



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 (Margin -13.85 dB)	Complied
2.2	15.247(b)(3)	Maximum Conducted Output Power	Max. Conducted Power[dBm]: 24.89 (11n 20MHz CDD MCS0 CH6)	Complied
2.3	15.247(e)	Power Spectral Density	Max.Total PSD [dBm/3kHz]: -3.36 (11b 1Mbps Chain 2 CH1)	Complied
2.4	15.247(a)(2)	6dB Spectrum Bandwidth	6dB Bandwidth[MHz] 6dB: 7.12 / 99% OCB: 10.08 (11b 1Mbps Chain 2 CH1)	Complied
2.5	15.247(d)	Radiated Emissions	53.93 dBuV/m (Margin -0.07dB) (11b Chain 1 CH6)	Complied
2.6	15.247(d)	Band edge Emissions	53.87 dBuV/m (Margin 0.13dB) (11n 40MHz CDD MCS0 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 :

Power Adapter (1)	
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
Power Adapter (2)	
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 Model No.	GPON	GIGA LAN	FXS	2.4GHz WLAN (802.11n)	5GHz WLAN (802.11ac)	RF Video	USB 2.0
TG1700dac HP, TG1700ETIdac HP (EUT)	● (Diplexer)	● (4 ports)	● (2 ports)	● (2 x 2)	● (3 x 3)	○	● (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 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**

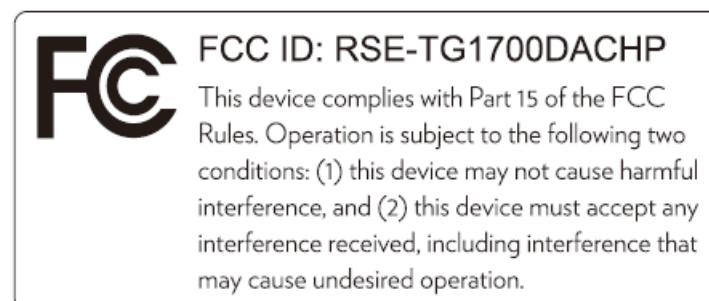
Items	Description
Model Name	MediaAccess TG1700ac High Power
I/O Ports	FXS port x2 LAN port (Ethernet: 10/100/1000Mbps) x4 WLAN port (802.11b/g/n 2x2, 802.11a/n/ac 3X3) USB2.0 port x 2 GPON Port x 1
Power Type	From power adapter
Associated Devices	(Refer to Section 1.1)
Product Type	IEEE 802.11b/g/n20/n40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

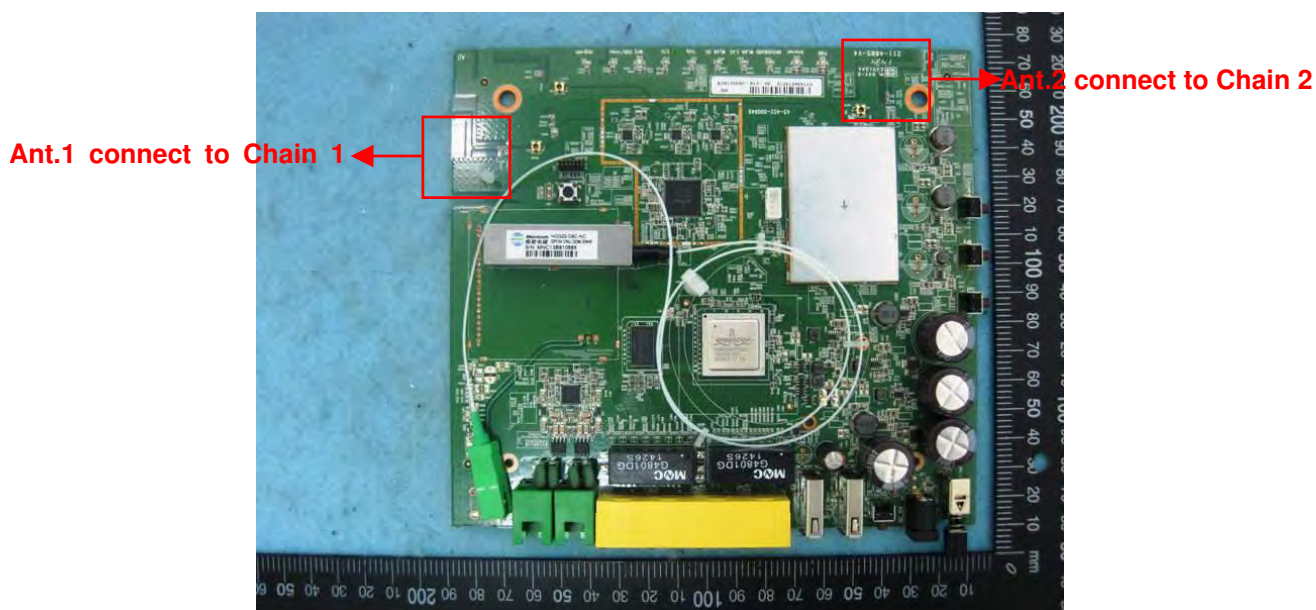


RF path transmission and receive function information								
Modulation mode	802.11b		802.11g		802.11n(HT20)		802.11n(HT40)	
Chain	1	2	1	2	1	2	1	2
Single(Tx)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Two(Tx)			Yes	Yes	Yes	Yes	Yes	Yes
Chain	1	2	1	2	1	2	1	2
Single(Rx)								
Two(Rx)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Note: 1. For 11b, single chain Tx (chain 1 or chain 2) 2. For 11g, can be single chain Tx and two-chain Tx (chain 1 and chain 2) 3. For 11n MCS0~7, two chain1 and chain 2 Tx which means one stream transmit from both chain with time shift. 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 need test (select max)	Use output power table to select which ant chain need test (select max)	Use output power table to select which ant chain need test (select max)	Need Test	Need Test
11b Chain2 1Mbps		Need Test				Need Test	Need Test
11g Chain1 (6Mbps)		Need Test	Use output power table to select which ant 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 mode test result can cover this item.	11g CDD mode test result can cover this item.
11g Chain2 (6Mbps)		Need Test				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 need test (select max)	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				11n CDD (HT20MHz) mode test result can cover this item.	11n CDD (HT20MHz) mode test result can cover this item.



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

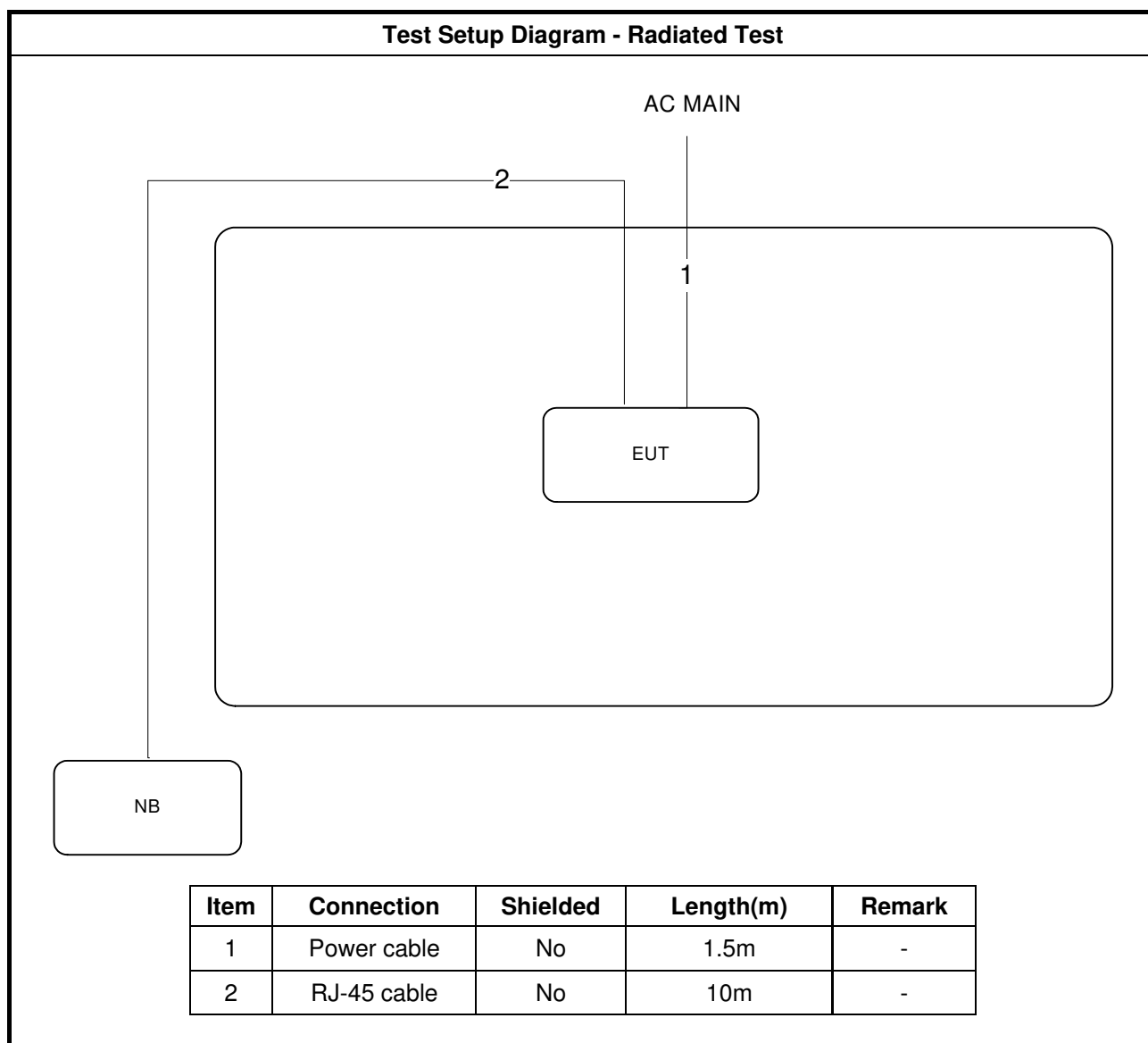
Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
1	NB	DELL	E6430	DoC
2	Adapter	AcBel	WAC011	N/A

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		
☐	HWA YA	ADD : No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL : 886-3-327-3456 FAX : 886-3-327-0973
☒	JHUBEI	ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C. 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.

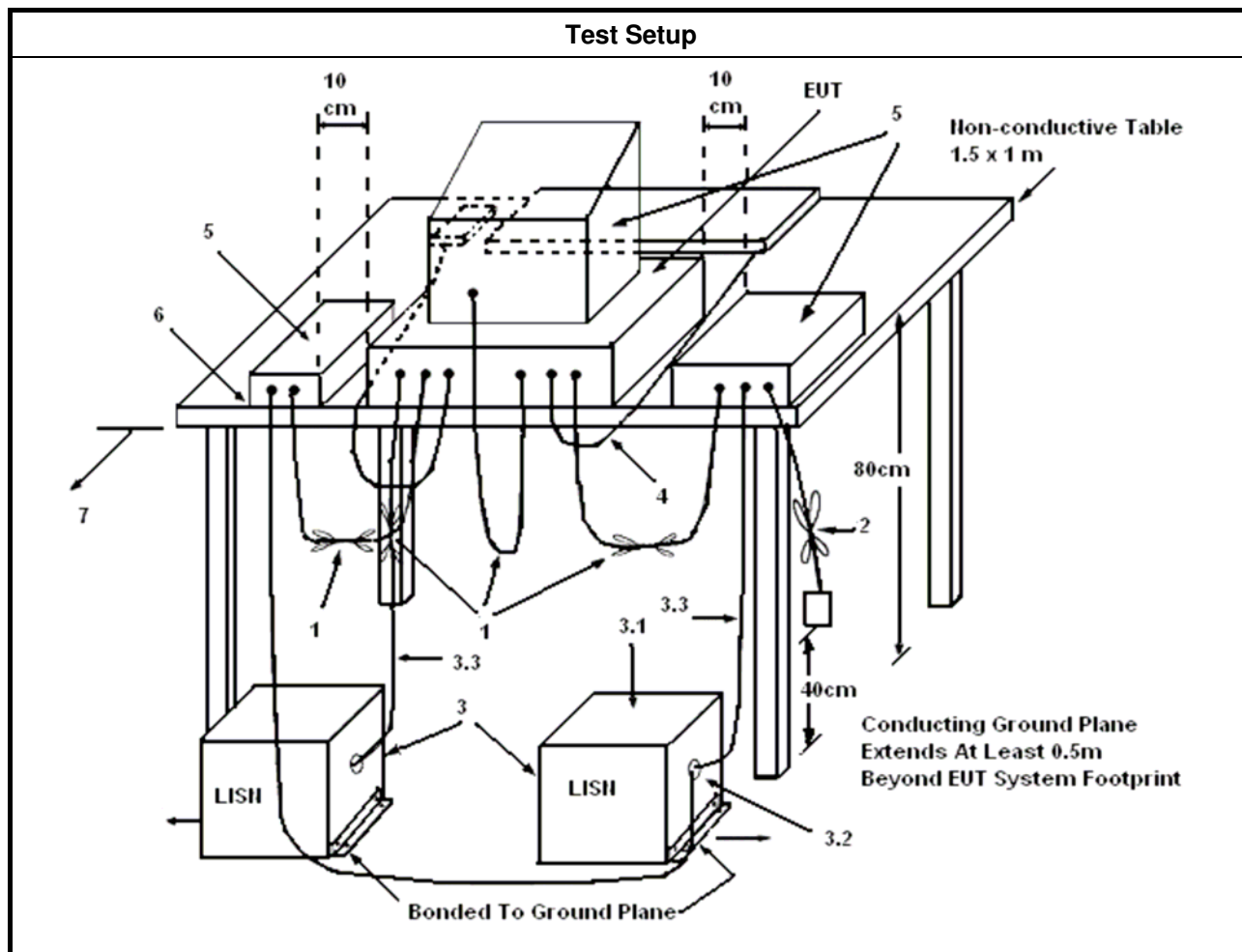
2.1.3 Test method

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

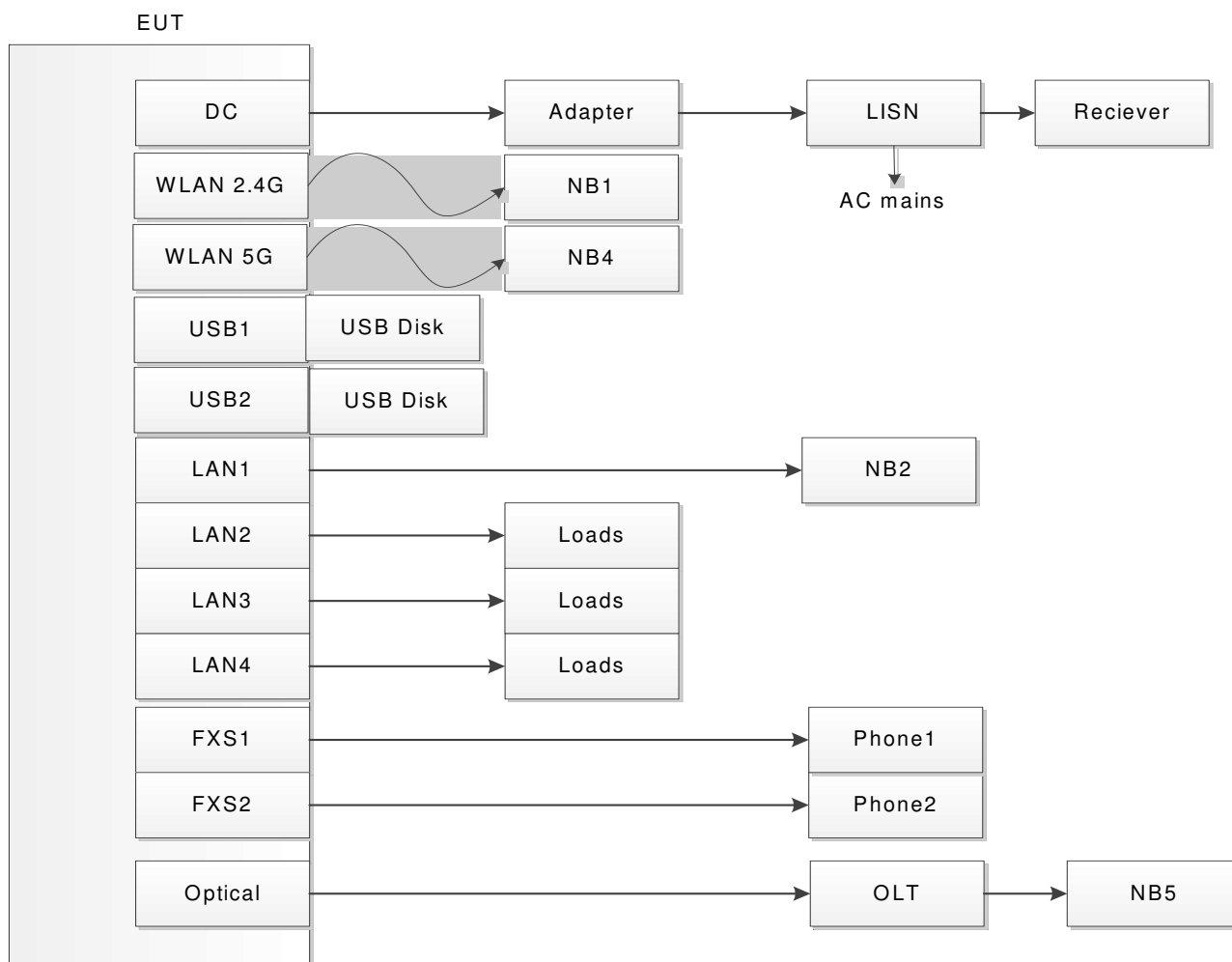
- Configure the EUT according to ANSI C63.10. The EUT or host of EUT has to be placed 0.4 meter far from the conducting wall of the shielding room and at least 80 centimeters from any other grounded conducting surface.
- Connect EUT or host of EUT to the power mains through a line impedance stabilization 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 Ω . 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.

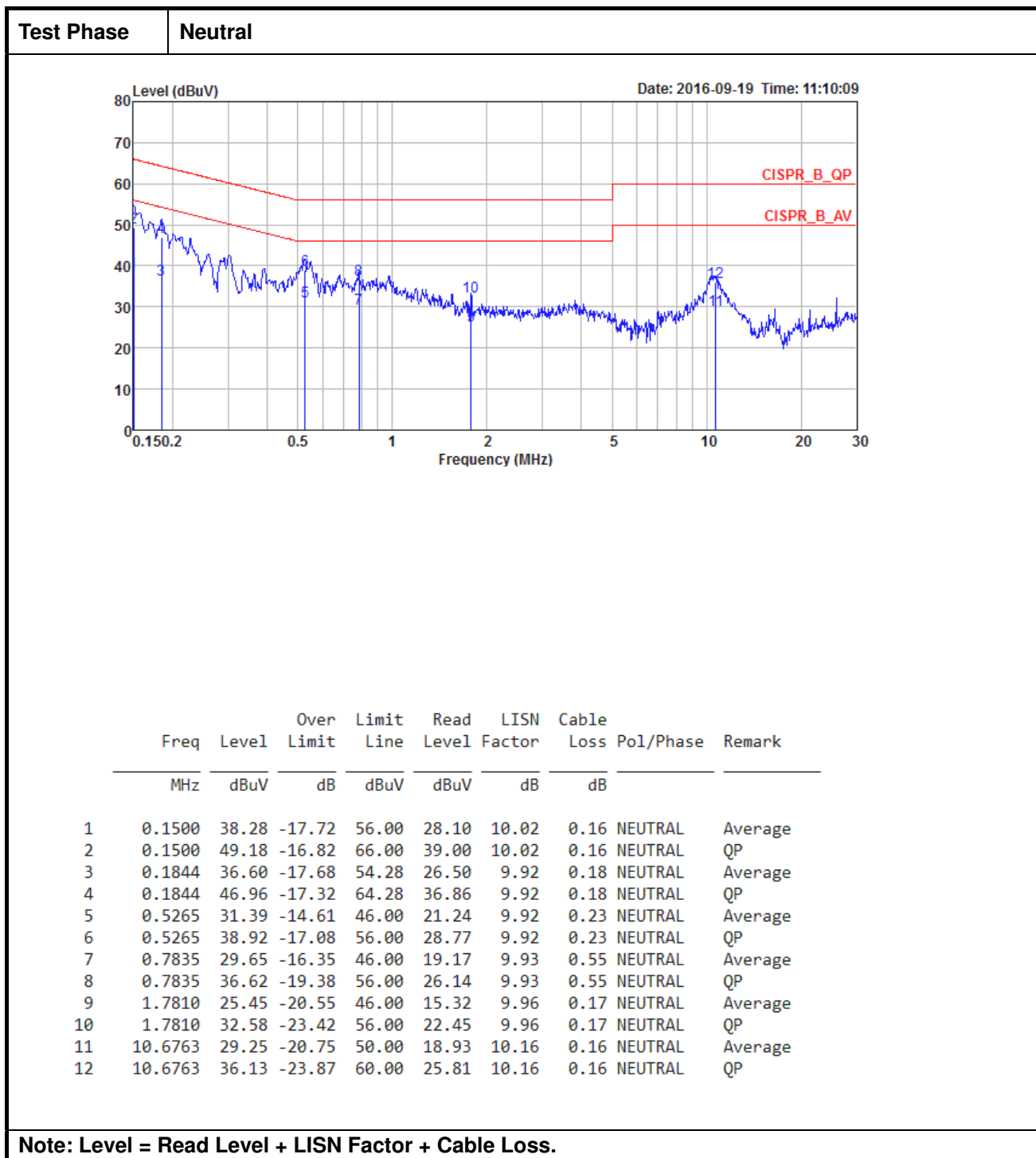
2.1.5 Test Deviation

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



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 = $10\log[(\text{Chain1(m W)} + \text{chain2(m W)})]$

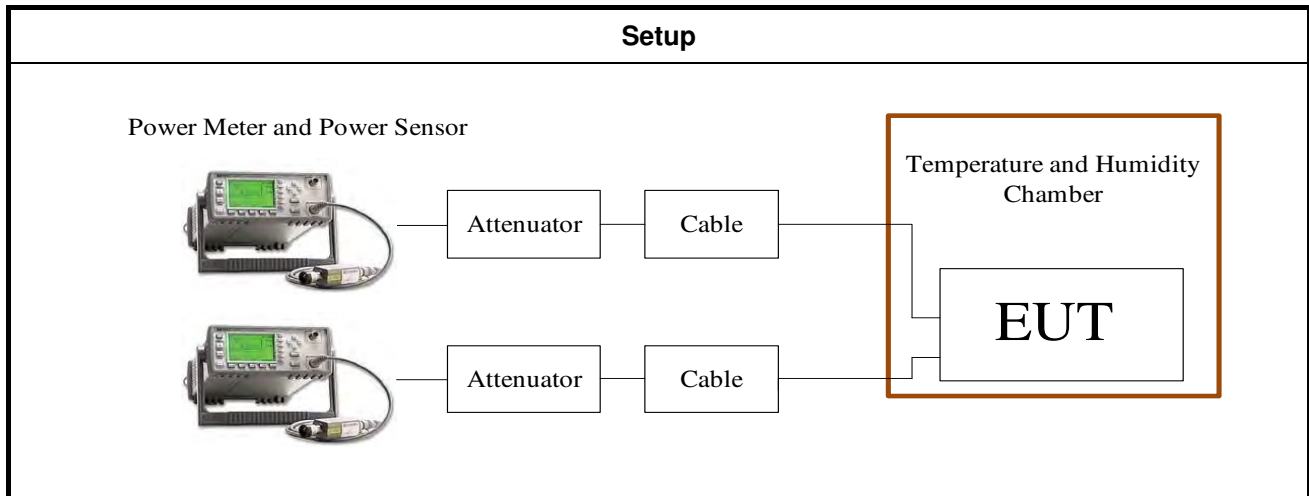
Example :

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

$g_{j,k} = \frac{G_k}{10^{G_k/10}}$ 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.

SDM directional Gain calculation formula as below:

If all transmit signals are completely uncorrelated, then

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 ≥ 3 kHz
VBW	Set the VBW $\geq 3 \times$ RBW
Detector	RMS
Trace	Average sweep count 100
Sweep Time	Auto couple

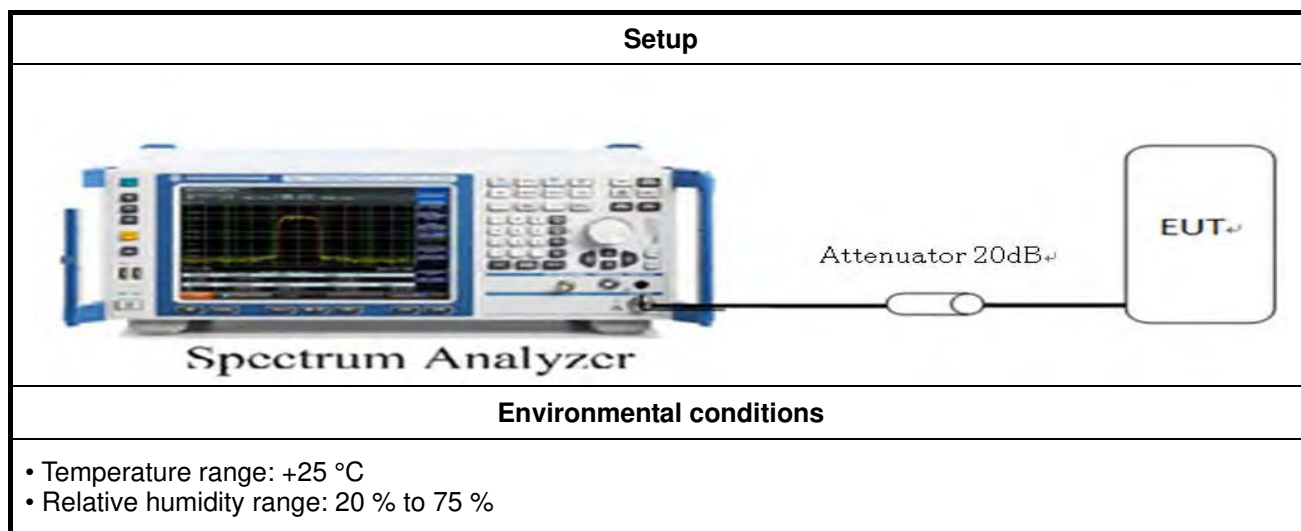
- Test was performed in accordance with KDB558074 D01 v03r05 for Performing Compliance Measurements on Digital Transmission Systems (DTS) - section 10.2 Method PKPSD (peak PSD) and KDB 662911 D01 v02r01 section In-Band Power Spectral Density (PSD) Measurements option (b) Measure and sum spectral maximal 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

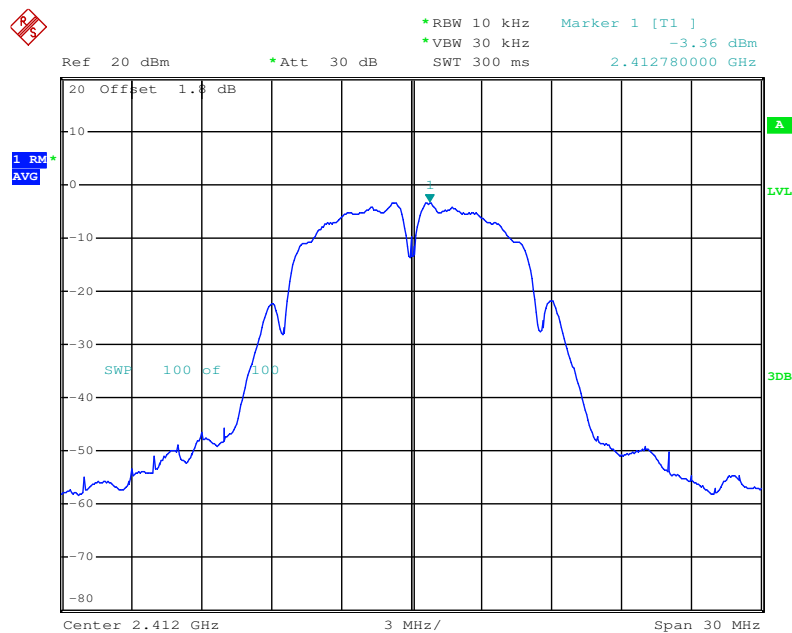
The EUT was programmed to be in continuously transmitting mode using Mtool 2.0.1.0(refer to APPENDIX C. List of test command).

**2.3.7 Test Results**

Temperature	26°C	Humidity	63%
Test Engineer	Jim Huang		

Power Density Configuration IEEE 802.11b 1Mbps / Chain 2

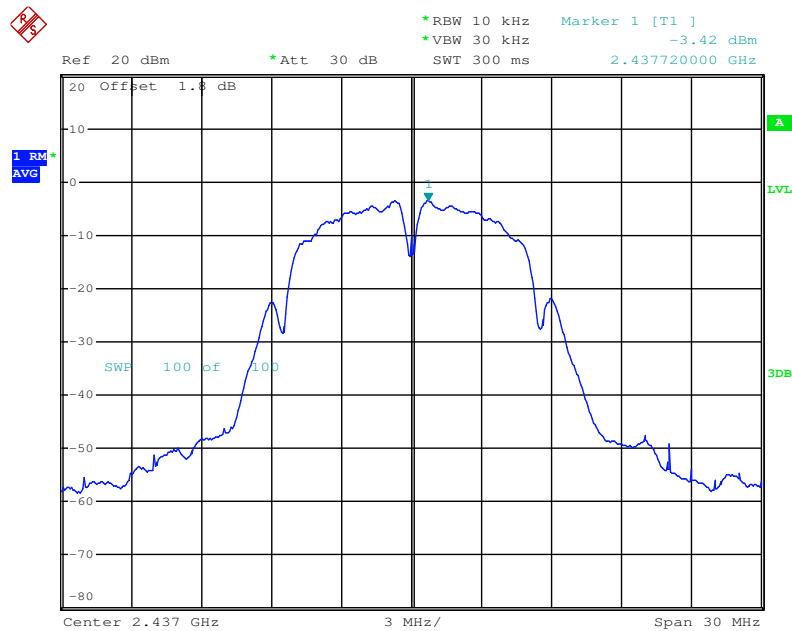
Channel	Frequency (MHz)	Power Density (dBm/10kHz)	Limit (8dBm/3kHz)	Result
1	2412	-3.36	8	PASS
6	2437	-3.42	8	PASS
11	2462	-4.24	8	PASS

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

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

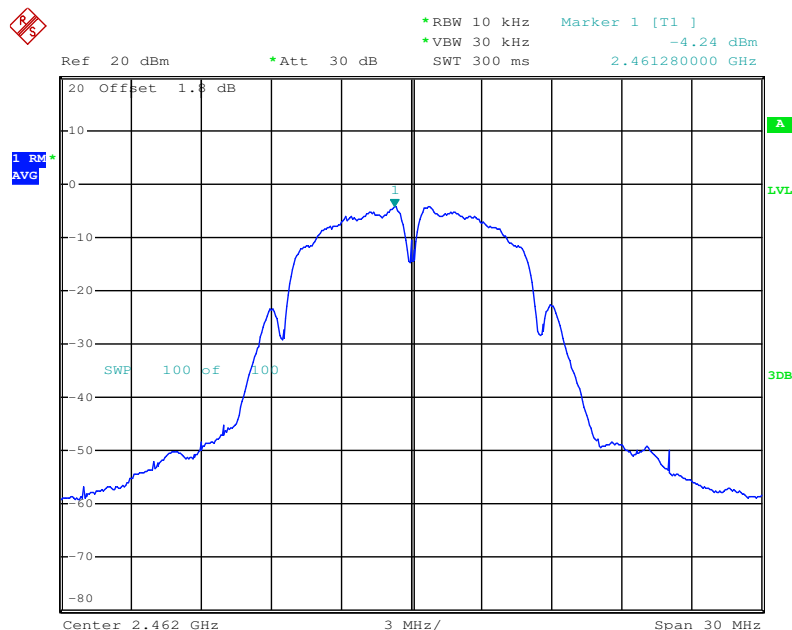


Power Density Plot on Configuration IEEE 802.11b 1Mbps / Chain 2 / 2437 MHz



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



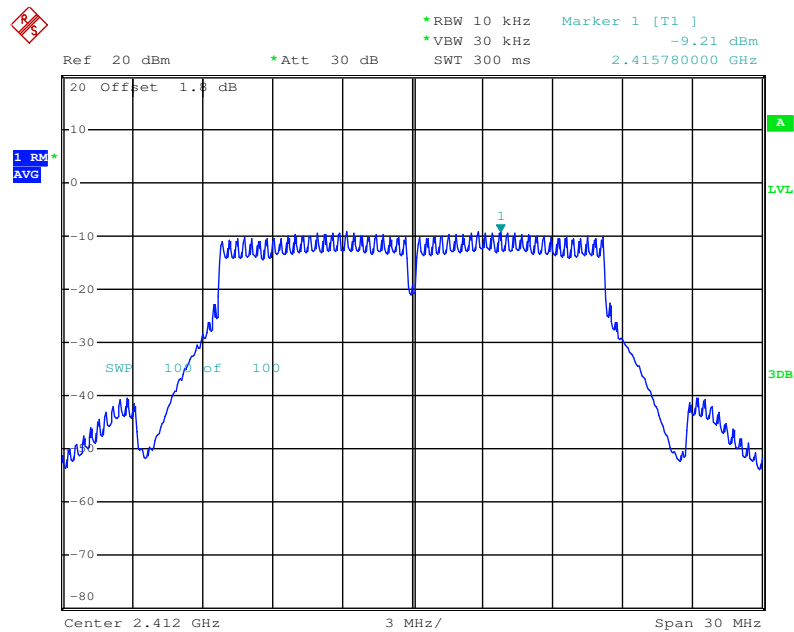
FCC RADIO TEST REPORT

Report No. : FR402168-02AA

Power Density Configuration IEEE 802.11g 6Mbps / Chain 2

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

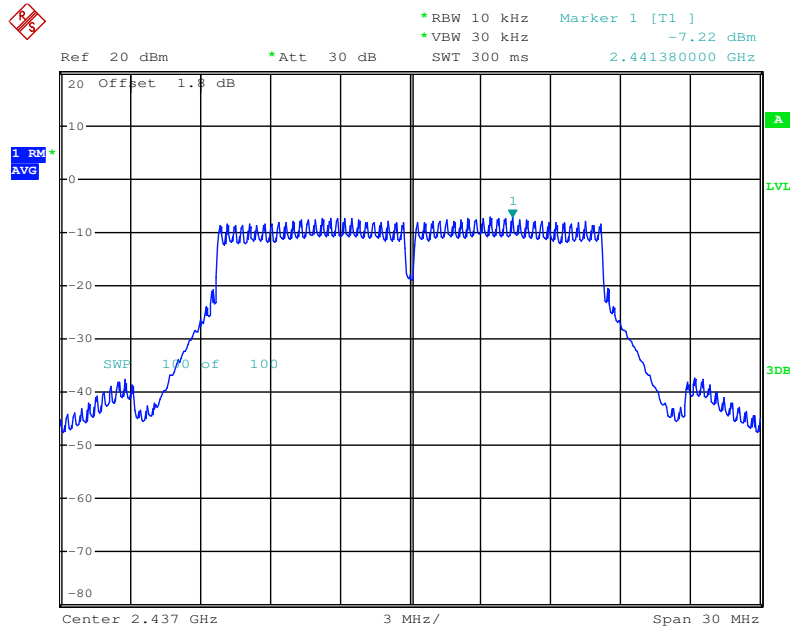
Power Density Plot on Configuration IEEE 802.11g 6Mbps / Chain 2 / 2412 MHz



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

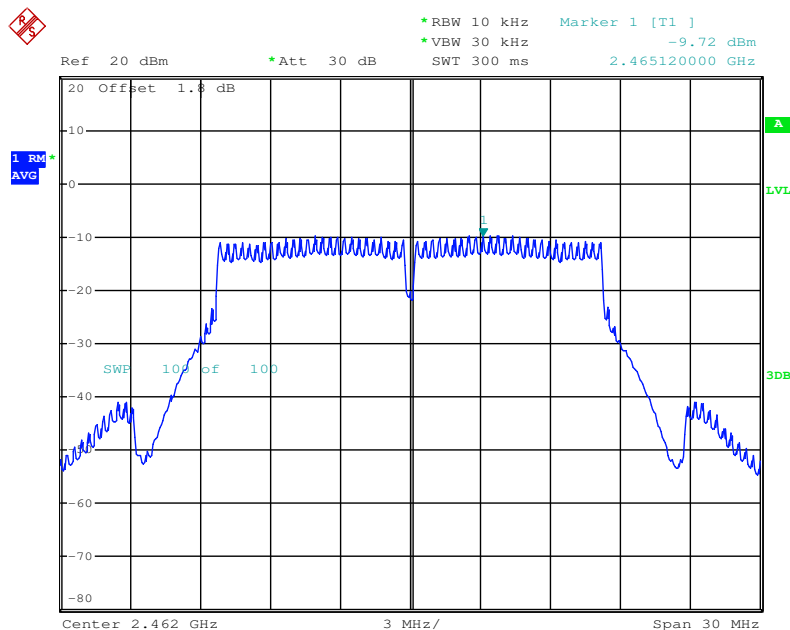


Power Density Plot on Configuration IEEE 802.11g 6Mbps / Chain 2 / 2437 MHz



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

$g_{j,k} = \frac{G_k}{10^{\frac{6}{10}}}$ 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.

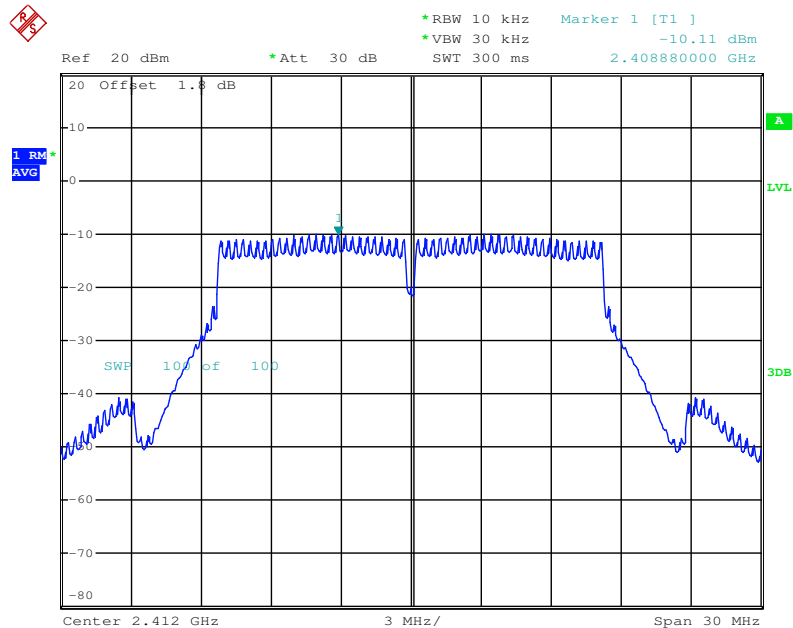
If Directional gain > 6dBi, the power spectrum density limit to be reduce.

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

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

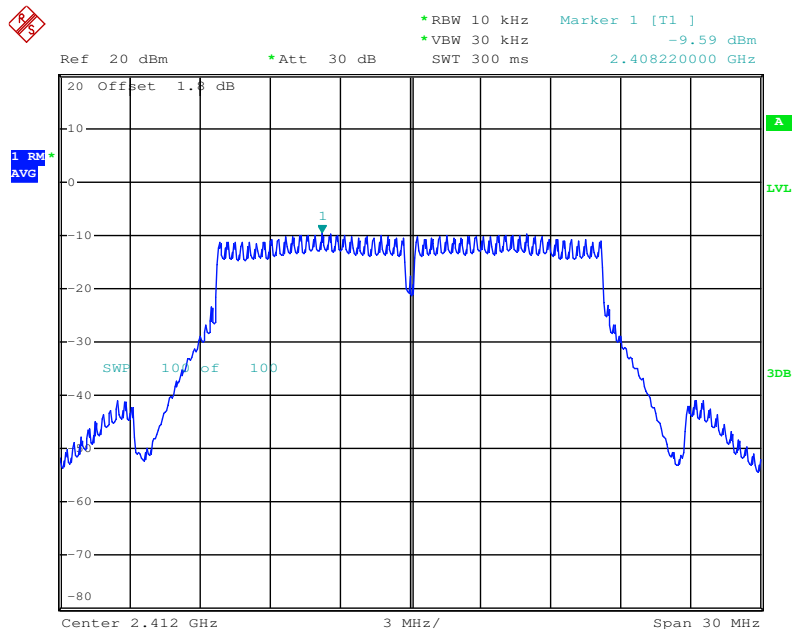


Power Density Plot on Configuration IEEE 802.11g 6Mbps CDD / Chain 1 / 2412 MHz



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

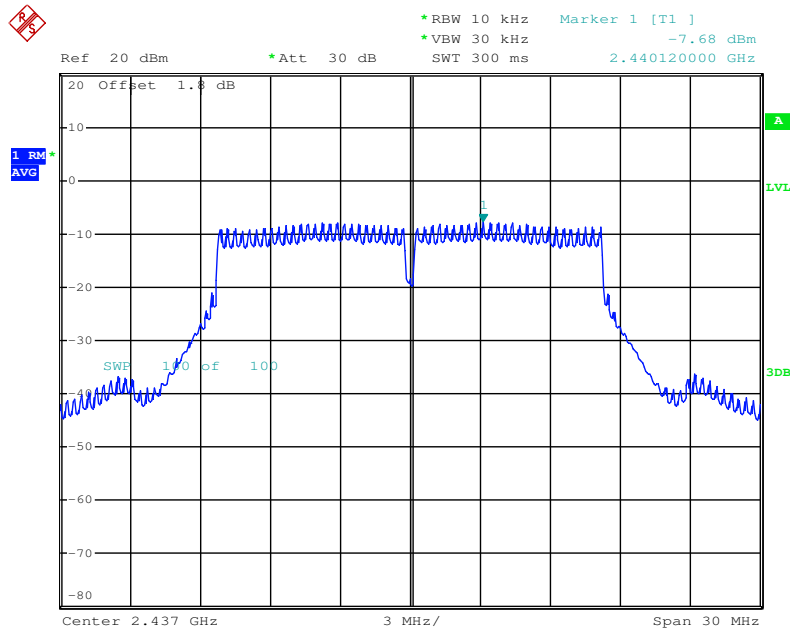
Power Density Plot on Configuration IEEE 802.11g 6Mbps CDD / Chain 2 / 2412 MHz



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

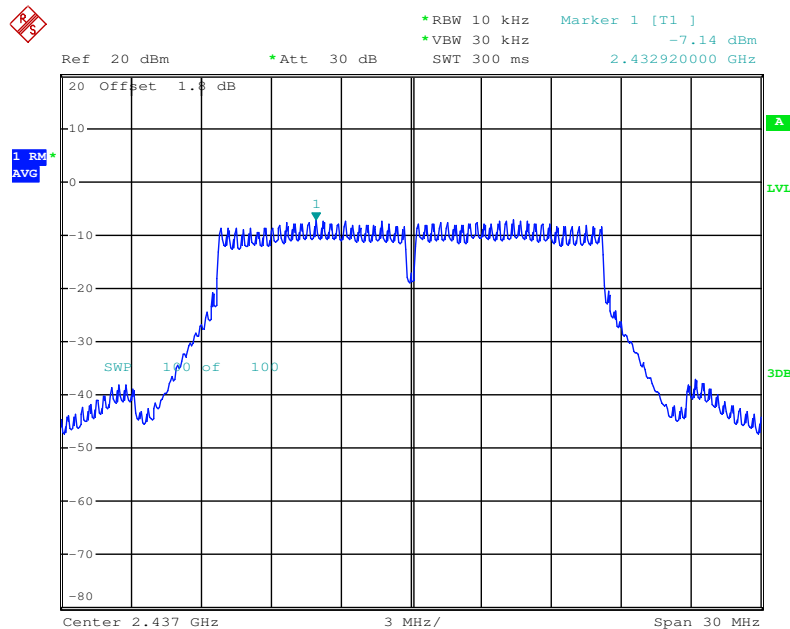


Power Density Plot on Configuration IEEE 802.11g 6Mbps CDD / Chain 1 / 2437 MHz



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

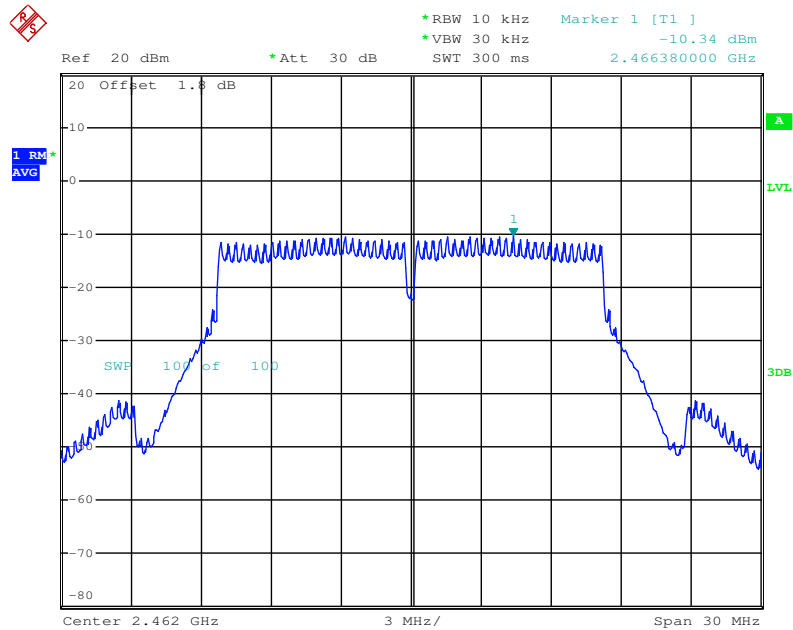
Power Density Plot on Configuration IEEE 802.11g 6Mbps CDD / Chain 2 / 2437 MHz



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

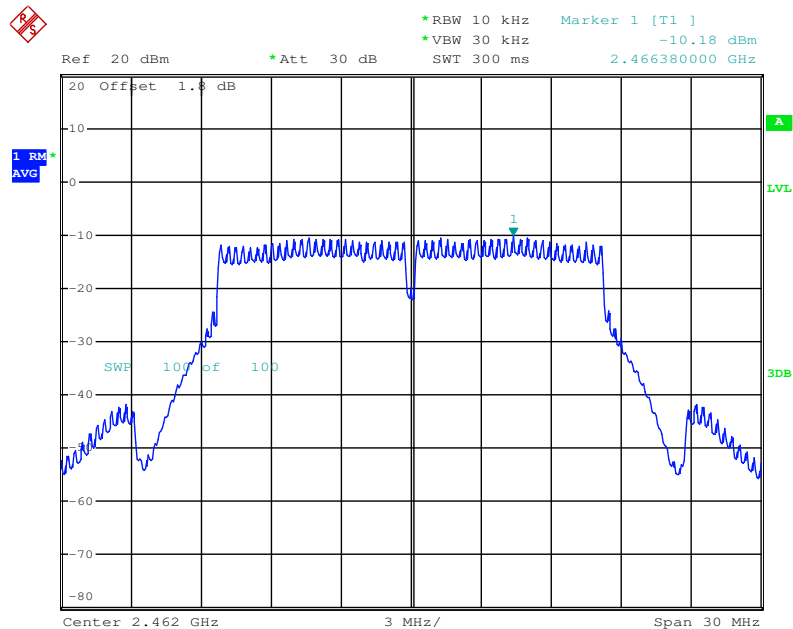


Power Density Plot on Configuration IEEE 802.11g 6Mbps CDD / Chain 1 / 2462 MHz



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

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



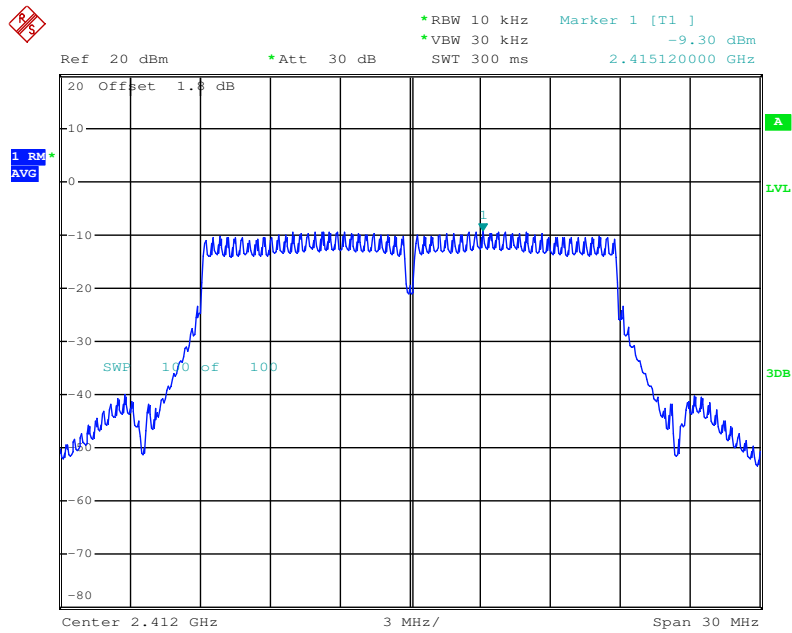
Date: 28.OCT.2014 10:13:07



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

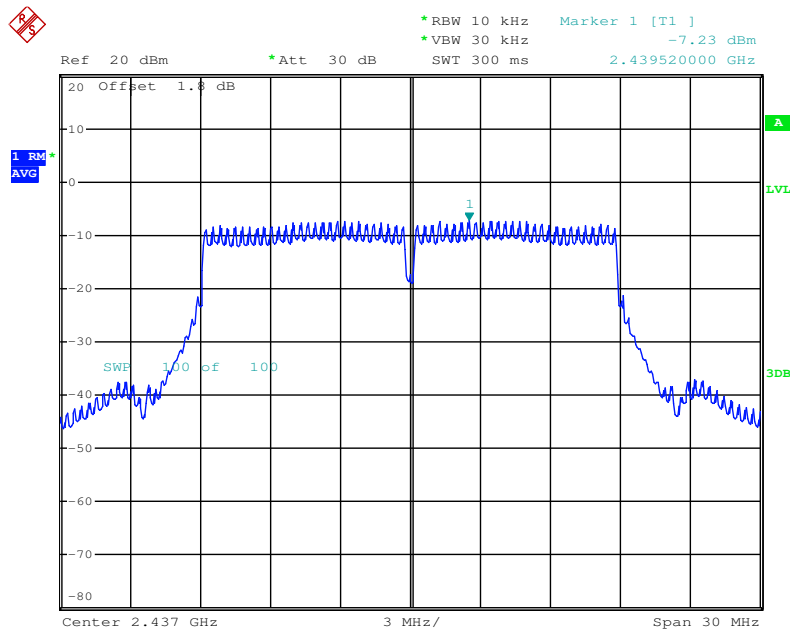
Power Density Plot on Configuration IEEE 802.11n 20MHz / MCS0 / Chain 2 / 2412 MHz



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

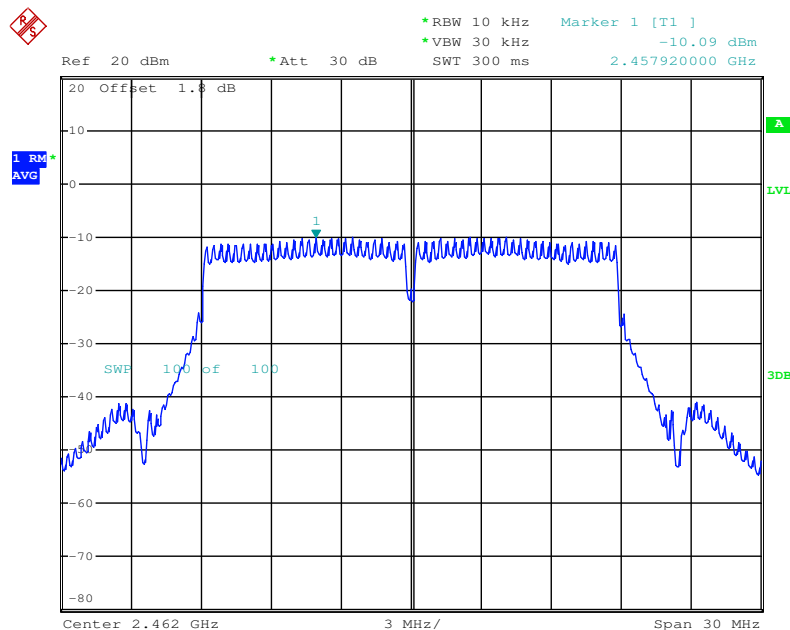


Power Density Plot on Configuration IEEE 802.11n 20MHz / MCS0 / Chain 2 / 2437 MHz



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 (MHz)	Power Density (dBm/10kHz)	Power Density (dBm/10kHz)	Total Power Density (dBm/10kHz)	Limit (8dBm/3kHz)	Result
		Chain 1	Chain 2			
1	2412	-10.40	-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

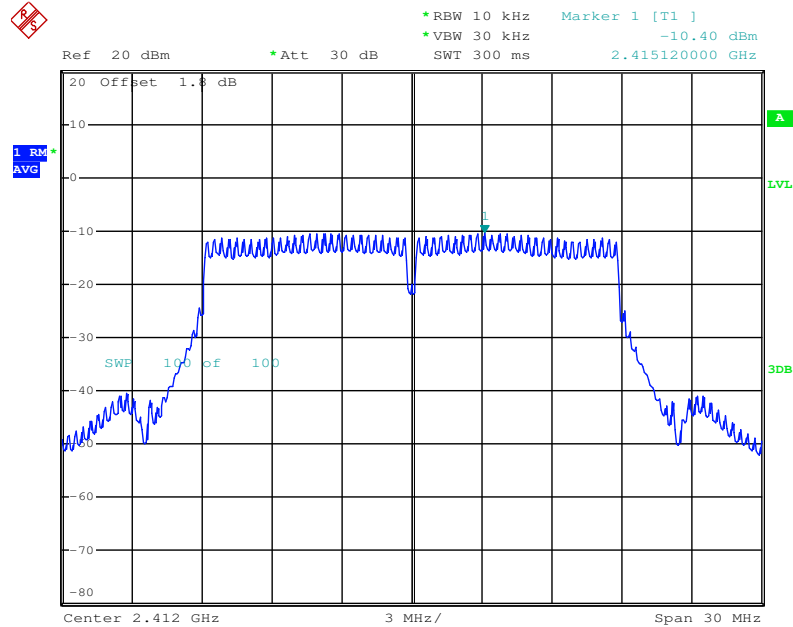
$g_{j,k} = \frac{G_k}{10^{\frac{6}{10}}}$ if the kth antenna is being fed by spatial stream j, or zero if it is not; G k is the gain in dBi of the kth antenna. If Directional gain > 6dBi, the power spectrum density limit to be reduce.

