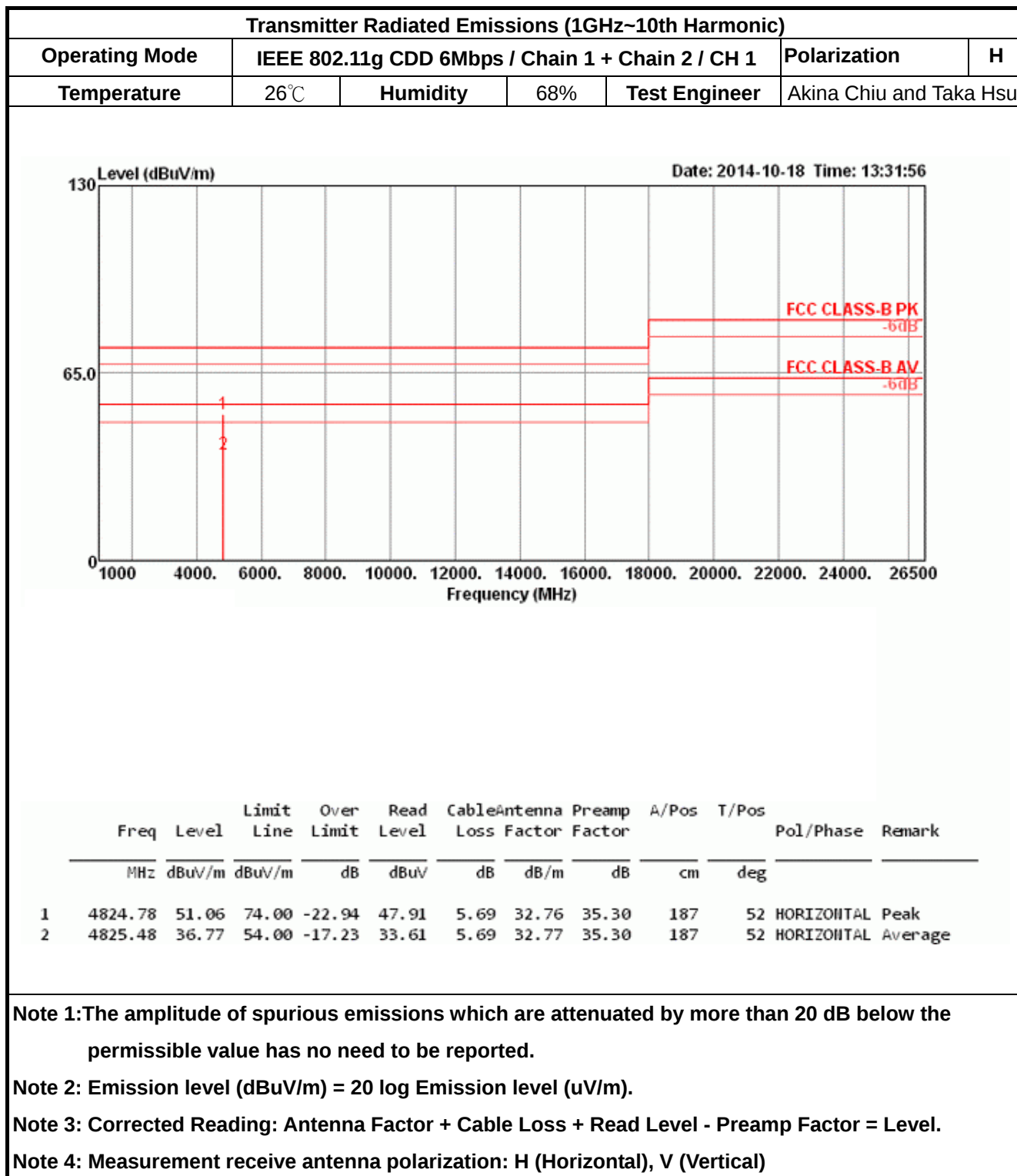
|   | Freq    | Level  | Limit  | Over   | Read  | Cable | Antenna | Preamp | T/Pos | A/Pos | Remark  | Pol/Phase |
|---|---------|--------|--------|--------|-------|-------|---------|--------|-------|-------|---------|-----------|
|   | MHz     | dBuV/m | dBuV/m | Limit  | Level | Loss  | Factor  | Factor | deg   | cm    |         |           |
| 1 | 4923.98 | 53.86  | 74.00  | -20.14 | 48.96 | 6.05  | 33.76   | 34.91  | 88    | 279   | Peak    | VERTICAL  |
| 2 | 4923.98 | 51.20  | 54.00  | -2.80  | 46.30 | 6.05  | 33.76   | 34.91  | 88    | 279   | Average | VERTICAL  |
| 3 | 7386.71 | 48.18  | 54.00  | -5.82  | 38.20 | 8.34  | 36.85   | 35.21  | 71    | 256   | Average | VERTICAL  |
| 4 | 7386.86 | 51.26  | 74.00  | -22.74 | 41.28 | 8.34  | 36.85   | 35.21  | 71    | 256   | Peak    | VERTICAL  |

**Note 1:** The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

**Note 2:** Emission level (dBuV/m) = 20 log Emission level (uV/m).

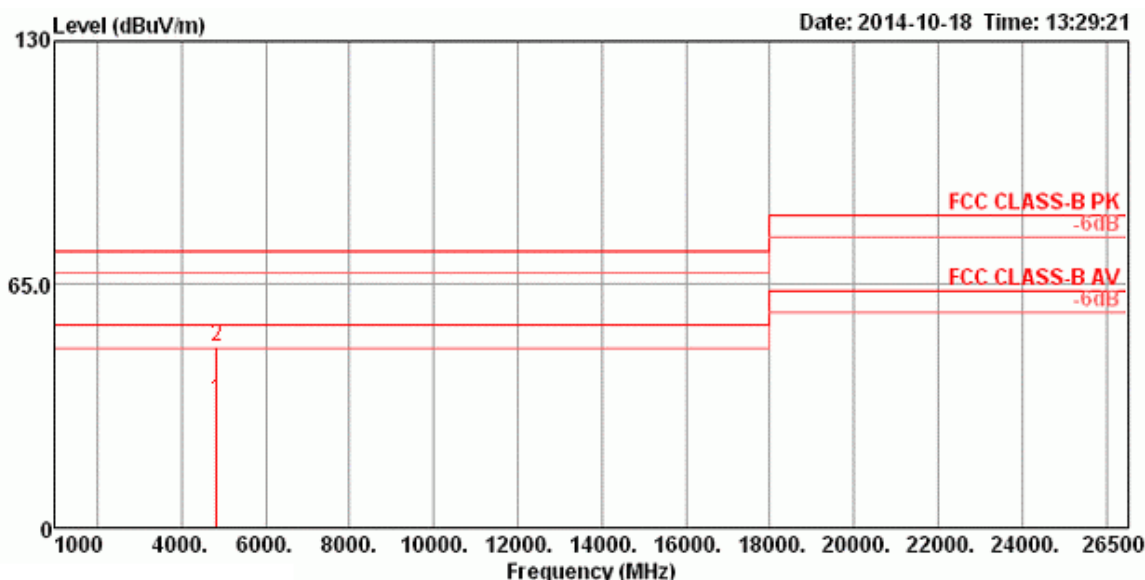
**Note 3:** Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

**Note 4:** Measurement receive antenna polarization: H (Horizontal), V (Vertical)





| Transmitter Radiated Emissions (1GHz~10th Harmonic) |                                                   |          |     |               |                         |   |
|-----------------------------------------------------|---------------------------------------------------|----------|-----|---------------|-------------------------|---|
| Operating Mode                                      | IEEE 802.11g CDD 6Mbps / Chain 1 + Chain 2 / CH 1 |          |     |               | Polarization            | V |
| Temperature                                         | 26℃                                               | Humidity | 68% | Test Engineer | Akina Chiu and Taka Hsu |   |



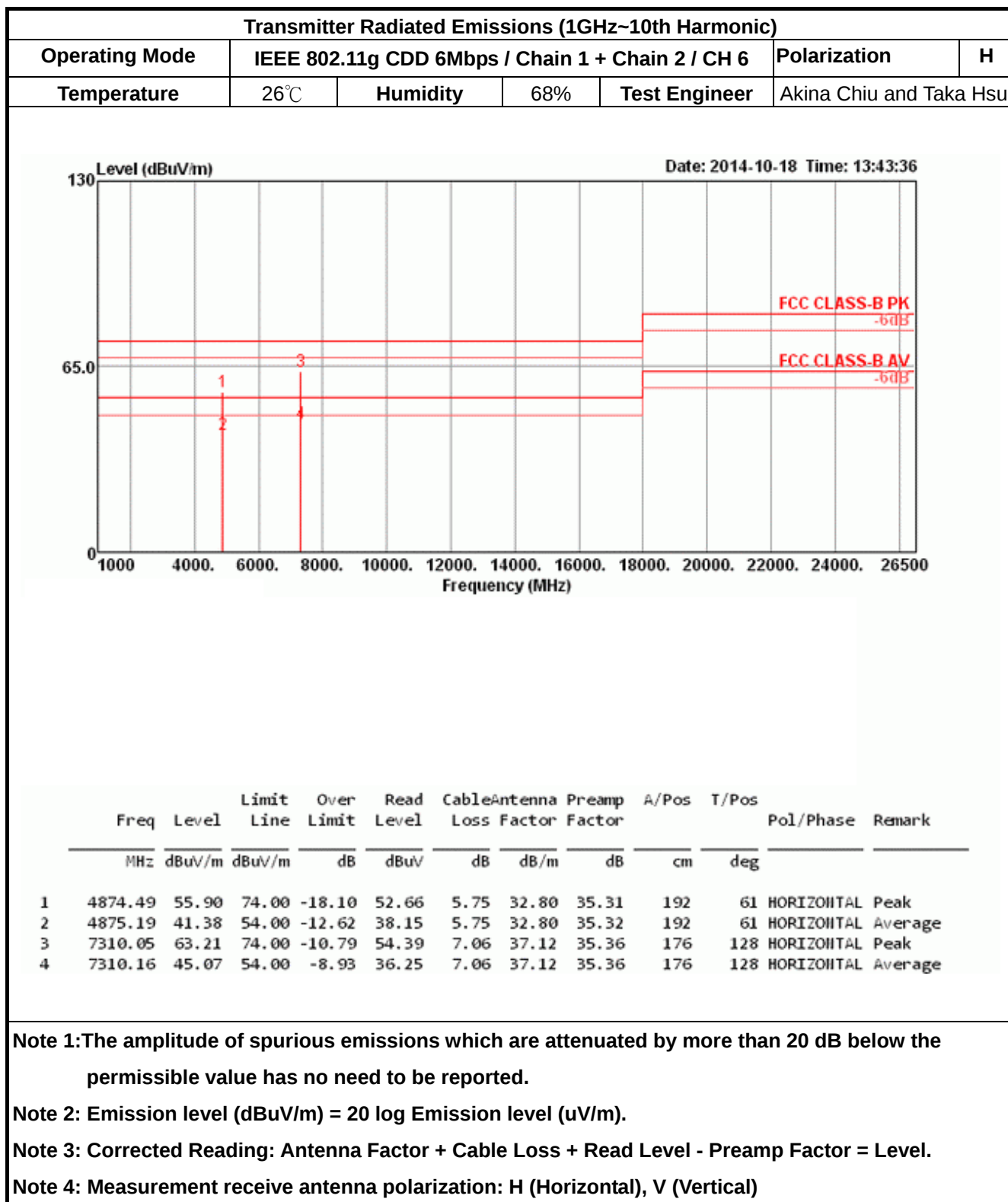
|   | Freq    | Level  | Limit  | Over   | Read  | Cable | Antenna | Preamp | A/Pos | T/Pos | Pol/Phase | Remark  |
|---|---------|--------|--------|--------|-------|-------|---------|--------|-------|-------|-----------|---------|
|   | MHz     | dBuV/m | dBuV/m | dB     | dBuV  | dB    | dB/m    | dB     | cm    | deg   |           |         |
| 1 | 4821.54 | 34.23  | 54.00  | -19.77 | 31.09 | 5.68  | 32.76   | 35.30  | 197   | 88    | VERTICAL  | Average |
| 2 | 4831.41 | 48.26  | 74.00  | -25.74 | 45.10 | 5.69  | 32.77   | 35.30  | 197   | 88    | VERTICAL  | Peak    |

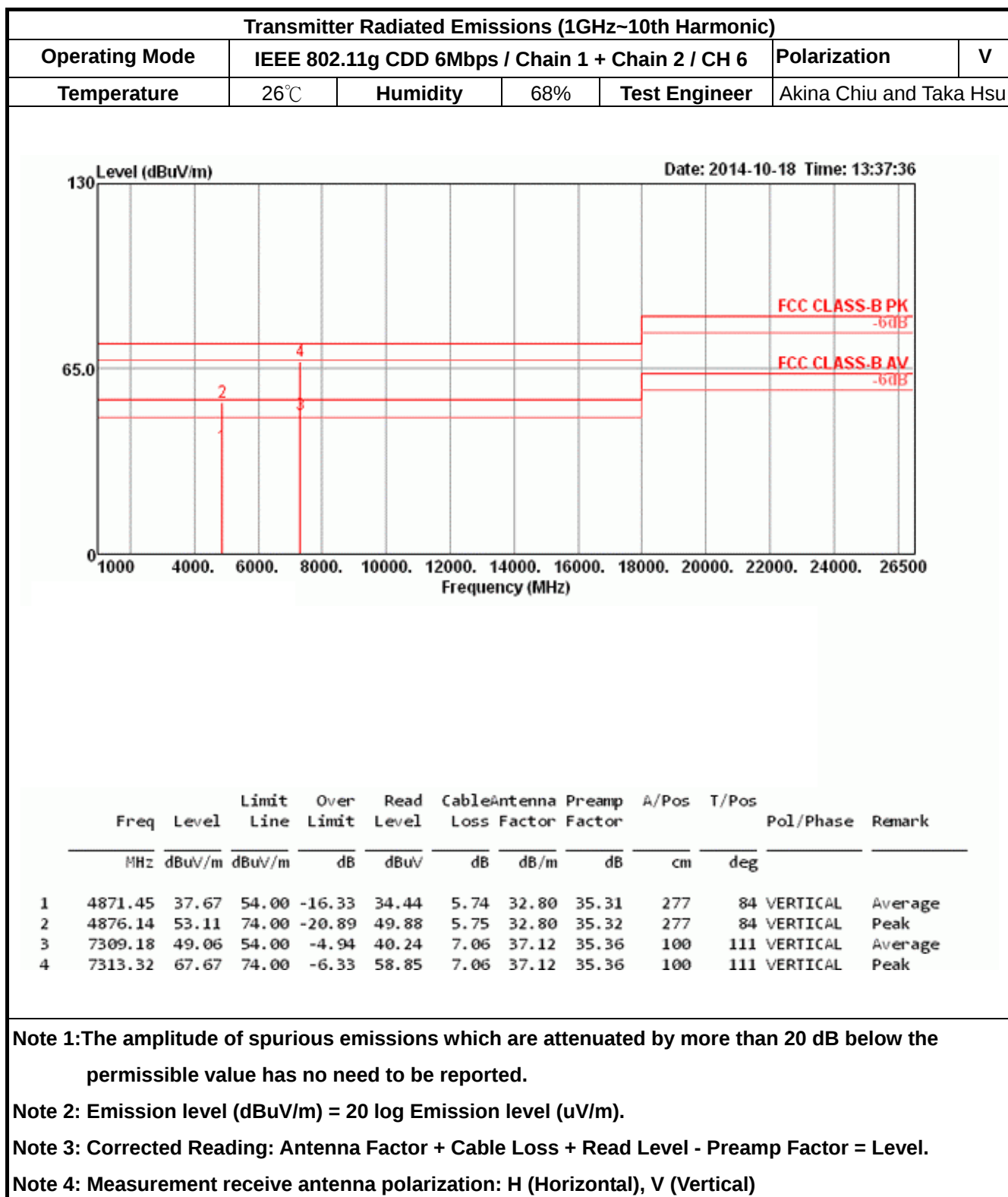
Note 1: The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

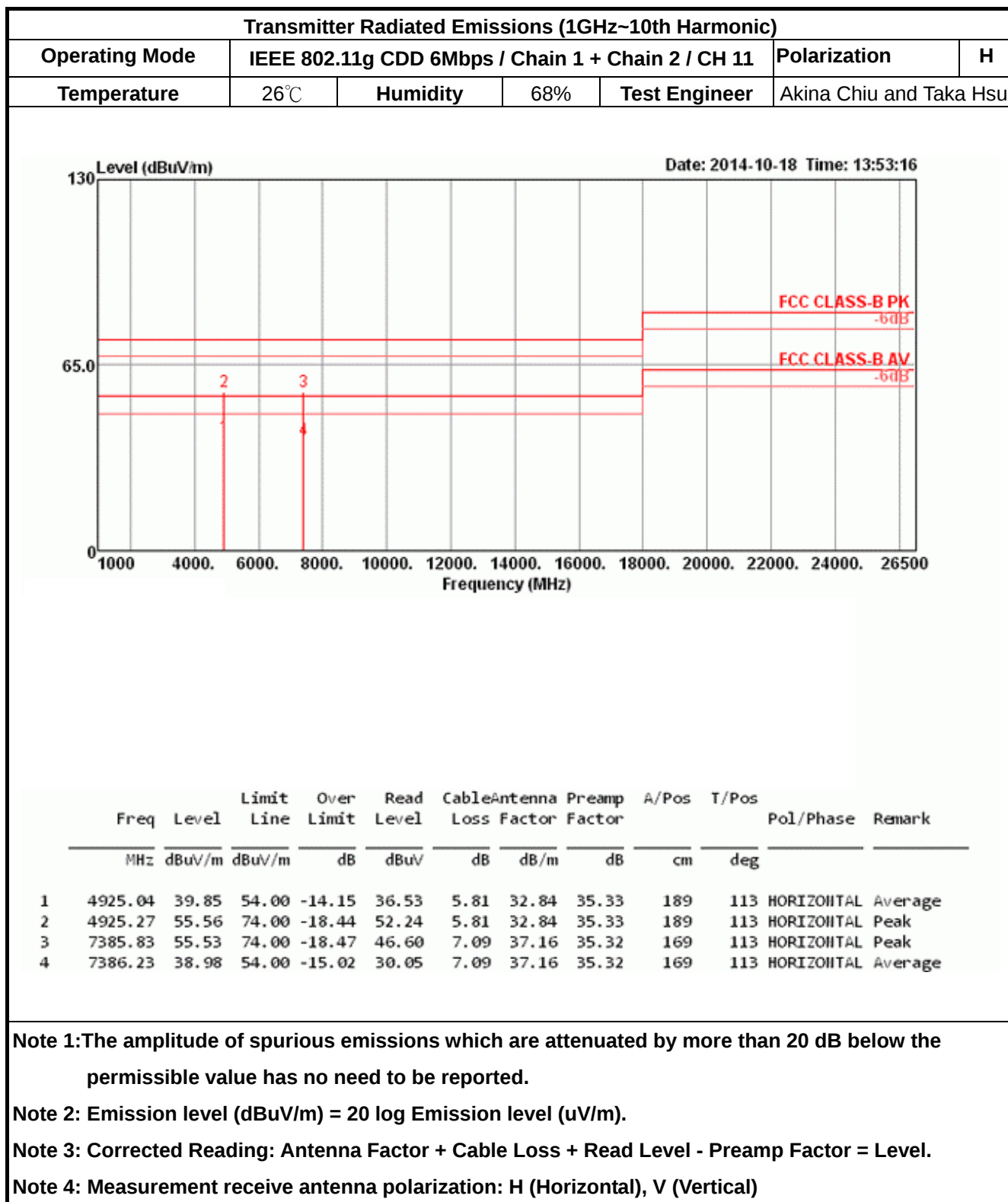
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

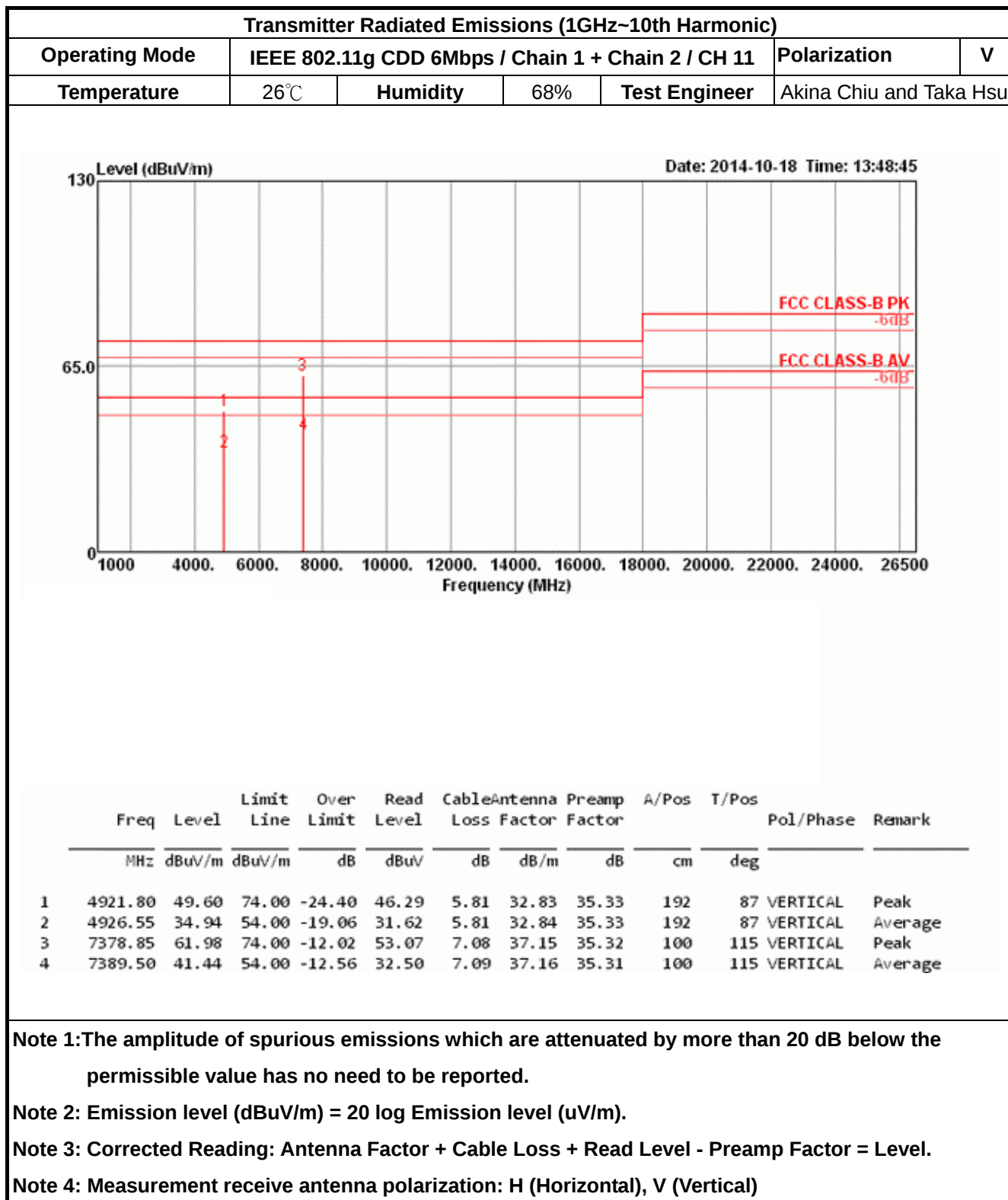
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

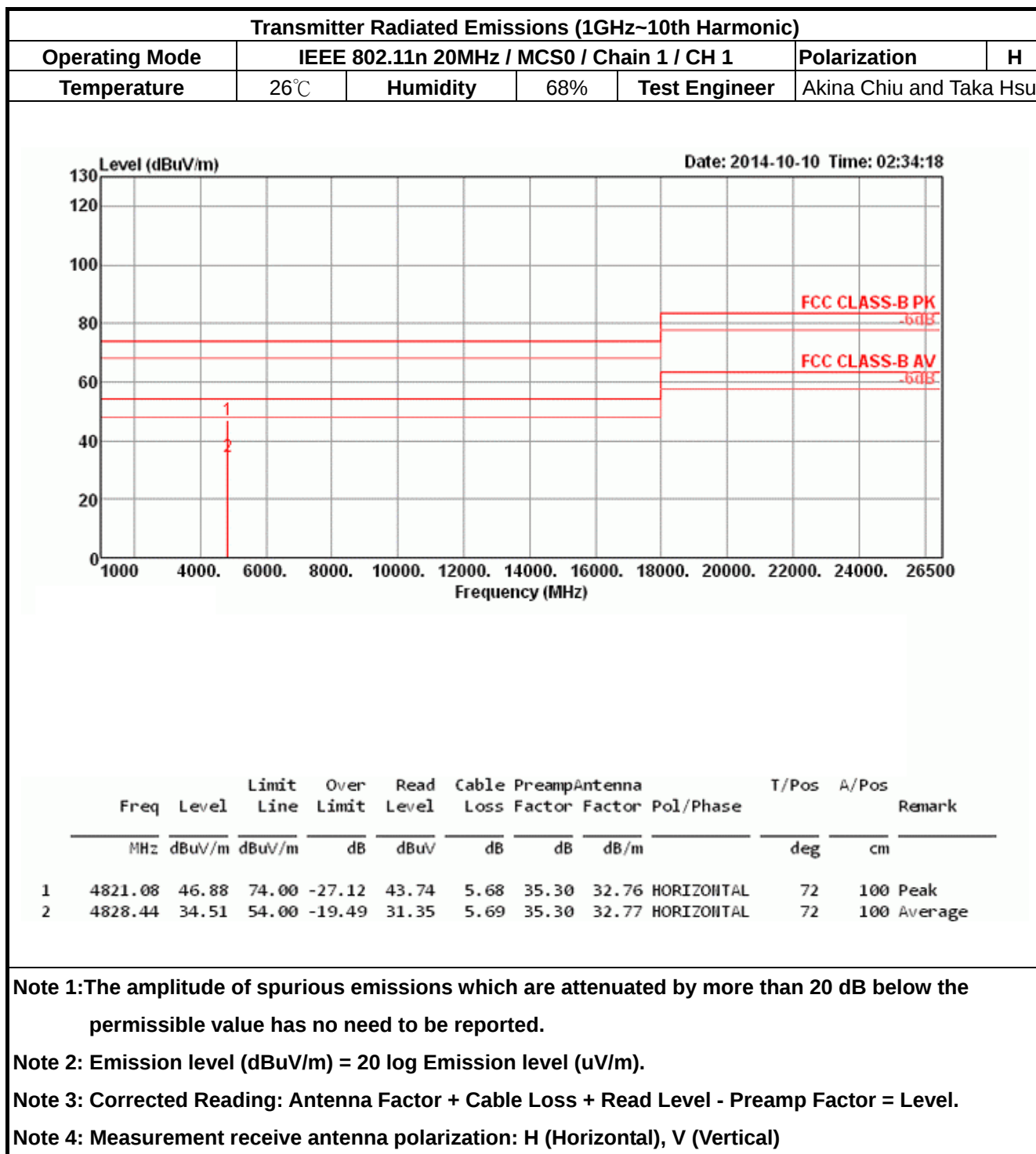
Note 4: Measurement receive antenna polarization: H (Horizontal), V (Vertical)





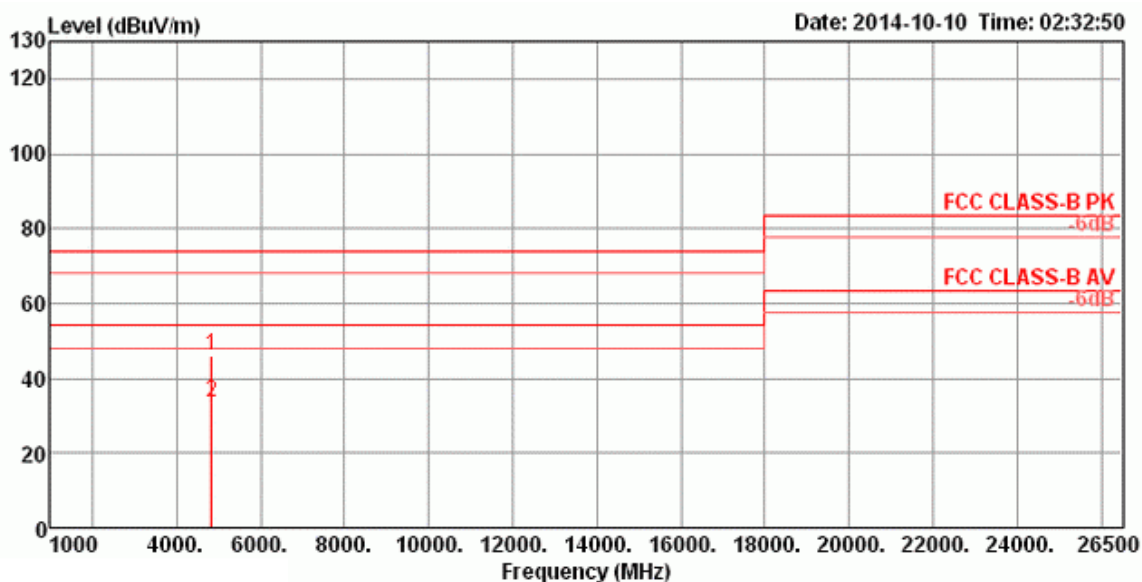






**Transmitter Radiated Emissions (1GHz~10th Harmonic)**

|                |                                            |          |     |               |                         |
|----------------|--------------------------------------------|----------|-----|---------------|-------------------------|
| Operating Mode | IEEE 802.11n 20MHz / MCS0 / Chain 1 / CH 1 |          |     | Polarization  | V                       |
| Temperature    | 26°C                                       | Humidity | 68% | Test Engineer | Akina Chiu and Taka Hsu |



|   | Freq    | Level  | Limit  | Over   | Read  | Cable | Preamp | Antenna |           | T/Pos | A/Pos | Remark  |
|---|---------|--------|--------|--------|-------|-------|--------|---------|-----------|-------|-------|---------|
|   | MHz     | dBuV/m | dBuV/m | dB     | dBuV  | dB    | dB     | dB/m    | Pol/Phase | deg   | cm    |         |
| 1 | 4820.89 | 46.00  | 74.00  | -28.00 | 42.86 | 5.68  | 35.30  | 32.76   | VERTICAL  | 191   | 184   | Peak    |
| 2 | 4828.76 | 33.45  | 54.00  | -20.55 | 30.29 | 5.69  | 35.30  | 32.77   | VERTICAL  | 191   | 184   | Average |

**Note 1:** The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

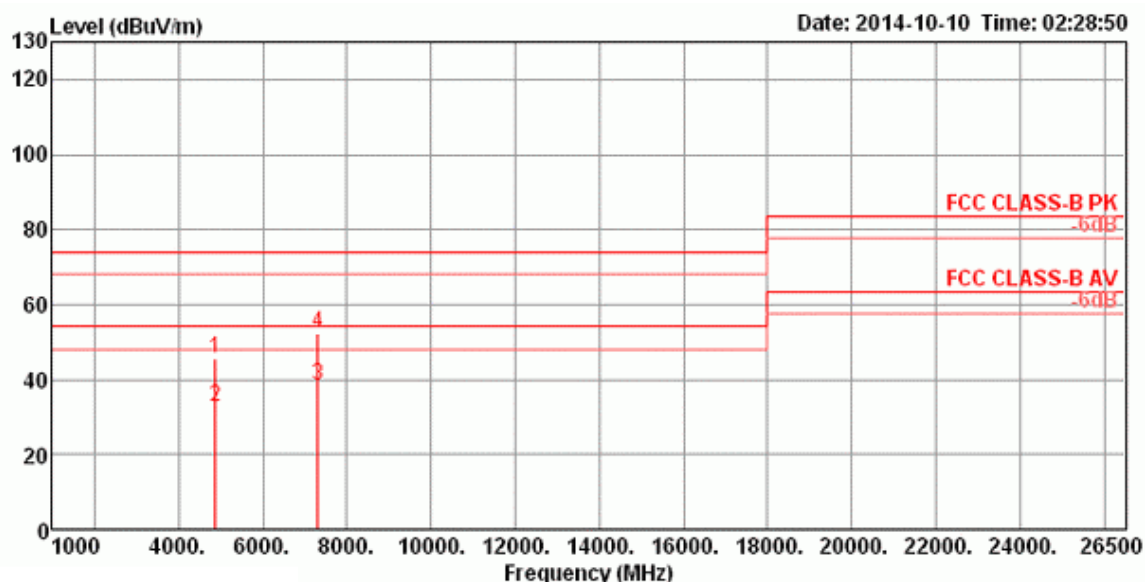
**Note 2:** Emission level (dBuV/m) = 20 log Emission level (uV/m).

**Note 3:** Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

**Note 4:** Measurement receive antenna polarization: H (Horizontal), V (Vertical)

**Transmitter Radiated Emissions (1GHz~10th Harmonic)**

|                       |                                                   |                 |     |                      |                         |
|-----------------------|---------------------------------------------------|-----------------|-----|----------------------|-------------------------|
| <b>Operating Mode</b> | <b>IEEE 802.11n 20MHz / MCS0 / Chain 1 / CH 6</b> |                 |     | <b>Polarization</b>  | <b>H</b>                |
| <b>Temperature</b>    | 26°C                                              | <b>Humidity</b> | 68% | <b>Test Engineer</b> | Akina Chiu and Taka Hsu |



|   | Freq    | Level  | Limit  | Over   | Read  | Cable | Preamp | Antenna |            | T/Pos | A/Pos | Remark  |
|---|---------|--------|--------|--------|-------|-------|--------|---------|------------|-------|-------|---------|
|   | MHz     | dBuV/m | dBuV/m | Limit  | Level | Loss  | Factor | Factor  | Pol/Phase  | deg   | cm    |         |
| 1 | 4876.08 | 45.47  | 74.00  | -28.53 | 42.24 | 5.75  | 35.32  | 32.80   | HORIZONTAL | 63    | 121   | Peak    |
| 2 | 4878.69 | 32.39  | 54.00  | -21.61 | 29.16 | 5.75  | 35.32  | 32.80   | HORIZONTAL | 63    | 121   | Average |
| 3 | 7307.08 | 38.36  | 54.00  | -15.64 | 29.55 | 7.05  | 35.36  | 37.12   | HORIZONTAL | 92    | 100   | Average |
| 4 | 7312.55 | 52.23  | 74.00  | -21.77 | 43.41 | 7.06  | 35.36  | 37.12   | HORIZONTAL | 92    | 100   | Peak    |

**Note 1:**The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

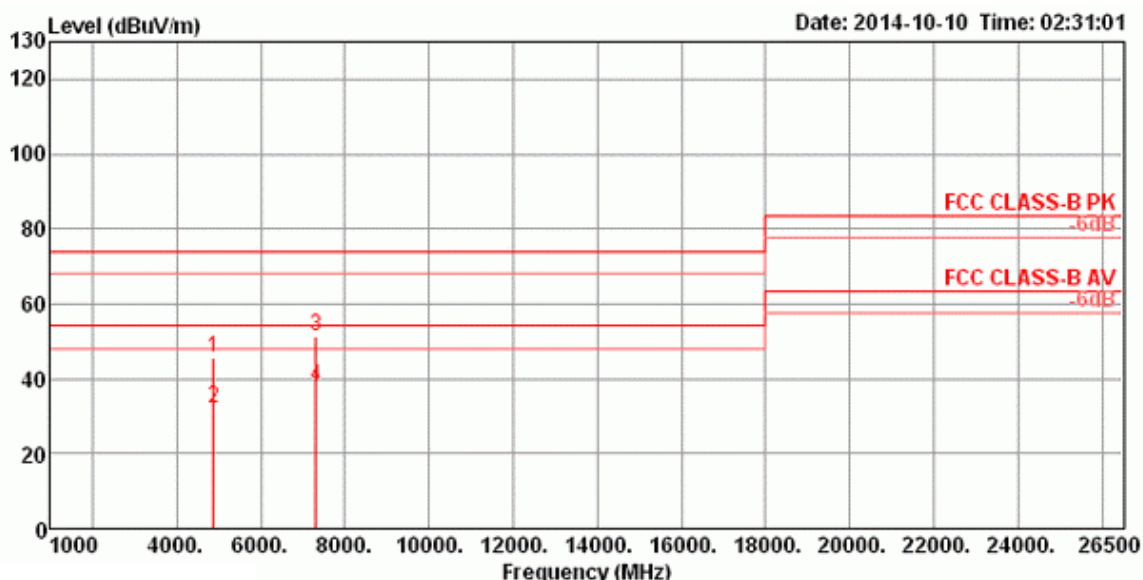
**Note 2:** Emission level (dBuV/m) = 20 log Emission level (uV/m).

**Note 3:** Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

**Note 4:** Measurement receive antenna polarization: H (Horizontal), V (Vertical)

**Transmitter Radiated Emissions (1GHz~10th Harmonic)**

|                |                                            |          |     |               |                         |
|----------------|--------------------------------------------|----------|-----|---------------|-------------------------|
| Operating Mode | IEEE 802.11n 20MHz / MCS0 / Chain 1 / CH 6 |          |     | Polarization  | V                       |
| Temperature    | 26°C                                       | Humidity | 68% | Test Engineer | Akina Chiu and Taka Hsu |



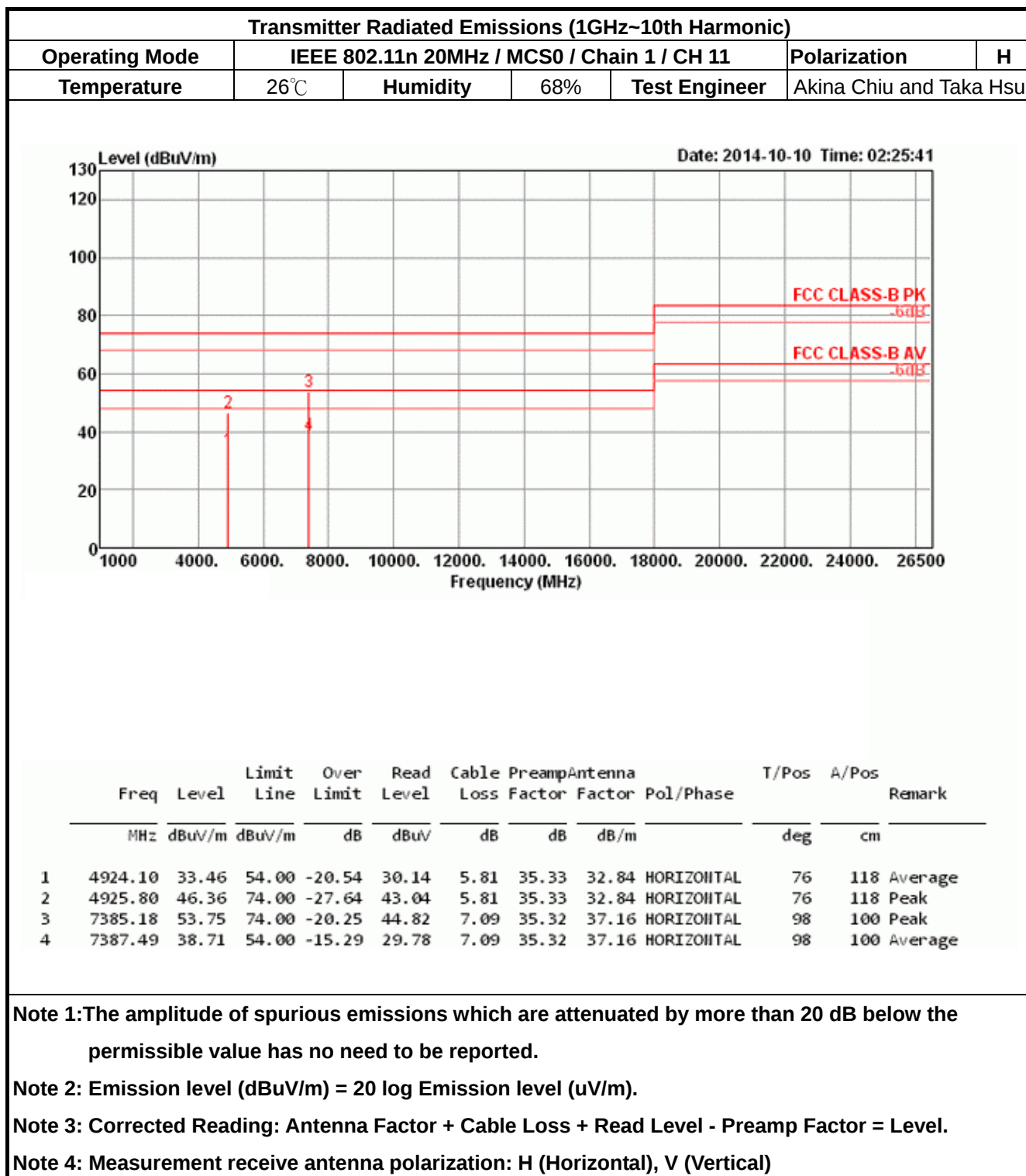
|   | Freq    | Level  | Limit  | Over   | Read  | Cable | Preamp | Antenna |           | T/Pos | A/Pos | Remark  |
|---|---------|--------|--------|--------|-------|-------|--------|---------|-----------|-------|-------|---------|
|   | MHz     | dBuV/m | dBuV/m | Limit  | Level | Loss  | Factor | Factor  | Pol/Phase | deg   | cm    |         |
| 1 | 4870.76 | 45.41  | 74.00  | -28.59 | 42.18 | 5.74  | 35.31  | 32.80   | VERTICAL  | 197   | 164   | Peak    |
| 2 | 4873.62 | 32.26  | 54.00  | -21.74 | 29.02 | 5.75  | 35.31  | 32.80   | VERTICAL  | 197   | 164   | Average |
| 3 | 7310.67 | 51.23  | 74.00  | -22.77 | 42.41 | 7.06  | 35.36  | 37.12   | VERTICAL  | 162   | 199   | Peak    |
| 4 | 7312.66 | 38.10  | 54.00  | -15.90 | 29.28 | 7.06  | 35.36  | 37.12   | VERTICAL  | 162   | 199   | Average |

**Note 1:**The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

**Note 2:** Emission level (dBuV/m) = 20 log Emission level (uV/m).

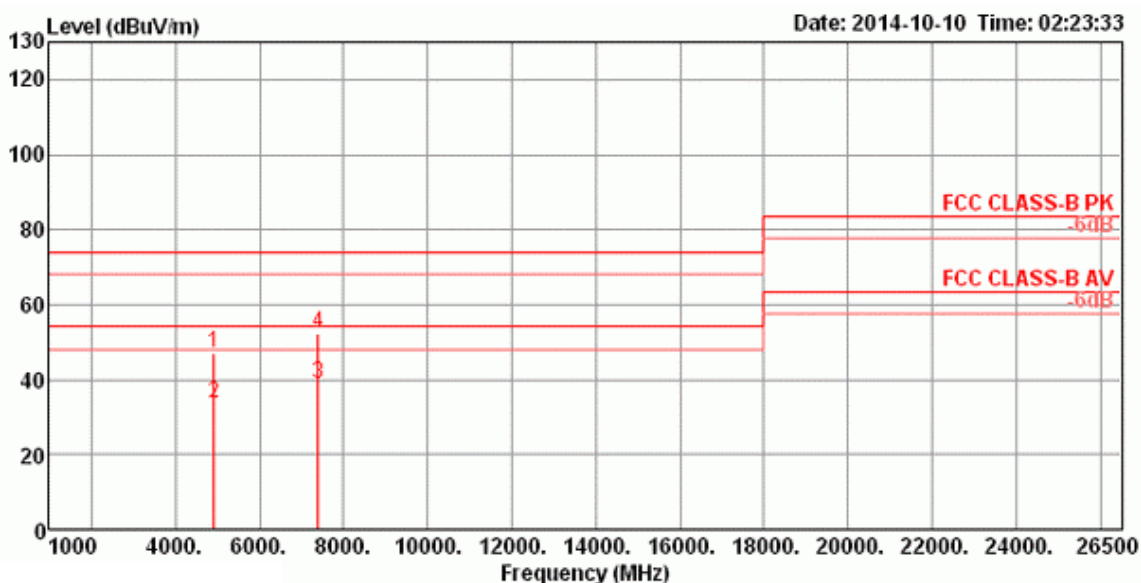
**Note 3:** Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

**Note 4:** Measurement receive antenna polarization: H (Horizontal), V (Vertical)



**Transmitter Radiated Emissions (1GHz~10th Harmonic)**

|                |                                             |          |     |               |                         |
|----------------|---------------------------------------------|----------|-----|---------------|-------------------------|
| Operating Mode | IEEE 802.11n 20MHz / MCS0 / Chain 1 / CH 11 |          |     | Polarization  | V                       |
| Temperature    | 26°C                                        | Humidity | 68% | Test Engineer | Akina Chiu and Taka Hsu |



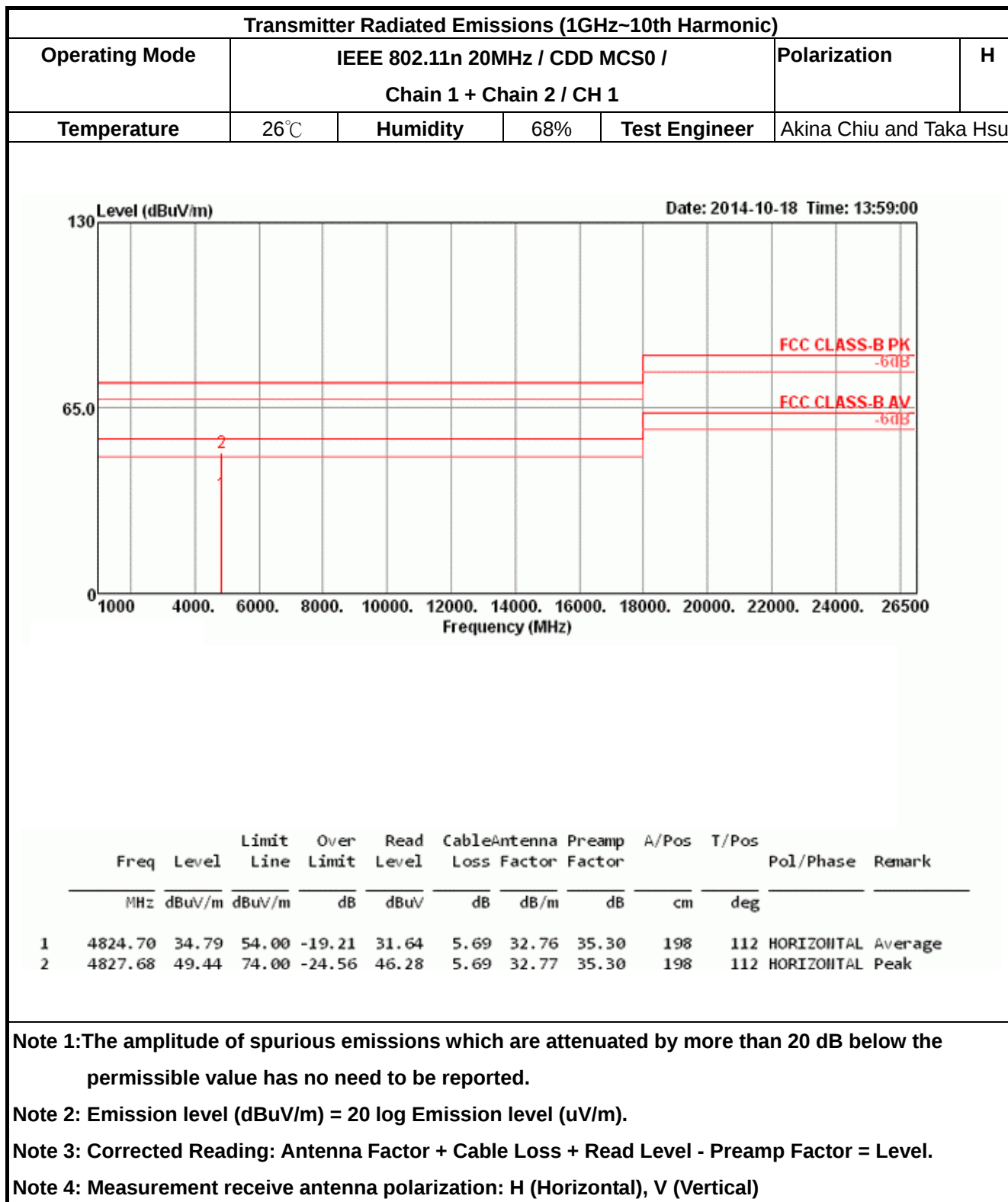
|   | Freq    | Level  | Limit  | Over   | Read  | Cable | Preamp | Antenna |           | T/Pos | A/Pos | Remark  |
|---|---------|--------|--------|--------|-------|-------|--------|---------|-----------|-------|-------|---------|
|   | MHz     | dBuV/m | dBuV/m | Limit  | Level | Loss  | Factor | Factor  | Pol/Phase | deg   | cm    |         |
| 1 | 4919.77 | 47.01  | 74.00  | -26.99 | 43.71 | 5.80  | 35.33  | 32.83   | VERTICAL  | 176   | 188   | Peak    |
| 2 | 4923.62 | 33.80  | 54.00  | -20.20 | 30.48 | 5.81  | 35.33  | 32.84   | VERTICAL  | 176   | 188   | Average |
| 3 | 7389.13 | 38.73  | 54.00  | -15.27 | 29.79 | 7.09  | 35.31  | 37.16   | VERTICAL  | 184   | 197   | Average |
| 4 | 7389.94 | 52.43  | 74.00  | -21.57 | 43.49 | 7.09  | 35.31  | 37.16   | VERTICAL  | 184   | 197   | Peak    |

