



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 E § 15.407
Frequency Range : 5150~5250 MHz / 5725~5850 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 E § 15.407 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

UNII 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	15.407(a)(1,2,3,4)	Maximum Conducted Output Power Measurement	Max. Conducted Power[dBm]: 22.26 (11VHT20 SDM MCS0Nss3 CH36)	Complied
2.3	15.407(a)(1,2,3,5)	Power Spectral Density Measurement	Max.Total PSD [dBm/3kHz]: 8.74 (11a CDD 6Mbps CH48)	Complied
2.4	15.407(a)(e)	26dB/6dB Bandwidth and 99 Percent Occupied Bandwidth Measurement	26dB Bandwidth[MHz]: 83.2 (11ac VHT80 CDD MCS0Nss1 CH42) 6dB Bandwidth[MHz]: 16.40 (11a CDD 6Mbps CH149) 99% OCB: 76.80 (11ac VHT80 CDD MCS0Nss1 CH38)	Complied
2.5	15.205,15.209,15.407(b)	Radiated Emissions	52.64 dBuV/m (Margin 1.36dB) (11ac VHT20 BF MCS0Nss1 CH165)	Complied
2.6	15.407(b) (1,2,3,4)	Band-edge Emissions Measurement	52.74 dBuV/m (Margin 1.26dB) (11ac VHT40 CDD MCS0Nss1 CH38)	Complied
2.7	15.407(g)	Frequency Stability Measurement	-	Complied
2.8	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 Information 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)	● (Duplexer)	● (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 E § 15.407
ANSI C63.10-2013
KDB789033 D02 v01r03 General UNII Test Procedures New Rules v01r03_08/22/2016
KDB662911 D01 v02r01 Multiple Transmitter Output v02r01_10/31/2013
KDB644545 D03 v01 Guidance for IEEE 802.11ac New Rules v01_08/14/2014
KDB905462 D06 802 11 Channel Plans New Rules v02

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 Details**

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
Product Type	IEEE 802.11a/n/ac
Operating Frequency	5150 ~ 5250MHz / 5725 ~ 5850 MHz
Nominal Channel Bandwidth	20MHz / 40MHz / 80MHz
Number of Channel	9 for 20MHz bandwidth 4 for 40MHz bandwidth 5 for 80MHz bandwidth
Channel Spacing	20MHz / 40MHz / 80MHz
Max. Output power	IEEE 802.11a: Band 1: 22.20 dBm ; Band 4: 19.57 dBm
	IEEE 802.11ac VHT20: Band 1: 22.26 dBm ; Band 4: 20.68 dBm
	IEEE 802.11ac VHT40: Band 1: 20.55 dBm ; Band 4: 18.47 dBm
	IEEE 802.11ac VHT80: Band 1: 18.01 dBm ; Band 4: 17.43 dBm
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
5150-5250 5725-5850	a	6, 9, 12, 18, 24, 36, 48, 54	5180-5240 5745-5825	36-48 149-165
5150-5250 5725-5850	n(HT20)	MCS0 – MCS23	5180-5240 5745-5825	36-48 149-165
5150-5250 5725-5850	n(HT40)	MCS0 – MCS23	5190-5230 5755-5795	38-46 151-159
5150-5350 5725-5850	ac(VHT20)	MCS0 – MCS9/Nss1-3	5180-5240 5745-5825	36-48 149-165
5150-5250 5725-5850	ac(VHT40)	MCS0 – MCS9/Nss1-3	5190-5230 5755-5795	38-46 151-159
5150-5250 5725-5850	ac(VHT80)	MCS0 – MCS9/Nss1-3	5210 5775	42 155
Note 1: 802.11a/n uses a combination of OFDM-BPSK, QPSK , 16QAM, 64QAM modulation.				
Note 2: 802.11ac uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM 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
16	3	BPSK	1/2	19.5	21.7	40.5	45
17		QPSK	1/2	39	43.3	81	90
18		QPSK	3/4	58.5	65	121.5	135
19		16-QAM	1/2	78	86.7	162	180
20		16-QAM	3/4	117	130	243	270
21		64-QAM	2/3	156	173.3	324	360
22		64-QAM	3/4	175.5	195	364.5	405
23		64-QAM	5/6	195	216.7	405	450

Note1 : GI means guard interval.