Example: G1 = 3.1dBi ; G2 = 2.8dBi

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

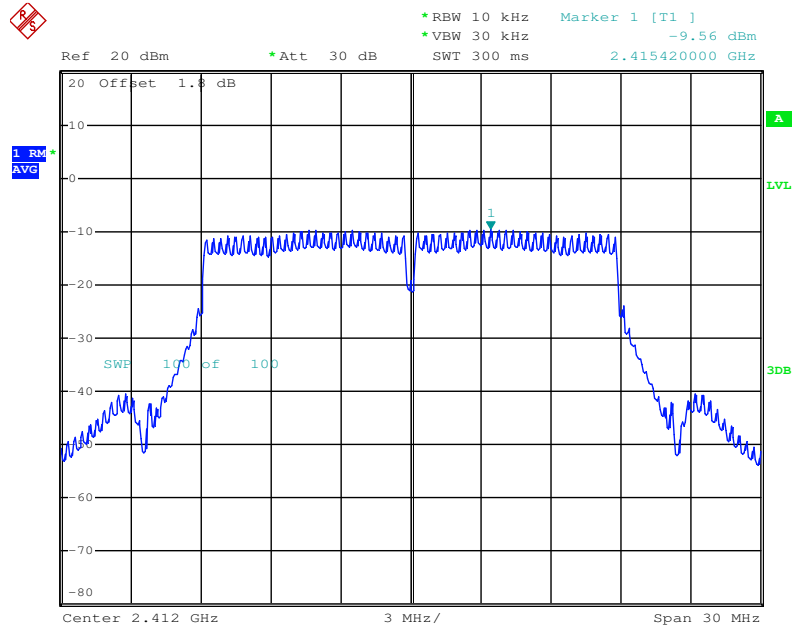


Power Density Plot on Configuration IEEE 802.11n 20MHz / CDD MCS0 / Chain 1 / 2412 MHz



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

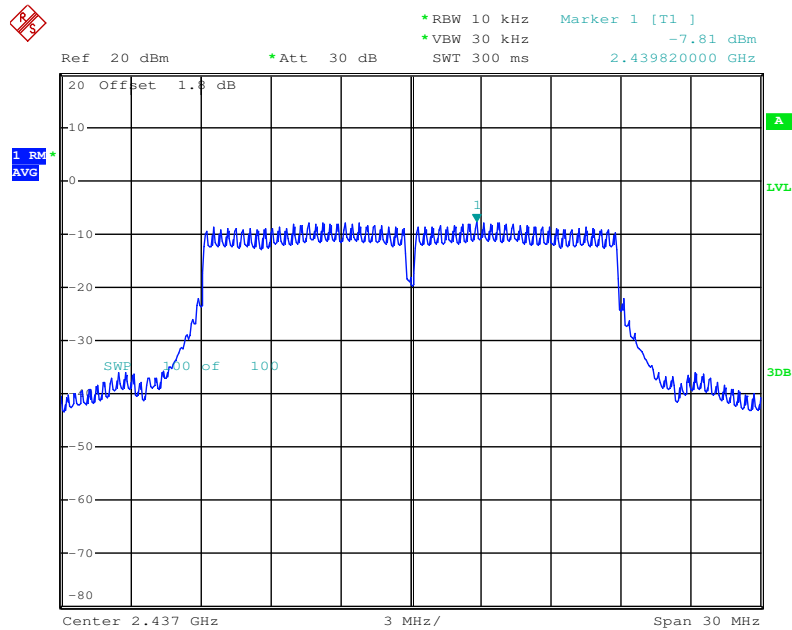
Power Density Plot on Configuration IEEE 802.11n 20MHz / CDD MCS0 / Chain 2 / 2412 MHz



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

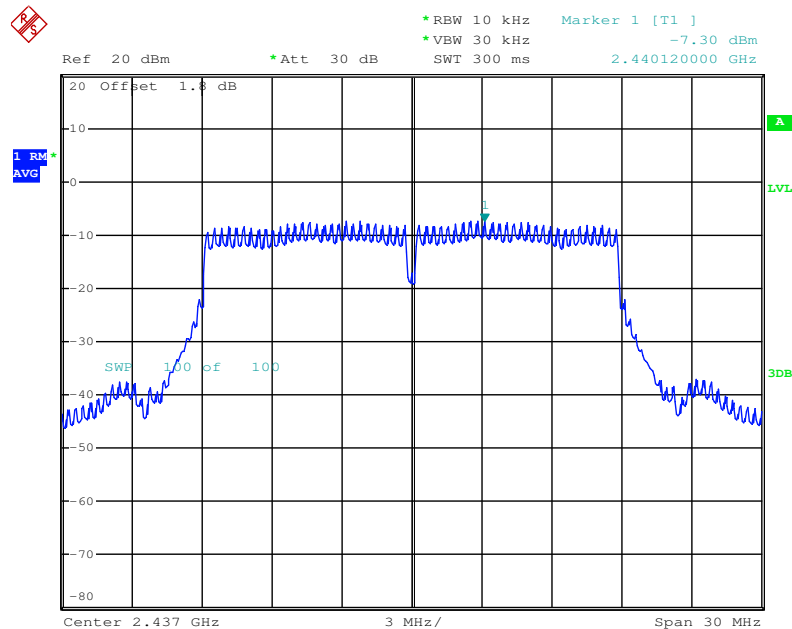


Power Density Plot on Configuration IEEE 802.11n 20MHz / CDD MCS0 / Chain 1 / 2437 MHz



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

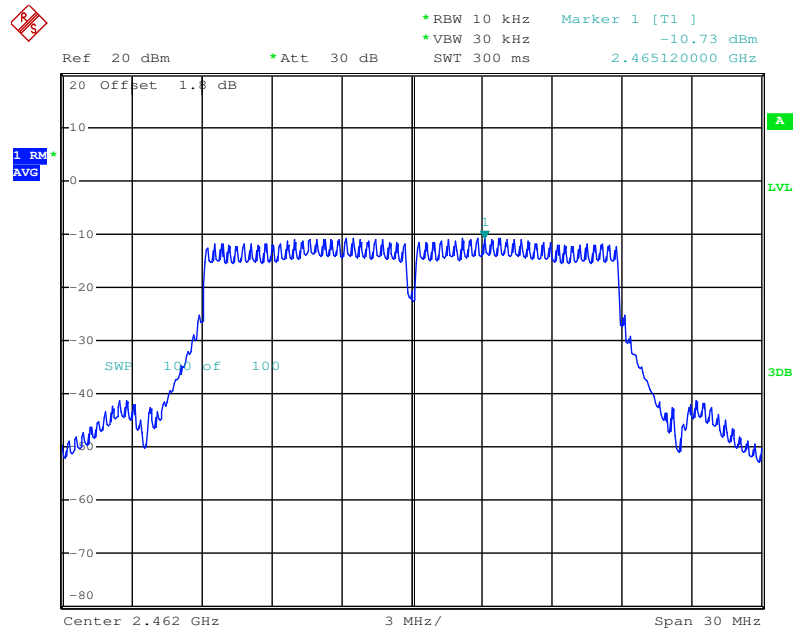
Power Density Plot on Configuration IEEE 802.11n 20MHz / CDD MCS0 / Chain 2 / 2437 MHz



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

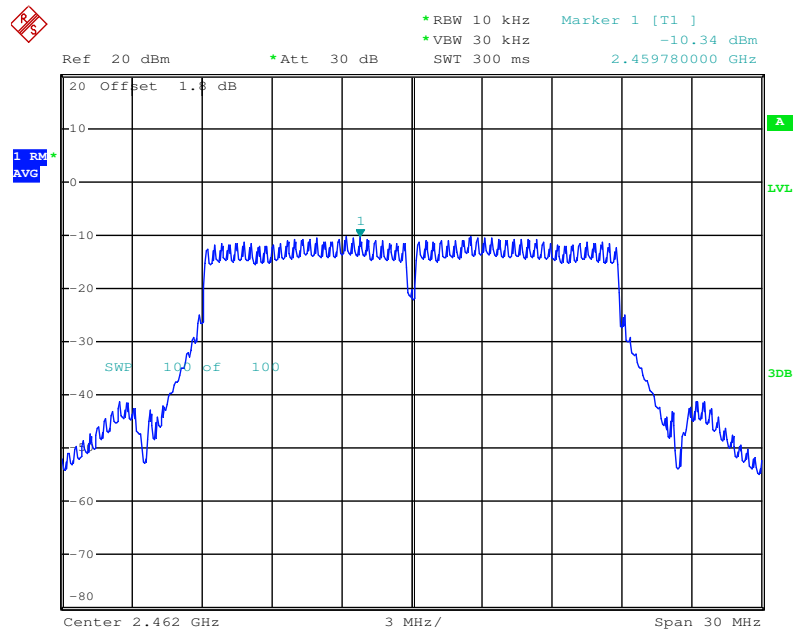


Power Density Plot on Configuration IEEE 802.11n 20MHz / CDD MCS0 / Chain 1 / 2462 MHz



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

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



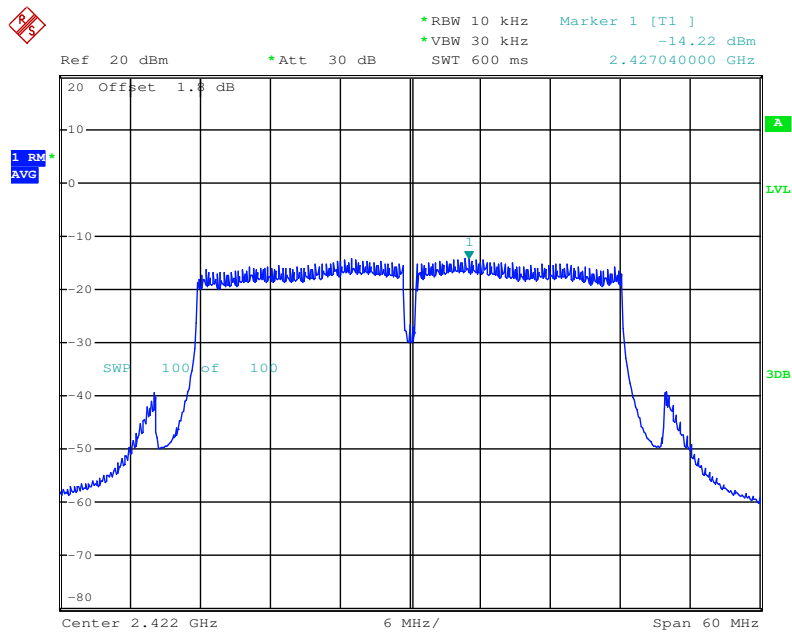
Date: 28.OCT.2014 10:20:38



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

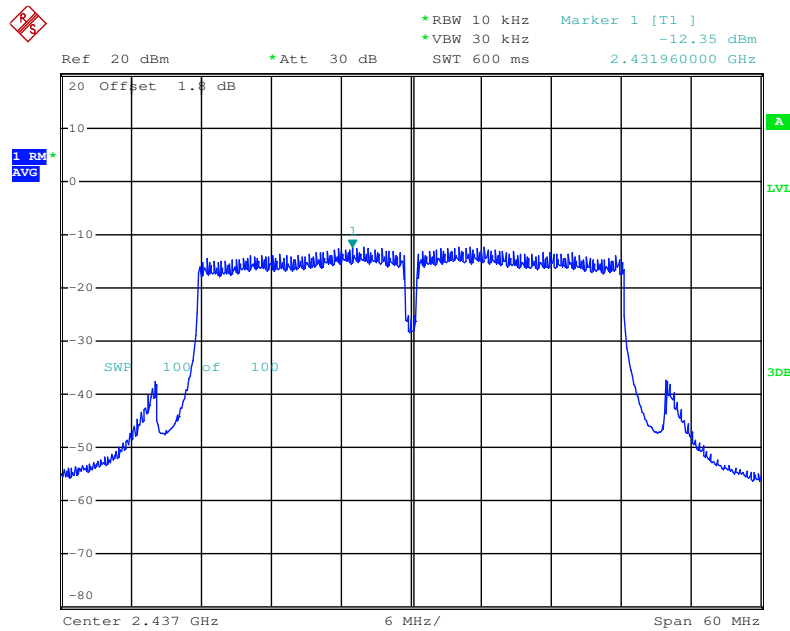
Power Density Plot on Configuration IEEE 802.11n 40MHz / MCS0 / Chain 2 / 2422 MHz



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

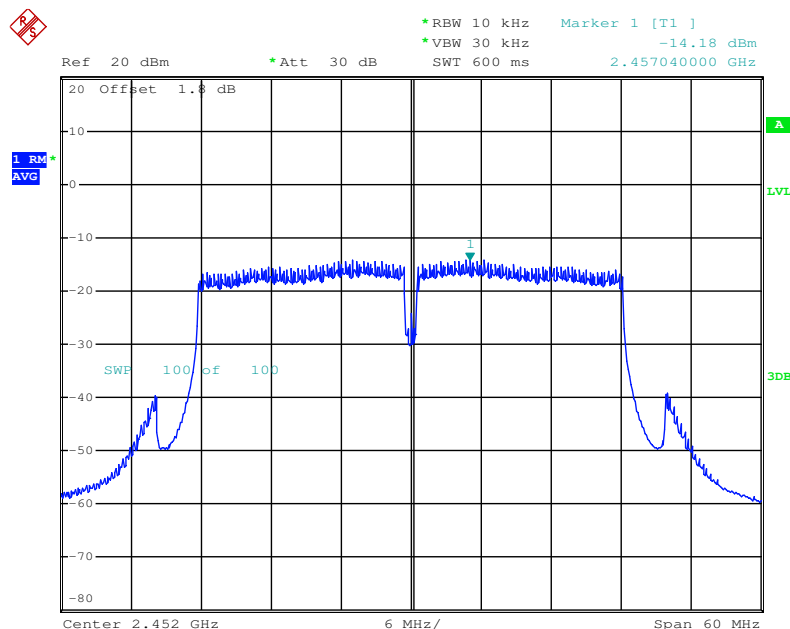


Power Density Plot on Configuration IEEE 802.11n 40MHz / MCS0 / Chain 2 / 2437 MHz



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

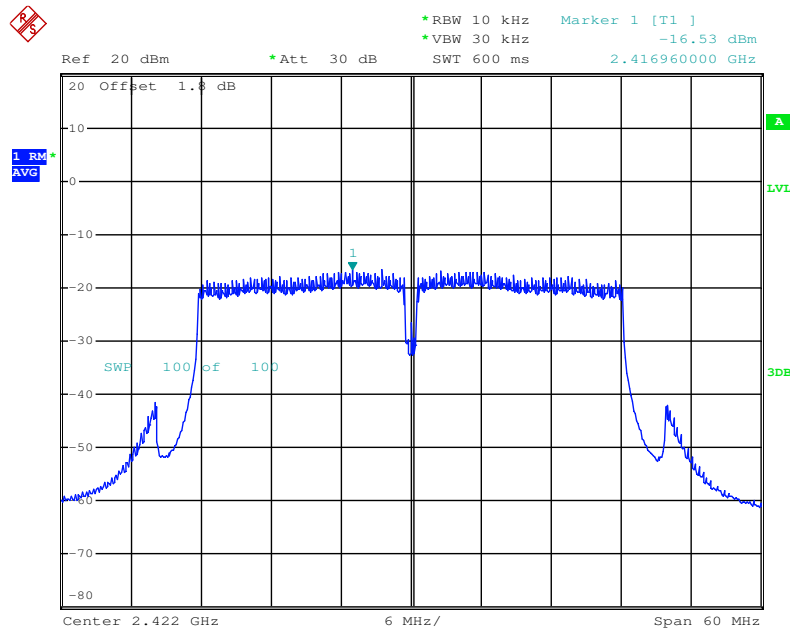
$g_{j,k} = \frac{G_k}{10^{\frac{6}{10}}}$ if the kth antenna is being fed by spatial stream j, or zero if it is not; G k is the gain in dBi of the kth antenna. If Directional gain > 6dBi, the power spectrum density limit to be reduce.

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.

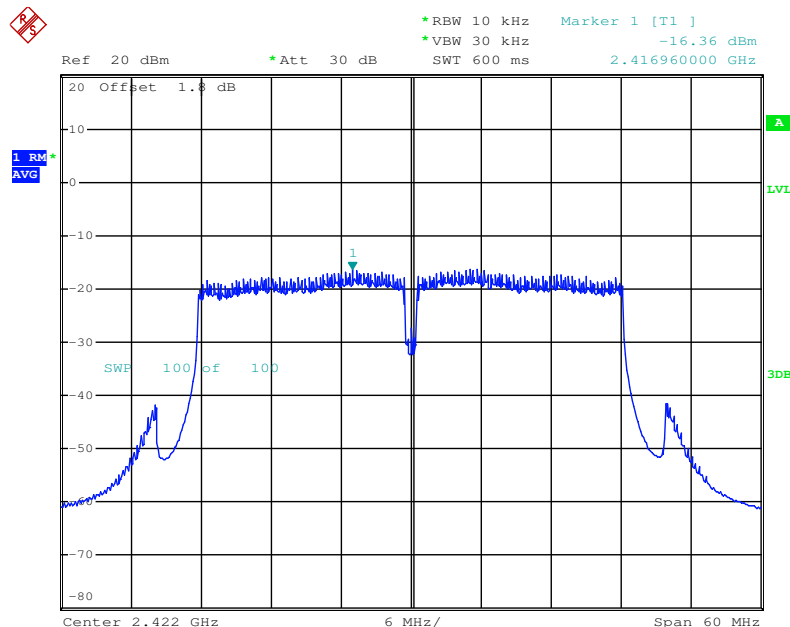


Power Density Plot on Configuration IEEE 802.11n 40MHz / CDD MCS0 / Chain 1 / 2422 MHz



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

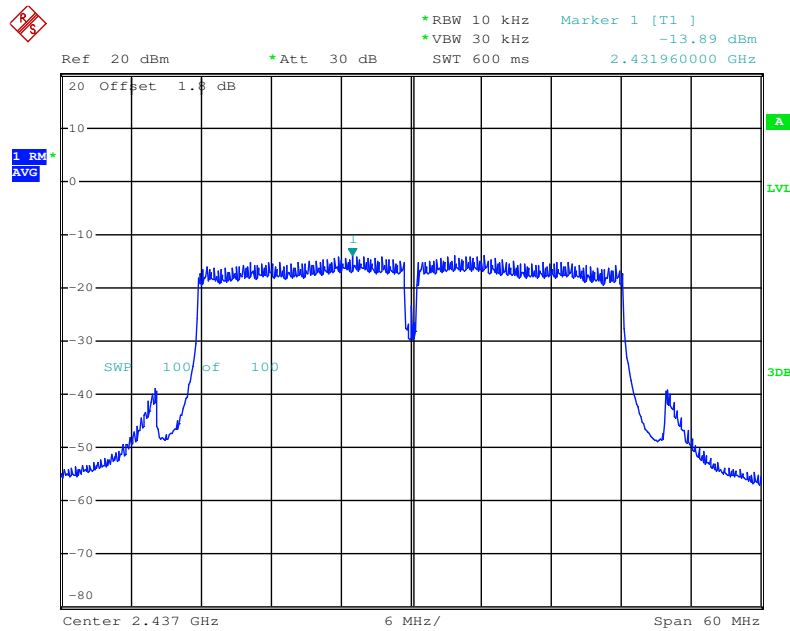
Power Density Plot on Configuration IEEE 802.11n 40MHz / CDD MCS0 / Chain 2 / 2422 MHz



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

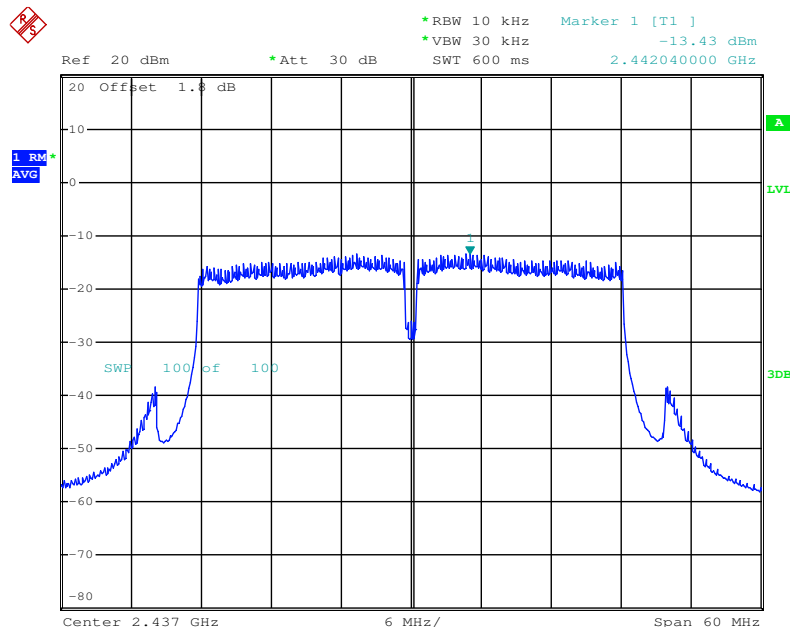


Power Density Plot on Configuration IEEE 802.11n 40MHz / CDD MCS0 / Chain 1 / 2437 MHz



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

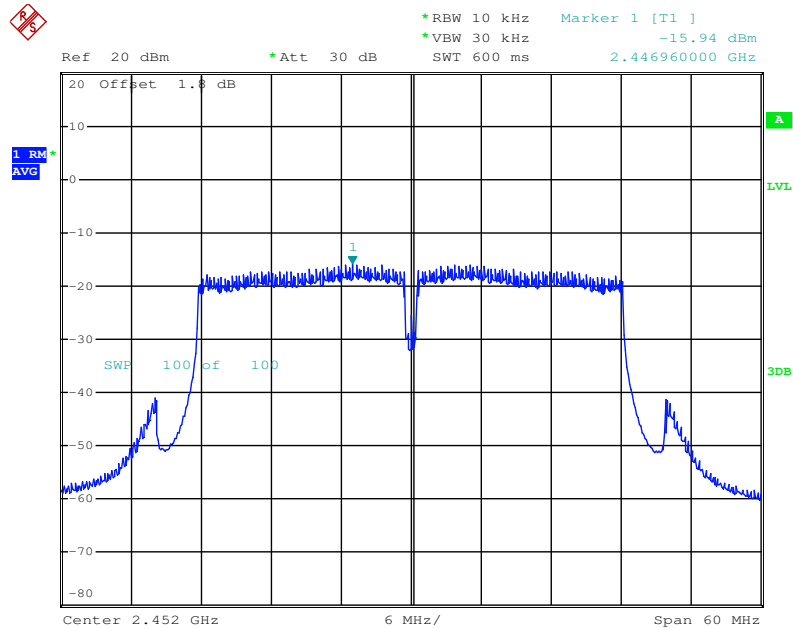
Power Density Plot on Configuration IEEE 802.11n 40MHz / CDD MCS0 / Chain 2 / 2437 MHz



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

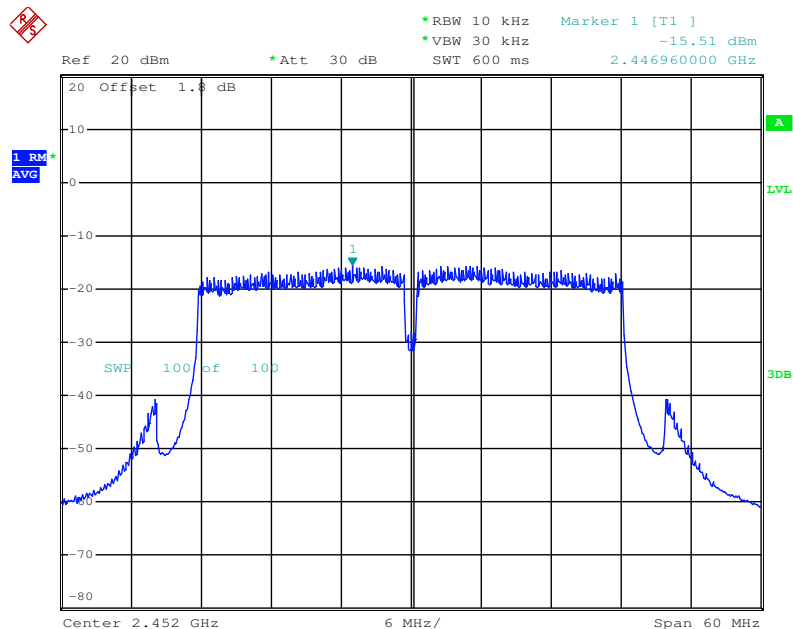


Power Density Plot on Configuration IEEE 802.11n 40MHz / CDD MCS0 / Chain 1 / 2452 MHz



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.

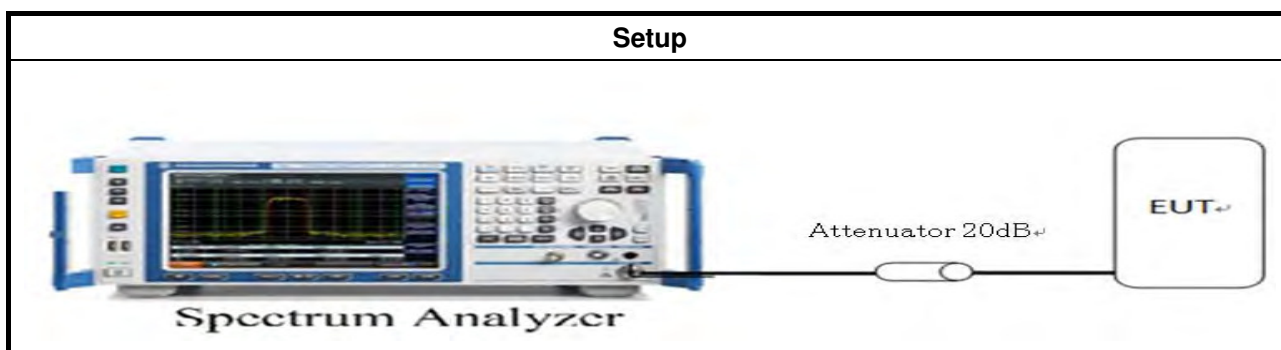
Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	> 6dB Bandwidth
RBW	100KHz
VBW	$\geq 3 \times \text{RBW}$
Detector	Peak
Trace	Max Hold
Sweep Time	Auto couple

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).



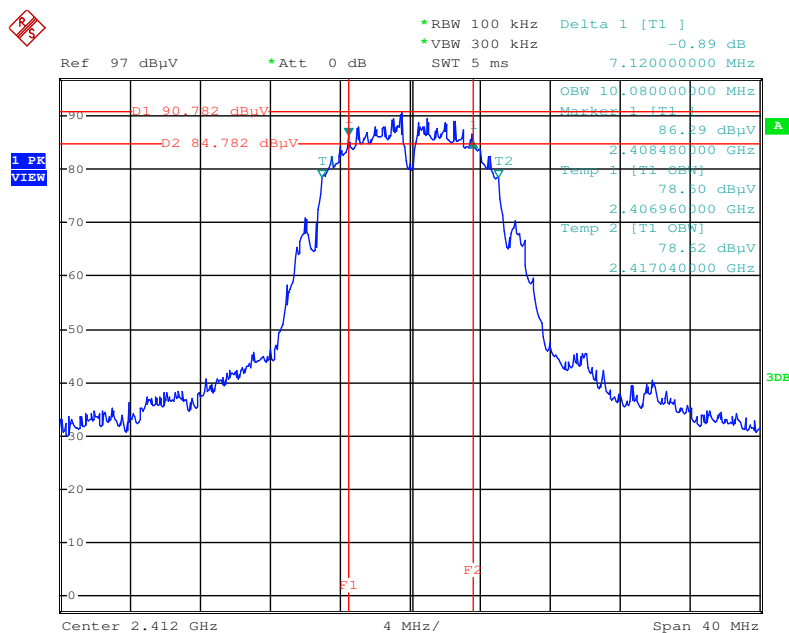
2.4.7 Test Results

Temperature	26°C	Humidity	63%
Test Engineer	Jim Huang		

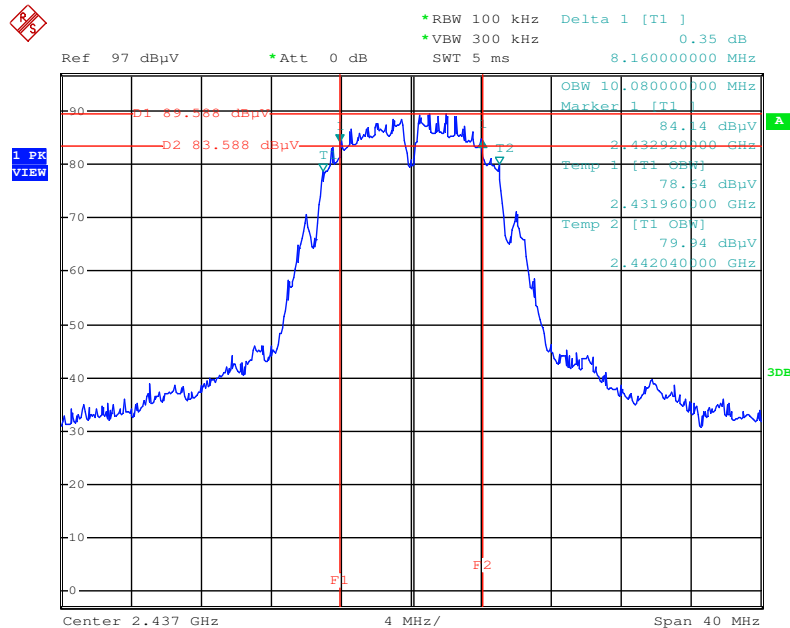
Configuration IEEE 802.11b 1Mbps / Chain 2

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

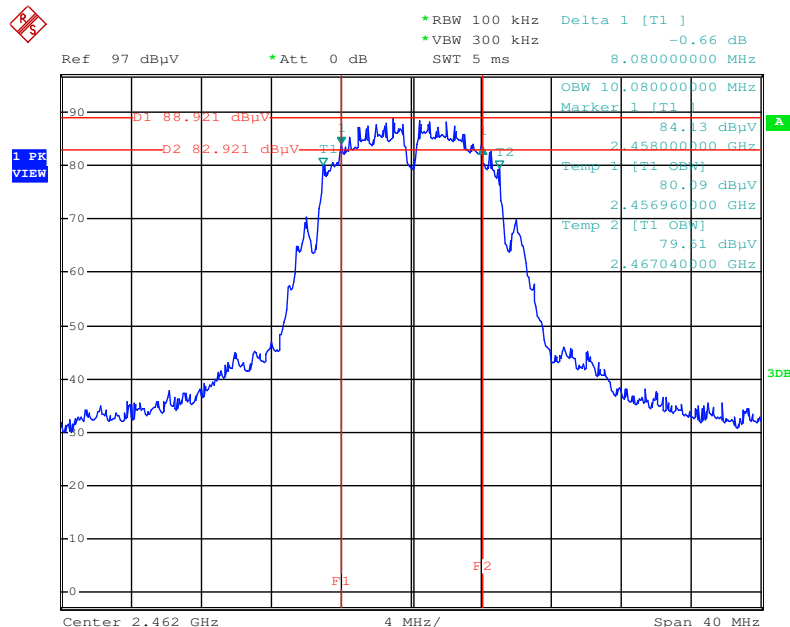
6 dB Bandwidth Plot on Configuration IEEE 802.11b 1Mbps / Chain 2 / 2412MHz



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

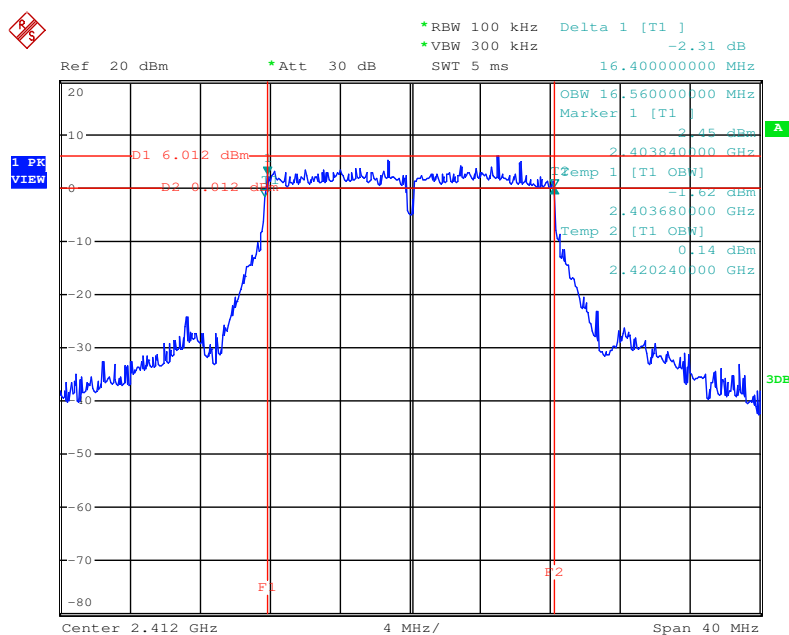
6 dB Bandwidth Plot on Configuration IEEE 802.11b 1Mbps / Chain 2 / 2462MHz

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

Configuration IEEE 802.11g 6Mbps CDD / 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	16.40	16.48	16.56	16.48	500	PASS
6	2437	16.40	16.40	16.64	16.64	500	PASS
11	2462	16.48	16.40	16.64	16.48	500	PASS

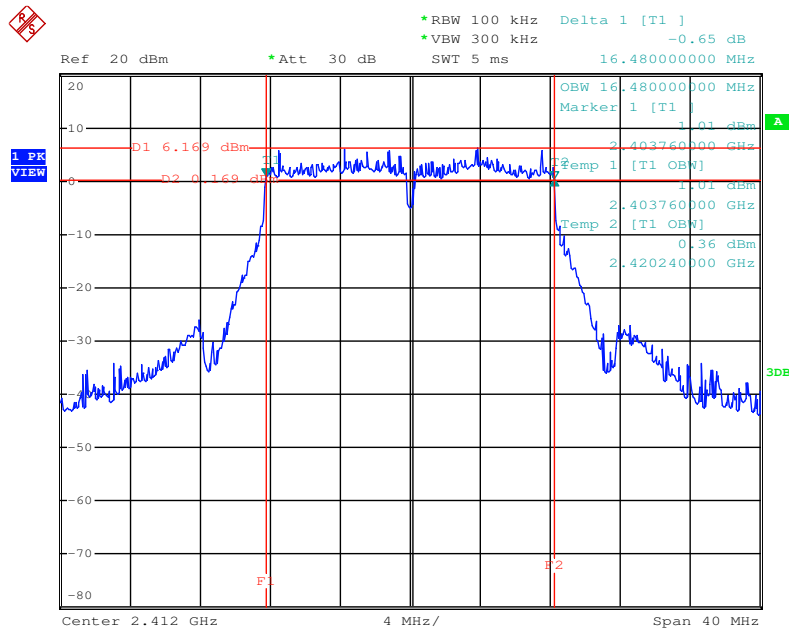
6 dB Bandwidth Plot on Configuration IEEE 802.11g 6Mbps CDD / Chain 1 / 2412 MHz



Date: 11.NOV.2014 19:05:30

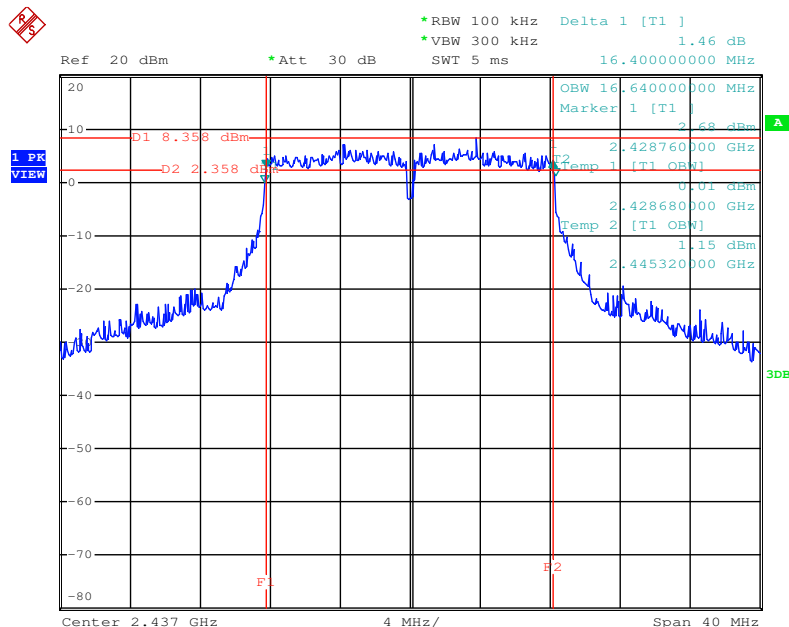


6 dB Bandwidth Plot on Configuration IEEE 802.11g 6Mbps CDD / Chain 2 / 2412 MHz



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

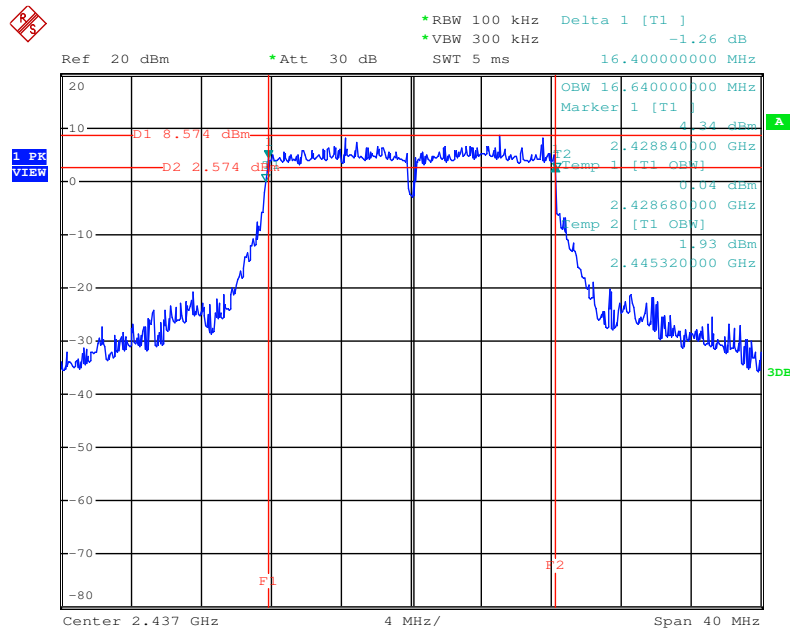
6 dB Bandwidth Plot on Configuration IEEE 802.11g 6Mbps CDD / Chain 1 / 2437 MHz



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

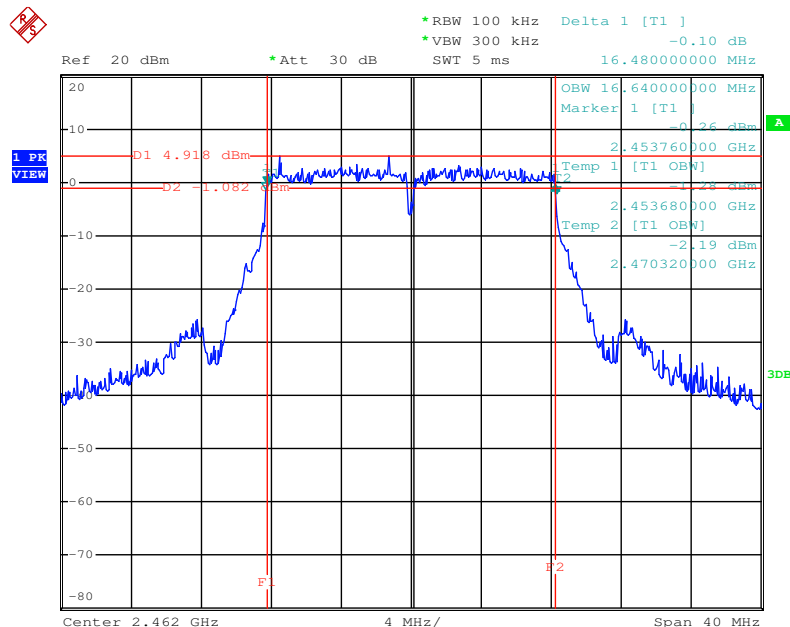


6 dB Bandwidth Plot on Configuration IEEE 802.11g 6Mbps CDD / Chain 2 / 2437 MHz



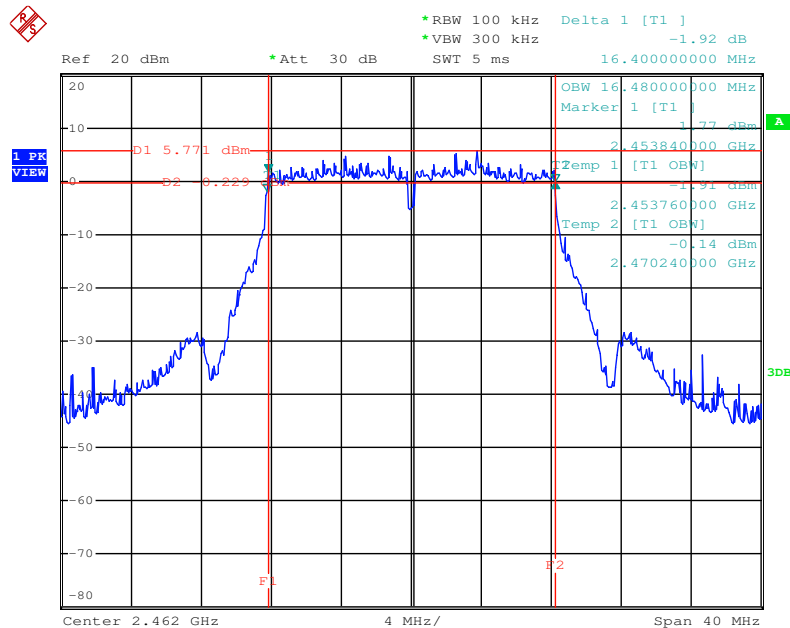
Date: 11.NOV.2014 19:09:05

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



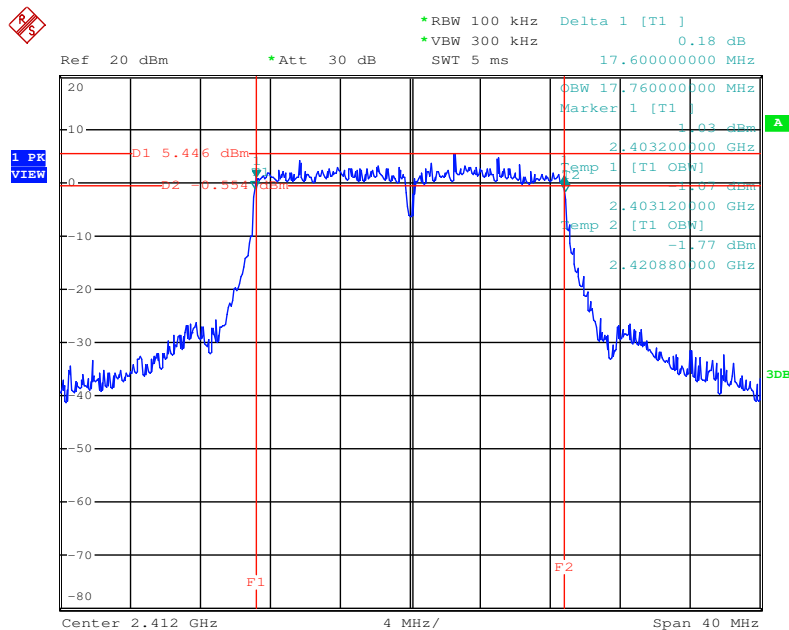
Date: 11.NOV.2014 19:11:50



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

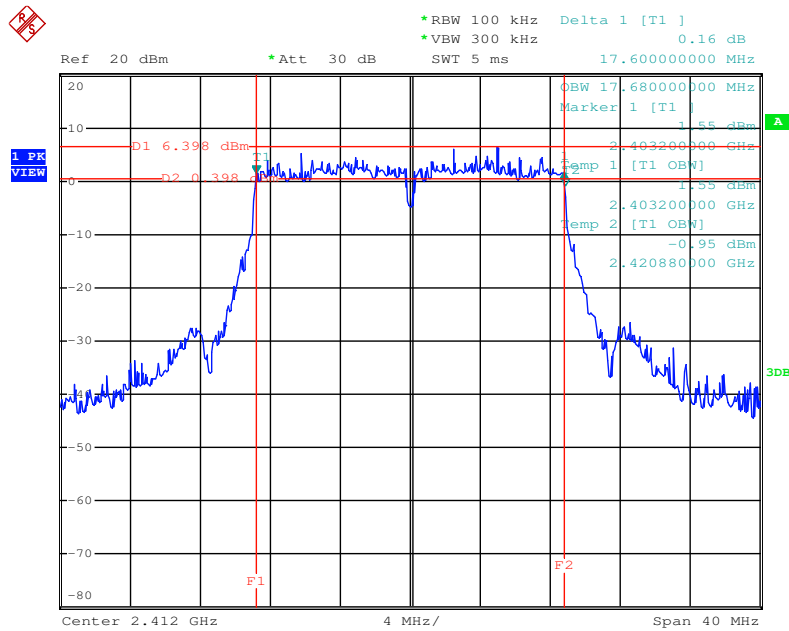
6 dB Bandwidth Plot on Configuration IEEE 802.11n 20MHz / CDD MCS0 / Chain 1 / 2412 MHz



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

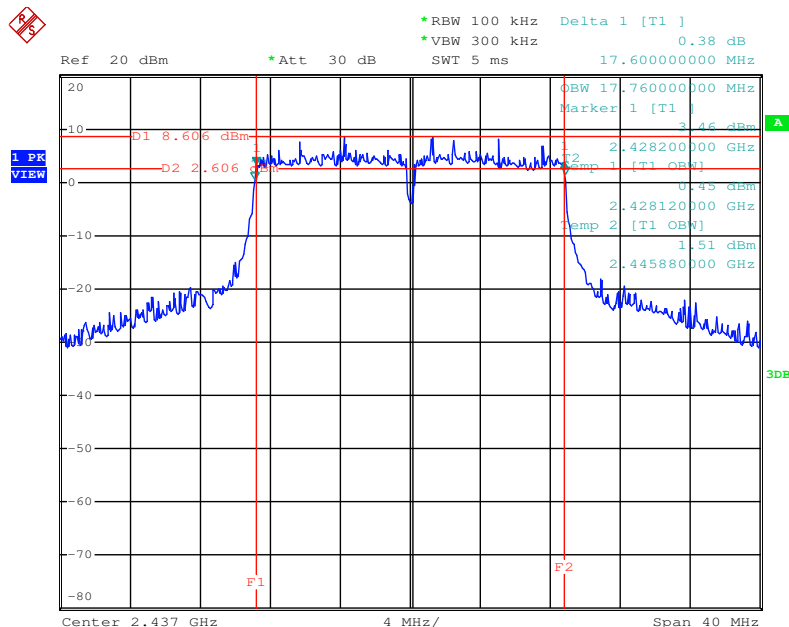


6 dB Bandwidth Plot on Configuration IEEE 802.11n 20MHz / CDD MCS0 / Chain 2 / 2412 MHz



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

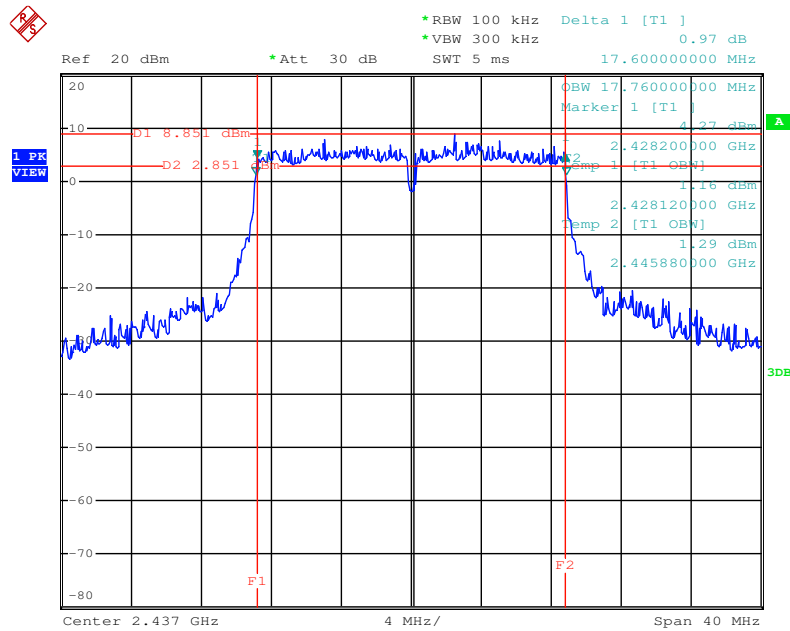
6 dB Bandwidth Plot on Configuration IEEE 802.11n 20MHz / CDD MCS0 / Chain 1 / 2437 MHz



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

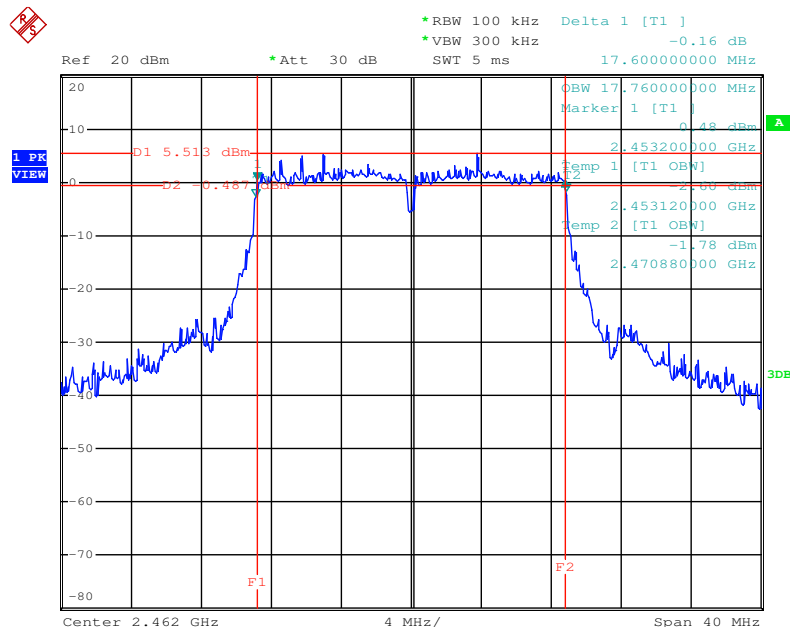


6 dB Bandwidth Plot on Configuration IEEE 802.11n 20MHz / CDD MCS0 / Chain 2 / 2437 MHz



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

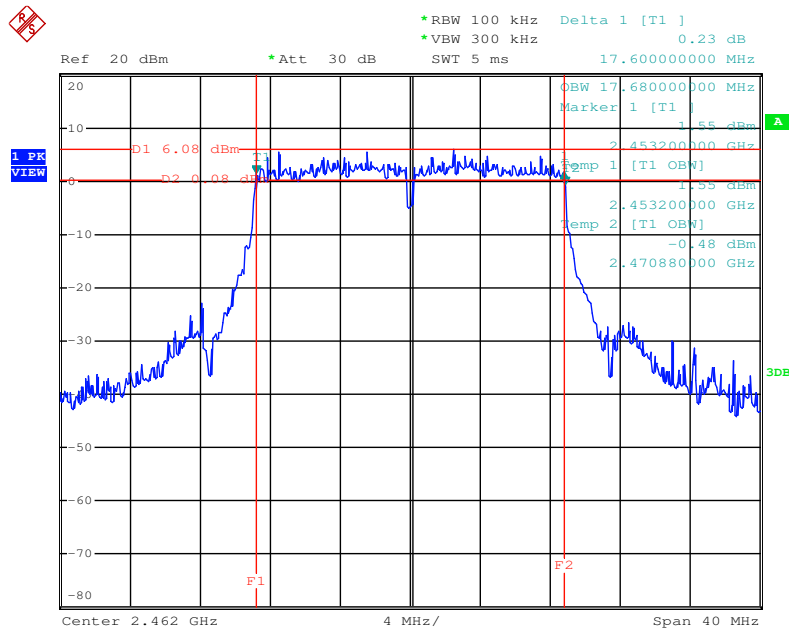
6 dB Bandwidth Plot on Configuration IEEE 802.11n 20MHz / CDD MCS0 / Chain 1 / 2462 MHz



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



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



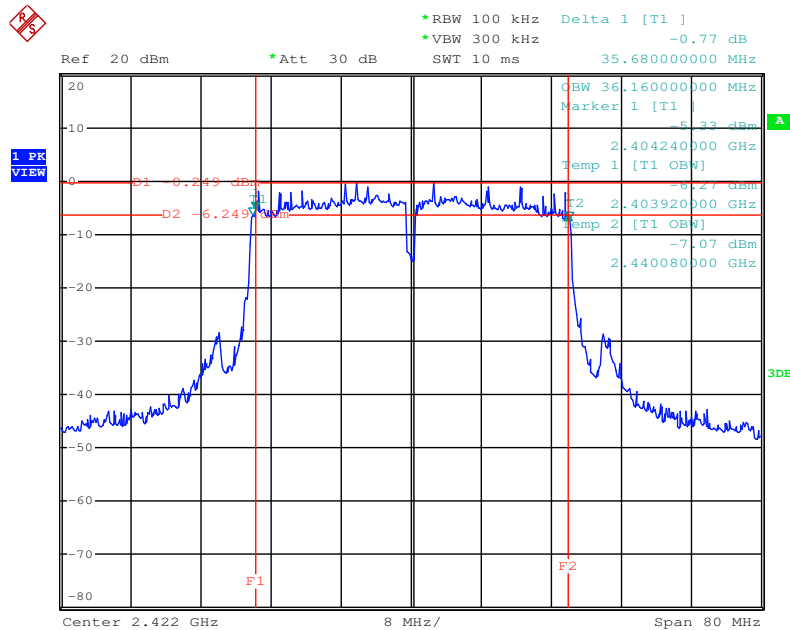
Date: 11.NOV.2014 19:13:14



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

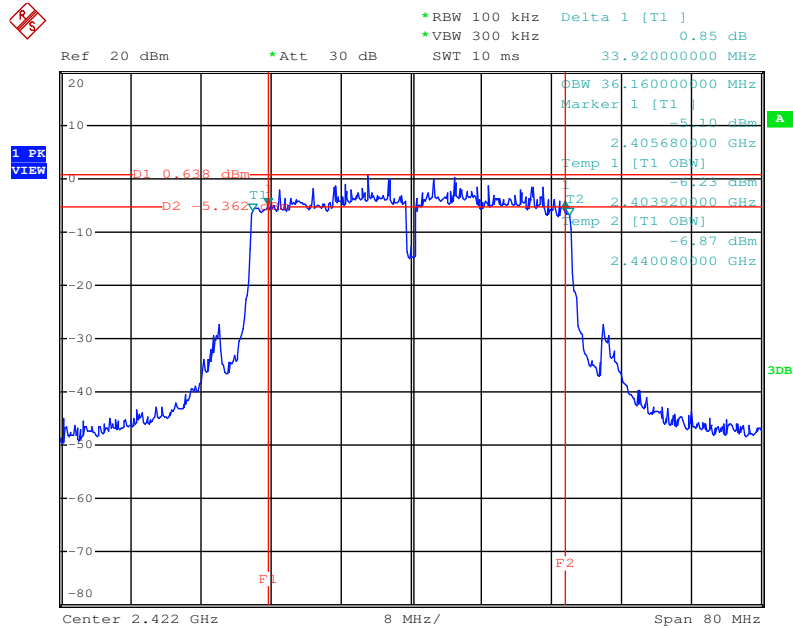
6 dB Bandwidth Plot on Configuration IEEE 802.11n 40MHz / CDD MCS0 / Chain 1 / 2422 MHz



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

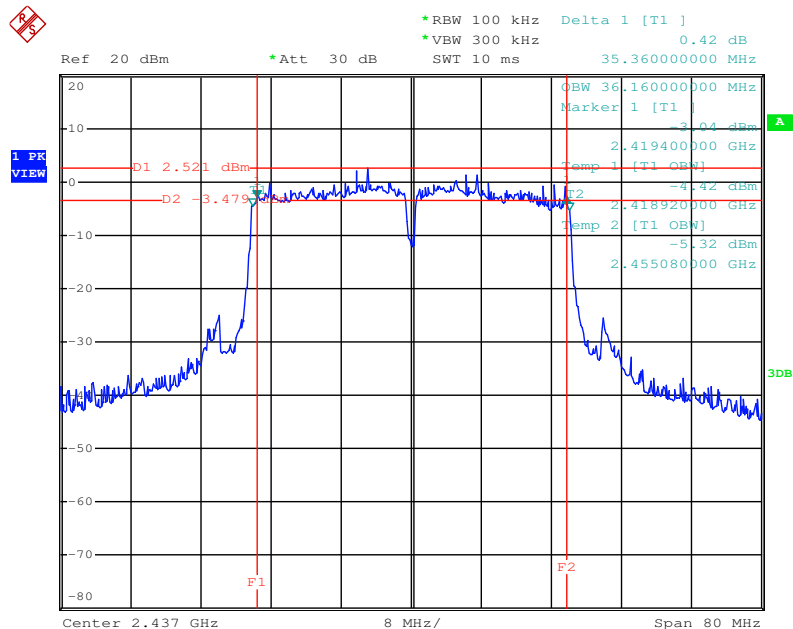


6 dB Bandwidth Plot on Configuration IEEE 802.11n 40MHz / CDD MCS0 / Chain 2 / 2422 MHz



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

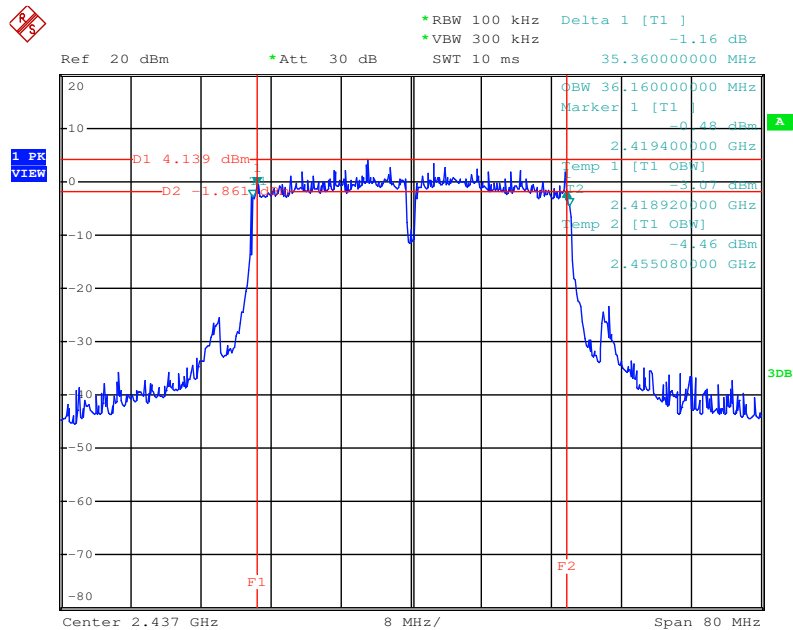
6 dB Bandwidth Plot on Configuration IEEE 802.11n 40MHz / CDD MCS0 / Chain 1 / 2437 MHz



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

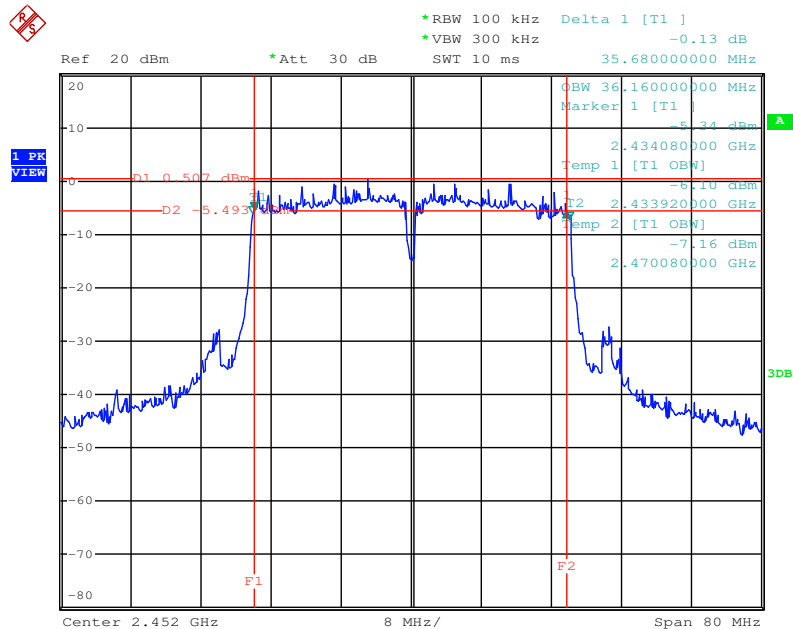


6 dB Bandwidth Plot on Configuration IEEE 802.11n 40MHz / CDD MCS0 / Chain 2 / 2437 MHz



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

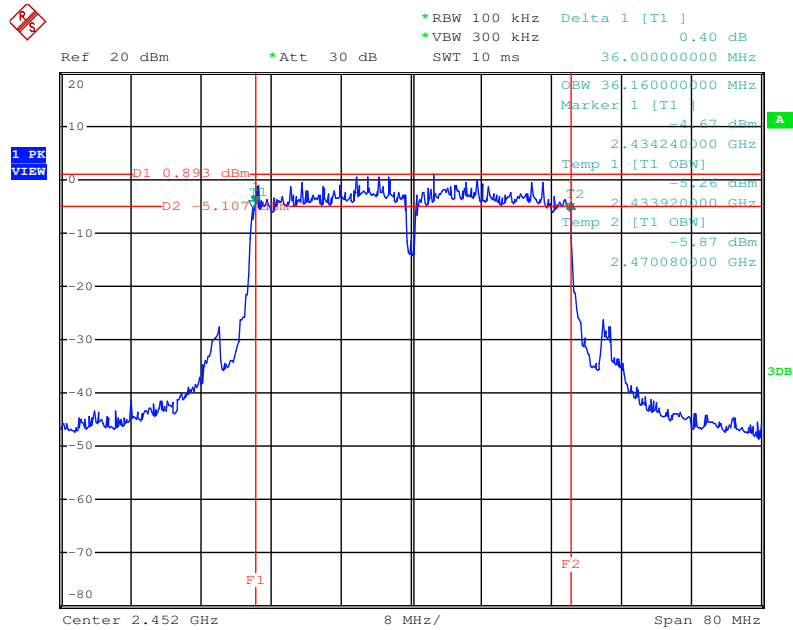
6 dB Bandwidth Plot on Configuration IEEE 802.11n 40MHz / CDD MCS0 / Chain 1 / 2452 MHz



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 (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

2.5.2 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.