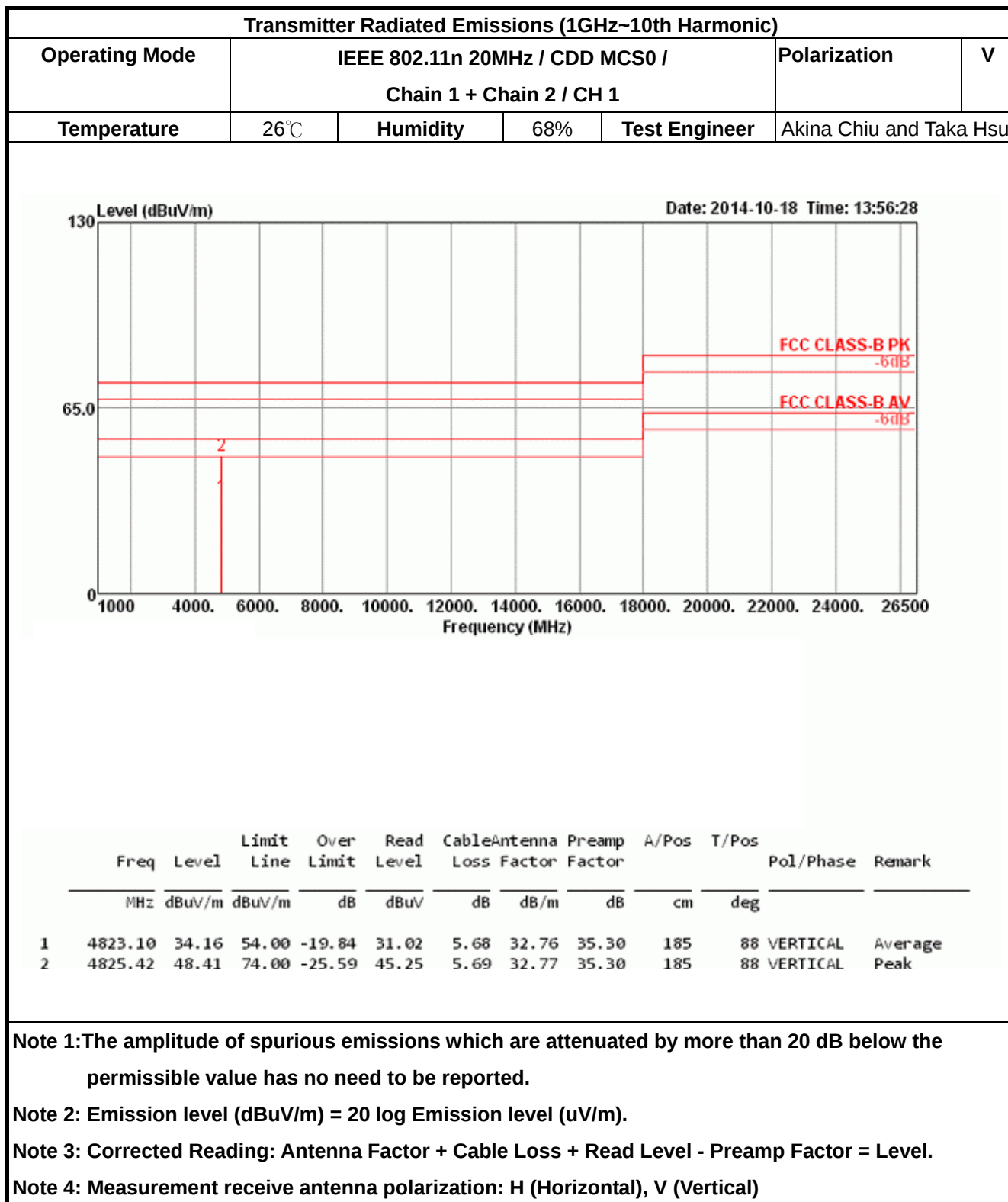
**Note 1:**The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

**Note 2:** Emission level (dBuV/m) = 20 log Emission level (uV/m).

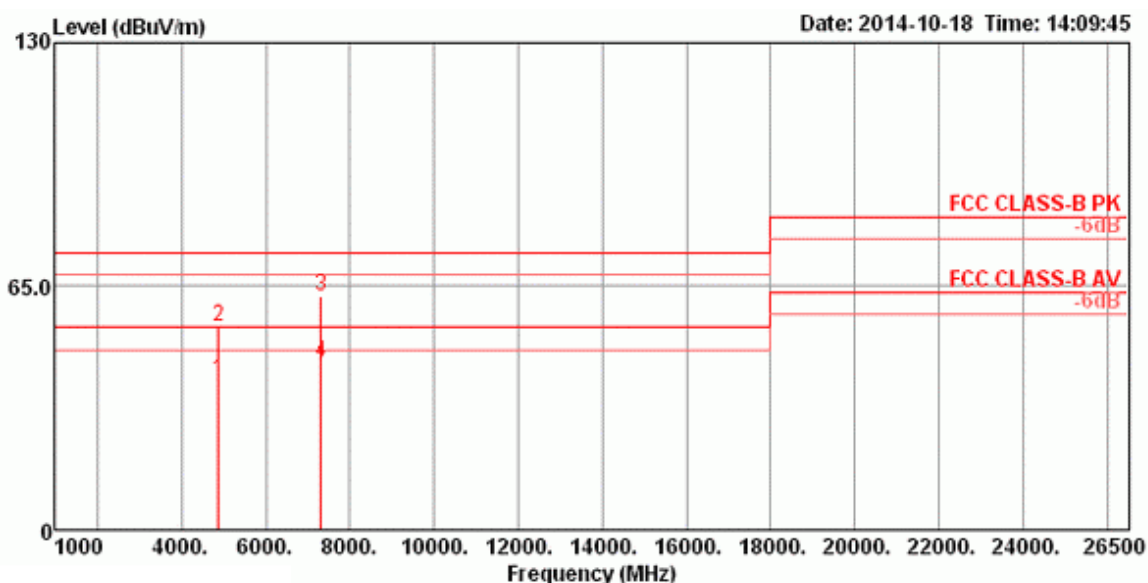
**Note 3:** Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

**Note 4:** Measurement receive antenna polarization: H (Horizontal), V (Vertical)





| Transmitter Radiated Emissions (1GHz~10th Harmonic) |                                                             |          |     |               |                         |
|-----------------------------------------------------|-------------------------------------------------------------|----------|-----|---------------|-------------------------|
| Operating Mode                                      | IEEE 802.11n 20MHz / CDD MCS0 /<br>Chain 1 + Chain 2 / CH 6 |          |     | Polarization  | H                       |
| Temperature                                         | 26°C                                                        | Humidity | 68% | Test Engineer | Akina Chiu and Taka Hsu |



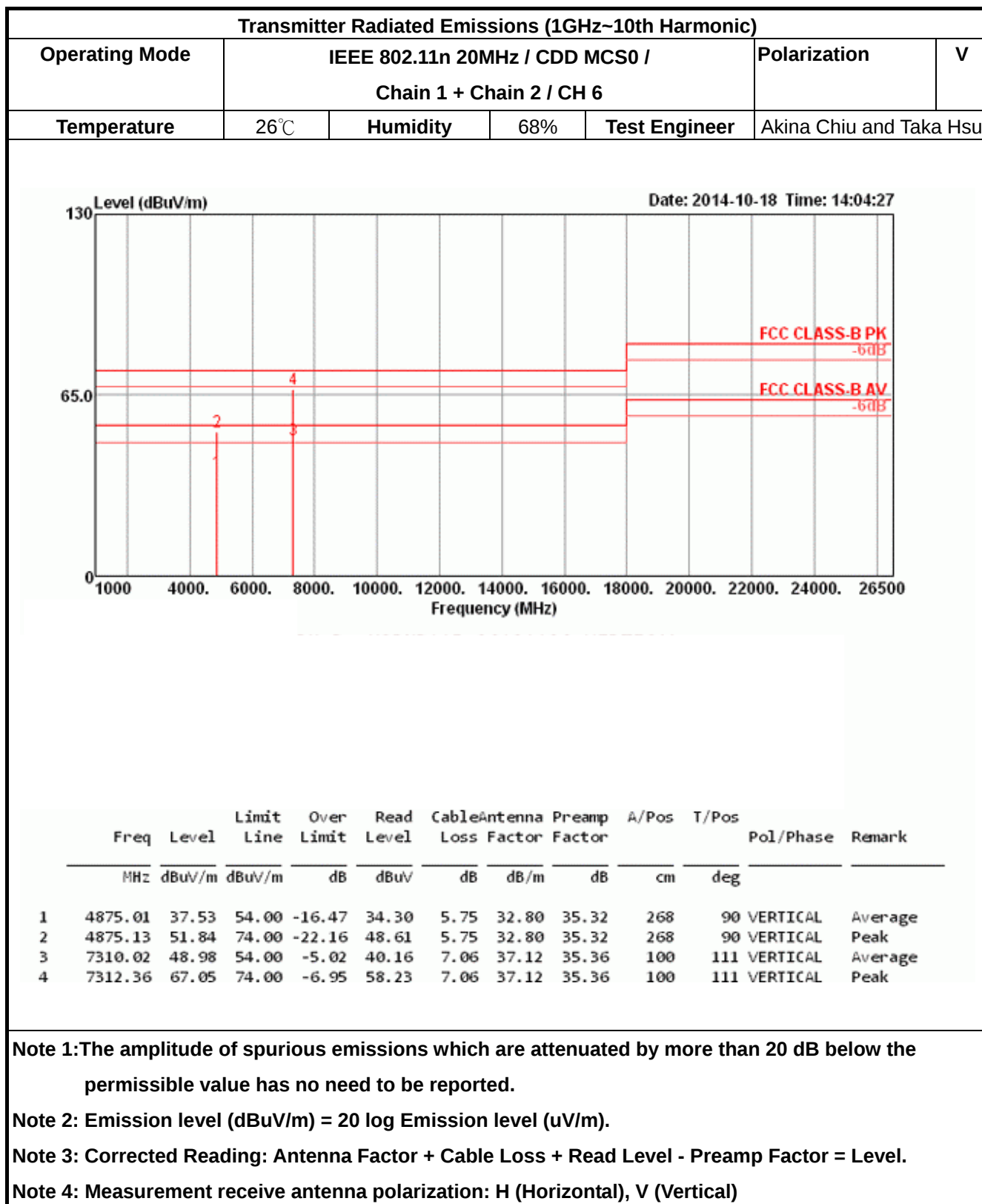
|   | Freq    | Level  | Limit  | Over   | Read  | Cable | Antenna | Preamp | A/Pos | T/Pos | Pol/Phase  | Remark  |
|---|---------|--------|--------|--------|-------|-------|---------|--------|-------|-------|------------|---------|
|   | MHz     | dBuV/m | dBuV/m | dB     | dBuV  | dB    | dB/m    | dB     | cm    | deg   |            |         |
| 1 | 4874.61 | 40.04  | 54.00  | -13.96 | 36.80 | 5.75  | 32.80   | 35.31  | 195   | 60    | HORIZONTAL | Average |
| 2 | 4879.76 | 54.40  | 74.00  | -19.60 | 51.17 | 5.75  | 32.80   | 35.32  | 195   | 60    | HORIZONTAL | Peak    |
| 3 | 7305.36 | 62.51  | 74.00  | -11.49 | 53.70 | 7.05  | 37.12   | 35.36  | 177   | 130   | HORIZONTAL | Peak    |
| 4 | 7307.87 | 44.71  | 54.00  | -9.29  | 35.90 | 7.05  | 37.12   | 35.36  | 177   | 130   | HORIZONTAL | Average |

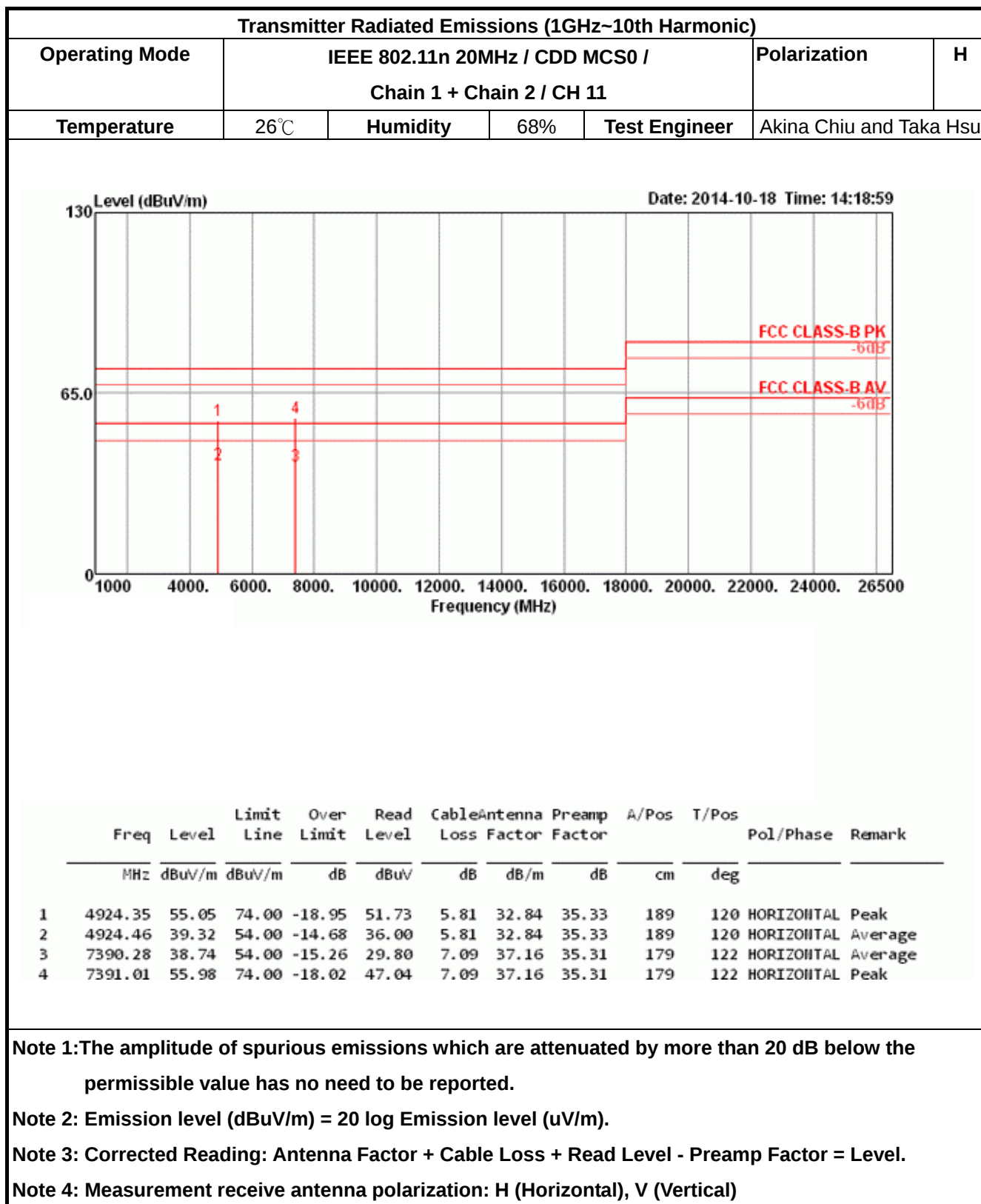
**Note 1:** The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

**Note 2:** Emission level (dBuV/m) = 20 log Emission level (uV/m).

**Note 3:** Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

**Note 4:** Measurement receive antenna polarization: H (Horizontal), V (Vertical)

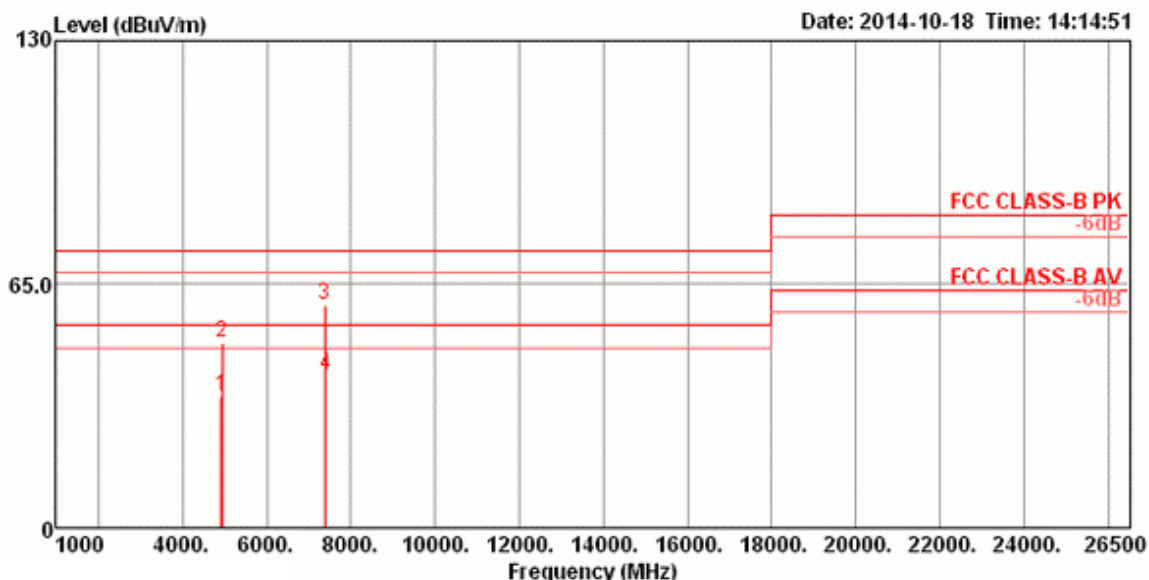






**Transmitter Radiated Emissions (1GHz~10th Harmonic)**

|                |                                                              |          |     |               |                         |
|----------------|--------------------------------------------------------------|----------|-----|---------------|-------------------------|
| Operating Mode | IEEE 802.11n 20MHz / CDD MCS0 /<br>Chain 1 + Chain 2 / CH 11 |          |     | Polarization  | V                       |
| Temperature    | 26°C                                                         | Humidity | 68% | Test Engineer | Akina Chiu and Taka Hsu |



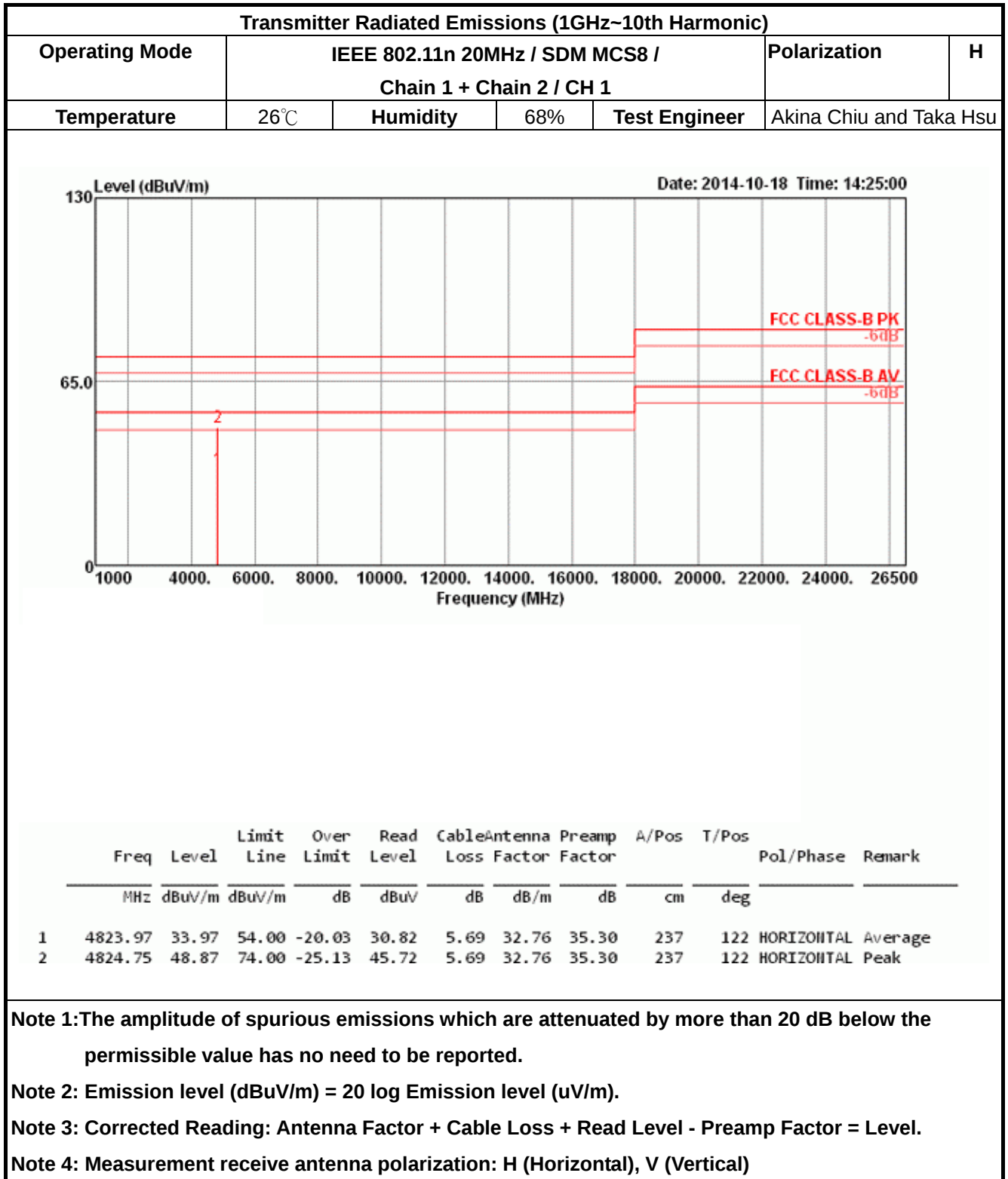
|   | Freq    | Level  | Limit  | Over   | Read  | Cable | Antenna | Preamp | A/Pos | T/Pos | Pol/Phase | Remark  |
|---|---------|--------|--------|--------|-------|-------|---------|--------|-------|-------|-----------|---------|
|   | MHz     | dBuV/m | dBuV/m | dB     | dBuV  | dB    | dB/m    | dB     | cm    | deg   |           |         |
| 1 | 4924.90 | 35.20  | 54.00  | -18.80 | 31.88 | 5.81  | 32.84   | 35.33  | 257   | 92    | VERTICAL  | Average |
| 2 | 4930.22 | 49.28  | 74.00  | -24.72 | 45.95 | 5.82  | 32.84   | 35.33  | 257   | 92    | VERTICAL  | Peak    |
| 3 | 7380.01 | 59.61  | 74.00  | -14.39 | 50.69 | 7.08  | 37.16   | 35.32  | 100   | 112   | VERTICAL  | Peak    |
| 4 | 7389.99 | 40.82  | 54.00  | -13.18 | 31.88 | 7.09  | 37.16   | 35.31  | 100   | 112   | VERTICAL  | Average |

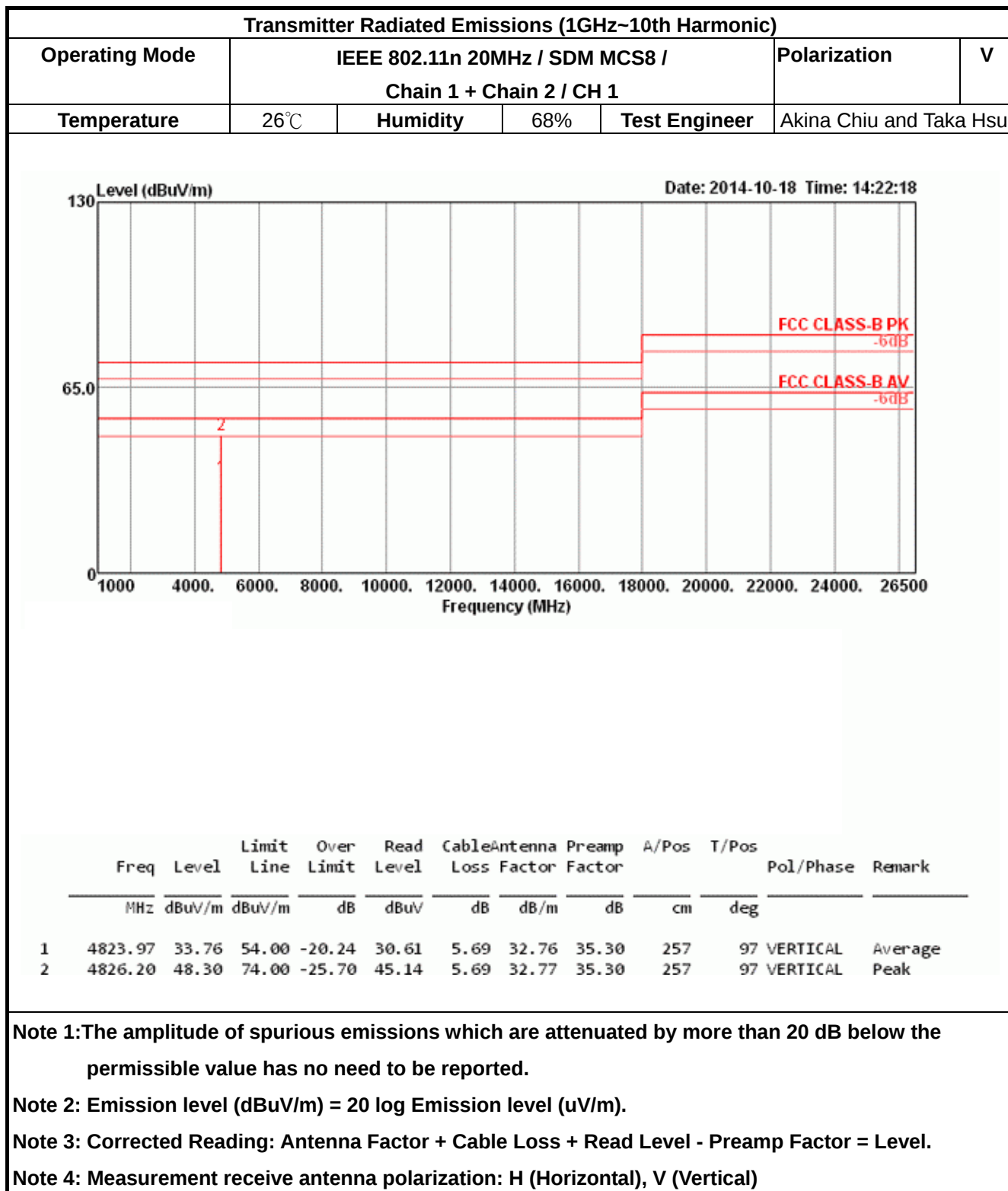
**Note 1:** The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

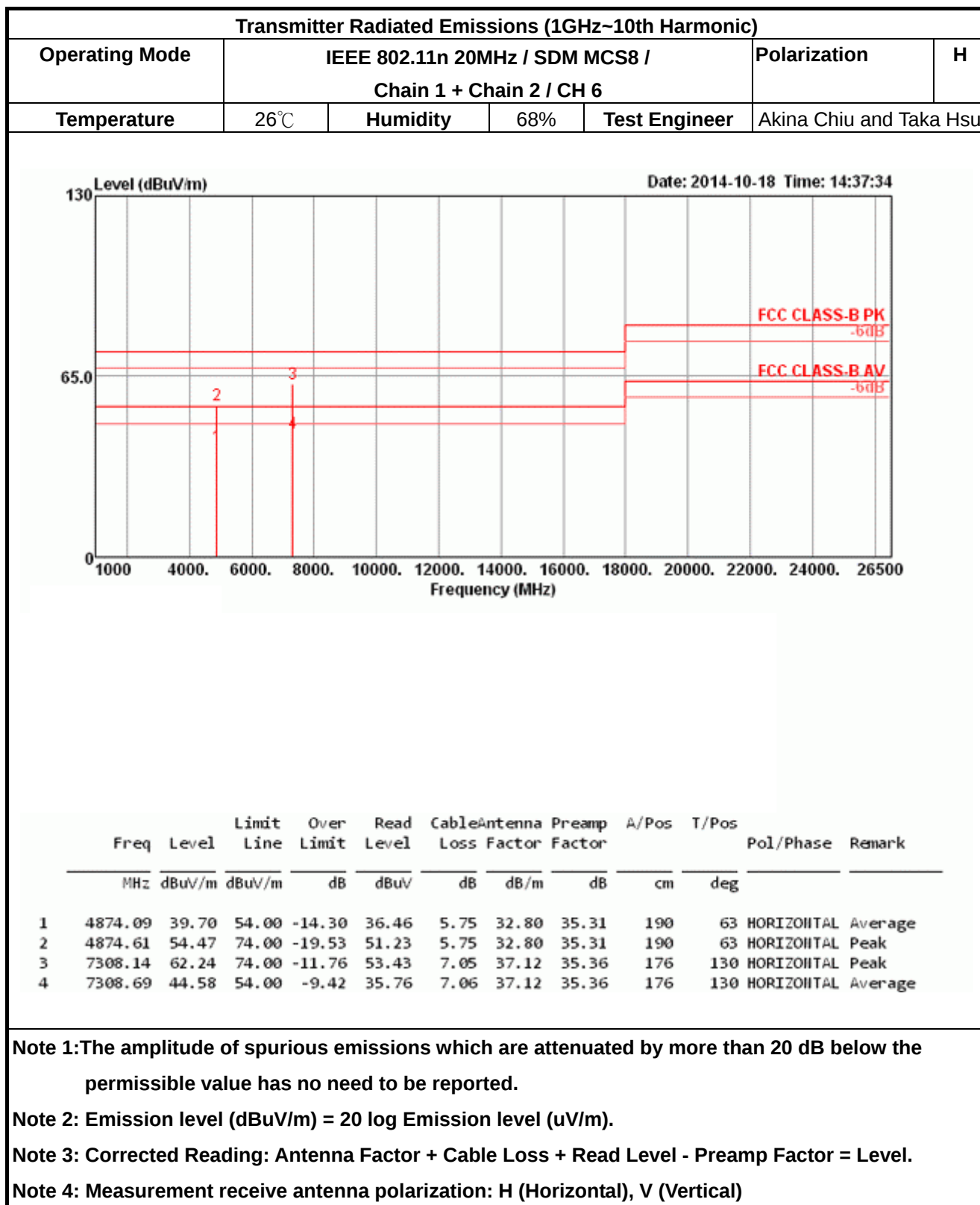
**Note 2:** Emission level (dBuV/m) = 20 log Emission level (uV/m).

**Note 3:** Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

**Note 4:** Measurement receive antenna polarization: H (Horizontal), V (Vertical)

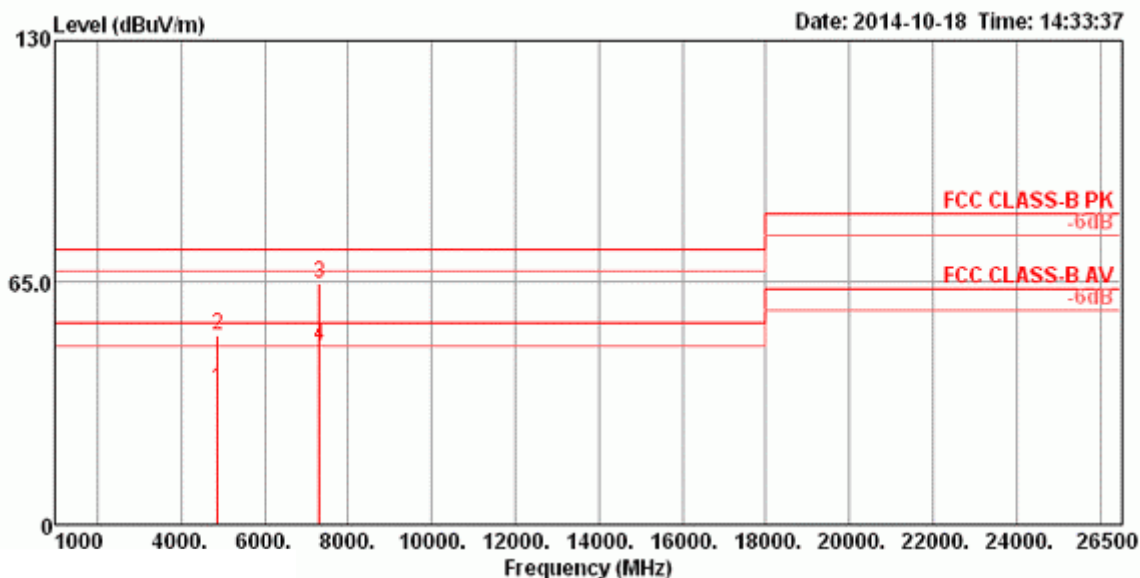






**Transmitter Radiated Emissions (1GHz~10th Harmonic)**

|                |                                                             |          |     |               |                         |
|----------------|-------------------------------------------------------------|----------|-----|---------------|-------------------------|
| Operating Mode | IEEE 802.11n 20MHz / SDM MCS8 /<br>Chain 1 + Chain 2 / CH 6 |          |     | Polarization  | V                       |
| Temperature    | 26°C                                                        | Humidity | 68% | Test Engineer | Akina Chiu and Taka Hsu |



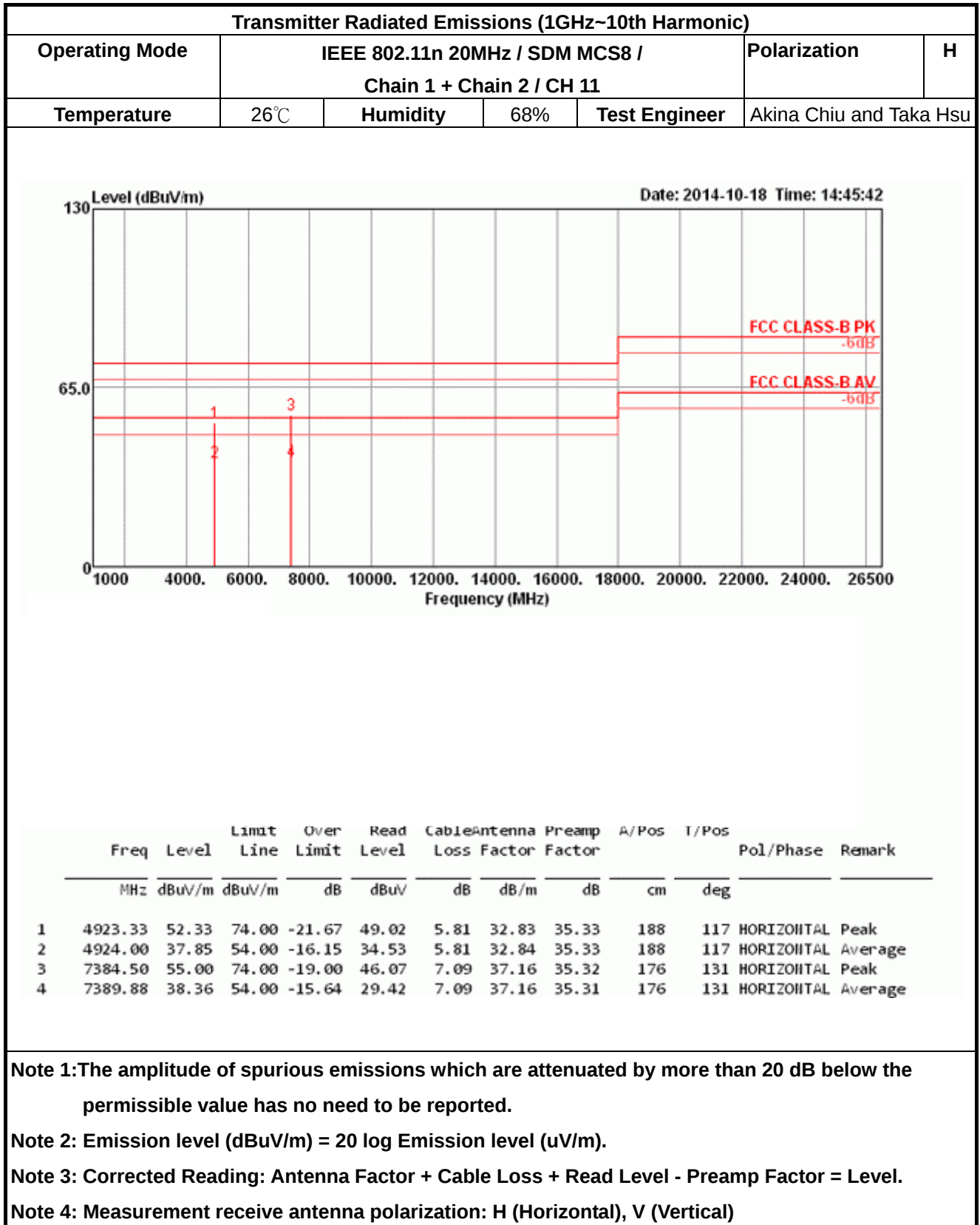
|   | Freq    | Level  | Limit  | Over   | Read  | Cable | Antenna | Preamp | A/Pos | T/Pos | Pol/Phase | Remark  |
|---|---------|--------|--------|--------|-------|-------|---------|--------|-------|-------|-----------|---------|
|   | MHz     | dBuV/m | dBuV/m | dB     | dBuV  | dB    | dB/m    | dB     | cm    | deg   |           |         |
| 1 | 4873.94 | 36.65  | 54.00  | -17.35 | 33.41 | 5.75  | 32.80   | 35.31  | 286   | 90    | VERTICAL  | Average |
| 2 | 4875.19 | 50.82  | 74.00  | -23.18 | 47.59 | 5.75  | 32.80   | 35.32  | 286   | 90    | VERTICAL  | Peak    |
| 3 | 7307.61 | 64.53  | 74.00  | -9.47  | 55.72 | 7.05  | 37.12   | 35.36  | 100   | 115   | VERTICAL  | Peak    |
| 4 | 7311.96 | 47.84  | 54.00  | -6.16  | 39.02 | 7.06  | 37.12   | 35.36  | 100   | 115   | VERTICAL  | Average |

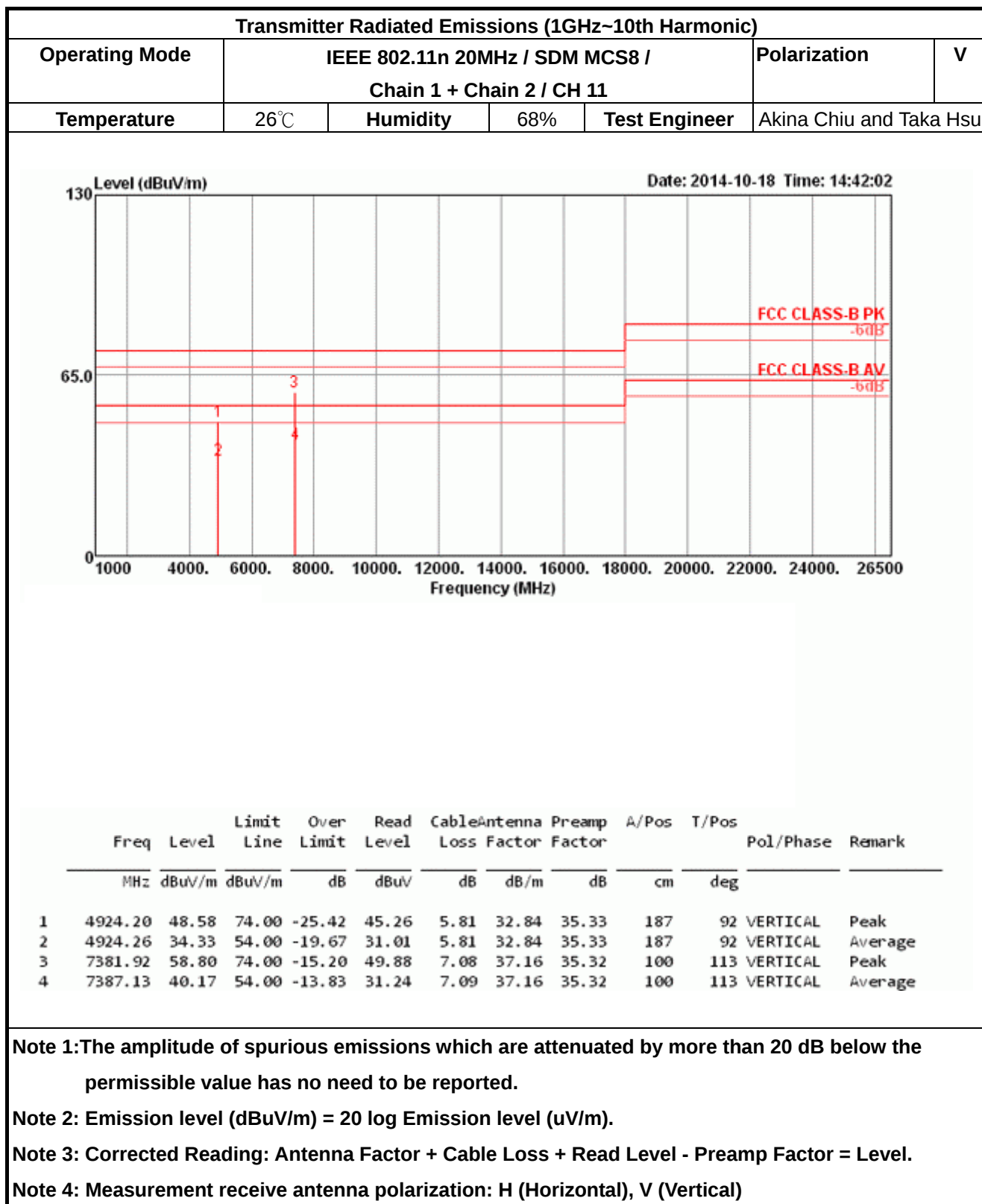
**Note 1:** The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

**Note 2:** Emission level (dBuV/m) = 20 log Emission level (uV/m).

**Note 3:** Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

**Note 4:** Measurement receive antenna polarization: H (Horizontal), V (Vertical)

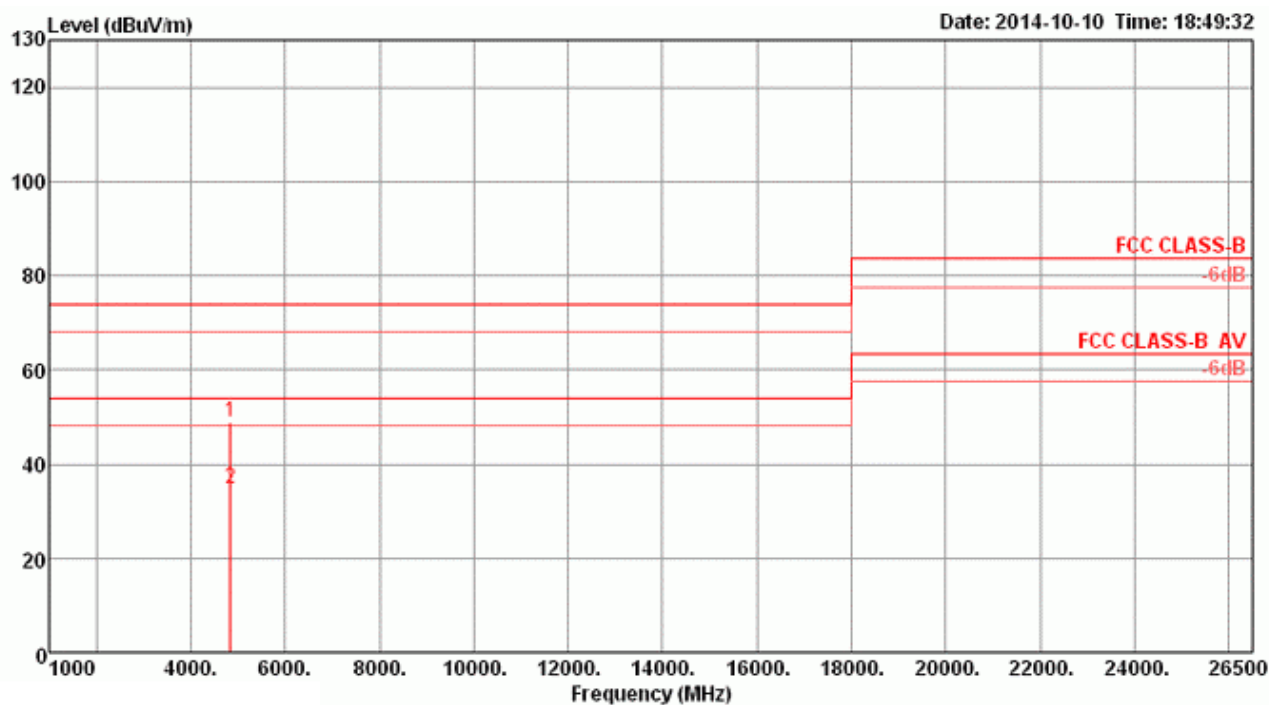






Transmitter Radiated Emissions (1GHz~10th Harmonic)

|                |                                            |          |     |               |                         |
|----------------|--------------------------------------------|----------|-----|---------------|-------------------------|
| Operating Mode | IEEE 802.11n 40MHz / MCS0 / Chain 2 / CH 3 |          |     | Polarization  | H                       |
| Temperature    | 26°C                                       | Humidity | 68% | Test Engineer | Akina Chiu and Taka Hsu |