IEEE Std. 802.11ac modulation and data rate information									
MCS Index	Spatial Streams	Modulation Type	Coding Rate	Data Rate (Mbit/s)					
				20 MHz channel		40 MHz channel		80 MHz channel	
				800ns GI	400ns GI	800ns GI	400ns GI	800ns GI	400ns GI
0	1	BPSK	1/2	6.5	7.2	13.5	15	29.3	32.5
1		QPSK	1/2	13	14.4	27	30	58.5	65
2		QPSK	3/4	19.5	21.7	40.5	45	87.8	97.5
3		16-QAM	1/2	26	28.9	54	60	117	130
4		16-QAM	3/4	39	43.3	81	90	175.5	195
5		64-QAM	2/3	52	57.8	108	120	234	260
6		64-QAM	3/4	58.5	65	121.5	135	263.3	292.5
7		64-QAM	5/6	65	72.2	135	150	292.5	325
8		256-QAM	3/4	78	86.7	162	180	351	390
9		256-QAM	5/6	Not valid		180	200	390	433.3
0	2	BPSK	1/2	13	14.4	27	30	58.5	65
1		QPSK	1/2	26	28.9	54	60	117	130
2		QPSK	3/4	39	43.3	81	90	175.5	195
3		16-QAM	1/2	52	57.8	108	120	234	260
4		16-QAM	3/4	78	86.7	162	180	351	390
5		64-QAM	2/3	104	115.6	216	240	468	520
6		64-QAM	3/4	117	130	243	270	526.5	585
7		64-QAM	5/6	130	144.4	270	300	585	650
8		256-QAM	3/4	156	173.3	324	360	702	780
9		256-QAM	5/6	Not valid		360	400	780	866.7
0	3	BPSK	1/2	19.5	21.7	40.5	45	87.8	97.5
1		QPSK	1/2	39	43.3	81	90	175.5	195
2		QPSK	3/4	58.5	65	121.5	135	263.3	292.5
3		16-QAM	1/2	78	86.7	162	180	351	390
4		16-QAM	3/4	117	130	243	270	526.5	585
5		64-QAM	2/3	156	173.3	324	360	702	780
6		64-QAM	3/4	175.5	195	364.5	405	Not valid	
7		64-QAM	5/6	195	216.7	405	450	877.5	975
8		256-QAM	3/4	234	260	486	540	1053	1170
9		256-QAM	5/6	260	288.9	540	600	1170	1300

Note1 : GI means guard interval.