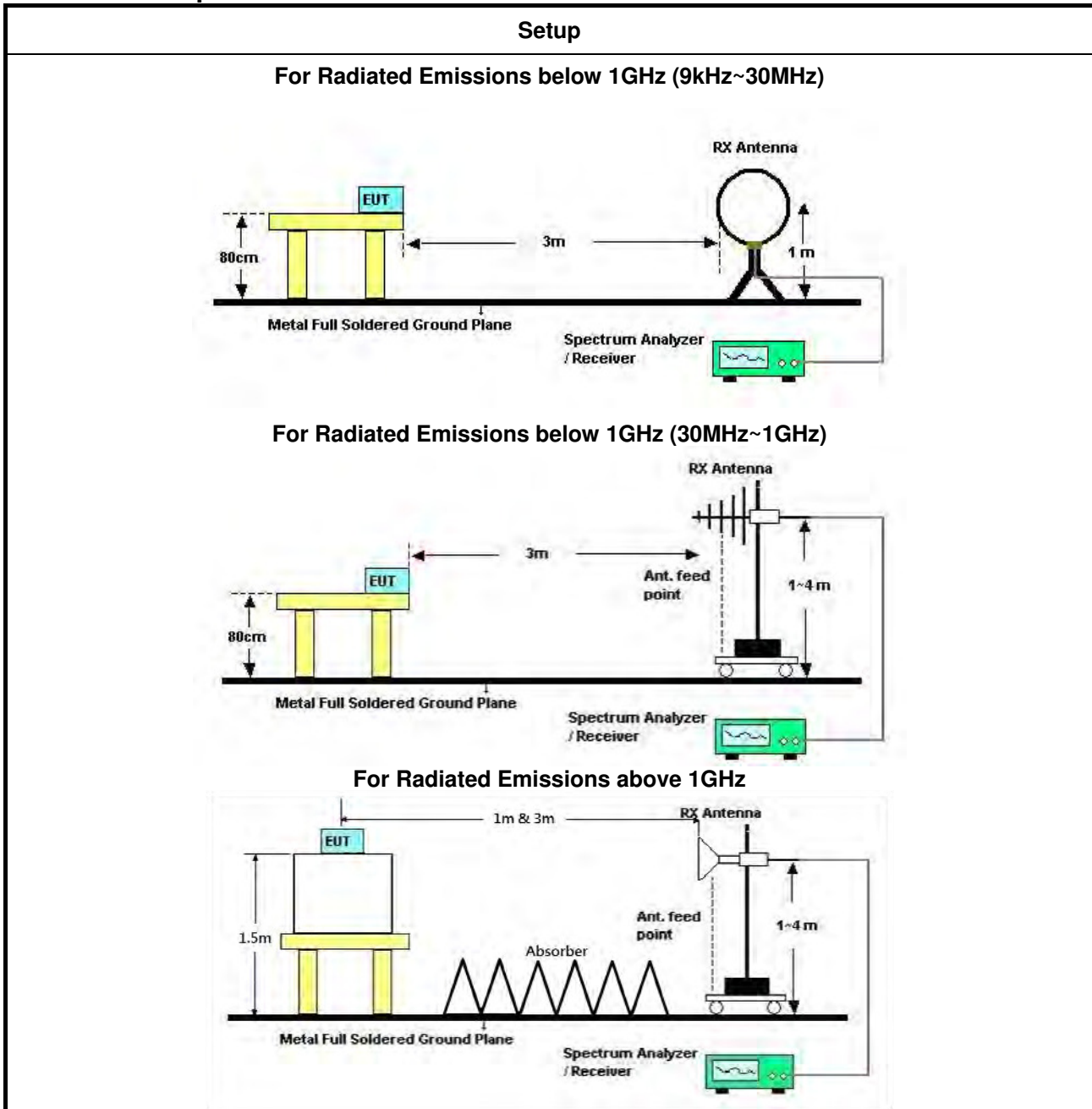
Spectrum Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RBW 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RBW 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RBW 120kHz for QP

- 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)**

Temperature	23°C	Humidity	56%
Test Engineer	Kane Liu	Configurations	Normal Link
Test Date	Sep. 19, 2016		

Freq. (MHz)	Level (dBuV)	Over Limit (dB)	Limit Line (dBuV)	Remark
-	-	-	-	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

Frequency (MHz)

	Freq	Level	Limit	Over	Read	Preamp	Antenna	Cable		A/Pos	T/Pos	
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	Remark	cm	deg	Pol/Phase
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.

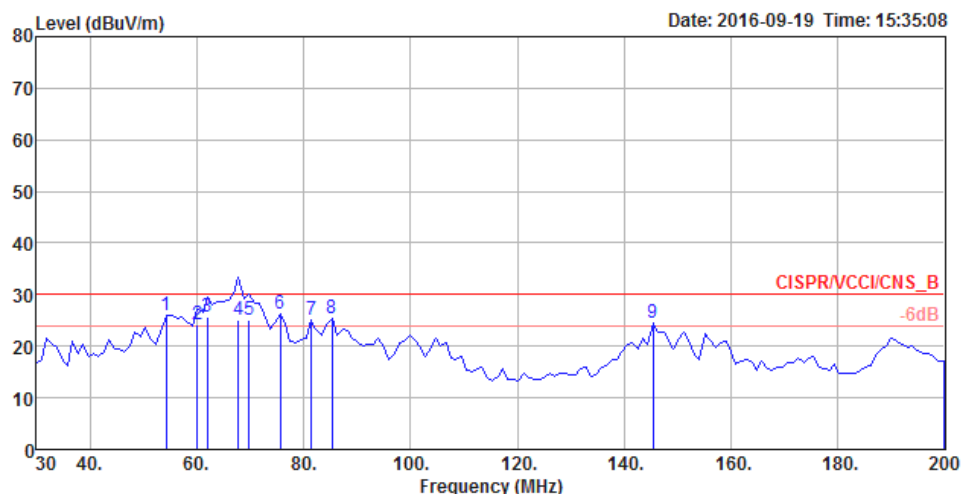


Radiated Emissions (200MHz~1GHz)																																																																							
Operating Mode		Normal Link						Polarization		H																																																													
Temperature		23℃		Humidity		56%		Test Engineer		Kane Liu																																																													
Level (dBuV/m) Date: 2016-09-19 Time: 15:28:43 CISPR/VCCI/CNS_B -6dB Frequency (MHz) <table><tr><th></th><th>Freq</th><th>Level</th><th>Limit</th><th>Over</th><th>Read</th><th>Preamp</th><th>Antenna</th><th>Cable</th><th></th><th>A/Pos</th><th>T/Pos</th></tr><tr><th></th><th>MHz</th><th>dBuV/m</th><th>dBuV/m</th><th>dB</th><th>Level</th><th>Factor</th><th>Factor</th><th>Loss</th><th>Remark</th><th>cm</th><th>deg</th></tr><tr><td>1</td><td>455.83</td><td>23.76</td><td>37.00</td><td>-13.24</td><td>31.27</td><td>28.19</td><td>16.90</td><td>3.78</td><td>Peak</td><td>300</td><td>31</td></tr><tr><td>2</td><td>636.25</td><td>25.52</td><td>37.00</td><td>-11.48</td><td>30.14</td><td>28.39</td><td>19.30</td><td>4.47</td><td>Peak</td><td>200</td><td>173</td></tr><tr><td>3</td><td>746.83</td><td>26.66</td><td>37.00</td><td>-10.34</td><td>29.22</td><td>28.10</td><td>20.56</td><td>4.98</td><td>Peak</td><td>100</td><td>61</td></tr></table>													Freq	Level	Limit	Over	Read	Preamp	Antenna	Cable		A/Pos	T/Pos		MHz	dBuV/m	dBuV/m	dB	Level	Factor	Factor	Loss	Remark	cm	deg	1	455.83	23.76	37.00	-13.24	31.27	28.19	16.90	3.78	Peak	300	31	2	636.25	25.52	37.00	-11.48	30.14	28.39	19.30	4.47	Peak	200	173	3	746.83	26.66	37.00	-10.34	29.22	28.10	20.56	4.98	Peak	100	61
	Freq	Level	Limit	Over	Read	Preamp	Antenna	Cable		A/Pos	T/Pos																																																												
	MHz	dBuV/m	dBuV/m	dB	Level	Factor	Factor	Loss	Remark	cm	deg																																																												
1	455.83	23.76	37.00	-13.24	31.27	28.19	16.90	3.78	Peak	300	31																																																												
2	636.25	25.52	37.00	-11.48	30.14	28.39	19.30	4.47	Peak	200	173																																																												
3	746.83	26.66	37.00	-10.34	29.22	28.10	20.56	4.98	Peak	100	61																																																												
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.

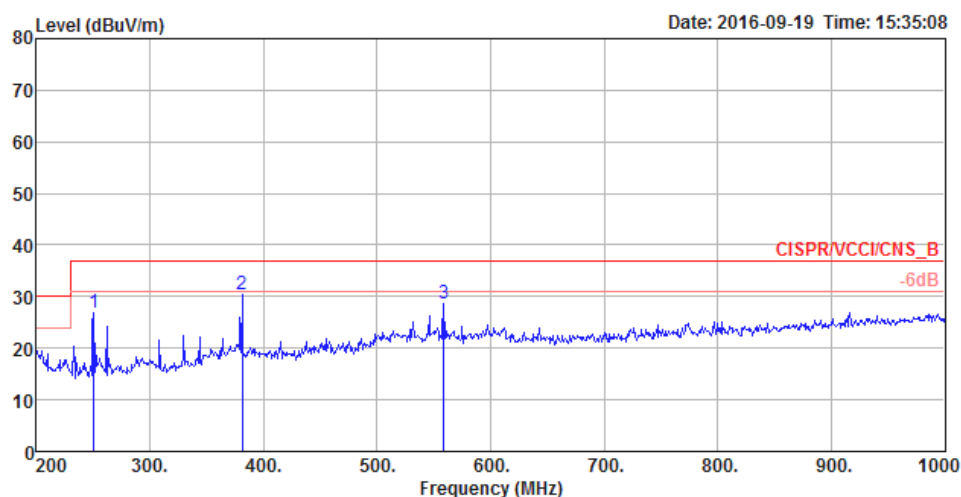


FCC RADIO TEST REPORT

Report No. : FR402168-02AA

Radiated Emissions (200MHz~1GHz)

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



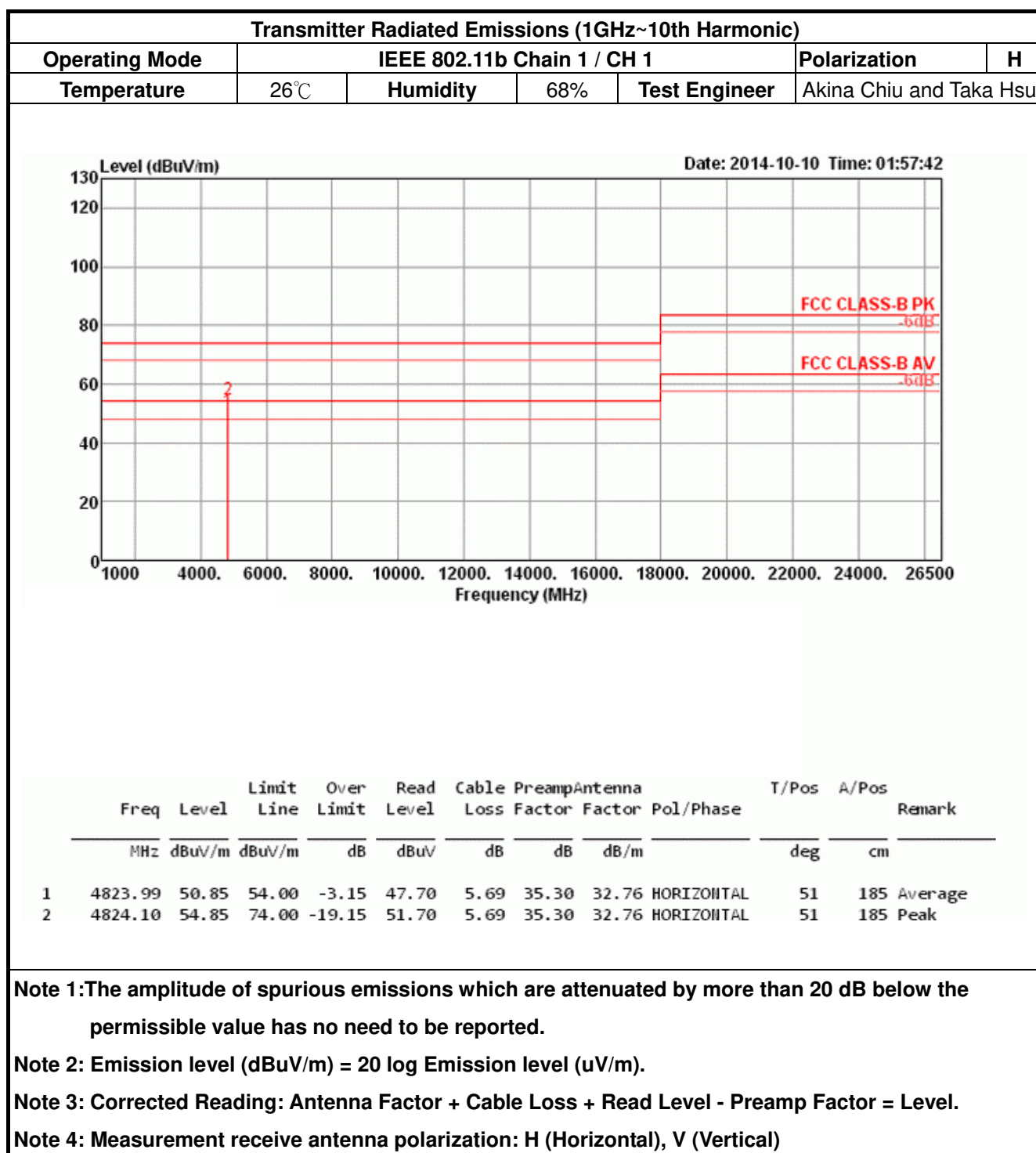
	Freq	Level	Limit	Over	Read	Preamp	Antenna	Cable	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	250.19	26.88	37.00	-10.12	38.82	27.22	12.48	2.80	Peak	200	56	VERTICAL
2	381.14	30.31	37.00	-6.69	38.63	27.72	15.93	3.47	Peak	200	120	VERTICAL
3	558.65	28.72	37.00	-8.28	34.56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

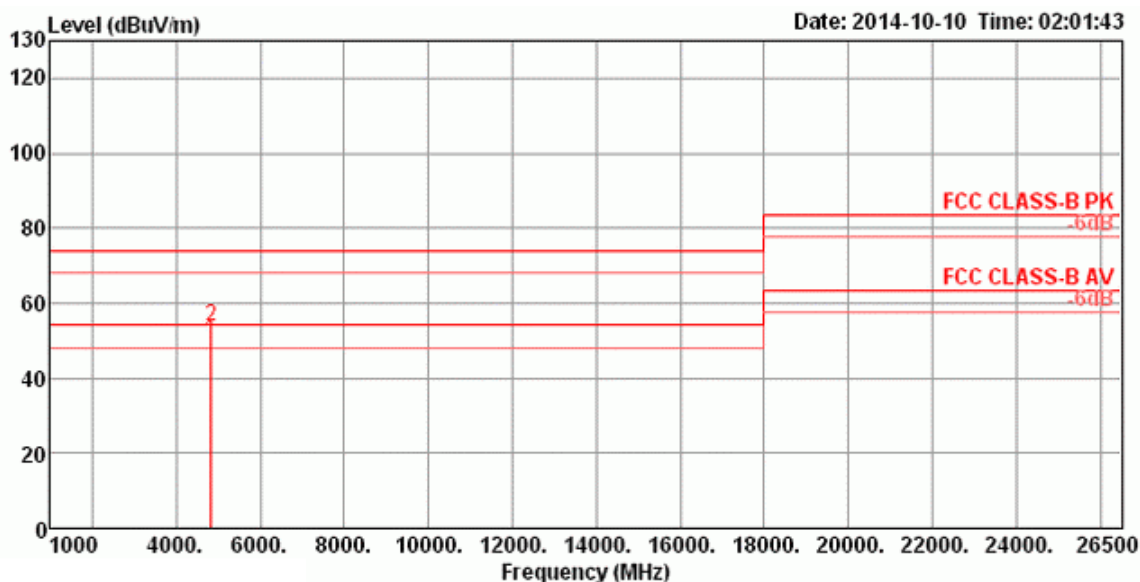
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

2.5.8 Results for Radiated Emissions (1GHz~10th Harmonic)



Transmitter Radiated Emissions (1GHz~10th Harmonic)

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



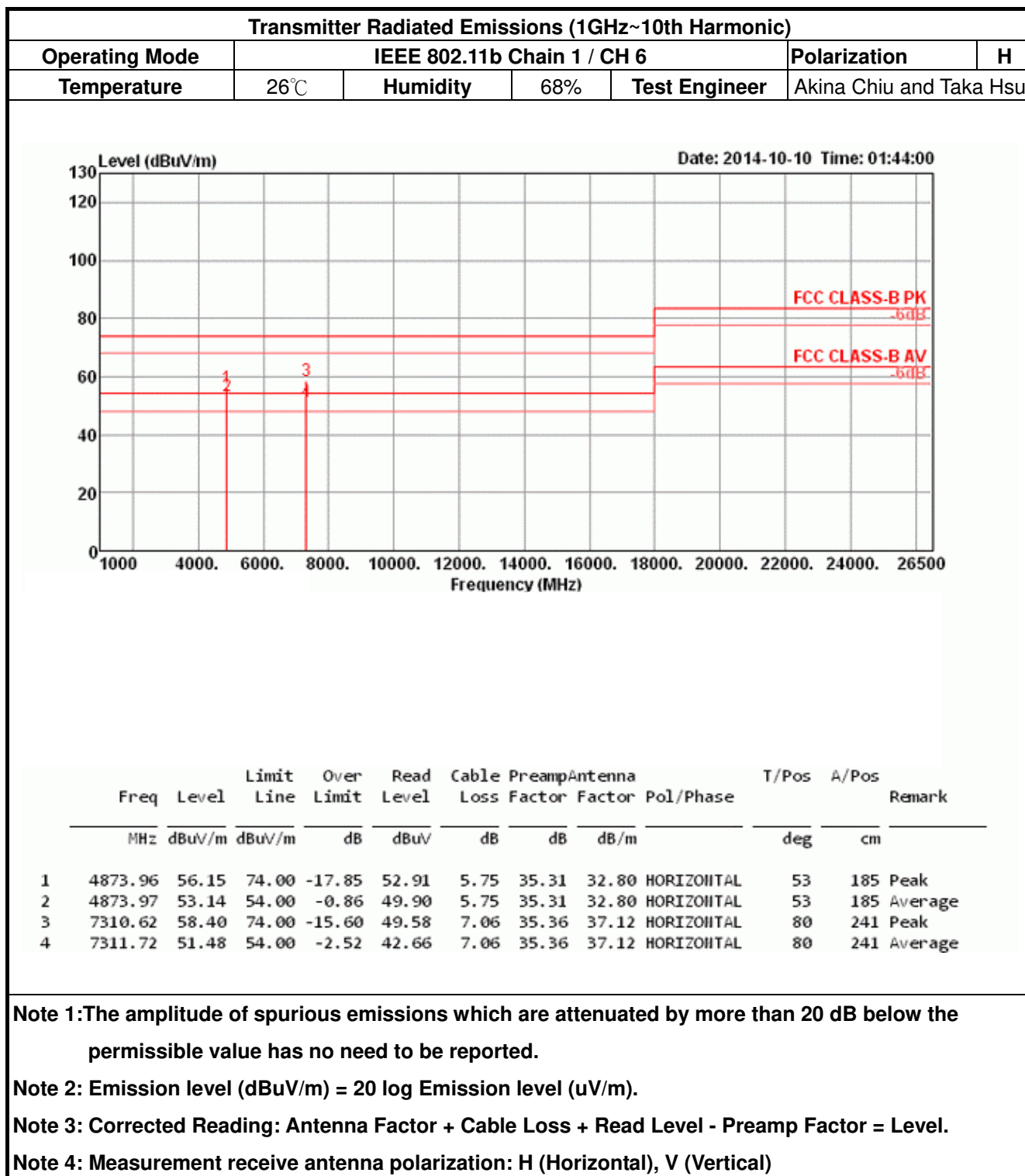
	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna		T/Pos	A/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m	Pol/Phase	deg	cm	
1	4823.99	49.87	54.00	-4.13	46.72	5.69	35.30	32.76	VERTICAL	87	189	Average
2	4823.99	53.63	74.00	-20.37	50.48	5.69	35.30	32.76	VERTICAL	87	189	Peak

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).

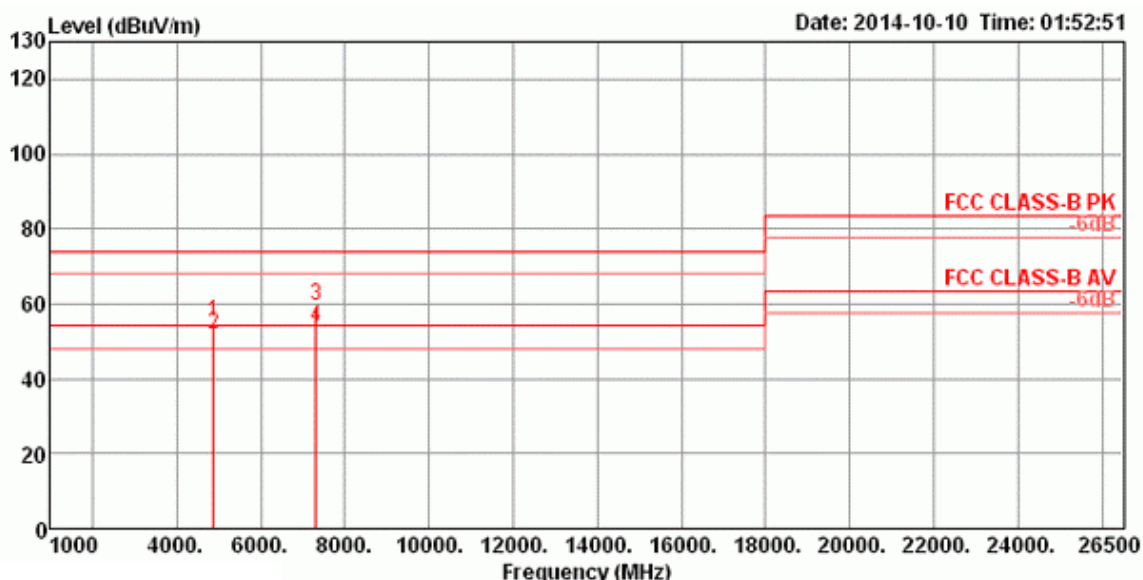
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

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



Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	IEEE 802.11b 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	dB	dBuV	dB	dB	dB/m	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.

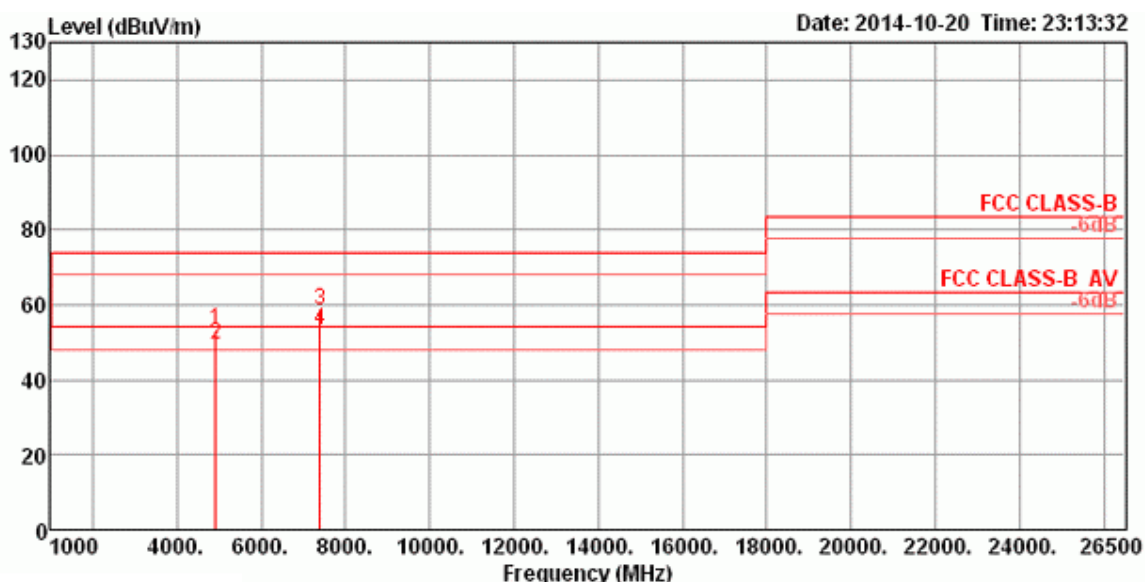
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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)

Operating Mode	IEEE 802.11b Chain 1 / CH 11				Polarization	H
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	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).

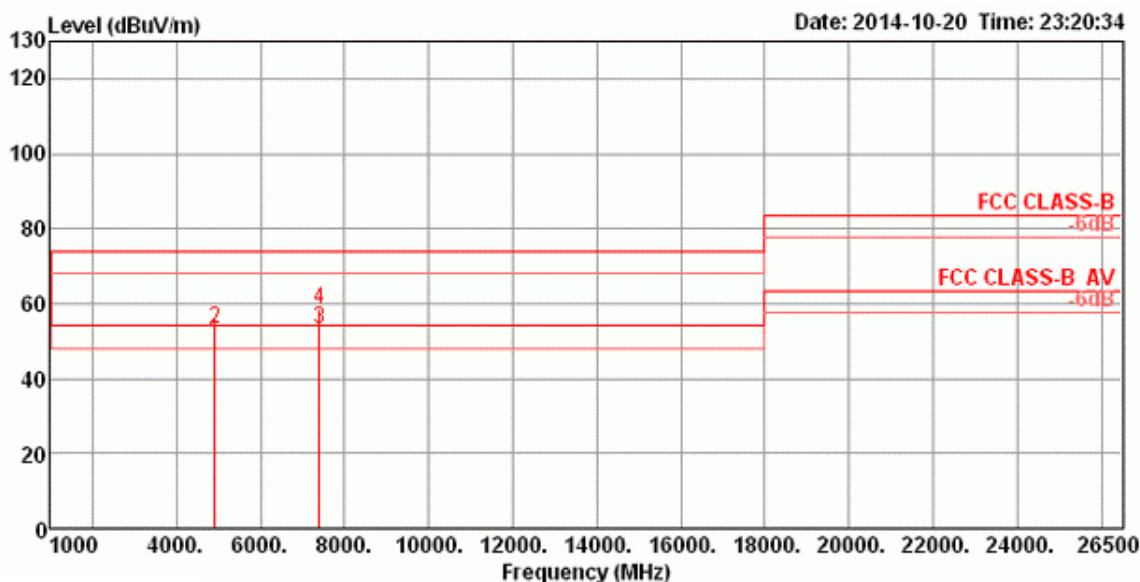
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

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



Transmitter Radiated Emissions (1GHz~10th Harmonic)

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



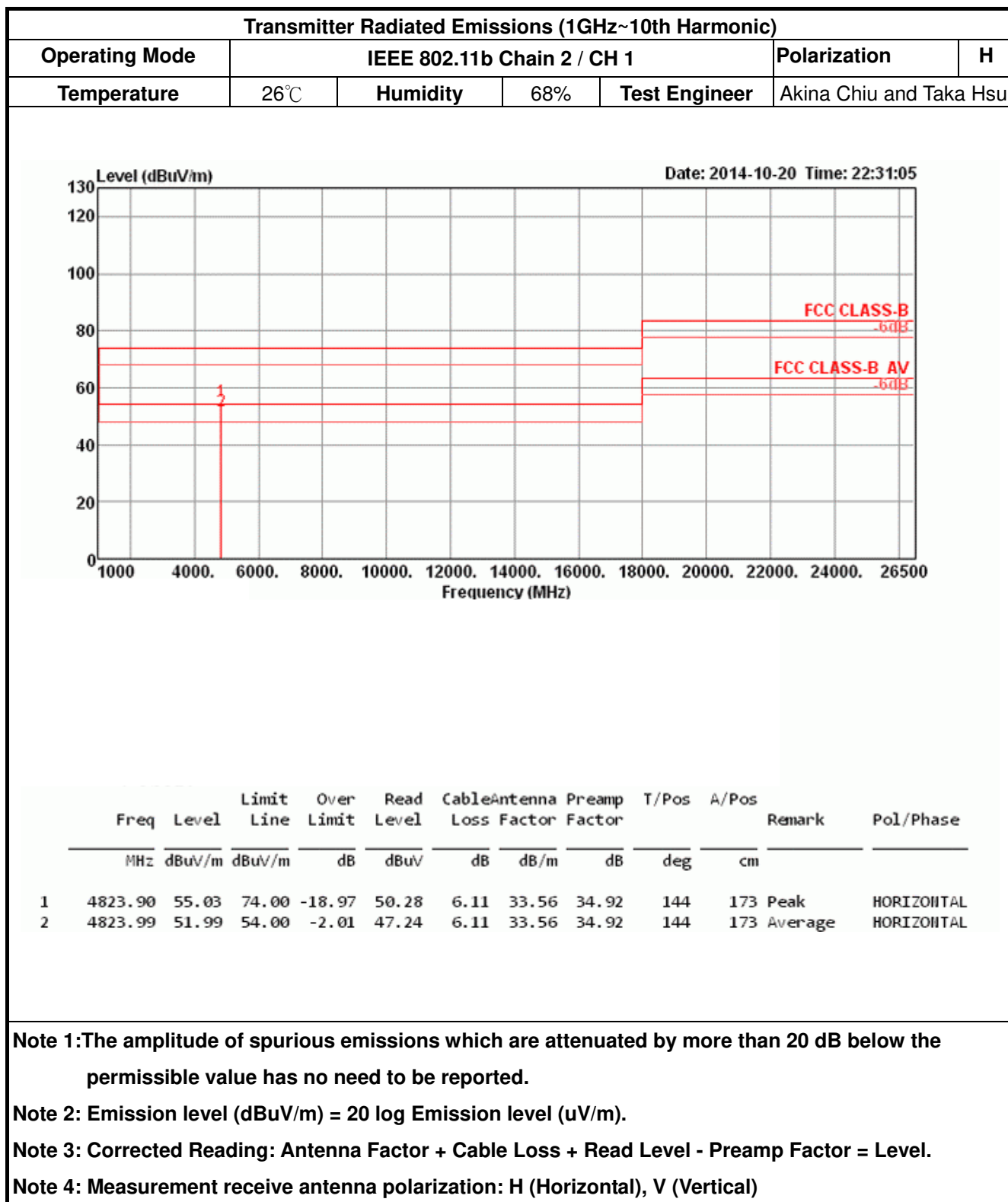
	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4923.97	49.92	54.00	-4.08	45.02	6.05	33.76	34.91	98	183	Average	VERTICAL
2	4924.01	53.29	74.00	-20.71	48.39	6.05	33.76	34.91	98	183	Peak	VERTICAL
3	7385.24	53.44	54.00	-0.56	43.46	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.

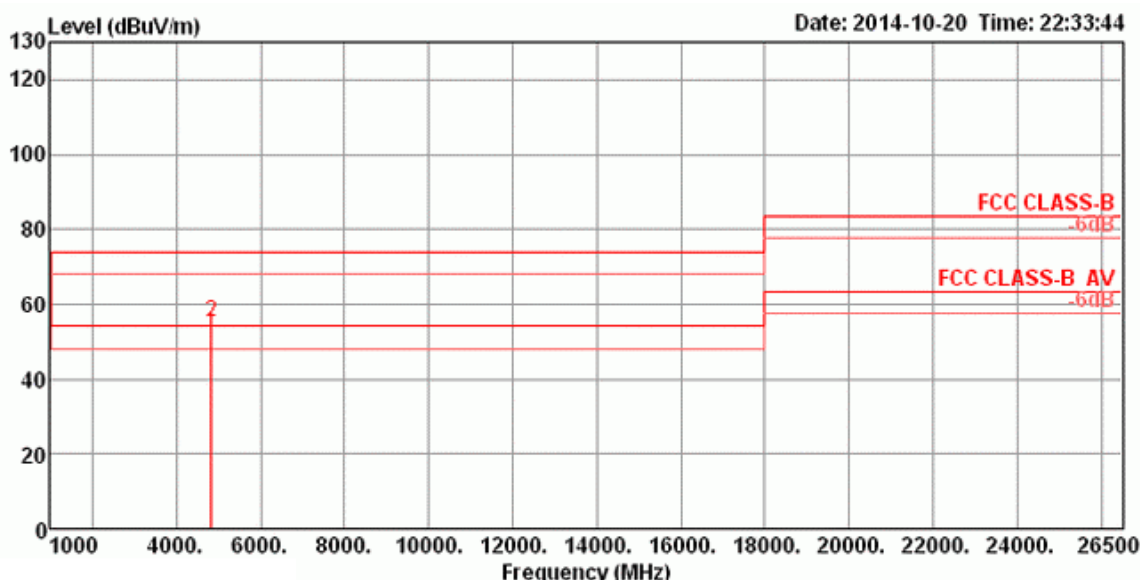
Note 4: Measurement receive antenna polarization: H (Horizontal), V (Vertical)





Transmitter Radiated Emissions (1GHz~10th Harmonic)

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



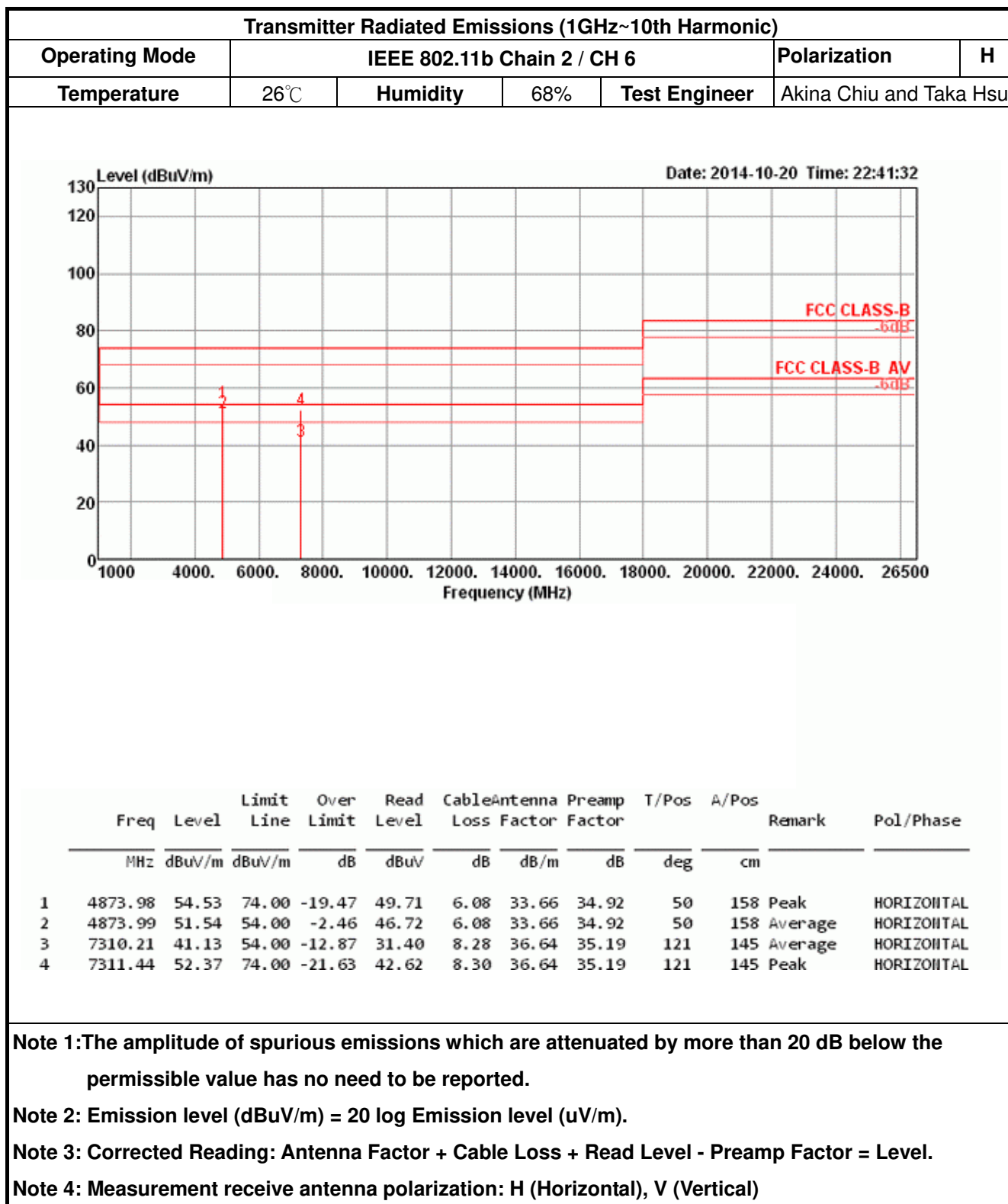
	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4823.98	52.45	54.00	-1.55	47.70	6.11	33.56	34.92	109	271	Average	VERTICAL
2	4824.00	55.12	74.00	-18.88	50.37	6.11	33.56	34.92	109	271	Peak	VERTICAL

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.

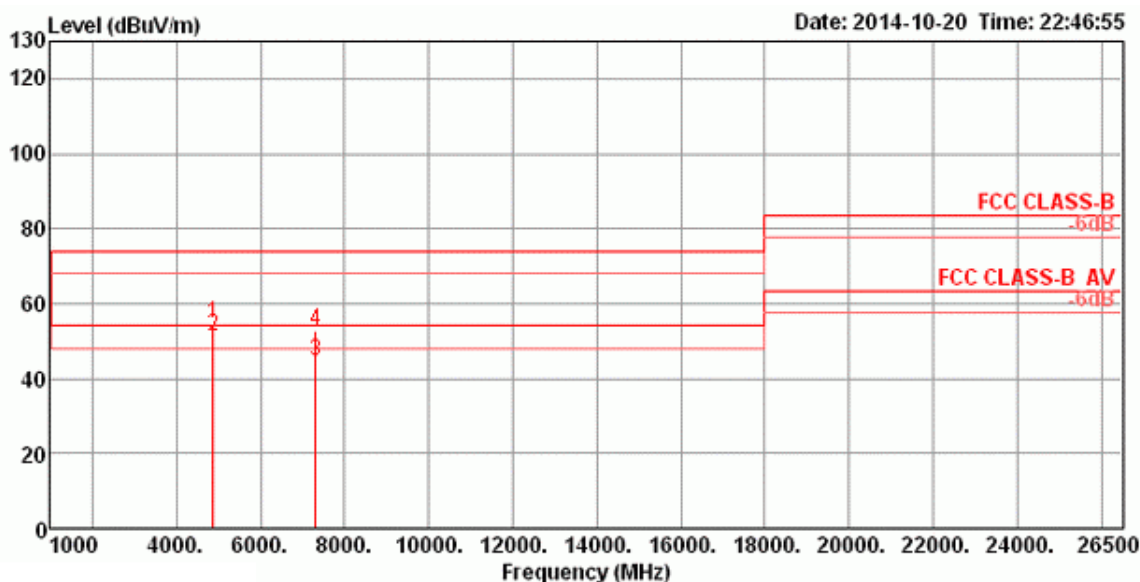
Note 4: Measurement receive antenna polarization: H (Horizontal), V (Vertical)





Transmitter Radiated Emissions (1GHz~10th Harmonic)

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



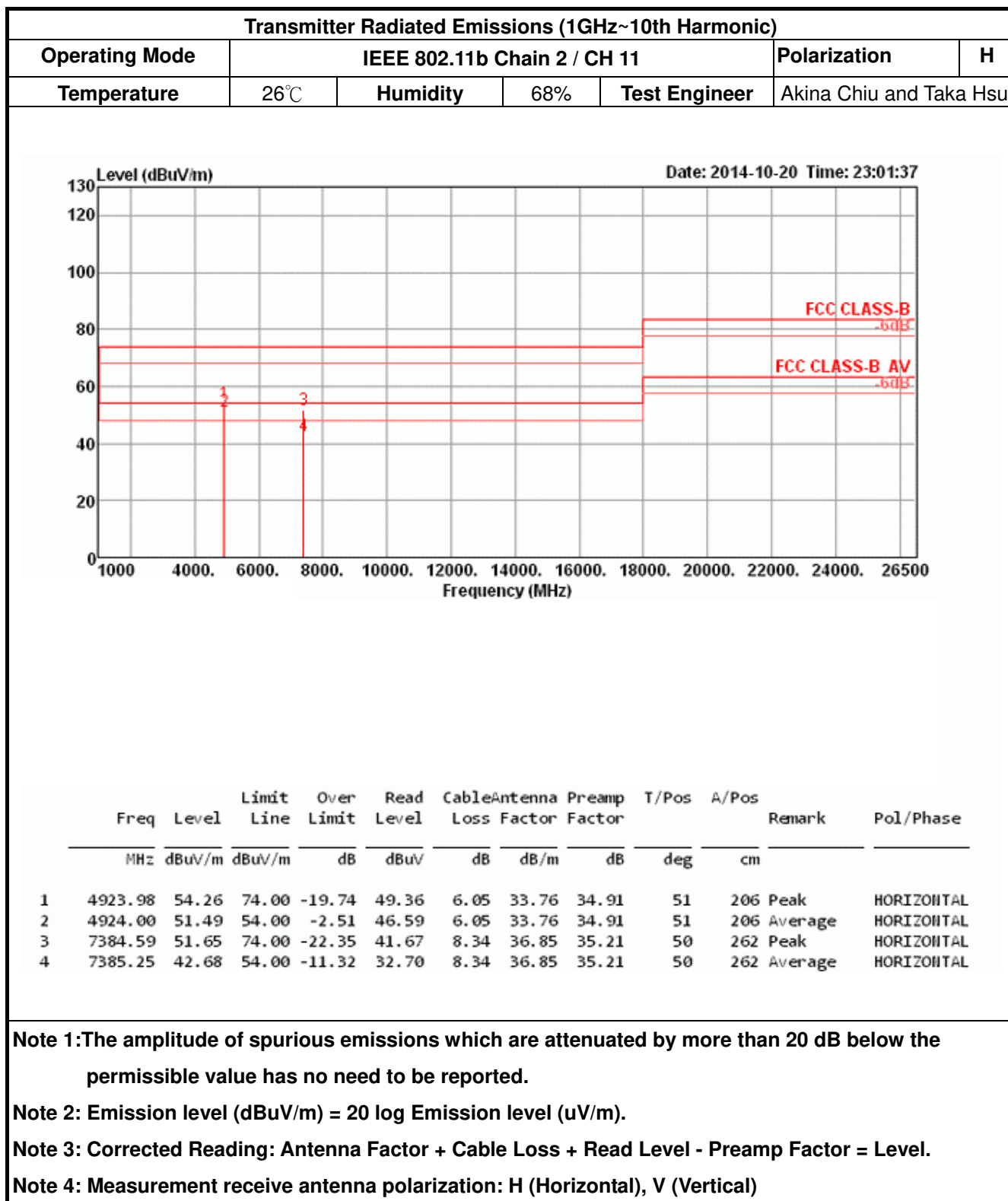
	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	Limit	Level	Loss	Factor	Factor	deg	cm		
1	4873.98	54.46	74.00	-19.54	49.64	6.08	33.66	34.92	104	286	Peak	VERTICAL
2	4873.99	51.35	54.00	-2.65	46.53	6.08	33.66	34.92	104	286	Average	VERTICAL
3	7310.24	44.51	54.00	-9.49	34.78	8.28	36.64	35.19	121	137	Average	VERTICAL
4	7310.57	52.93	74.00	-21.07	43.20	8.28	36.64	35.19	121	137	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).

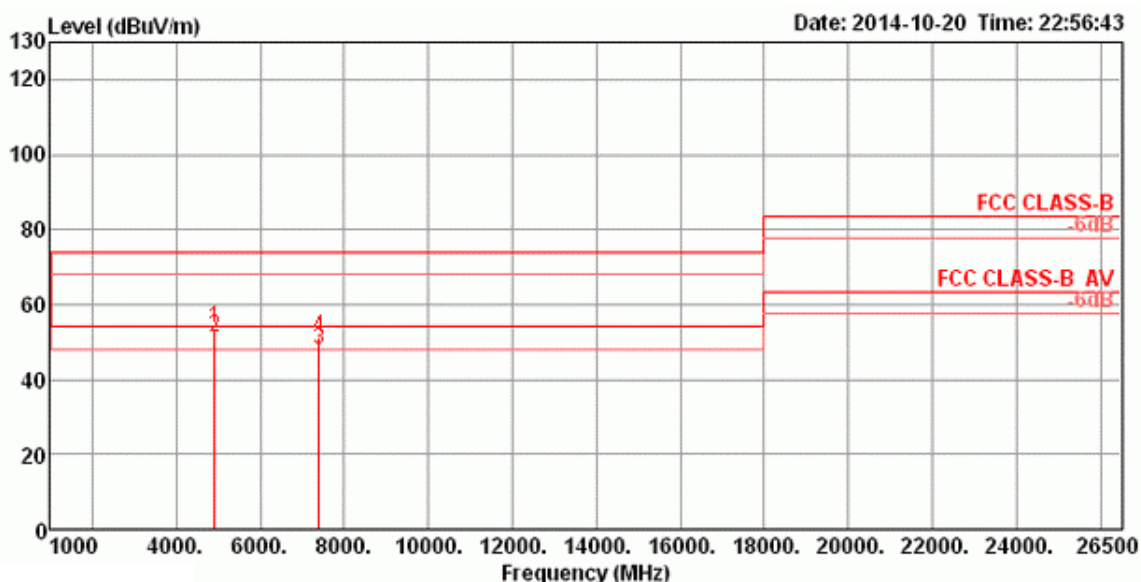
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

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



Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	IEEE 802.11b Chain 2 / CH 11				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	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.

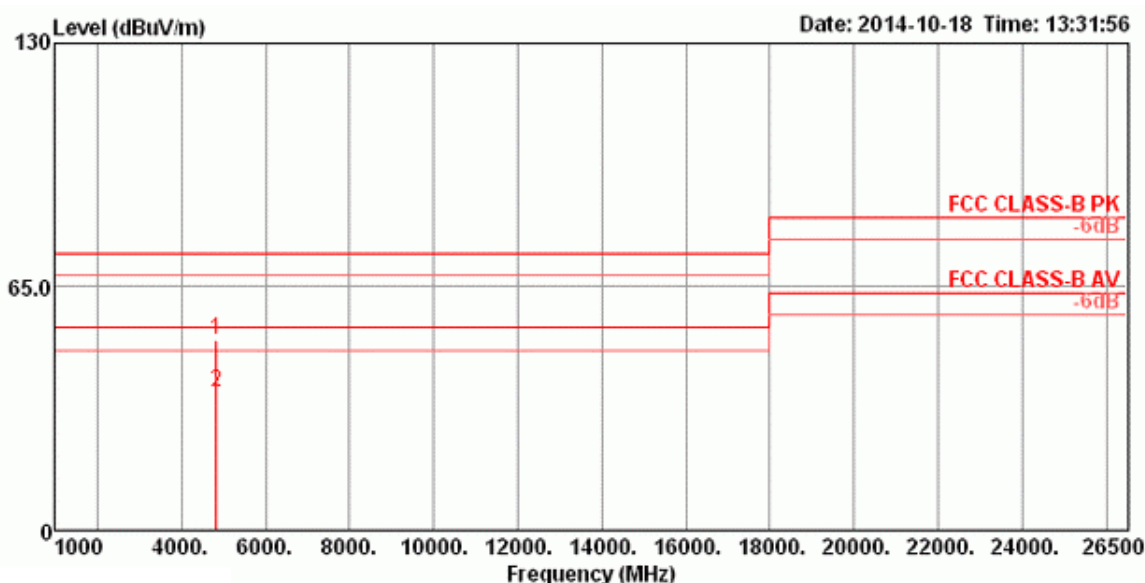
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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	H
Temperature	26℃	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



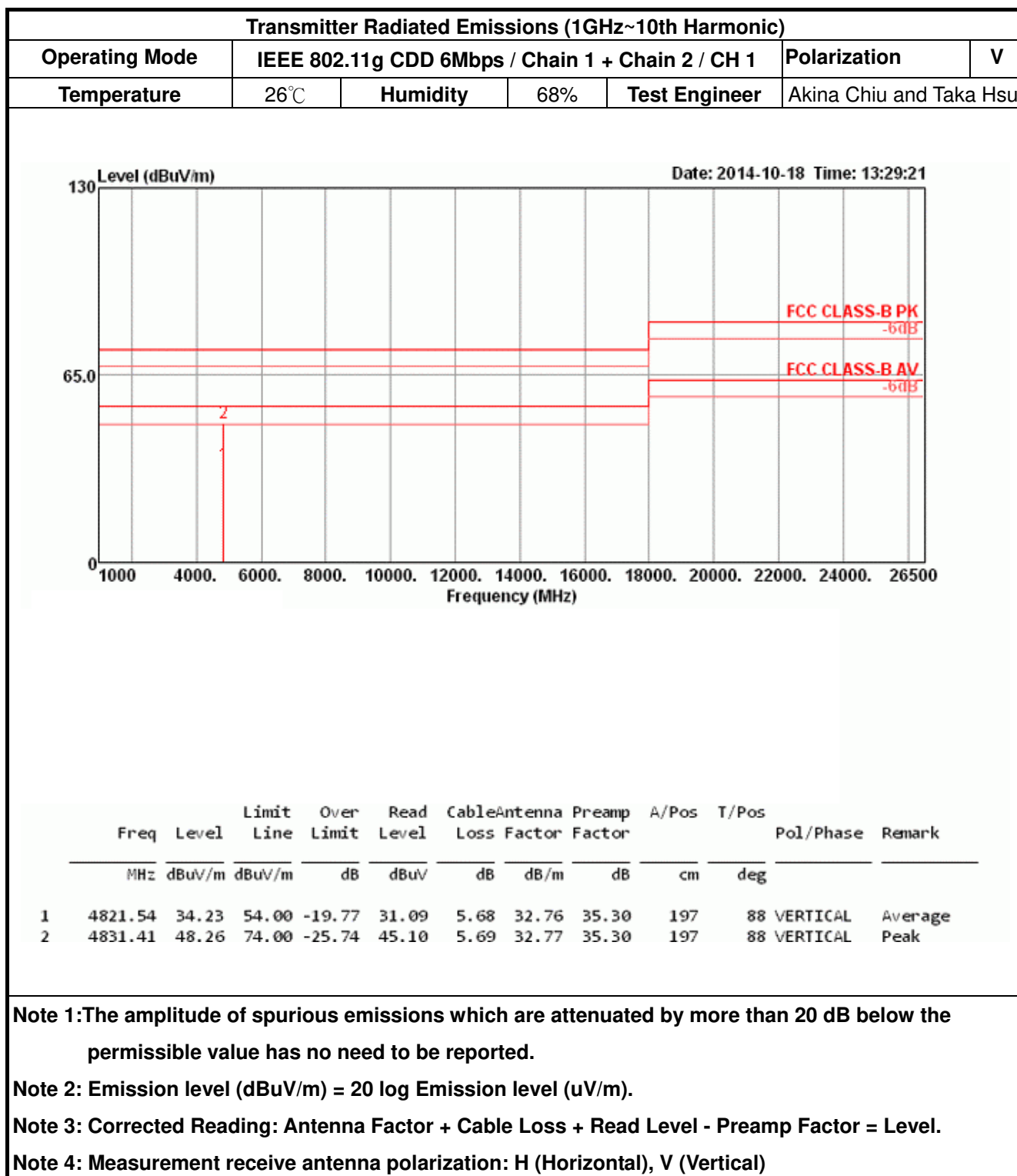
	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4824.78	51.06	74.00	-22.94	47.91	5.69	32.76	35.30	187	52	HORIZONTAL	Peak
2	4825.48	36.77	54.00	-17.23	33.61	5.69	32.77	35.30	187	52	HORIZONTAL	Average

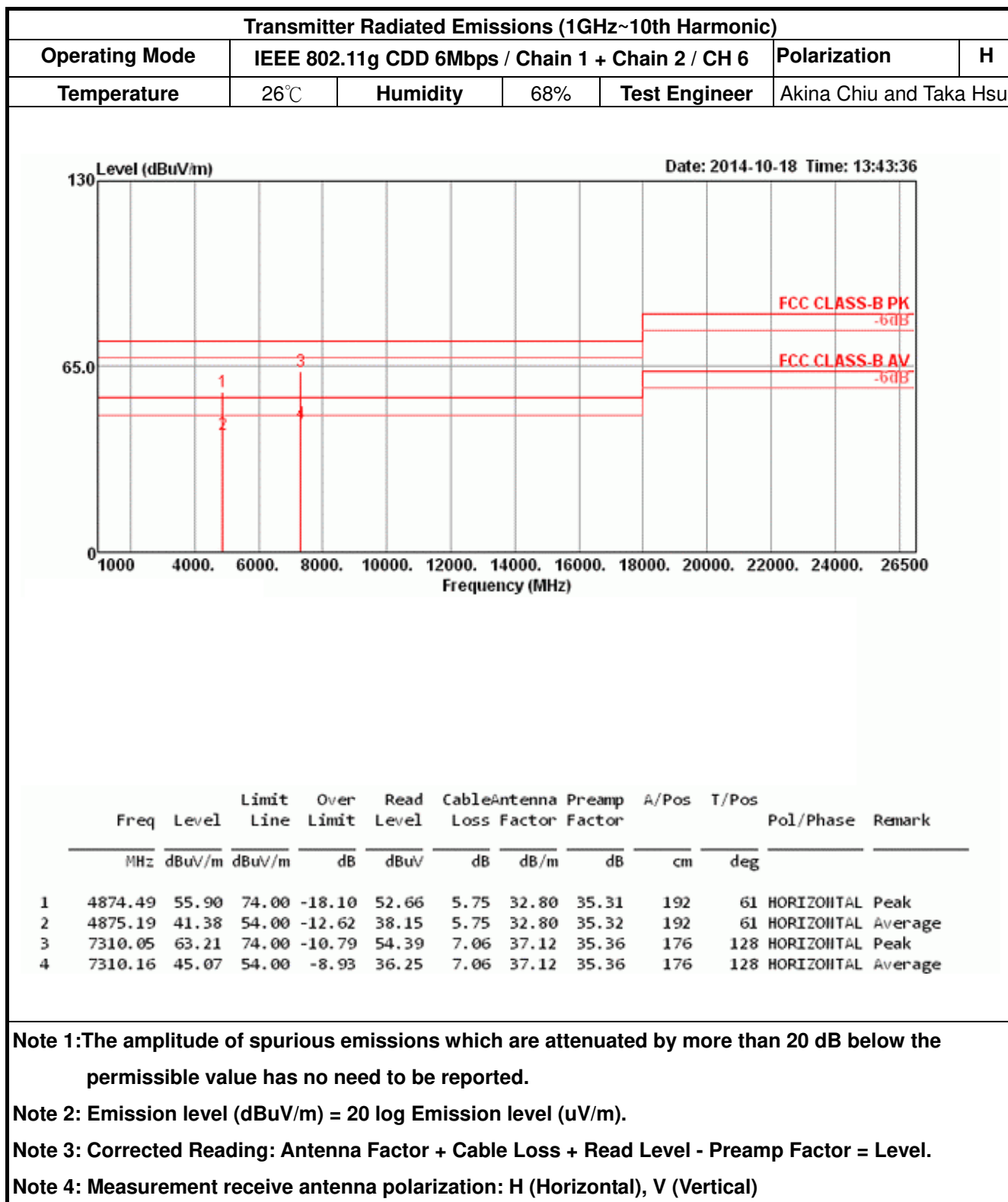
Note 1: The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

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.

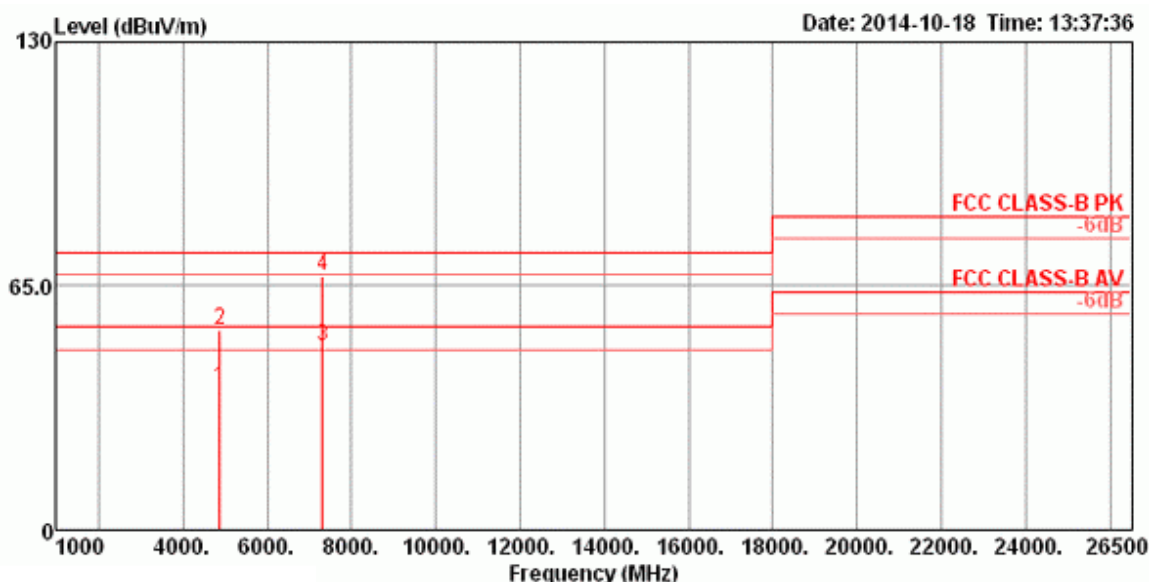
Note 4: Measurement receive antenna polarization: H (Horizontal), V (Vertical)





Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	IEEE 802.11g CDD 6Mbps / Chain 1 + Chain 2 / CH 6			Polarization	V
Temperature	26℃	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



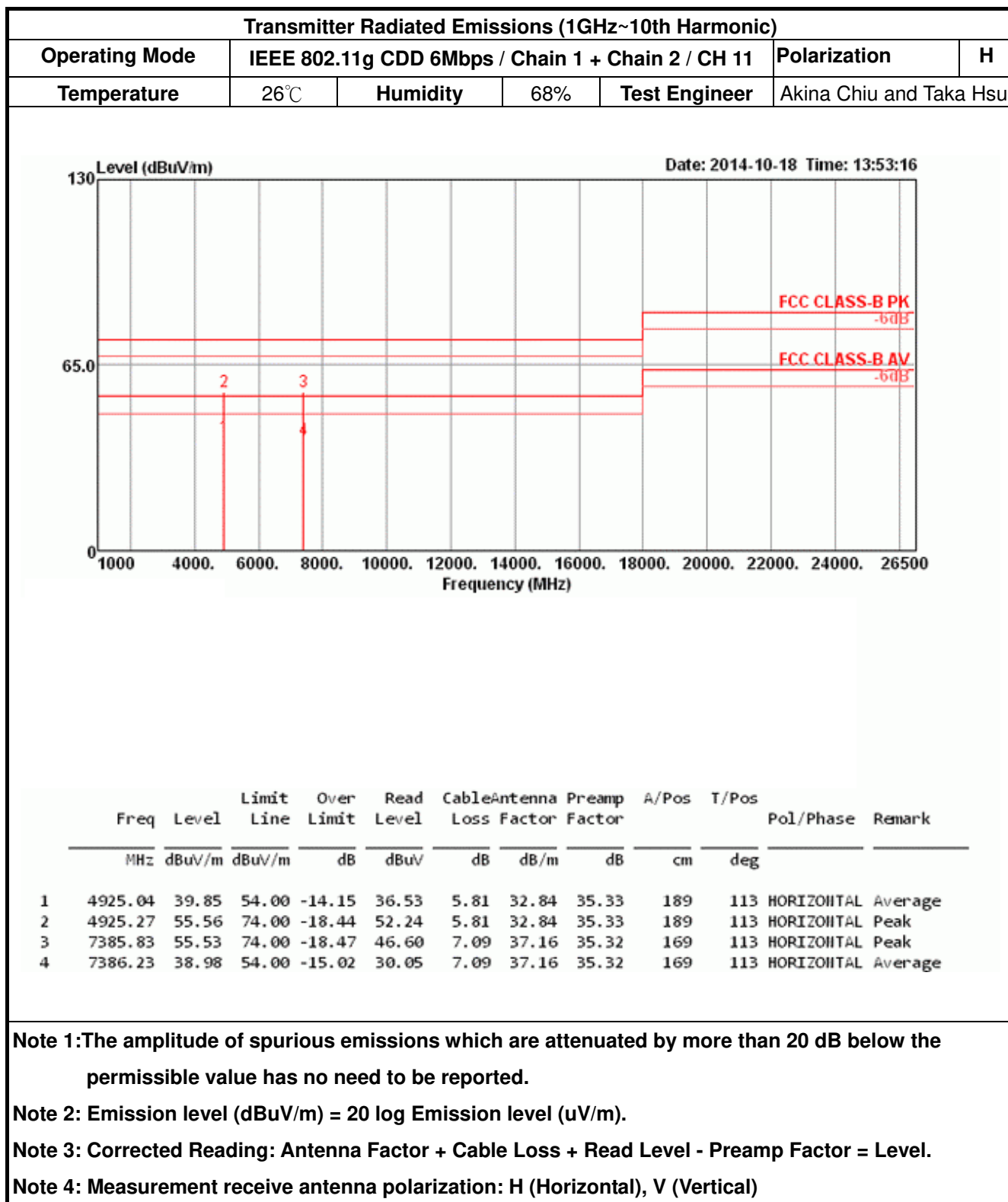
	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4871.45	37.67	54.00	-16.33	34.44	5.74	32.80	35.31	277	84	VERTICAL	Average
2	4876.14	53.11	74.00	-20.89	49.88	5.75	32.80	35.32	277	84	VERTICAL	Peak
3	7309.18	49.06	54.00	-4.94	40.24	7.06	37.12	35.36	100	111	VERTICAL	Average
4	7313.32	67.67	74.00	-6.33	58.85	7.06	37.12	35.36	100	111	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).