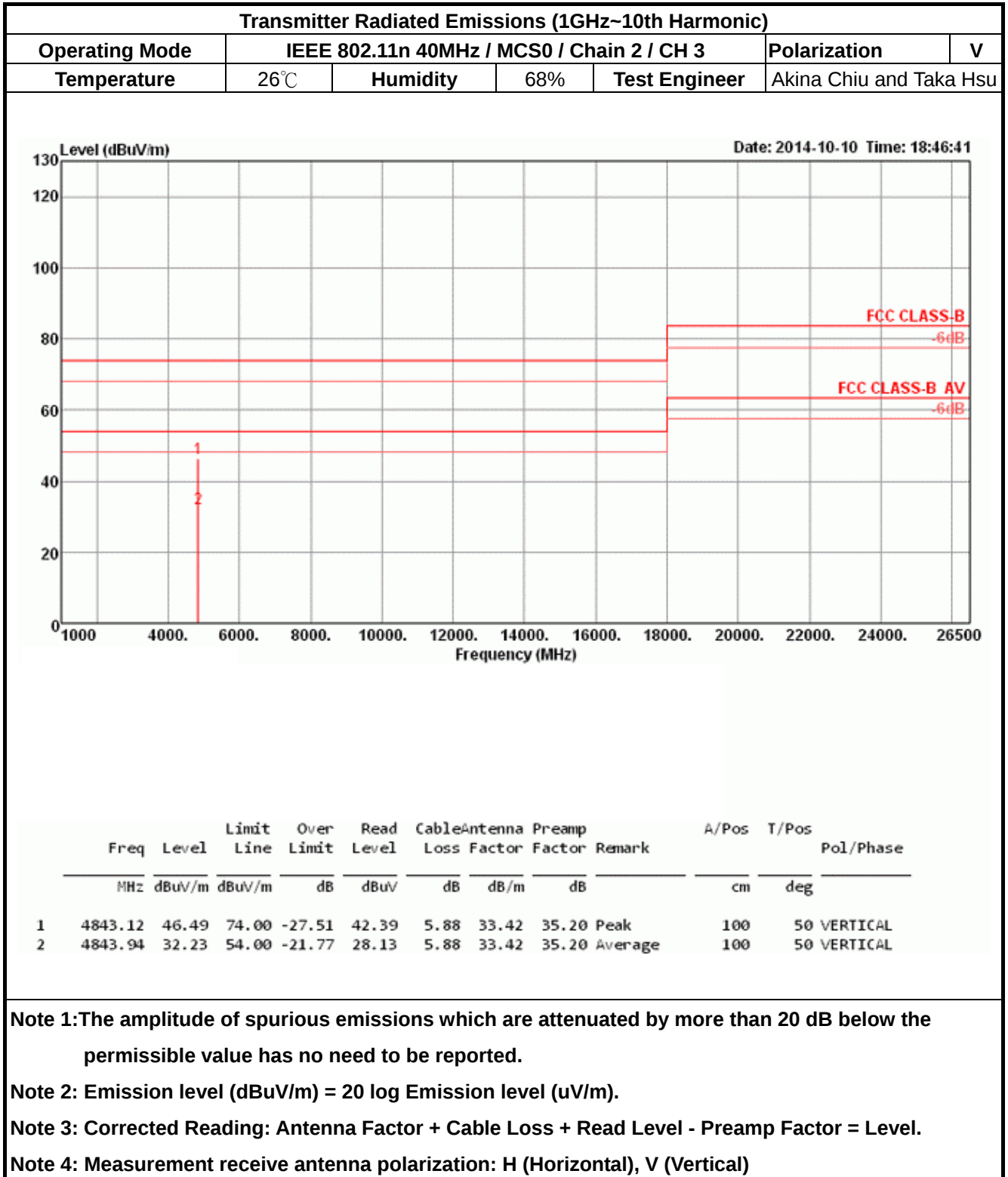
|   | Freq    | Level  | Limit  | Over   | Read  | Cable | Antenna | Preamp |         | A/Pos | T/Pos | Pol/Phase  |
|---|---------|--------|--------|--------|-------|-------|---------|--------|---------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m | dB     | dBuV  | dB    | dB/m    | dB     | Remark  | cm    | deg   |            |
| 1 | 4843.79 | 48.89  | 74.00  | -25.11 | 44.79 | 5.88  | 33.42   | 35.20  | Peak    | 182   | 64    | HORIZONTAL |
| 2 | 4844.00 | 34.68  | 54.00  | -19.32 | 30.58 | 5.88  | 33.42   | 35.20  | Average | 182   | 64    | HORIZONTAL |

**Note 1:** The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

**Note 2:** Emission level (dBuV/m) = 20 log Emission level (uV/m).

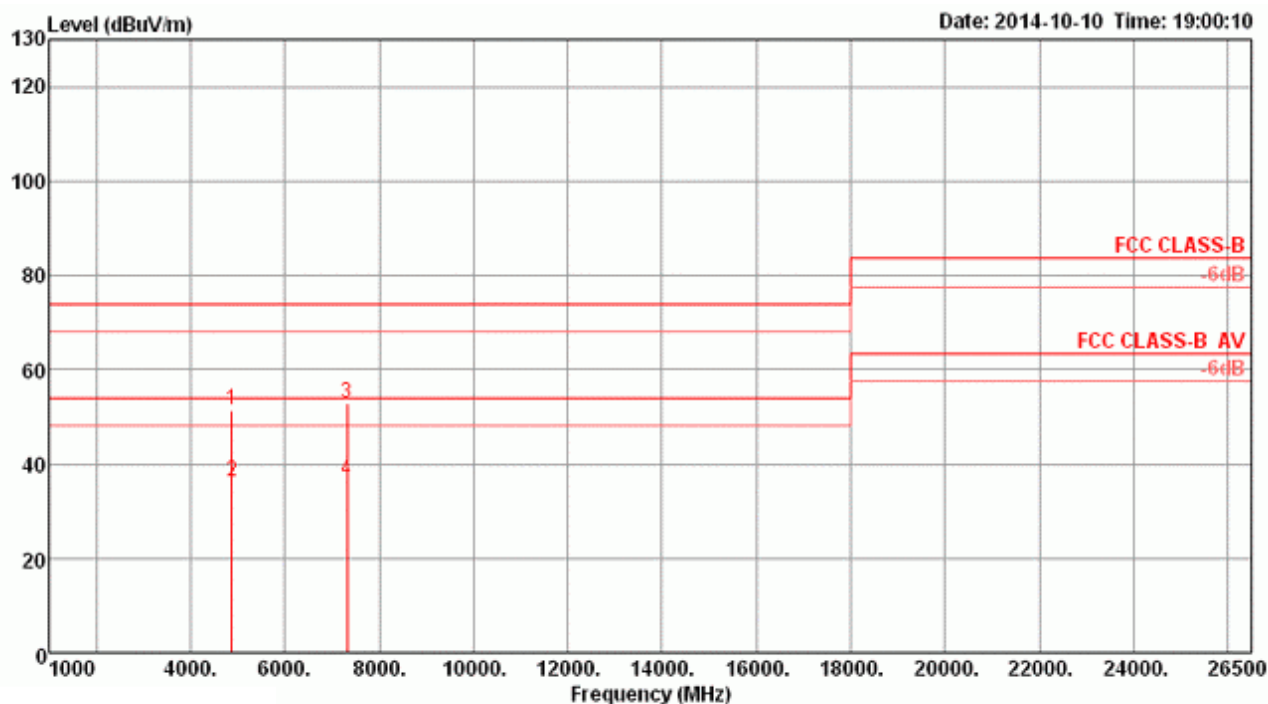
**Note 3:** Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

**Note 4:** Measurement receive antenna polarization: H (Horizontal), V (Vertical)



**Transmitter Radiated Emissions (1GHz~10th Harmonic)**

|                       |                                                   |                 |     |                      |                         |
|-----------------------|---------------------------------------------------|-----------------|-----|----------------------|-------------------------|
| <b>Operating Mode</b> | <b>IEEE 802.11n 40MHz / MCS0 / Chain 2 / CH 6</b> |                 |     | <b>Polarization</b>  | <b>H</b>                |
| <b>Temperature</b>    | 26℃                                               | <b>Humidity</b> | 68% | <b>Test Engineer</b> | Akina Chiu and Taka Hsu |



|   | Freq    | Level  | Limit  | Over   | Read  | CableAntenna | Preamp |       | A/Pos | T/Pos | Pol/Phase  |
|---|---------|--------|--------|--------|-------|--------------|--------|-------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m | dB     | dBuV  | dB           | dB/m   | dB    | cm    | deg   |            |
| 1 | 4871.23 | 51.31  | 74.00  | -22.69 | 47.11 | 5.92         | 33.48  | 35.20 | 180   | 63    | HORIZONTAL |
| 2 | 4874.32 | 36.16  | 54.00  | -17.84 | 31.96 | 5.92         | 33.48  | 35.20 | 180   | 63    | HORIZONTAL |
| 3 | 7312.04 | 53.02  | 74.00  | -20.98 | 44.81 | 7.13         | 36.51  | 35.43 | 157   | 154   | HORIZONTAL |
| 4 | 7314.22 | 36.45  | 54.00  | -17.55 | 28.24 | 7.13         | 36.51  | 35.43 | 157   | 154   | HORIZONTAL |

**Note 1:**The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

**Note 2:** Emission level (dBuV/m) = 20 log Emission level (uV/m).

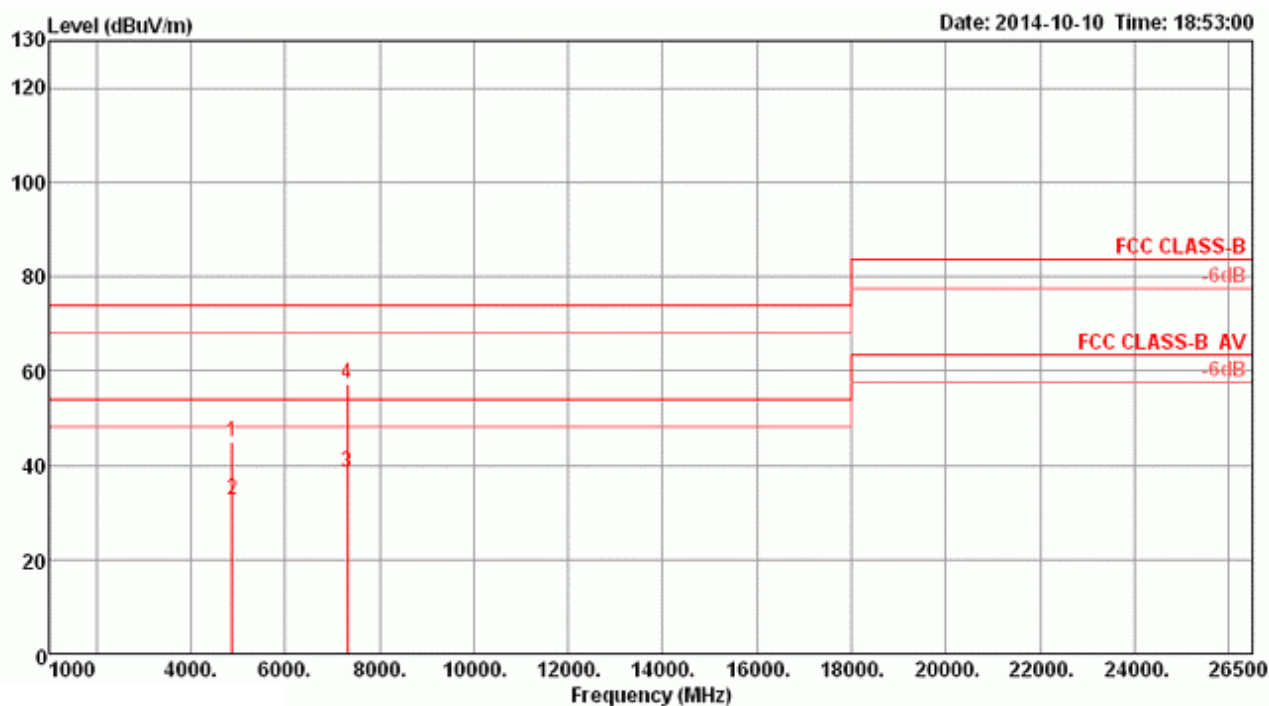
**Note 3:** Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

**Note 4:** Measurement receive antenna polarization: H (Horizontal), V (Vertical)



Transmitter Radiated Emissions (1GHz~10th Harmonic)

|                |                                            |          |     |               |                         |
|----------------|--------------------------------------------|----------|-----|---------------|-------------------------|
| Operating Mode | IEEE 802.11n 40MHz / MCS0 / Chain 2 / CH 6 |          |     | Polarization  | V                       |
| Temperature    | 26°C                                       | Humidity | 68% | Test Engineer | Akina Chiu and Taka Hsu |



|   | Freq    | Level  | Limit  | Over   | Read  | Cable | Antenna | Preamp |         | A/Pos | T/Pos | Pol/Phase |
|---|---------|--------|--------|--------|-------|-------|---------|--------|---------|-------|-------|-----------|
|   | MHz     | dBuV/m | Line   | Limit  | Level | Loss  | Factor  | Factor | Remark  | cm    | deg   |           |
|   |         |        | dBuV/m | dB     | dBuV  | dB    | dB/m    | dB     |         |       |       |           |
| 1 | 4872.37 | 44.73  | 74.00  | -29.27 | 40.53 | 5.92  | 33.48   | 35.20  | Peak    | 180   | 62    | VERTICAL  |
| 2 | 4878.78 | 32.49  | 54.00  | -21.51 | 28.29 | 5.92  | 33.48   | 35.20  | Average | 180   | 62    | VERTICAL  |
| 3 | 7317.41 | 38.56  | 54.00  | -15.44 | 30.34 | 7.14  | 36.51   | 35.43  | Average | 100   | 110   | VERTICAL  |
| 4 | 7319.56 | 57.21  | 74.00  | -16.79 | 48.99 | 7.14  | 36.51   | 35.43  | Peak    | 100   | 110   | VERTICAL  |

Note 1: The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

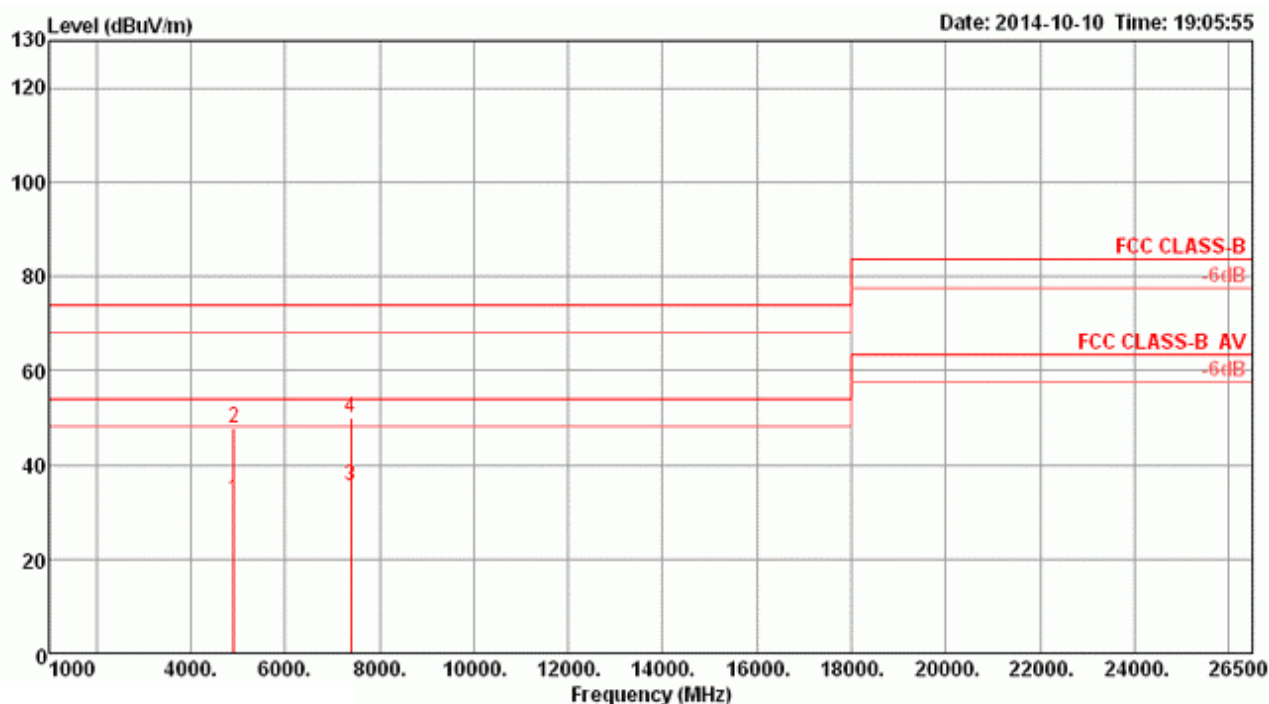
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Note 4: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

**Transmitter Radiated Emissions (1GHz~10th Harmonic)**

|                       |                                                   |                 |     |                      |                         |
|-----------------------|---------------------------------------------------|-----------------|-----|----------------------|-------------------------|
| <b>Operating Mode</b> | <b>IEEE 802.11n 40MHz / MCS0 / Chain 2 / CH 9</b> |                 |     | <b>Polarization</b>  | <b>H</b>                |
| <b>Temperature</b>    | 26°C                                              | <b>Humidity</b> | 68% | <b>Test Engineer</b> | Akina Chiu and Taka Hsu |



|   | Freq    | Level  | Limit  | Over   | Read  | Cable | Antenna | Preamp |         | A/Pos | T/Pos | Pol/Phase  |
|---|---------|--------|--------|--------|-------|-------|---------|--------|---------|-------|-------|------------|
|   | MHz     | dBuV/m | dBuV/m | dB     | dBuV  | dB    | dB/m    | dB     | Remark  | cm    | deg   |            |
| 1 | 4919.71 | 32.75  | 54.00  | -21.25 | 28.44 | 5.97  | 33.54   | 35.20  | Average | 134   | 54    | HORIZONTAL |
| 2 | 4921.69 | 47.96  | 74.00  | -26.04 | 43.65 | 5.97  | 33.54   | 35.20  | Peak    | 134   | 54    | HORIZONTAL |
| 3 | 7385.42 | 35.66  | 54.00  | -18.34 | 27.34 | 7.17  | 36.61   | 35.46  | Average | 100   | 120   | HORIZONTAL |
| 4 | 7388.52 | 49.89  | 74.00  | -24.11 | 41.57 | 7.17  | 36.61   | 35.46  | Peak    | 100   | 120   | HORIZONTAL |

**Note 1:**The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

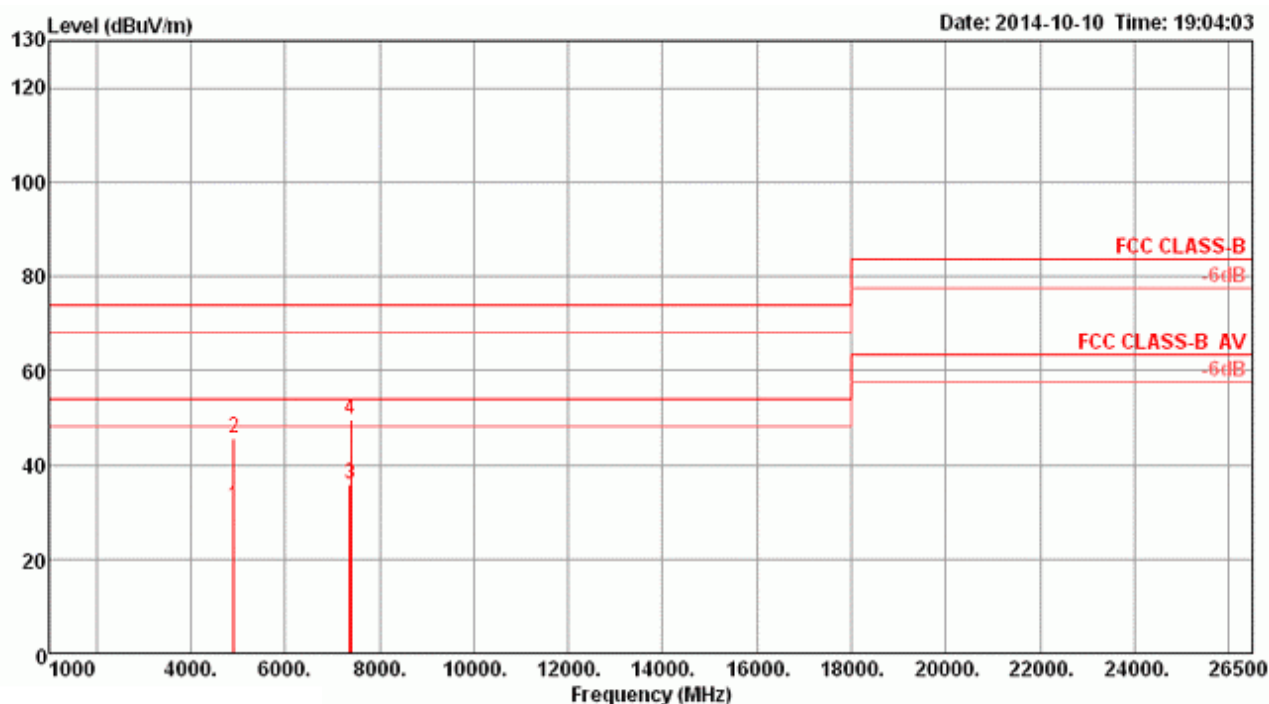
**Note 2:** Emission level (dBuV/m) = 20 log Emission level (uV/m).

**Note 3:** Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

**Note 4:** Measurement receive antenna polarization: H (Horizontal), V (Vertical)

**Transmitter Radiated Emissions (1GHz~10th Harmonic)**

|                       |                                                   |                 |     |                      |                         |
|-----------------------|---------------------------------------------------|-----------------|-----|----------------------|-------------------------|
| <b>Operating Mode</b> | <b>IEEE 802.11n 40MHz / MCS0 / Chain 2 / CH 9</b> |                 |     | <b>Polarization</b>  | <b>V</b>                |
| <b>Temperature</b>    | 26°C                                              | <b>Humidity</b> | 68% | <b>Test Engineer</b> | Akina Chiu and Taka Hsu |



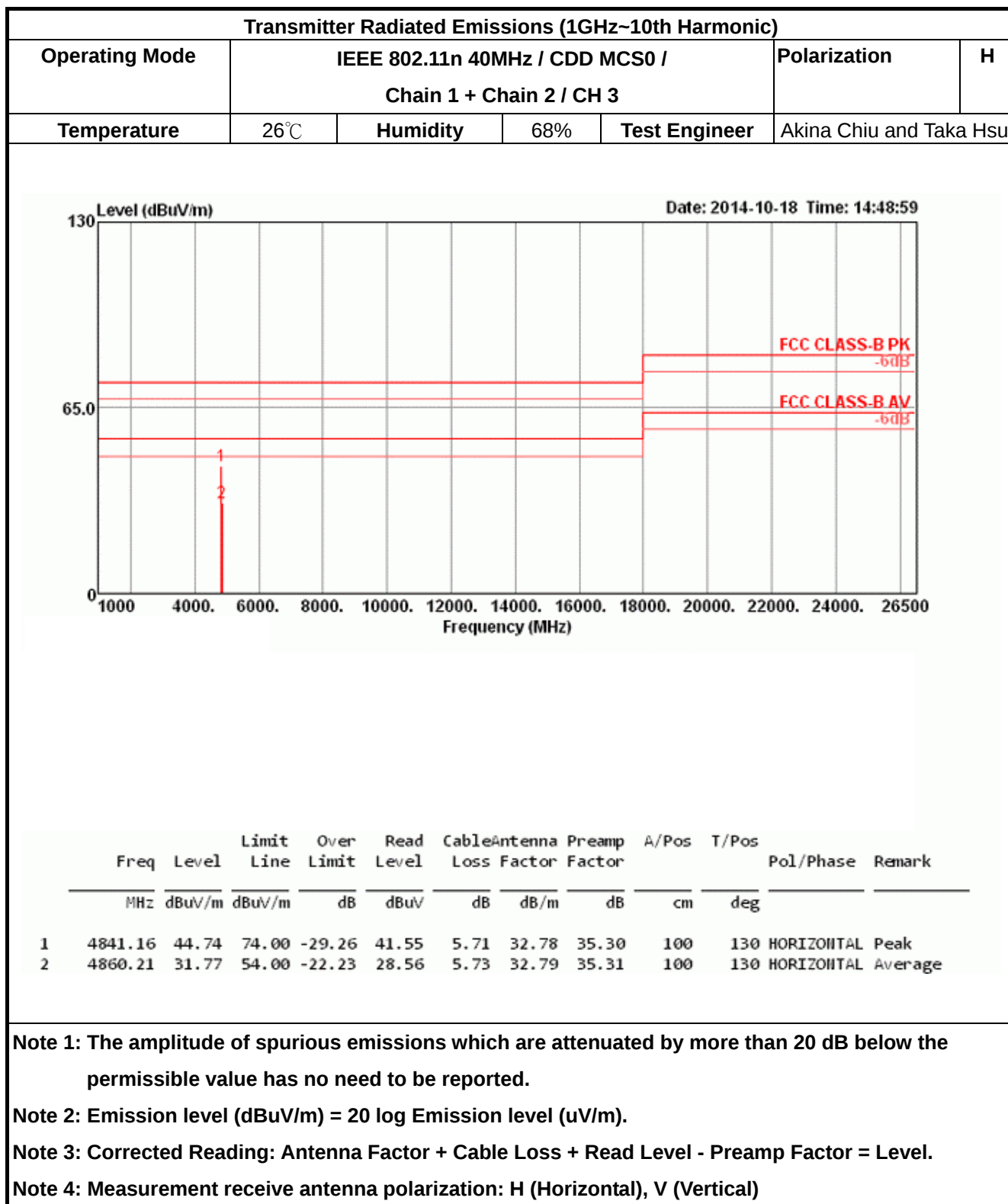
|   | Freq    | Level  | Limit  | Over   | Read  | Cable | Antenna | Preamp |         | A/Pos | T/Pos | Pol/Phase |
|---|---------|--------|--------|--------|-------|-------|---------|--------|---------|-------|-------|-----------|
|   | MHz     | dBuV/m | dBuV/m | dB     | dBuV  | dB    | dB/m    | dB     | Remark  | cm    | deg   |           |
| 1 | 4923.33 | 31.07  | 54.00  | -22.93 | 26.72 | 5.97  | 33.58   | 35.20  | Average | 100   | 165   | VERTICAL  |
| 2 | 4923.66 | 45.53  | 74.00  | -28.47 | 41.18 | 5.97  | 33.58   | 35.20  | Peak    | 100   | 165   | VERTICAL  |
| 3 | 7381.93 | 35.79  | 54.00  | -18.21 | 27.47 | 7.16  | 36.61   | 35.45  | Average | 100   | 95    | VERTICAL  |
| 4 | 7385.87 | 49.65  | 74.00  | -24.35 | 41.33 | 7.17  | 36.61   | 35.46  | Peak    | 100   | 95    | VERTICAL  |

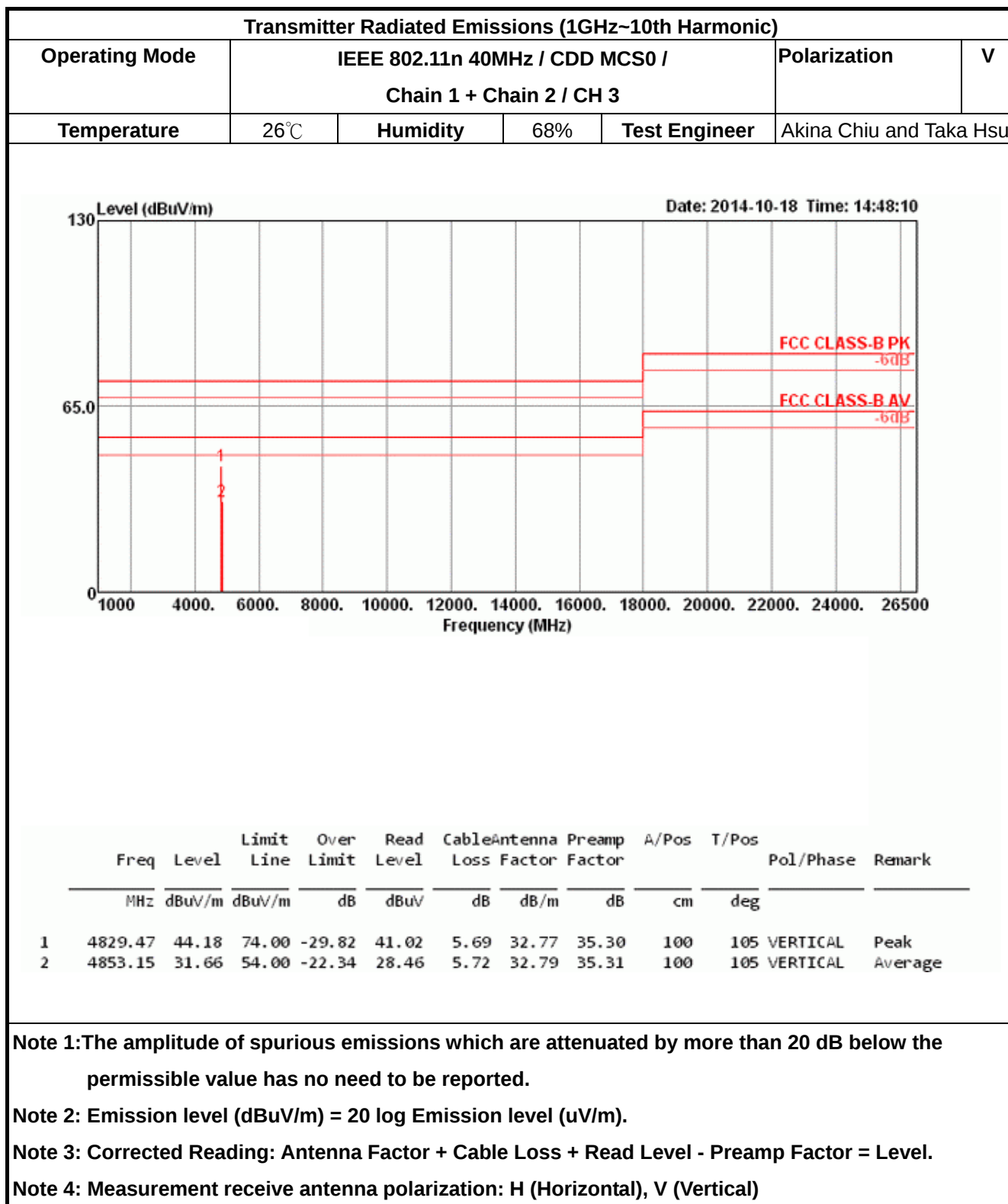
**Note 1:** The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

**Note 2:** Emission level (dBuV/m) = 20 log Emission level (uV/m).

**Note 3:** Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

**Note 4:** Measurement receive antenna polarization: H (Horizontal), V (Vertical)







| Transmitter Radiated Emissions (1GHz~10th Harmonic) |                                                             |          |     |               |                         |   |
|-----------------------------------------------------|-------------------------------------------------------------|----------|-----|---------------|-------------------------|---|
| Operating Mode                                      | IEEE 802.11n 40MHz / CDD MCS0 /<br>Chain 1 + Chain 2 / CH 6 |          |     |               | Polarization            | H |
| Temperature                                         | 26℃                                                         | Humidity | 68% | Test Engineer | Akina Chiu and Taka Hsu |   |

Level (dBuV/m)

Date: 2014-10-18 Time: 14:56:16

130

65.0

0

1

2

3

4

FCC CLASS-B PK

-6dB

FCC CLASS-B AV

-6dB

1000

4000

6000

8000

10000

12000

14000

16000

18000

20000

22000

24000

26500

Frequency (MHz)

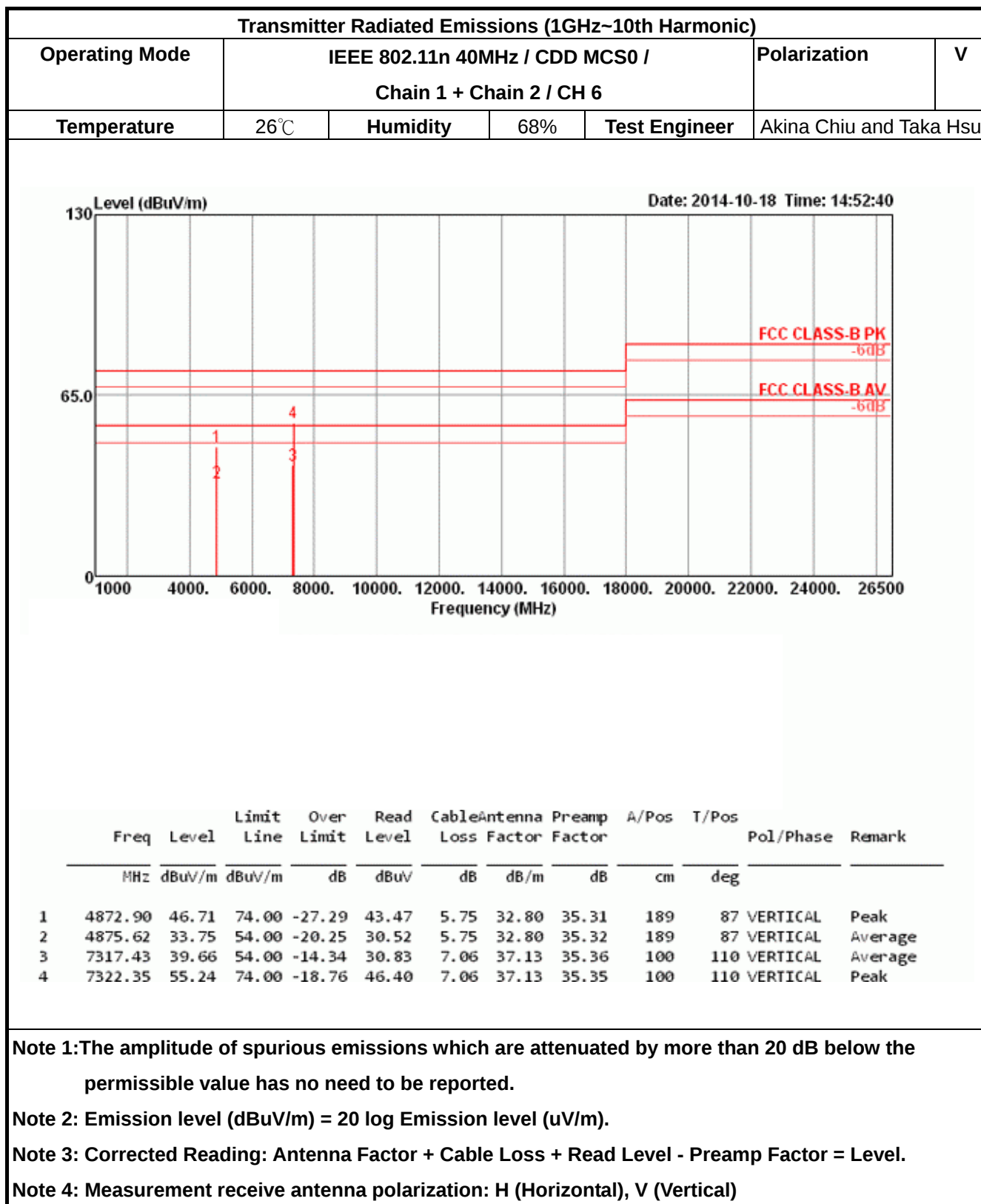
|   | Freq    | Level  | Limit  | Over   | Read  | Cable | Antenna | Preamp | A/Pos | T/Pos | Pol/Phase  | Remark  |
|---|---------|--------|--------|--------|-------|-------|---------|--------|-------|-------|------------|---------|
|   | MHz     | dBuV/m | dBuV/m | dB     | dBuV  | dB    | dB/m    | dB     | cm    | deg   |            |         |
| 1 | 4874.46 | 49.95  | 74.00  | -24.05 | 46.71 | 5.75  | 32.80   | 35.31  | 189   | 115   | HORIZONTAL | Peak    |
| 2 | 4874.64 | 35.57  | 54.00  | -18.43 | 32.33 | 5.75  | 32.80   | 35.31  | 189   | 115   | HORIZONTAL | Average |
| 3 | 7297.86 | 37.72  | 54.00  | -16.28 | 28.92 | 7.05  | 37.12   | 35.37  | 100   | 161   | HORIZONTAL | Average |
| 4 | 7306.66 | 50.23  | 74.00  | -23.77 | 41.42 | 7.05  | 37.12   | 35.36  | 100   | 161   | HORIZONTAL | Peak    |

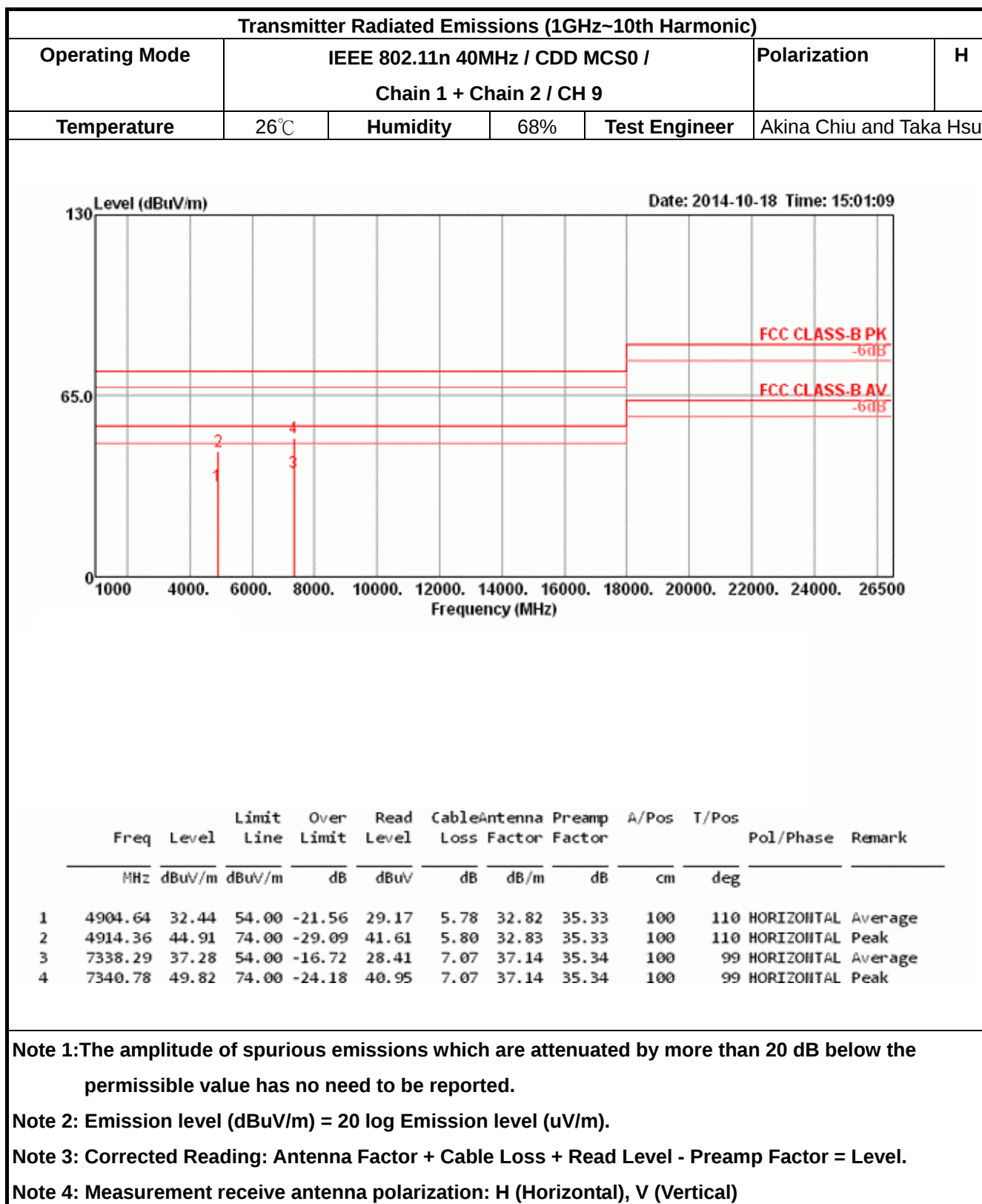
Note 1:The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Note 4: Measurement receive antenna polarization: H (Horizontal), V (Vertical)





| Transmitter Radiated Emissions (1GHz~10th Harmonic) |  |                                                             |          |     |               |  |                         |              |  |   |  |
|-----------------------------------------------------|--|-------------------------------------------------------------|----------|-----|---------------|--|-------------------------|--------------|--|---|--|
| Operating Mode                                      |  | IEEE 802.11n 40MHz / CDD MCS0 /<br>Chain 1 + Chain 2 / CH 9 |          |     |               |  |                         | Polarization |  | V |  |
| Temperature                                         |  | 26℃                                                         | Humidity | 68% | Test Engineer |  | Akina Chiu and Taka Hsu |              |  |   |  |

Level (dBuV/m)

130

65.0

0

1000

4000

6000

8000

10000

12000

14000

16000

18000

20000

22000

24000

26500

Frequency (MHz)

Date: 2014-10-18 Time: 14:59:06

FCC CLASS-B PK

-60dB

FCC CLASS-B AV

-60dB

1

2

3

4

|   | Freq    | Level  | Limit  | Over   | Read  | Cable | Antenna | Preamp | A/Pos | T/Pos | Pol/Phase | Remark  |
|---|---------|--------|--------|--------|-------|-------|---------|--------|-------|-------|-----------|---------|
|   | MHz     | dBuV/m | dBuV/m | dB     | dBuV  | dB    | dB/m    | dB     | cm    | deg   |           |         |
| 1 | 4902.44 | 45.17  | 74.00  | -28.83 | 41.89 | 5.78  | 32.82   | 35.32  | 100   | 94    | VERTICAL  | Peak    |
| 2 | 4903.65 | 31.76  | 54.00  | -22.24 | 28.49 | 5.78  | 32.82   | 35.33  | 100   | 94    | VERTICAL  | Average |
| 3 | 7337.30 | 50.71  | 74.00  | -23.29 | 41.84 | 7.07  | 37.14   | 35.34  | 100   | 107   | VERTICAL  | Peak    |
| 4 | 7342.45 | 37.67  | 54.00  | -16.33 | 28.80 | 7.07  | 37.14   | 35.34  | 100   | 107   | VERTICAL  | Average |

Note 1:

The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

Note 2:

Emission level (dBuV/m) = 20 log Emission level (uV/m).

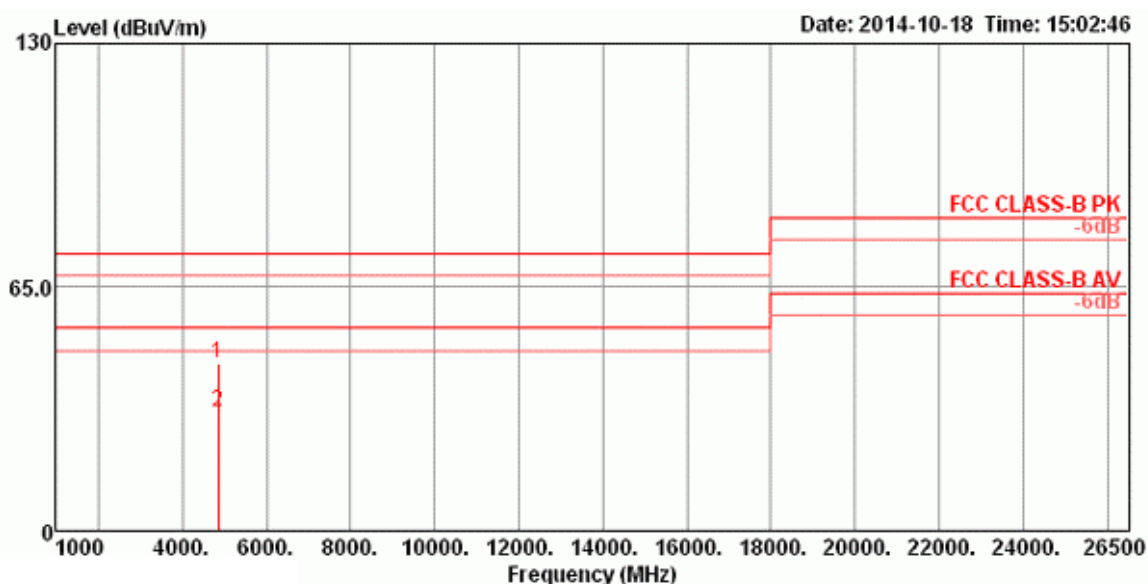
Note 3:

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Note 4:

Measurement receive antenna polarization: H (Horizontal), V (Vertical)

| Transmitter Radiated Emissions (1GHz~10th Harmonic) |                                                             |          |     |               |                         |
|-----------------------------------------------------|-------------------------------------------------------------|----------|-----|---------------|-------------------------|
| Operating Mode                                      | IEEE 802.11n 40MHz / SDM MCS8 /<br>Chain 1 + Chain 2 / CH 3 |          |     |               | Polarization H          |
| Temperature                                         | 26°C                                                        | Humidity | 68% | Test Engineer | Akina Chiu and Taka Hsu |



|   | Freq    | Level  | Limit  | Over   | Read  | Cable | Antenna | Preamp | A/Pos | T/Pos | Pol/Phase  | Remark  |
|---|---------|--------|--------|--------|-------|-------|---------|--------|-------|-------|------------|---------|
|   | MHz     | dBuV/m | dBuV/m | dB     | dBuV  | dB    | dB/m    | dB     | cm    | deg   |            |         |
| 1 | 4856.74 | 44.73  | 74.00  | -29.27 | 41.52 | 5.73  | 32.79   | 35.31  | 100   | 53    | HORIZONTAL | Peak    |
| 2 | 4858.07 | 31.65  | 54.00  | -22.35 | 28.44 | 5.73  | 32.79   | 35.31  | 100   | 53    | HORIZONTAL | Average |

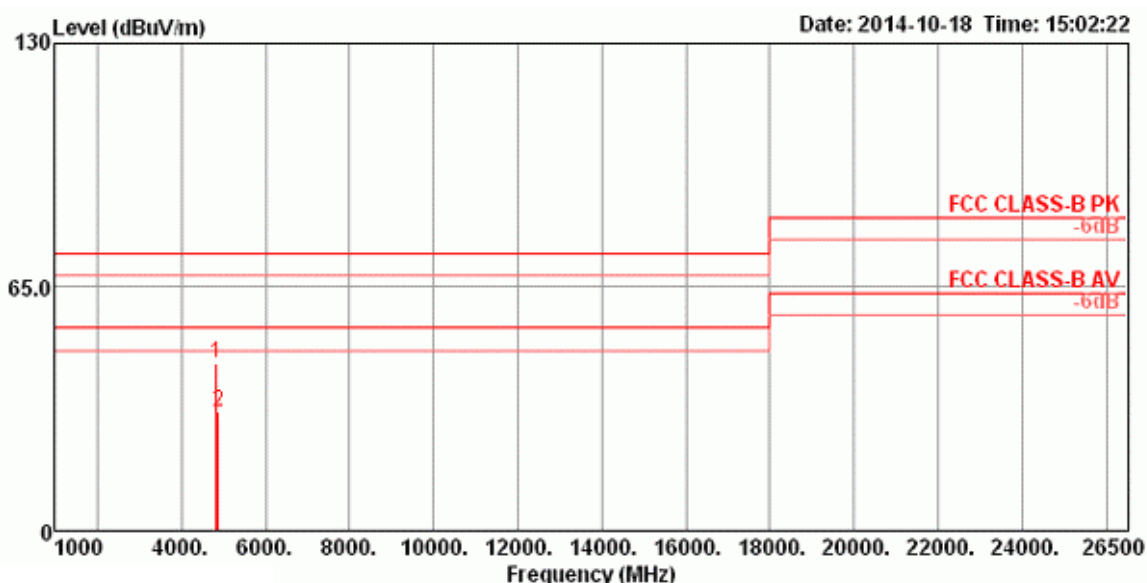
**Note 1:** The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

**Note 2:** Emission level (dBuV/m) = 20 log Emission level (uV/m).

**Note 3:** Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

**Note 4:** Measurement receive antenna polarization: H (Horizontal), V (Vertical)

| Transmitter Radiated Emissions (1GHz~10th Harmonic) |                                                          |          |     |               |                         |
|-----------------------------------------------------|----------------------------------------------------------|----------|-----|---------------|-------------------------|
| Operating Mode                                      | IEEE 802.11n 40MHz / SDM MCS8 / Chain 1 + Chain 2 / CH 3 |          |     |               | Polarization V          |
| Temperature                                         | 26℃                                                      | Humidity | 68% | Test Engineer | Akina Chiu and Taka Hsu |



|   | Freq    | Level  | Limit  | Over   | Read  | Cable | Antenna | Preamp | A/Pos | T/Pos | Pol/Phase | Remark  |
|---|---------|--------|--------|--------|-------|-------|---------|--------|-------|-------|-----------|---------|
|   | MHz     | dBuV/m | dBuV/m | dB     | dBuV  | dB    | dB/m    | dB     | cm    | deg   |           |         |
| 1 | 4836.82 | 44.76  | 74.00  | -29.24 | 41.59 | 5.70  | 32.77   | 35.30  | 100   | 119   | VERTICAL  | Peak    |
| 2 | 4863.80 | 31.43  | 54.00  | -22.57 | 28.22 | 5.73  | 32.79   | 35.31  | 100   | 119   | VERTICAL  | Average |

**Note 1:** The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

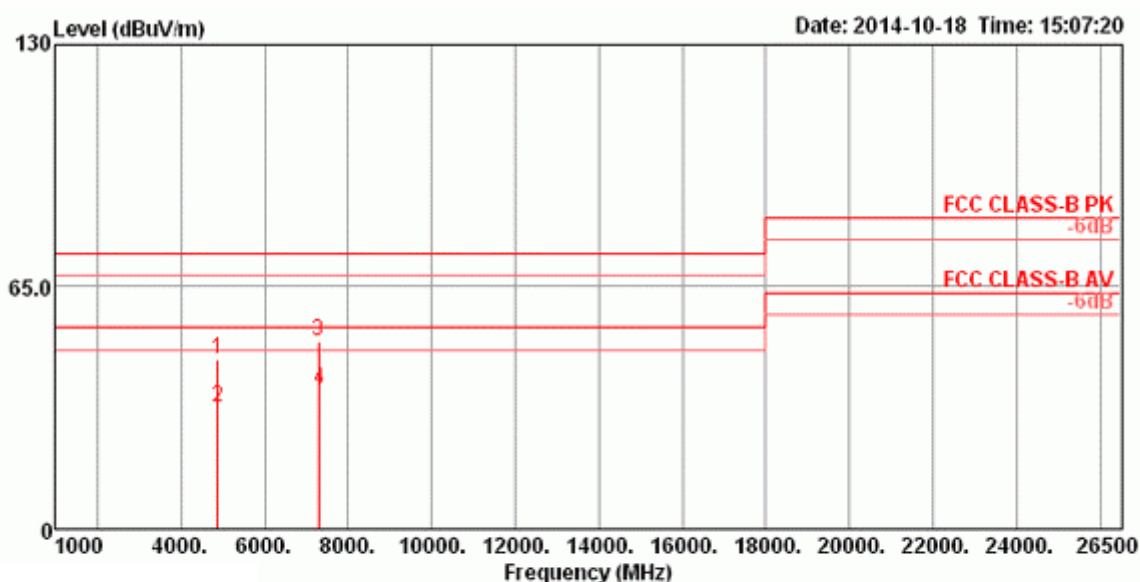
**Note 2:** Emission level (dBuV/m) = 20 log Emission level (uV/m).