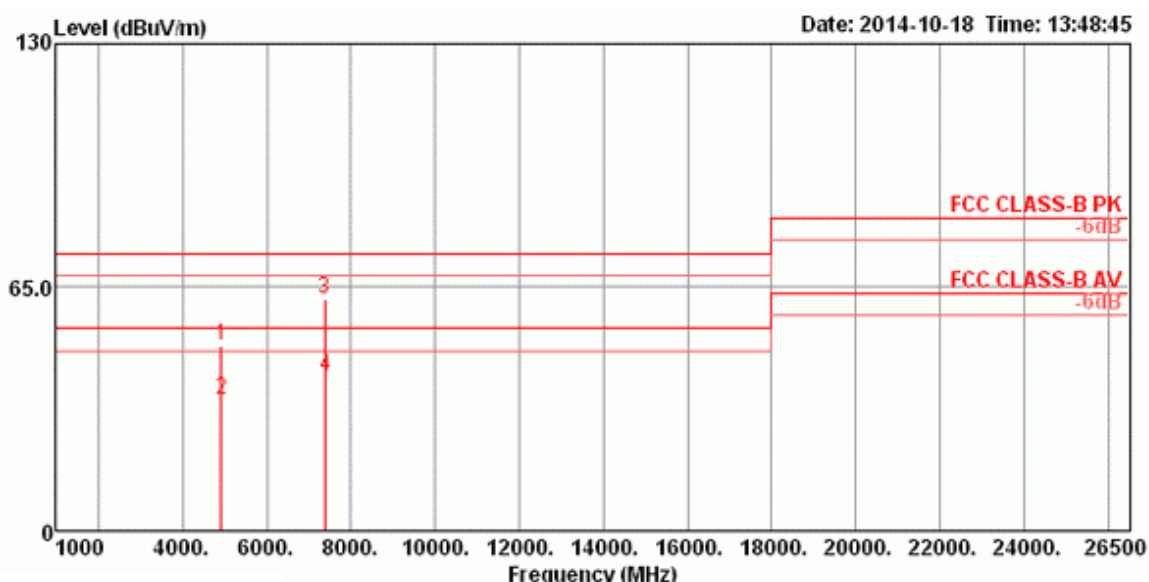
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

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



Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	IEEE 802.11g CDD 6Mbps / Chain 1 + Chain 2 / CH 11			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	4921.80	49.60	74.00	-24.40	46.29	5.81	32.83	35.33	192	87	VERTICAL	Peak
2	4926.55	34.94	54.00	-19.06	31.62	5.81	32.84	35.33	192	87	VERTICAL	Average
3	7378.85	61.98	74.00	-12.02	53.07	7.08	37.15	35.32	100	115	VERTICAL	Peak
4	7389.50	41.44	54.00	-12.56	32.50	7.09	37.16	35.31	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.

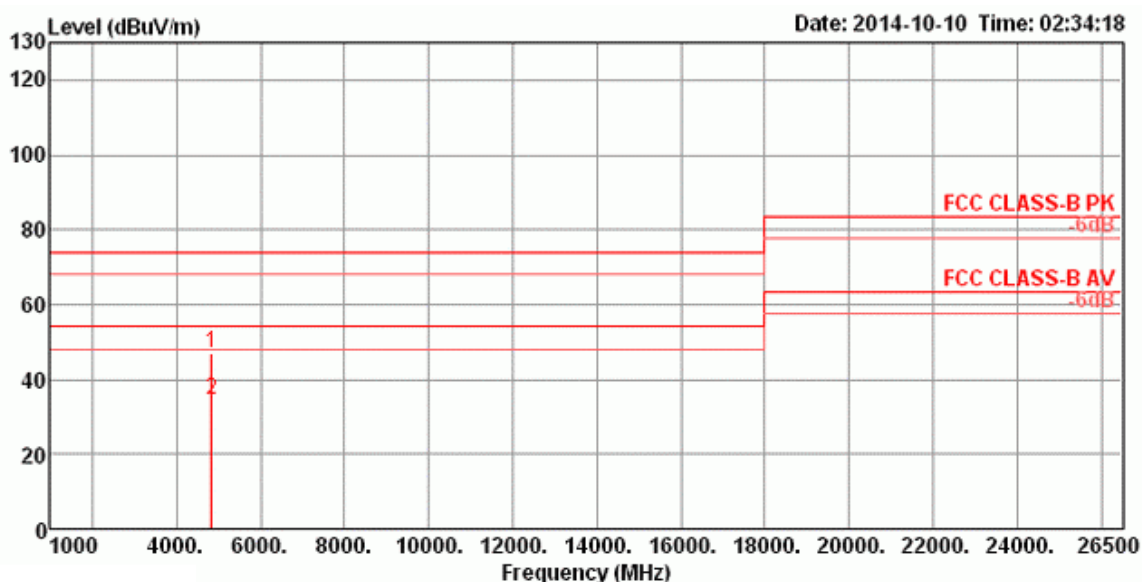
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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 20MHz / MCS0 / Chain 1 / CH 1			Polarization	H
Temperature	26℃	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	4821.08	46.88	74.00	-27.12	43.74	5.68	35.30	32.76	HORIZONTAL	72	100	Peak
2	4828.44	34.51	54.00	-19.49	31.35	5.69	35.30	32.77	HORIZONTAL	72	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).

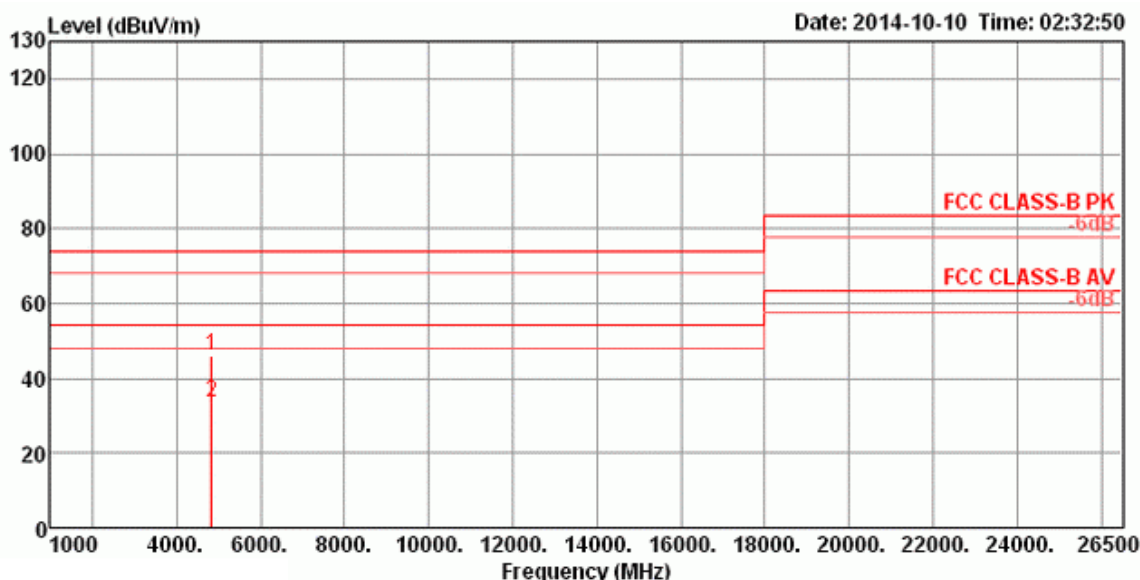
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

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



Transmitter Radiated Emissions (1GHz~10th Harmonic)

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	Limit	Level	Loss	Factor	Factor	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.

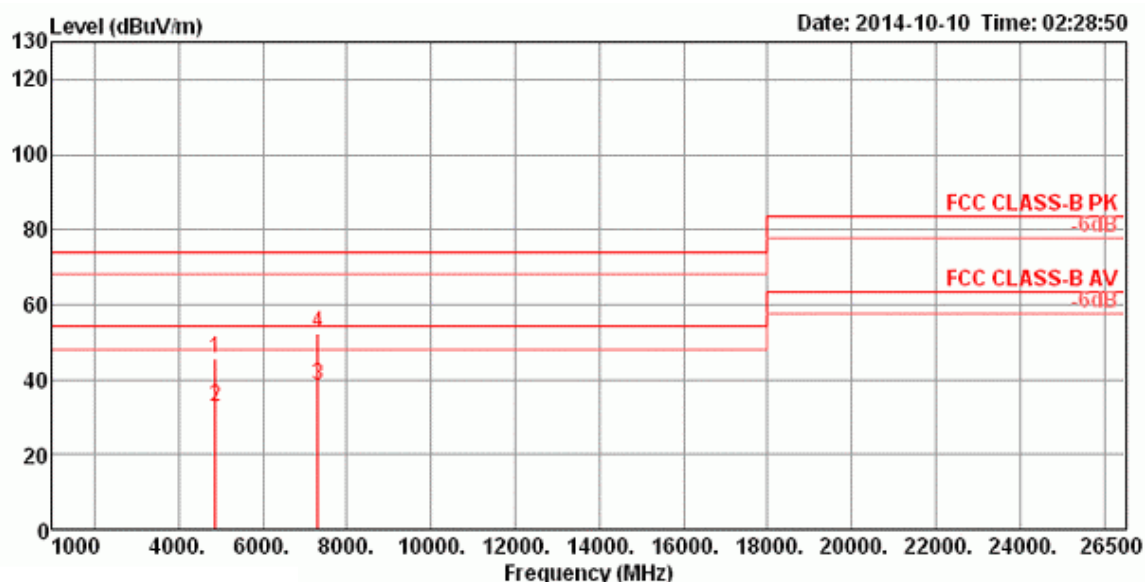
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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)

Operating Mode	IEEE 802.11n 20MHz / MCS0 / Chain 1 / CH 6			Polarization	H
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	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.

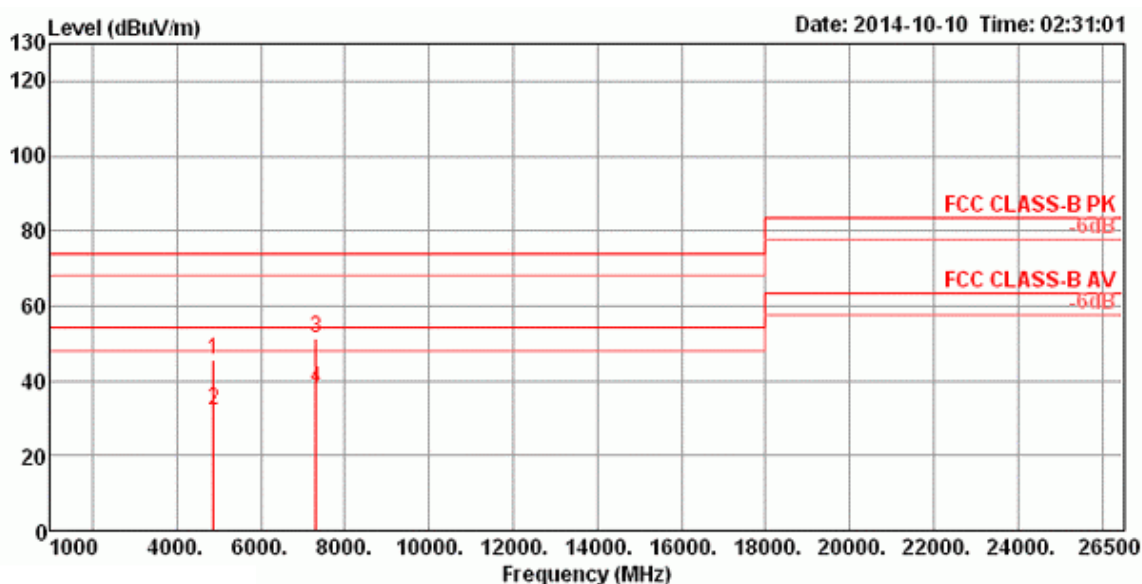
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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.

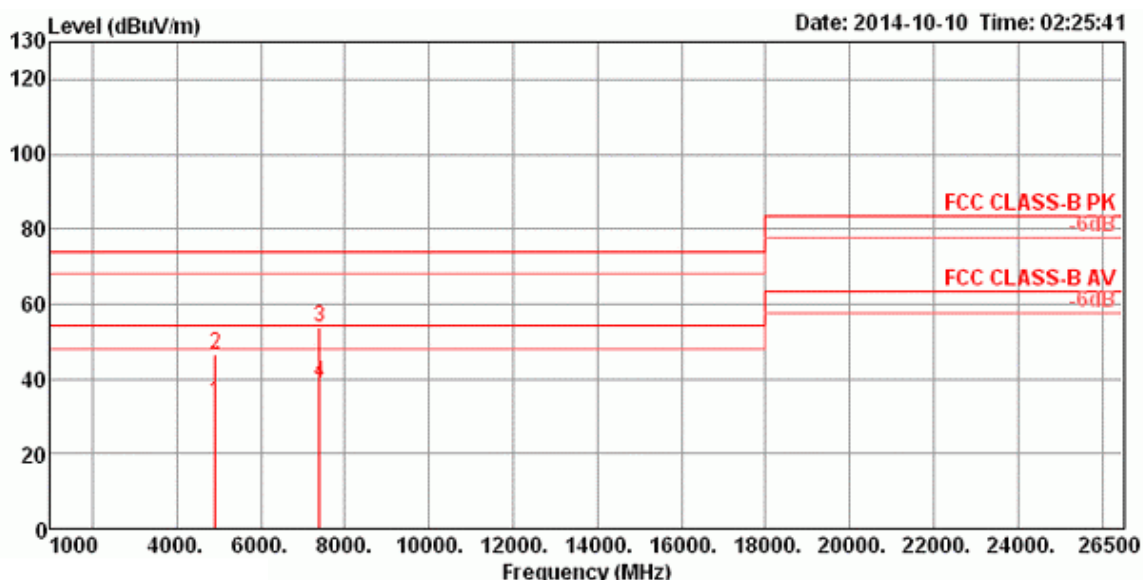
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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	H
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	4924.10	33.46	54.00	-20.54	30.14	5.81	35.33	32.84	HORIZONTAL	76	118	Average
2	4925.80	46.36	74.00	-27.64	43.04	5.81	35.33	32.84	HORIZONTAL	76	118	Peak
3	7385.18	53.75	74.00	-20.25	44.82	7.09	35.32	37.16	HORIZONTAL	98	100	Peak
4	7387.49	38.71	54.00	-15.29	29.78	7.09	35.32	37.16	HORIZONTAL	98	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.

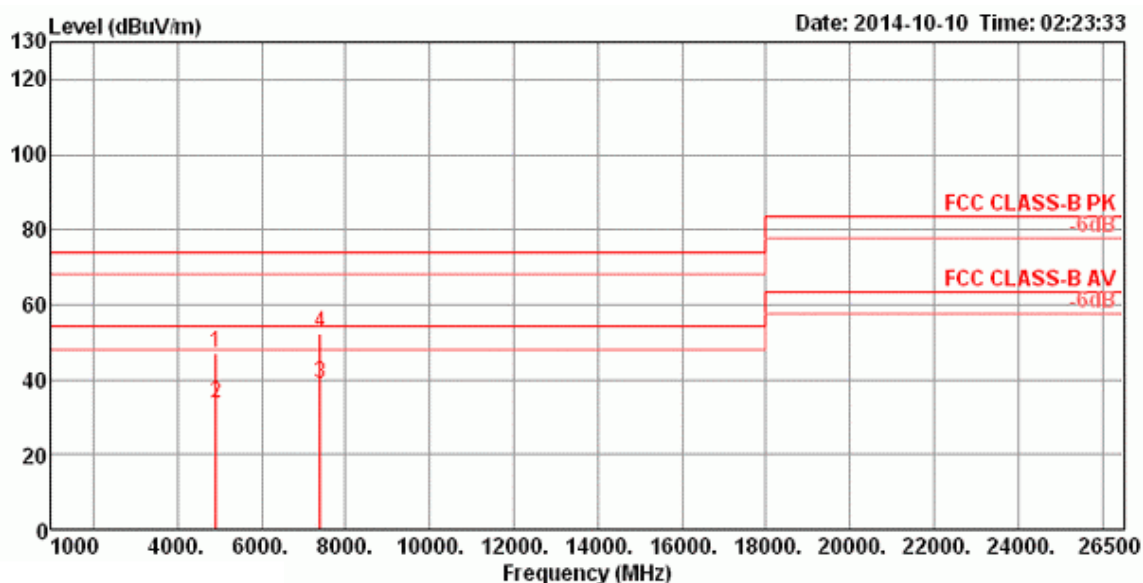
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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)

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



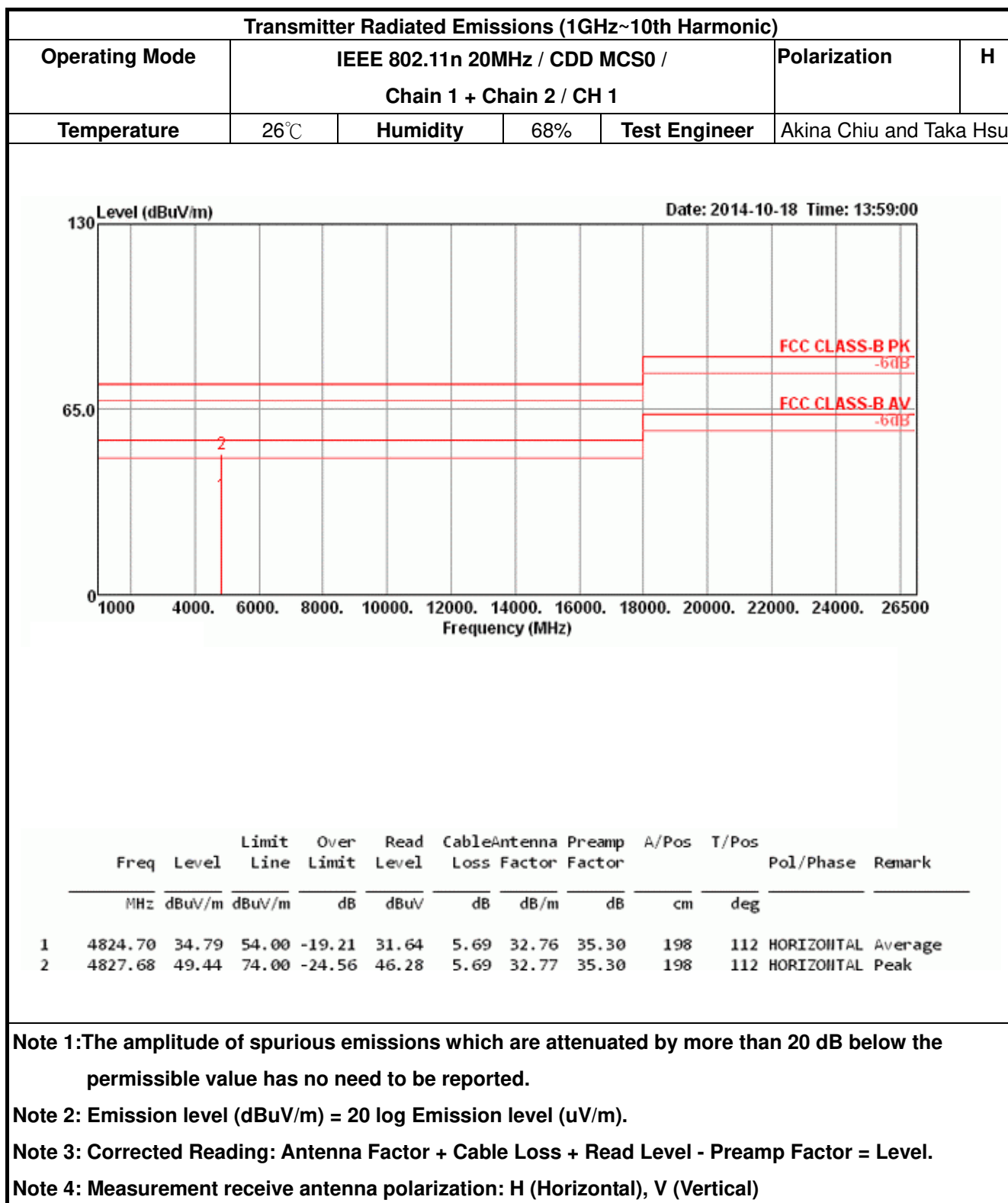
	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna		T/Pos	A/Pos	Remark
	MHz	dBuV/m	dBuV/m	Limit	Level	Loss	Factor	Factor	Pol/Phase	deg	cm	
1	4919.77	47.01	74.00	-26.99	43.71	5.80	35.33	32.83	VERTICAL	176	188	Peak
2	4923.62	33.80	54.00	-20.20	30.48	5.81	35.33	32.84	VERTICAL	176	188	Average
3	7389.13	38.73	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.

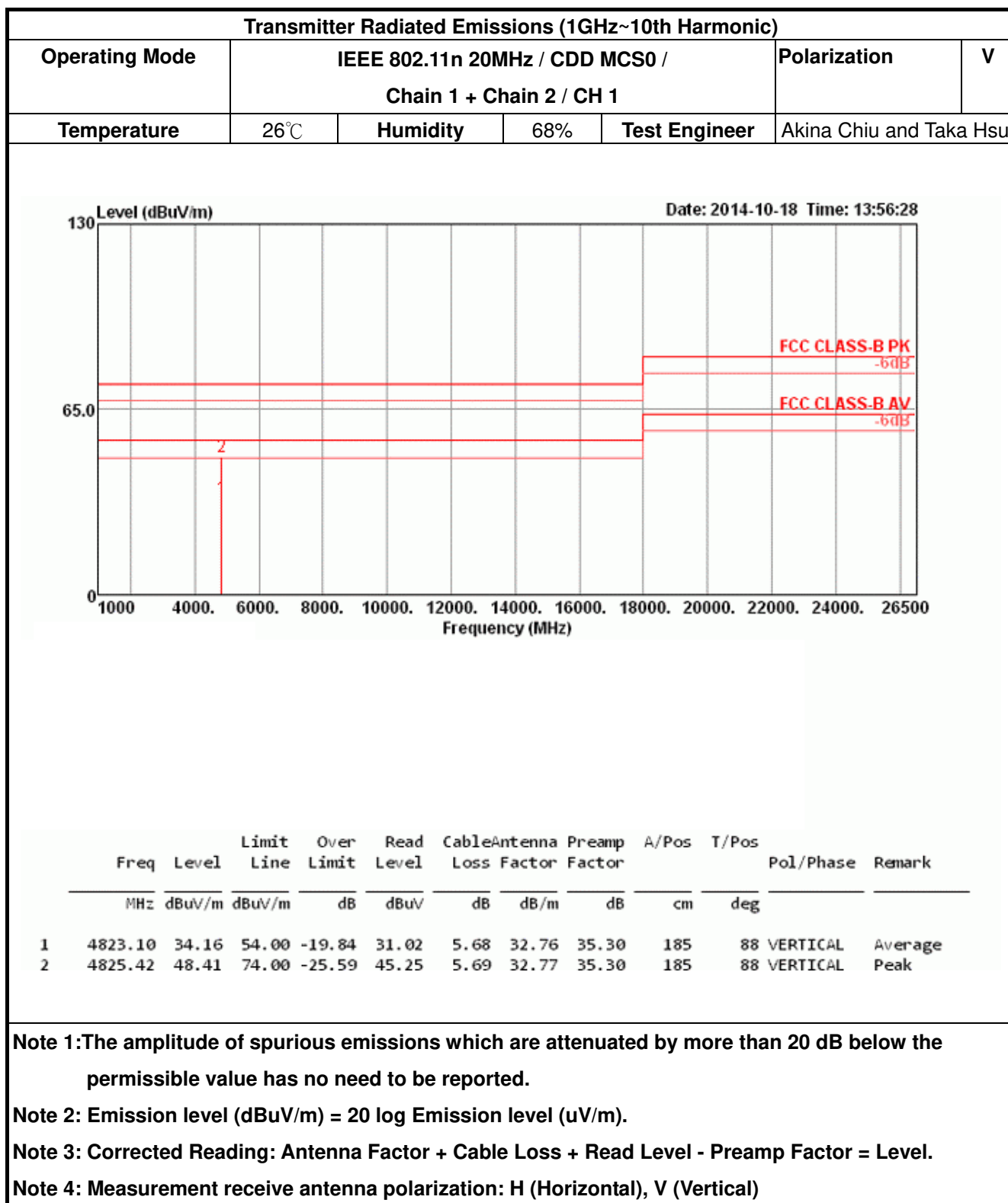
Note 4: Measurement receive antenna polarization: H (Horizontal), V (Vertical)





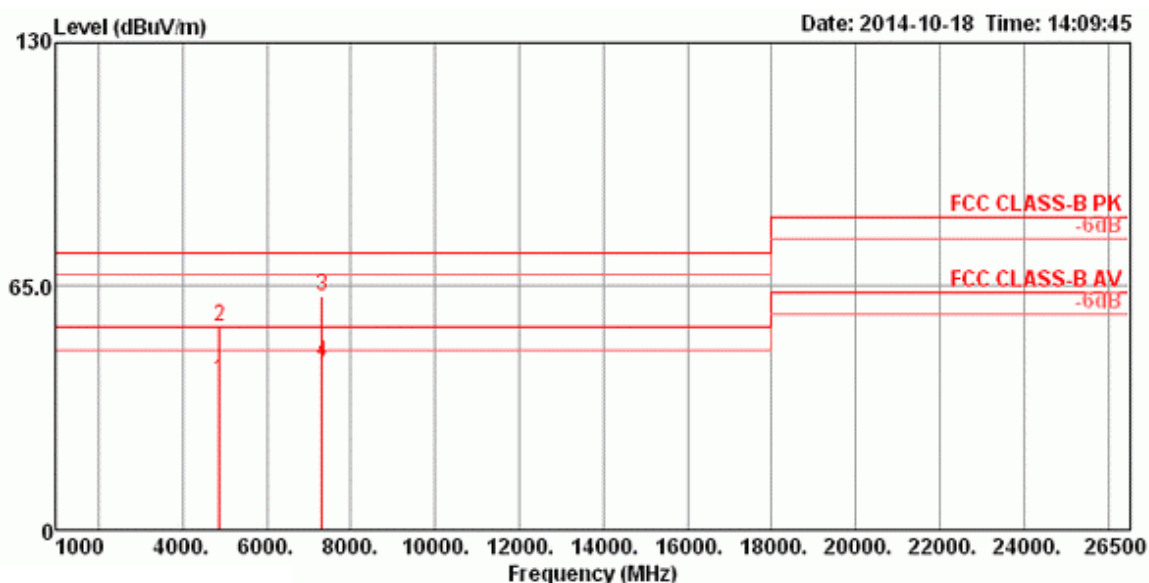
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Transmitter Radiated Emissions (1GHz~10th Harmonic)					
Operating Mode	IEEE 802.11n 20MHz / CDD MCS0 / Chain 1 + Chain 2 / CH 6			Polarization	H
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



	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

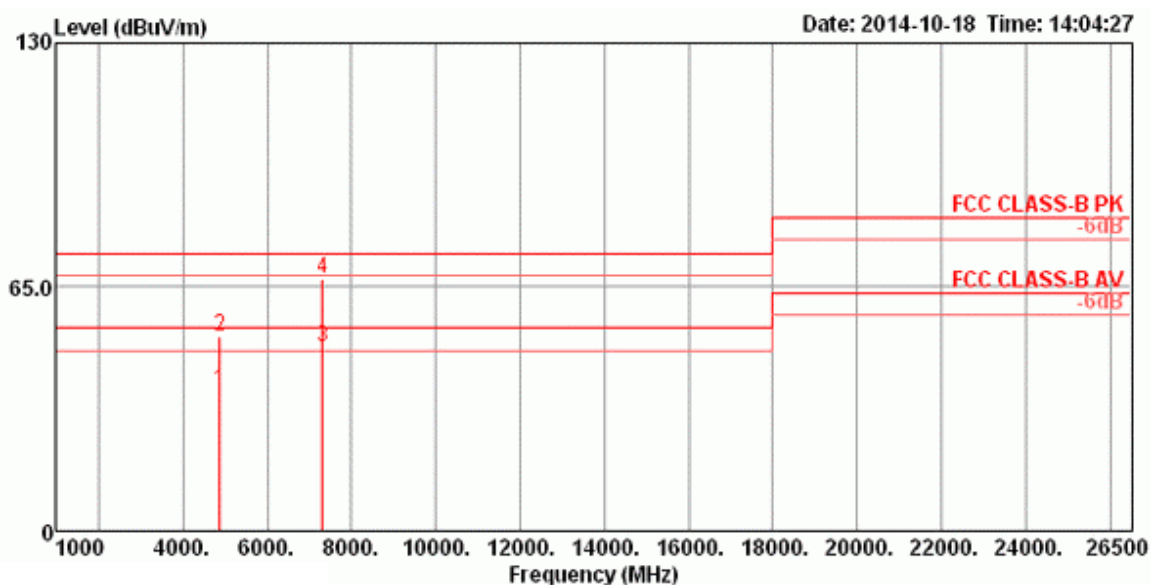
Note 1: The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

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 / Chain 1 + Chain 2 / CH 6				Polarization V
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



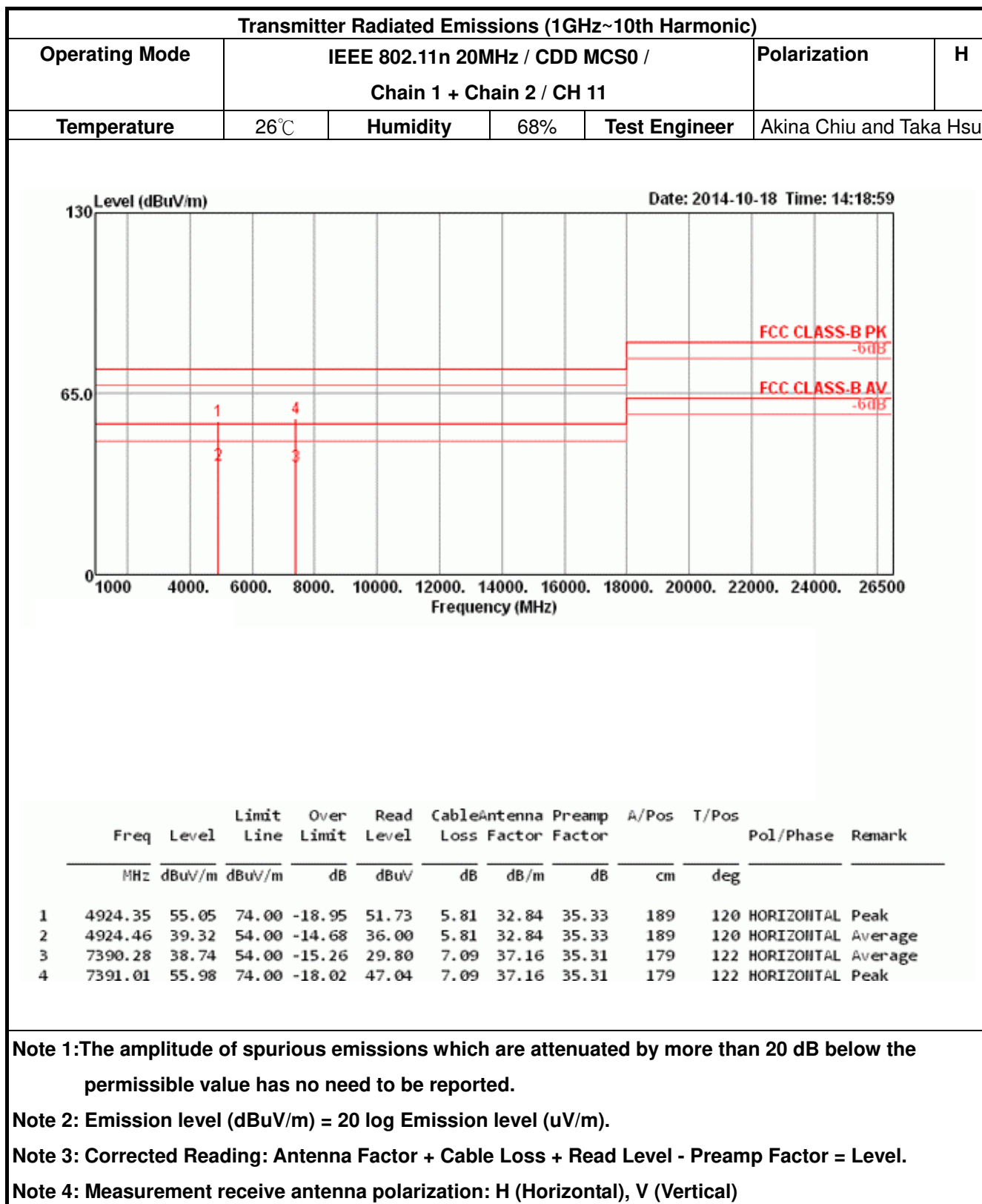
	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4875.01	37.53	54.00	-16.47	34.30	5.75	32.80	35.32	268	90	VERTICAL	Average
2	4875.13	51.84	74.00	-22.16	48.61	5.75	32.80	35.32	268	90	VERTICAL	Peak
3	7310.02	48.98	54.00	-5.02	40.16	7.06	37.12	35.36	100	111	VERTICAL	Average
4	7312.36	67.05	74.00	-6.95	58.23	7.06	37.12	35.36	100	111	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)



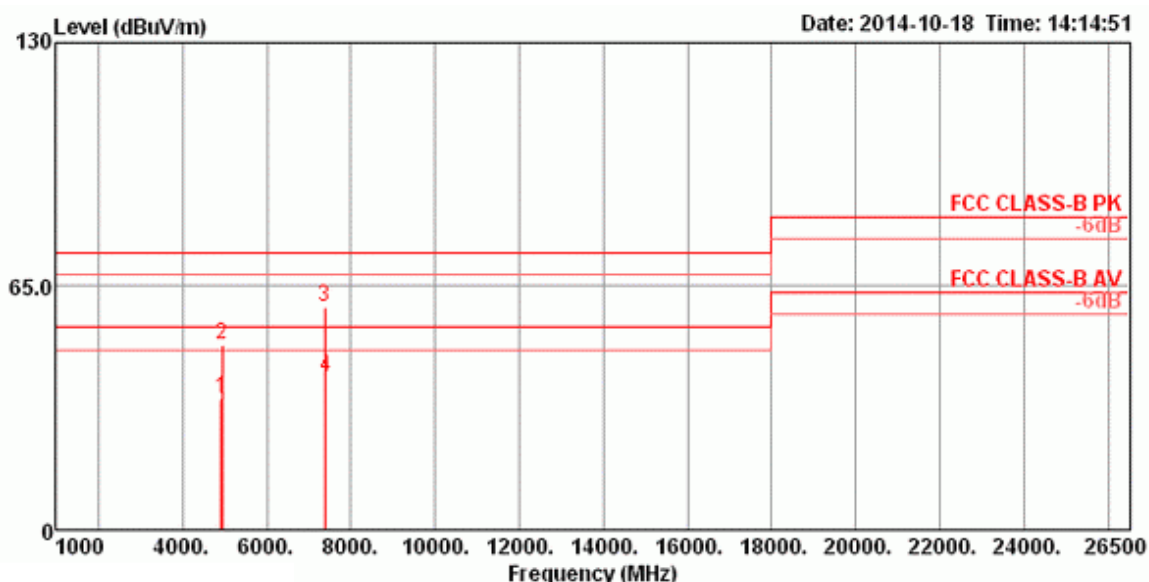


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Report No. : FR402168-02AA

Transmitter Radiated Emissions (1GHz~10th Harmonic)

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



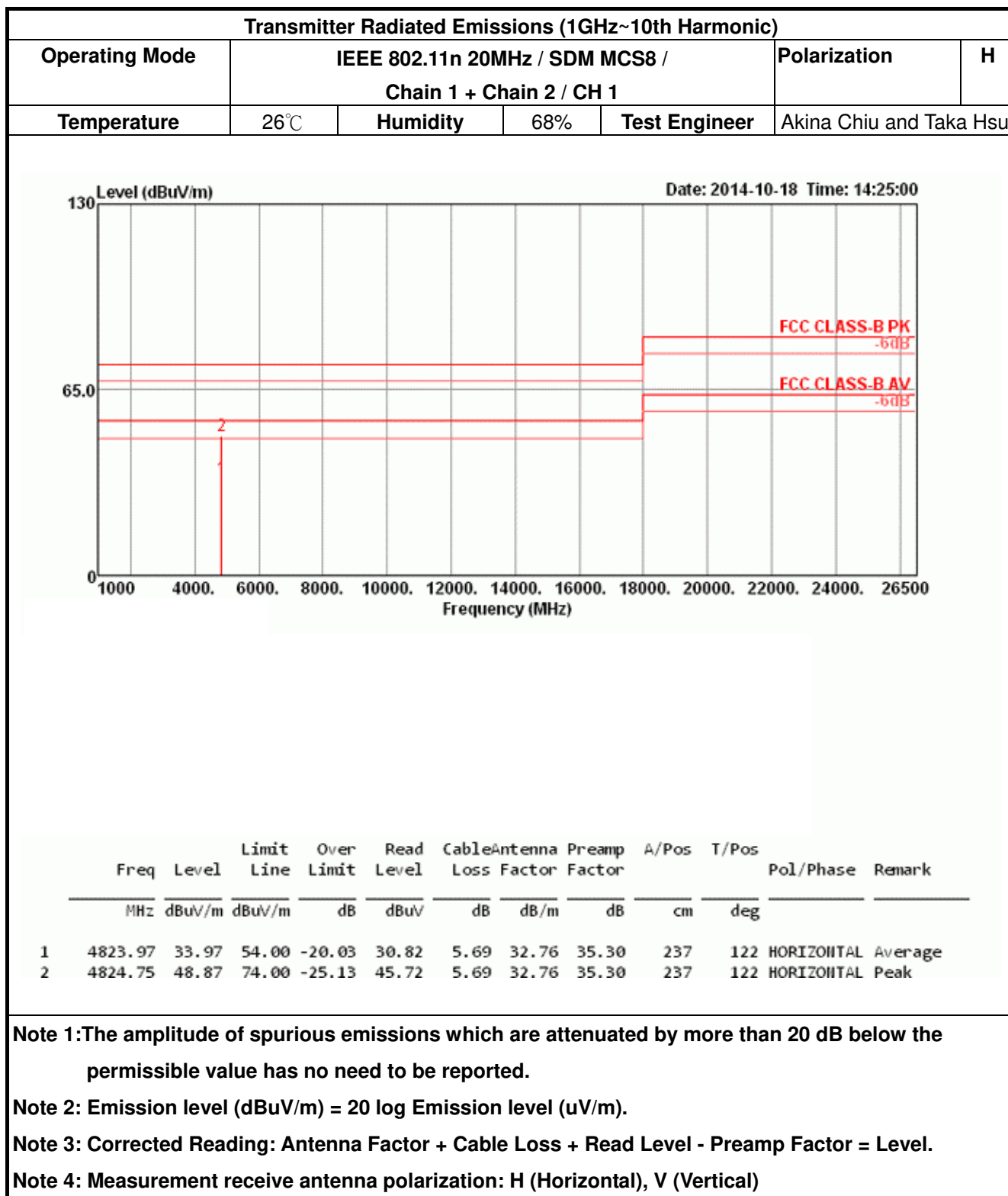
	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4924.90	35.20	54.00	-18.80	31.88	5.81	32.84	35.33	257	92	VERTICAL	Average
2	4930.22	49.28	74.00	-24.72	45.95	5.82	32.84	35.33	257	92	VERTICAL	Peak
3	7380.01	59.61	74.00	-14.39	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).

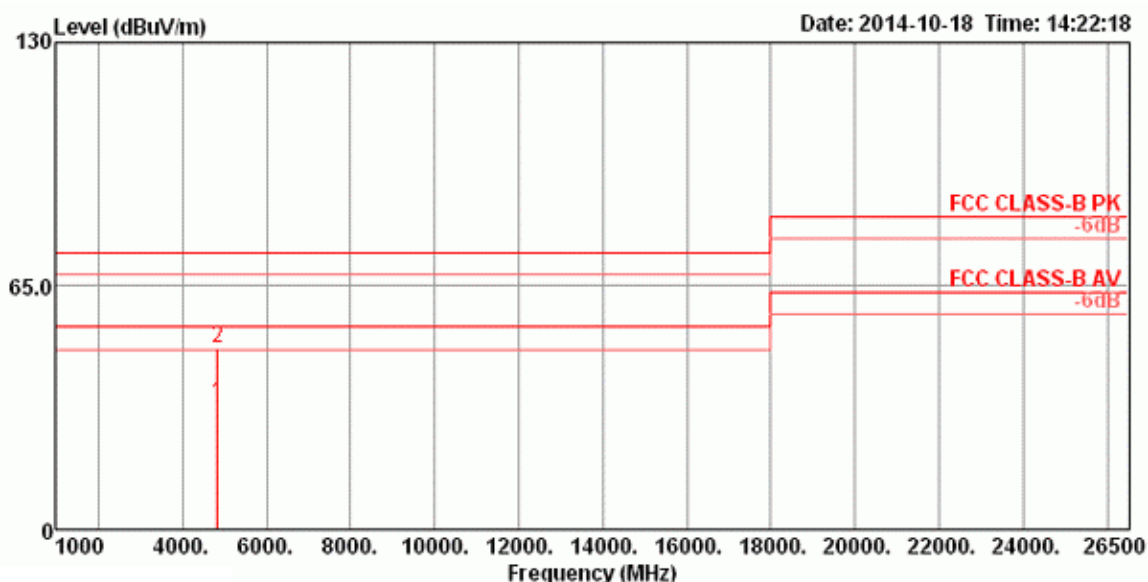
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

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



Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	IEEE 802.11n 20MHz / SDM MCS8 / 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	4823.97	33.76	54.00	-20.24	30.61	5.69	32.76	35.30	257	97	VERTICAL	Average
2	4826.20	48.30	74.00	-25.70	45.14	5.69	32.77	35.30	257	97	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.

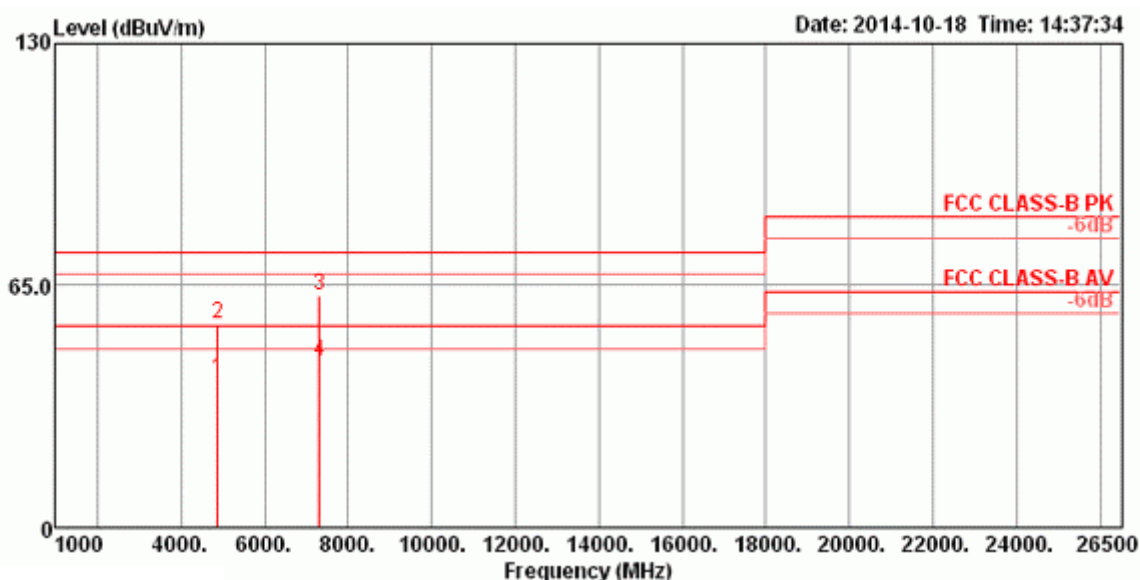
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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 / SDM MCS8 / 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	4874.09	39.70	54.00	-14.30	36.46	5.75	32.80	35.31	190	63	HORIZONTAL	Average
2	4874.61	54.47	74.00	-19.53	51.23	5.75	32.80	35.31	190	63	HORIZONTAL	Peak
3	7308.14	62.24	74.00	-11.76	53.43	7.05	37.12	35.36	176	130	HORIZONTAL	Peak
4	7308.69	44.58	54.00	-9.42	35.76	7.06	37.12	35.36	176	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.

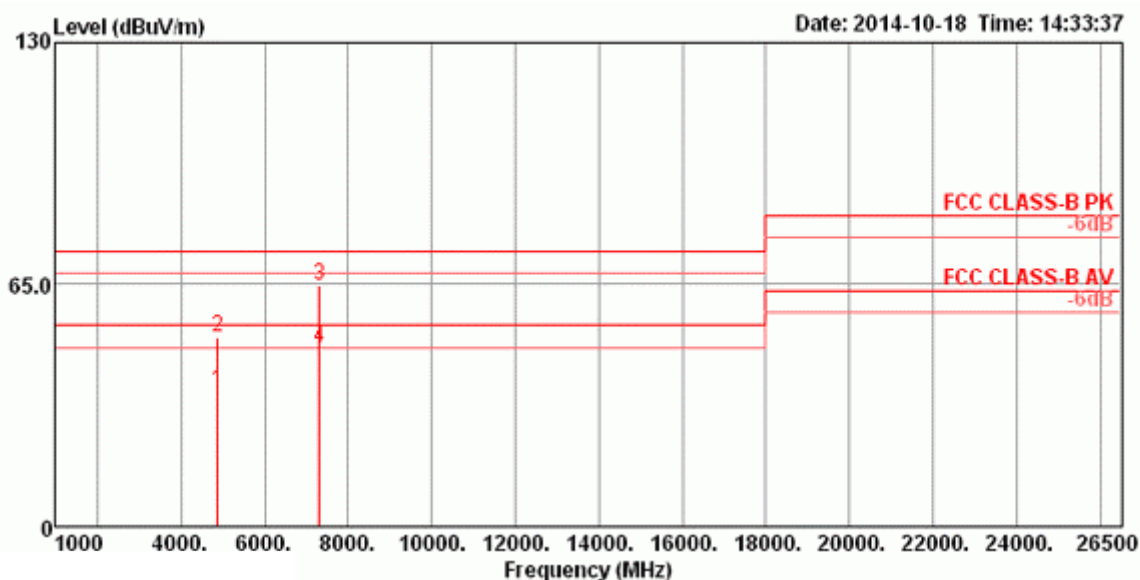
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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 / SDM MCS8 / 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.

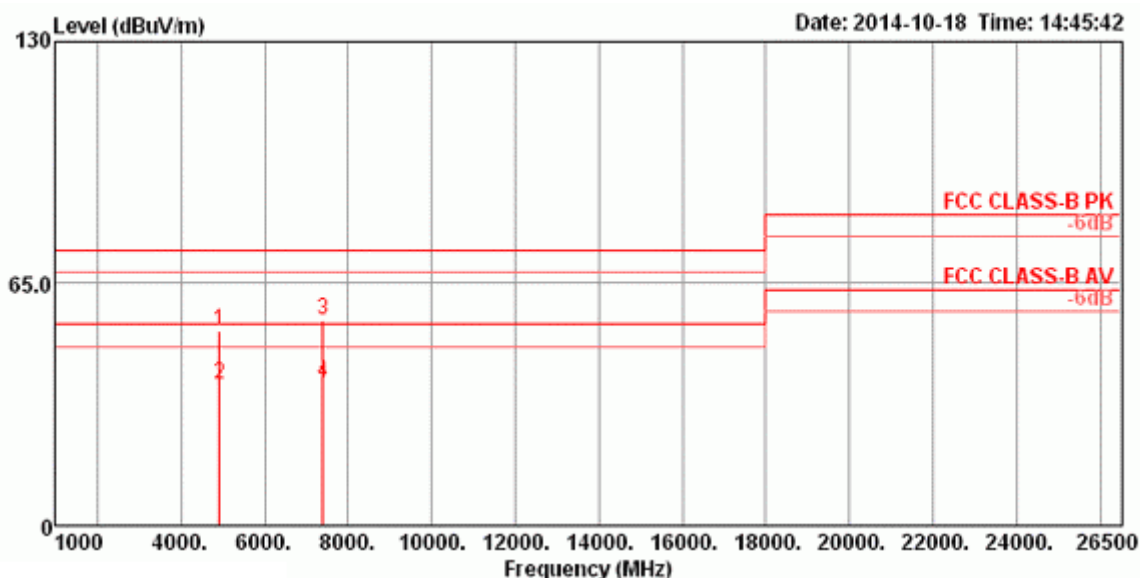
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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 20MHz / SDM MCS8 / Chain 1 + Chain 2 / CH 11				Polarization	H
Temperature	26℃	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu	



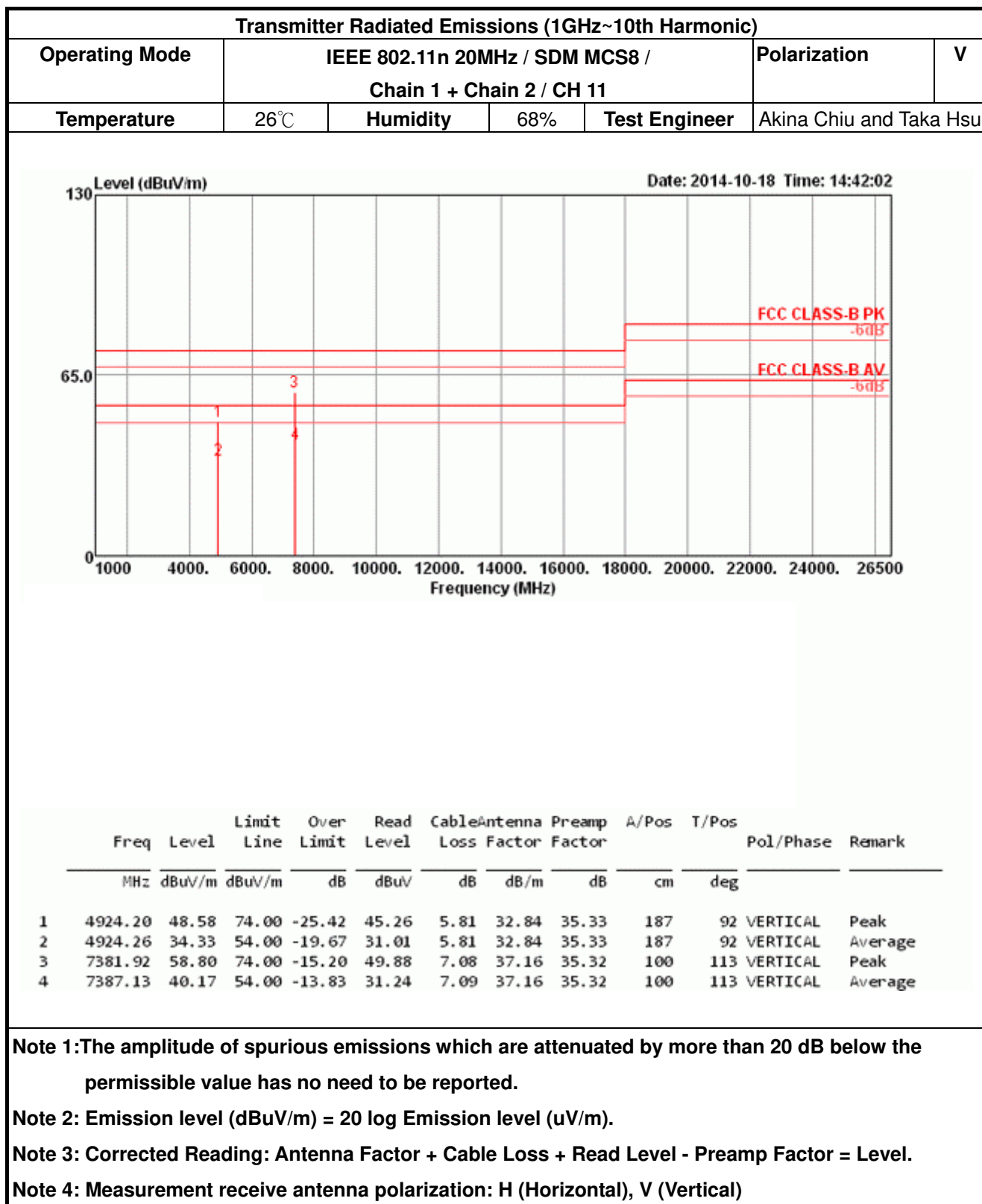
	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	I/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4923.33	52.33	74.00	-21.67	49.02	5.81	32.83	35.33	188	117	HORIZONTAL	Peak
2	4924.00	37.85	54.00	-16.15	34.53	5.81	32.84	35.33	188	117	HORIZONTAL	Average
3	7384.50	55.00	74.00	-19.00	46.07	7.09	37.16	35.32	176	131	HORIZONTAL	Peak
4	7389.88	38.36	54.00	-15.64	29.42	7.09	37.16	35.31	176	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).

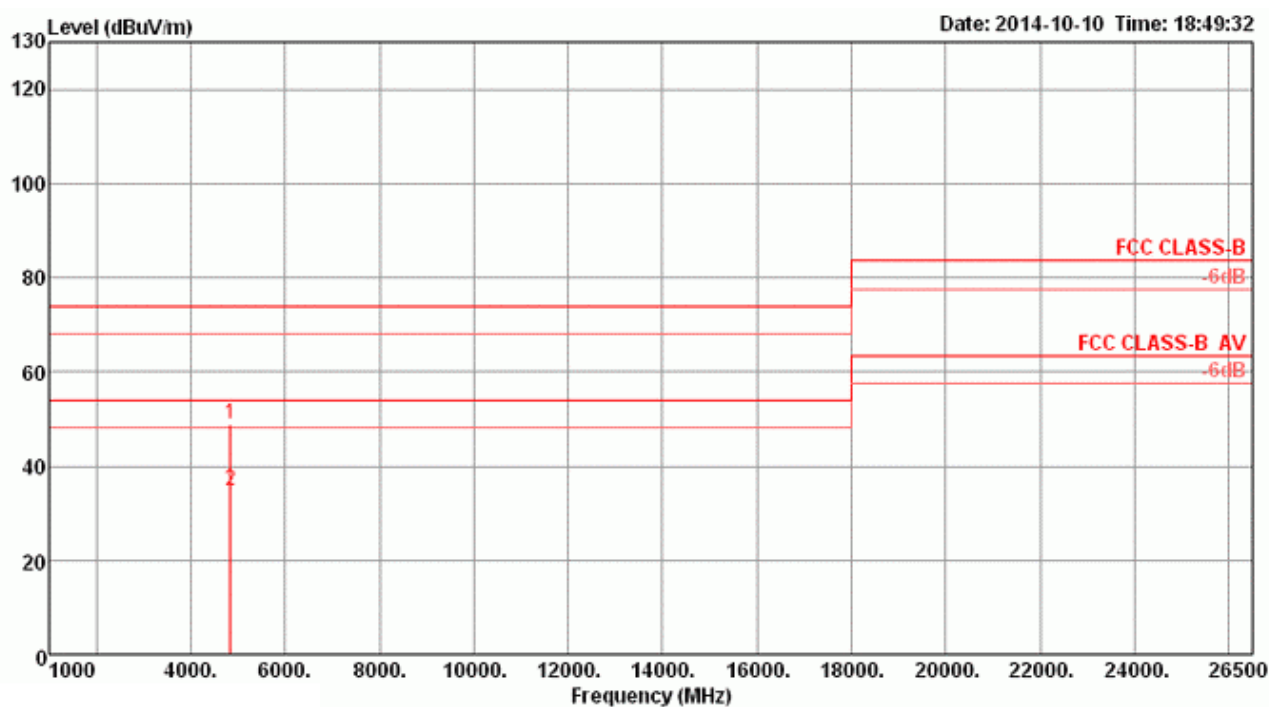
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

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



Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	IEEE 802.11n 40MHz / 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.