**Note 3:** Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

**Note 4:** Measurement receive antenna polarization: H (Horizontal), V (Vertical)

**Transmitter Radiated Emissions (1GHz~10th Harmonic)**

|                |                                                             |          |     |               |                         |   |
|----------------|-------------------------------------------------------------|----------|-----|---------------|-------------------------|---|
| Operating Mode | IEEE 802.11n 40MHz / SDM MCS8 /<br>Chain 1 + Chain 2 / CH 6 |          |     |               | Polarization            | H |
| Temperature    | 26°C                                                        | Humidity | 68% | Test Engineer | Akina Chiu and Taka Hsu |   |



|   | Freq    | Level  | Limit  | Over   | Read  | Cable | Antenna | Preamp | A/Pos | T/Pos | Pol/Phase  | Remark  |
|---|---------|--------|--------|--------|-------|-------|---------|--------|-------|-------|------------|---------|
|   | MHz     | dBuV/m | dBuV/m | dB     | dBuV  | dB    | dB/m    | dB     | cm    | deg   |            |         |
| 1 | 4864.85 | 45.62  | 74.00  | -28.38 | 42.40 | 5.74  | 32.79   | 35.31  | 100   | 110   | HORIZONTAL | Peak    |
| 2 | 4872.03 | 32.77  | 54.00  | -21.23 | 29.54 | 5.74  | 32.80   | 35.31  | 100   | 110   | HORIZONTAL | Average |
| 3 | 7293.06 | 50.25  | 74.00  | -23.75 | 41.45 | 7.05  | 37.12   | 35.37  | 100   | 131   | HORIZONTAL | Peak    |
| 4 | 7302.84 | 37.36  | 54.00  | -16.64 | 28.55 | 7.05  | 37.12   | 35.36  | 100   | 131   | HORIZONTAL | Average |

**Note 1:** The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

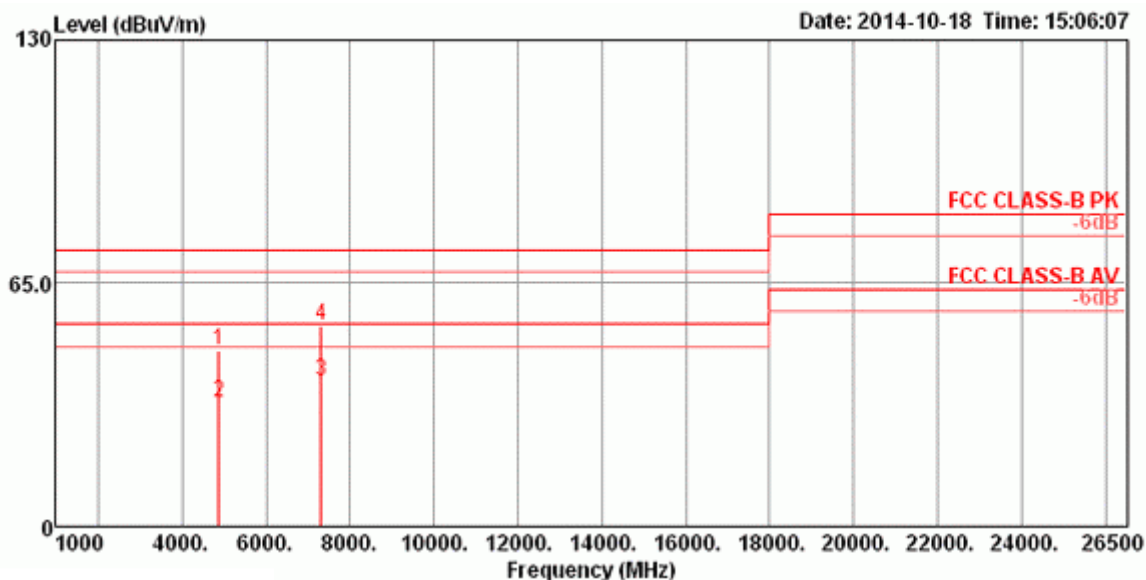
**Note 2:** Emission level (dBuV/m) = 20 log Emission level (uV/m).

**Note 3:** Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

**Note 4:** Measurement receive antenna polarization: H (Horizontal), V (Vertical)

**Transmitter Radiated Emissions (1GHz~10th Harmonic)**

|                |                                                             |          |     |               |                         |
|----------------|-------------------------------------------------------------|----------|-----|---------------|-------------------------|
| Operating Mode | IEEE 802.11n 40MHz / SDM MCS8 /<br>Chain 1 + Chain 2 / CH 6 |          |     | Polarization  | V                       |
| Temperature    | 26°C                                                        | Humidity | 68% | Test Engineer | Akina Chiu and Taka Hsu |



|   | Freq    | Level  | Limit  | Over   | Read  | Cable | Antenna | Preamp | A/Pos | T/Pos | Pol/Phase | Remark  |
|---|---------|--------|--------|--------|-------|-------|---------|--------|-------|-------|-----------|---------|
|   | MHz     | dBuV/m | dBuV/m | dB     | dBuV  | dB    | dB/m    | dB     | cm    | deg   |           |         |
| 1 | 4870.18 | 46.96  | 74.00  | -27.04 | 43.73 | 5.74  | 32.80   | 35.31  | 195   | 87    | VERTICAL  | Peak    |
| 2 | 4872.55 | 33.10  | 54.00  | -20.90 | 29.86 | 5.75  | 32.80   | 35.31  | 195   | 87    | VERTICAL  | Average |
| 3 | 7309.78 | 38.91  | 54.00  | -15.09 | 30.09 | 7.06  | 37.12   | 35.36  | 100   | 112   | VERTICAL  | Average |
| 4 | 7318.47 | 53.64  | 74.00  | -20.36 | 44.81 | 7.06  | 37.13   | 35.36  | 100   | 112   | VERTICAL  | Peak    |

**Note 1:** The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

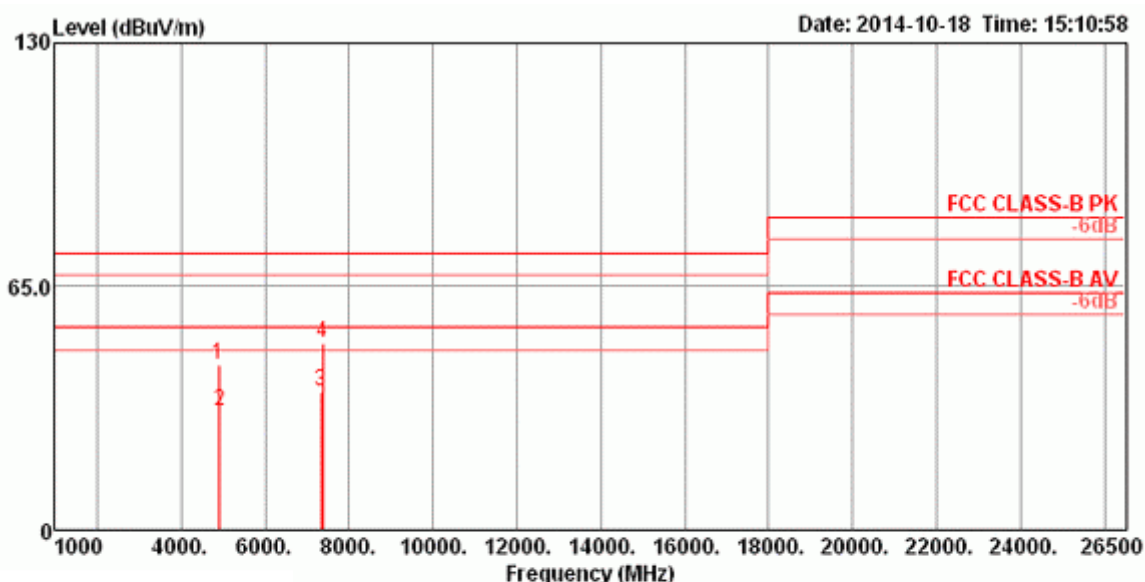
**Note 2:** Emission level (dBuV/m) = 20 log Emission level (uV/m).

**Note 3:** Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

**Note 4:** Measurement receive antenna polarization: H (Horizontal), V (Vertical)

**Transmitter Radiated Emissions (1GHz~10th Harmonic)**

|                |                                                             |          |     |               |                         |
|----------------|-------------------------------------------------------------|----------|-----|---------------|-------------------------|
| Operating Mode | IEEE 802.11n 40MHz / SDM MCS8 /<br>Chain 1 + Chain 2 / CH 9 |          |     | Polarization  | H                       |
| Temperature    | 26°C                                                        | Humidity | 68% | Test Engineer | Akina Chiu and Taka Hsu |



|   | Freq    | Level  | Limit  | Over   | Read  | Cable | Antenna | Preamp | A/Pos | T/Pos | Pol/Phase  | Remark  |
|---|---------|--------|--------|--------|-------|-------|---------|--------|-------|-------|------------|---------|
|   | MHz     | dBuV/m | dBuV/m | dB     | dBuV  | dB    | dB/m    | dB     | cm    | deg   |            |         |
| 1 | 4886.46 | 44.00  | 74.00  | -30.00 | 40.75 | 5.76  | 32.81   | 35.32  | 100   | 97    | HORIZONTAL | Peak    |
| 2 | 4906.32 | 31.71  | 54.00  | -22.29 | 28.43 | 5.79  | 32.82   | 35.33  | 100   | 97    | HORIZONTAL | Average |
| 3 | 7338.46 | 37.12  | 54.00  | -16.88 | 28.25 | 7.07  | 37.14   | 35.34  | 100   | 155   | HORIZONTAL | Average |
| 4 | 7368.85 | 49.77  | 74.00  | -24.23 | 40.87 | 7.08  | 37.15   | 35.33  | 100   | 155   | HORIZONTAL | Peak    |

**Note 1:** The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

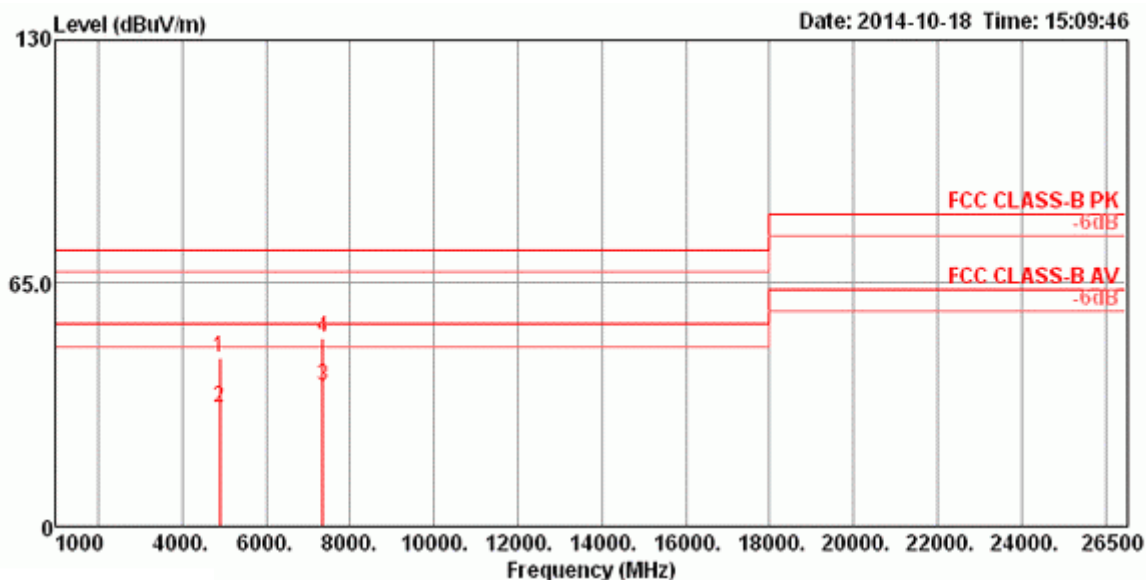
**Note 2:** Emission level (dBuV/m) = 20 log Emission level (uV/m).

**Note 3:** Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

**Note 4:** Measurement receive antenna polarization: H (Horizontal), V (Vertical)

**Transmitter Radiated Emissions (1GHz~10th Harmonic)**

|                       |                                                                 |                 |     |                      |                         |
|-----------------------|-----------------------------------------------------------------|-----------------|-----|----------------------|-------------------------|
| <b>Operating Mode</b> | <b>IEEE 802.11n 40MHz / SDM MCS8 / Chain 1 + Chain 2 / CH 9</b> |                 |     | <b>Polarization</b>  | <b>V</b>                |
| <b>Temperature</b>    | 26℃                                                             | <b>Humidity</b> | 68% | <b>Test Engineer</b> | Akina Chiu and Taka Hsu |



|   | Freq    | Level  | Limit  | Over   | Read  | Cable | Antenna | Preamp | A/Pos | T/Pos | Pol/Phase | Remark  |
|---|---------|--------|--------|--------|-------|-------|---------|--------|-------|-------|-----------|---------|
|   | MHz     | dBuV/m | dBuV/m | dB     | dBuV  | dB    | dB/m    | dB     | cm    | deg   |           |         |
| 1 | 4891.44 | 45.05  | 74.00  | -28.95 | 41.79 | 5.77  | 32.81   | 35.32  | 100   | 125   | VERTICAL  | Peak    |
| 2 | 4902.67 | 31.53  | 54.00  | -22.47 | 28.25 | 5.78  | 32.82   | 35.32  | 100   | 125   | VERTICAL  | Average |
| 3 | 7343.21 | 37.35  | 54.00  | -16.65 | 28.48 | 7.07  | 37.14   | 35.34  | 100   | 131   | VERTICAL  | Average |
| 4 | 7349.63 | 50.24  | 74.00  | -23.76 | 41.37 | 7.07  | 37.14   | 35.34  | 100   | 131   | VERTICAL  | Peak    |

**Note 1:** The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

**Note 2:** Emission level (dBuV/m) = 20 log Emission level (uV/m).

**Note 3:** Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

**Note 4:** Measurement receive antenna polarization: H (Horizontal), V (Vertical)

## 2.6 Band Edge Emissions Measurement

### 2.6.1 Limit

Emissions radiated outside of the specified bands, shall be according to the general radiated limits as following:

| Frequency range (MHz) | Field Strength (mV/meter) | Measurement Distance (m) |
|-----------------------|---------------------------|--------------------------|
| 0.009~0.490           | 2400/F(kHz)               | 300                      |
| 0.490~1.705           | 24000/F(kHz)              | 30                       |
| 1.705~30.0            | 30                        | 30                       |
| 30~88                 | 100                       | 3                        |
| 88~216                | 150                       | 3                        |
| 216~960               | 200                       | 3                        |
| Above 960             | 500                       | 3                        |

### 2.6.2 Measuring Instruments

Please refer to this test plan section 3 of equipment list in this report.

### 2.6.3 Test method

The following table is the setting of the spectrum analyzer.

| Spectrum Parameter                          | Setting                                        |
|---------------------------------------------|------------------------------------------------|
| Attenuation                                 | Auto                                           |
| Span Frequency                              | 100 MHz                                        |
| Stop Frequency                              | 10 <sup>th</sup> Harmonic                      |
| RBW / VBW (Emission in restricted band)     | 1MHz / 3MHz for Peak, 1 MHz / 10Hz for Average |
| RBW / VBW (Emission in non-restricted band) | 100 kHz / 300 kHz for Peak                     |

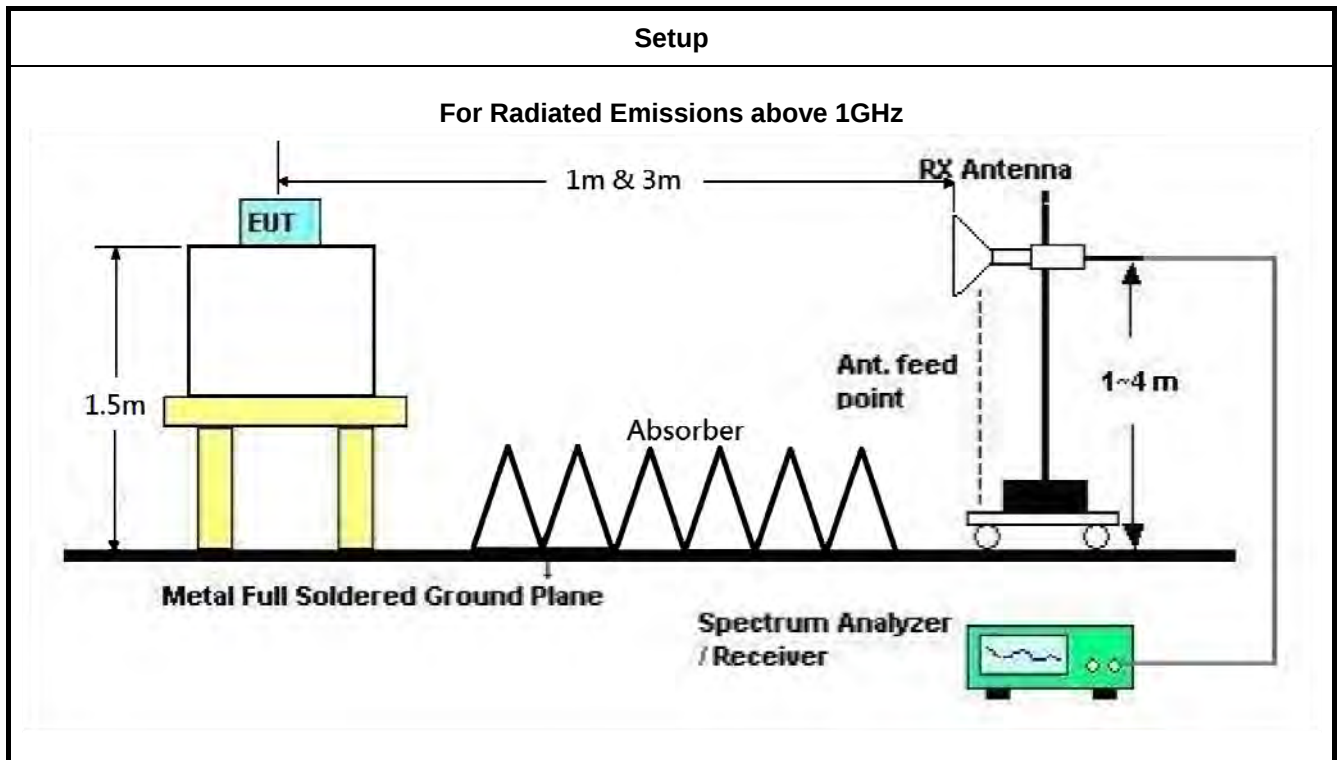
For Radiated band edges Measurement:

1. The test procedure is the same as section 2.5.3, only the frequency range investigated is limited to 100MHz around band edges

For Radiated Out of Band Emission Measurement:

1. Test was performed in accordance with KDB558074 D01 v03r05 for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247 section 10.1 Unwanted Emissions into Non-Restricted Frequency Bands Measurement Procedure.
2. The radiated emission test is performed on each TX port of operating mode without summing or adding 10log (N) since the limit is relative emission limit.

## 2.6.4 Test Setup



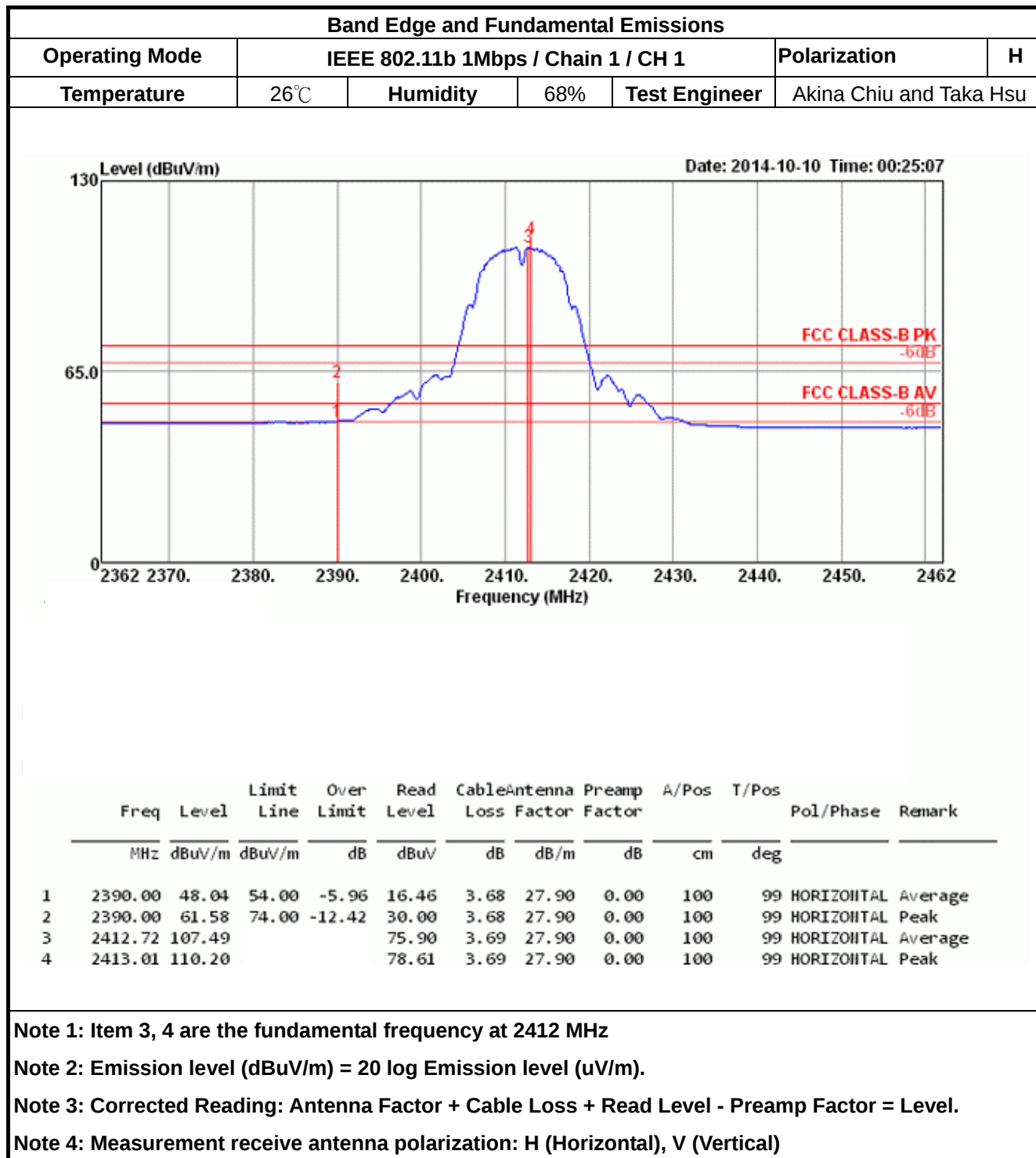
## 2.6.5 Test Deviation

There is no deviation with the original standard.

## 2.6.6 EUT Operation during Test

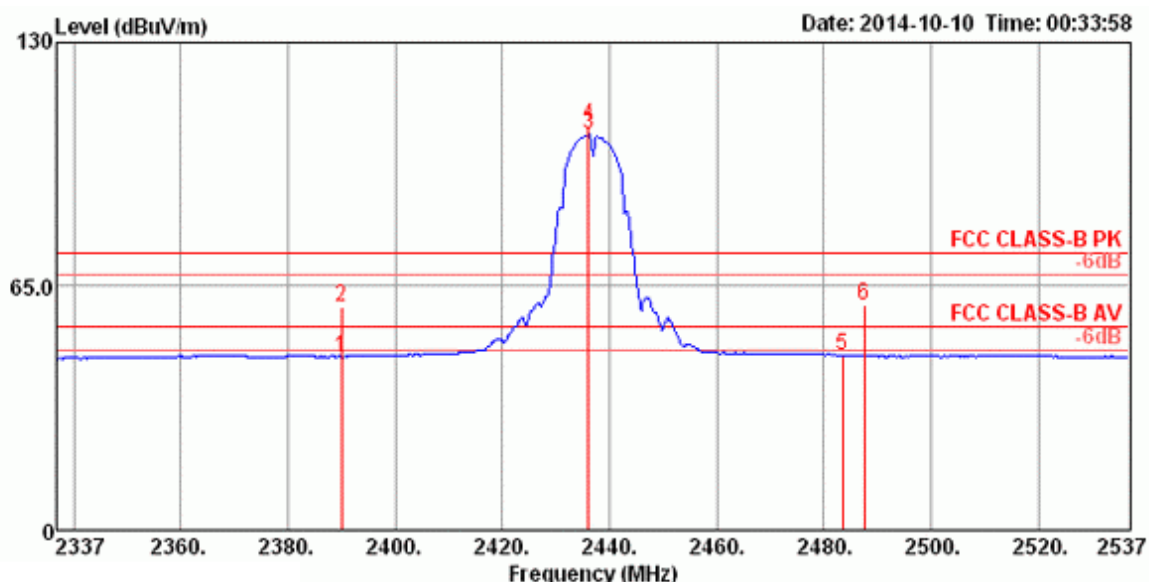
The EUT was programmed to be in continuously transmitting mode using Mtool 2.0.1.0(refer to APPENDIX C. List of test command).

## 2.6.7 Test Results



**Band Edge and Fundamental Emissions**

|                       |                                            |                 |     |                      |                         |          |
|-----------------------|--------------------------------------------|-----------------|-----|----------------------|-------------------------|----------|
| <b>Operating Mode</b> | <b>IEEE 802.11b 1Mbps / Chain 1 / CH 6</b> |                 |     |                      | <b>Polarization</b>     | <b>H</b> |
| <b>Temperature</b>    | 26℃                                        | <b>Humidity</b> | 68% | <b>Test Engineer</b> | Akina Chiu and Taka Hsu |          |



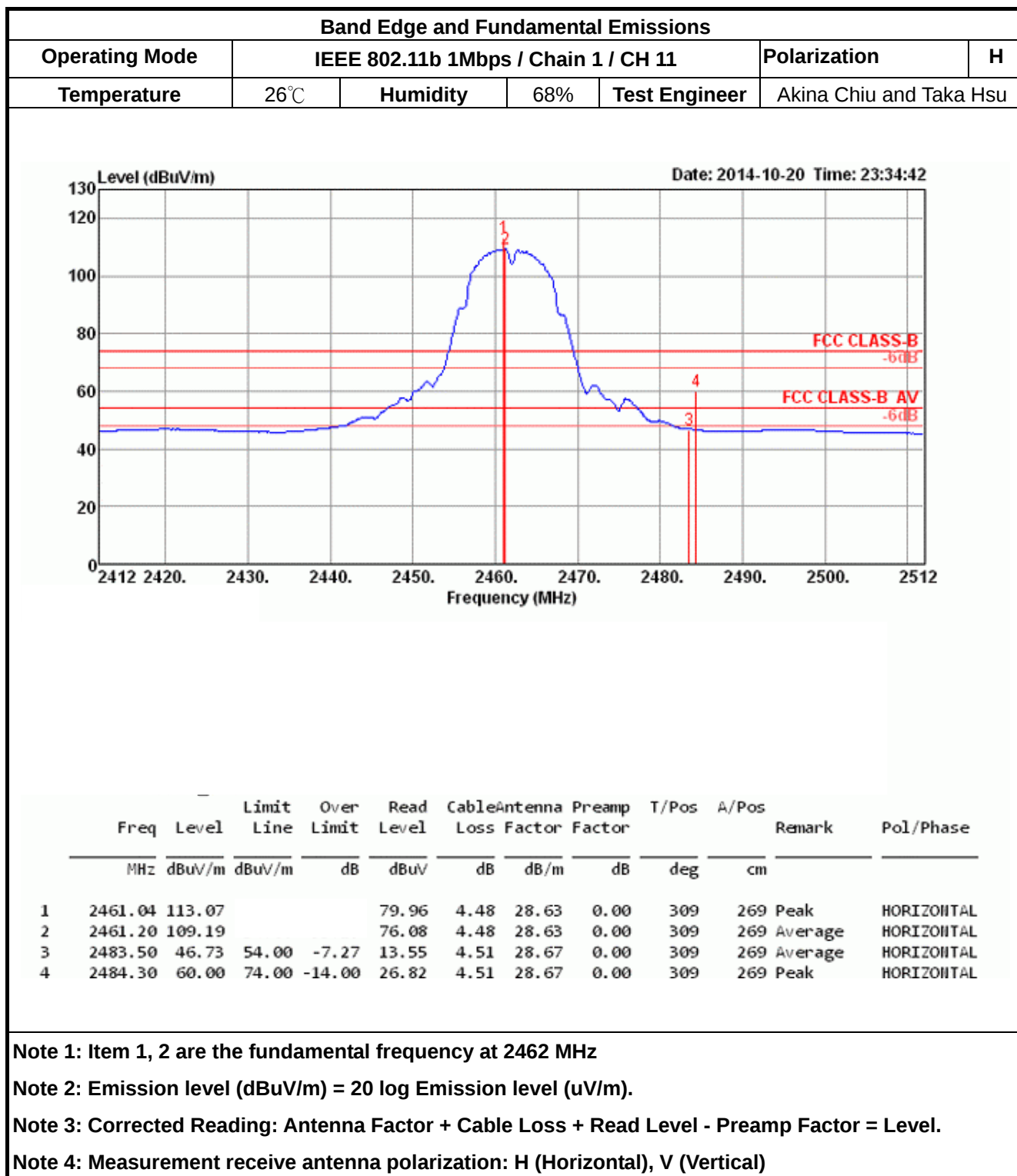
|   | Freq    | Level  | Limit  | Over   | Read  | Cable | Antenna | Preamp | A/Pos | T/Pos | Pol/Phase  | Remark  |
|---|---------|--------|--------|--------|-------|-------|---------|--------|-------|-------|------------|---------|
|   | MHz     | dBuV/m | dBuV/m | dB     | dBuV  | dB    | dB/m    | dB     | cm    | deg   |            |         |
| 1 | 2390.00 | 46.23  | 54.00  | -7.77  | 14.65 | 3.68  | 27.90   | 0.00   | 100   | 57    | HORIZONTAL | Average |
| 2 | 2390.00 | 59.30  | 74.00  | -14.70 | 27.72 | 3.68  | 27.90   | 0.00   | 100   | 57    | HORIZONTAL | Peak    |
| 3 | 2436.13 | 105.33 |        |        | 73.72 | 3.71  | 27.90   | 0.00   | 100   | 57    | HORIZONTAL | Average |
| 4 | 2436.13 | 108.11 |        |        | 76.50 | 3.71  | 27.90   | 0.00   | 100   | 57    | HORIZONTAL | Peak    |
| 5 | 2483.50 | 46.73  | 54.00  | -7.27  | 15.10 | 3.73  | 27.90   | 0.00   | 100   | 57    | HORIZONTAL | Average |
| 6 | 2487.55 | 59.78  | 74.00  | -14.22 | 28.15 | 3.73  | 27.90   | 0.00   | 100   | 57    | HORIZONTAL | Peak    |

**Note 1:** Item 3, 4 are the fundamental frequency at 2437 MHz

**Note 2:** Emission level (dBuV/m) = 20 log Emission level (uV/m).

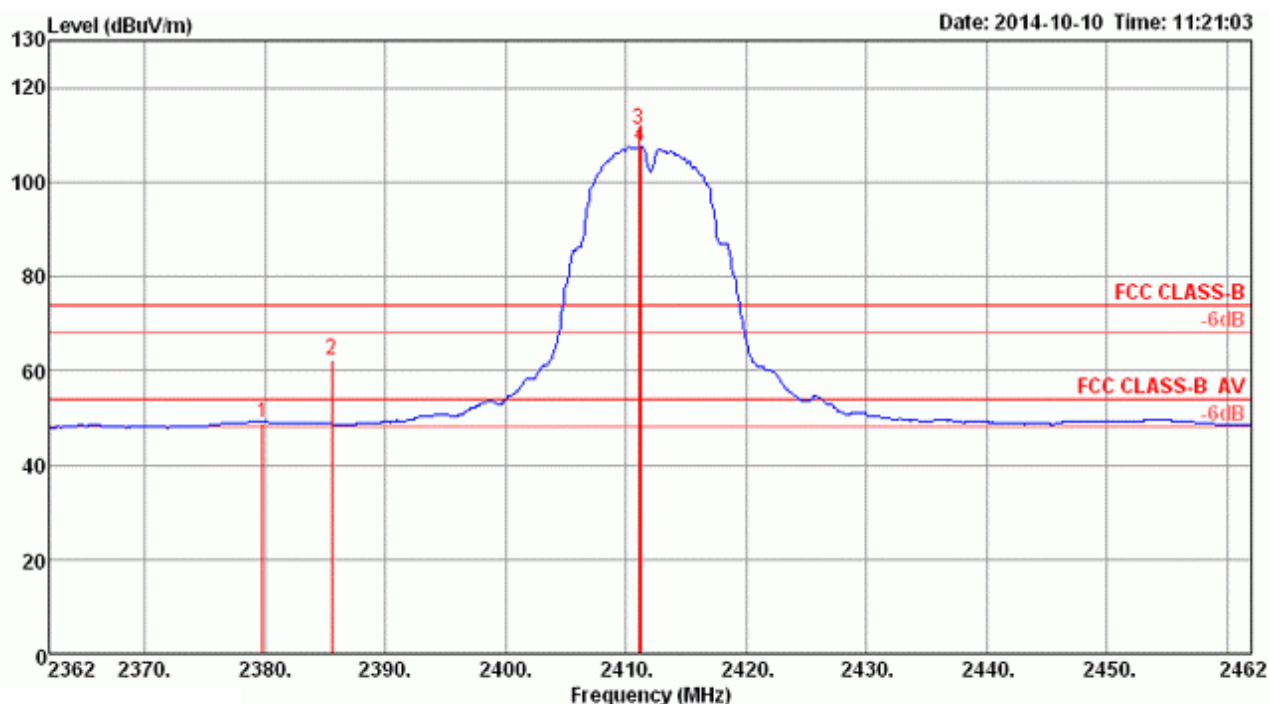
**Note 3:** Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

**Note 4:** Measurement receive antenna polarization: H (Horizontal), V (Vertical)



**Band Edge and Fundamental Emissions**

|                       |                                            |                 |     |                      |                         |
|-----------------------|--------------------------------------------|-----------------|-----|----------------------|-------------------------|
| <b>Operating Mode</b> | <b>IEEE 802.11b 1Mbps / Chain 2 / CH 1</b> |                 |     | <b>Polarization</b>  | <b>V</b>                |
| <b>Temperature</b>    | 26°C                                       | <b>Humidity</b> | 68% | <b>Test Engineer</b> | Akina Chiu and Taka Hsu |



|   | Freq    | Level  | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | Remark  | A/Pos | T/Pos | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|---------|-------|-------|-----------|
|   | MHz     | dBuV/m | dBuV/m     | dB         | dBuV       | dB         | dB/m           | dB            |         | cm    | deg   |           |
| 1 | 2379.74 | 48.79  | 54.00      | -5.21      | 16.70      | 4.08       | 28.01          | 0.00          | Average | 102   | 64    | VERTICAL  |
| 2 | 2385.51 | 62.42  | 74.00      | -11.58     | 30.28      | 4.09       | 28.05          | 0.00          | Peak    | 102   | 64    | VERTICAL  |
| 3 | 2411.04 | 111.28 |            |            | 79.08      | 4.11       | 28.09          | 0.00          | Peak    | 102   | 64    | VERTICAL  |
| 4 | 2411.20 | 107.56 |            |            | 75.36      | 4.11       | 28.09          | 0.00          | Average | 102   | 64    | VERTICAL  |

**Note 1:** Item 3, 4 are the fundamental frequency at 2412 MHz

**Note 2:** Emission level (dBuV/m) = 20 log Emission level (uV/m).

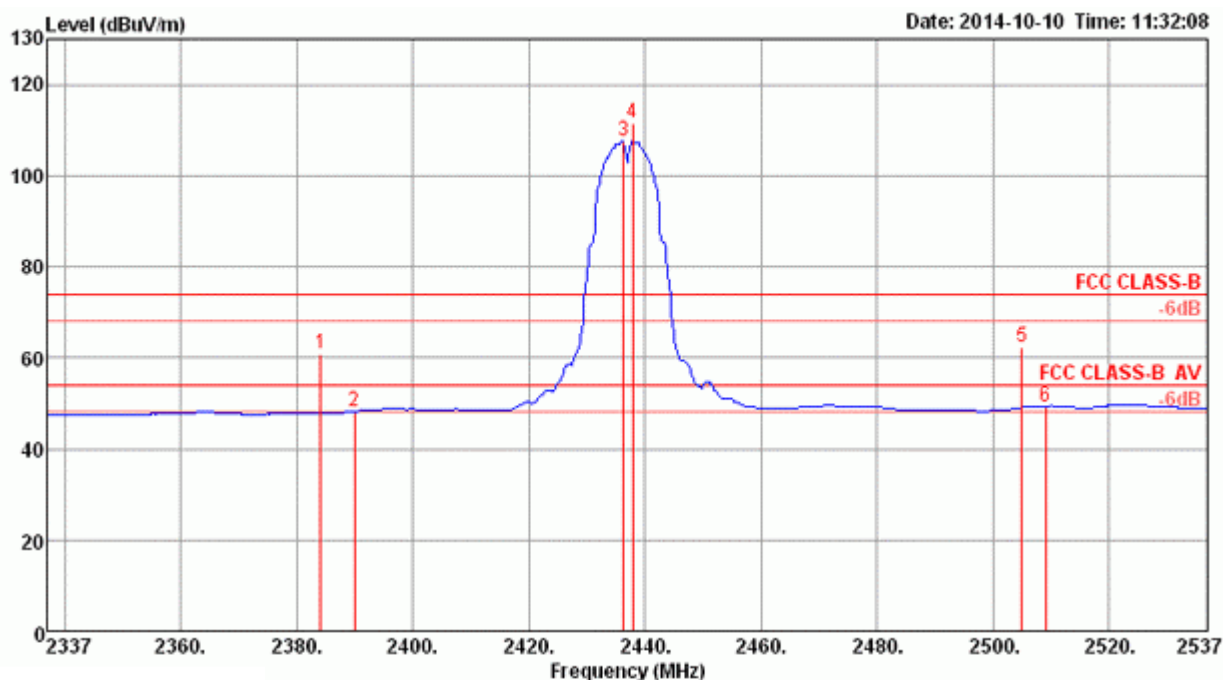
**Note 3:** Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

**Note 4:** Measurement receive antenna polarization: H (Horizontal), V (Vertical)



## Band Edge and Fundamental Emissions

|                |                                     |          |     |               |                         |
|----------------|-------------------------------------|----------|-----|---------------|-------------------------|
| Operating Mode | IEEE 802.11b 1Mbps / Chain 2 / CH 6 |          |     | Polarization  | V                       |
| Temperature    | 26°C                                | Humidity | 68% | Test Engineer | Akina Chiu and Taka Hsu |



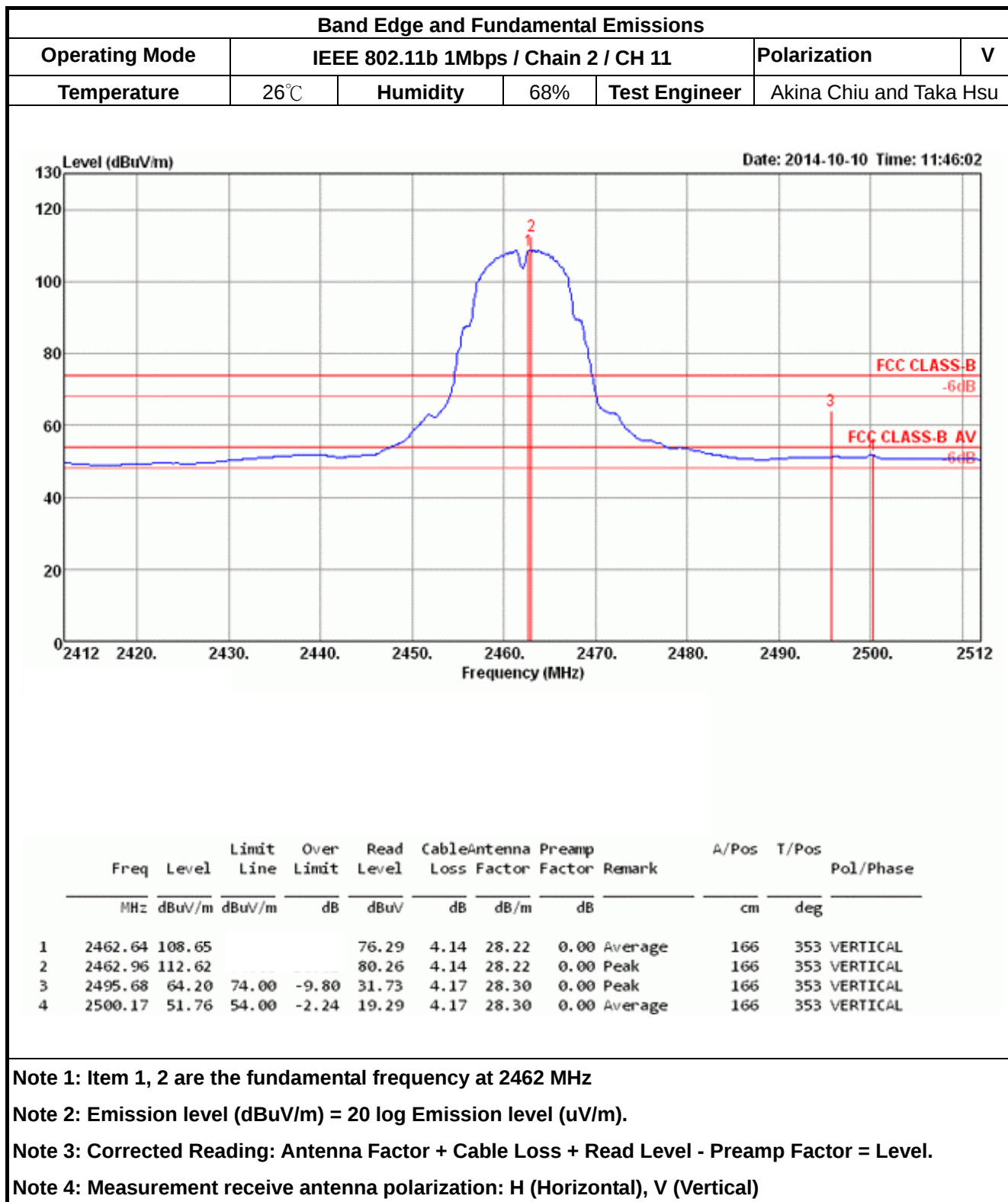
|   | Freq    | Level  | Limit  | Over   | Read  | Cable | Antenna | Preamp |         | A/Pos | T/Pos |           |
|---|---------|--------|--------|--------|-------|-------|---------|--------|---------|-------|-------|-----------|
|   | MHz     | dBuV/m | dBuV/m | dB     | dBuV  | dB    | dB/m    | dB     | Remark  | cm    | deg   | Pol/Phase |
| 1 | 2384.23 | 60.78  | 74.00  | -13.22 | 28.65 | 4.08  | 28.05   | 0.00   | Peak    | 102   | 72    | VERTICAL  |
| 2 | 2390.00 | 48.14  | 54.00  | -5.86  | 16.00 | 4.09  | 28.05   | 0.00   | Average | 102   | 72    | VERTICAL  |
| 3 | 2436.36 | 107.57 |        |        | 75.27 | 4.12  | 28.18   | 0.00   | Average | 102   | 72    | VERTICAL  |
| 4 | 2437.96 | 111.38 |        |        | 79.07 | 4.13  | 28.18   | 0.00   | Peak    | 102   | 72    | VERTICAL  |
| 5 | 2504.97 | 62.11  | 74.00  | -11.89 | 29.57 | 4.19  | 28.35   | 0.00   | Peak    | 102   | 72    | VERTICAL  |
| 6 | 2509.14 | 49.38  | 54.00  | -4.62  | 16.84 | 4.19  | 28.35   | 0.00   | Average | 102   | 72    | VERTICAL  |

Note 1: Item 3, 4 are the fundamental frequency at 2437 MHz

Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

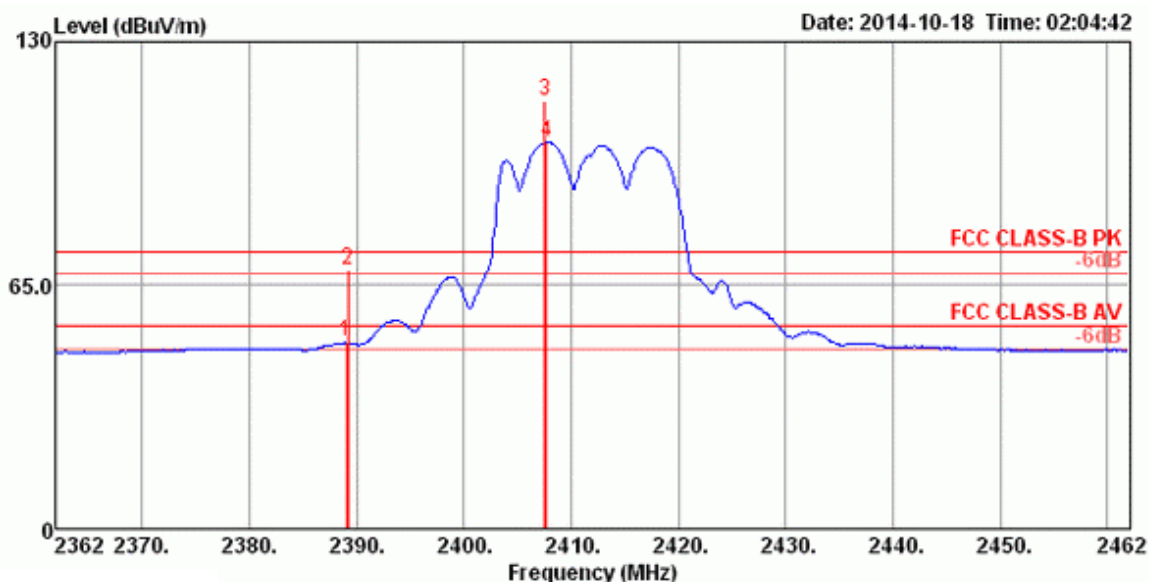
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Note 4: Measurement receive antenna polarization: H (Horizontal), V (Vertical)



**Band Edge and Fundamental Emissions**

|                       |                                                          |                 |            |                      |                                |
|-----------------------|----------------------------------------------------------|-----------------|------------|----------------------|--------------------------------|
| <b>Operating Mode</b> | <b>IEEE 802.11g CDD 6Mbps / Chain 1 + Chain 2 / CH 1</b> |                 |            | <b>Polarization</b>  | <b>V</b>                       |
| <b>Temperature</b>    | <b>26°C</b>                                              | <b>Humidity</b> | <b>68%</b> | <b>Test Engineer</b> | <b>Akina Chiu and Taka Hsu</b> |



|   | Freq    | Level  | Limit  | Over  | Read  | Cable | Antenna | Preamp | A/Pos | T/Pos | Pol/Phase | Remark  |
|---|---------|--------|--------|-------|-------|-------|---------|--------|-------|-------|-----------|---------|
|   | MHz     | dBuV/m | dBuV/m | dB    | dBuV  | dB    | dB/m    | dB     | cm    | deg   |           |         |
| 1 | 2388.99 | 49.80  | 54.00  | -4.20 | 18.22 | 3.68  | 27.90   | 0.00   | 131   | 22    | VERTICAL  | Average |
| 2 | 2389.13 | 69.18  | 74.00  | -4.82 | 37.60 | 3.68  | 27.90   | 0.00   | 131   | 22    | VERTICAL  | Peak    |
| 3 | 2407.51 | 114.07 |        |       | 82.48 | 3.69  | 27.90   | 0.00   | 131   | 22    | VERTICAL  | Peak    |
| 4 | 2407.66 | 103.14 |        |       | 71.55 | 3.69  | 27.90   | 0.00   | 131   | 22    | VERTICAL  | Average |

**Note 1:** Item 3, 4 are the fundamental frequency at 2412 MHz

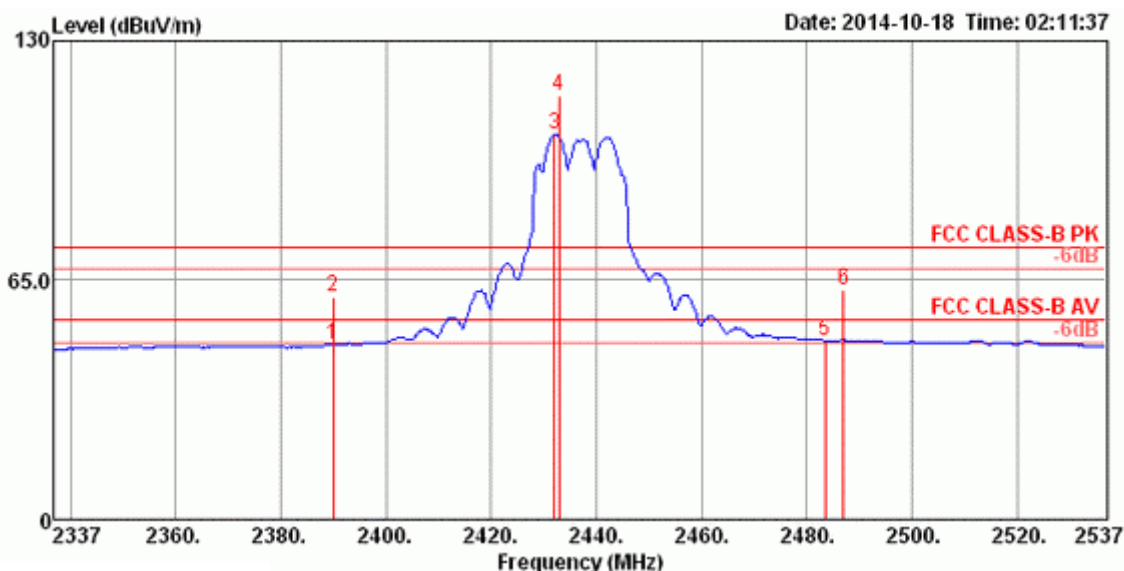
**Note 2:** Emission level (dBuV/m) = 20 log Emission level (uV/m).

**Note 3:** Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

**Note 4:** Measurement receive antenna polarization: H (Horizontal), V (Vertical)

**Band Edge and Fundamental Emissions**

|                       |                                                   |                 |     |                      |                         |   |
|-----------------------|---------------------------------------------------|-----------------|-----|----------------------|-------------------------|---|
| <b>Operating Mode</b> | IEEE 802.11g CDD 6Mbps / Chain 1 + Chain 2 / CH 6 |                 |     |                      | <b>Polarization</b>     | V |
| <b>Temperature</b>    | 26°C                                              | <b>Humidity</b> | 68% | <b>Test Engineer</b> | Akina Chiu and Taka Hsu |   |



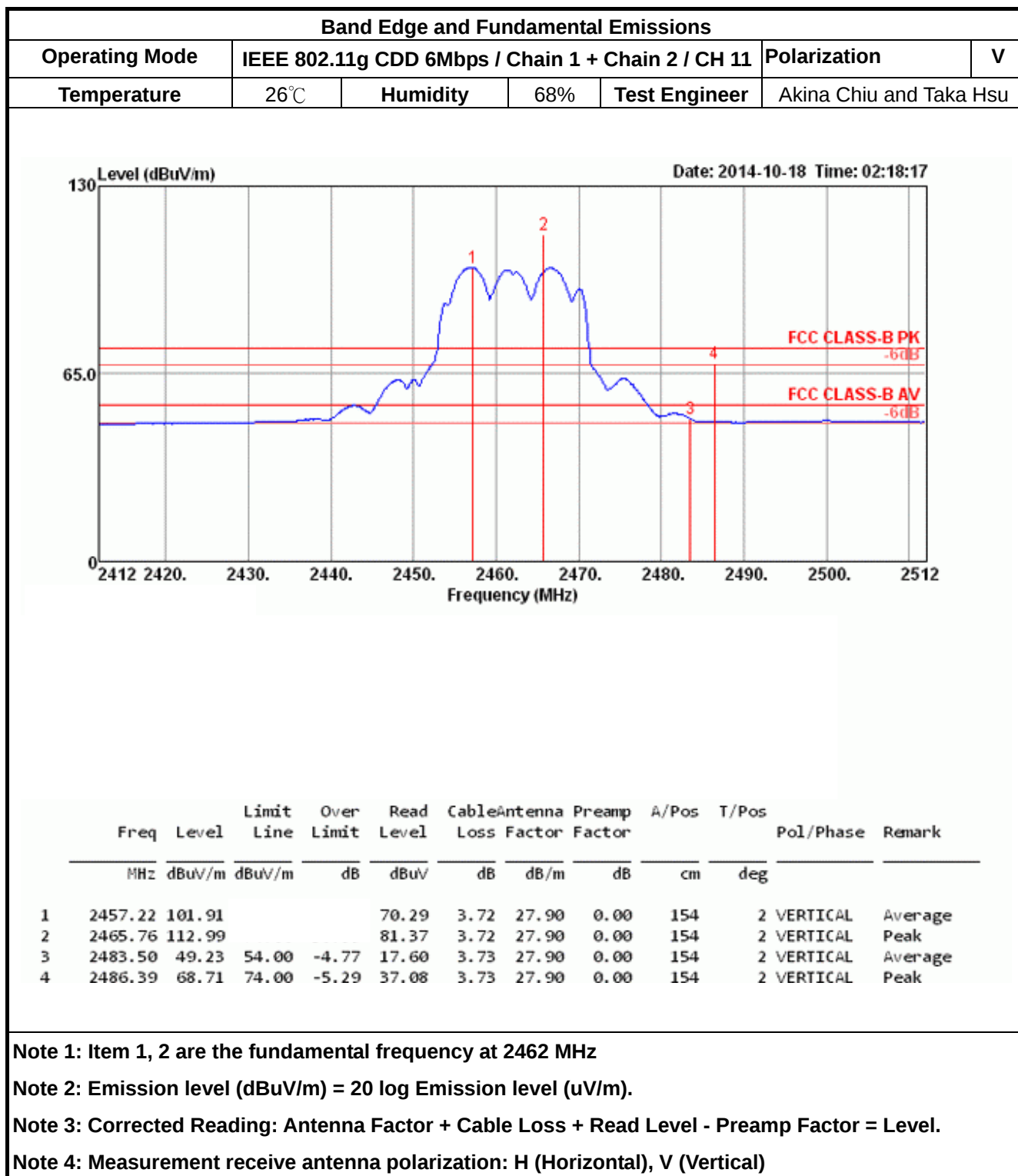
|   | Freq    | Level  | Limit  | Over   | Read  | Cable | Antenna | Preamp | A/Pos | T/Pos | Pol/Phase | Remark  |
|---|---------|--------|--------|--------|-------|-------|---------|--------|-------|-------|-----------|---------|
|   | MHz     | dBuV/m | dBuV/m | dB     | dBuV  | dB    | dB/m    | dB     | cm    | deg   |           |         |
| 1 | 2390.00 | 47.48  | 54.00  | -6.52  | 15.90 | 3.68  | 27.90   | 0.00   | 147   | 26    | VERTICAL  | Average |
| 2 | 2390.00 | 60.35  | 74.00  | -13.65 | 28.77 | 3.68  | 27.90   | 0.00   | 147   | 26    | VERTICAL  | Peak    |
| 3 | 2432.08 | 104.39 |        |        | 72.79 | 3.70  | 27.90   | 0.00   | 147   | 26    | VERTICAL  | Average |
| 4 | 2432.95 | 115.22 |        |        | 83.62 | 3.70  | 27.90   | 0.00   | 147   | 26    | VERTICAL  | Peak    |
| 5 | 2483.50 | 48.64  | 54.00  | -5.36  | 17.01 | 3.73  | 27.90   | 0.00   | 147   | 26    | VERTICAL  | Average |
| 6 | 2486.97 | 62.52  | 74.00  | -11.48 | 30.89 | 3.73  | 27.90   | 0.00   | 147   | 26    | VERTICAL  | Peak    |

**Note 1:** Item 3, 4 are the fundamental frequency at 2437 MHz

**Note 2:** Emission level (dBuV/m) = 20 log Emission level (uV/m).

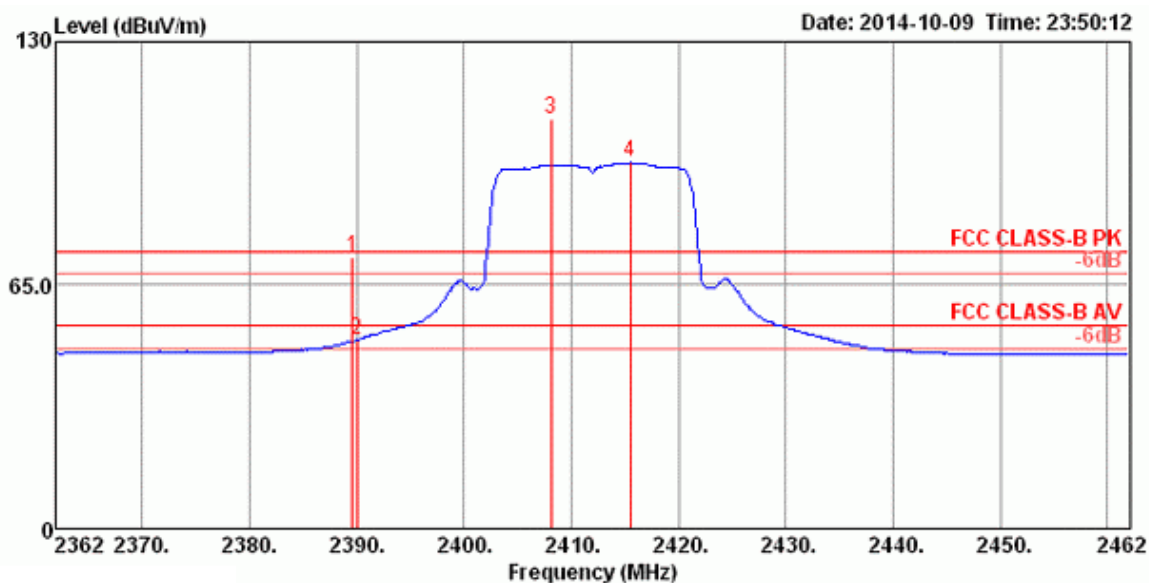
**Note 3:** Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

**Note 4:** Measurement receive antenna polarization: H (Horizontal), V (Vertical)



**Band Edge and Fundamental Emissions**

|                       |                                                   |                 |            |                      |                                |
|-----------------------|---------------------------------------------------|-----------------|------------|----------------------|--------------------------------|
| <b>Operating Mode</b> | <b>IEEE 802.11n 20MHz / MCS0 / Chain 1 / CH 1</b> |                 |            | <b>Polarization</b>  | <b>V</b>                       |
| <b>Temperature</b>    | <b>26°C</b>                                       | <b>Humidity</b> | <b>68%</b> | <b>Test Engineer</b> | <b>Akina Chiu and Taka Hsu</b> |



|   | Freq    | Level  | Limit  | Over  | Read  | Cable | Antenna | Preamp | A/Pos | T/Pos | Pol/Phase | Remark  |
|---|---------|--------|--------|-------|-------|-------|---------|--------|-------|-------|-----------|---------|
|   | MHz     | dBuV/m | dBuV/m | dB    | dBuV  | dB    | dB/m    | dB     | cm    | deg   |           |         |
| 1 | 2389.57 | 72.56  | 74.00  | -1.44 | 40.98 | 3.68  | 27.90   | 0.00   | 151   | 360   | VERTICAL  | Peak    |
| 2 | 2390.00 | 50.35  | 54.00  | -3.65 | 18.77 | 3.68  | 27.90   | 0.00   | 151   | 360   | VERTICAL  | Average |
| 3 | 2408.09 | 109.23 |        |       | 77.64 | 3.69  | 27.90   | 0.00   | 151   | 360   | VERTICAL  | Peak    |
| 4 | 2415.47 | 97.64  |        |       | 66.05 | 3.69  | 27.90   | 0.00   | 151   | 360   | VERTICAL  | Average |

**Note 1:** Item 3, 4 are the fundamental frequency at 2412 MHz

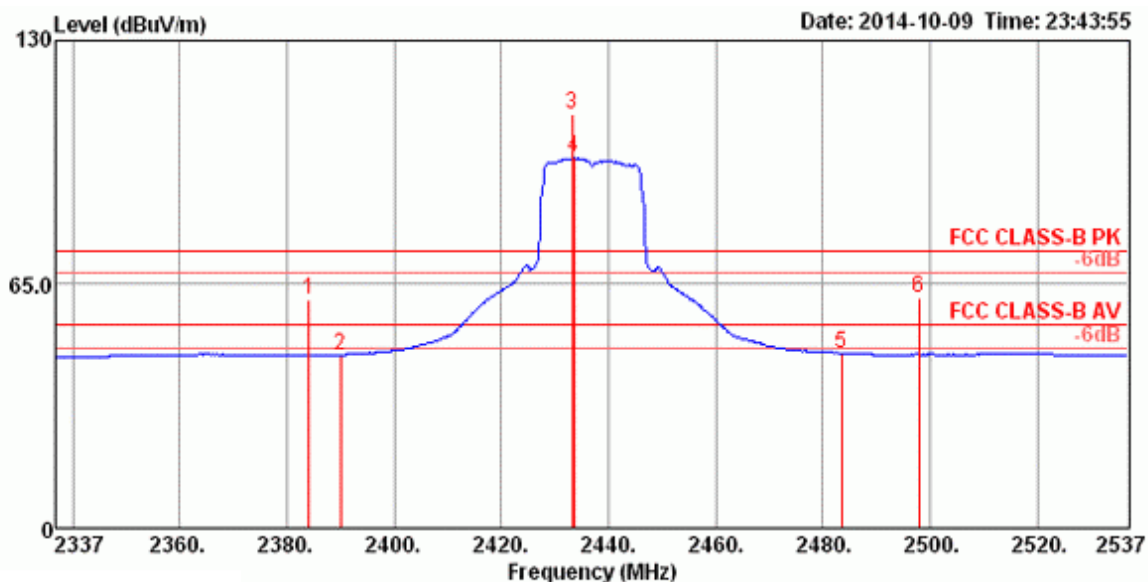
**Note 2:** Emission level (dBuV/m) = 20 log Emission level (uV/m).

**Note 3:** Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

**Note 4:** Measurement receive antenna polarization: H (Horizontal), V (Vertical)

**Band Edge and Fundamental Emissions**

|                       |                                                   |                 |     |                      |                         |          |
|-----------------------|---------------------------------------------------|-----------------|-----|----------------------|-------------------------|----------|
| <b>Operating Mode</b> | <b>IEEE 802.11n 20MHz / MCS0 / Chain 1 / CH 6</b> |                 |     |                      | <b>Polarization</b>     | <b>H</b> |
| <b>Temperature</b>    | 26°C                                              | <b>Humidity</b> | 68% | <b>Test Engineer</b> | Akina Chiu and Taka Hsu |          |



|   | Freq    | Level  | Limit  | Over   | Read  | Cable | Antenna | Preamp | A/Pos | T/Pos | Pol/Phase  | Remark  |
|---|---------|--------|--------|--------|-------|-------|---------|--------|-------|-------|------------|---------|
|   | MHz     | dBuV/m | dBuV/m | dB     | dBuV  | dB    | dB/m    | dB     | cm    | deg   |            |         |
| 1 | 2384.21 | 60.88  | 74.00  | -13.12 | 29.30 | 3.68  | 27.90   | 0.00   | 100   | 58    | HORIZONTAL | Peak    |
| 2 | 2390.00 | 46.21  | 54.00  | -7.79  | 14.63 | 3.68  | 27.90   | 0.00   | 100   | 58    | HORIZONTAL | Average |
| 3 | 2433.24 | 110.27 |        |        | 78.67 | 3.70  | 27.90   | 0.00   | 100   | 58    | HORIZONTAL | Peak    |
| 4 | 2433.53 | 98.65  |        |        | 67.05 | 3.70  | 27.90   | 0.00   | 100   | 58    | HORIZONTAL | Average |
| 5 | 2483.50 | 46.66  | 54.00  | -7.34  | 15.03 | 3.73  | 27.90   | 0.00   | 100   | 58    | HORIZONTAL | Average |
| 6 | 2497.97 | 61.29  | 74.00  | -12.71 | 29.65 | 3.74  | 27.90   | 0.00   | 100   | 58    | HORIZONTAL | Peak    |

**Note 1:** Item 3, 4 are the fundamental frequency at 2437 MHz

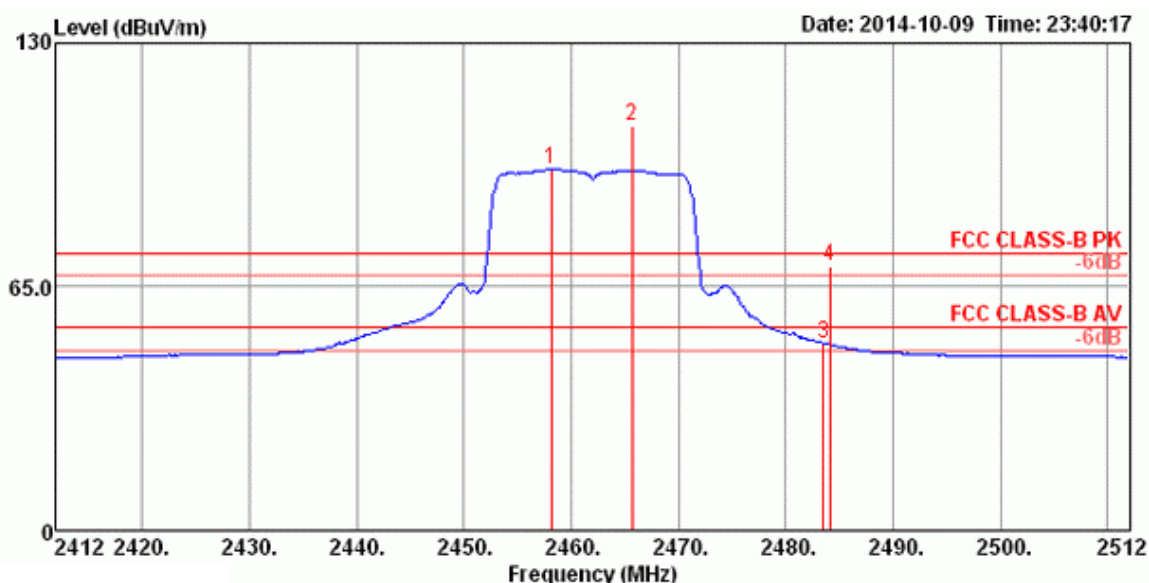
**Note 2:** Emission level (dBuV/m) = 20 log Emission level (uV/m).

**Note 3:** Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

**Note 4:** Measurement receive antenna polarization: H (Horizontal), V (Vertical)

**Band Edge and Fundamental Emissions**

|                       |                                                    |                 |     |                      |                         |
|-----------------------|----------------------------------------------------|-----------------|-----|----------------------|-------------------------|
| <b>Operating Mode</b> | <b>IEEE 802.11n 20MHz / MCS0 / Chain 1 / CH 11</b> |                 |     | <b>Polarization</b>  | <b>H</b>                |
| <b>Temperature</b>    | 26°C                                               | <b>Humidity</b> | 68% | <b>Test Engineer</b> | Akina Chiu and Taka Hsu |



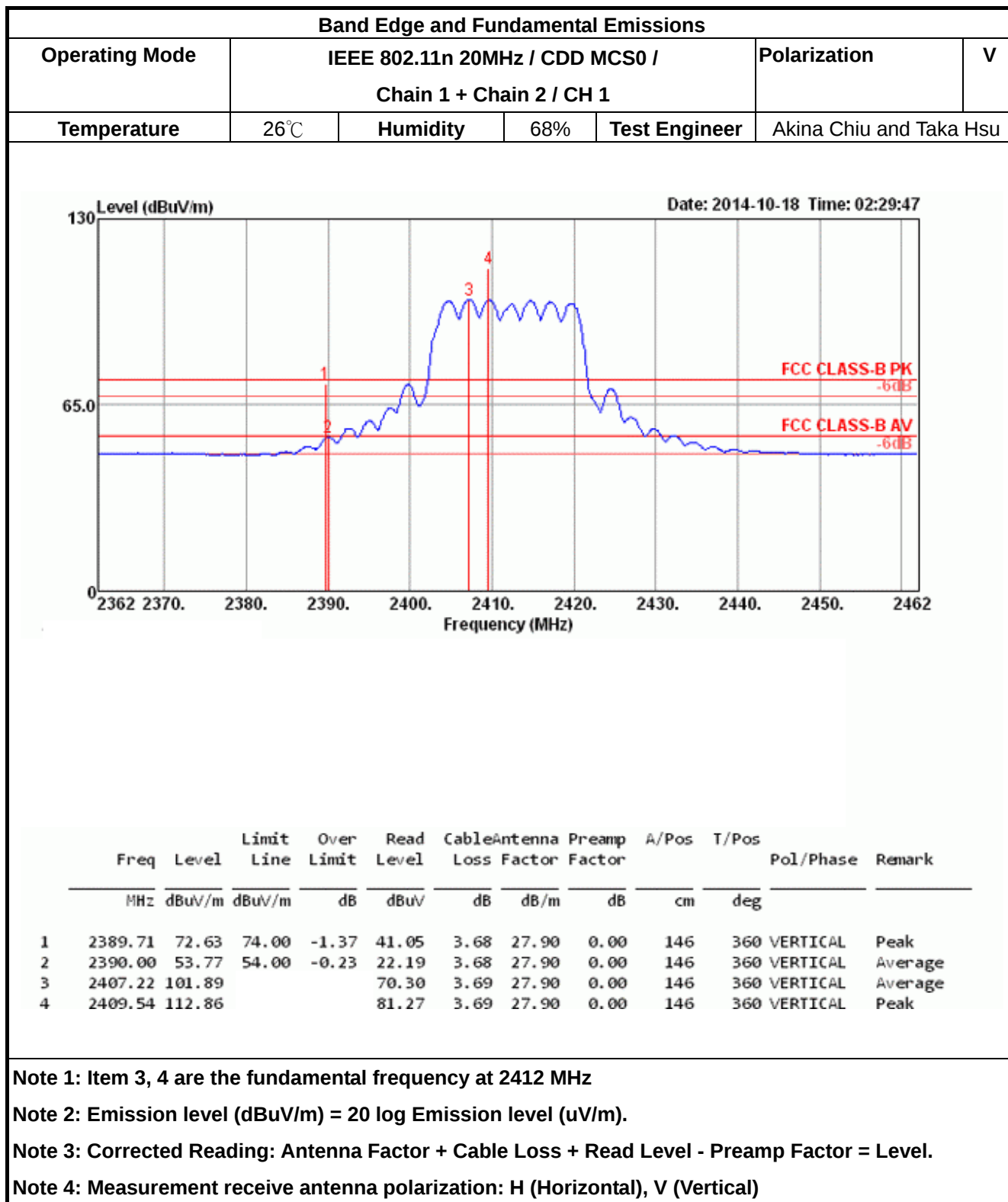
|   | Freq    | Level  | Limit  | Over  | Read  | CableAntenna | Preamp | A/Pos | T/Pos | Pol/Phase | Remark             |
|---|---------|--------|--------|-------|-------|--------------|--------|-------|-------|-----------|--------------------|
|   | MHz     | dBuV/m | dBuV/m | dB    | dBuV  | dB           | dB/m   | dB    | cm    | deg       |                    |
| 1 | 2458.09 | 96.29  |        |       | 64.67 | 3.72         | 27.90  | 0.00  | 137   | 58        | HORIZONTAL Average |
| 2 | 2465.62 | 107.76 |        |       | 76.14 | 3.72         | 27.90  | 0.00  | 137   | 58        | HORIZONTAL Peak    |
| 3 | 2483.50 | 49.91  | 54.00  | -4.09 | 18.28 | 3.73         | 27.90  | 0.00  | 137   | 58        | HORIZONTAL Average |
| 4 | 2484.08 | 70.60  | 74.00  | -3.40 | 38.97 | 3.73         | 27.90  | 0.00  | 137   | 58        | HORIZONTAL Peak    |

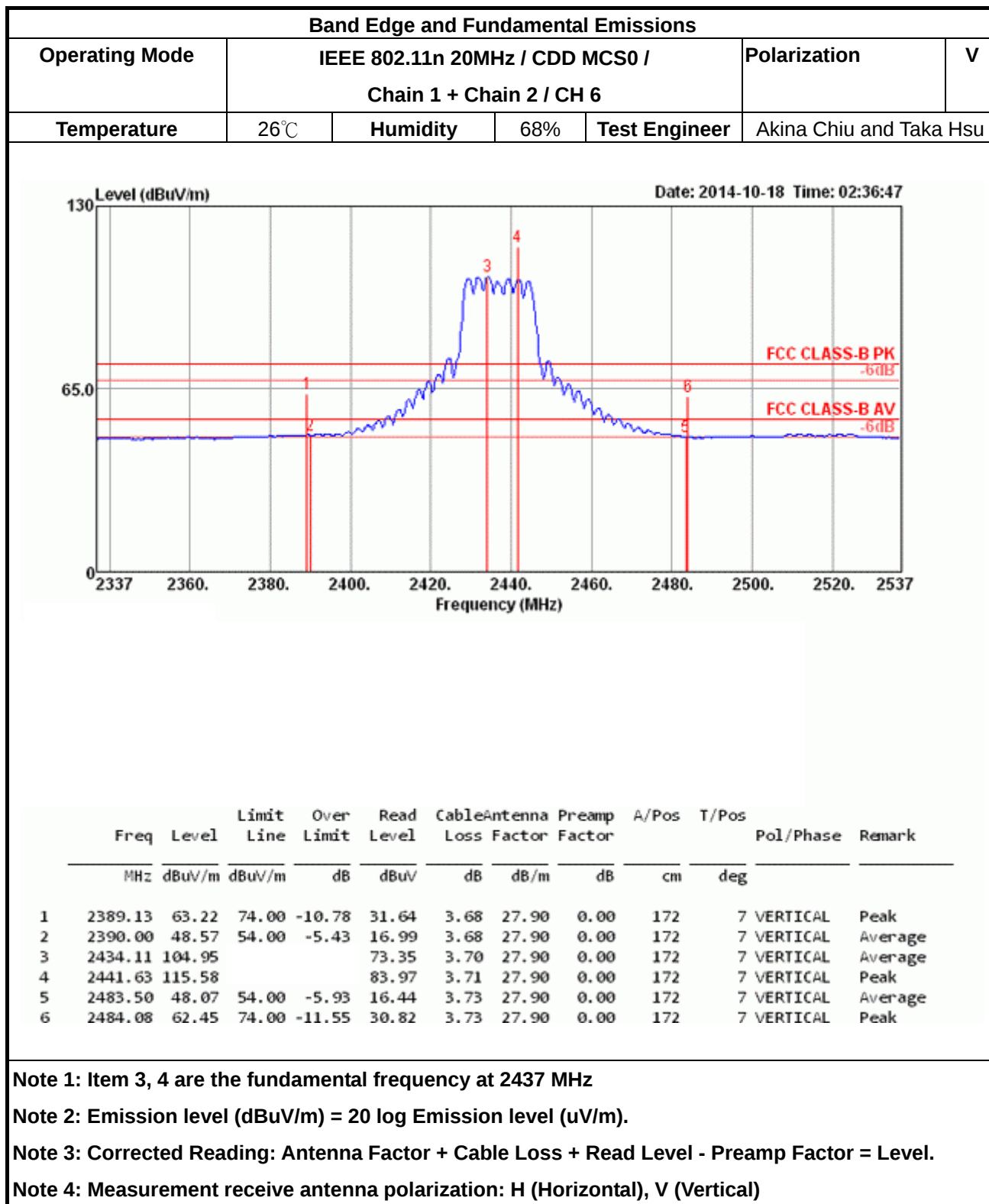
**Note 1:** Item 1, 2 are the fundamental frequency at 2462 MHz

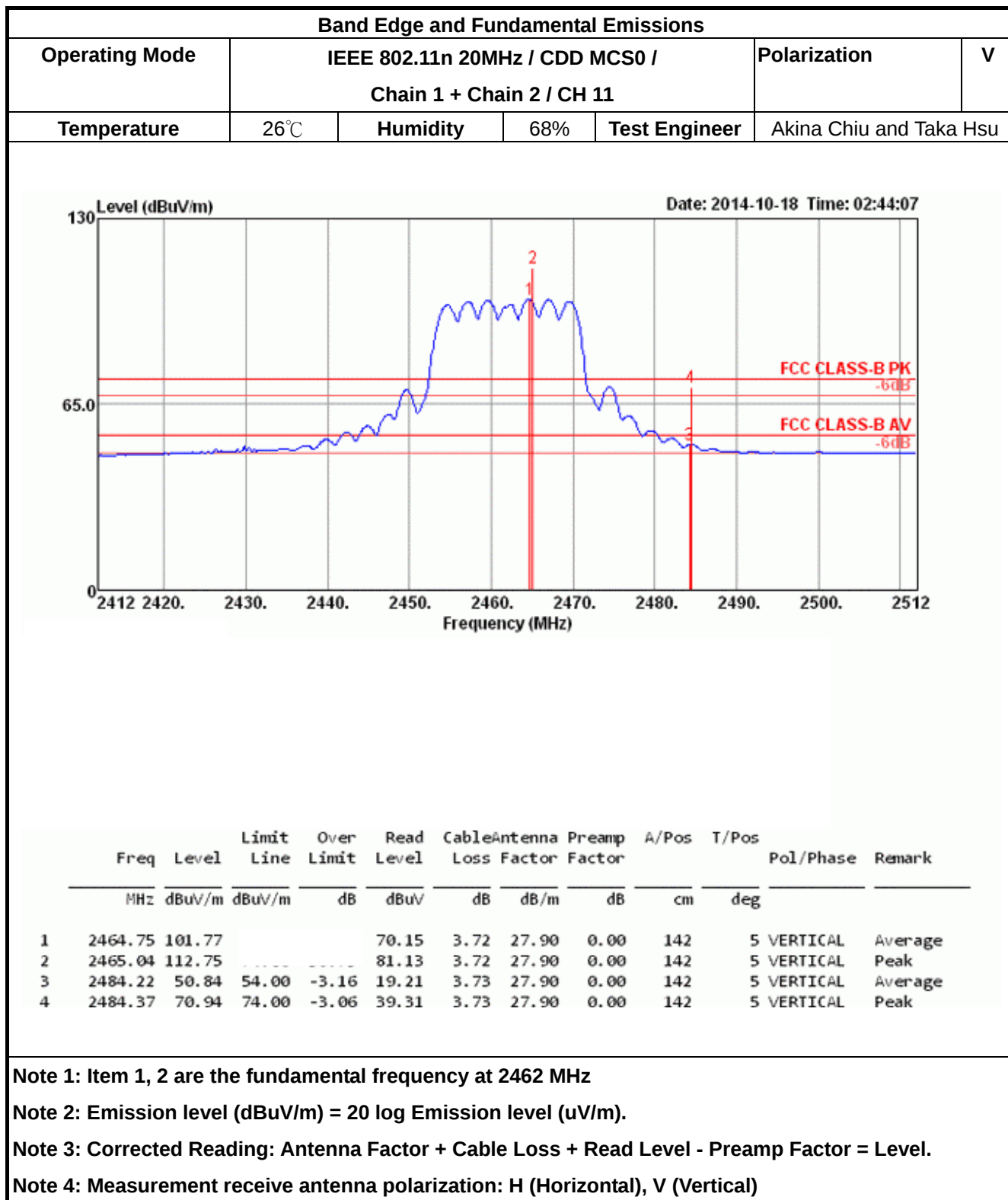
**Note 2:** Emission level (dBuV/m) = 20 log Emission level (uV/m).

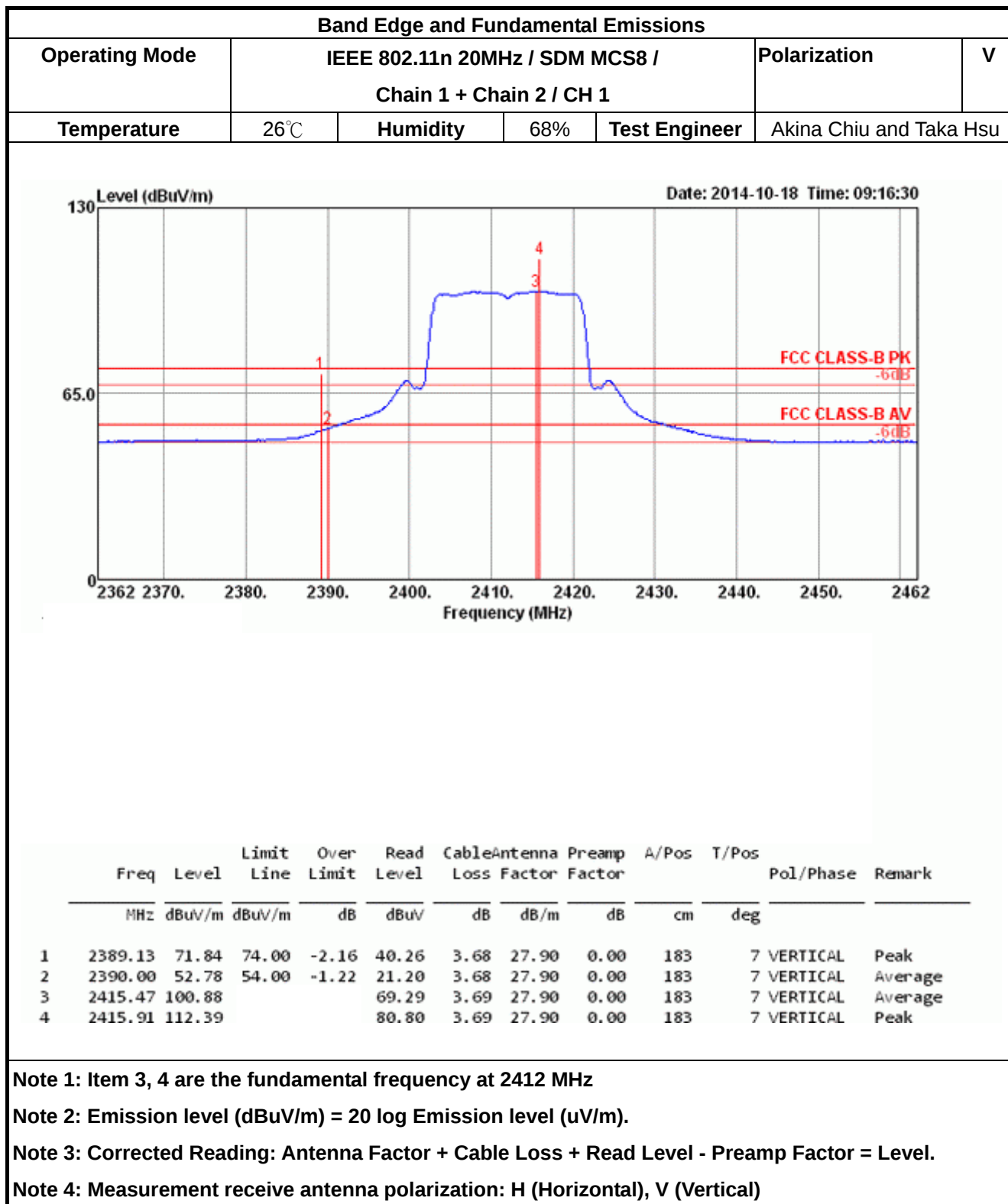
**Note 3:** Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

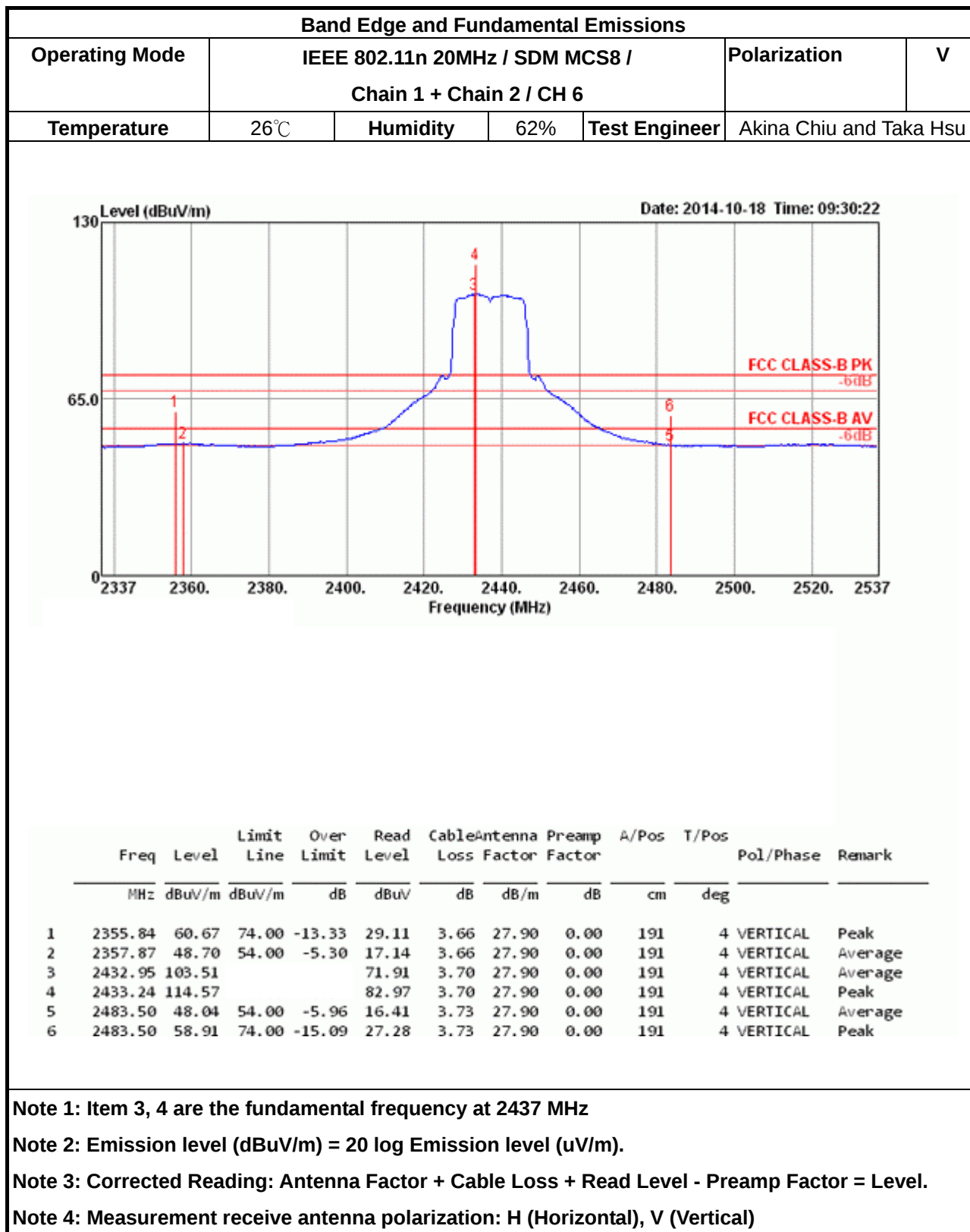
**Note 4:** Measurement receive antenna polarization: H (Horizontal), V (Vertical)

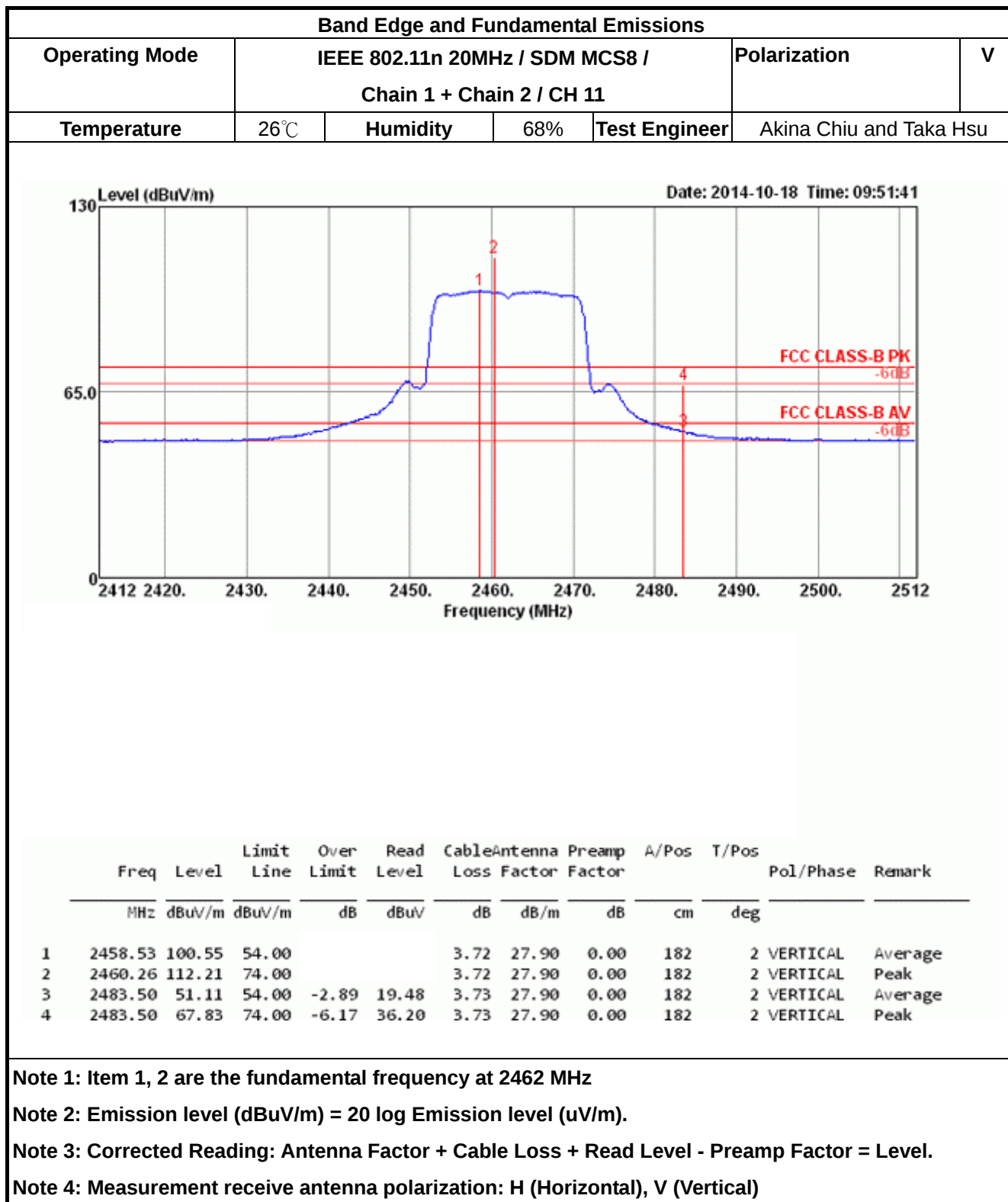






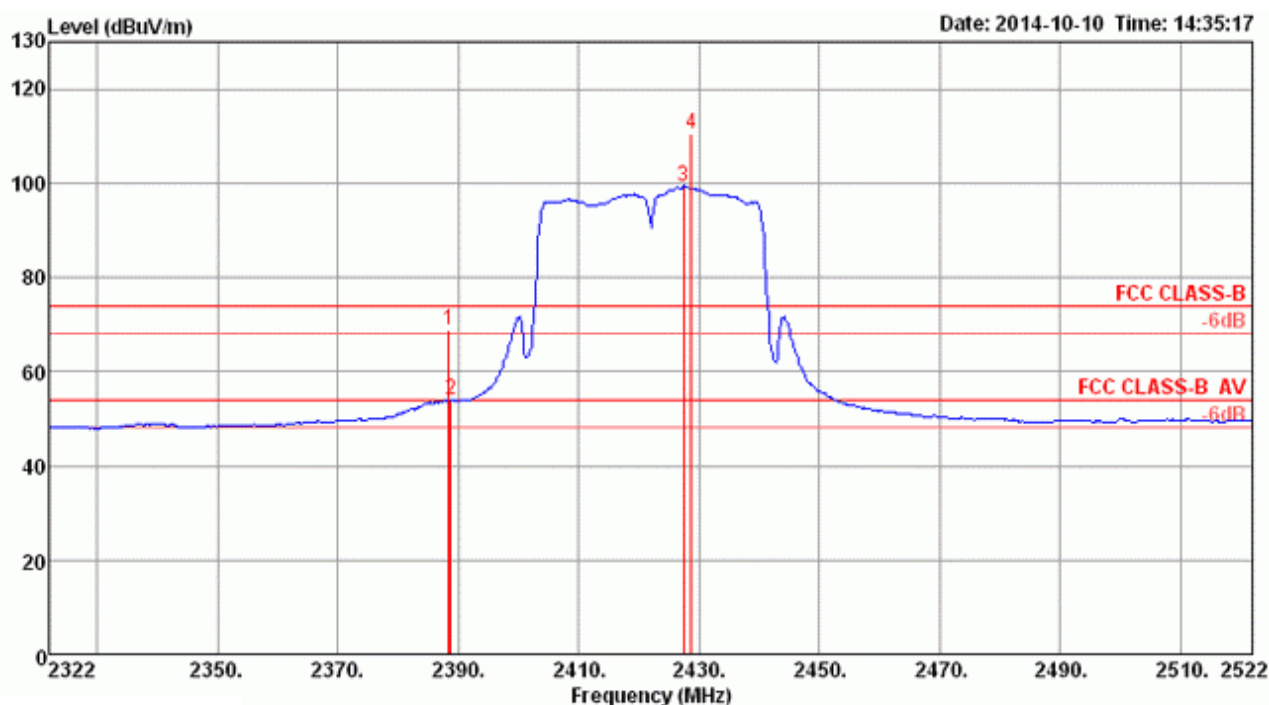






**Band Edge and Fundamental Emissions**

|                       |                                                   |                 |     |                      |                         |
|-----------------------|---------------------------------------------------|-----------------|-----|----------------------|-------------------------|
| <b>Operating Mode</b> | <b>IEEE 802.11n 40MHz / MCS0 / Chain 1 / CH 3</b> |                 |     | <b>Polarization</b>  | <b>V</b>                |
| <b>Temperature</b>    | 26°C                                              | <b>Humidity</b> | 68% | <b>Test Engineer</b> | Akina Chiu and Taka Hsu |



|   | Freq    | Level  | Limit | Over  | Read  | Cable | Antenna | Preamp |         | A/Pos | T/Pos |           |
|---|---------|--------|-------|-------|-------|-------|---------|--------|---------|-------|-------|-----------|
|   | MHz     | dBuV/m | Line  | Limit | Level | Loss  | Factor  | Factor | Remark  | cm    | deg   | Pol/Phase |
| 1 | 2388.40 | 68.86  | 74.00 | -5.14 | 36.72 | 4.09  | 28.05   | 0.00   | Peak    | 185   | 23    | VERTICAL  |
| 2 | 2388.72 | 53.87  | 54.00 | -0.13 | 21.73 | 4.09  | 28.05   | 0.00   | Average | 185   | 23    | VERTICAL  |
| 3 | 2427.45 | 99.14  | 54.00 |       |       | 4.12  | 28.13   | 0.00   | Average | 185   | 23    | VERTICAL  |
| 4 | 2428.73 | 110.31 | 74.00 |       |       | 4.12  | 28.13   | 0.00   | Peak    | 185   | 23    | VERTICAL  |

**Note 1:** Item 3, 4 are the fundamental frequency at 2422 MHz

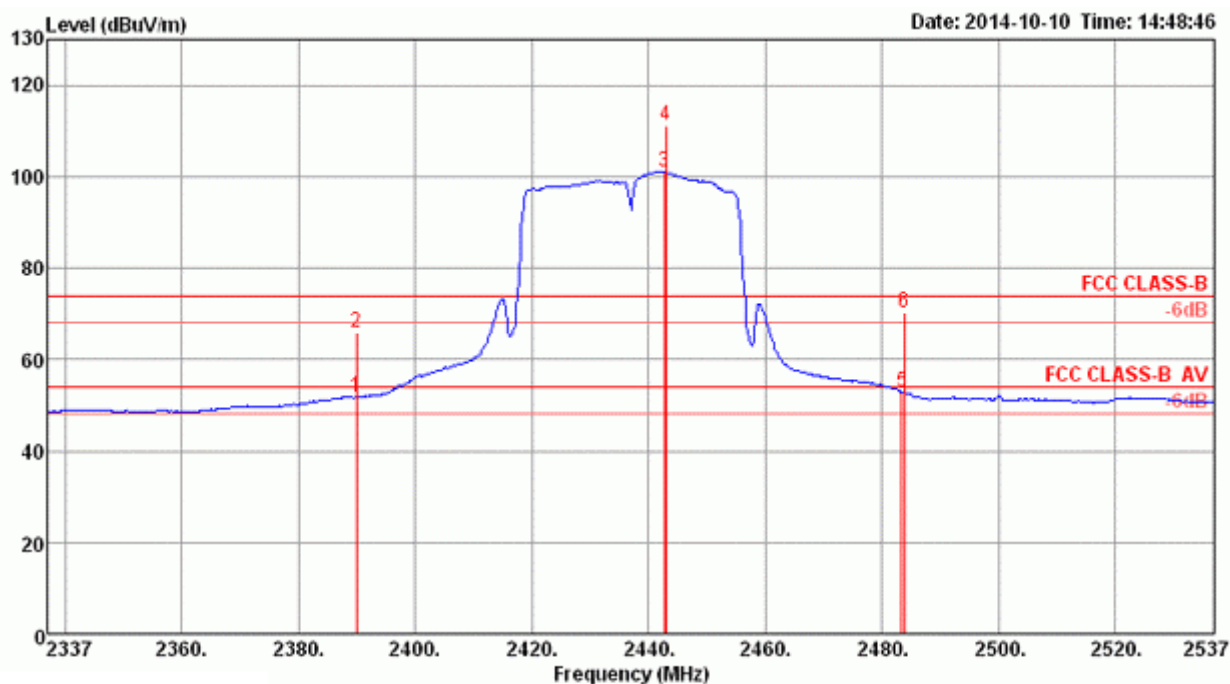
**Note 2:** Emission level (dBuV/m) = 20 log Emission level (uV/m).