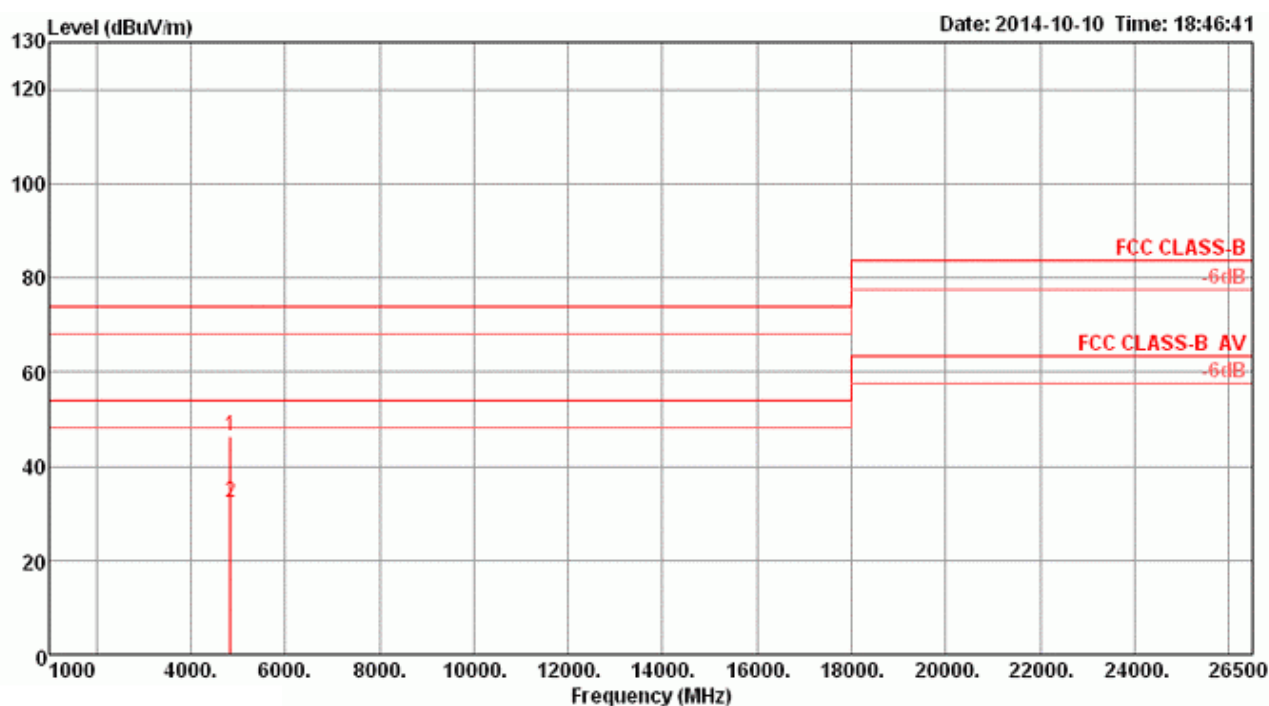
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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)

Operating Mode	IEEE 802.11n 40MHz / MCS0 / 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
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	Remark	cm	deg	
1	4843.12	46.49	74.00	-27.51	42.39	5.88	33.42	35.20	Peak	100	50	VERTICAL
2	4843.94	32.23	54.00	-21.77	28.13	5.88	33.42	35.20	Average	100	50	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.

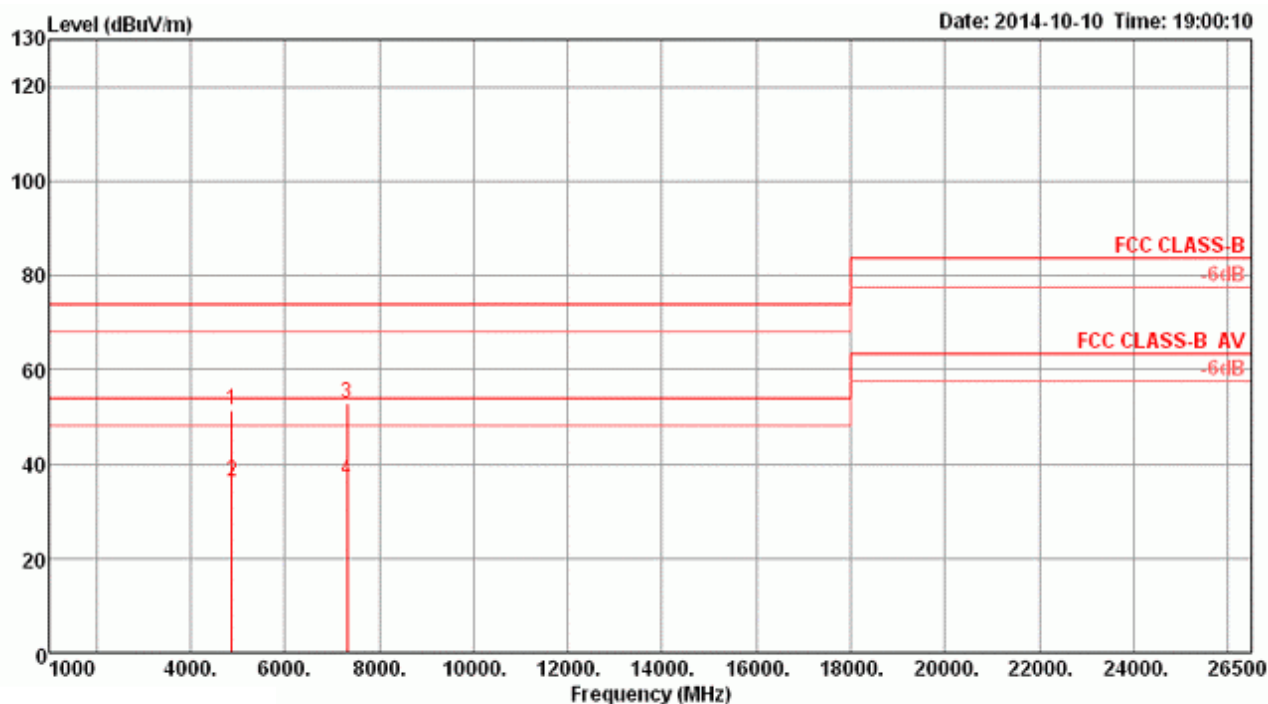
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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 / MCS0 / Chain 2 / CH 6			Polarization	H
Temperature	26°C	Humidity	68%	Test Engineer	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.

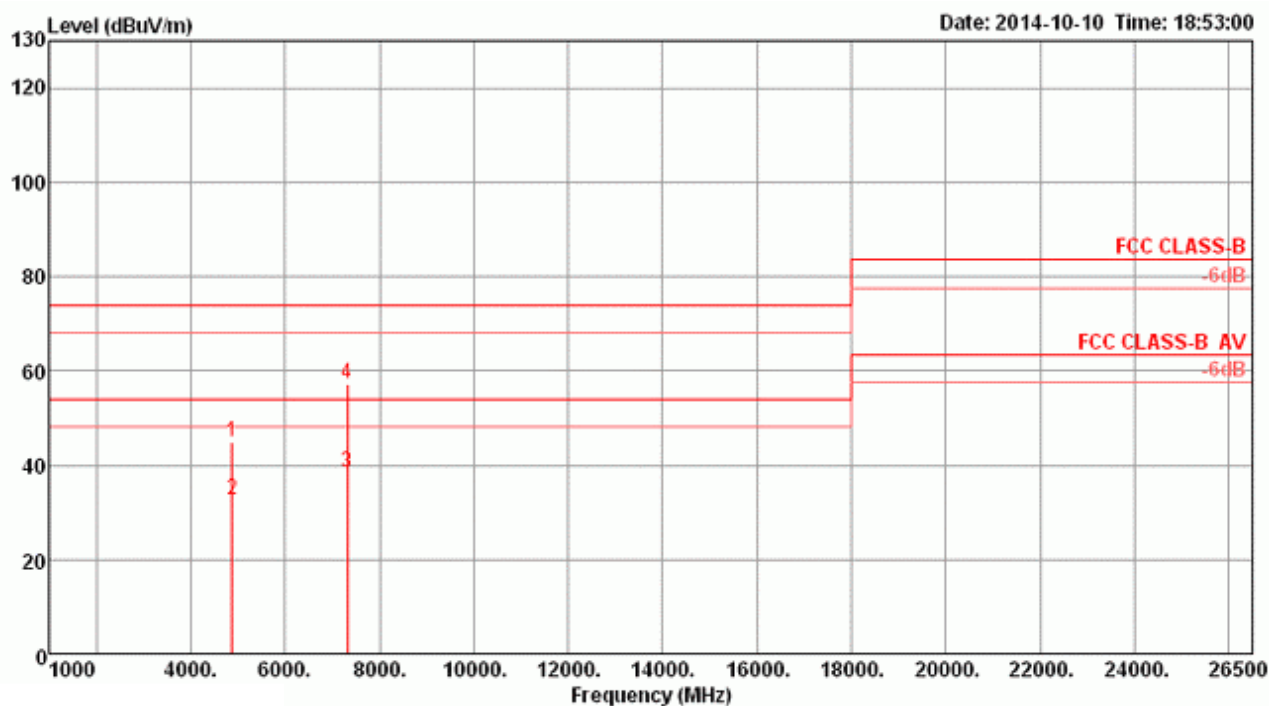
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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	dBuV/m	dB	dBuV	dB	dB/m	dB	Remark	cm	deg	
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.

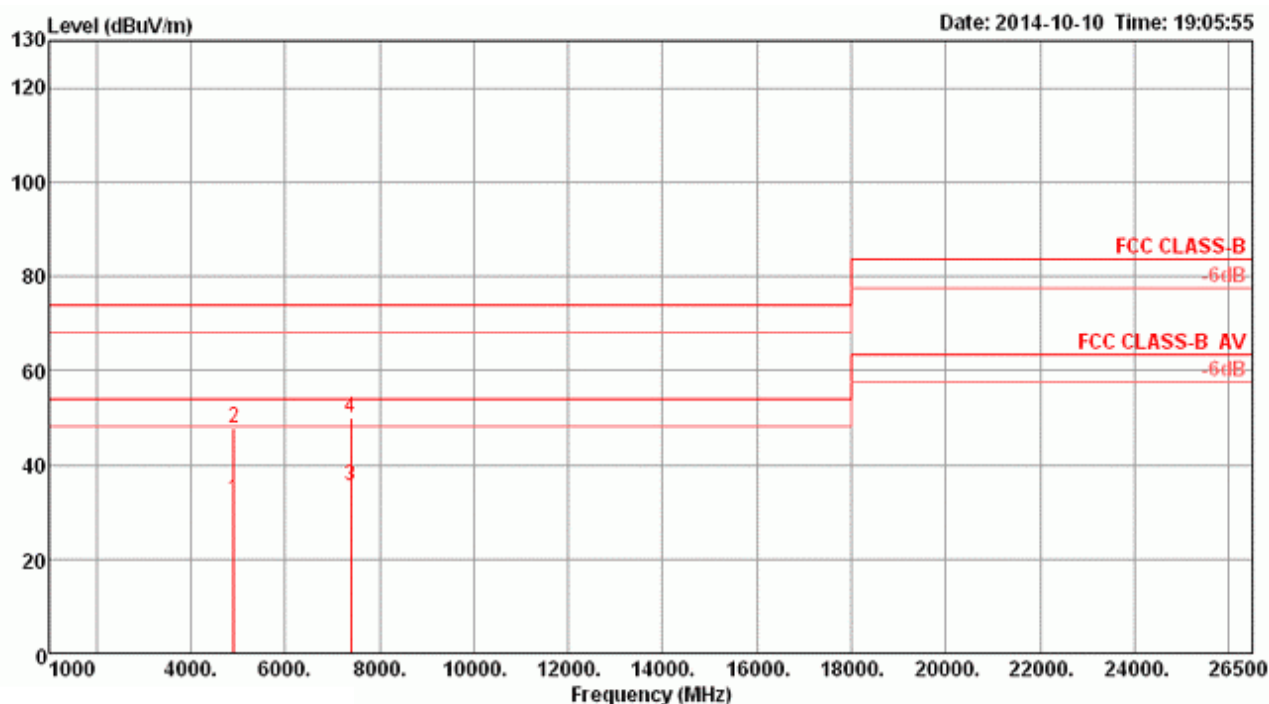
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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)

Operating Mode	IEEE 802.11n 40MHz / MCS0 / 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
	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.

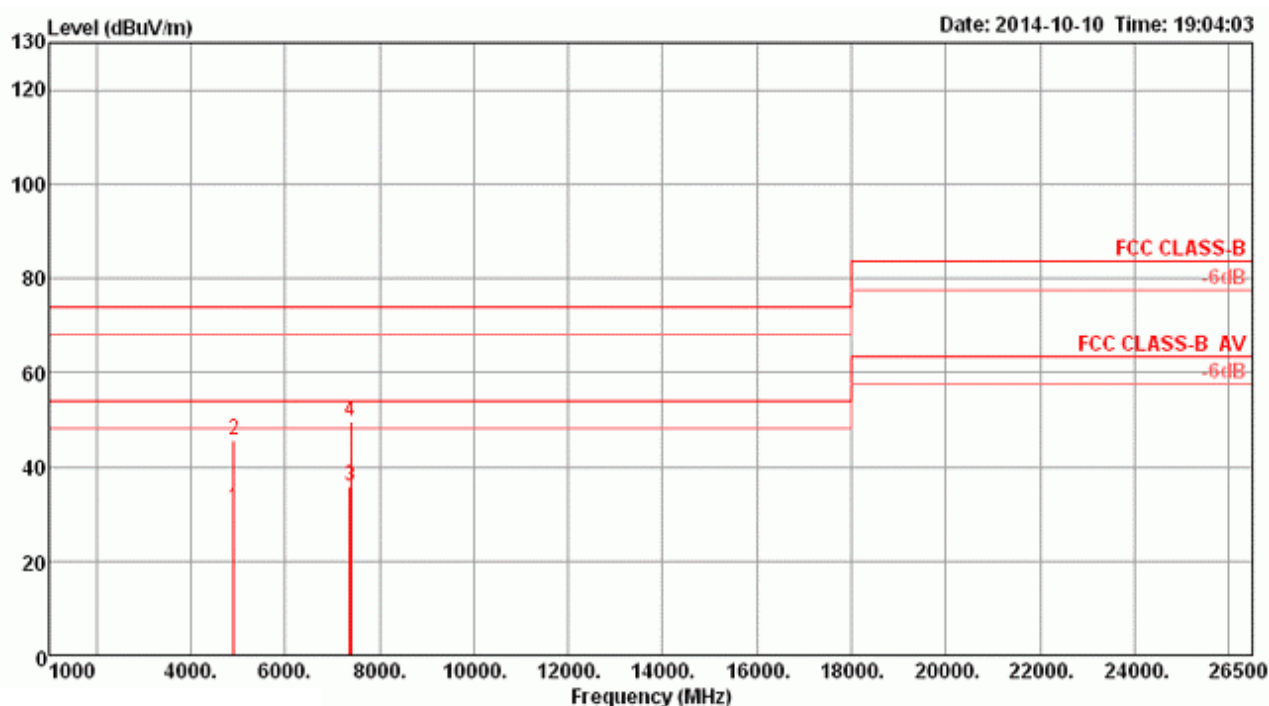
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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)

Operating Mode	IEEE 802.11n 40MHz / MCS0 / 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
	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).

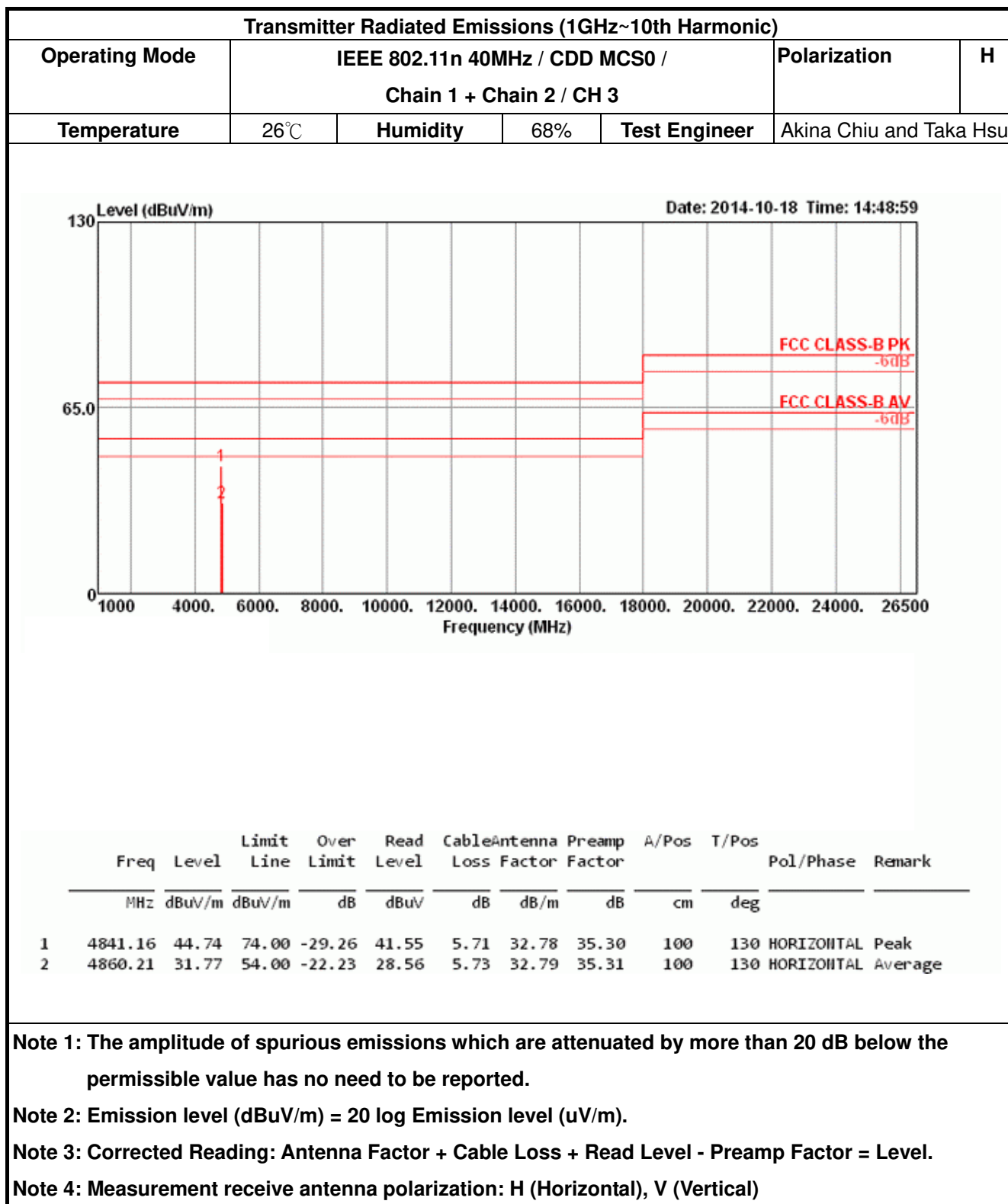
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

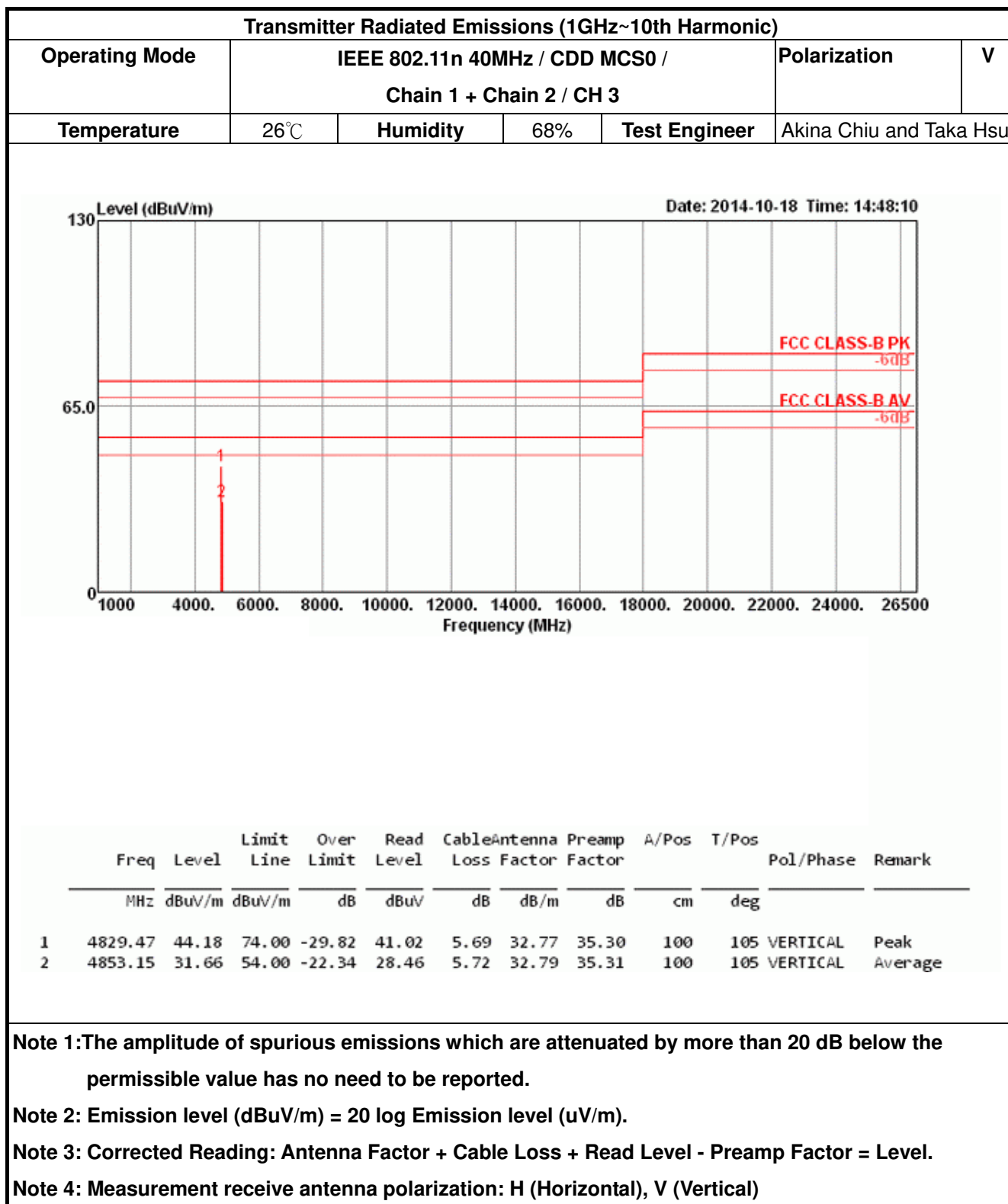
Note 4: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

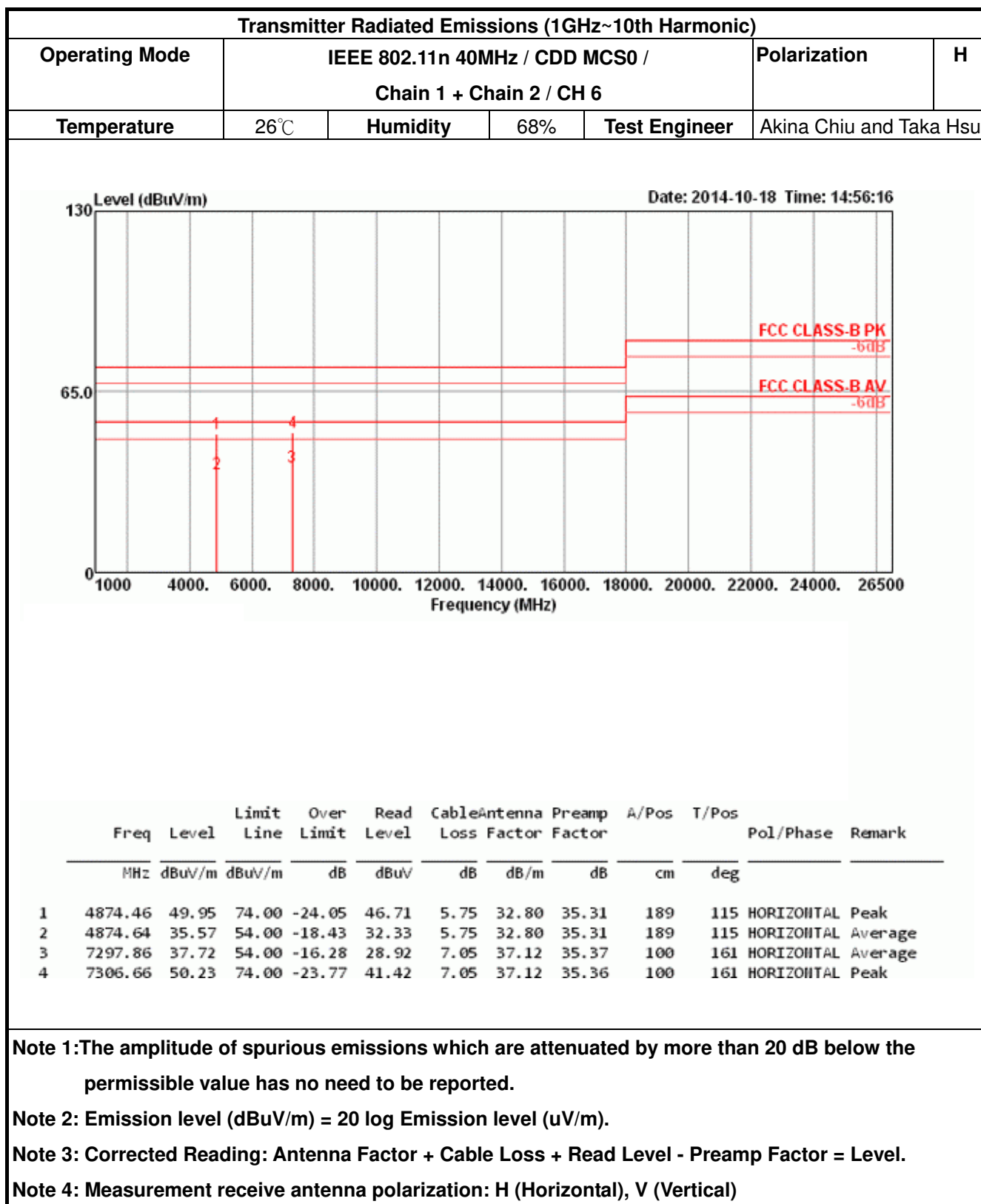


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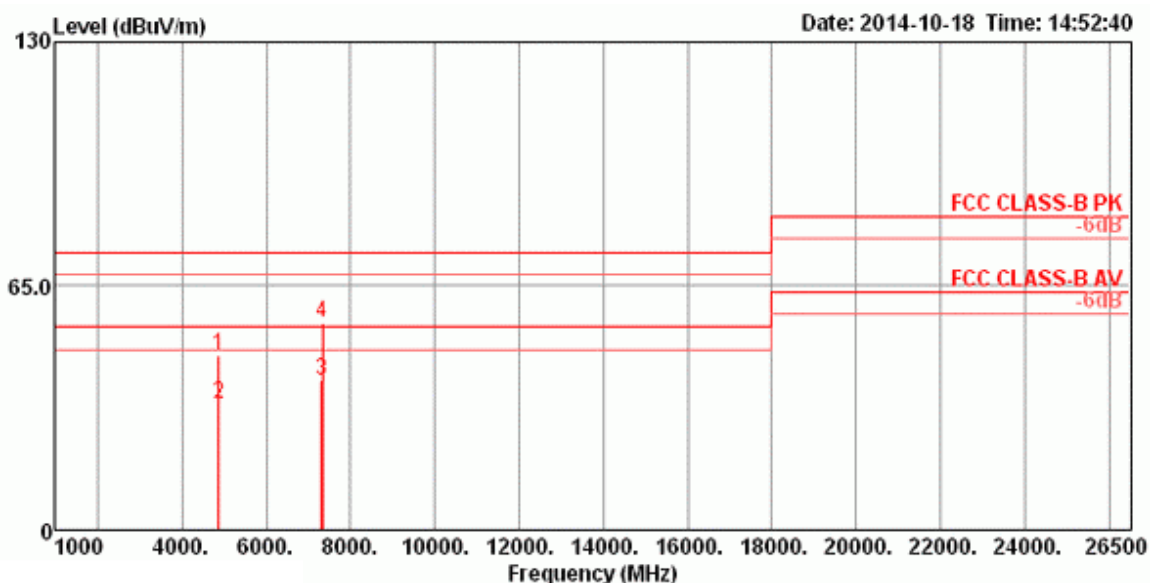




FCC RADIO TEST REPORT

Report No. : FR402168-02AA

Transmitter Radiated Emissions (1GHz~10th Harmonic)					
Operating Mode	IEEE 802.11n 40MHz / CDD MCS0 / 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	4872.90	46.71	74.00	-27.29	43.47	5.75	32.80	35.31	189	87	VERTICAL	Peak
2	4875.62	33.75	54.00	-20.25	30.52	5.75	32.80	35.32	189	87	VERTICAL	Average
3	7317.43	39.66	54.00	-14.34	30.83	7.06	37.13	35.36	100	110	VERTICAL	Average
4	7322.35	55.24	74.00	-18.76	46.40	7.06	37.13	35.35	100	110	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 / CDD MCS0 / Chain 1 + Chain 2 / CH 9							Polarization		H
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: 15:01:09

FCC CLASS-B PK
-60dB

FCC CLASS-B AV
-60dB

2

1

4

3

	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	4904.64	32.44	54.00	-21.56	29.17	5.78	32.82	35.33	100	110	HORIZONTAL	Average
2	4914.36	44.91	74.00	-29.09	41.61	5.80	32.83	35.33	100	110	HORIZONTAL	Peak
3	7338.29	37.28	54.00	-16.72	28.41	7.07	37.14	35.34	100	99	HORIZONTAL	Average
4	7340.78	49.82	74.00	-24.18	40.95	7.07	37.14	35.34	100	99	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:

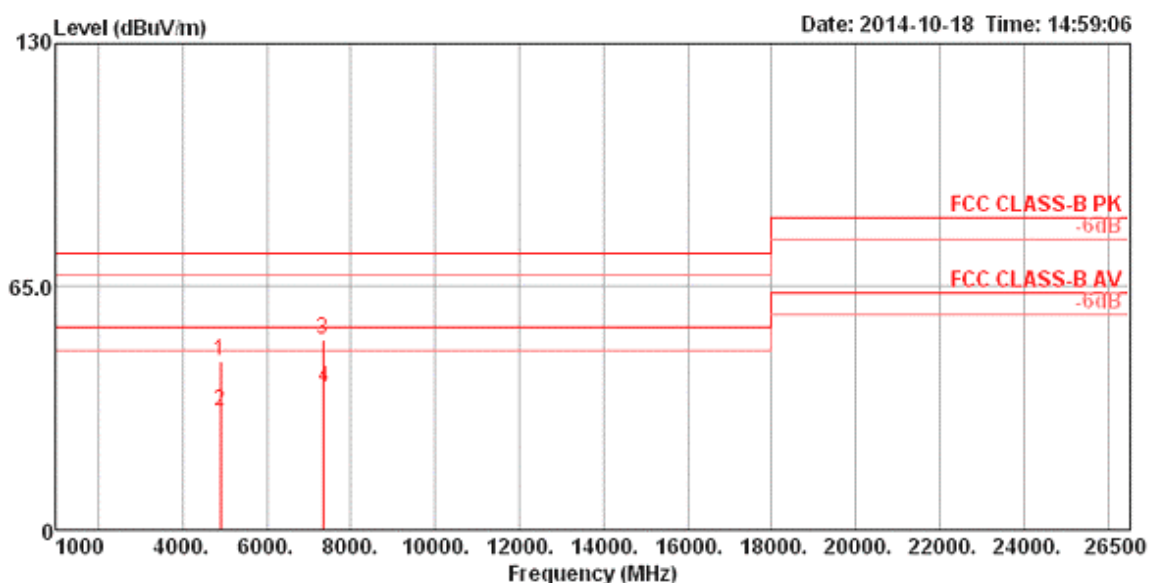
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Note 4:

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



Transmitter Radiated Emissions (1GHz~10th Harmonic)					
Operating Mode	IEEE 802.11n 40MHz / CDD MCS0 / 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	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

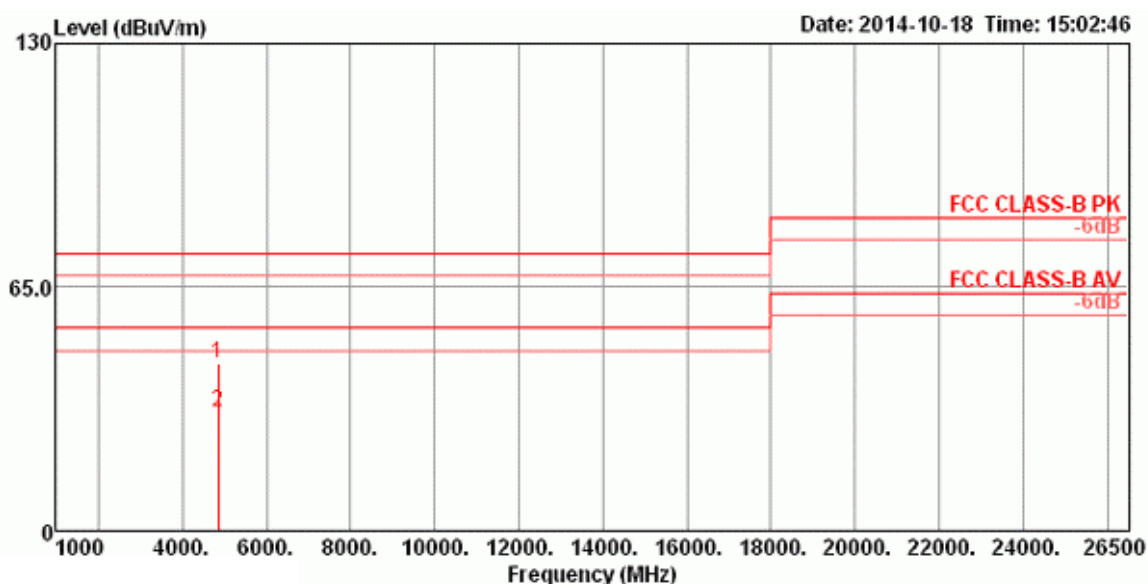
Note 1: The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

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 / 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

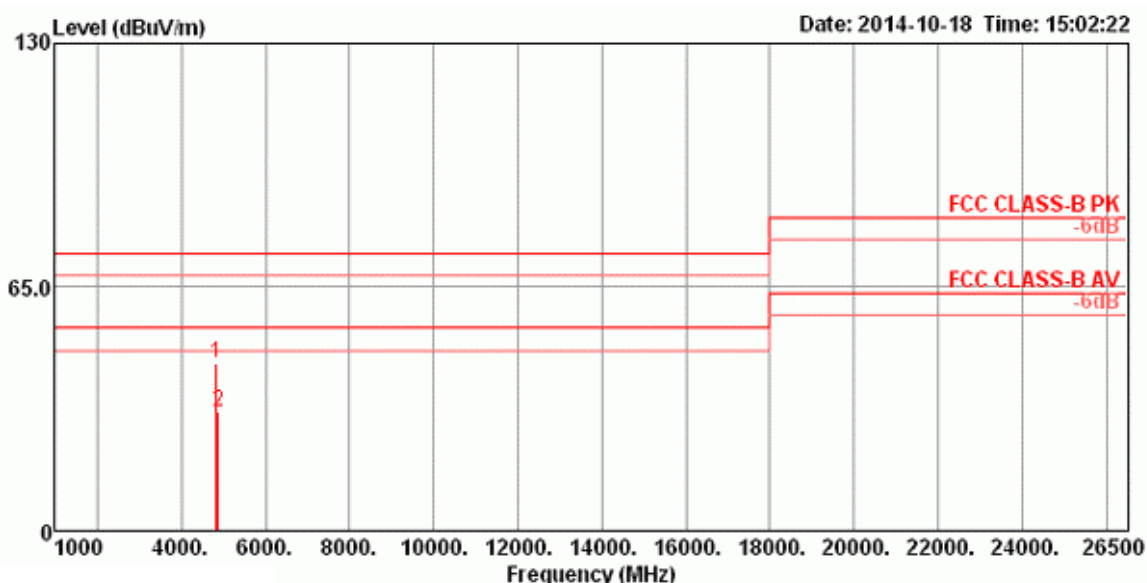
Note 1: The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

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	



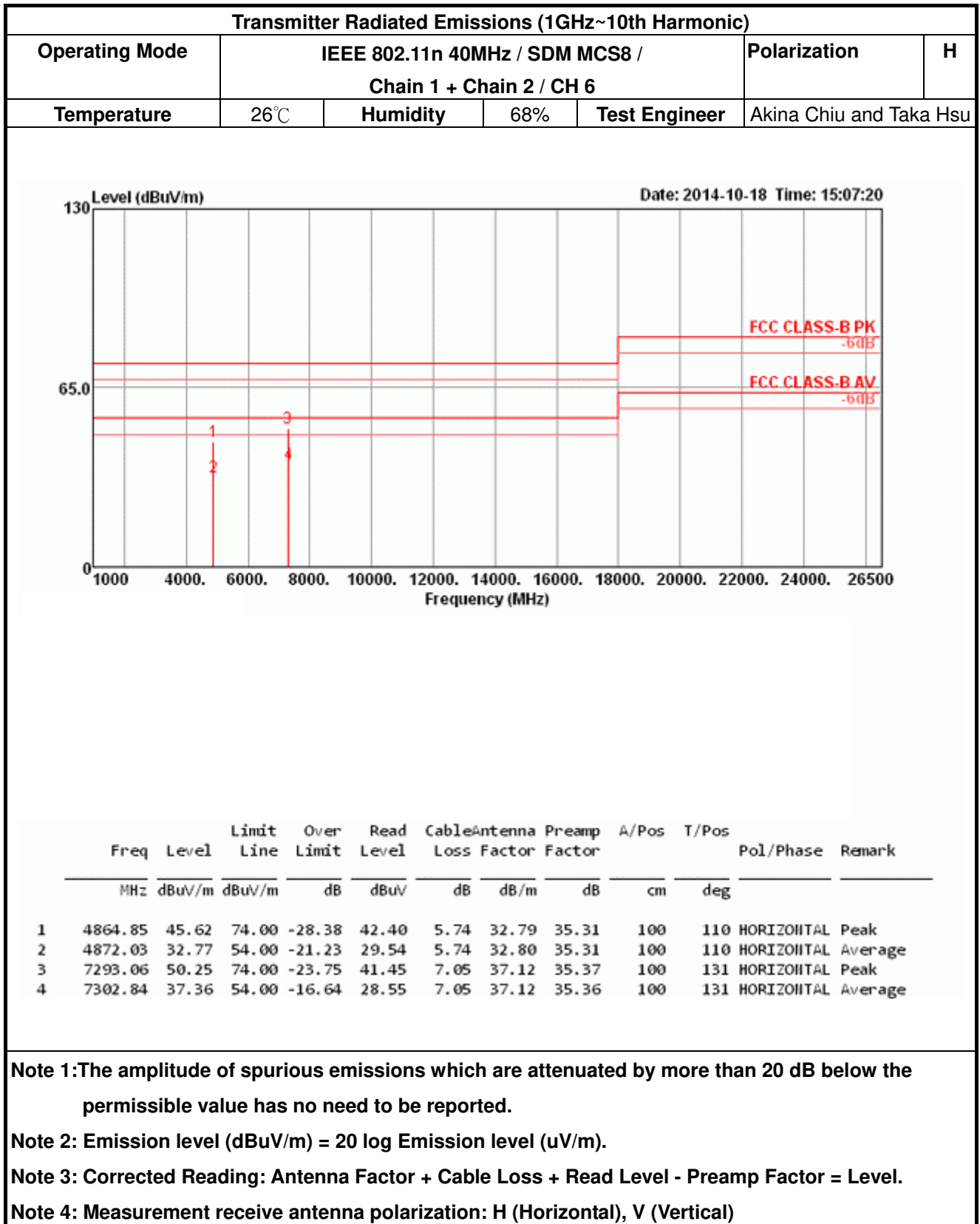
	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4836.82	44.76	74.00	-29.24	41.59	5.70	32.77	35.30	100	119	VERTICAL	Peak
2	4863.80	31.43	54.00	-22.57	28.22	5.73	32.79	35.31	100	119	VERTICAL	Average

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).

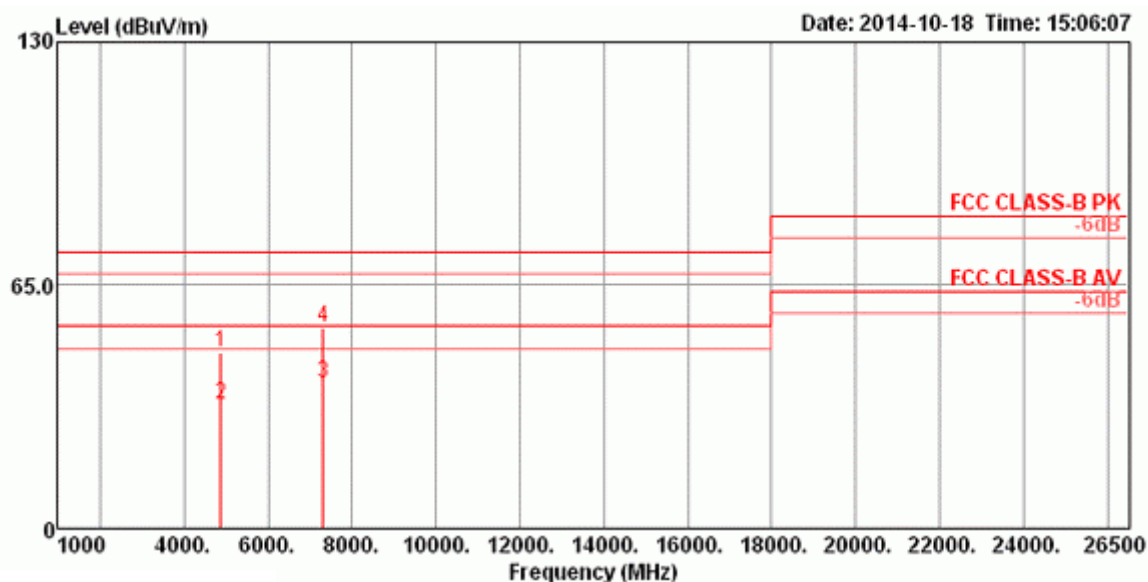
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

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



Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	IEEE 802.11n 40MHz / SDM MCS8 / 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.

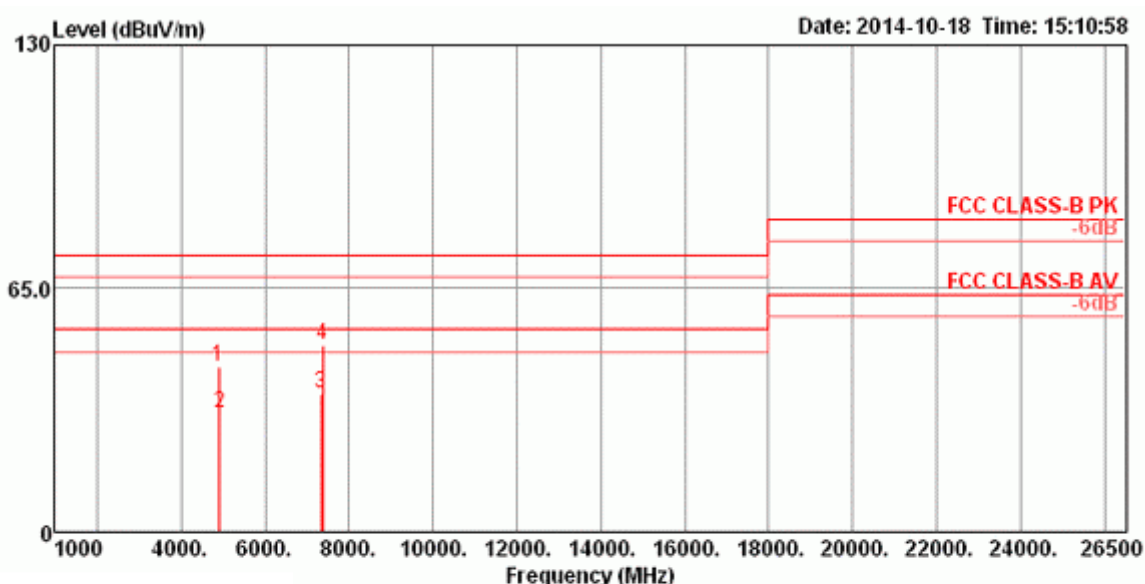
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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 / Chain 1 + Chain 2 / CH 9			Polarization	H
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



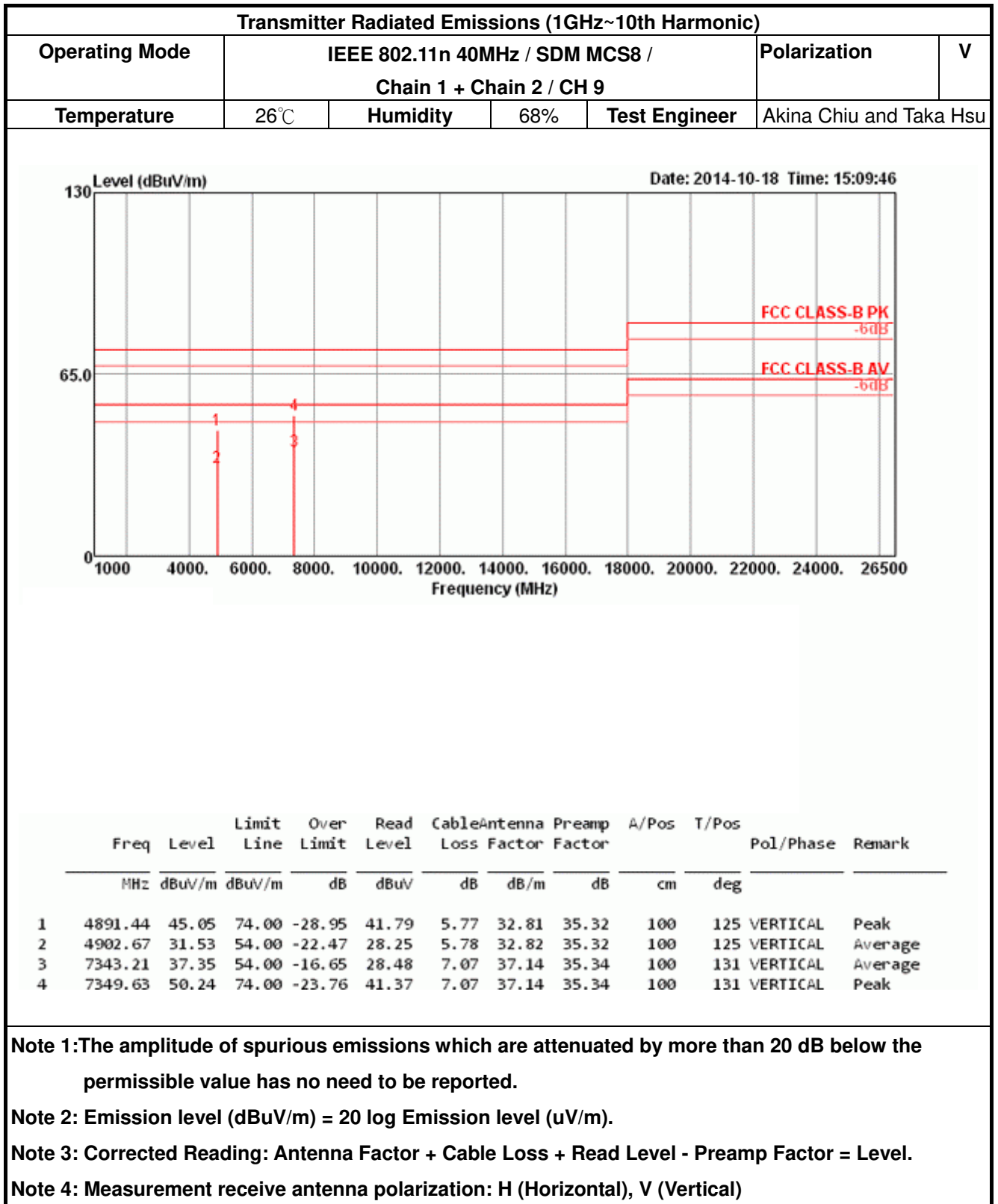
	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4886.46	44.00	74.00	-30.00	40.75	5.76	32.81	35.32	100	97	HORIZONTAL	Peak
2	4906.32	31.71	54.00	-22.29	28.43	5.79	32.82	35.33	100	97	HORIZONTAL	Average
3	7338.46	37.12	54.00	-16.88	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)



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 th 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

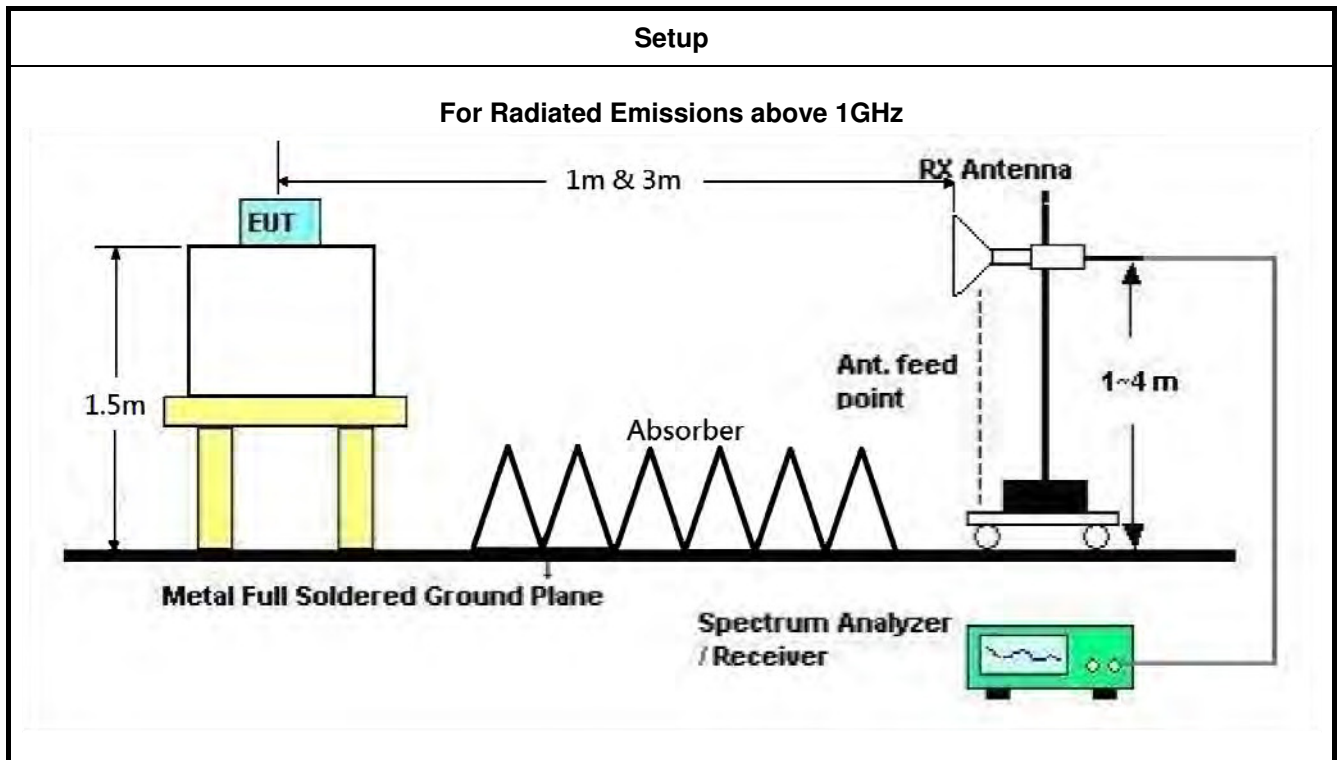
For Radiated band edges Measurement:

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



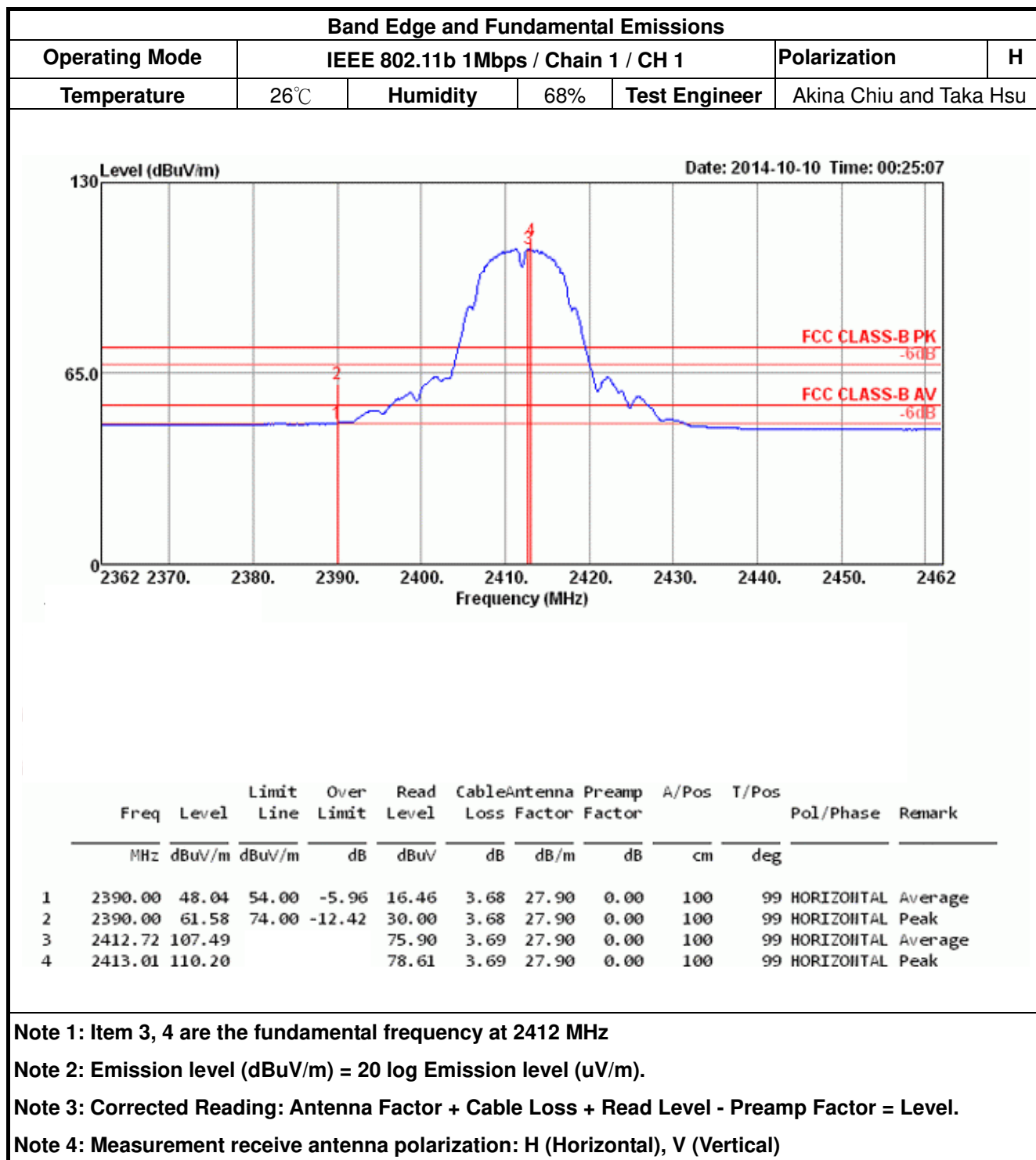
2.6.5 Test Deviation

There is no deviation with the original standard.

2.6.6 EUT Operation during Test

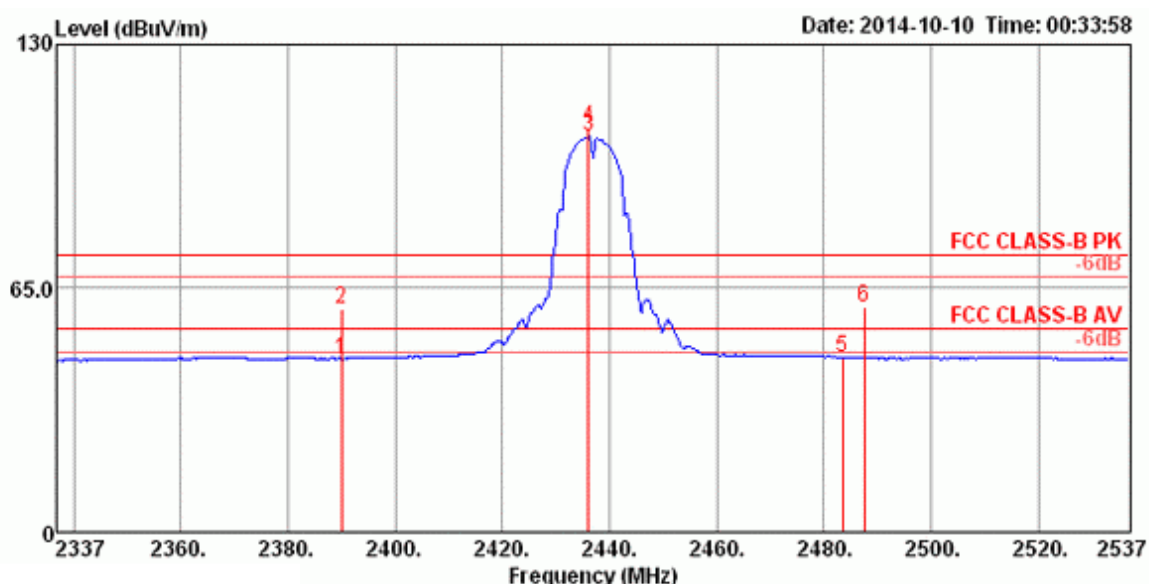
The EUT was programmed to be in continuously transmitting mode using Mtool 2.0.1.0(refer to APPENDIX C. List of test command).

2.6.7 Test Results



Band Edge and Fundamental Emissions

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



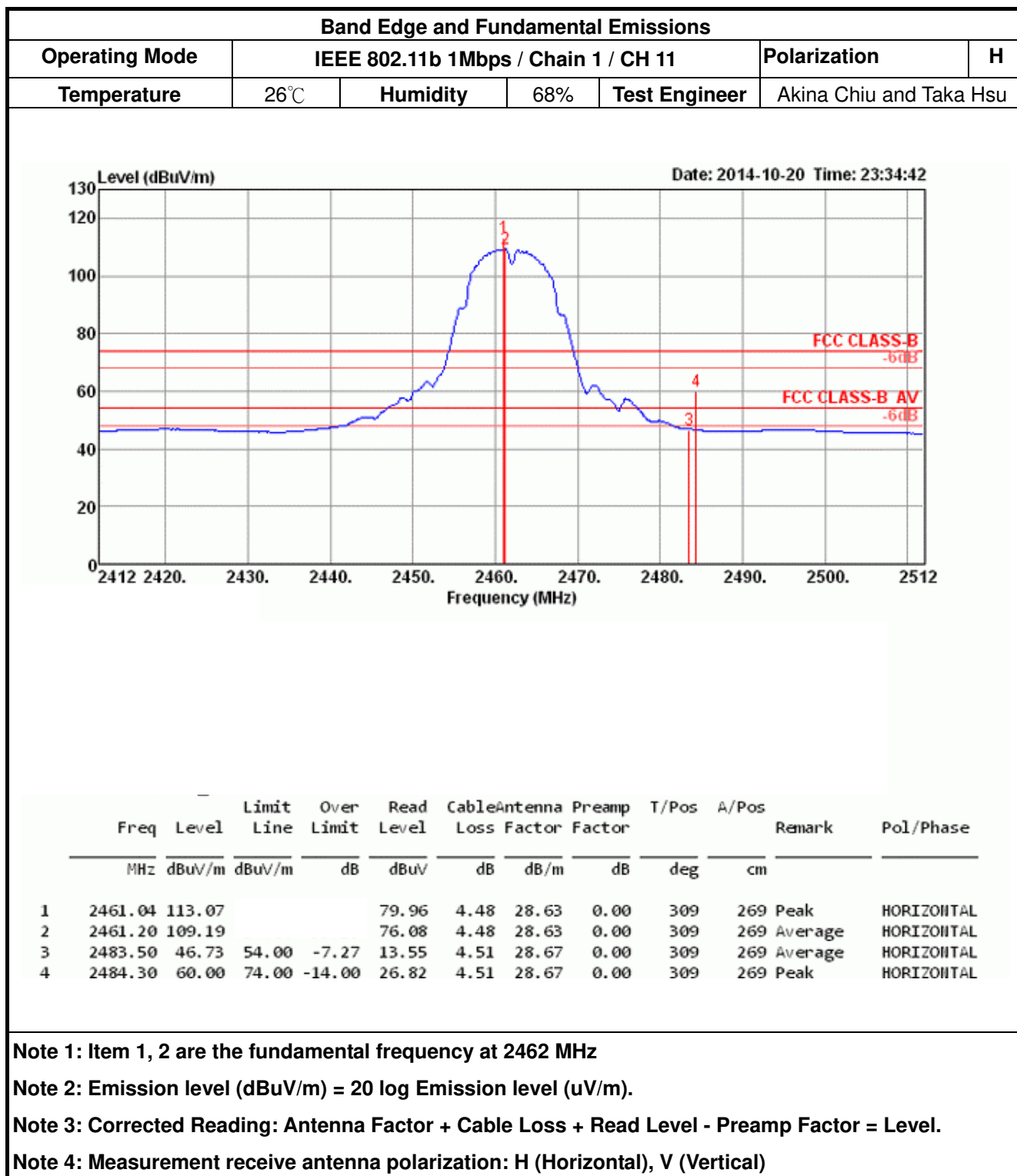
	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2390.00	46.23	54.00	-7.77	14.65	3.68	27.90	0.00	100	57	HORIZONTAL	Average
2	2390.00	59.30	74.00	-14.70	27.72	3.68	27.90	0.00	100	57	HORIZONTAL	Peak
3	2436.13	105.33			73.72	3.71	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).

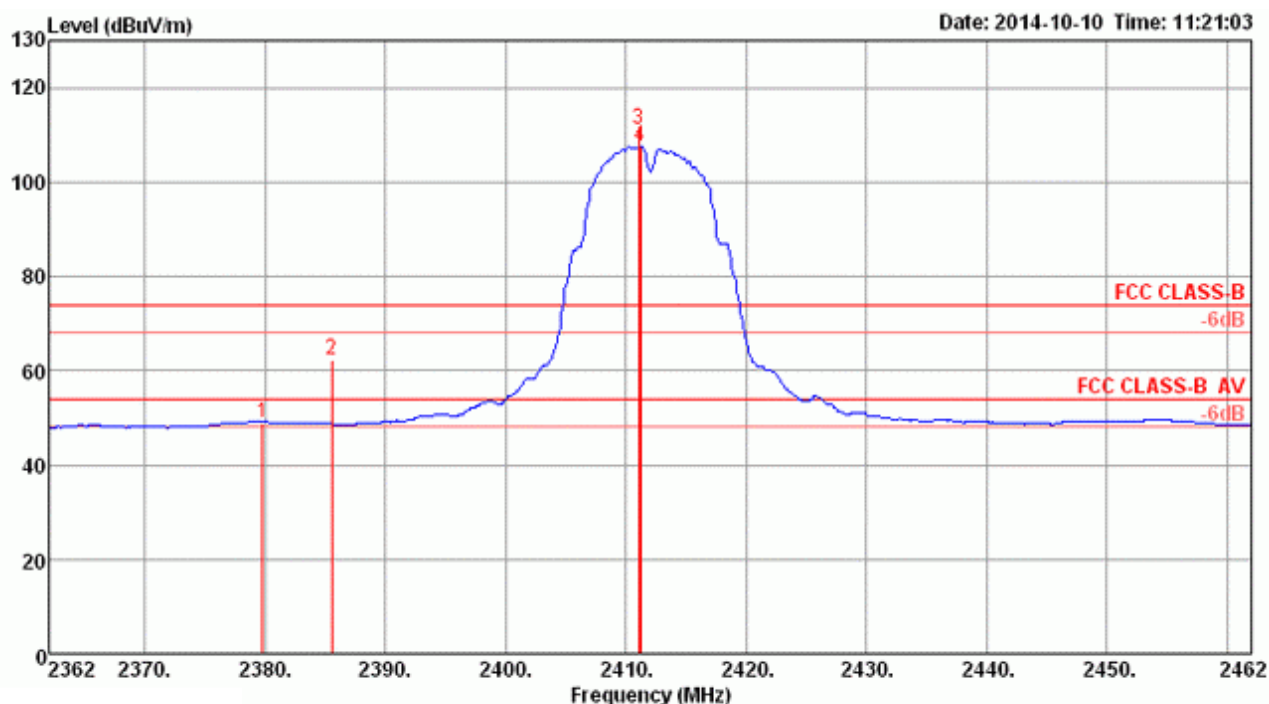
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

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



Band Edge and Fundamental Emissions

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



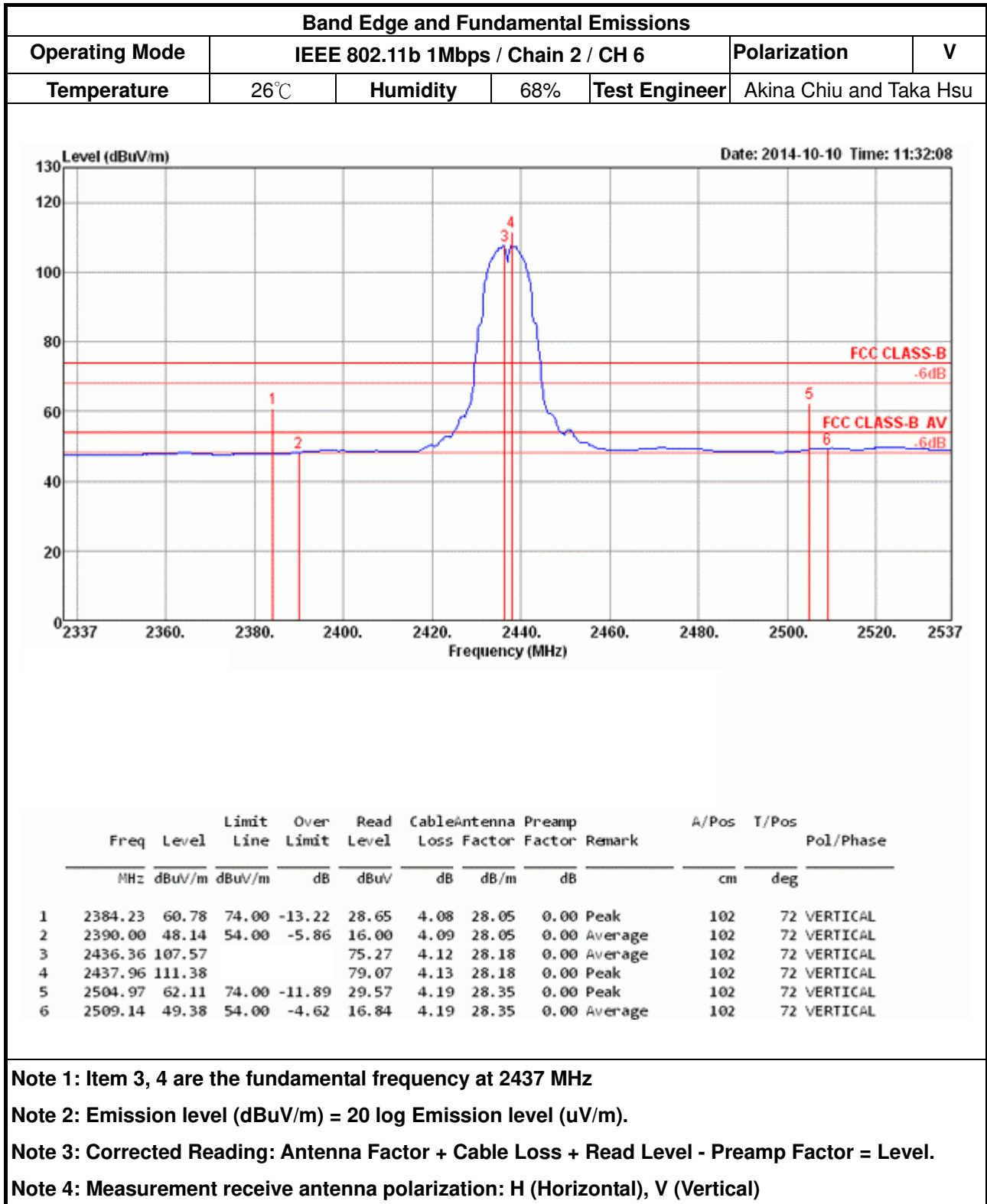
	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2379.74	48.79	54.00	-5.21	16.70	4.08	28.01	0.00	Average	102	64	VERTICAL
2	2385.51	62.42	74.00	-11.58	30.28	4.09	28.05	0.00	Peak	102	64	VERTICAL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

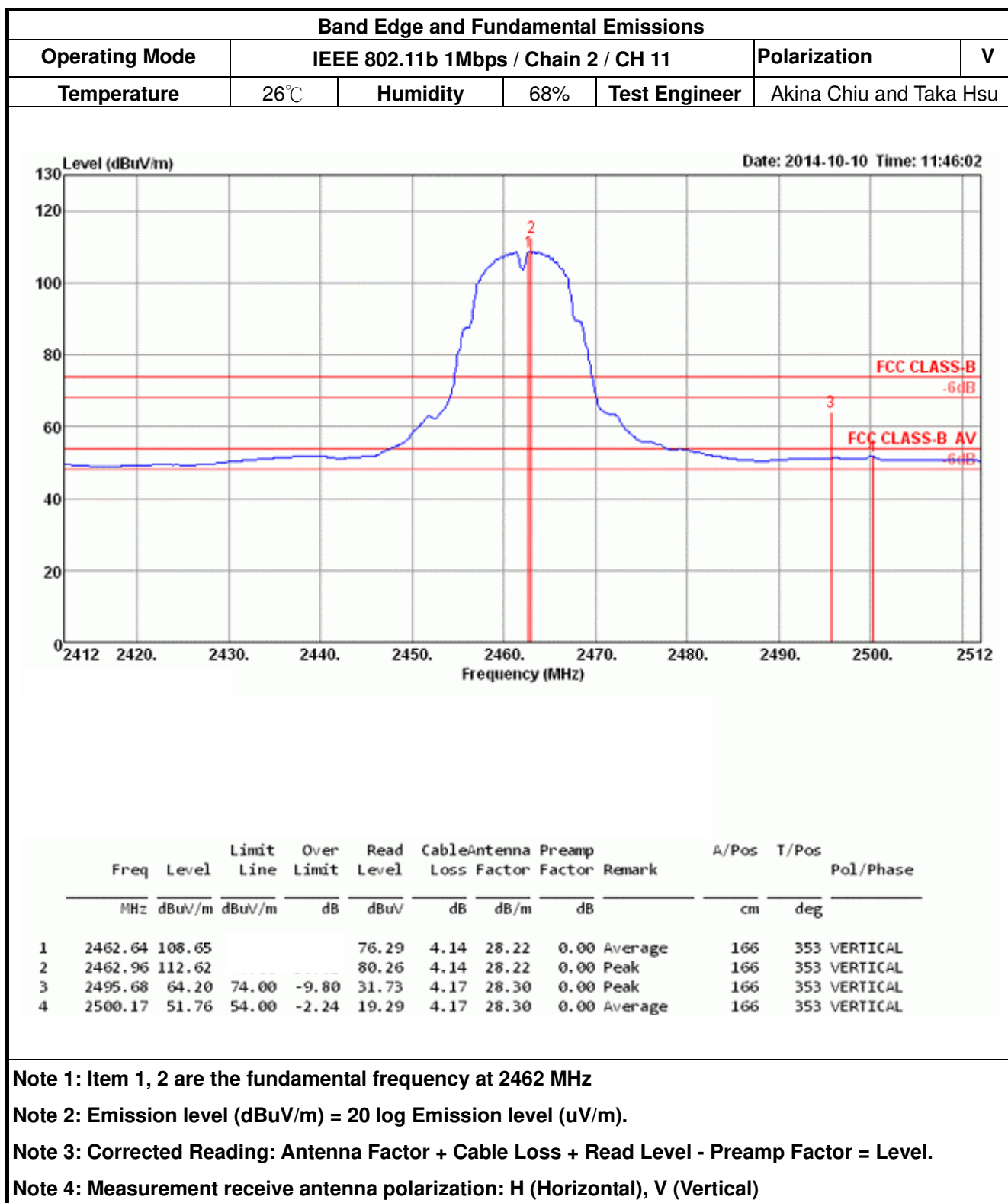
Note 1: Item 3, 4 are the fundamental frequency at 2412 MHz

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.

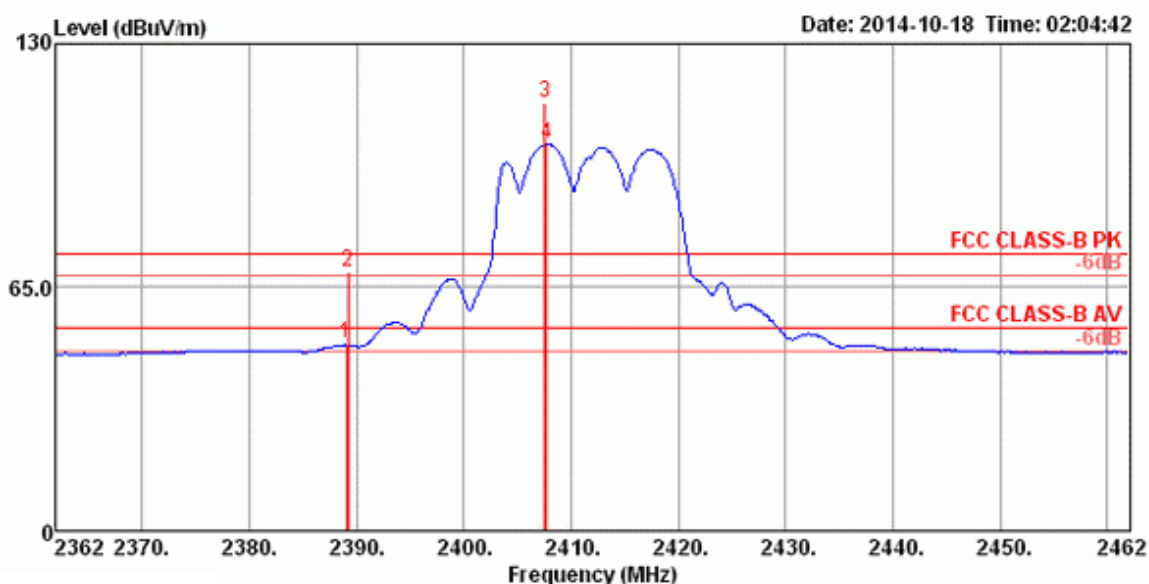
Note 4: Measurement receive antenna polarization: H (Horizontal), V (Vertical)





Band Edge and Fundamental Emissions

Operating Mode	IEEE 802.11g 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	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

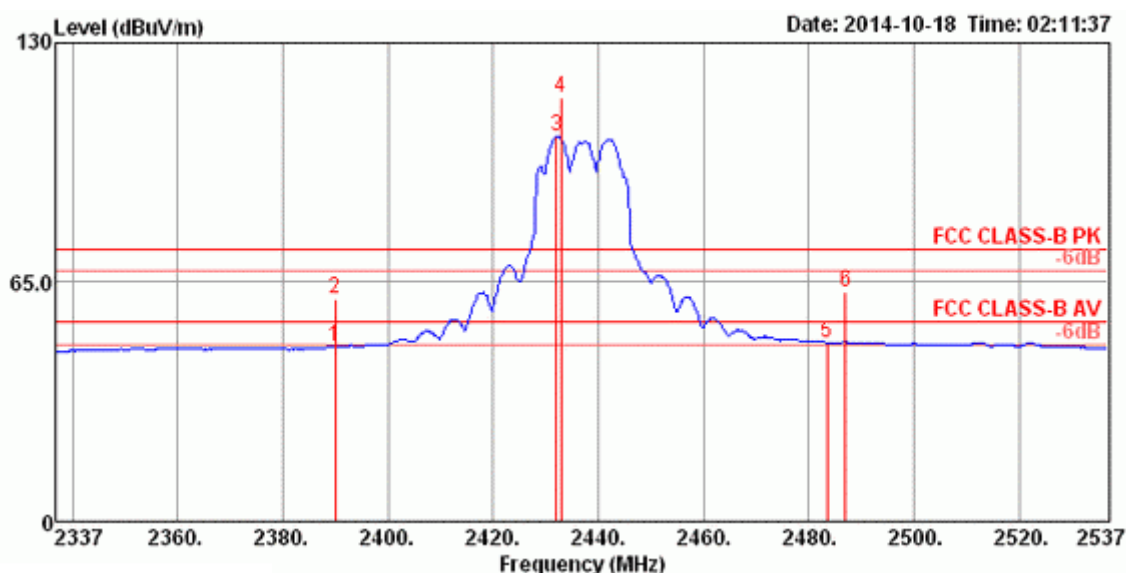
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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

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



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	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

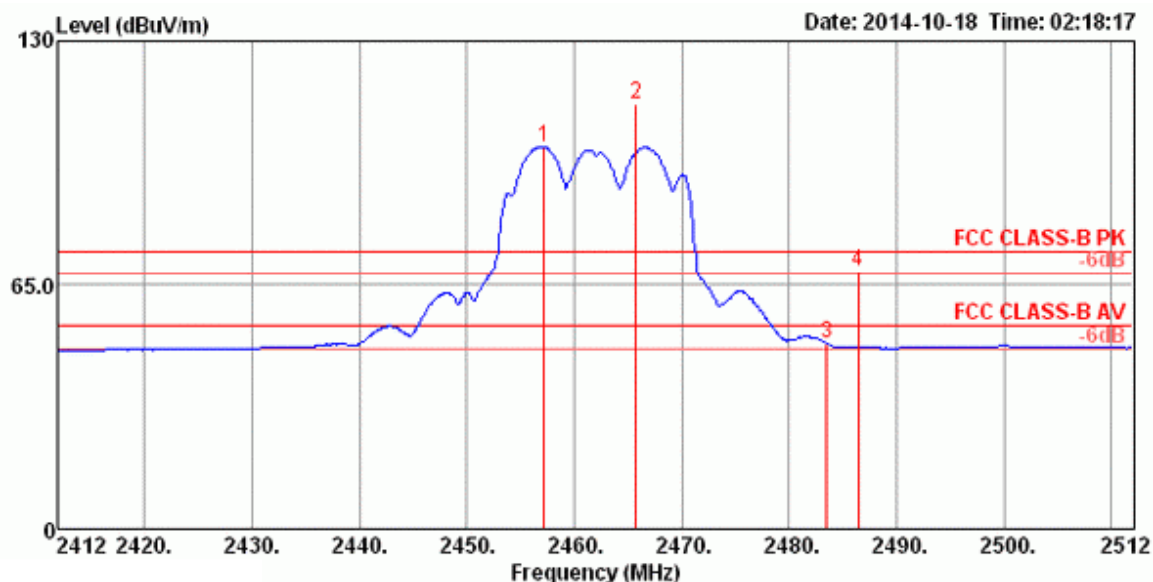
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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

Operating Mode	IEEE 802.11g CDD 6Mbps / 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	2457.22	101.91			70.29	3.72	27.90	0.00	154	2	VERTICAL	Average
2	2465.76	112.99			81.37	3.72	27.90	0.00	154	2	VERTICAL	Peak
3	2483.50	49.23	54.00	-4.77	17.60	3.73	27.90	0.00	154	2	VERTICAL	Average
4	2486.39	68.71	74.00	-5.29	37.08	3.73	27.90	0.00	154	2	VERTICAL	Peak

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

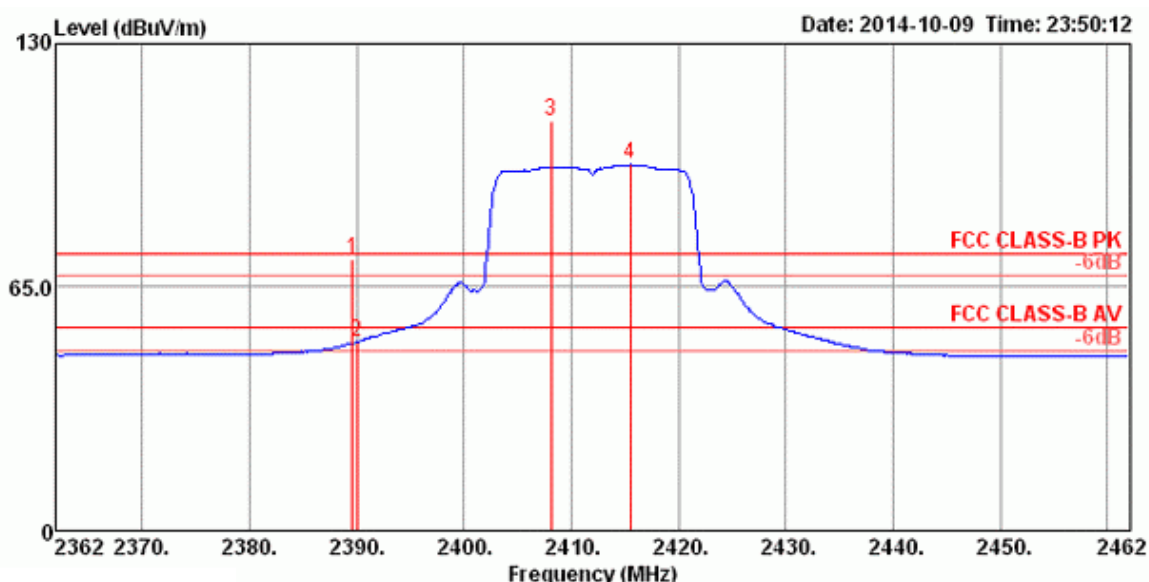
Note 2: Emission level (dBUV/m) = 20 log Emission level (uV/m).

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

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	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

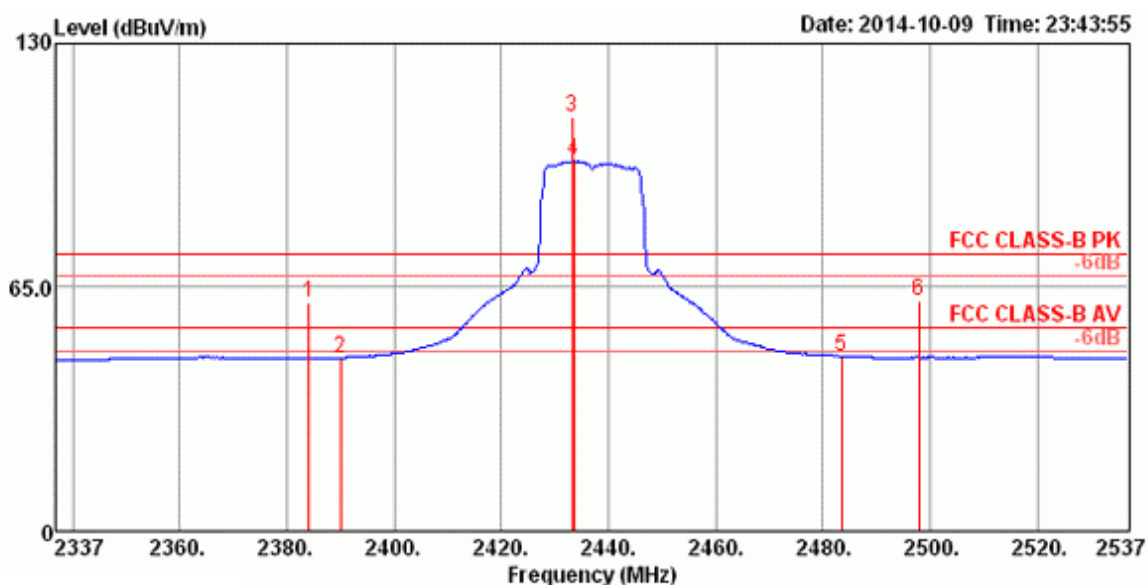
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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

Operating Mode	IEEE 802.11n 20MHz / MCS0 / Chain 1 / 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	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

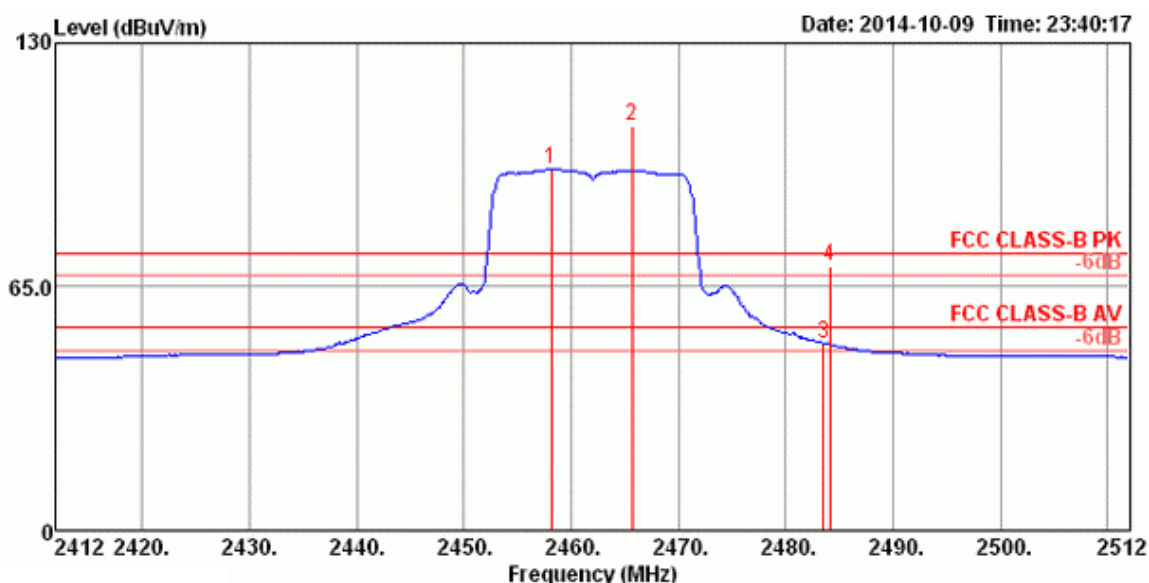
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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

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



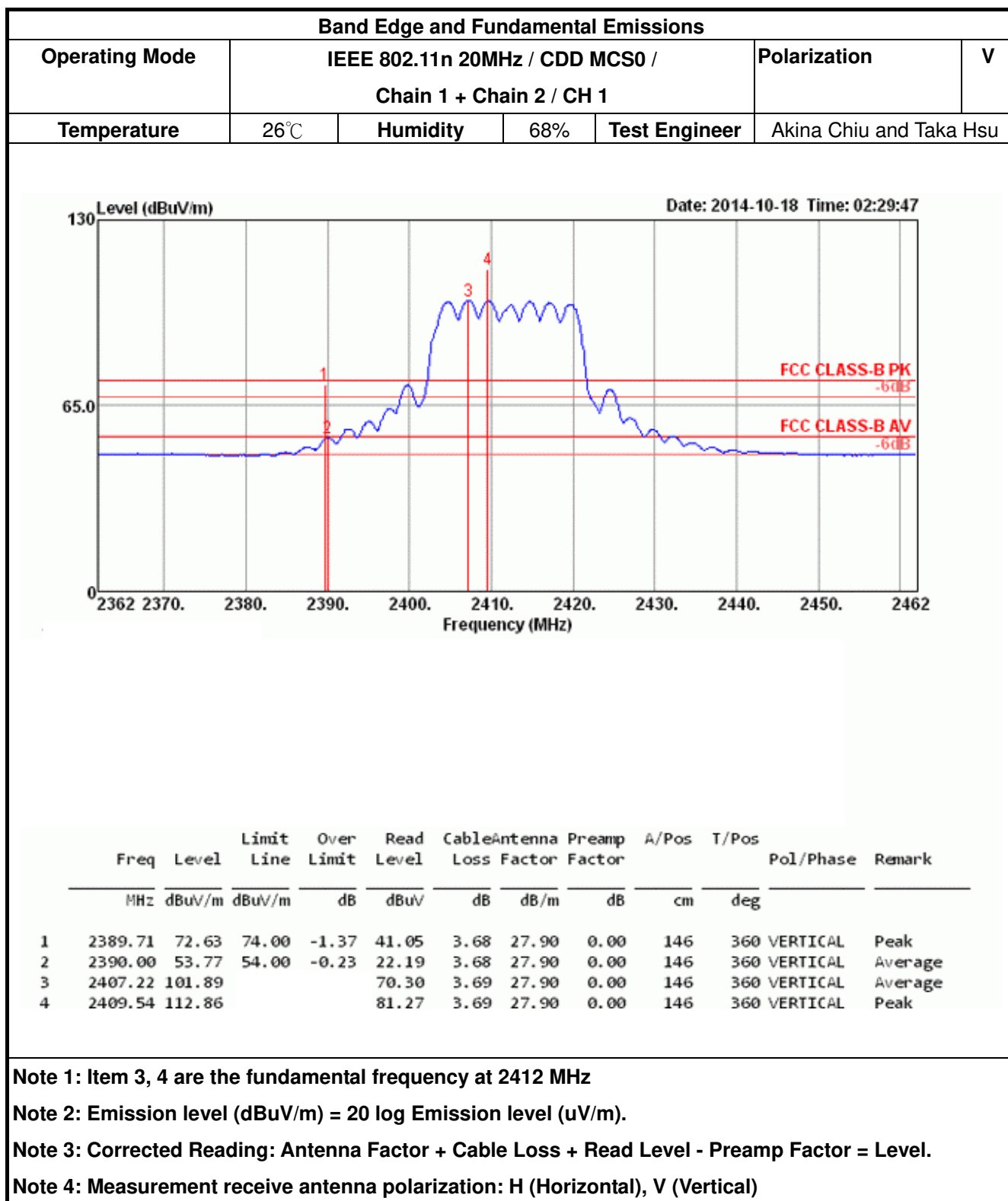
	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	2458.09	96.29			64.67	3.72	27.90	0.00	137	58	HORIZONTAL Average
2	2465.62	107.76			76.14	3.72	27.90	0.00	137	58	HORIZONTAL Peak
3	2483.50	49.91	54.00	-4.09	18.28	3.73	27.90	0.00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

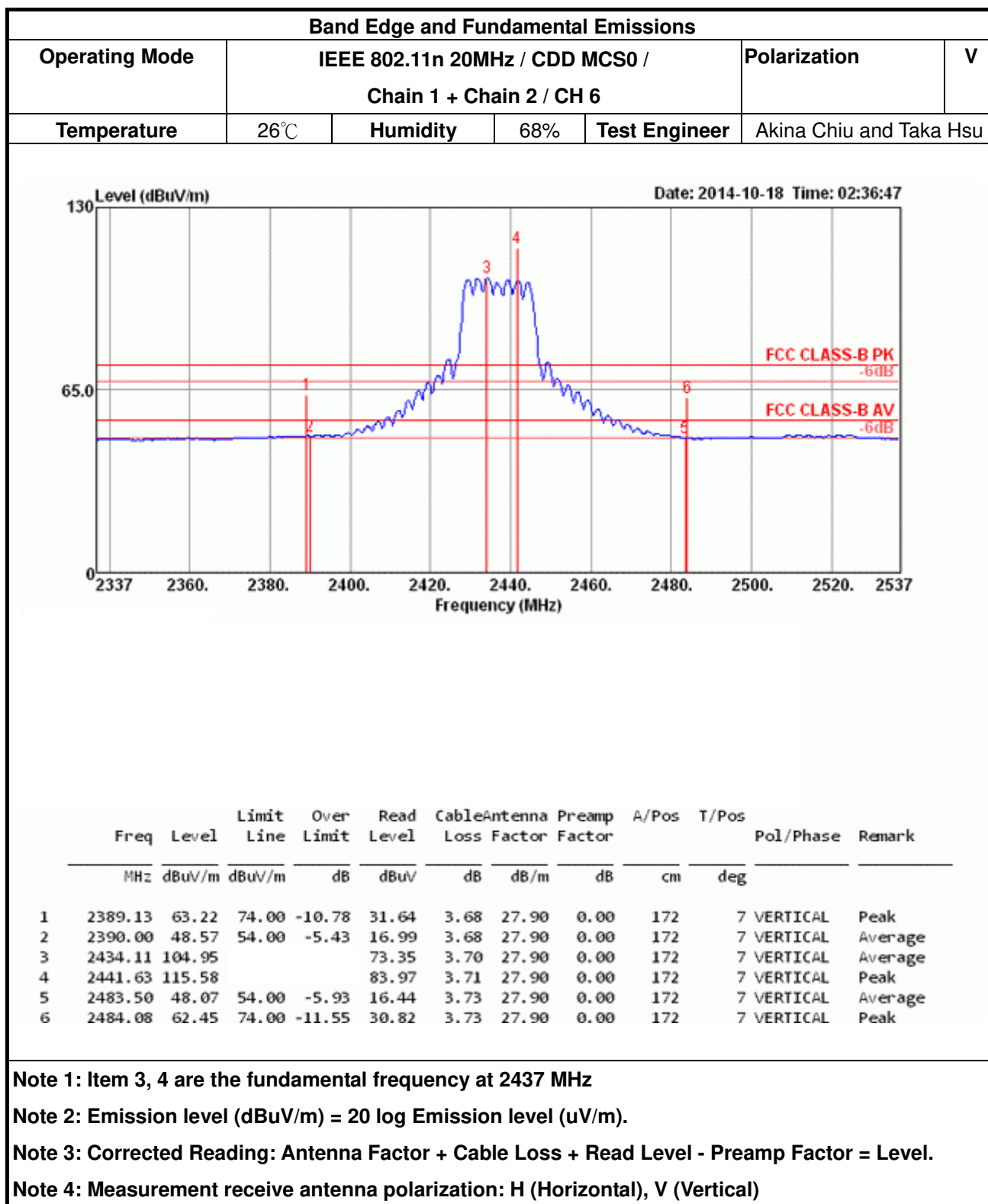
Note 1: Item 1, 2 are the fundamental frequency at 2462 MHz

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)

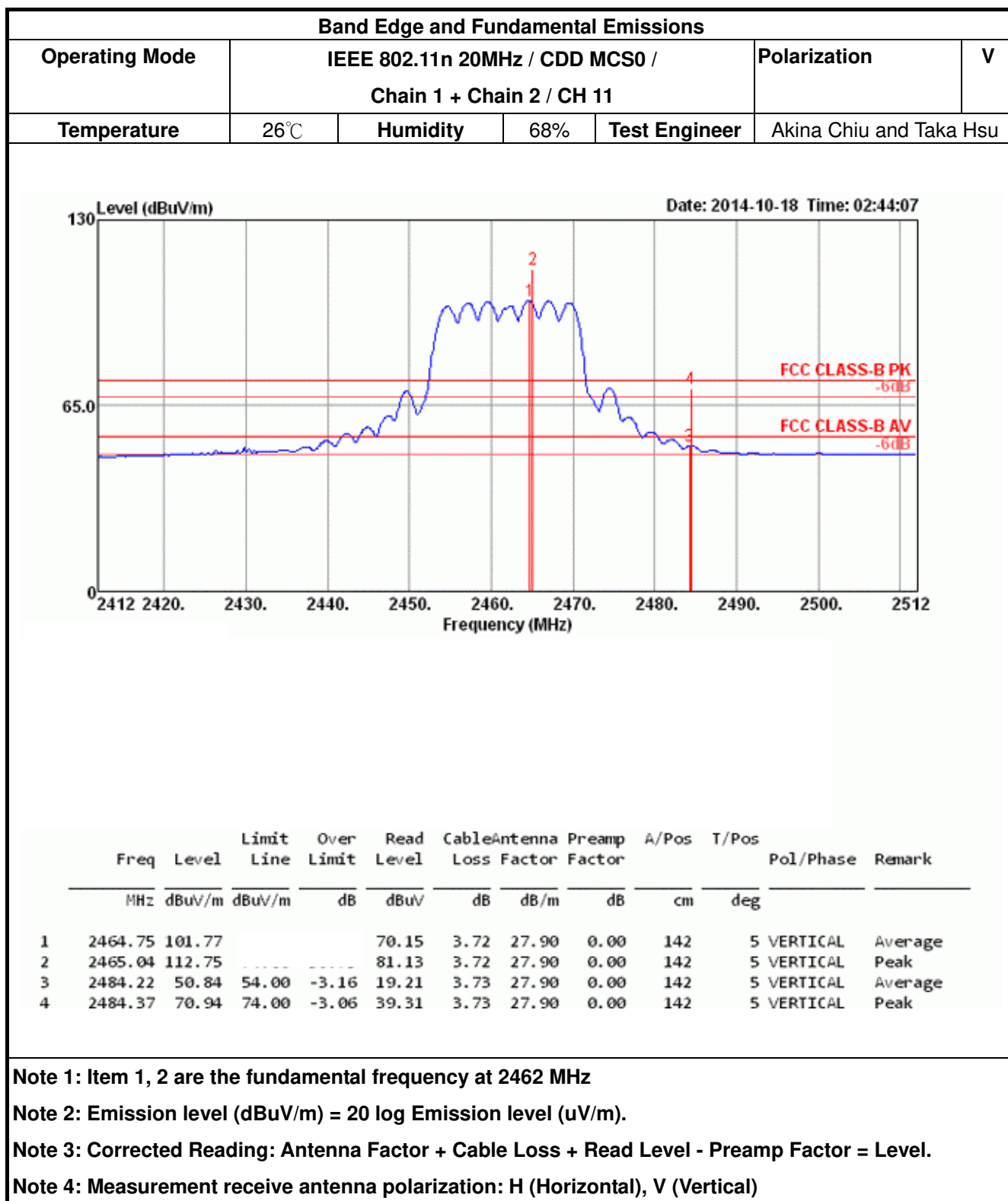




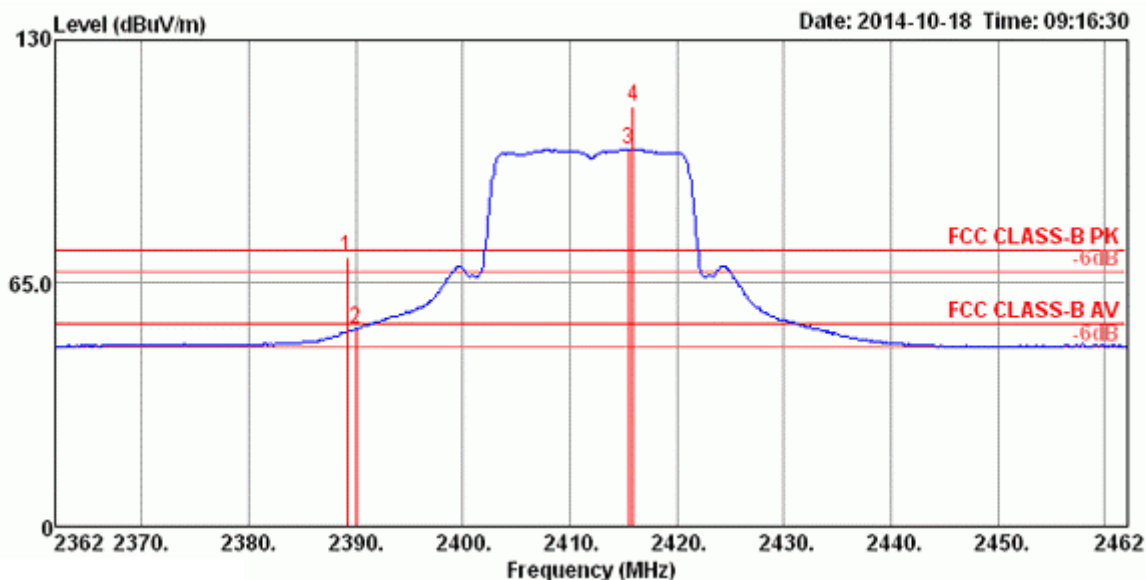


FCC RADIO TEST REPORT

Report No. : FR402168-02AA



Band Edge and Fundamental Emissions					
Operating Mode	IEEE 802.11n 20MHz / SDM MCS8 / Chain 1 + Chain 2 / CH 1			Polarization	V
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



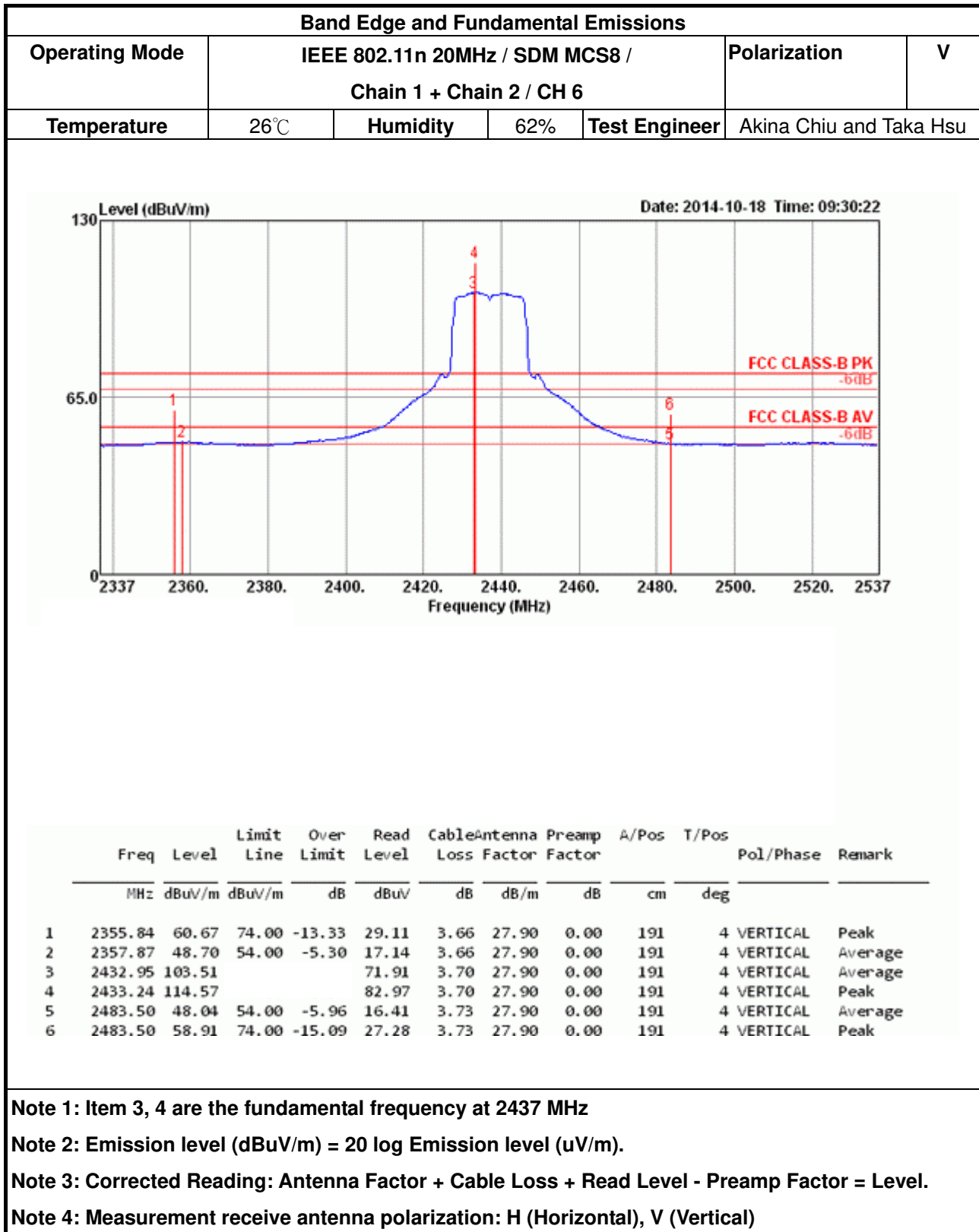
	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2389.13	71.84	74.00	-2.16	40.26	3.68	27.90	0.00	183	7	VERTICAL	Peak
2	2390.00	52.78	54.00	-1.22	21.20	3.68	27.90	0.00	183	7	VERTICAL	Average
3	2415.47	100.88			69.29	3.69	27.90	0.00	183	7	VERTICAL	Average
4	2415.91	112.39			80.80	3.69	27.90	0.00	183	7	VERTICAL	Peak

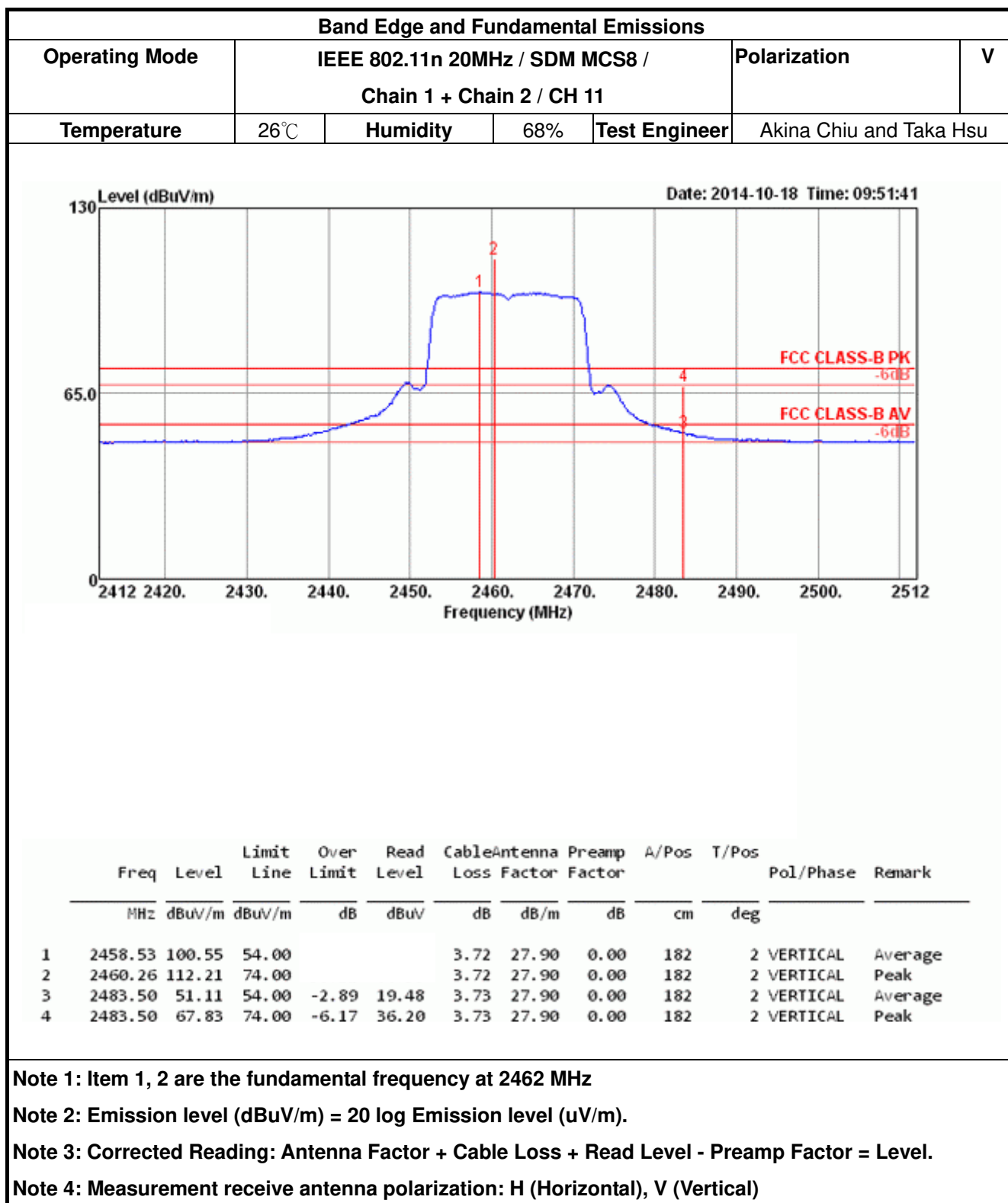
Note 1: Item 3, 4 are the fundamental frequency at 2412 MHz

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.

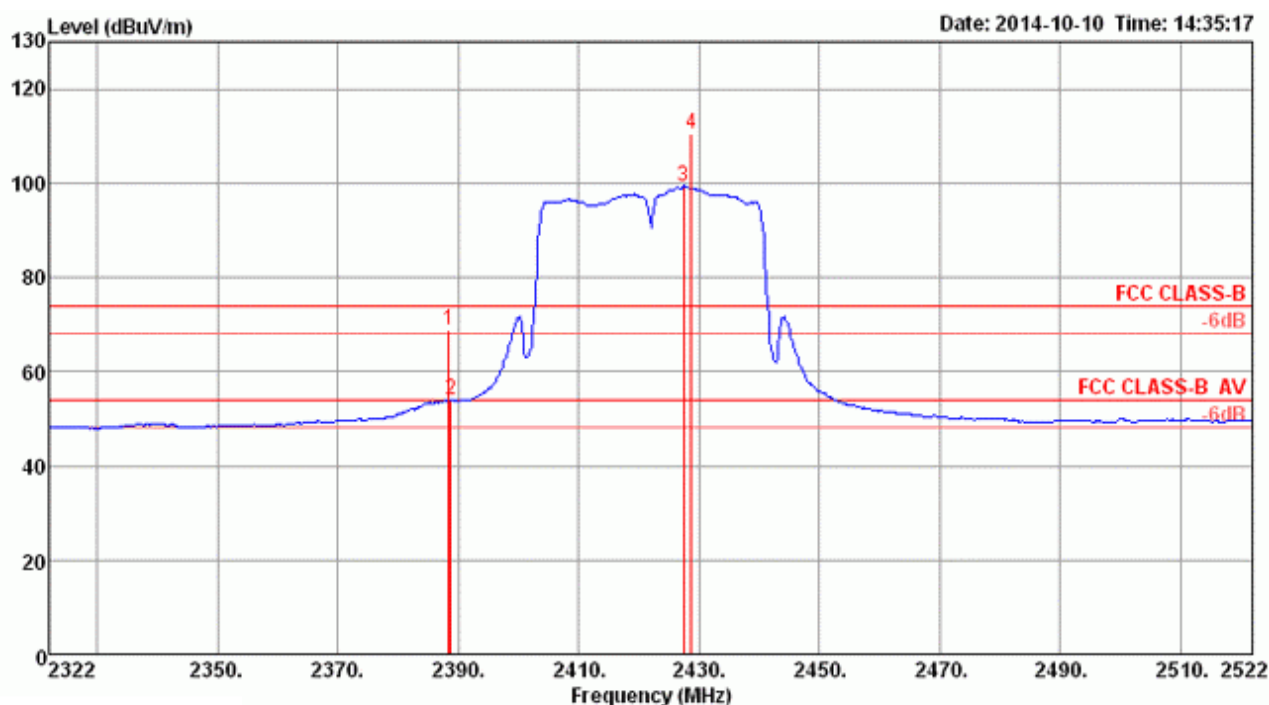
Note 4: Measurement receive antenna polarization: H (Horizontal), V (Vertical)





Band Edge and Fundamental Emissions

Operating Mode	IEEE 802.11n 40MHz / MCS0 / Chain 1 / 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	
	MHz	dBuV/m	Line	Limit	Level	Loss	Factor	Factor	Remark	cm	deg	Pol/Phase
			dBuV/m	dB	dBuV	dB	dB/m	dB				
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

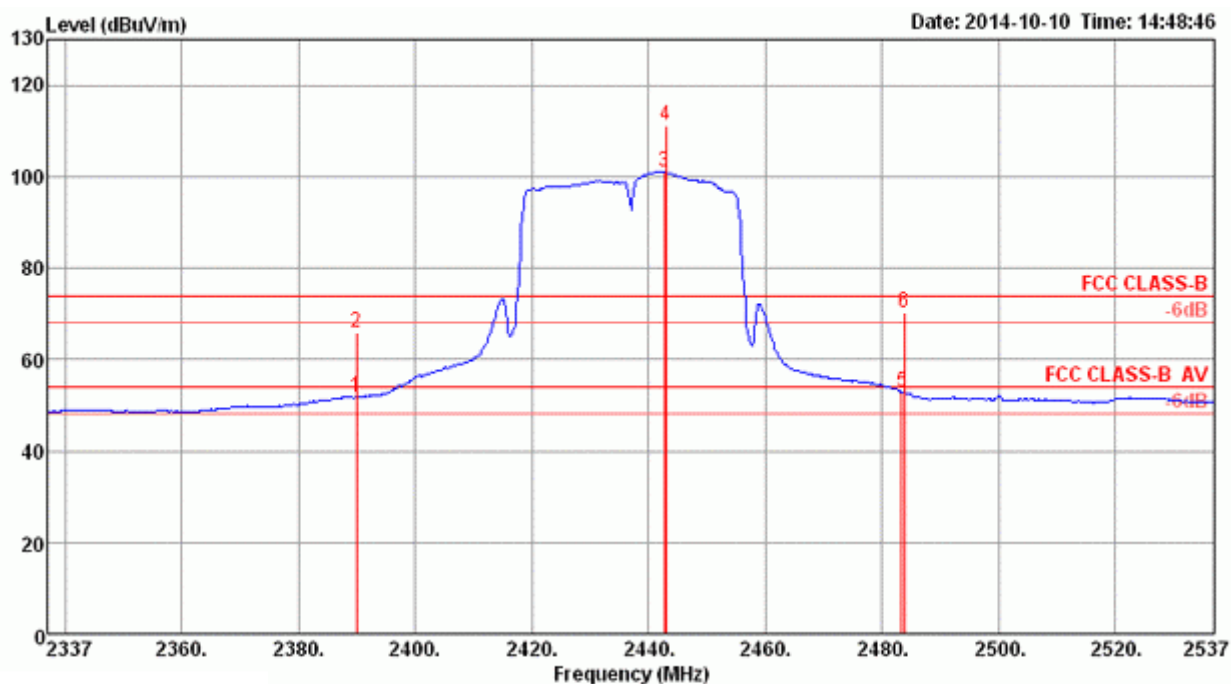
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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

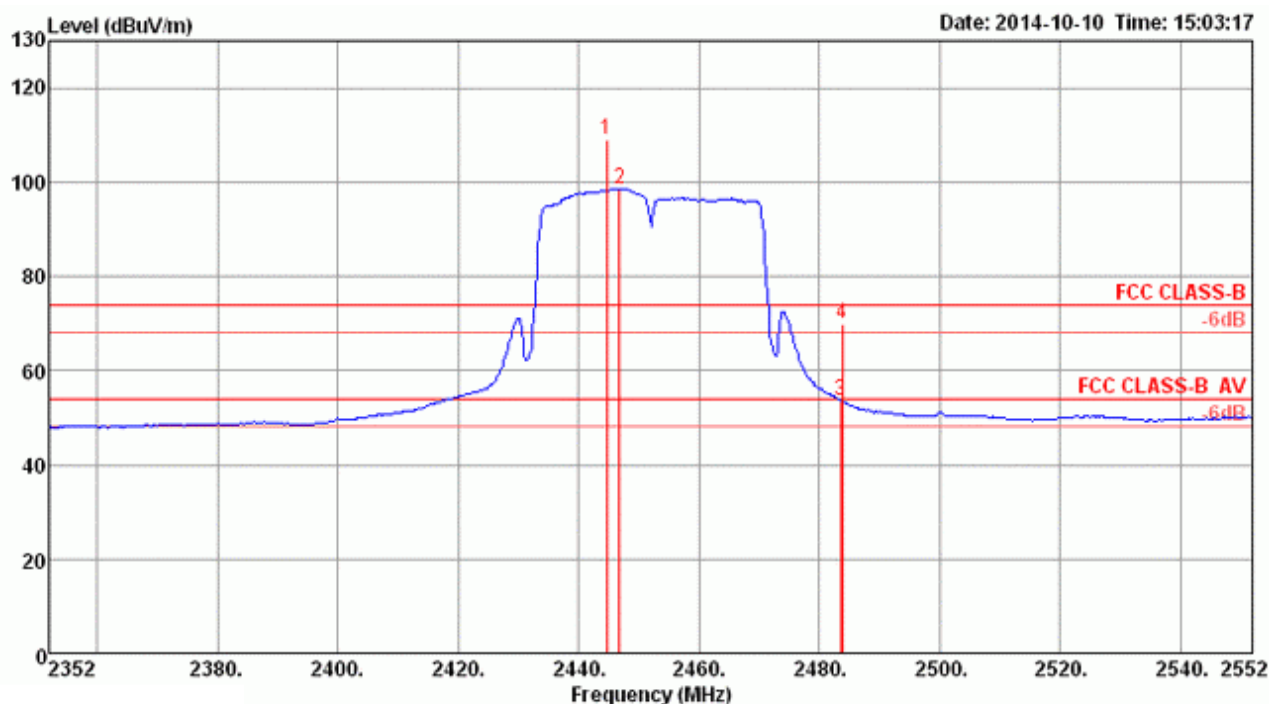
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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	



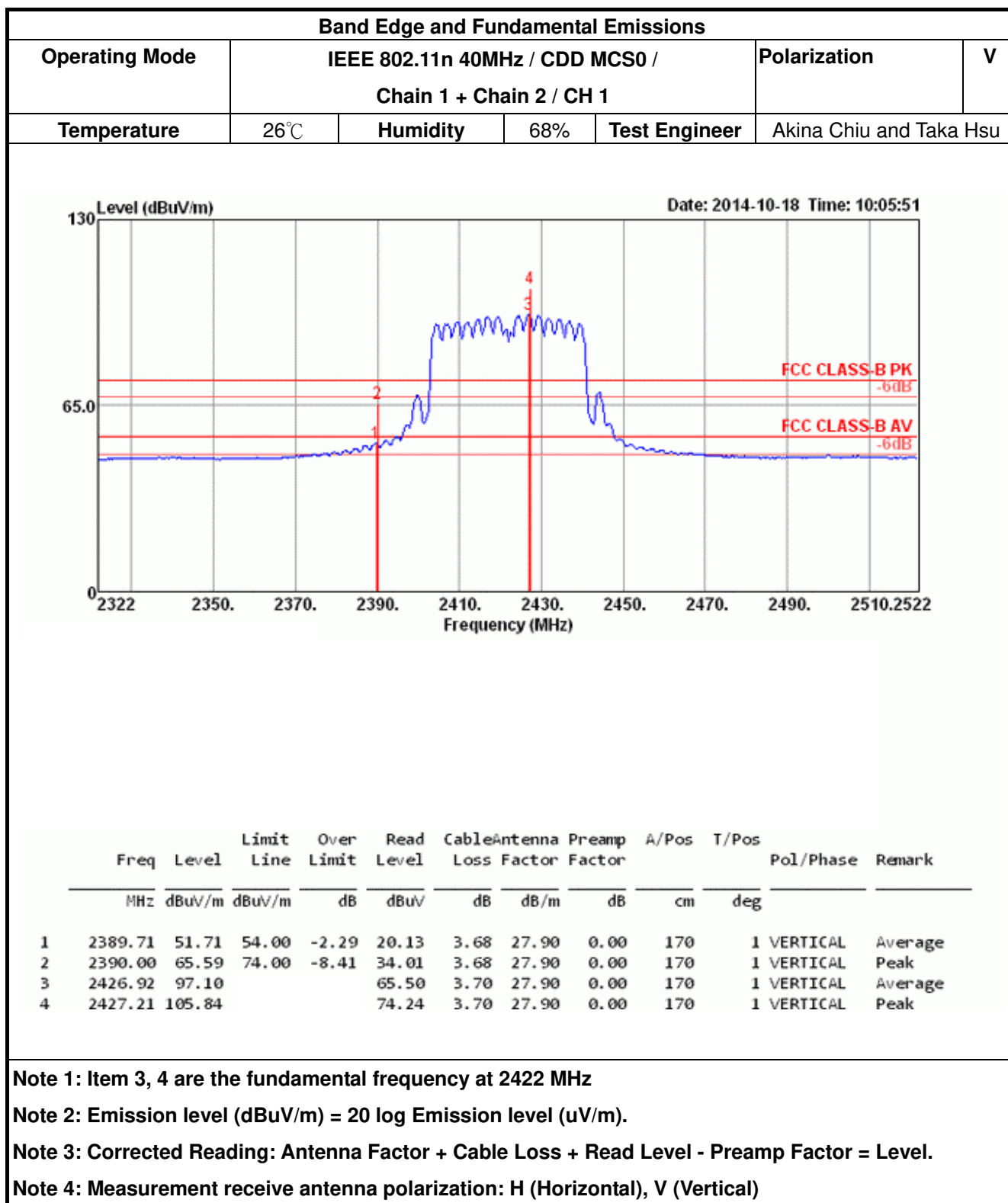
	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp		A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	Remark	cm	deg	
1	2444.63	108.93	74.00			4.13	28.18	0.00	Peak	150	11	VERTICAL
2	2446.87	98.59	54.00			4.13	28.18	0.00	Average	150	11	VERTICAL
3	2483.50	53.76	54.00	-0.24	21.34	4.16	28.26	0.00	Average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