**Note 3:** Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

**Note 4:** Measurement receive antenna polarization: H (Horizontal), V (Vertical)

**Band Edge and Fundamental Emissions**

|                |                                            |          |     |               |                         |   |
|----------------|--------------------------------------------|----------|-----|---------------|-------------------------|---|
| Operating Mode | IEEE 802.11n 40MHz / MCS0 / Chain 1 / CH 6 |          |     |               | Polarization            | V |
| Temperature    | 26°C                                       | Humidity | 68% | Test Engineer | Akina Chiu and Taka Hsu |   |



|   | Freq    | Level  | Limit  | Over  | Read  | Cable | Antenna | Preamp |         | A/Pos | T/Pos |           |
|---|---------|--------|--------|-------|-------|-------|---------|--------|---------|-------|-------|-----------|
|   | MHz     | dBuV/m | dBuV/m | dB    | dBuV  | dB    | dB/m    | dB     | Remark  | cm    | deg   | Pol/Phase |
| 1 | 2390.00 | 51.75  | 54.00  | -2.25 | 19.61 | 4.09  | 28.05   | 0.00   | Average | 149   | 354   | VERTICAL  |
| 2 | 2390.00 | 65.84  | 74.00  | -8.16 | 33.70 | 4.09  | 28.05   | 0.00   | Peak    | 149   | 354   | VERTICAL  |
| 3 | 2442.77 | 101.10 |        |       | 68.79 | 4.13  | 28.18   | 0.00   | Average | 149   | 354   | VERTICAL  |
| 4 | 2443.09 | 111.01 |        |       | 78.70 | 4.13  | 28.18   | 0.00   | Peak    | 149   | 354   | VERTICAL  |
| 5 | 2483.50 | 52.78  | 54.00  | -1.22 | 20.36 | 4.16  | 28.26   | 0.00   | Average | 149   | 354   | VERTICAL  |
| 6 | 2483.82 | 70.20  | 74.00  | -3.80 | 37.78 | 4.16  | 28.26   | 0.00   | Peak    | 149   | 354   | VERTICAL  |

Note 1: Item 3, 4 are the fundamental frequency at 2437 MHz

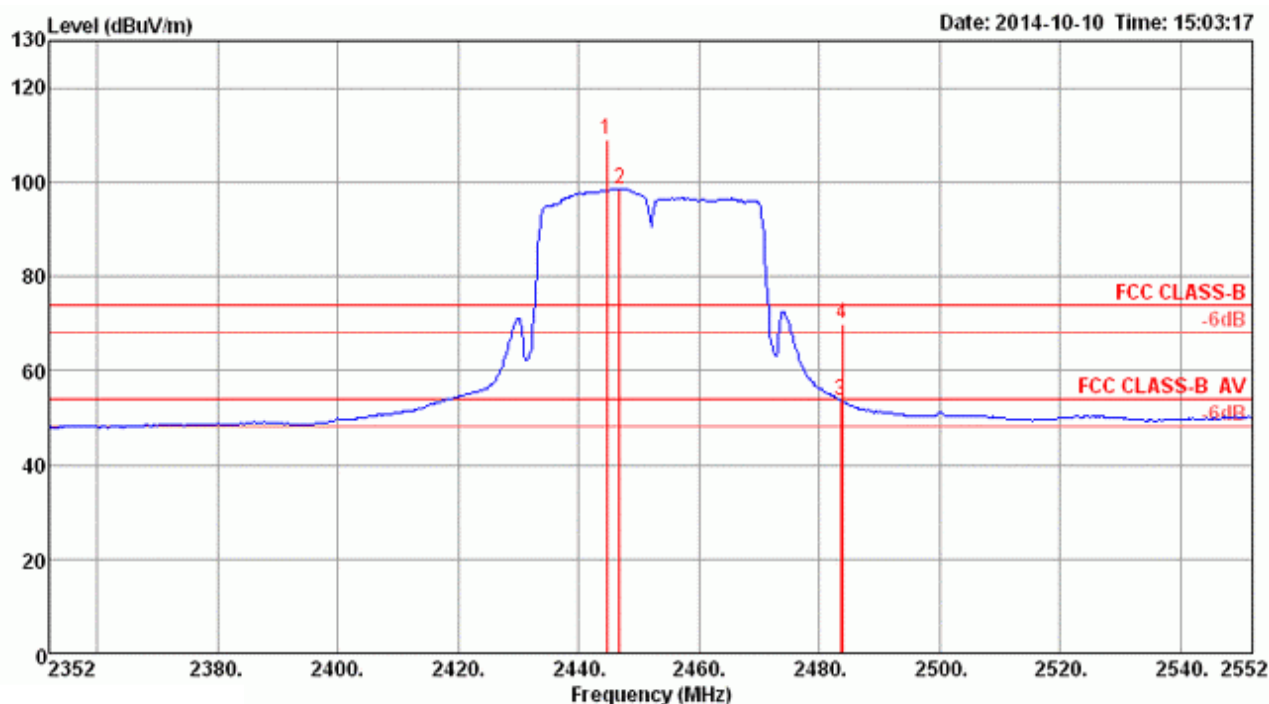
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Note 4: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

**Band Edge and Fundamental Emissions**

|                |                                            |          |     |               |                         |   |
|----------------|--------------------------------------------|----------|-----|---------------|-------------------------|---|
| Operating Mode | IEEE 802.11n 40MHz / MCS0 / Chain 1 / CH 9 |          |     |               | Polarization            | V |
| Temperature    | 26°C                                       | Humidity | 68% | Test Engineer | Akina Chiu and Taka Hsu |   |



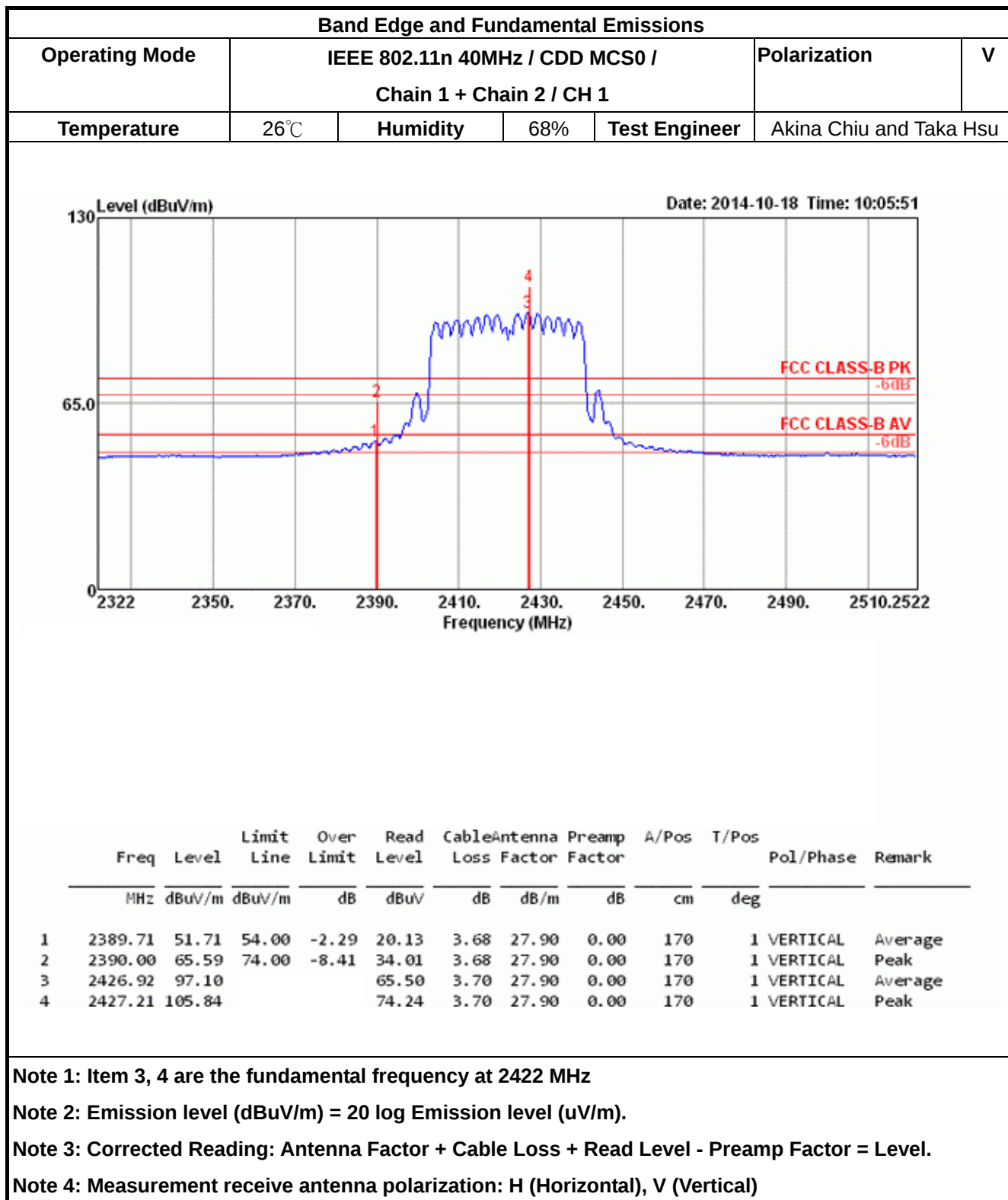
|   | Freq    | Level  | Limit  | Over  | Read  | Cable | Antenna | Preamp |         | A/Pos | T/Pos | Pol/Phase |
|---|---------|--------|--------|-------|-------|-------|---------|--------|---------|-------|-------|-----------|
|   | MHz     | dBuV/m | dBuV/m | dB    | dBuV  | dB    | dB/m    | dB     | Remark  | cm    | deg   |           |
| 1 | 2444.63 | 108.93 | 74.00  |       |       | 4.13  | 28.18   | 0.00   | Peak    | 150   | 11    | VERTICAL  |
| 2 | 2446.87 | 98.59  | 54.00  |       |       | 4.13  | 28.18   | 0.00   | Average | 150   | 11    | VERTICAL  |
| 3 | 2483.50 | 53.76  | 54.00  | -0.24 | 21.34 | 4.16  | 28.26   | 0.00   | Average | 150   | 11    | VERTICAL  |
| 4 | 2483.82 | 69.90  | 74.00  | -4.10 | 37.48 | 4.16  | 28.26   | 0.00   | Peak    | 150   | 11    | VERTICAL  |

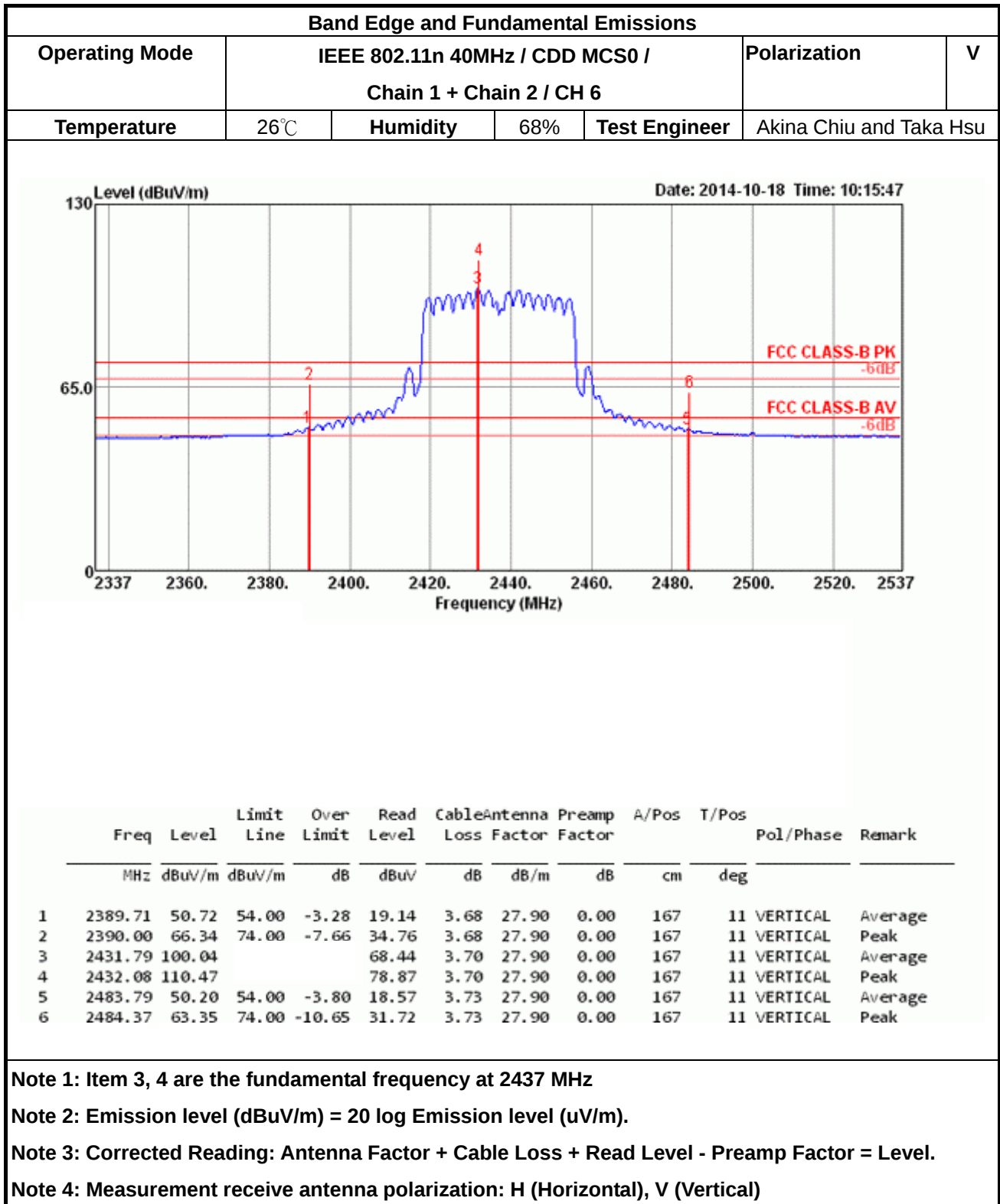
Note 1: Item 1, 2 are the fundamental frequency at 2452 MHz

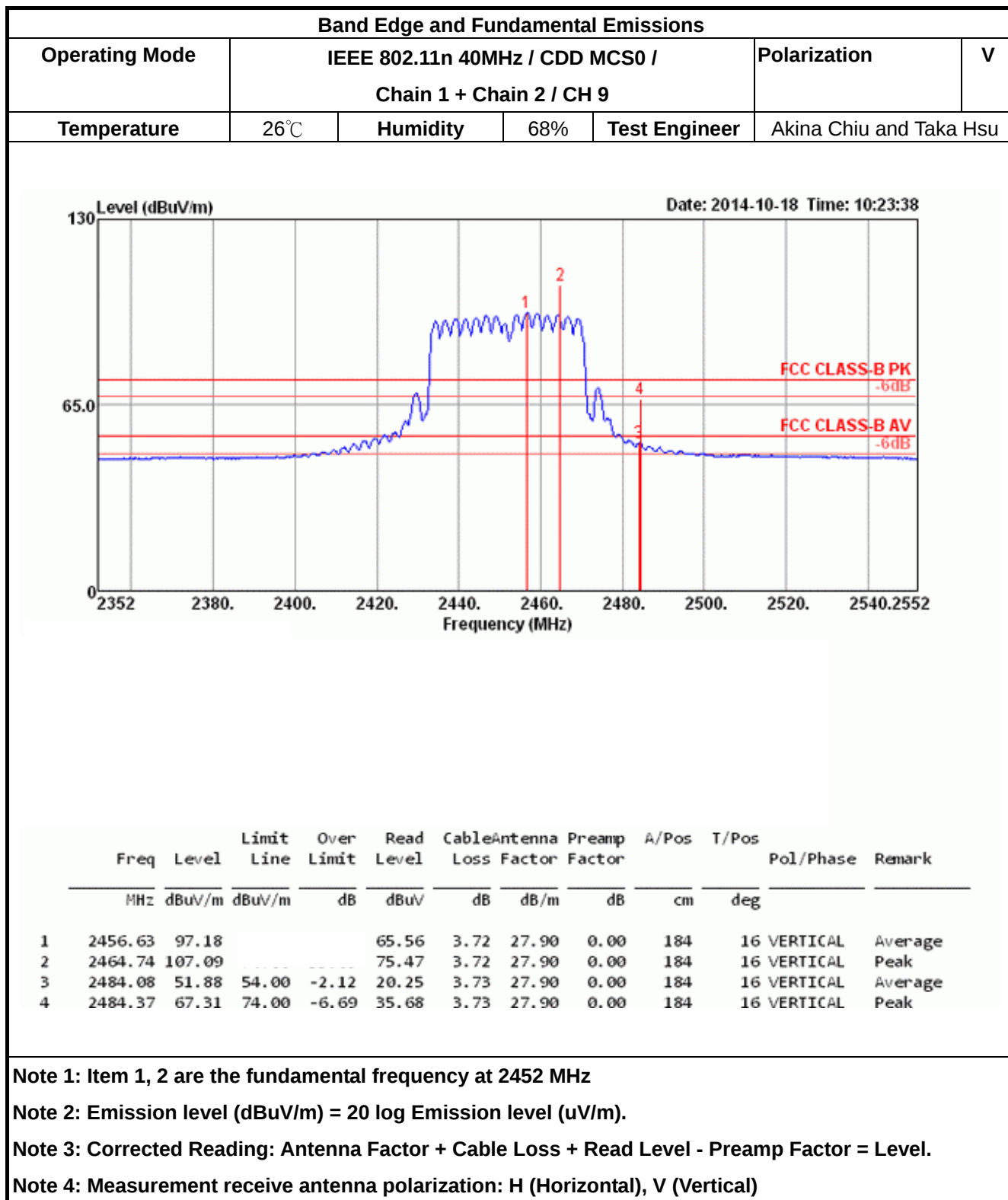
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

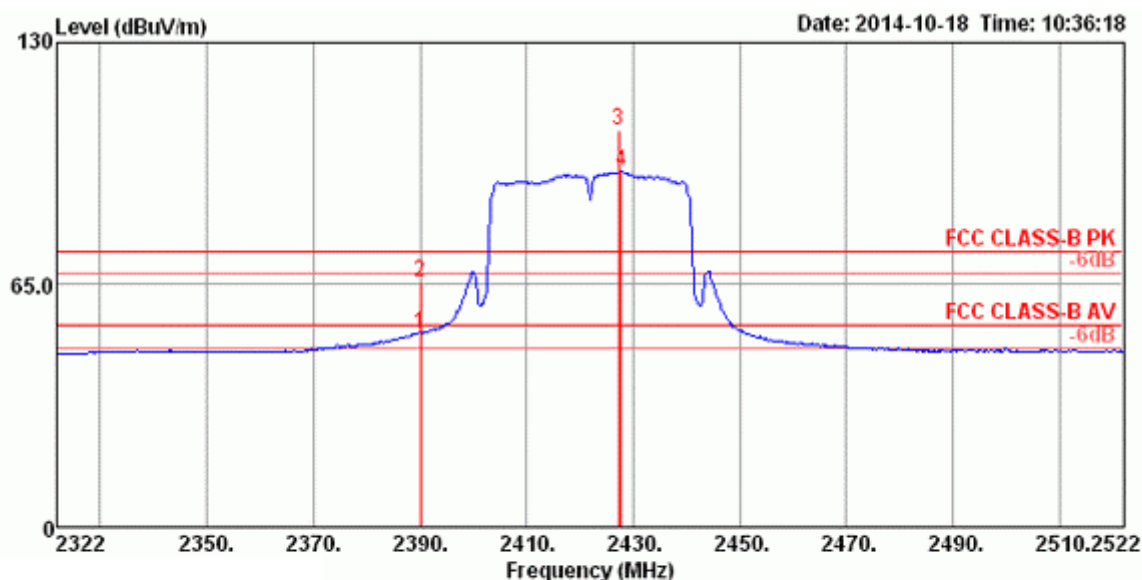
Note 4: Measurement receive antenna polarization: H (Horizontal), V (Vertical)







| Band Edge and Fundamental Emissions |                                                             |          |     |               |                         |
|-------------------------------------|-------------------------------------------------------------|----------|-----|---------------|-------------------------|
| Operating Mode                      | IEEE 802.11n 40MHz / SDM MCS8 /<br>Chain 1 + Chain 2 / CH 3 |          |     | Polarization  | V                       |
| Temperature                         | 26°C                                                        | Humidity | 68% | Test Engineer | Akina Chiu and Taka Hsu |



|   | Freq    | Level  | Limit  | Over  | Read  | Cable | Antenna | Preamp | A/Pos | T/Pos | Pol/Phase | Remark  |
|---|---------|--------|--------|-------|-------|-------|---------|--------|-------|-------|-----------|---------|
|   | MHz     | dBuV/m | dBuV/m | dB    | dBuV  | dB    | dB/m    | dB     | cm    | deg   |           |         |
| 1 | 2390.00 | 51.79  | 54.00  | -2.21 | 20.21 | 3.68  | 27.90   | 0.00   | 170   | 8     | VERTICAL  | Average |
| 2 | 2390.00 | 65.83  | 74.00  | -8.17 | 34.25 | 3.68  | 27.90   | 0.00   | 170   | 8     | VERTICAL  | Peak    |
| 3 | 2427.21 | 106.36 |        |       | 74.76 | 3.70  | 27.90   | 0.00   | 170   | 8     | VERTICAL  | Peak    |
| 4 | 2427.79 | 95.25  |        |       | 63.65 | 3.70  | 27.90   | 0.00   | 170   | 8     | VERTICAL  | Average |

**Note 1:** Item 3, 4 are the fundamental frequency at 2422 MHz

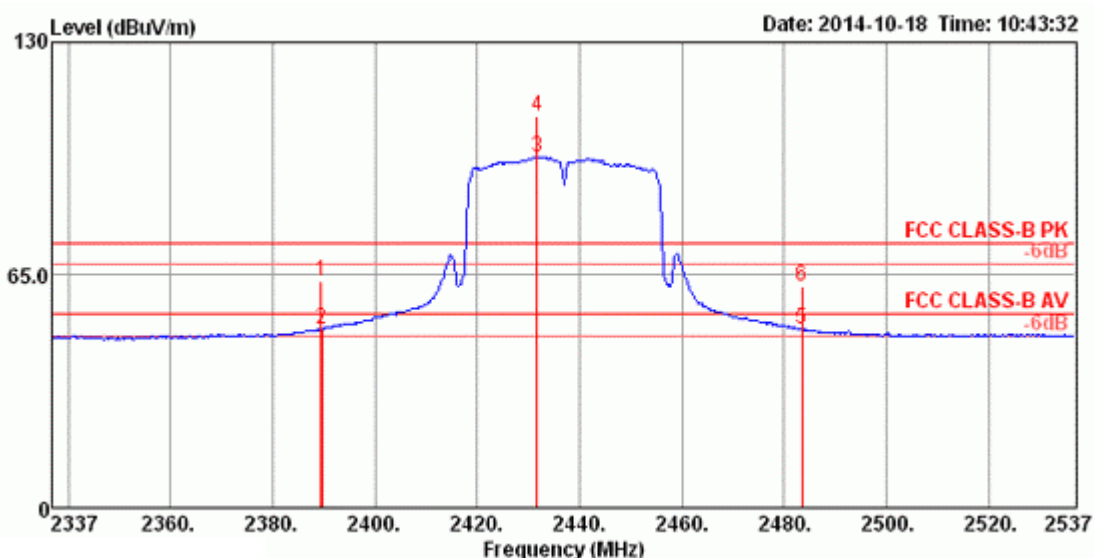
**Note 2:** Emission level (dBuV/m) = 20 log Emission level (uV/m).

**Note 3:** Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

**Note 4:** Measurement receive antenna polarization: H (Horizontal), V (Vertical)



| Band Edge and Fundamental Emissions |                                                             |          |     |               |                         |
|-------------------------------------|-------------------------------------------------------------|----------|-----|---------------|-------------------------|
| Operating Mode                      | IEEE 802.11n 40MHz / SDM MCS8 /<br>Chain 1 + Chain 2 / CH 6 |          |     | Polarization  | V                       |
| Temperature                         | 26°C                                                        | Humidity | 68% | Test Engineer | Akina Chiu and Taka Hsu |



|   | Freq    | Level  | Limit  | Over   | Read  | Cable | Antenna | Preamp | A/Pos | T/Pos | Pol/Phase | Remark  |
|---|---------|--------|--------|--------|-------|-------|---------|--------|-------|-------|-----------|---------|
|   | MHz     | dBuV/m | dBuV/m | dB     | dBuV  | dB    | dB/m    | dB     | cm    | deg   |           |         |
| 1 | 2389.42 | 63.53  | 74.00  | -10.47 | 31.95 | 3.68  | 27.90   | 0.00   | 167   | 2     | VERTICAL  | Peak    |
| 2 | 2389.71 | 49.95  | 54.00  | -4.05  | 18.37 | 3.68  | 27.90   | 0.00   | 167   | 2     | VERTICAL  | Average |
| 3 | 2431.79 | 97.99  |        |        | 66.39 | 3.70  | 27.90   | 0.00   | 167   | 2     | VERTICAL  | Average |
| 4 | 2431.79 | 109.26 |        |        | 77.66 | 3.70  | 27.90   | 0.00   | 167   | 2     | VERTICAL  | Peak    |
| 5 | 2483.50 | 49.90  | 54.00  | -4.10  | 18.27 | 3.73  | 27.90   | 0.00   | 167   | 2     | VERTICAL  | Average |
| 6 | 2483.50 | 61.67  | 74.00  | -12.33 | 30.04 | 3.73  | 27.90   | 0.00   | 167   | 2     | VERTICAL  | Peak    |

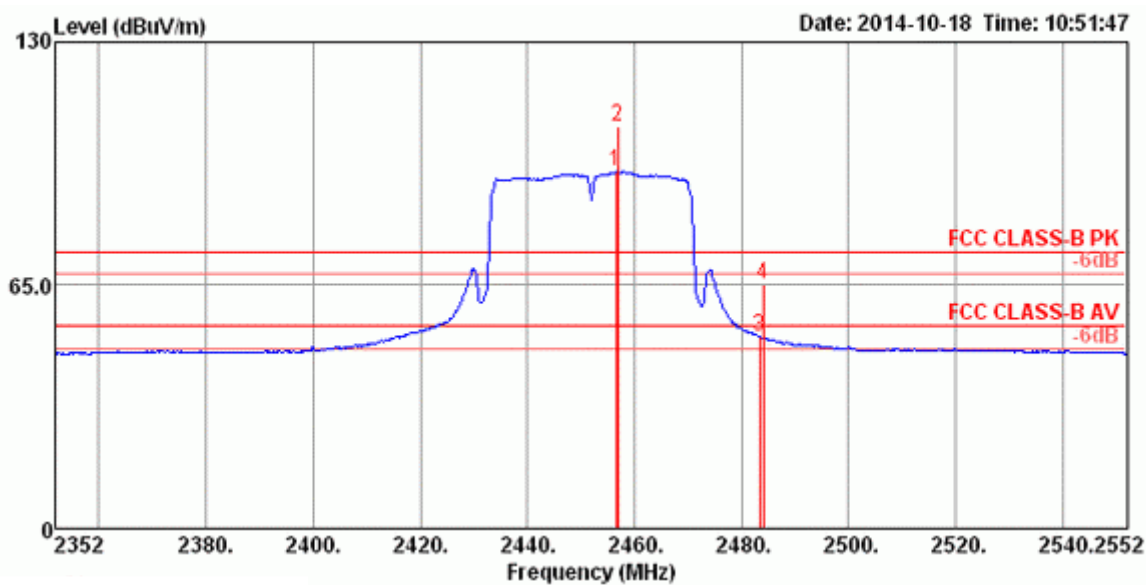
Note 1: Item 3, 4 are the fundamental frequency at 2437 MHz

Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Note 4: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

| Band Edge and Fundamental Emissions |                                                             |          |     |               |                         |
|-------------------------------------|-------------------------------------------------------------|----------|-----|---------------|-------------------------|
| Operating Mode                      | IEEE 802.11n 40MHz / SDM MCS8 /<br>Chain 1 + Chain 2 / CH 9 |          |     | Polarization  | V                       |
| Temperature                         | 26°C                                                        | Humidity | 68% | Test Engineer | Akina Chiu and Taka Hsu |



|   | Freq    | Level  | Limit | Over  | Read  | Cable | Antenna | Preamp | A/Pos | T/Pos | Pol/Phase | Remark  |
|---|---------|--------|-------|-------|-------|-------|---------|--------|-------|-------|-----------|---------|
|   | MHz     | dBuV/m | Line  | Limit | Level | Loss  | Factor  | Factor | cm    | deg   |           |         |
| 1 | 2456.63 | 95.34  | 54.00 |       |       | 3.72  | 27.90   | 0.00   | 181   | 11    | VERTICAL  | Average |
| 2 | 2456.92 | 107.25 | 74.00 |       |       | 3.72  | 27.90   | 0.00   | 181   | 11    | VERTICAL  | Peak    |
| 3 | 2483.50 | 51.33  | 54.00 | -2.67 | 19.70 | 3.73  | 27.90   | 0.00   | 181   | 11    | VERTICAL  | Average |
| 4 | 2484.08 | 65.17  | 74.00 | -8.83 | 33.54 | 3.73  | 27.90   | 0.00   | 181   | 11    | VERTICAL  | Peak    |

**Note 1:** Item 1, 2 are the fundamental frequency at 2452 MHz

**Note 2:** Emission level (dBuV/m) = 20 log Emission level (uV/m).

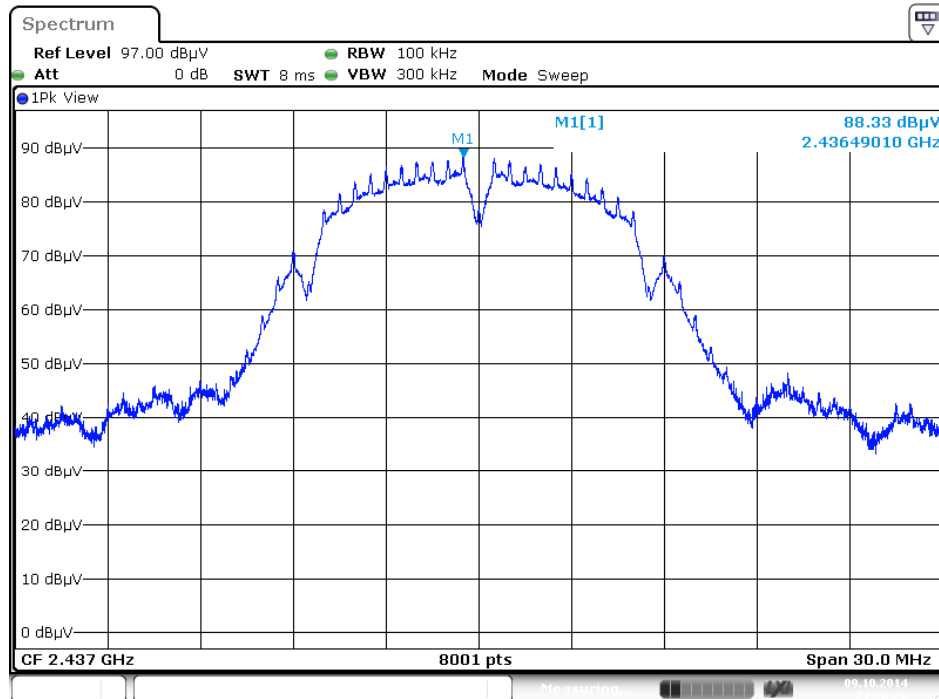
**Note 3:** Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

**Note 4:** Measurement receive antenna polarization: H (Horizontal), V (Vertical)



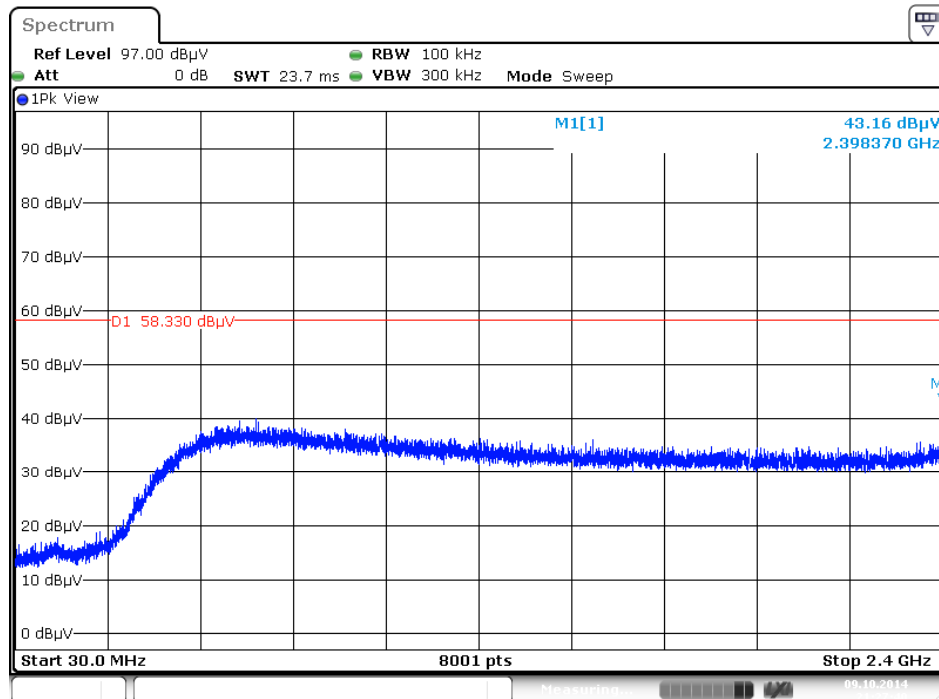
## For Emission not in Restricted Band

## Plot on Configuration IEEE 802.11b / CH 1 / Reference Level / Chain 1



Date: 9.0 CT.2014 21:26:26

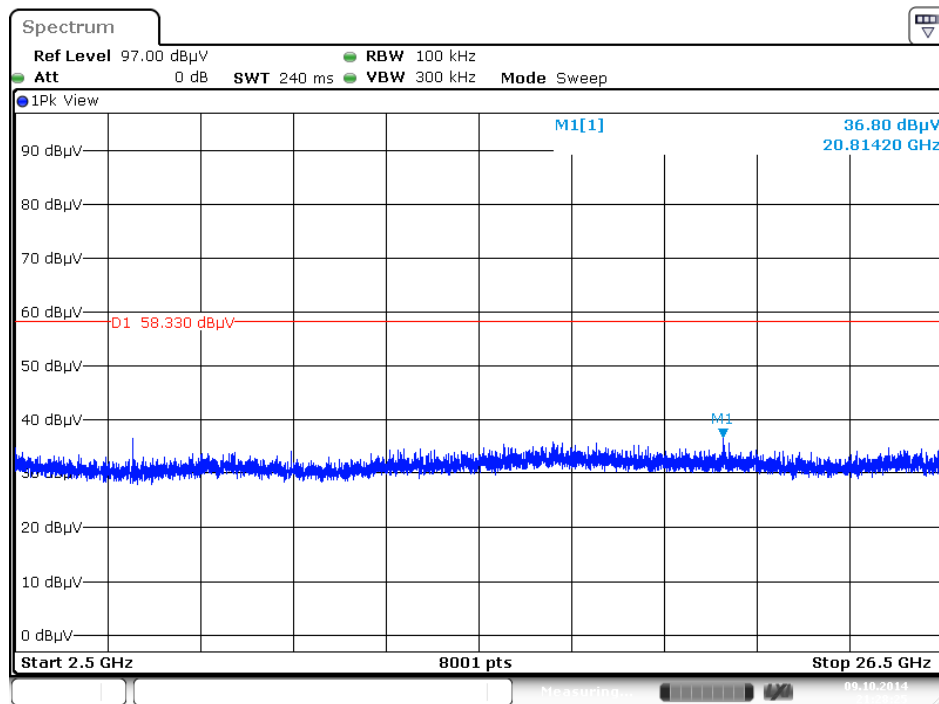
## Plot on Configuration IEEE 802.11b / CH 1 / 30MHz~2400MHz / Chain 1 (down 30dBc)



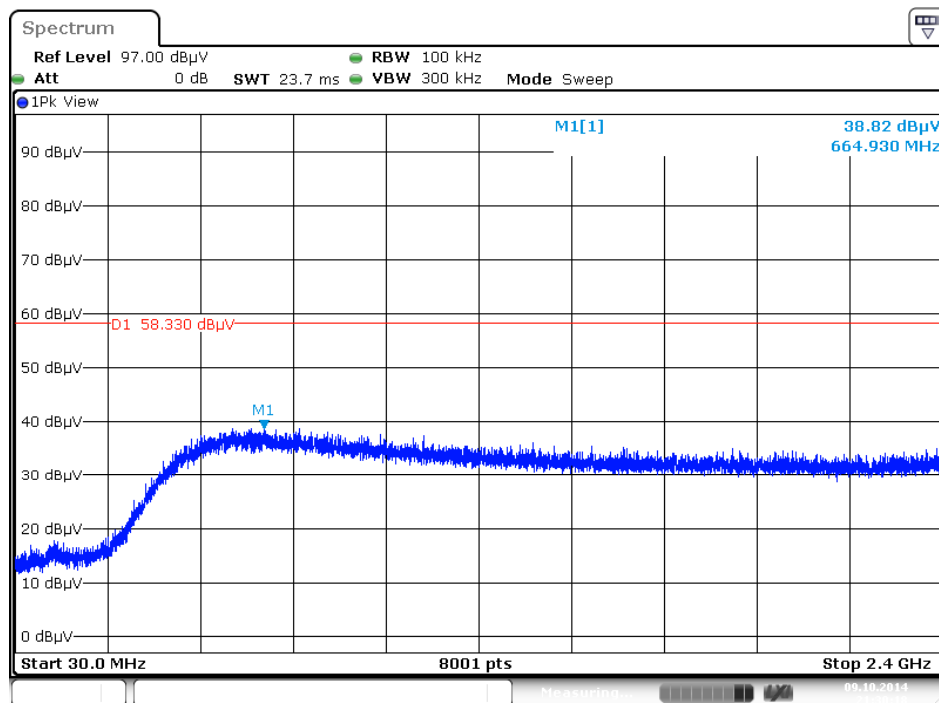
Date: 9.0 CT.2014 21:27:40



Plot on Configuration IEEE 802.11b / CH 1 / 2500MHz~26500MHz / Chain 1 (down 30dBc)

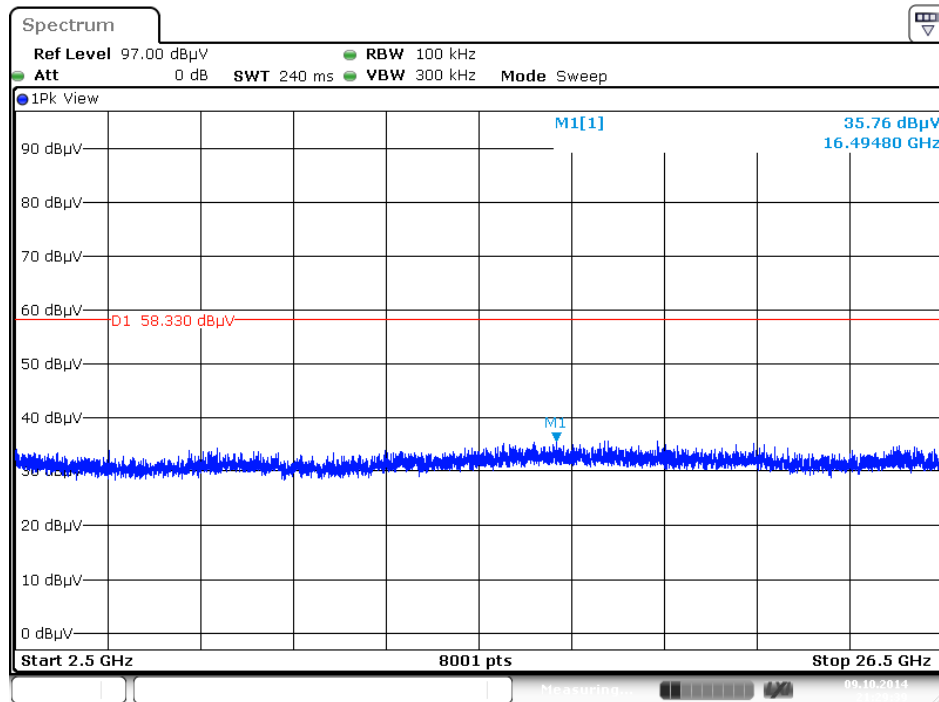


Plot on Configuration IEEE 802.11b / CH 11 / 30MHz~2400MHz / Chain 1 (down 30dBc)



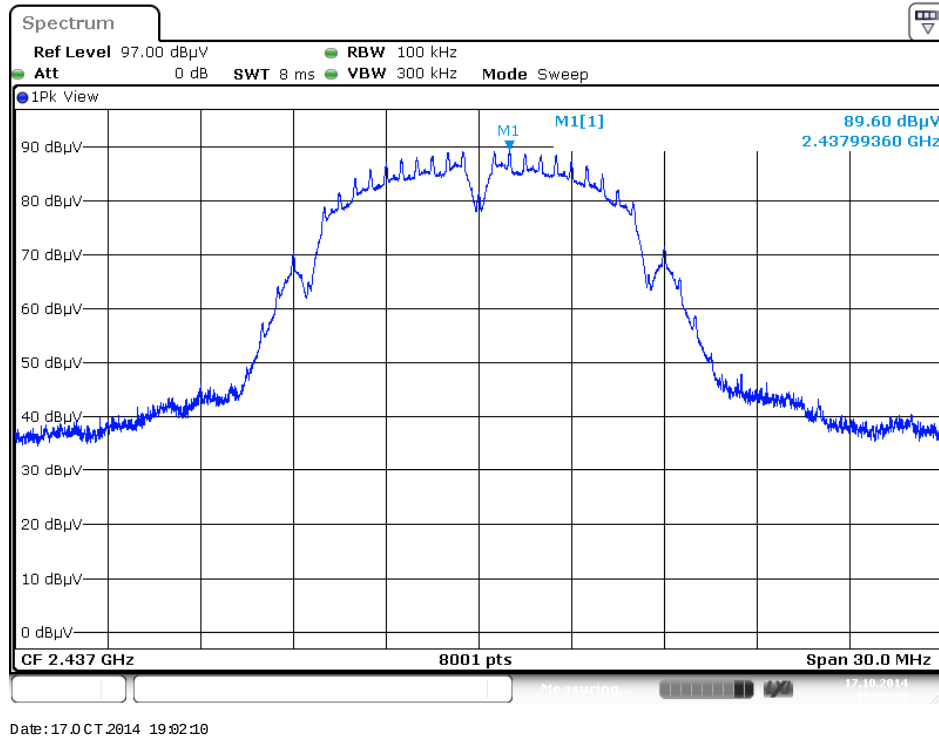


Plot on Configuration IEEE 802.11b / CH 11 / 2500MHz~26500MHz / Chain 1 (down 30dBc)

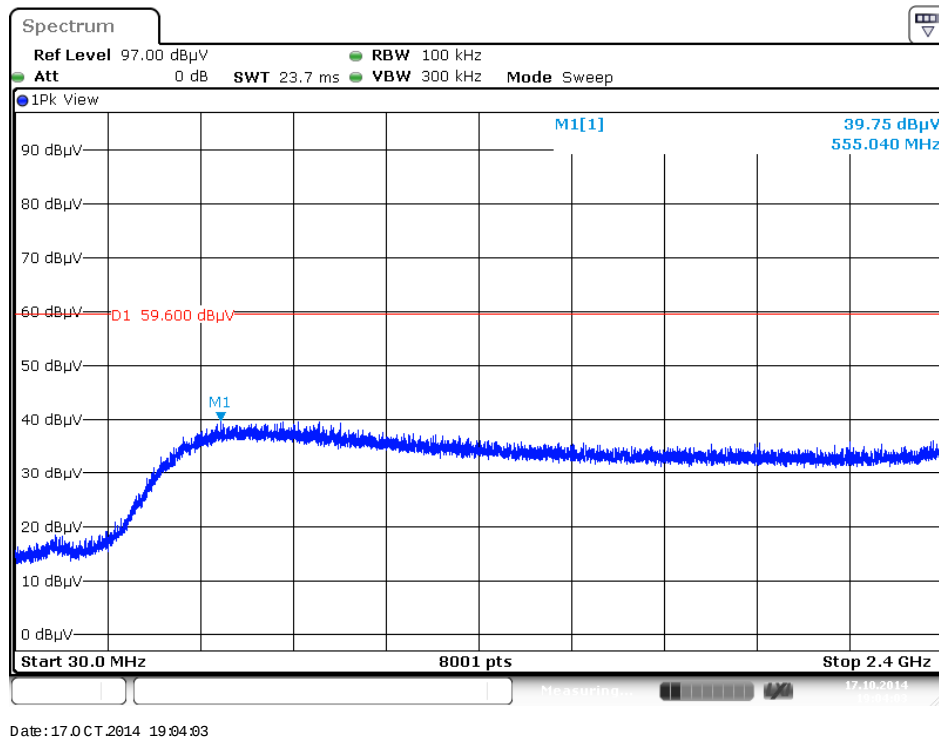




Plot on Configuration IEEE 802.11b / CH 6 / Reference Level / Chain 2

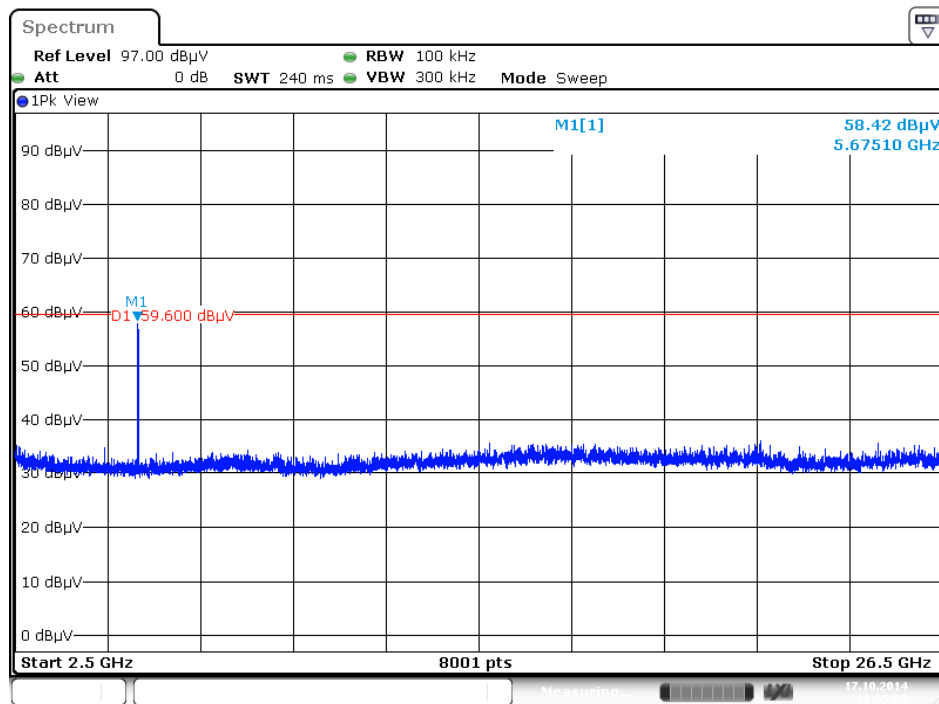


Plot on Configuration IEEE 802.11b / CH 1 / 30MHz~2400MHz / Chain 2 (down 30dBc)

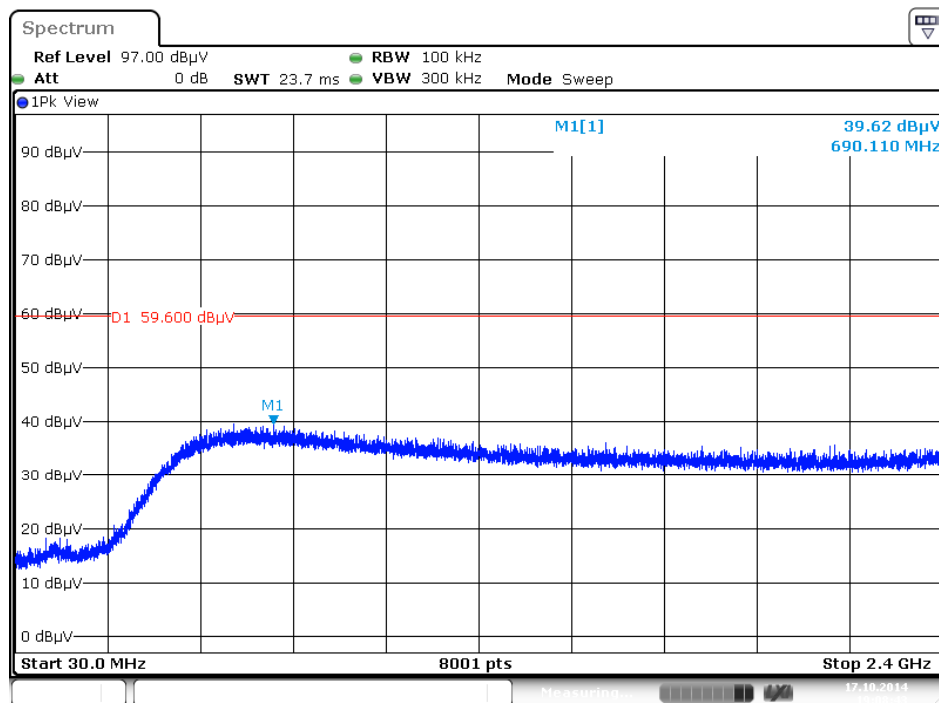




Plot on Configuration IEEE 802.11b / CH 1 / 2500MHz~26500MHz / Chain 2 (down 30dBc)

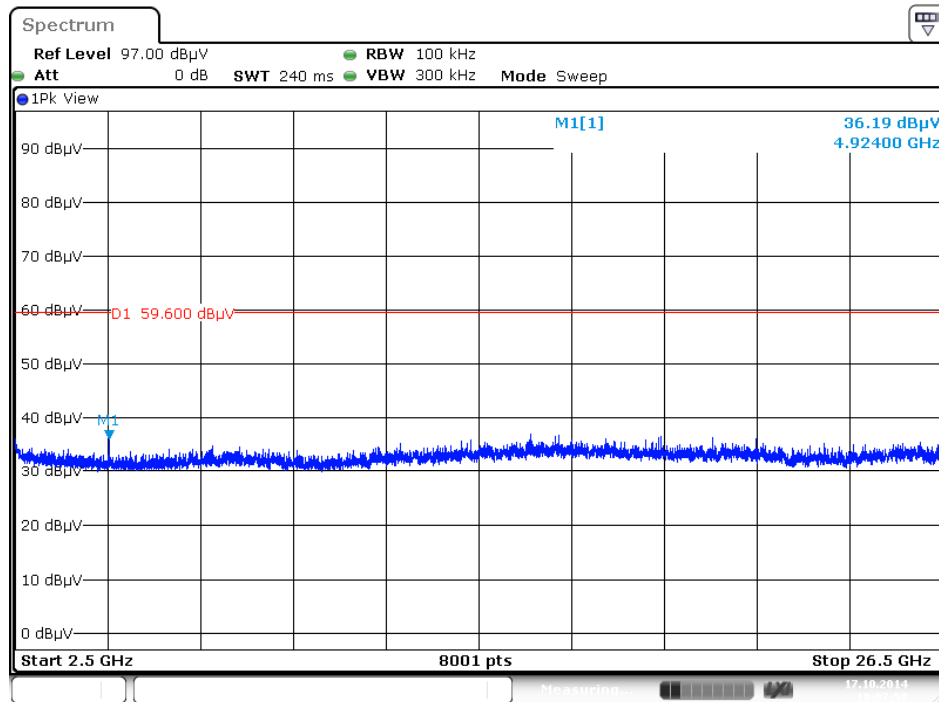


Plot on Configuration IEEE 802.11b / CH 11 / 30MHz~2400MHz / Chain 2 (down 30dBc)





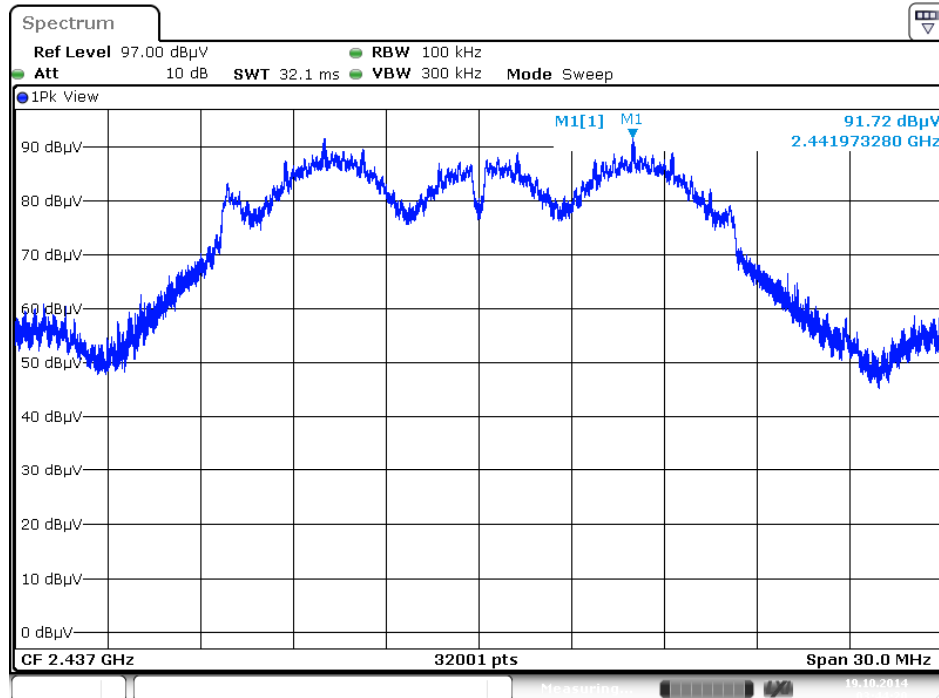
Plot on Configuration IEEE 802.11b / CH 11 / 2500MHz~26500MHz / Chain 2 (down 30dBc)



Date: 17.0 CT.2014 19:07:59

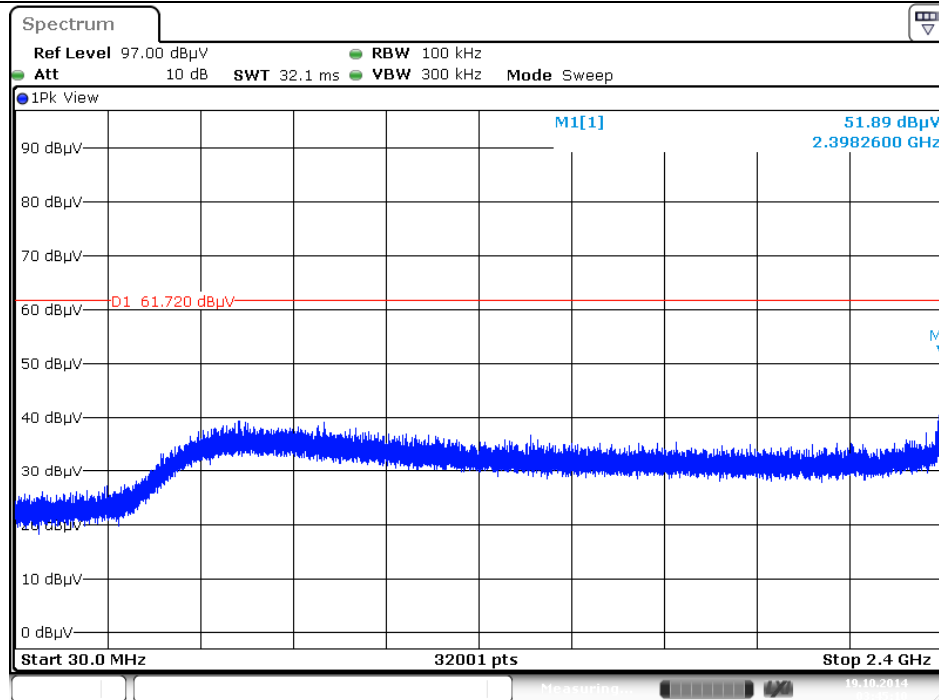


Plot on Configuration IEEE 802.11g / CH 6 / Reference Level / CDD 6Mbps / Chain 1 + Chain 2

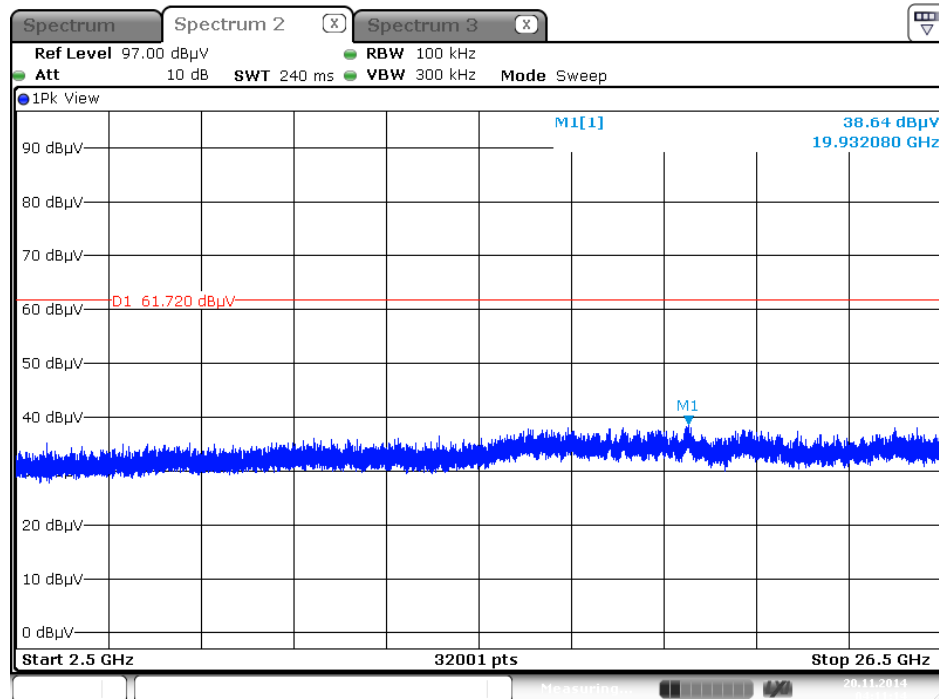


Date: 19.0 CT.2014 03:44:20

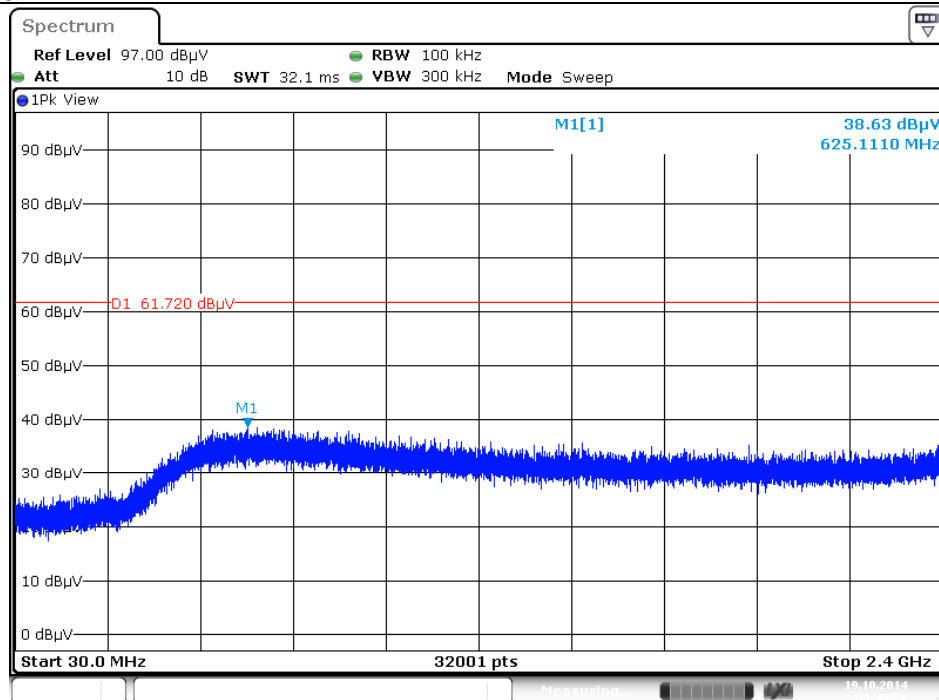
Plot on Configuration IEEE 802.11g / CH 1 / 30MHz~2400MHz / CDD 6Mbps / Chain 1 + Chain 2  
(Down 30dBc)



Date: 19.0 CT.2014 03:45:10

**Plot on Configuration IEEE 802.11g / CH 1 / 2500MHz~26500MHz / CDD 6Mbps / Chain 1 + Chain 2  
(down 30dBc)**

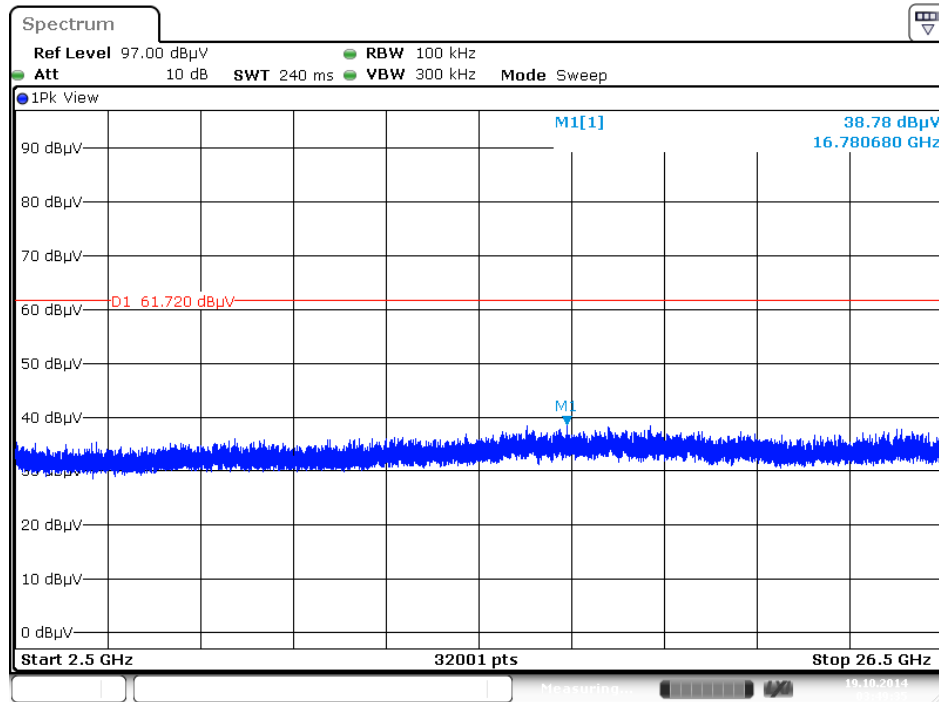
Date: 20 NOV 2014 04:11:14

**Plot on Configuration IEEE 802.11g / CH 11 / 30MHz~2400MHz / CDD 6Mbps / Chain 1 + Chain 2  
(down 30dBc)**

Date: 19 OCT 2014 03:49:56



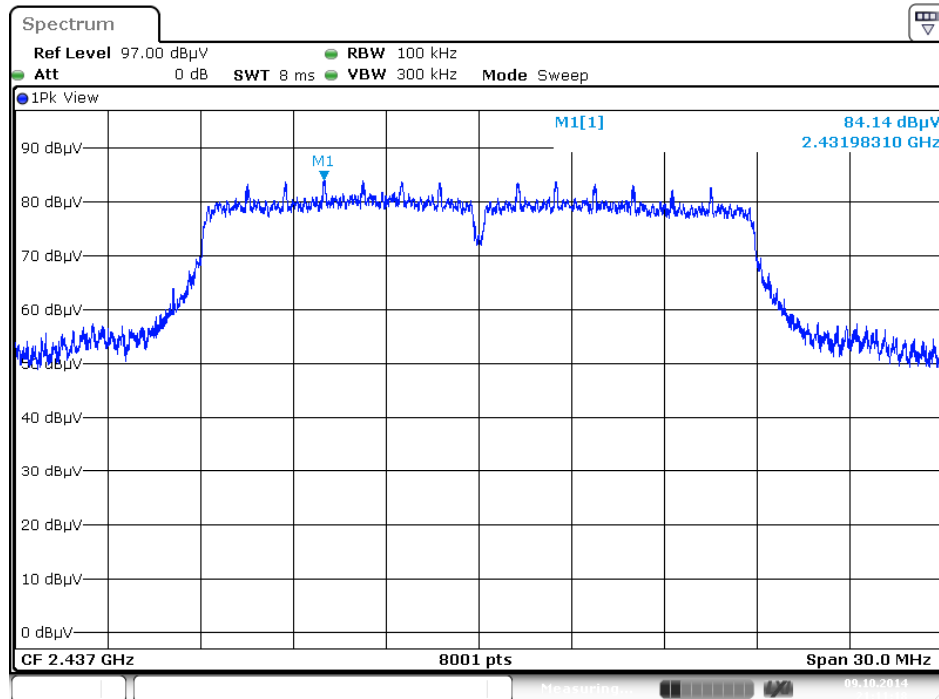
Plot on Configuration IEEE 802.11g / CH 11 / 2500MHz~26500MHz / CDD 6Mbps / Chain 1 + Chain 2  
(down 30dBc)



Date: 19 OCT 2014 03:49:35

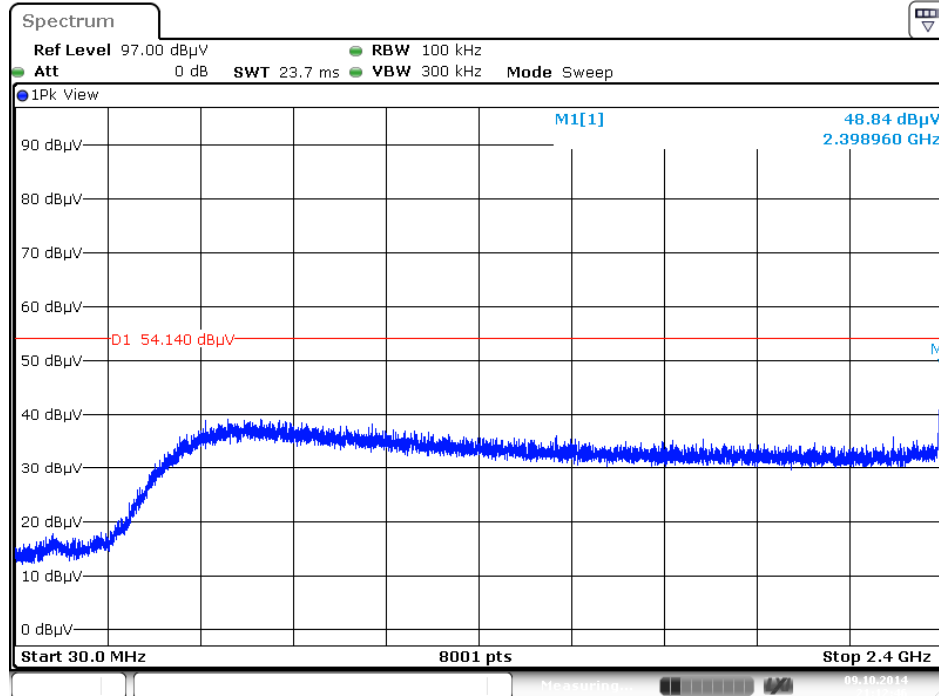


Plot on Configuration IEEE 802.11n 20MHz / CH 6 / Reference Level / Chain 1



Date: 9.0 CT.2014 21:11:18

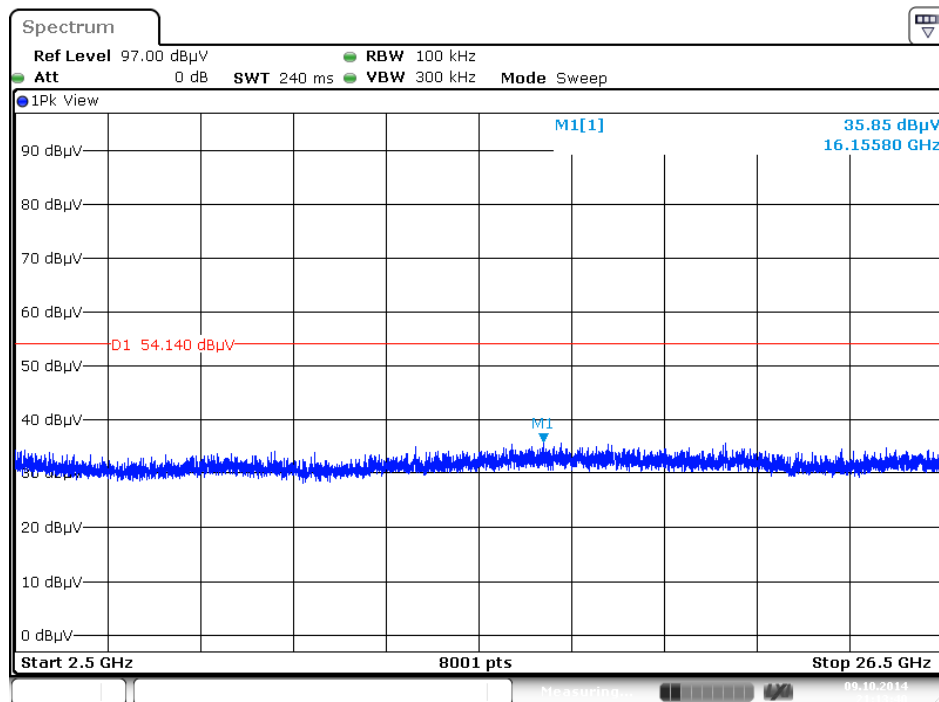
Plot on Configuration IEEE 802.11n 20MHz / CH 1 / 30MHz~2400MHz / Chain 1 (down 30dBc)



Date: 9.0 CT.2014 21:12:47

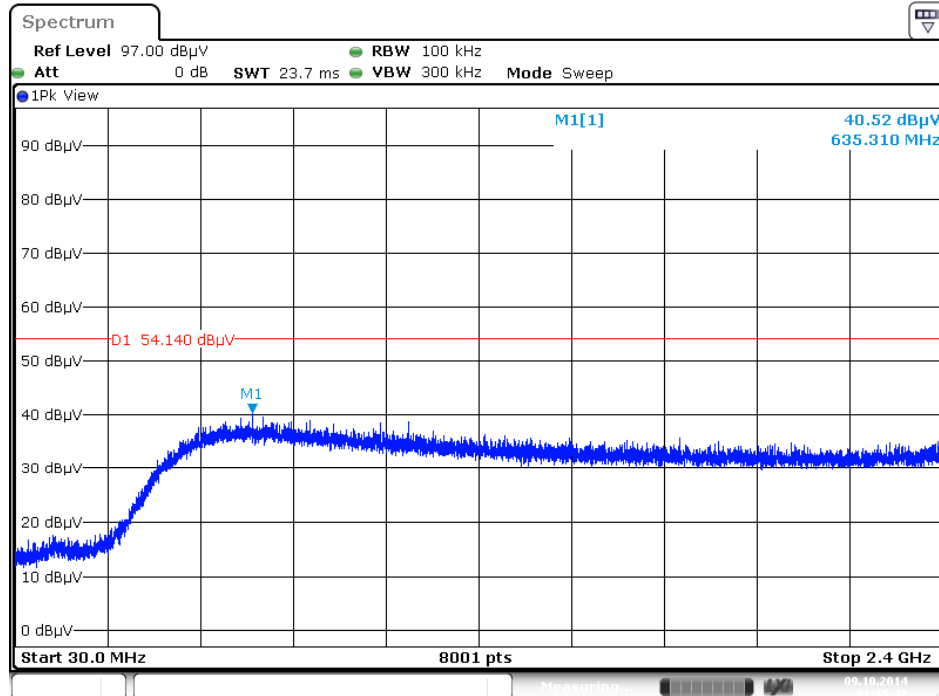


## Plot on Configuration IEEE 802.11n 20MHz / CH 1 / 2500MHz~26500MHz / Chain 1 (down 30dBc)



Date: 9 OCT 2014 21:13:40

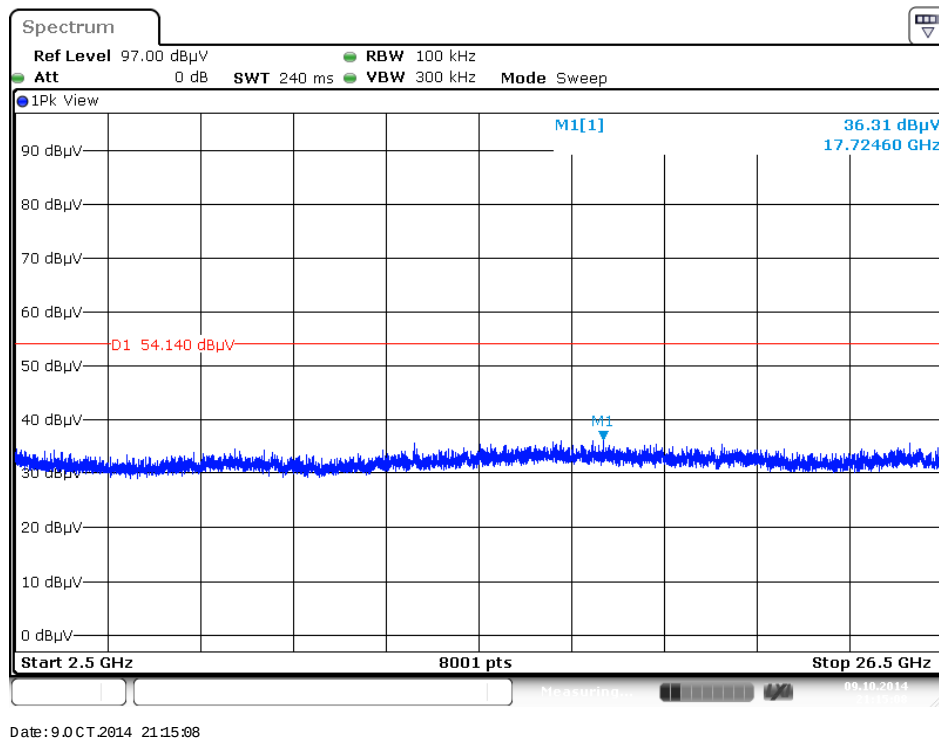
## Plot on Configuration IEEE 802.11n 20MHz / CH 11 / 30MHz~2400MHz / Chain 1 (down 30dBc)



Date: 9 OCT 2014 21:15:47

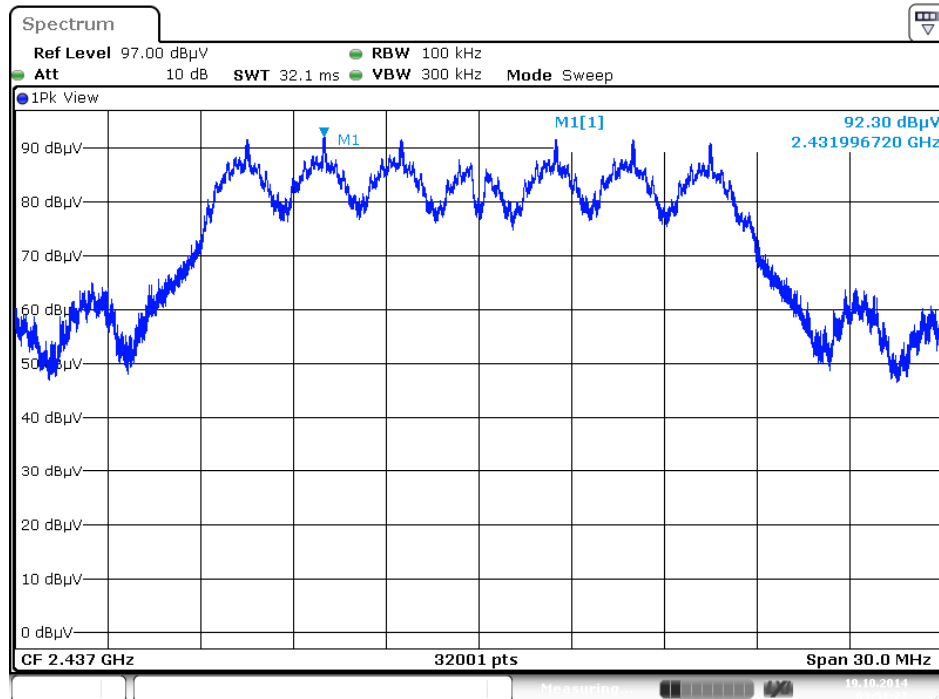


Plot on Configuration IEEE 802.11n 20MHz / CH 11 / 2500MHz~26500MHz / Chain 1 (down 30dBc)

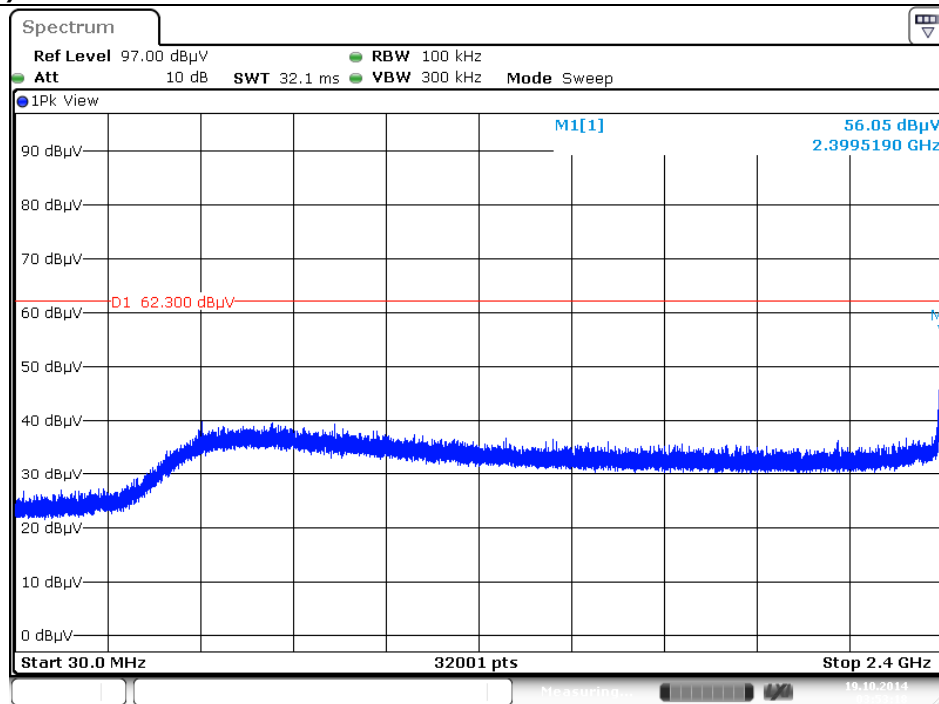


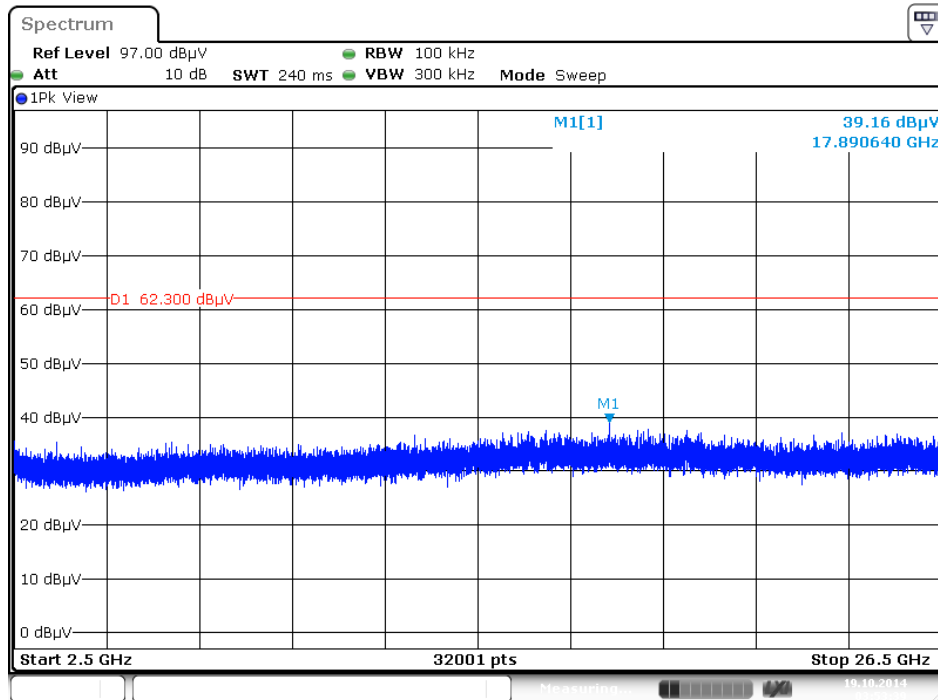


## Plot on Configuration IEEE 802.11n 20MHz / CH 6 / Reference Level / CDD MCS0 / Chain 1 + Chain 2

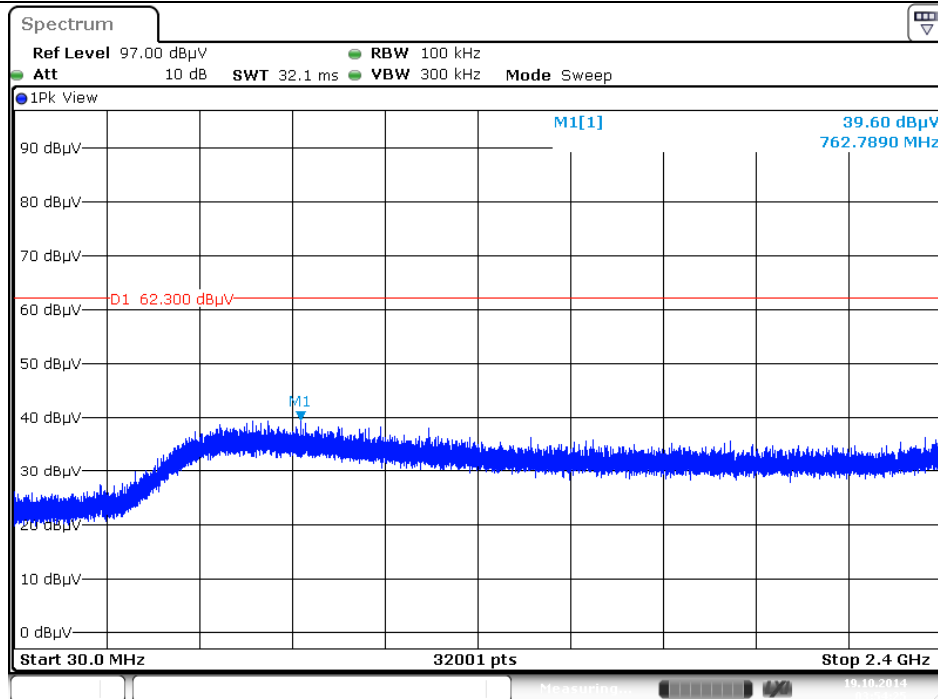


## Plot on Configuration IEEE 802.11n 20MHz / CH 1 / 30MHz~2400MHz / CDD MCS0 / Chain 1 + Chain 2 (down 30dBc)



**Plot on Configuration IEEE 802.11n 20MHz / CH 1 / 2500MHz~26500MHz / CDD MCS0 / Chain 1 + Chain 2 (down 30dBc)**

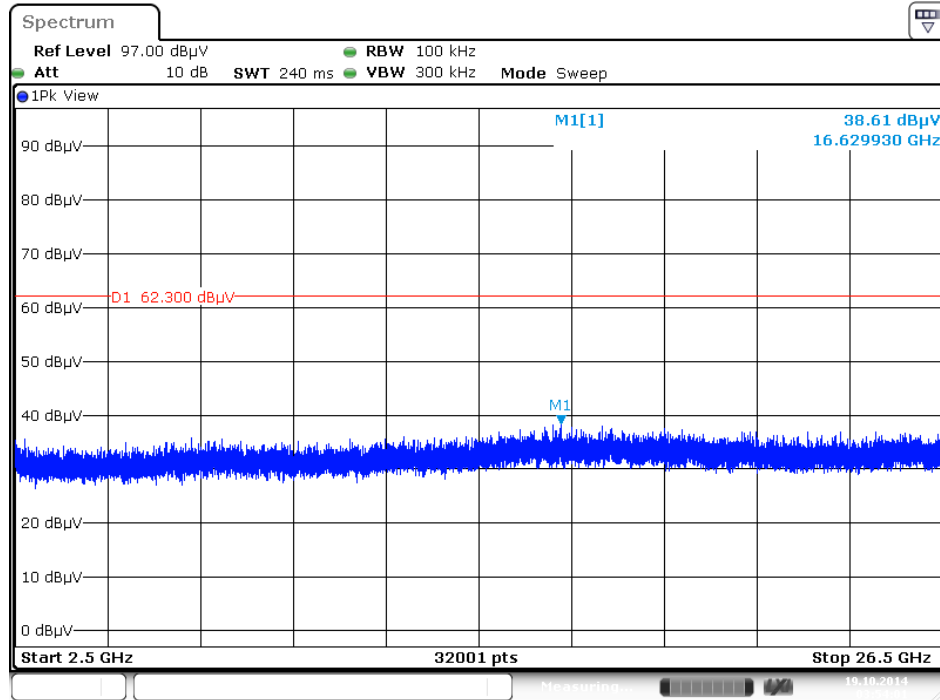
Date: 19.10.2014 03:53:39

**Plot on Configuration IEEE 802.11n 20MHz / CH 11 / 30MHz~2400MHz / CDD MCS0 / Chain 1 + Chain 2 (down 30dBc)**

Date: 19.10.2014 03:54:25



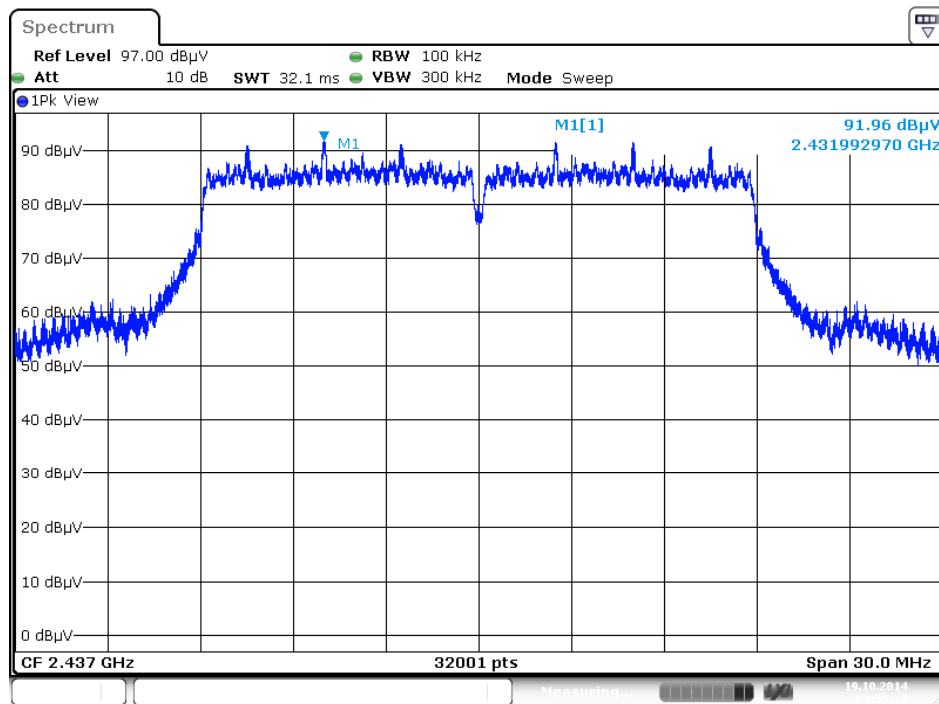
Plot on Configuration IEEE 802.11n 20MHz / CH 11 / 2500MHz~26500MHz / CDD MCS0 / Chain 1 + Chain 2 (down 30dBc)