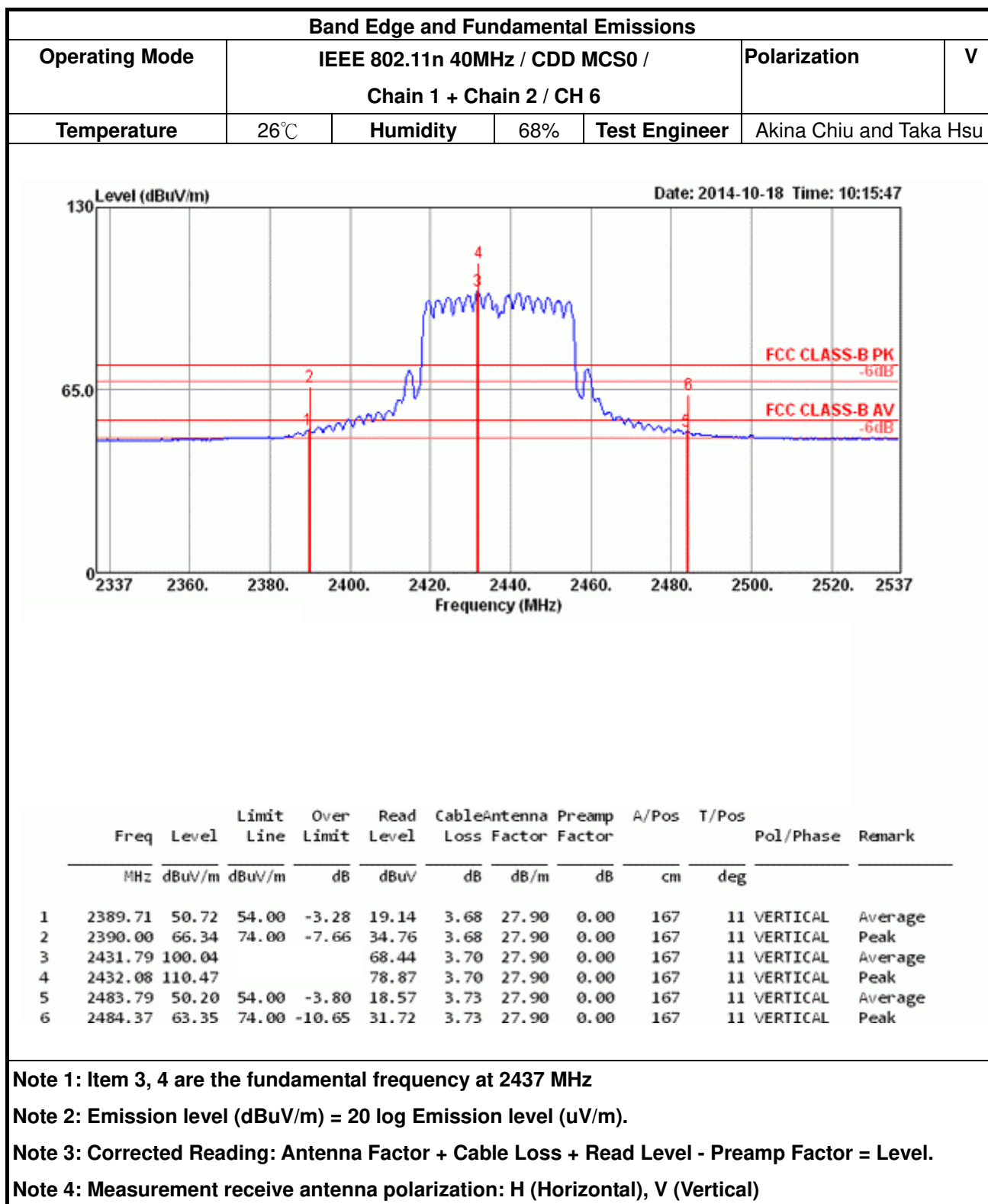
Note 1: Item 1, 2 are the fundamental frequency at 2452 MHz

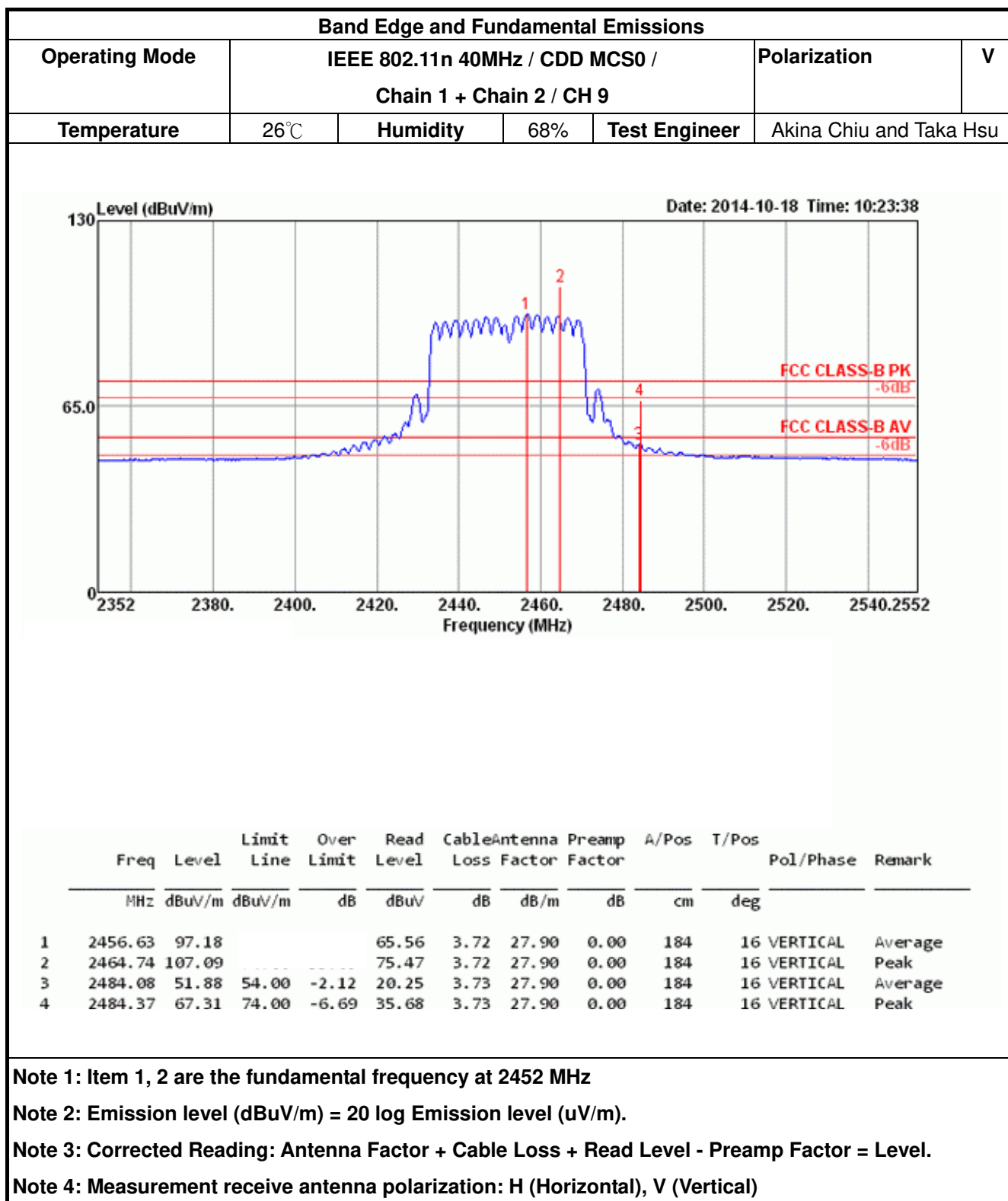
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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

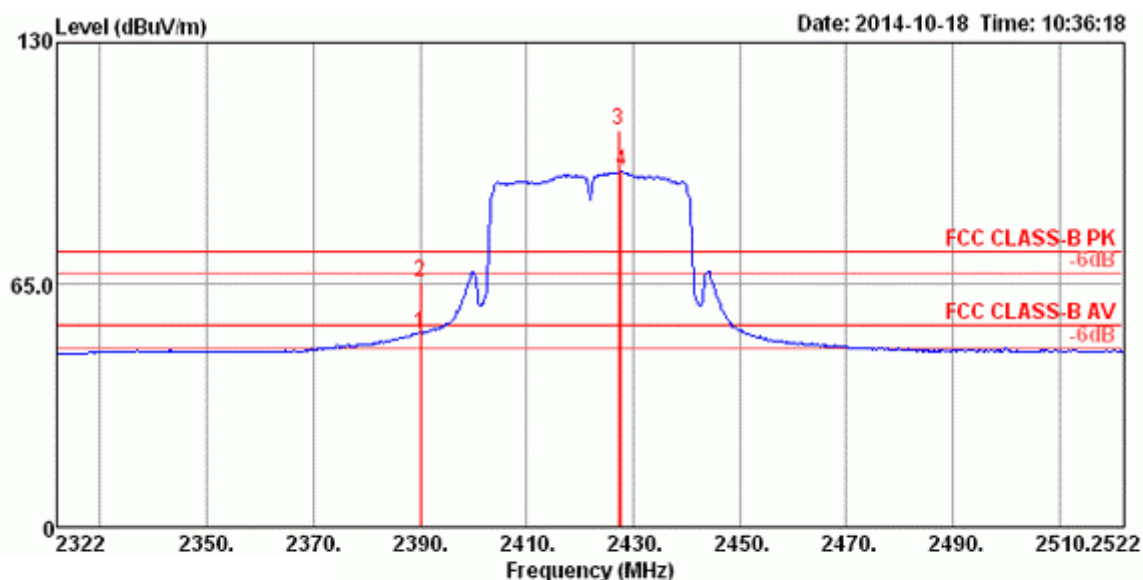
Note 4: Measurement receive antenna polarization: H (Horizontal), V (Vertical)







Band Edge and Fundamental Emissions					
Operating Mode	IEEE 802.11n 40MHz / SDM MCS8 / 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

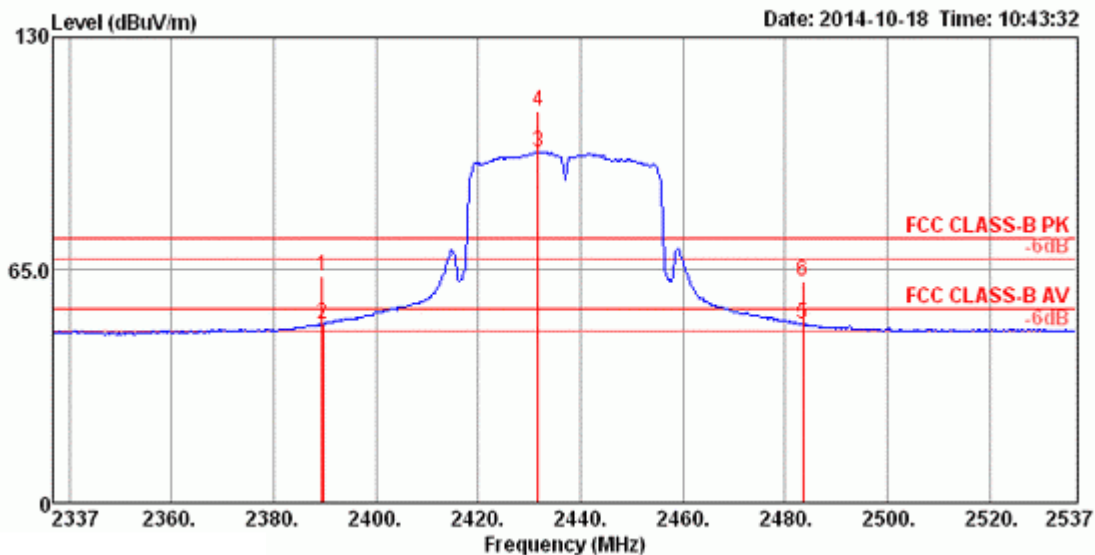
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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 / 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

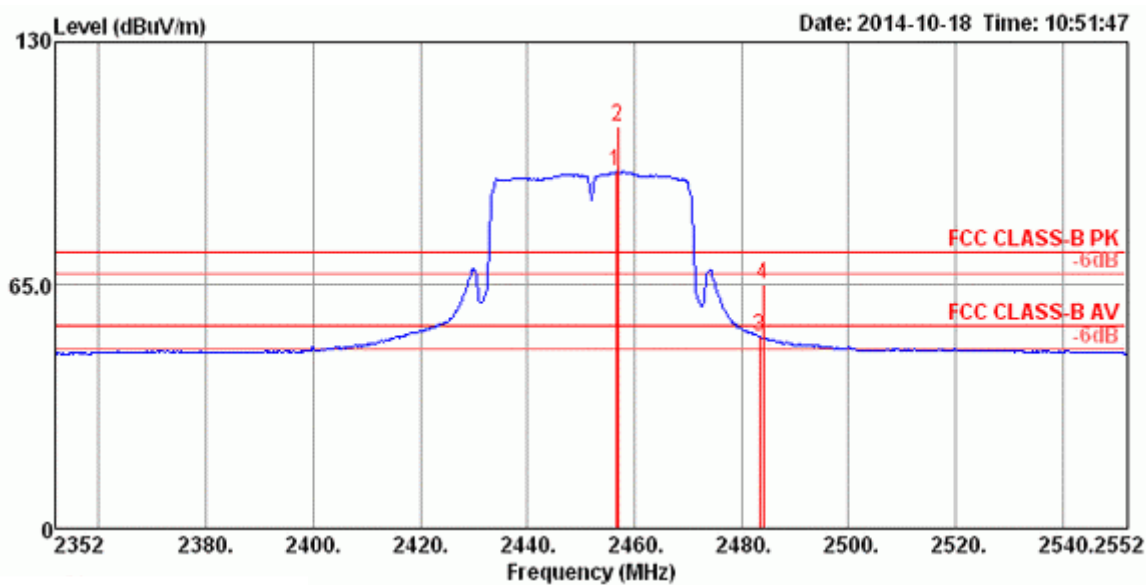
Note 1: Item 3, 4 are the fundamental frequency at 2437 MHz

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 / 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	dBuV/m	dB	dBuV	dB	dB/m	dB	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).

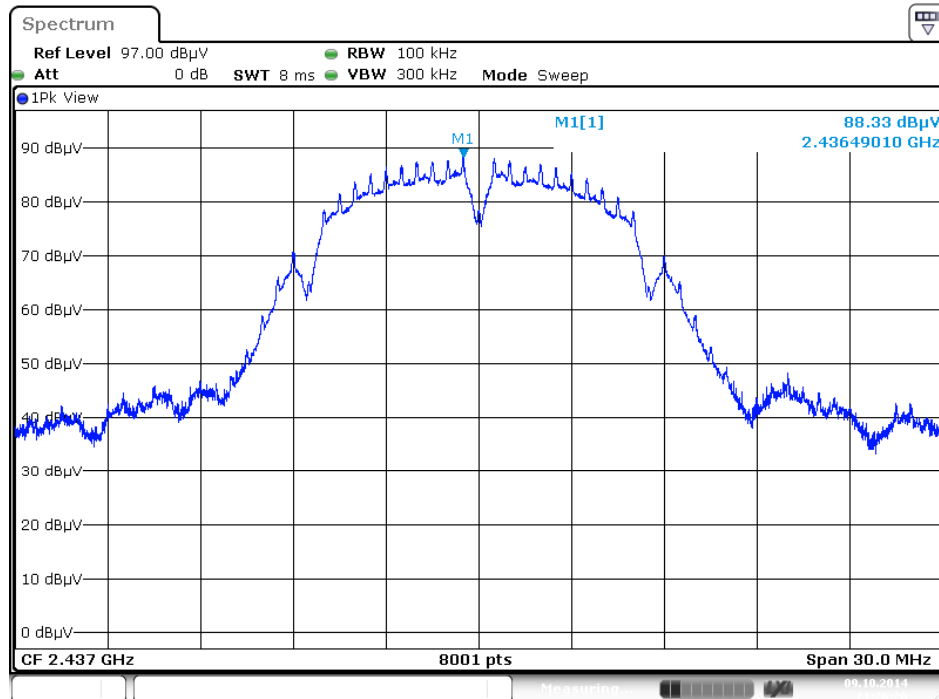
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

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



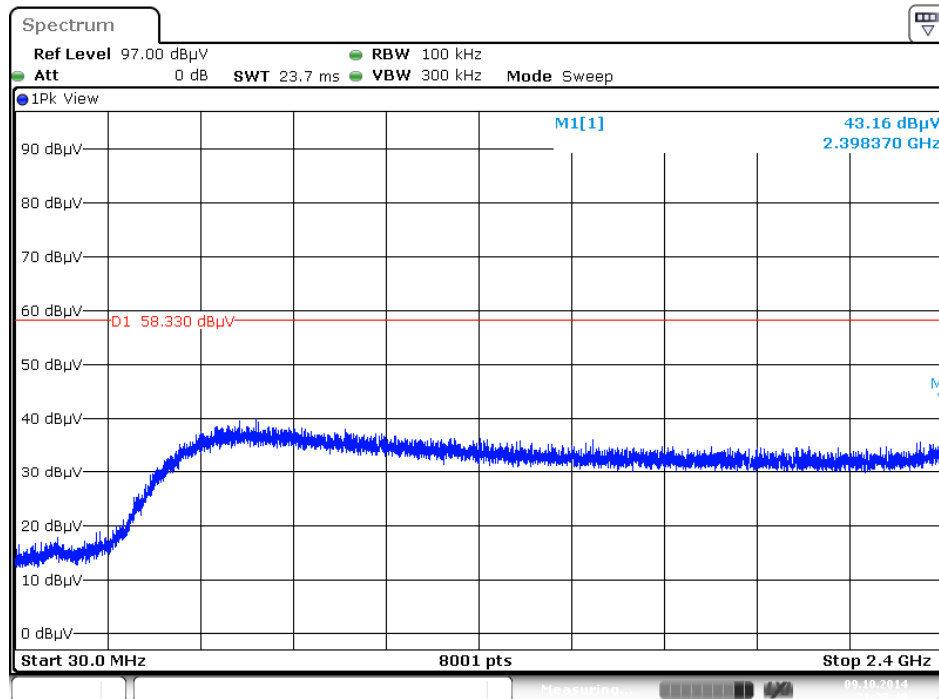
For Emission not in Restricted Band

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



Date: 9 OCT 2014 21:26:26

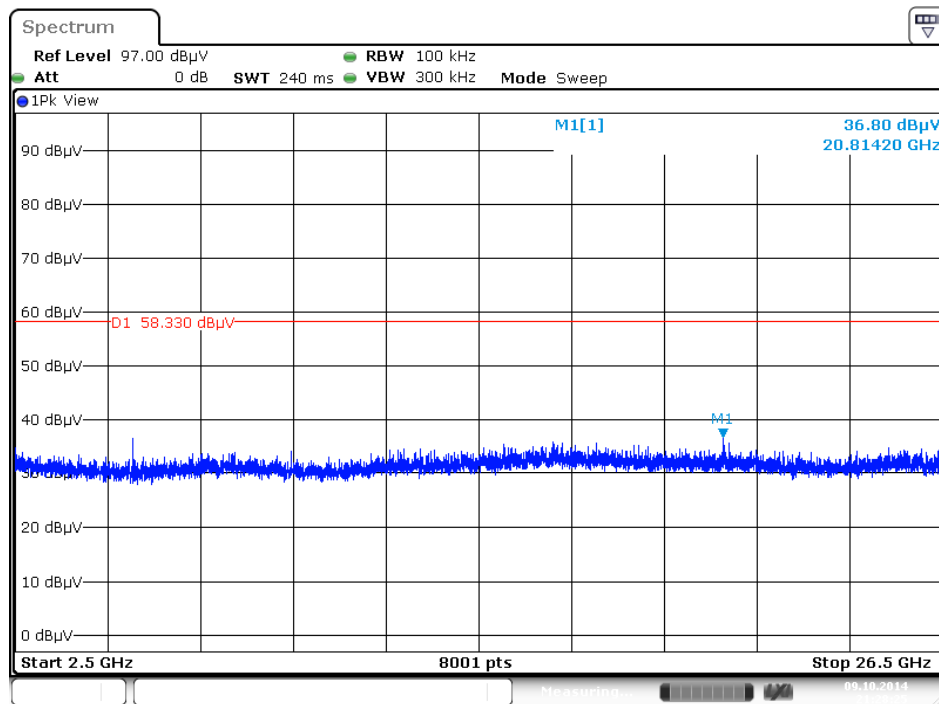
Plot on Configuration IEEE 802.11b / CH 1 / 30MHz~2400MHz / Chain 1 (down 30dBc)



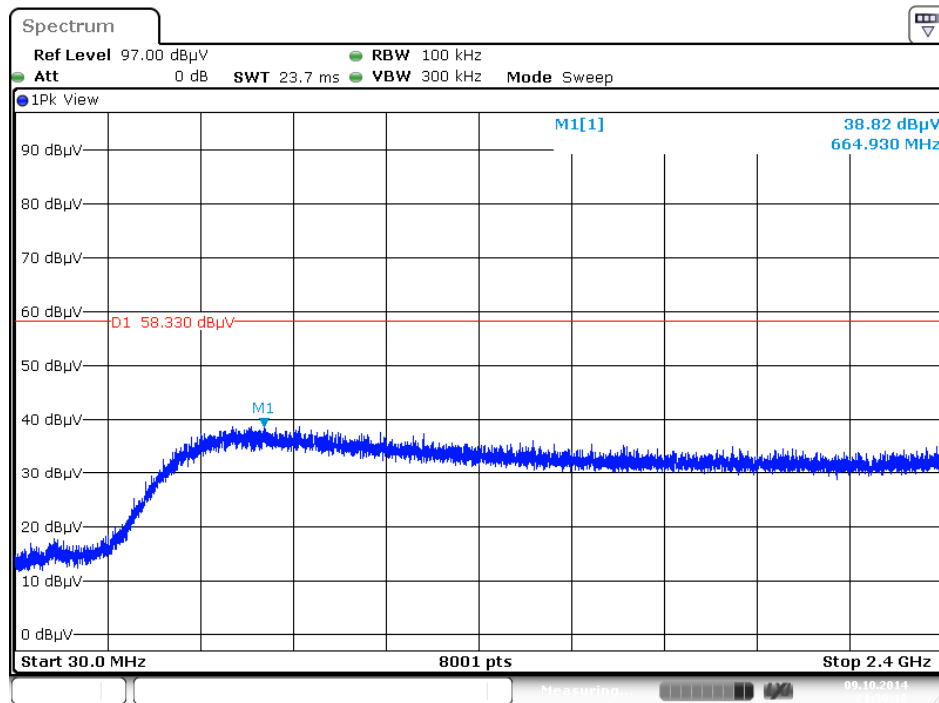
Date: 9 OCT 2014 21:27:40



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

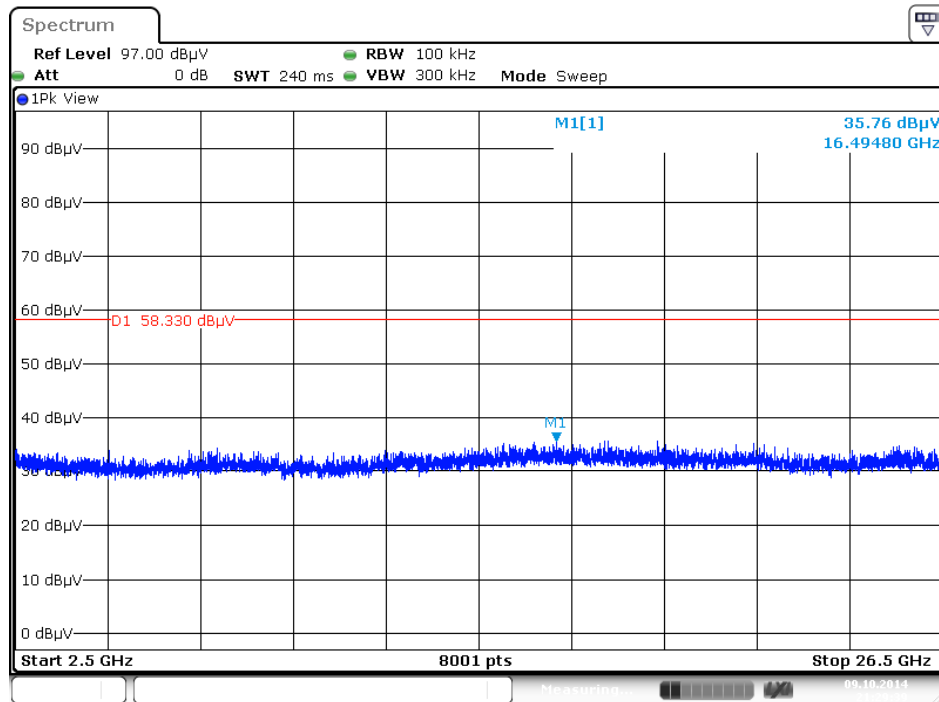


Plot on Configuration IEEE 802.11b / CH 11 / 30MHz~2400MHz / Chain 1 (down 30dBc)





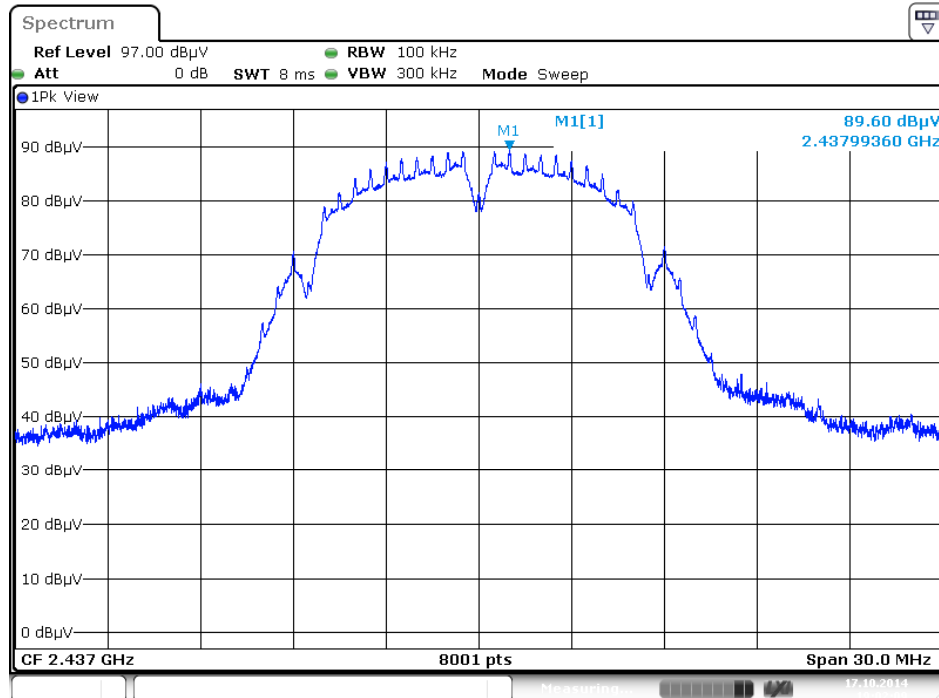
Plot on Configuration IEEE 802.11b / CH 11 / 2500MHz~26500MHz / Chain 1 (down 30dBc)



Date: 9 OCT 2014 21:29:40

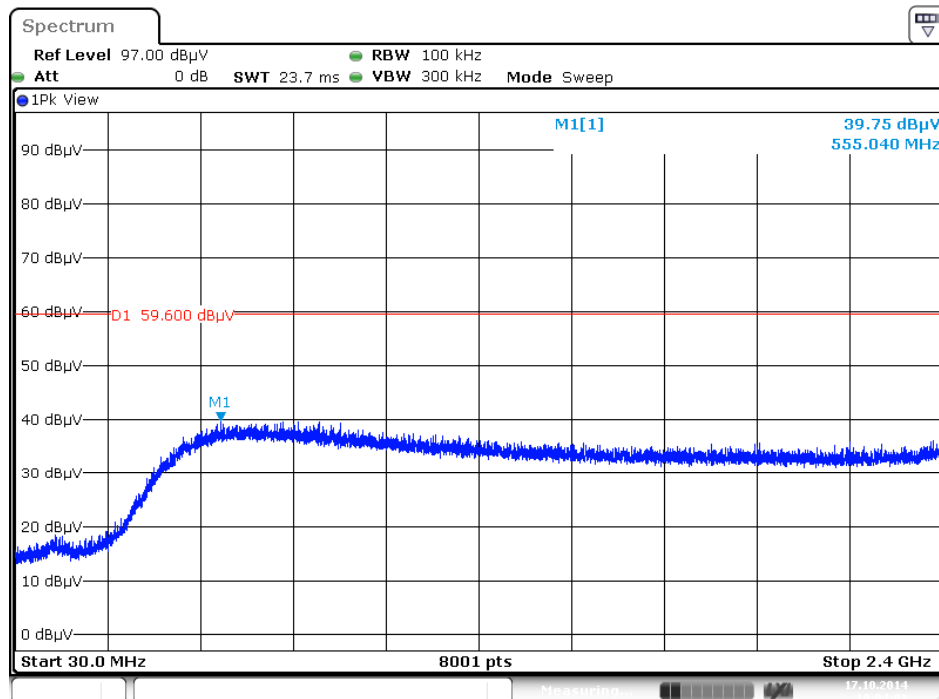


Plot on Configuration IEEE 802.11b / CH 6 / Reference Level / Chain 2



Date: 17 OCT 2014 19:02:10

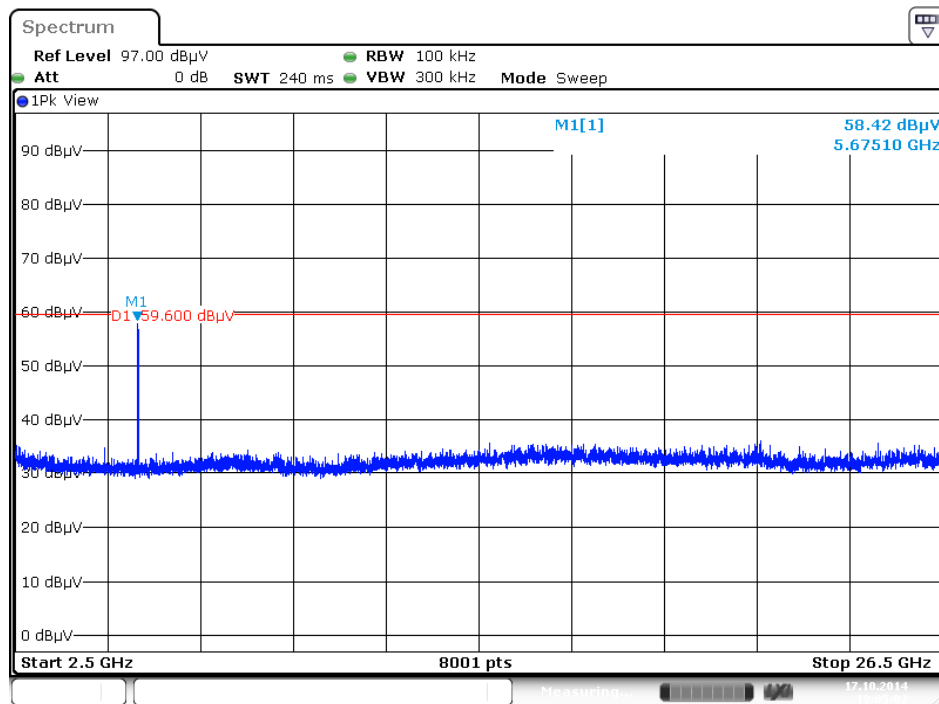
Plot on Configuration IEEE 802.11b / CH 1 / 30MHz~2400MHz / Chain 2 (down 30dBc)



Date: 17 OCT 2014 19:04:03

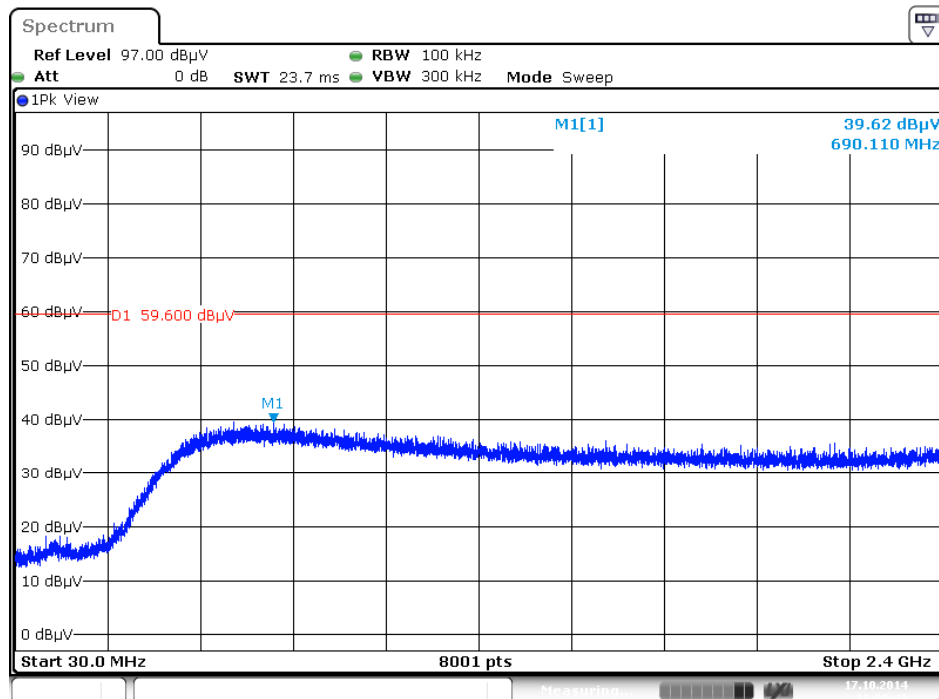


Plot on Configuration IEEE 802.11b / CH 1 / 2500MHz~26500MHz / Chain 2 (down 30dBc)



Date: 17.OCT.2014 19:05:02

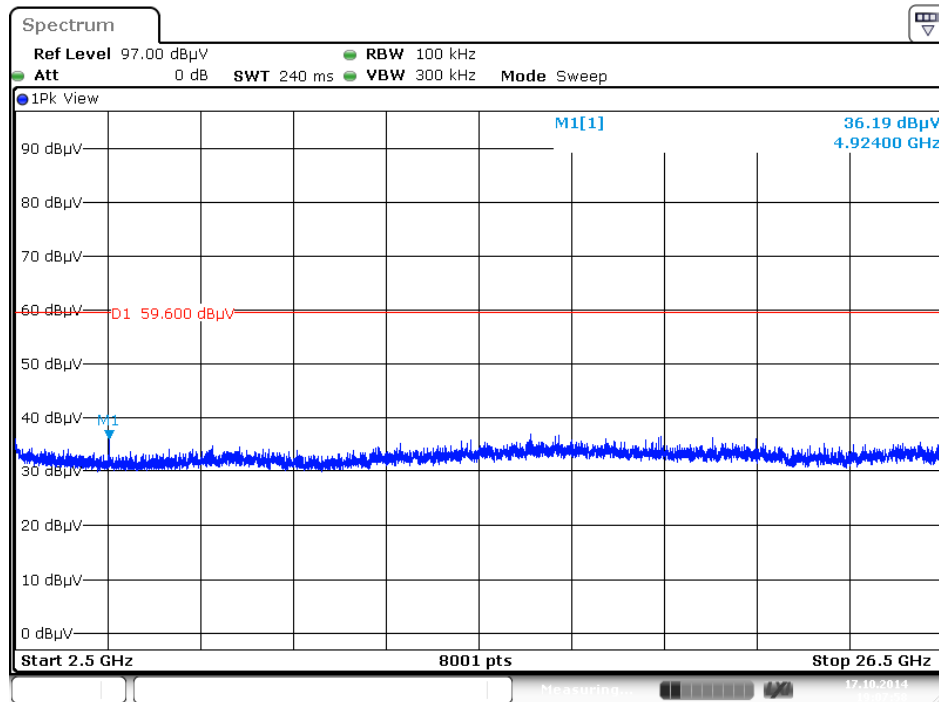
Plot on Configuration IEEE 802.11b / CH 11 / 30MHz~2400MHz / Chain 2 (down 30dBc)



Date: 17.OCT.2014 19:08:43



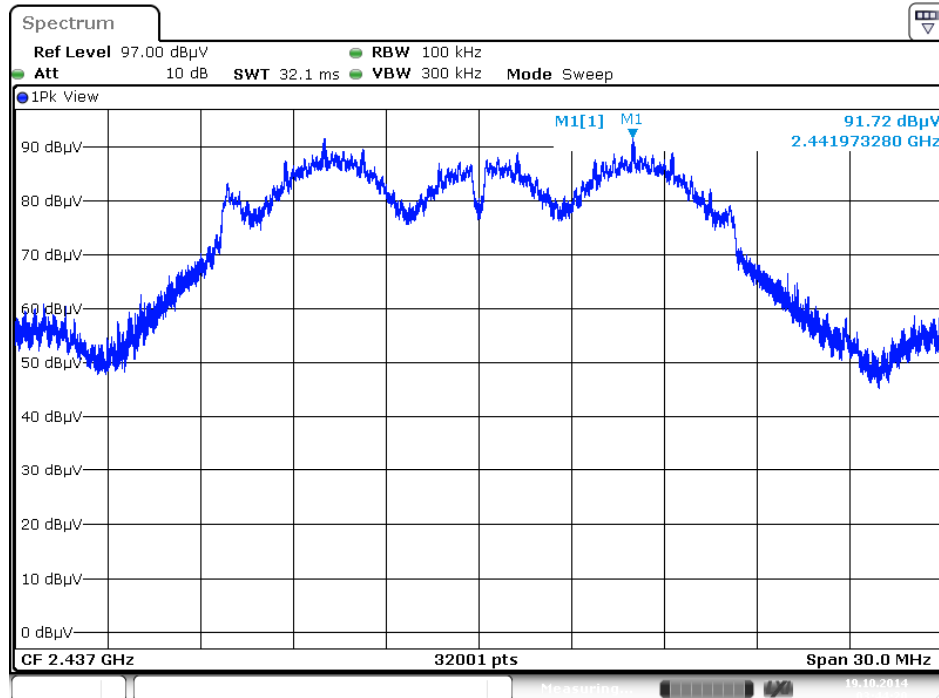
Plot on Configuration IEEE 802.11b / CH 11 / 2500MHz~26500MHz / Chain 2 (down 30dBc)



Date: 17 OCT 2014 19:07:59

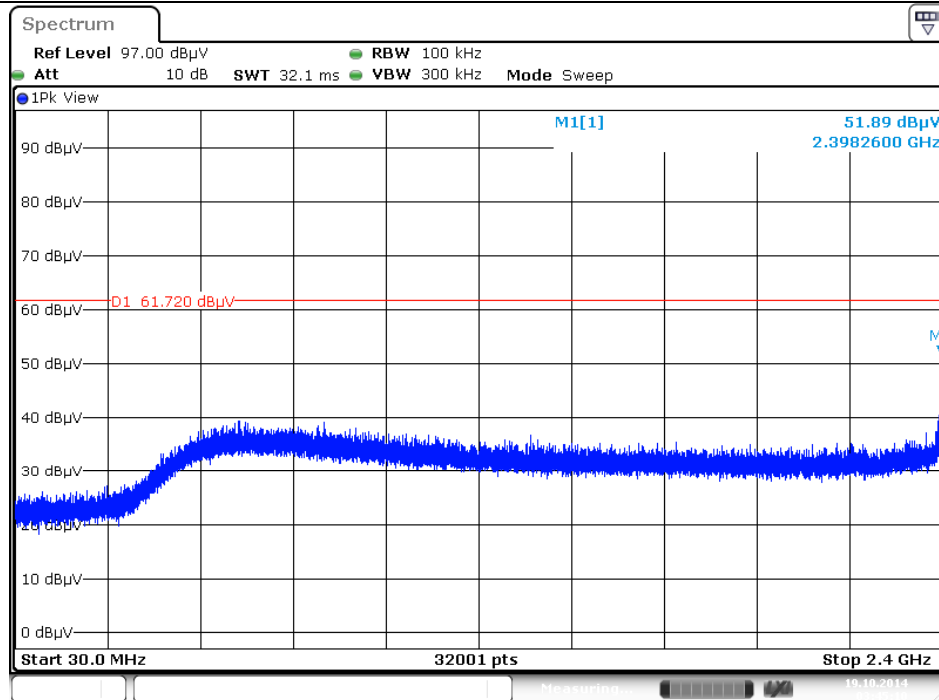


Plot on Configuration IEEE 802.11g / CH 6 / Reference Level / CDD 6Mbps / Chain 1 + Chain 2



Date: 19 OCT 2014 03:44:20

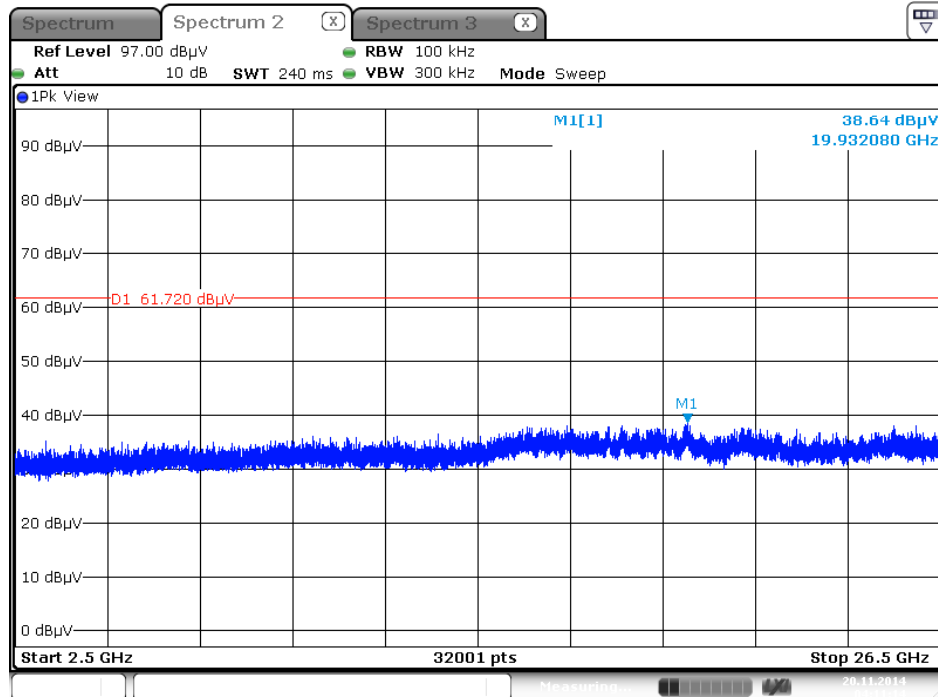
Plot on Configuration IEEE 802.11g / CH 1 / 30MHz~2400MHz / CDD 6Mbps / Chain 1 + Chain 2 (Down 30dBc)



Date: 19 OCT 2014 03:45:10

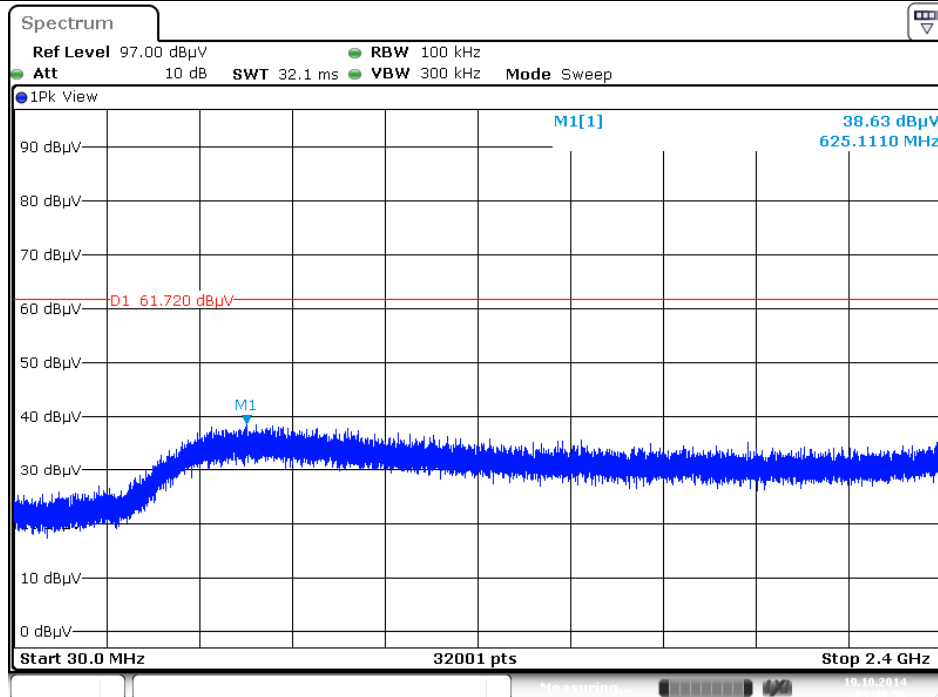


Plot on Configuration IEEE 802.11g / CH 1 / 2500MHz~26500MHz / CDD 6Mbps / Chain 1 + Chain 2
(down 30dBc)



Date: 20 NOV 2014 04:11:14

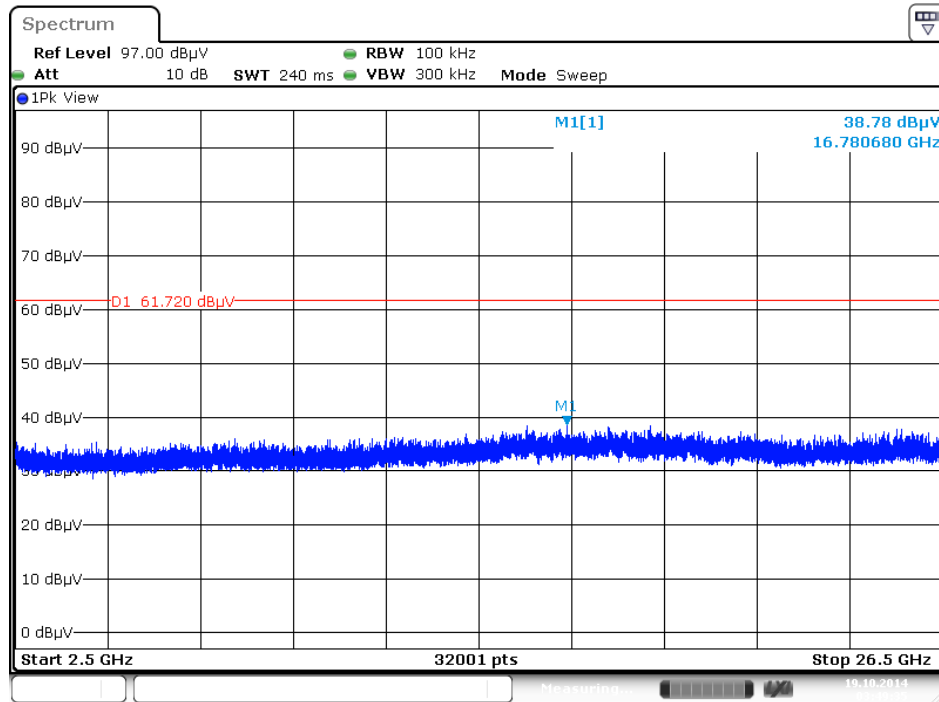
Plot on Configuration IEEE 802.11g / CH 11 / 30MHz~2400MHz / CDD 6Mbps / Chain 1 + Chain 2
(down 30dBc)



Date: 19 OCT 2014 03:49:56



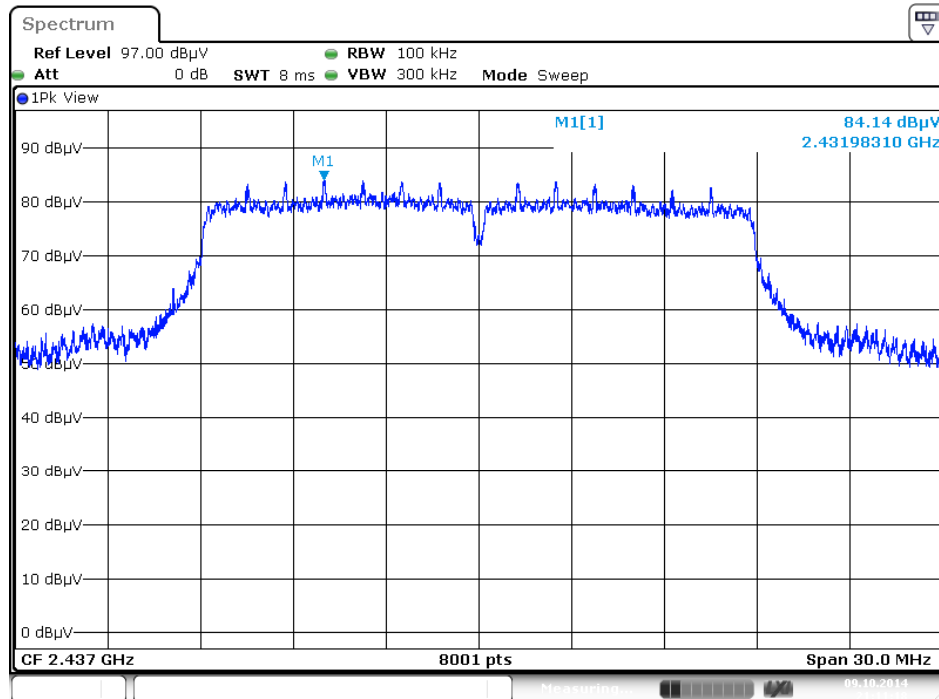
Plot on Configuration IEEE 802.11g / CH 11 / 2500MHz~26500MHz / CDD 6Mbps / Chain 1 + Chain 2
(down 30dBc)



Date: 19 OCT 2014 03:49:35

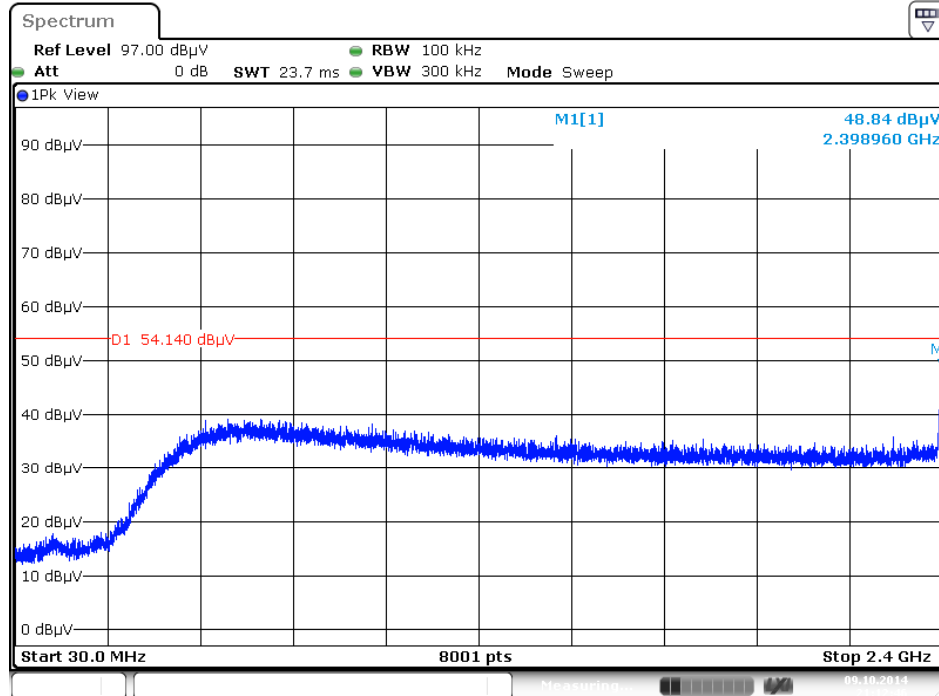


Plot on Configuration IEEE 802.11n 20MHz / CH 6 / Reference Level / Chain 1



Date: 9 OCT 2014 21:11:18

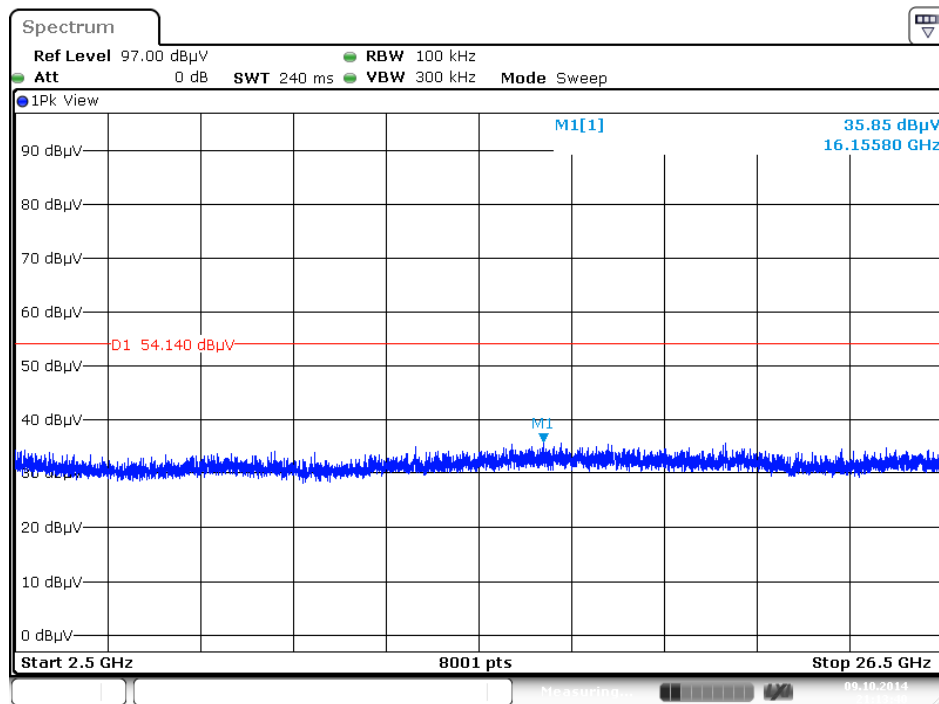
Plot on Configuration IEEE 802.11n 20MHz / CH 1 / 30MHz~2400MHz / Chain 1 (down 30dBc)



Date: 9 OCT 2014 21:12:47

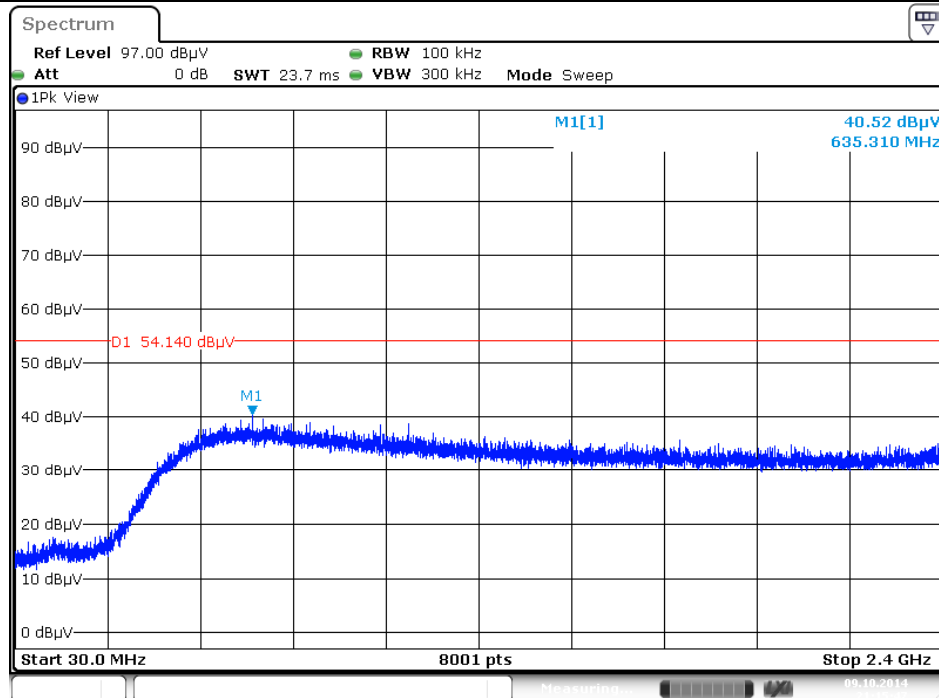


Plot on Configuration IEEE 802.11n 20MHz / CH 1 / 2500MHz~26500MHz / Chain 1 (down 30dBc)



Date: 9 OCT 2014 21:13:40

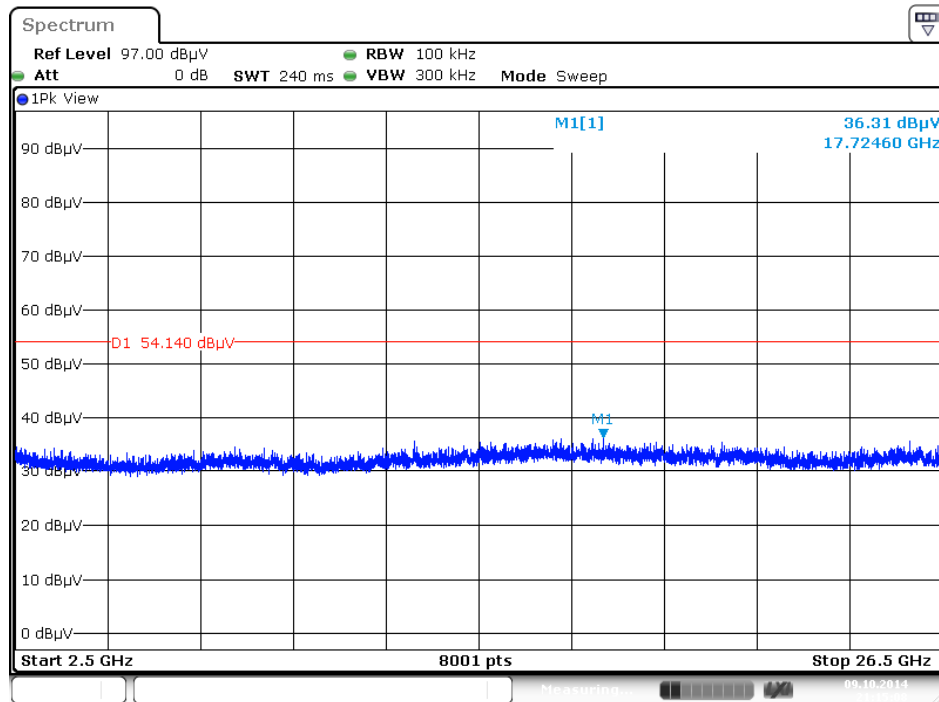
Plot on Configuration IEEE 802.11n 20MHz / CH 11 / 30MHz~2400MHz / Chain 1 (down 30dBc)



Date: 9 OCT 2014 21:15:47



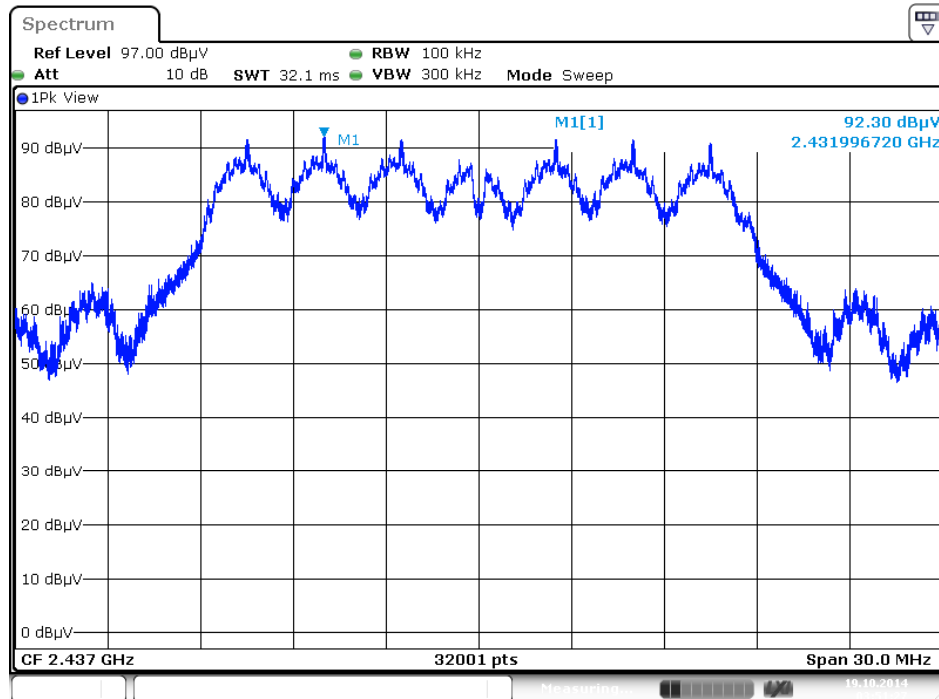
Plot on Configuration IEEE 802.11n 20MHz / CH 11 / 2500MHz~26500MHz / Chain 1 (down 30dBc)



Date: 9 OCT 2014 21:15:08

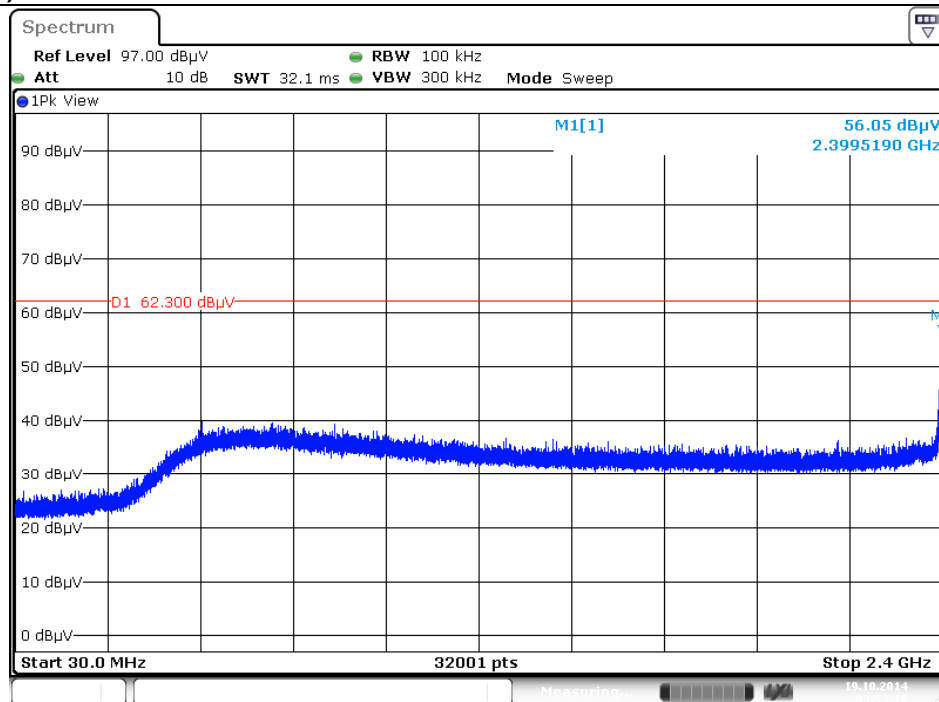


Plot on Configuration IEEE 802.11n 20MHz / CH 6 / Reference Level / CDD MCS0 / Chain 1 + Chain 2



Date: 19.OCT.2014 03:51:27

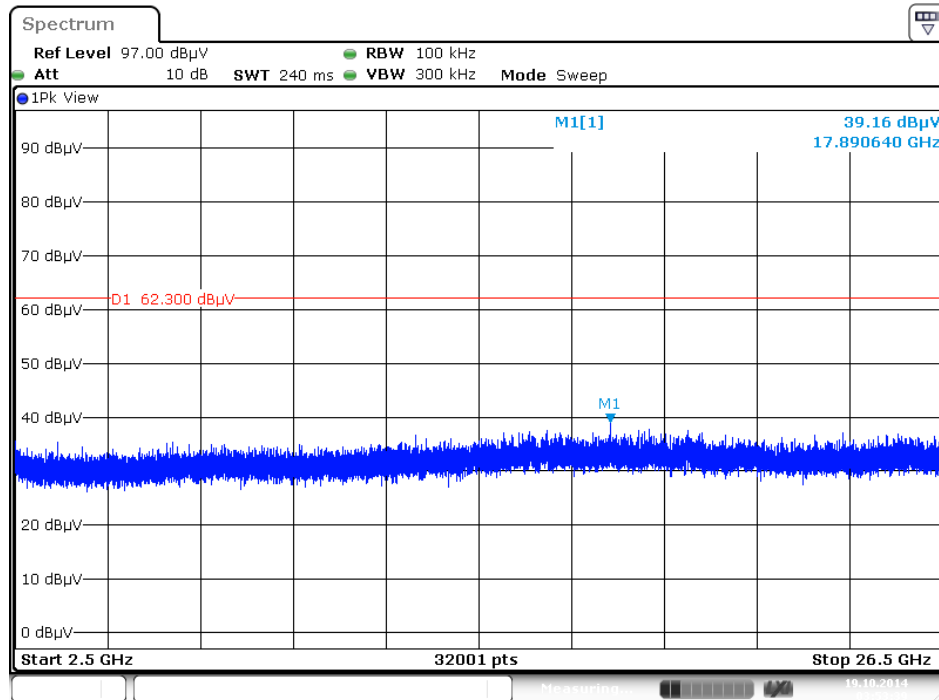
Plot on Configuration IEEE 802.11n 20MHz / CH 1 / 30MHz~2400MHz / CDD MCS0 / Chain 1 + Chain 2 (down 30dBc)



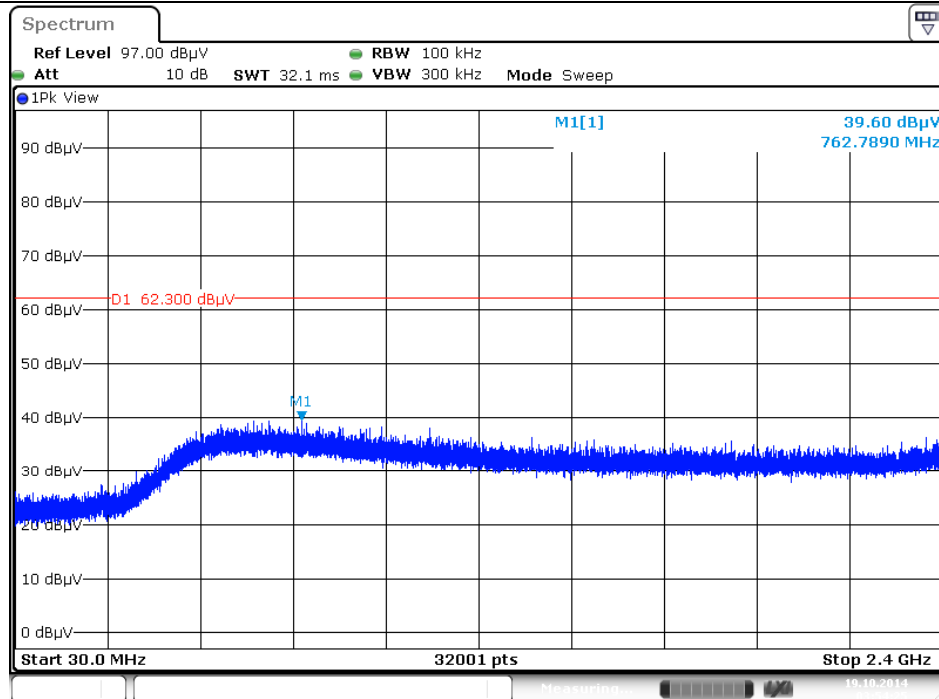
Date: 19.OCT.2014 03:53:17



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

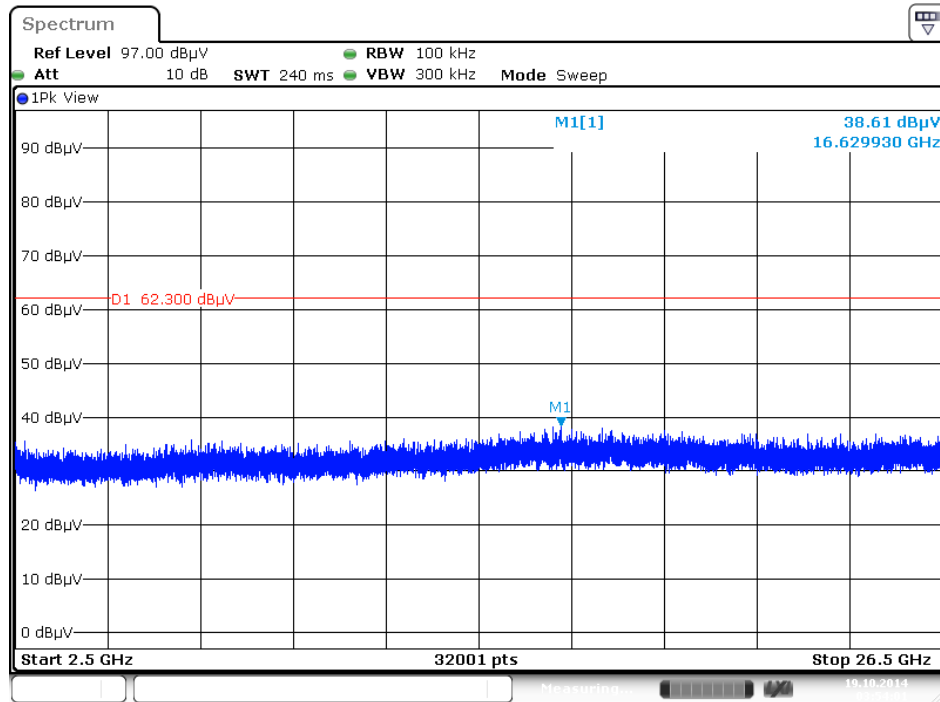


Plot on Configuration IEEE 802.11n 20MHz / CH 11 / 30MHz~2400MHz / CDD MCS0 / Chain 1 + Chain 2 (down 30dBc)





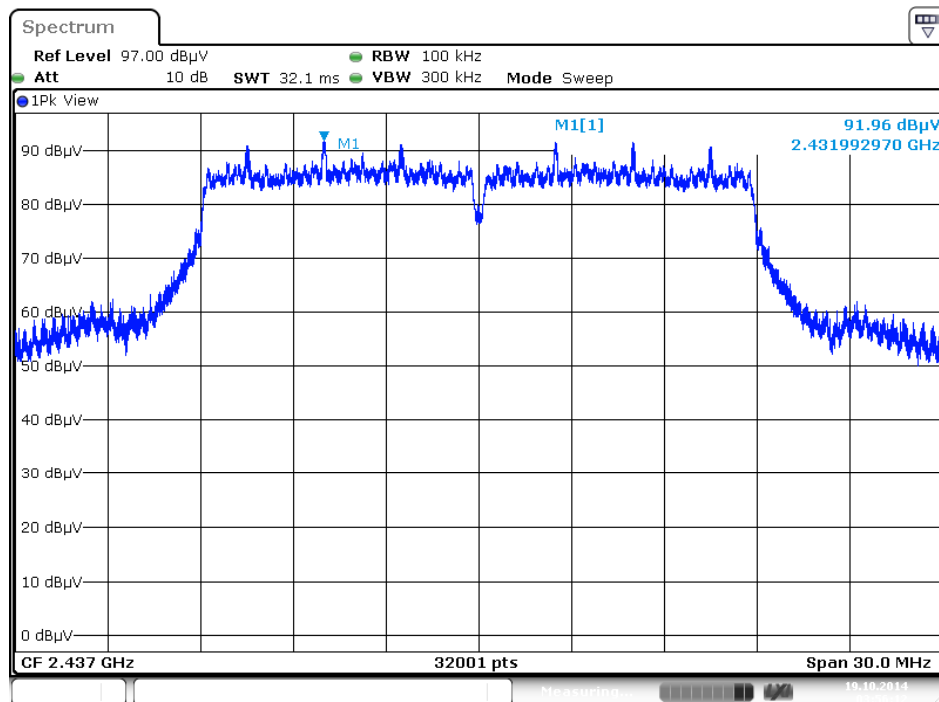
Plot on Configuration IEEE 802.11n 20MHz / CH 11 / 2500MHz~26500MHz / CDD MCS0 / Chain 1 + Chain 2 (down 30dBc)



Date: 19 OCT 2014 03:54:02

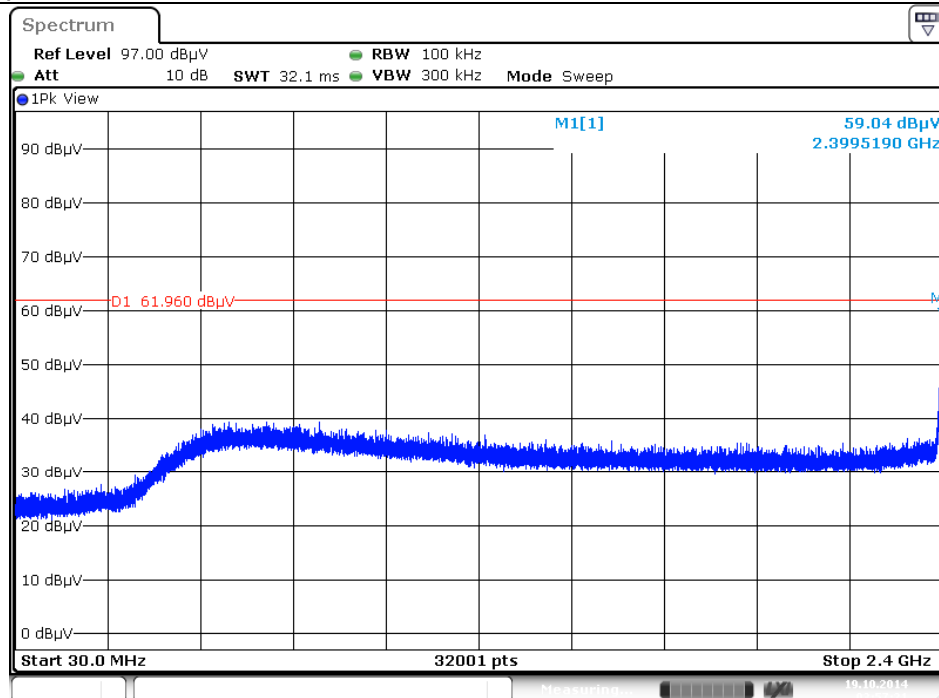


Plot on Configuration IEEE 802.11n 20MHz / CH 6 / Reference Level / CDD MCS8/ Chain 1 + Chain 2



Date: 19 OCT 2014 03:56:12

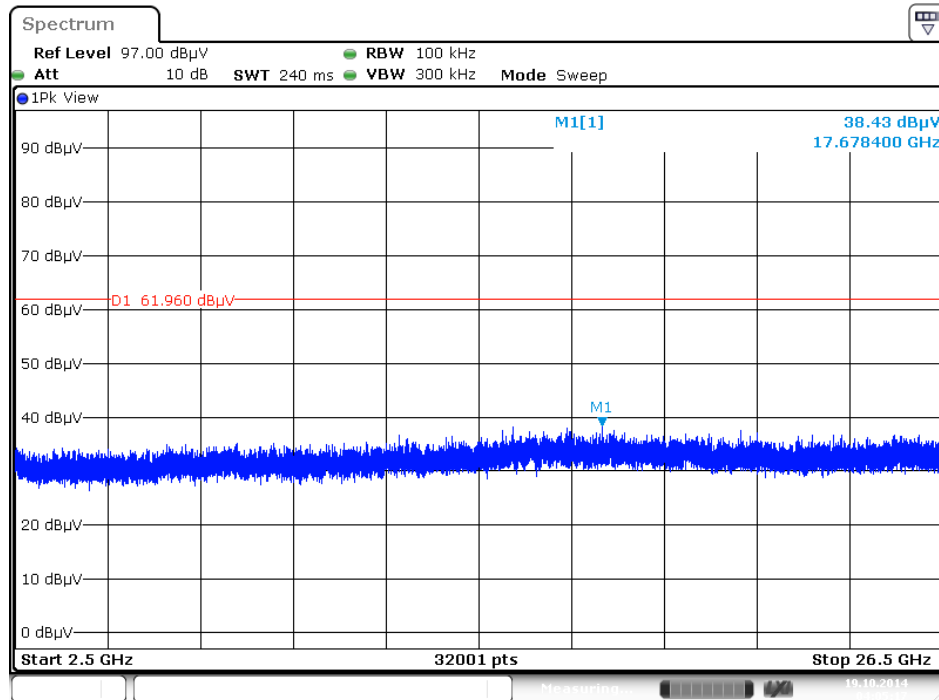
Plot on Configuration IEEE 802.11n 20MHz / CH 1 / 30MHz~2400MHz / CDD MCS8/ Chain 1 + Chain 2 (down 30dBc)



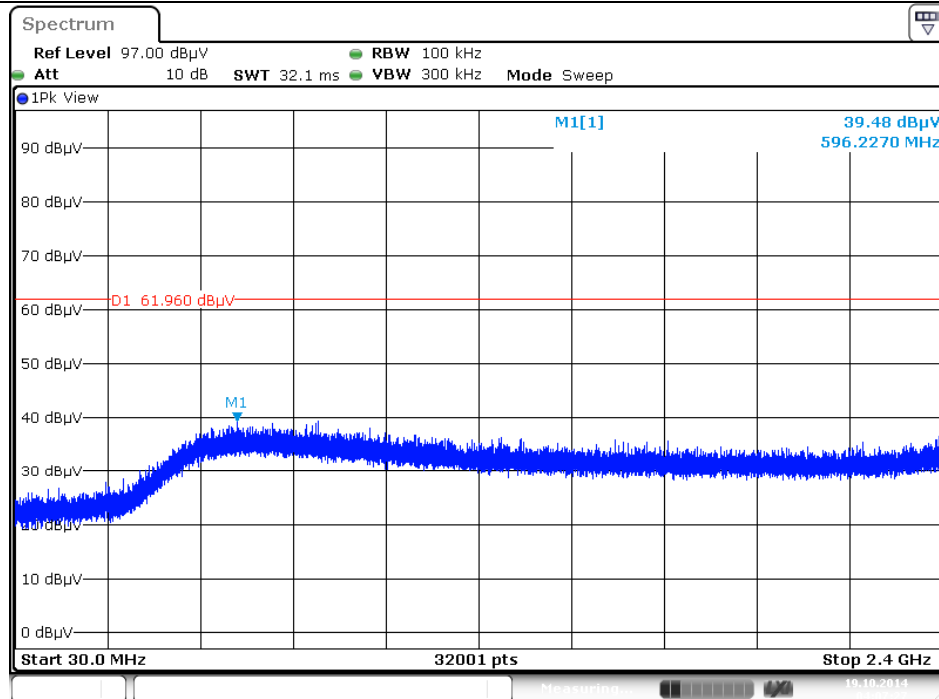
Date: 19 OCT 2014 03:57:21



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

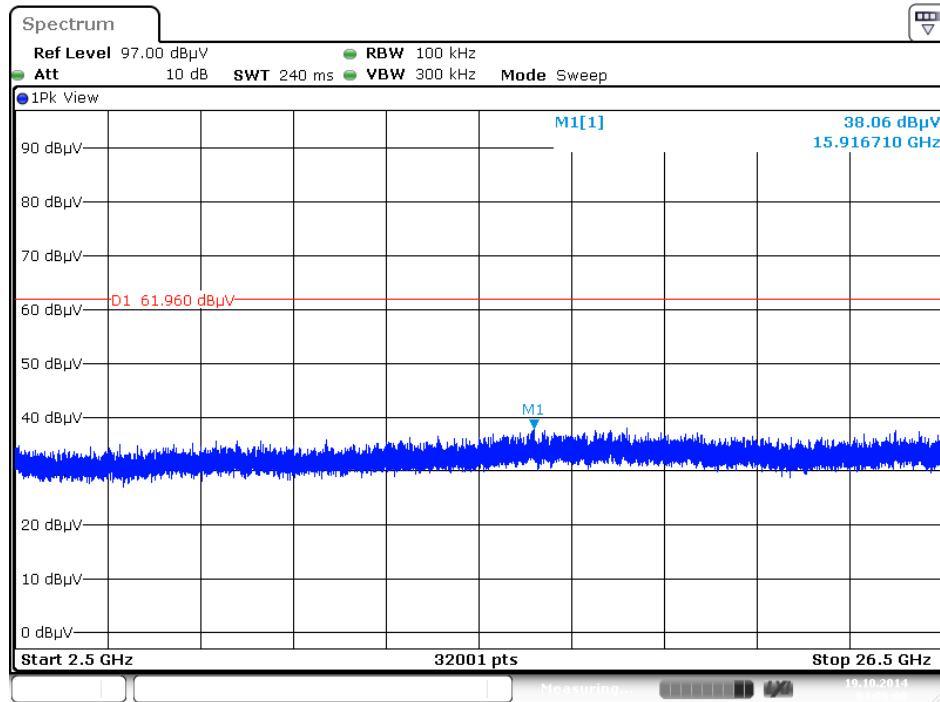


Plot on Configuration IEEE 802.11n 20MHz / CH 11 / 30MHz~2400MHz / CDD MCS8/
Chain 1 + Chain 2 (down 30dBc)





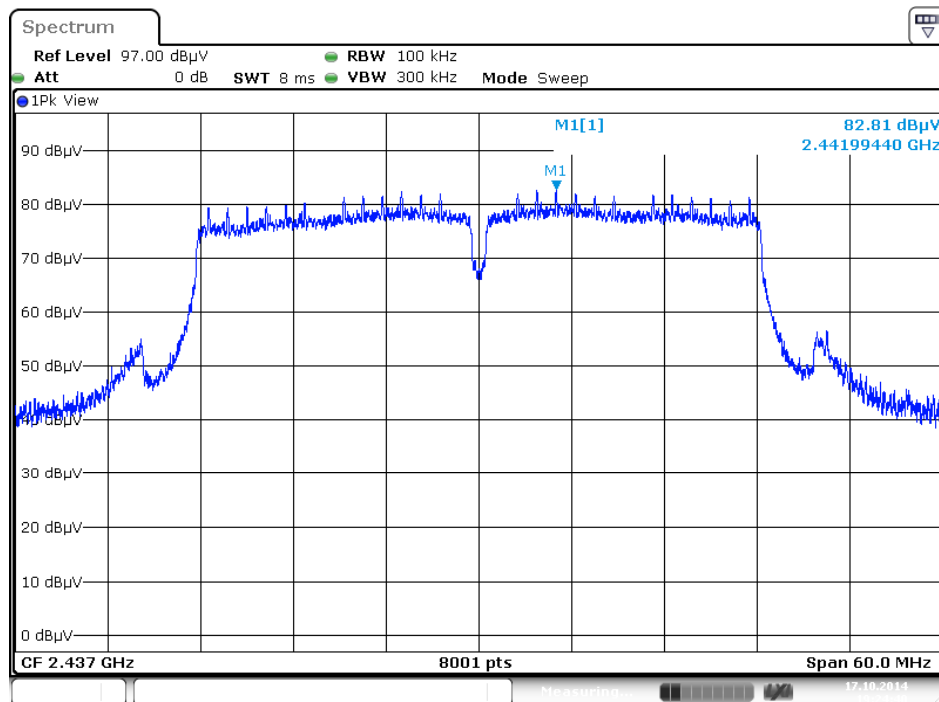
Plot on Configuration IEEE 802.11n 20MHz / CH 11 / 2500MHz~26500MHz / CDD MCS8/
Chain 1 + Chain 2 (down 30dBc)



Date: 19 OCT 2014 04:06:00

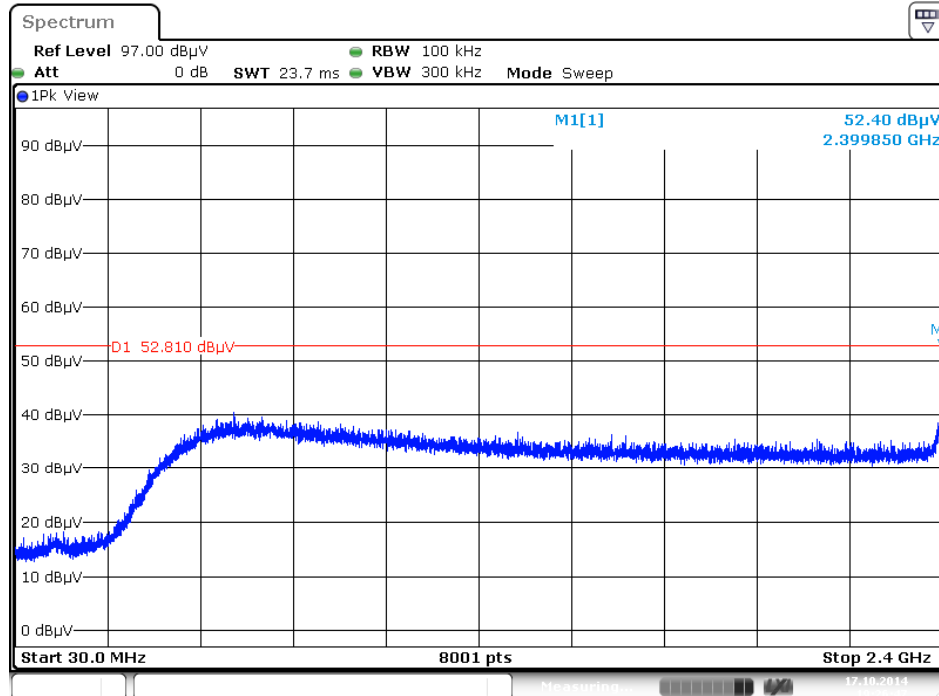


Plot on Configuration IEEE 802.11n 40MHz / CH 6 / Reference Level / Chain 2



Date: 17 OCT 2014 19:24:40

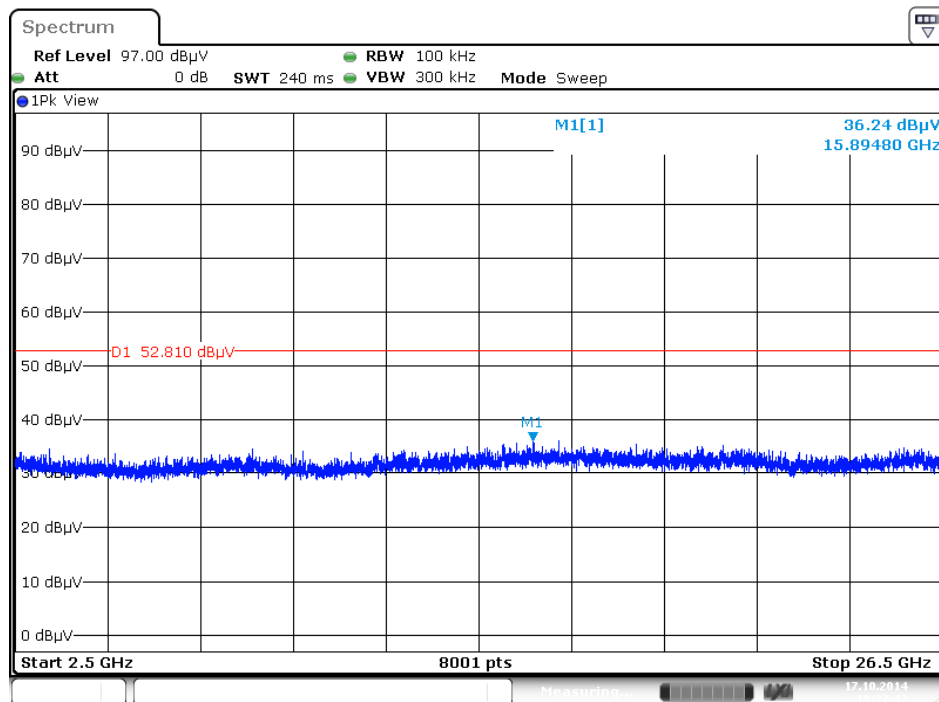
Plot on Configuration IEEE 802.11n 40MHz / CH 3 / 30MHz~2400MHz / Chain 2 (down 30dBc)



Date: 17 OCT 2014 19:26:47

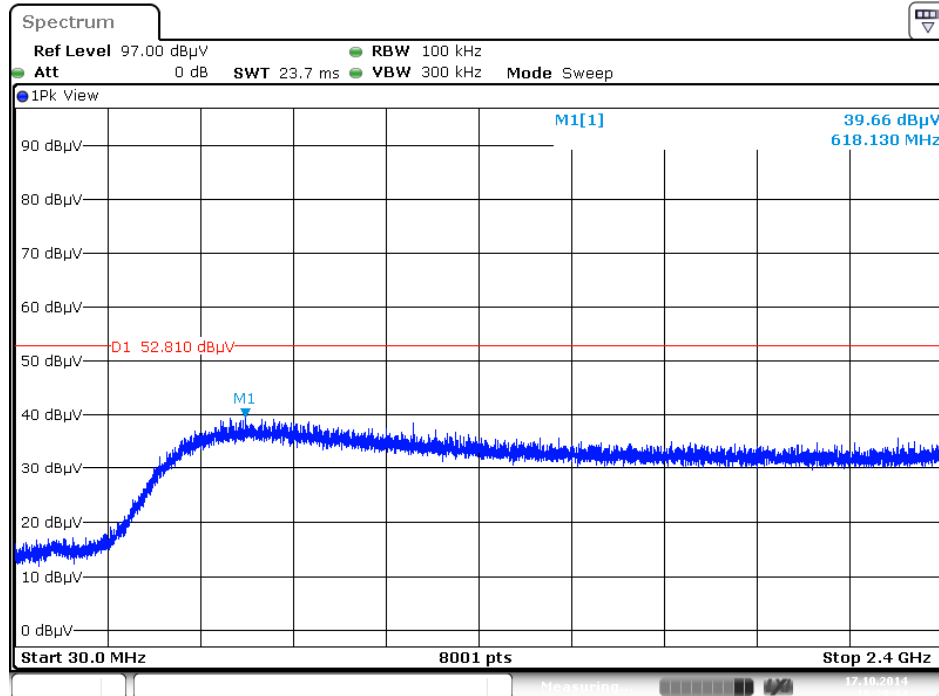


Plot on Configuration IEEE 802.11n 40MHz / CH 3 / 2500MHz~26500MHz / Chain 2 (down 30dBc)



Date: 17 OCT 2014 19:27:41

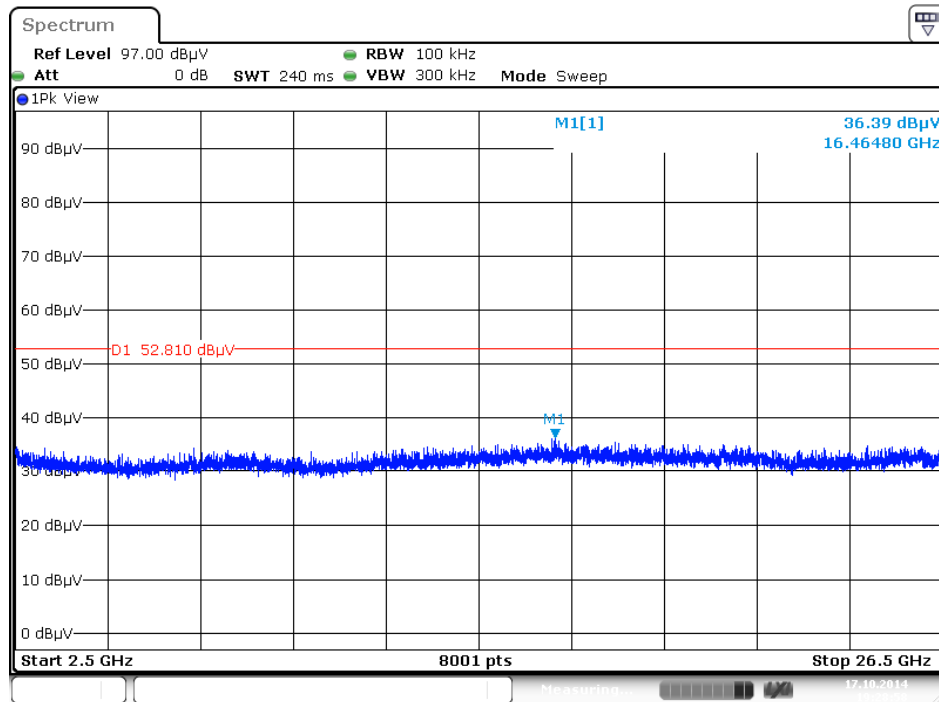
Plot on Configuration IEEE 802.11n 40MHz / CH 9 / 30MHz~2400MHz / Chain 2 (down 30dBc)



Date: 17 OCT 2014 19:29:34



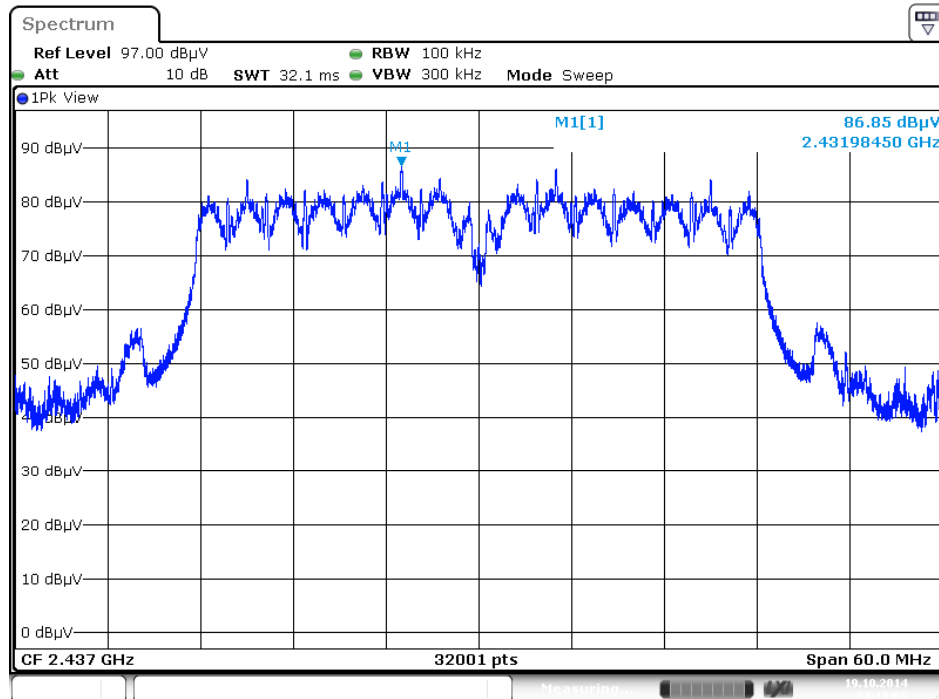
Plot on Configuration IEEE 802.11n 40MHz / CH 9 / 2500MHz~26500MHz / Chain 2 (down 30dBc)



Date: 17 OCT 2014 19:28:58

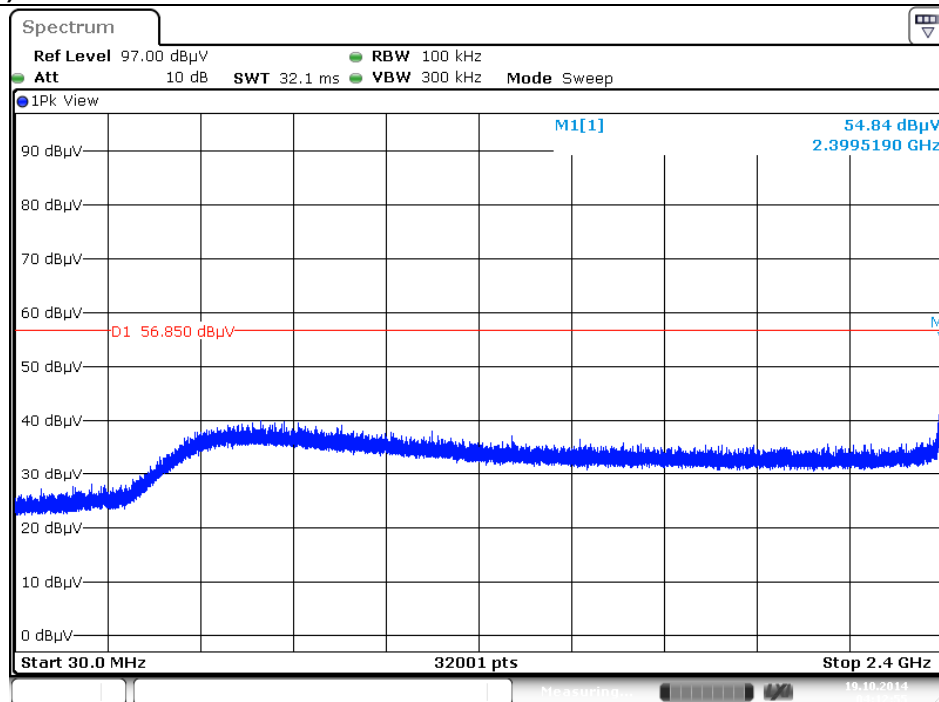


Plot on Configuration IEEE 802.11n 40MHz / CH 6 / Reference Level / CDD MCS0 / Chain 1 + Chain 2



Date: 19.OCT.2014 04:10:06

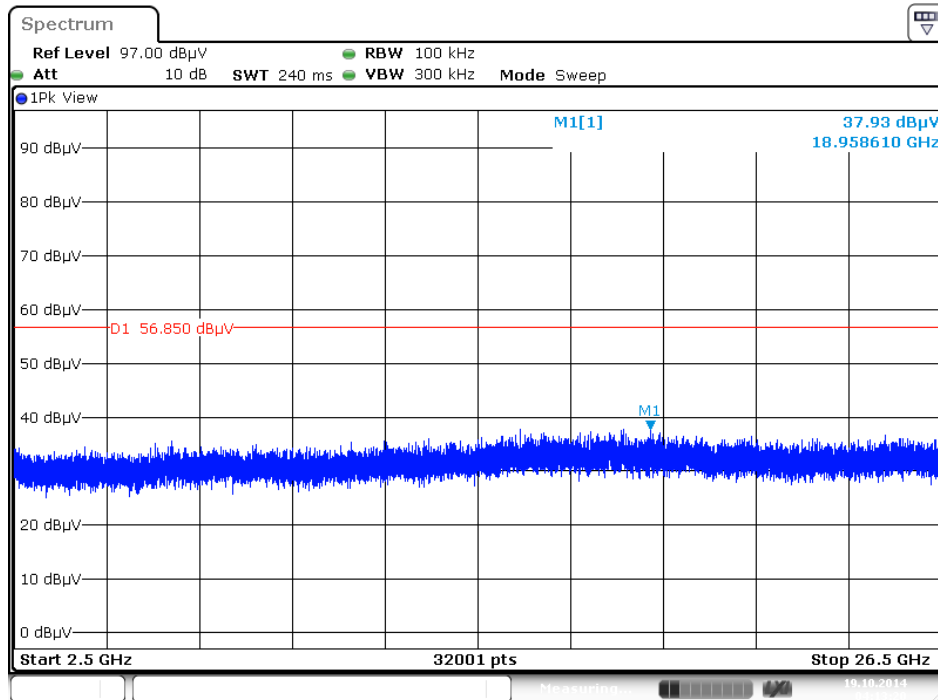
Plot on Configuration IEEE 802.11n 40MHz / CH 3 / 30MHz~2400MHz / CDD MCS0 / Chain 1 + Chain 2 (down 30dBc)



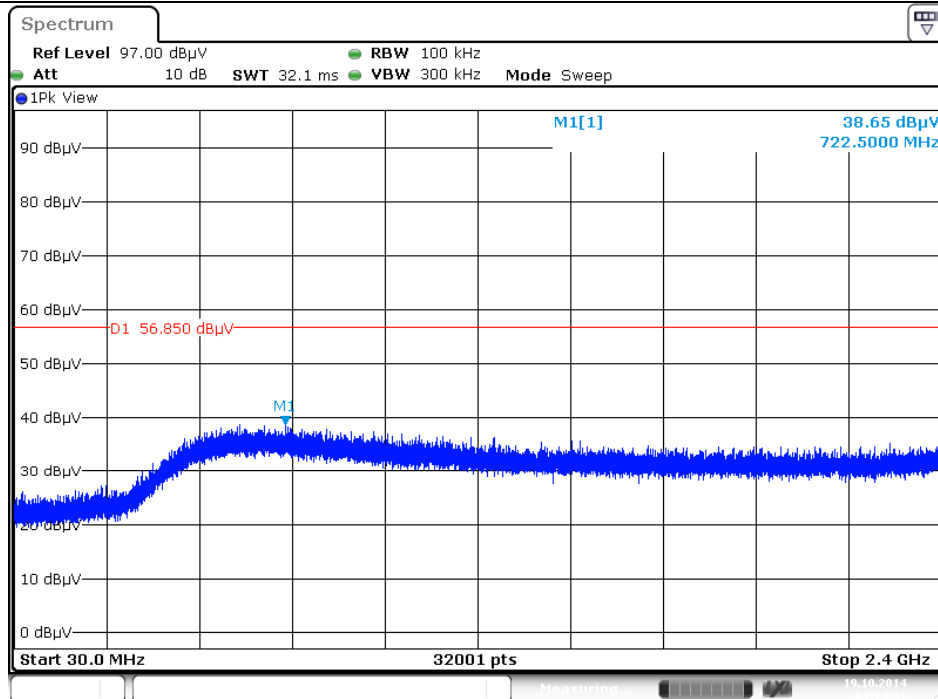
Date: 19.OCT.2014 04:12:55



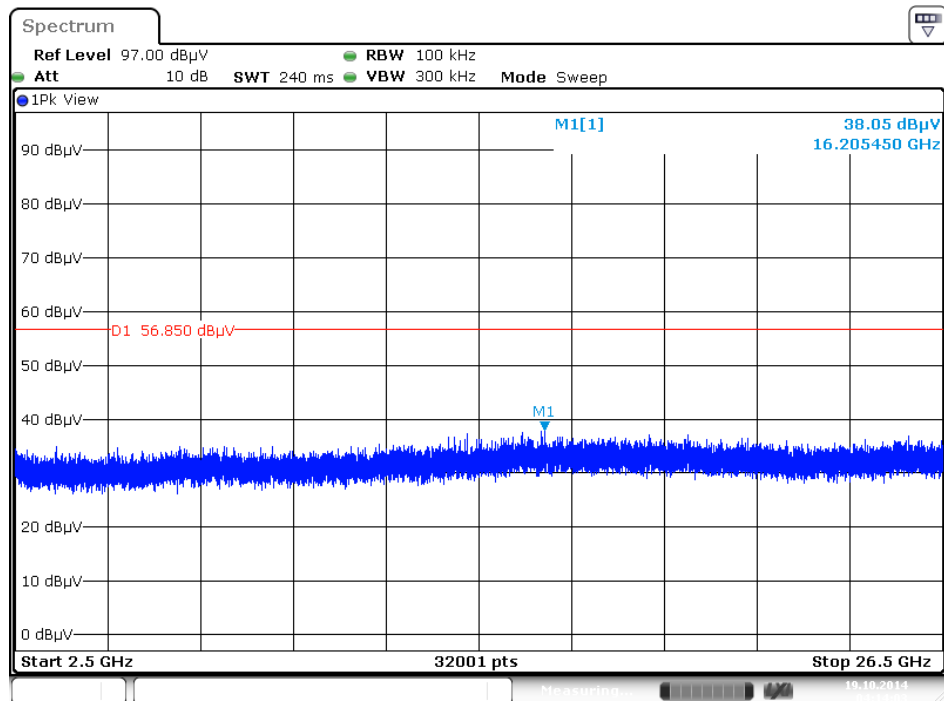
Plot on Configuration IEEE 802.11n 40MHz / CH 3 / 2500MHz~26500MHz / CDD MCS0 / Chain 1 + Chain 2 (down 30dBc)



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



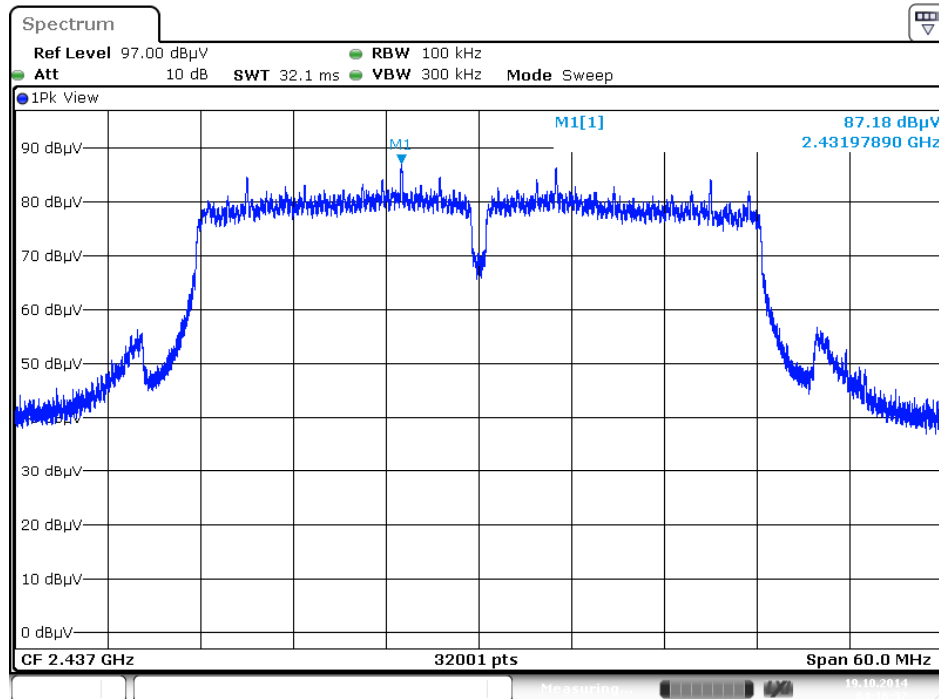
Plot on Configuration IEEE 802.11n 40MHz / CH 9 / 2500MHz~26500MHz / CDD MCS0 / Chain 1 + Chain 2 (down 30dBc)



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

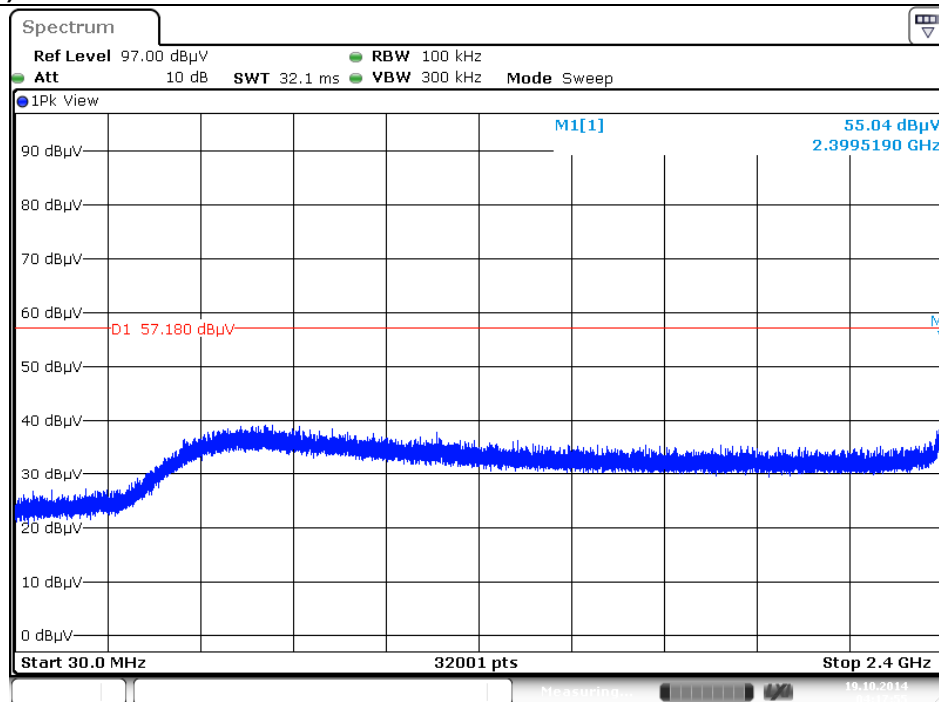


Plot on Configuration IEEE 802.11n 40MHz / CH 6 / Reference Level / CDD MCS8/ Chain 1 + Chain 2



Date: 19.OCT.2014 04:16:32

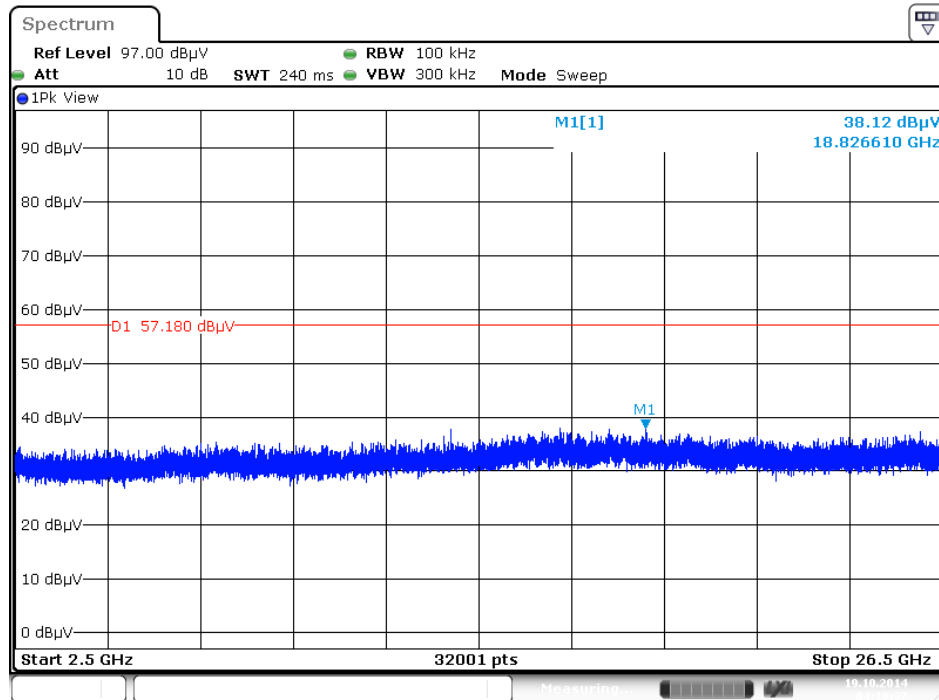
Plot on Configuration IEEE 802.11n 40MHz / CH 3 / 30MHz~2400MHz / CDD MCS8/ Chain 1 + Chain 2 (down 30dBc)



Date: 19.OCT.2014 04:17:55

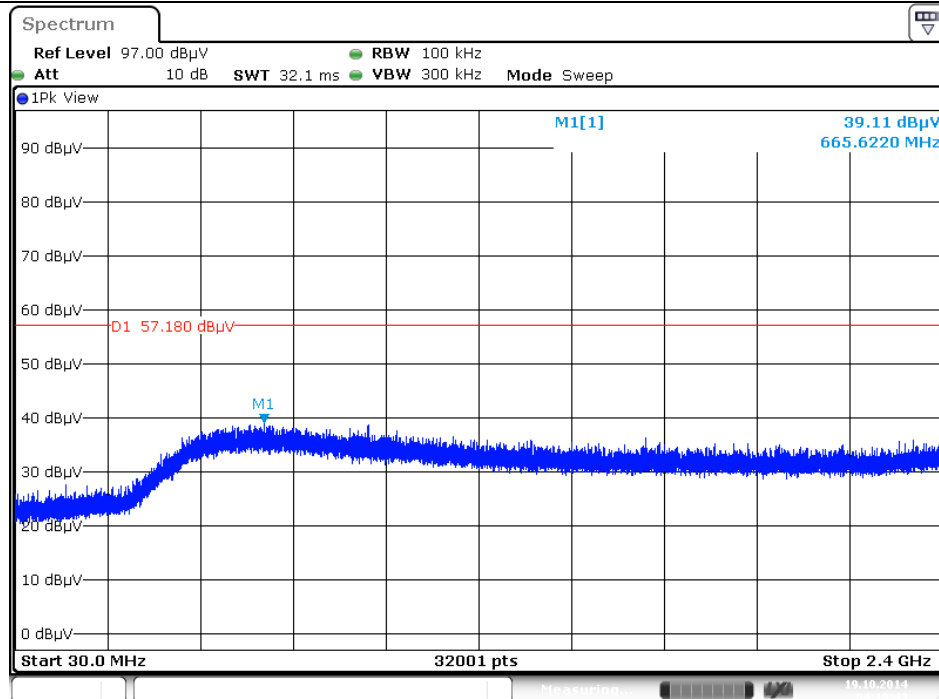


Plot on Configuration IEEE 802.11n 40MHz / CH 3 / 2500MHz~26500MHz / CDD MCS8/
Chain 1 + Chain 2 (down 30dBc)



Date: 19 OCT 2014 04:18:36

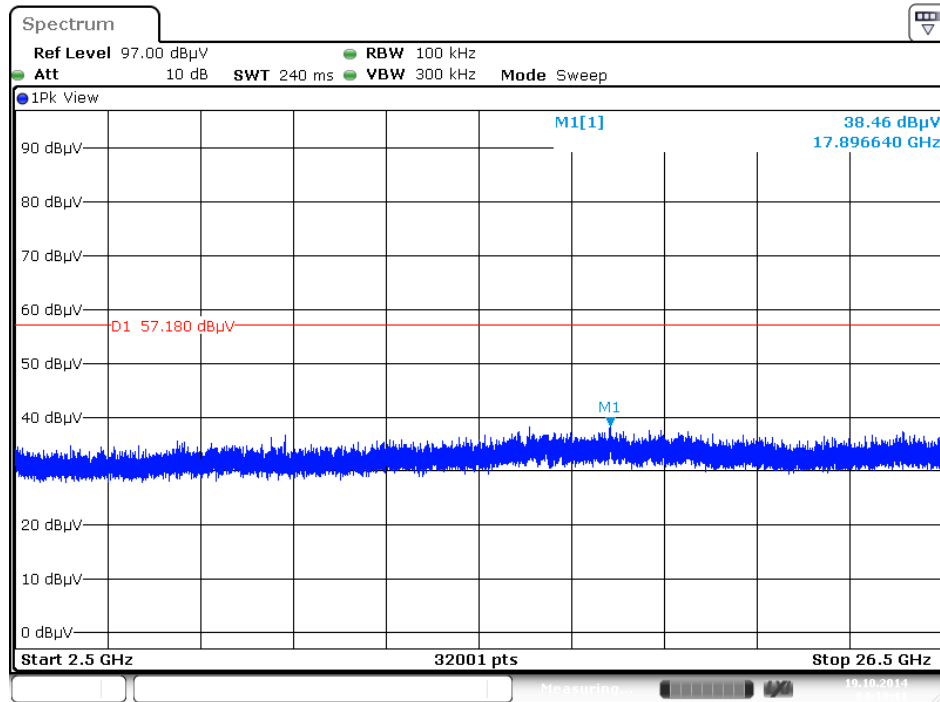
Plot on Configuration IEEE 802.11n 40MHz / CH 9 / 30MHz~2400MHz / CDD MCS8/ Chain 1 + Chain 2
(down 30dBc)



Date: 19 OCT 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 OCT 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 (10CH01-CB)
10m Semi Anechoic Chamber	TDK	NSA	10CH01-CB	30MHz~1GHz 10m	Mar. 30, 2016	Radiation (10CH01-CB)
Pre-Amplifier	Agilent	8447D	2944A10783	9kHz ~ 1.3GHz	Mar. 24, 2016	Radiation (10CH01-CB)
Pre-Amplifier	Agilent	8447D	2944A10784	9kHz ~ 1.3GHz	Mar. 09, 2016	Radiation (10CH01-CB)
Low Cable	Woken	SUCOFLEX 104	-	25MHz ~ 1GHz	Nov. 30, 2015	Radiation (10CH01-CB)
High Cable	Woken	SUCOFLEX 104	-	25MHz ~ 1GHz	Nov. 30, 2015	Radiation (10CH01-CB)
Biconical Antenna	Schwarzbeck	VHBB 9124	324	30MHz ~ 200MHz	Apr. 20, 2016	Radiation (10CH01-CB)
Log Antenna	Schwarzbeck	VUSLP 9111	247	200MHz ~ 1GHz	May 26, 2016	Radiation (10CH01-CB)
EMI Test Receiver	Rohde&Schwarz	ESCI	100186	9kHz ~ 3GHz	Jul. 07, 2016	Radiation (10CH01-CB)
Spectrum Analyzer	Rohde&Schwarz	FSV30	101026	9kHz ~ 30GHz	Jan. 04, 2016	Radiation (10CH01-CB)
Software	Audix	E3	6.120210m	-	N.C.R.	Radiation (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 (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Aug. 22, 2014	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Dec. 16, 2013	Radiation (03CH01-CB)
Pre-Amplifier	WM	TF-130N-R1	923365	26GHz ~ 40GHz	Oct. 23, 2013	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSP40	100019	9kHz~40GHz	Dec. 02, 2013	Radiation (03CH01-CB)
EMI Test Receiver	Agilent	N9038A	MY52260123	9kHz ~ 8GHz	Dec. 12, 2013	Radiation (03CH01-CB)
Turn Table	INN CO	CO 2000	N/A	0 ~ 360 degree	N.C.R.	Radiation (03CH01-CB)
Antenna Mast	INN CO	CO 2000	N/A	1 m - 4 m	N.C.R.	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-3	N/A	1 GHz - 40 GHz	Nov. 17, 2013	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-4	N/A	1 GHz - 40 GHz	Nov. 17, 2013	Radiation (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%