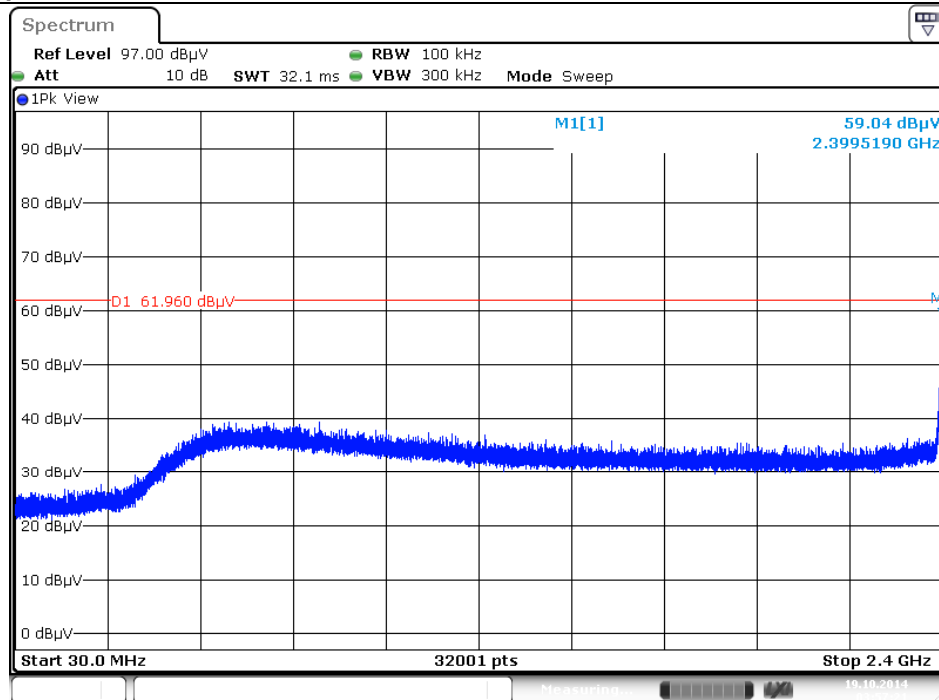
Date: 19.10.2014 03:54:32

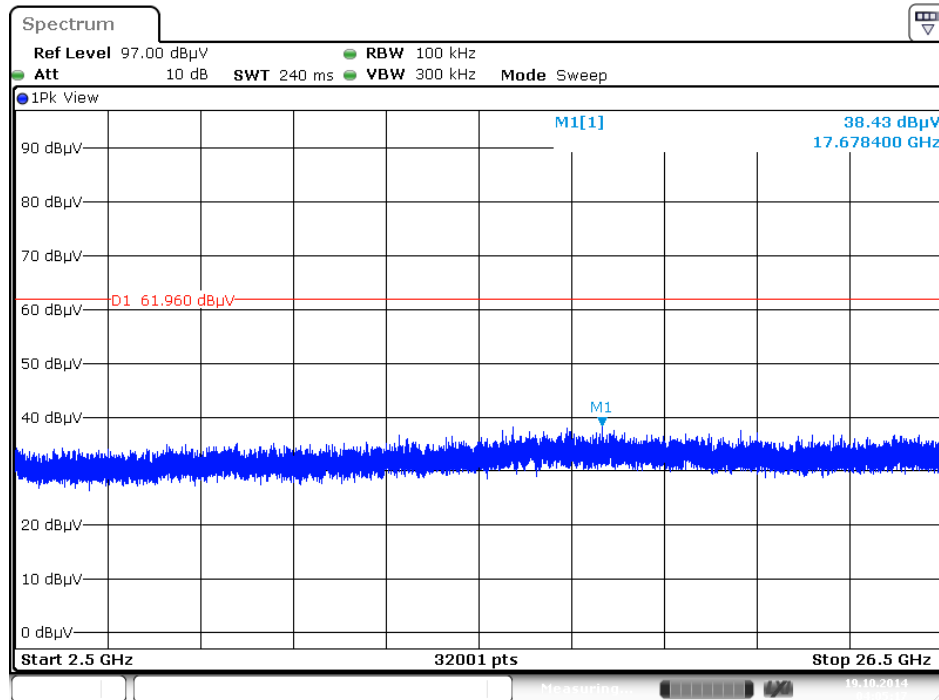


## Plot on Configuration IEEE 802.11n 20MHz / CH 6 / Reference Level / CDD MCS8/ Chain 1 + Chain 2

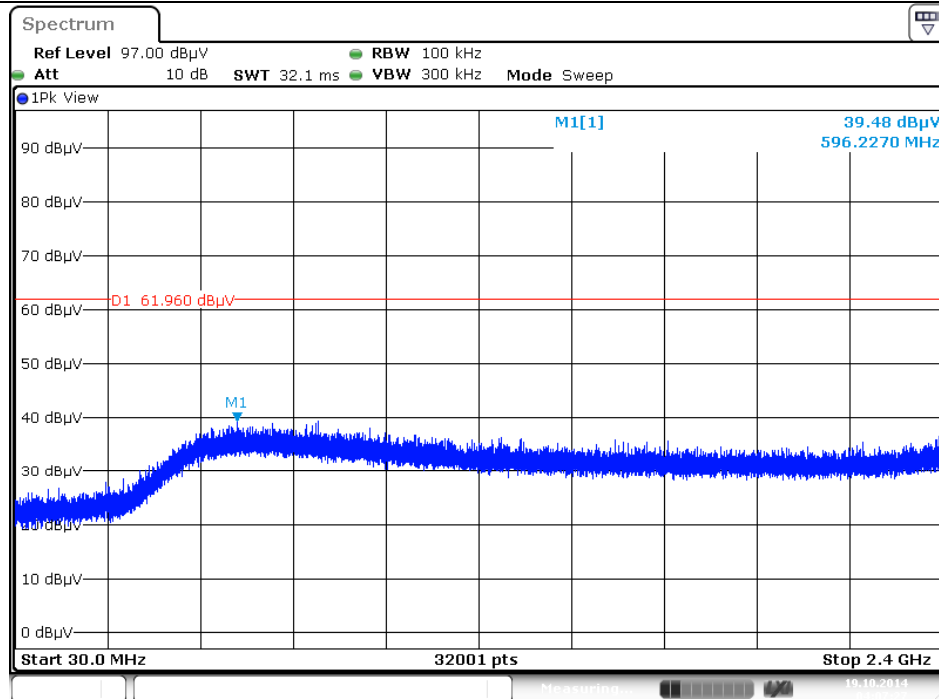


## Plot on Configuration IEEE 802.11n 20MHz / CH 1 / 30MHz~2400MHz / CDD MCS8/ Chain 1 + Chain 2 (down 30dBc)



**Plot on Configuration IEEE 802.11n 20MHz / CH 1 / 2500MHz~26500MHz / CDD MCS8/  
Chain 1 + Chain 2 (down 30dBc)**

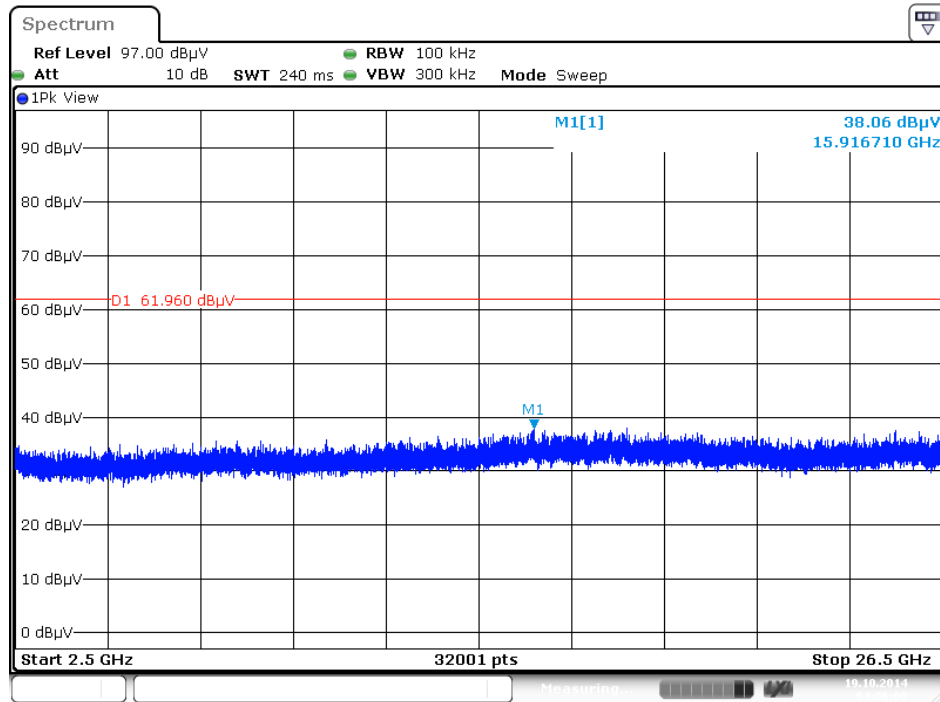
Date: 19.10.2014 04:05:18

**Plot on Configuration IEEE 802.11n 20MHz / CH 11 / 30MHz~2400MHz / CDD MCS8/  
Chain 1 + Chain 2 (down 30dBc)**

Date: 19.10.2014 04:07:27



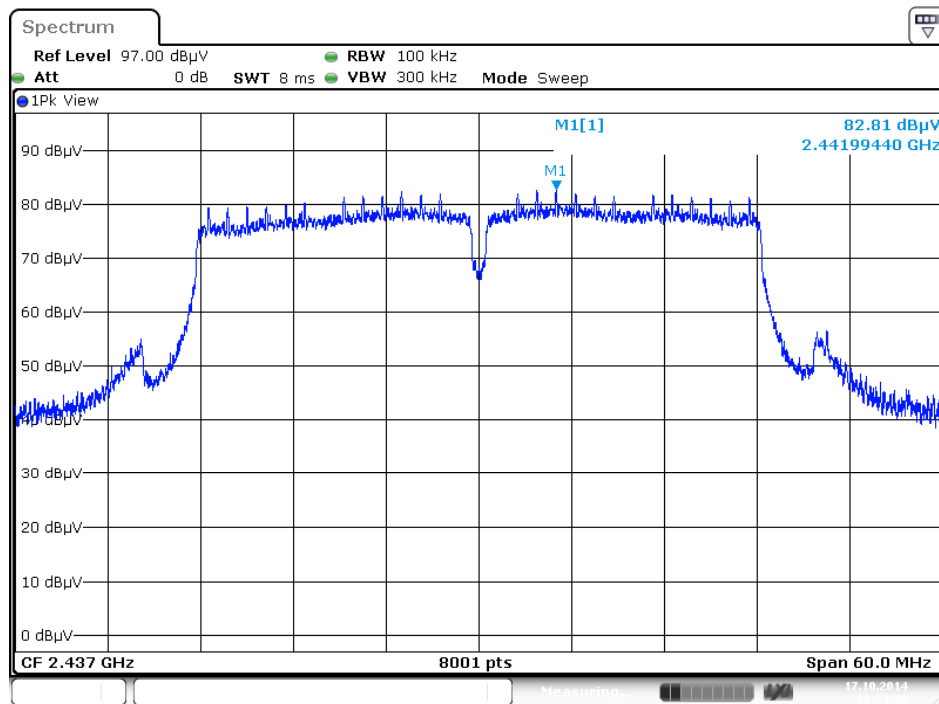
Plot on Configuration IEEE 802.11n 20MHz / CH 11 / 2500MHz~26500MHz / CDD MCS8/  
Chain 1 + Chain 2 (down 30dBc)



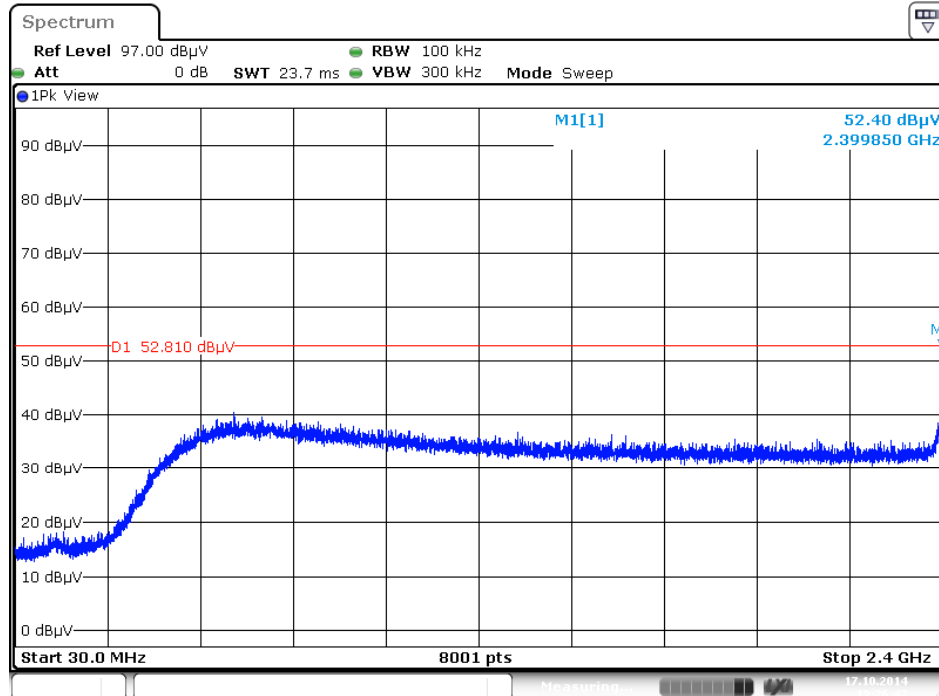
Date: 19.10.2014 04:06:00



Plot on Configuration IEEE 802.11n 40MHz / CH 6 / Reference Level / Chain 2

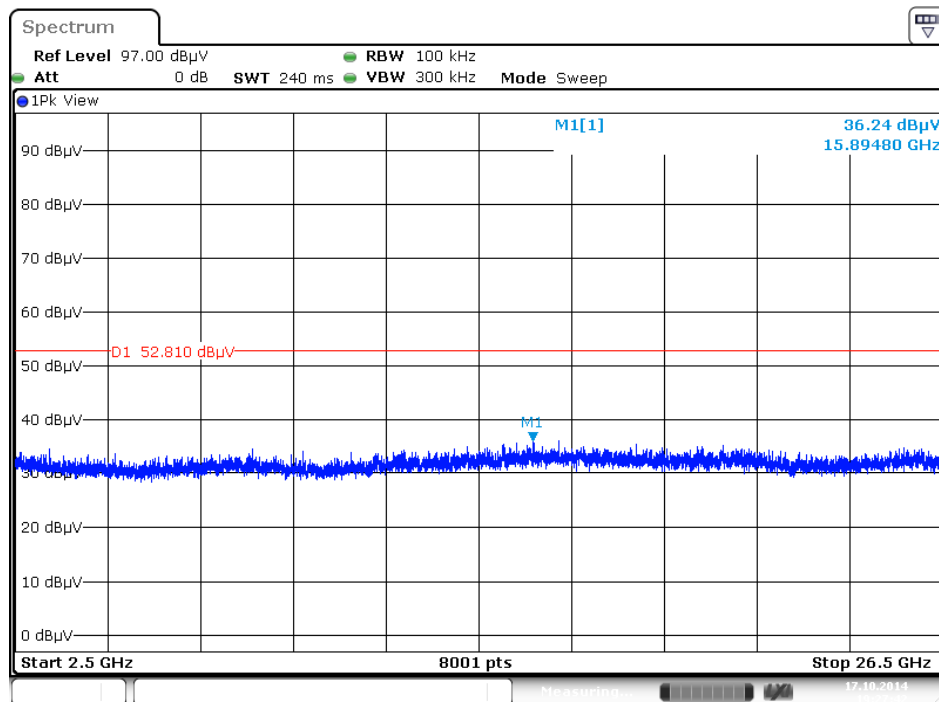


Plot on Configuration IEEE 802.11n 40MHz / CH 3 / 30MHz~2400MHz / Chain 2 (down 30dBc)



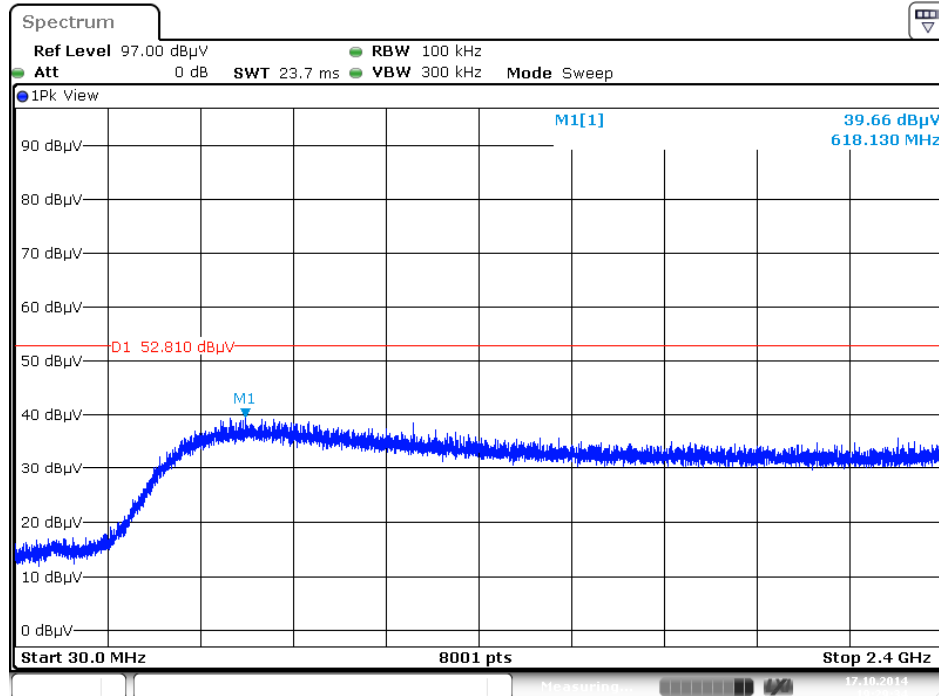


Plot on Configuration IEEE 802.11n 40MHz / CH 3 / 2500MHz~26500MHz / Chain 2 (down 30dBc)



Date: 17.10.2014 19:27:41

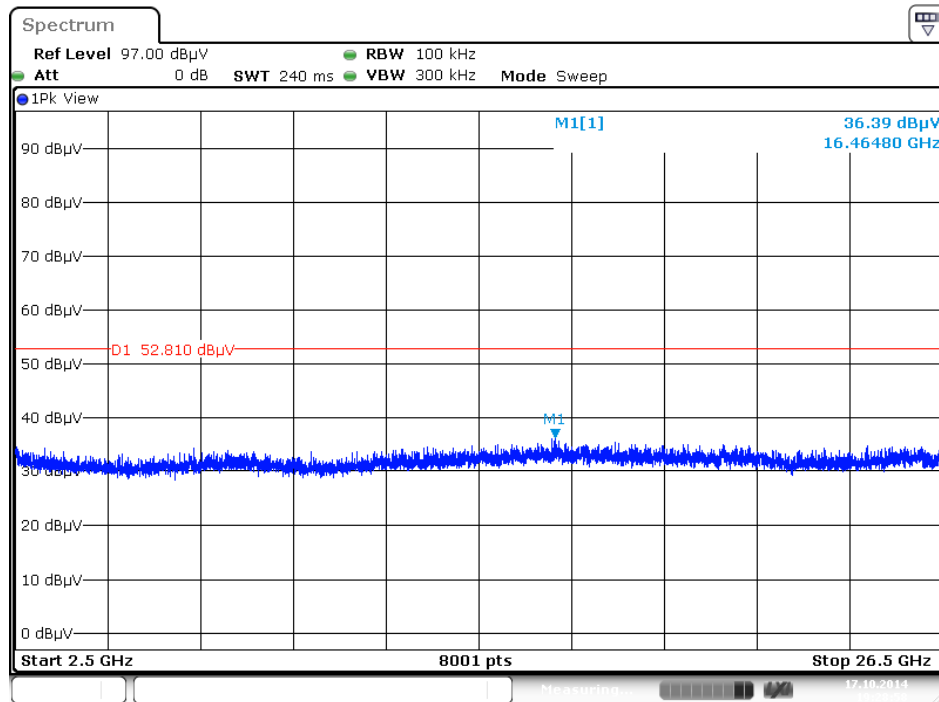
Plot on Configuration IEEE 802.11n 40MHz / CH 9 / 30MHz~2400MHz / Chain 2 (down 30dBc)



Date: 17.10.2014 19:29:34



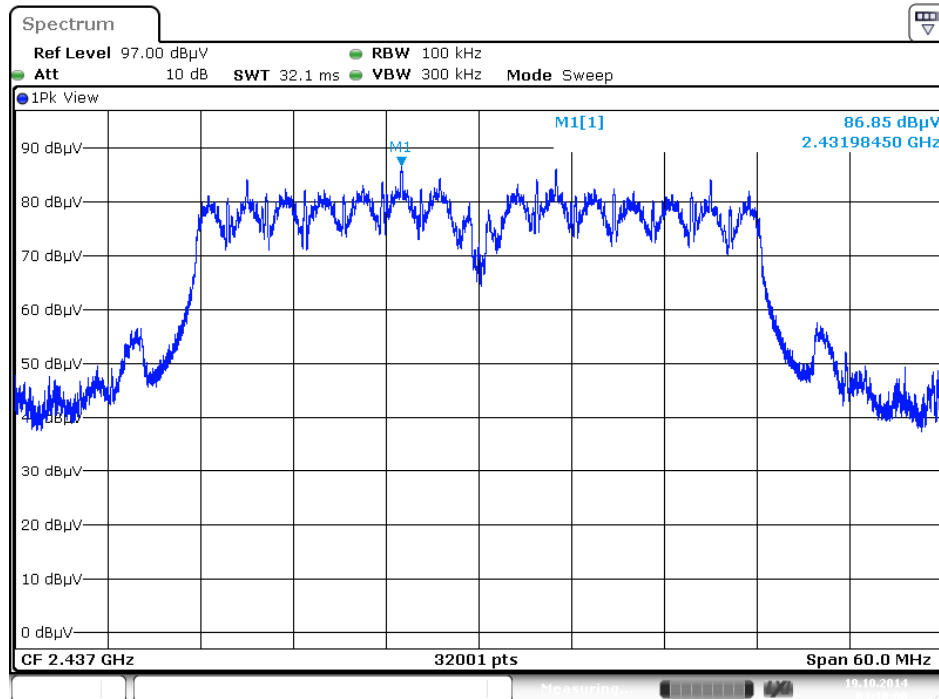
Plot on Configuration IEEE 802.11n 40MHz / CH 9 / 2500MHz~26500MHz / Chain 2 (down 30dBc)



Date: 17.0CT.2014 19:28:58

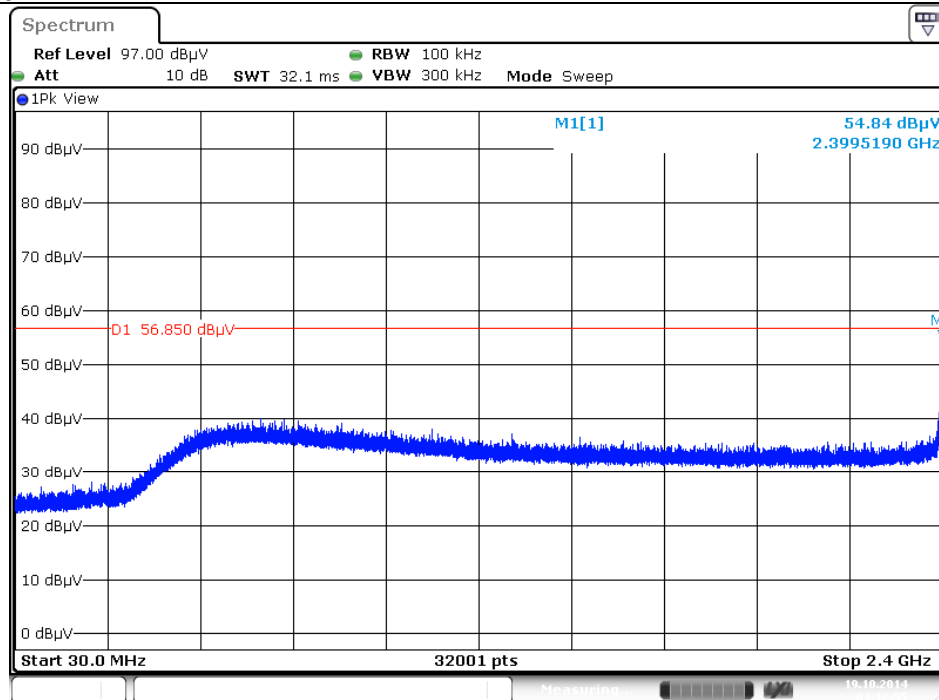


Plot on Configuration IEEE 802.11n 40MHz / CH 6 / Reference Level / CDD MCS0 / Chain 1 + Chain 2

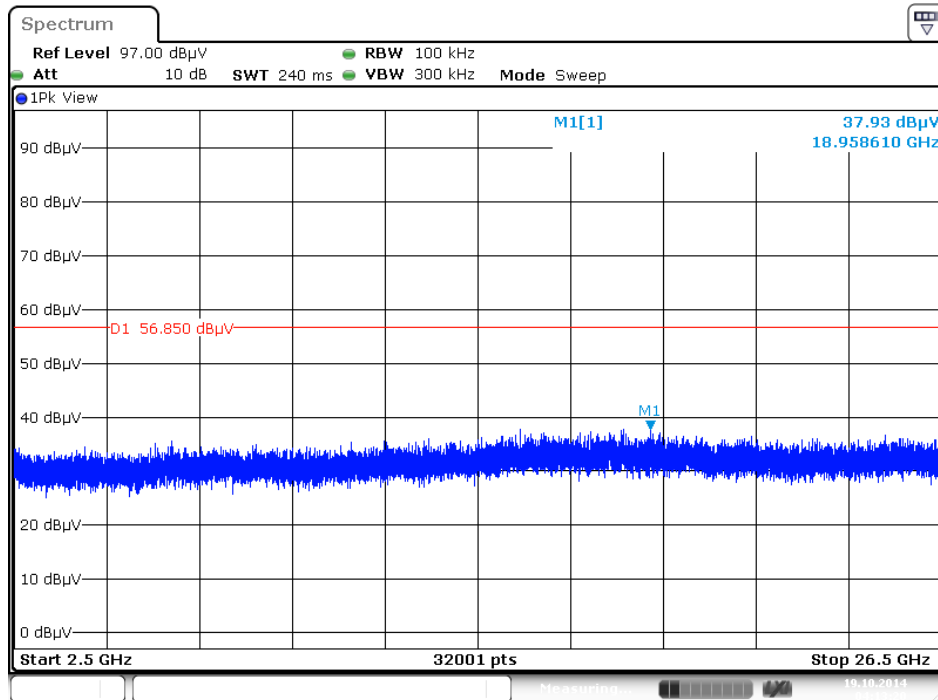


Date: 19.0 CT.2014 04:10:36

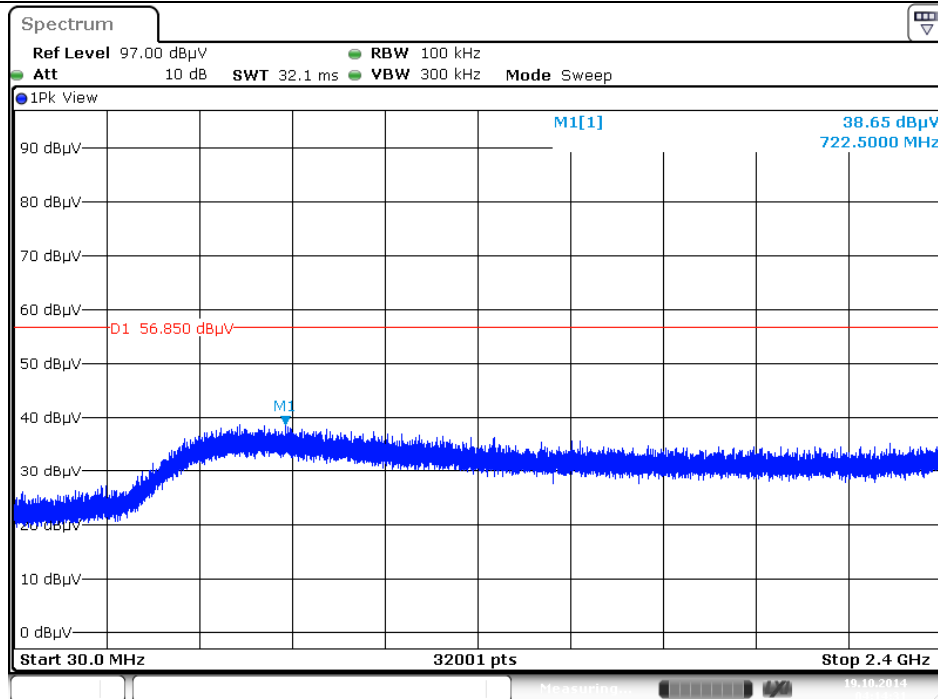
Plot on Configuration IEEE 802.11n 40MHz / CH 3 / 30MHz~2400MHz / CDD MCS0 / Chain 1 + Chain 2 (down 30dBc)



Date: 19.0 CT.2014 04:12:55

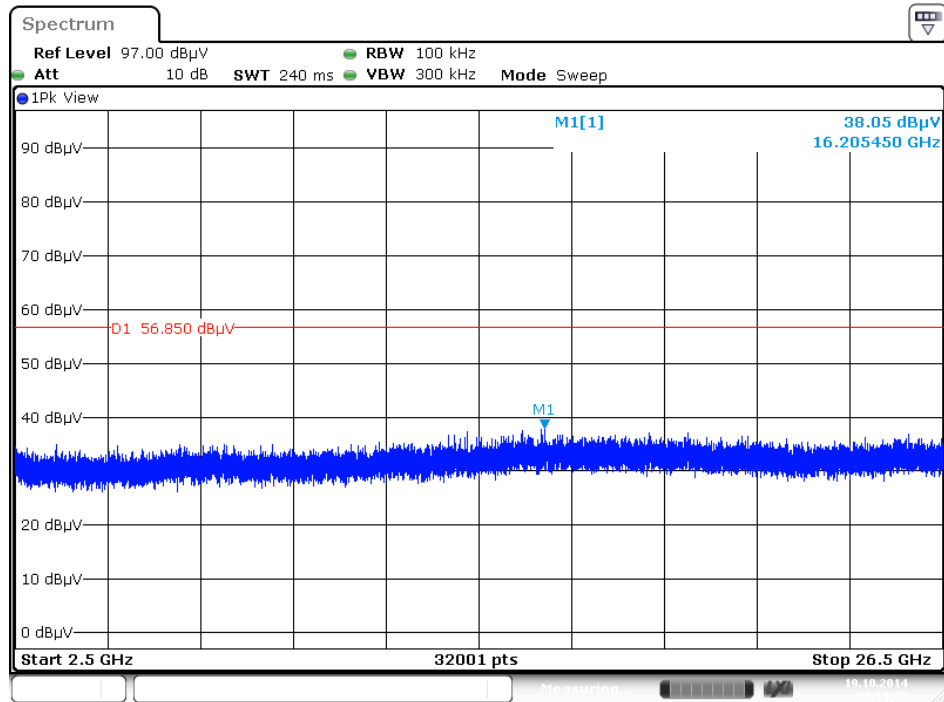
**Plot on Configuration IEEE 802.11n 40MHz / CH 3 / 2500MHz~26500MHz / CDD MCS0 / Chain 1 + Chain 2 (down 30dBc)**

Date: 19.10.2014 04:13:20

**Plot on Configuration IEEE 802.11n 40MHz / CH 9 / 30MHz~2400MHz / CDD MCS0 / Chain 1 + Chain 2 (down 30dBc)**

Date: 19.10.2014 04:14:31

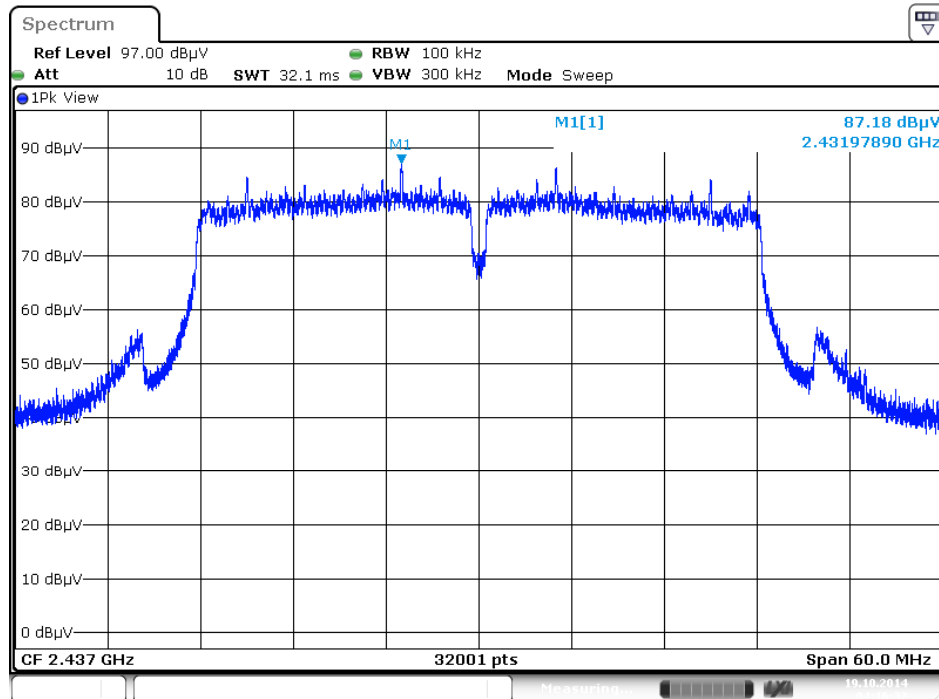
Plot on Configuration IEEE 802.11n 40MHz / CH 9 / 2500MHz~26500MHz / CDD MCS0 / Chain 1 + Chain 2 (down 30dBc)



Date: 19.OCT.2014 04:14:03

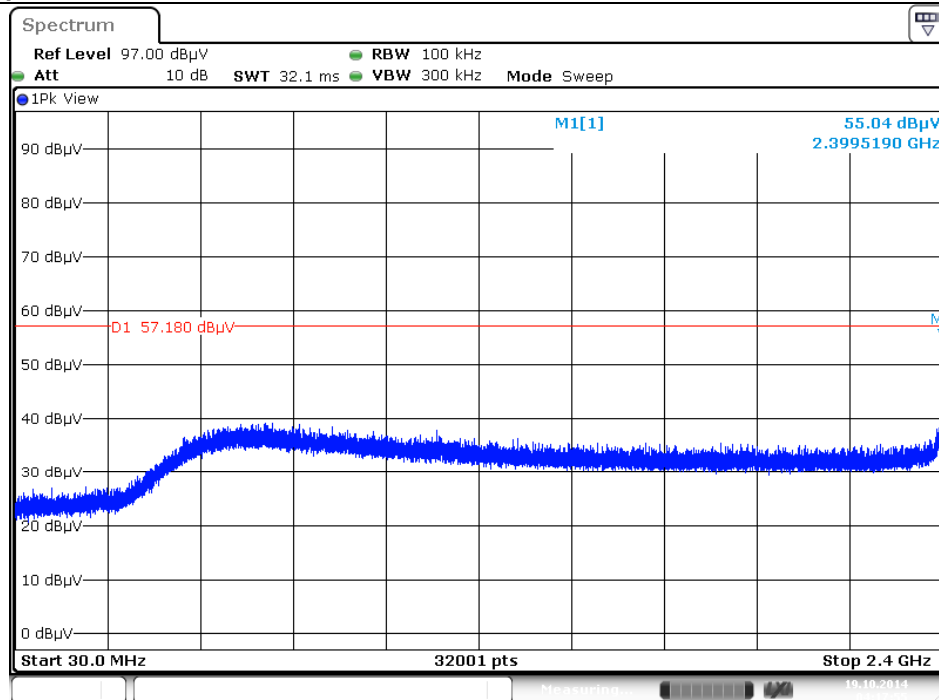


Plot on Configuration IEEE 802.11n 40MHz / CH 6 / Reference Level / CDD MCS8/ Chain 1 + Chain 2



Date: 19.0 CT.2014 04:16:32

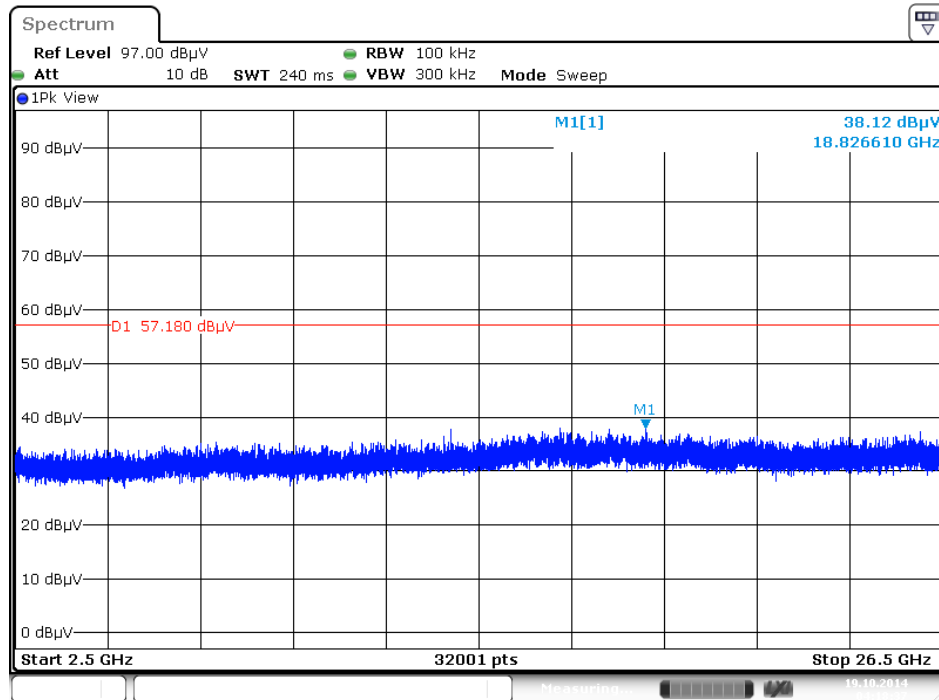
Plot on Configuration IEEE 802.11n 40MHz / CH 3 / 30MHz~2400MHz / CDD MCS8/ Chain 1 + Chain 2 (down 30dBc)



Date: 19.0 CT.2014 04:17:55

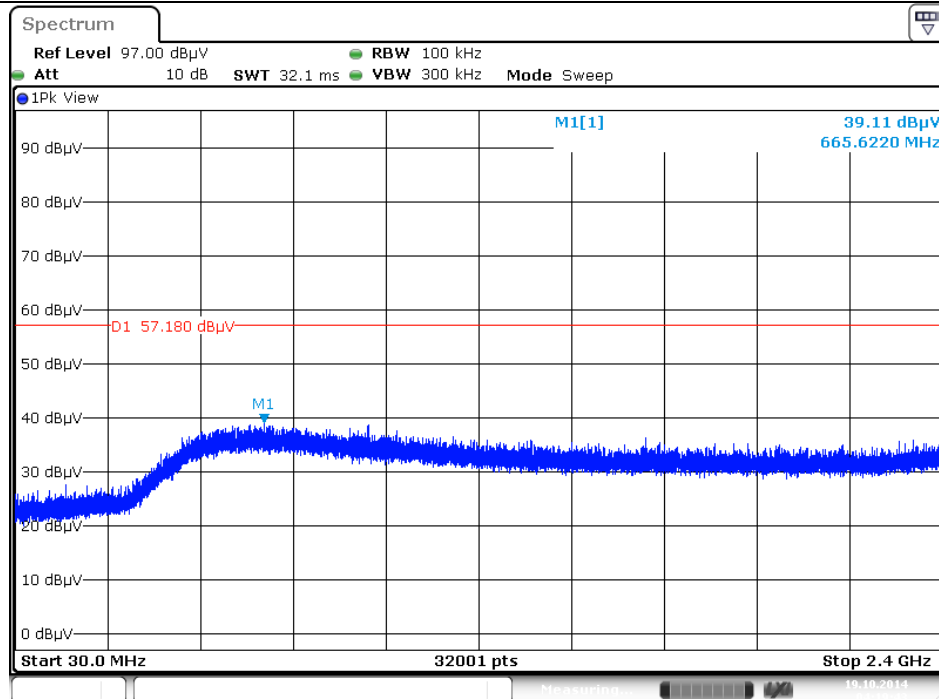


Plot on Configuration IEEE 802.11n 40MHz / CH 3 / 2500MHz~26500MHz / CDD MCS8/  
Chain 1 + Chain 2 (down 30dBc)



Date: 19.10.2014 04:18:36

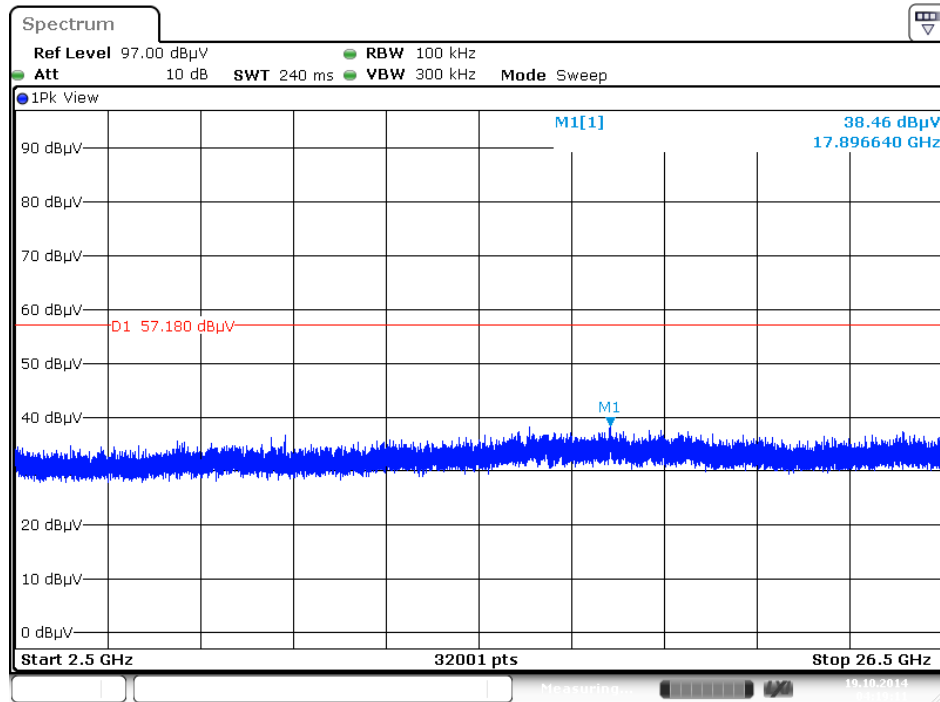
Plot on Configuration IEEE 802.11n 40MHz / CH 9 / 30MHz~2400MHz / CDD MCS8/ Chain 1 + Chain 2  
(down 30dBc)



Date: 19.10.2014 04:19:43



Plot on Configuration IEEE 802.11n 40MHz / CH 9 / 2500MHz~26500MHz / CDD MCS8/  
Chain 1 + Chain 2 (down 30dBc)



Date: 19.10.2014 04:19:11



## **2.7 Antenna Requirements**

### **2.7.1 Limit**

Except for special regulations, the Low-power Radio-frequency Devices must not be equipped with any jacket for installing an antenna with extension cable. An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

### **2.7.2 Antenna Connector Construction**

Please refer to this test plan chapter 1.9 in this test report; antenna connector complied with the requirements due to TG1700dac HP without antenna connector installed by user.



### 3 Test Equipment and Calibration Data

**For Conduction test**

| Instrument   | Manufacturer | Model No.        | Serial No. | Characteristics | Calibration Date | Remark               |
|--------------|--------------|------------------|------------|-----------------|------------------|----------------------|
| EMI Receiver | Agilent      | N9038A           | My52260123 | 9kHz ~ 8.45GHz  | Jan. 27, 2016    | Conduction (CO01-CB) |
| LISN         | F.C.C.       | FCC-LISN-50-16-2 | 04083      | 150kHz ~ 100MHz | Dec. 08, 2015    | Conduction (CO01-CB) |
| LISN         | Schwarzbeck  | NSLK 8127        | 8127647    | 9kHz ~ 30MHz    | Dec. 23, 2015    | Conduction (CO01-CB) |
| COND Cable   | Woken        | Cable            | 01         | 150kHz ~ 30MHz  | May 24, 2016     | Conduction (CO01-CB) |
| Software     | Audix        | E3               | 6.120210n  | -               | N.C.R.           | Conduction (CO01-CB) |

Note: Calibration Interval of instruments listed above is one year.

N.C.R. means Non-Calibration required.

**For RF Radiated (Below 1GHz)test**

| Instrument                   | Manufacturer  | Model No.    | Serial No. | Characteristics   | Calibration Date | Remark                   |
|------------------------------|---------------|--------------|------------|-------------------|------------------|--------------------------|
| Loop Antenna                 | Teseq         | HLA 6120     | 24155      | 9kHz - 30 MHz     | Mar. 16, 2016*   | Radiation<br>(10CH01-CB) |
| 10m Semi<br>Anechoic Chamber | TDK           | NSA          | 10CH01-CB  | 30MHz~1GHz<br>10m | Mar. 30, 2016    | Radiation<br>(10CH01-CB) |
| Pre-Amplifier                | Agilent       | 8447D        | 2944A10783 | 9kHz ~ 1.3GHz     | Mar. 24, 2016    | Radiation<br>(10CH01-CB) |
| Pre-Amplifier                | Agilent       | 8447D        | 2944A10784 | 9kHz ~ 1.3GHz     | Mar. 09, 2016    | Radiation<br>(10CH01-CB) |
| Low Cable                    | Woken         | SUCOFLEX 104 | -          | 25MHz ~ 1GHz      | Nov. 30, 2015    | Radiation<br>(10CH01-CB) |
| High Cable                   | Woken         | SUCOFLEX 104 | -          | 25MHz ~ 1GHz      | Nov. 30, 2015    | Radiation<br>(10CH01-CB) |
| Biconical Antenna            | Schwarzbeck   | VHBB 9124    | 324        | 30MHz ~ 200MHz    | Apr. 20, 2016    | Radiation<br>(10CH01-CB) |
| Log Antenna                  | Schwarzbeck   | VUSLP 9111   | 247        | 200MHz ~ 1GHz     | May 26, 2016     | Radiation<br>(10CH01-CB) |
| EMI Test Receiver            | Rohde&Schwarz | ESCI         | 100186     | 9kHz ~ 3GHz       | Jul. 07, 2016    | Radiation<br>(10CH01-CB) |
| Spectrum Analyzer            | Rohde&Schwarz | FSV30        | 101026     | 9kHz ~ 30GHz      | Jan. 04, 2016    | Radiation<br>(10CH01-CB) |
| Software                     | Audix         | E3           | 6.120210m  | -                 | N.C.R.           | Radiation<br>(10CH01-CB) |

Note: Calibration Interval of instruments listed above is one year.

\*Calibration Interval of instruments listed above is two year.

N.C.R. means Non-Calibration required.

**For RF Radiated(Above 1GHz) test**

| Instrument        | Manufacturer | Model No.    | Serial No.  | Characteristics | Calibration Date | Remark                   |
|-------------------|--------------|--------------|-------------|-----------------|------------------|--------------------------|
| Horn Antenna      | EMCO         | 3115         | 00075790    | 750MHz~18GHz    | Oct. 28, 2014    | Radiation<br>(03CH01-CB) |
| Horn Antenna      | Schwarzbeck  | BBHA 9170    | BBHA9170252 | 15GHz ~ 40GHz   | Aug. 22, 2014    | Radiation<br>(03CH01-CB) |
| Pre-Amplifier     | Agilent      | 8449B        | 3008A02310  | 1GHz ~ 26.5GHz  | Dec. 16, 2013    | Radiation<br>(03CH01-CB) |
| Pre-Amplifier     | WM           | TF-130N-R1   | 923365      | 26GHz ~ 40GHz   | Oct. 23, 2013    | Radiation<br>(03CH01-CB) |
| Spectrum analyzer | R&S          | FSP40        | 100019      | 9kHz~40GHz      | Dec. 02, 2013    | Radiation<br>(03CH01-CB) |
| EMI Test Receiver | Agilent      | N9038A       | MY52260123  | 9kHz ~ 8GHz     | Dec. 12, 2013    | Radiation<br>(03CH01-CB) |
| Turn Table        | INN CO       | CO 2000      | N/A         | 0 ~ 360 degree  | N.C.R.           | Radiation<br>(03CH01-CB) |
| Antenna Mast      | INN CO       | CO 2000      | N/A         | 1 m - 4 m       | N.C.R.           | Radiation<br>(03CH01-CB) |
| RF Cable-high     | Woken        | High Cable-3 | N/A         | 1 GHz - 40 GHz  | Nov. 17, 2013    | Radiation<br>(03CH01-CB) |
| RF Cable-high     | Woken        | High Cable-4 | N/A         | 1 GHz - 40 GHz  | Nov. 17, 2013    | Radiation<br>(03CH01-CB) |

Note: Calibration Interval of instruments listed above is one year.

N.C.R. means Non-Calibration required.

**For RF Conducted test**

| Instrument       | Manufacturer | Model No.     | Serial No.     | Characteristics  | Calibration Date | Remark              |
|------------------|--------------|---------------|----------------|------------------|------------------|---------------------|
| Signal analyzer  | R&S          | FSV40         | 100979         | 9kHz~40GHz       | Nov. 29, 2013    | Conducted (TH01-CB) |
| RF Power Divider | Woken        | 2 Way         | 0120A02056002D | 2GHz ~ 18GHz     | Nov. 17, 2013    | Conducted (TH01-CB) |
| RF Power Divider | Woken        | 3 Way         | MDC2366        | 2GHz ~ 18GHz     | Nov. 17, 2013    | Conducted (TH01-CB) |
| RF Power Divider | Woken        | 4 Way         | 0120A04056002D | 2GHz ~ 18GHz     | Nov. 17, 2013    | Conducted (TH01-CB) |
| RF Cable-high    | Woken        | High Cable-7  | -              | 1 GHz – 26.5 GHz | Nov. 17, 2013    | Conducted (TH01-CB) |
| RF Cable-high    | Woken        | High Cable-8  | -              | 1 GHz – 26.5 GHz | Nov. 17, 2013    | Conducted (TH01-CB) |
| RF Cable-high    | Woken        | High Cable-9  | -              | 1 GHz – 26.5 GHz | Nov. 17, 2013    | Conducted (TH01-CB) |
| RF Cable-high    | Woken        | High Cable-10 | -              | 1 GHz – 26.5 GHz | Nov. 17, 2013    | Conducted (TH01-CB) |
| RF Cable-high    | Woken        | High Cable-11 | -              | 1 GHz – 26.5 GHz | Nov. 17, 2013    | Conducted (TH01-CB) |
| RF Power Divider | Woken        | 2 Way         | 0120A02056002D | 2GHz ~ 18GHz     | Nov. 15, 2014    | Conducted (TH01-CB) |
| RF Power Divider | Woken        | 3 Way         | MDC2366        | 2GHz ~ 18GHz     | Nov. 15, 2014    | Conducted (TH01-CB) |
| RF Power Divider | Woken        | 4 Way         | 0120A04056002D | 2GHz ~ 18GHz     | Nov. 15, 2014    | Conducted (TH01-CB) |
| RF Cable-high    | Woken        | High Cable-7  | -              | 1 GHz – 26.5 GHz | Nov. 15, 2014    | Conducted (TH01-CB) |
| RF Cable-high    | Woken        | High Cable-8  | -              | 1 GHz – 26.5 GHz | Nov. 15, 2014    | Conducted (TH01-CB) |
| RF Cable-high    | Woken        | High Cable-9  | -              | 1 GHz – 26.5 GHz | Nov. 15, 2014    | Conducted (TH01-CB) |
| RF Cable-high    | Woken        | High Cable-10 | -              | 1 GHz – 26.5 GHz | Nov. 15, 2014    | Conducted (TH01-CB) |
| RF Cable-high    | Woken        | High Cable-11 | -              | 1 GHz – 26.5 GHz | Nov. 15, 2014    | Conducted (TH01-CB) |
| Power Sensor     | Agilent      | U2021XA       | MY54320014     | 50MHz~18GHz      | Sep. 12, 2014    | Conducted (TH01-CB) |
| Power Sensor     | Agilent      | U2021XA       | MY54320015     | 50MHz~18GHz      | Aug. 15, 2014    | Conducted (TH01-CB) |

Note: Calibration Interval of instruments listed above is one year.

## 4 Measurement Uncertainty

| Test Items                           | Uncertainty | Remark                   |
|--------------------------------------|-------------|--------------------------|
| Conducted Emission (150kHz ~ 30MHz)  | 3.2 dB      | Confidence levels of 95% |
| Radiated Emission (30MHz ~ 1,000MHz) | 4.0 dB      | Confidence levels of 95% |
| Radiated Emission (1GHz ~ 18GHz)     | 3.7 dB      | Confidence levels of 95% |
| Radiated Emission (18GHz ~ 40GHz)    | 3.5 dB      | Confidence levels of 95% |
| Conducted Emission                   | 1.7 dB      | Confidence levels of 95% |