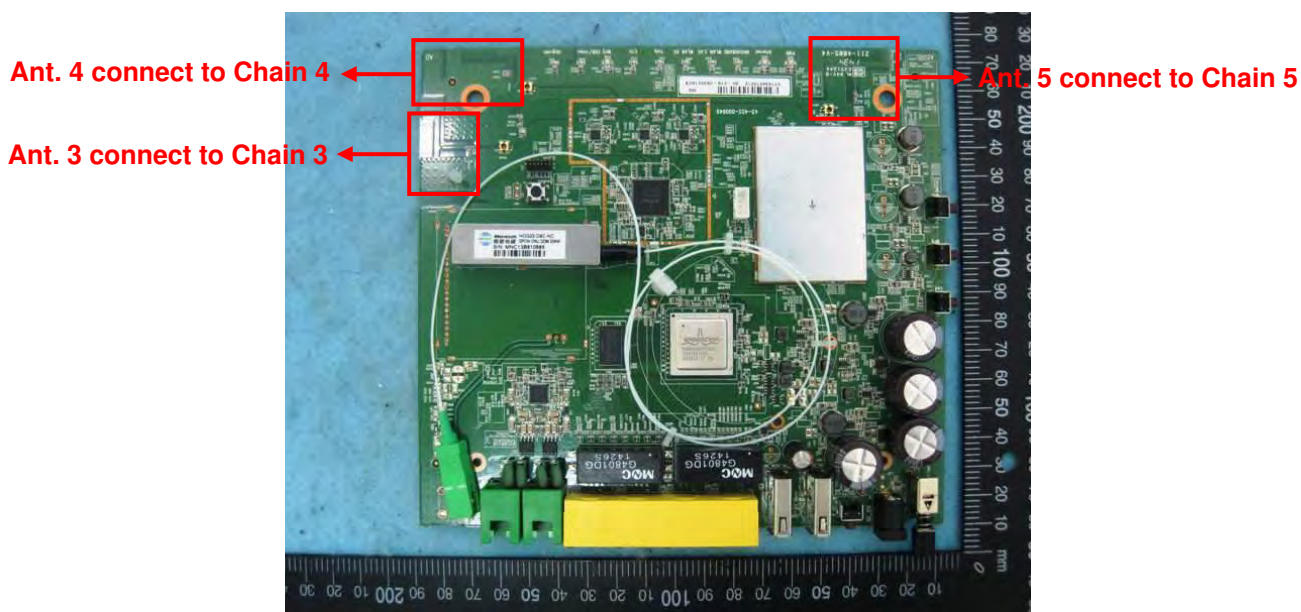
RF path transmission and receive function information									
Modulation mode	802.11a			802.11n(HT20/40)			802.11ac(VHT20/40/80)		
Chain	3	4	5	3	4	5	3	4	5
Single(Tx)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Two(Tx)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Three(Tx)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Chain	3	4	5	3	4	5	3	4	5
Single(Rx)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Two(Rx)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Three(Rx)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Note: 1. For 802.11n, MCS0~7: 1Tx ; MCS8~MCS15 : 2TX ; MCS16~MCS23 : 3TX. 2. For 802.11ac VHT20/40/80, mcs0~mcs9 : 1Stream 3TX ; mcs0~mcs9 : 2Stream 3TX ; mcs0~mcs9 : 3Stream 3TX.									

Table for Carrier Frequencies						
Frequency Band	802.11a, 11n (HT20), 11ac (VHT20)		802.11n (HT40), 11ac (VHT40)		802.11ac (VHT80)	
	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
5150-5250MHz	36	5180	38	5190	42	5210
	40	5200	46	5230	-	-
	44	5220	-	-	-	-
	48	5240	-	-	-	-
5725-5850MHz	149	5745	-	-	-	-
	153	5765	151	5755	155	5775
	157	5785	159	5795	-	-
	161	5805	-	-	-	-
	165	5825	-	-	-	-

1.9 Antenna Information

Antenna Information				
Ant.	Brand	P/N	Antenna Type	Connector
3	technicolor	N/A	Printed Antenna	N/A
4	technicolor	N/A	Printed Antenna	N/A
5	technicolor	N/A	Printed Antenna	N/A

Channel	Frequency (MHz)	Antenna Gain (dBi)								
		Ant. 3	Ant. 4	Ant. 5	SDM Ant. 3+4	SDM Ant. 4+5	SDM Ant. 3+5	3TX CDD	3TX BF	3TX SDM
36	5180	3.43	3.84	2.91	3.14	2.98	2.87	7.74	7.74	2.97
38	5190	2.93	3.55	2.67	2.87	2.72	2.63	7.46	7.46	2.70
42	5210	2.82	3.36	2.27	2.77	2.53	2.27	7.29	7.29	2.53
44	5220	2.76	3.58	2.24	2.89	2.56	2.17	7.23	7.23	2.47
46	5230	3.25	3.87	2.60	3.12	2.90	2.49	7.52	7.52	2.77
48	5240	3.19	3.96	2.72	3.11	3.07	2.54	7.64	7.64	2.89
149	5745	2.99	4.41	2.91	2.90	3.28	1.84	7.17	7.17	2.52
151	5755	3.01	4.66	3.09	2.95	3.42	1.89	7.25	7.25	2.06
155	5775	3.43	4.77	3.29	3.22	3.71	2.22	7.56	7.56	2.91
157	5785	3.77	4.86	3.35	3.31	3.86	2.43	7.70	7.70	3.07
159	5795	4.14	5.08	3.95	3.41	4.15	2.90	8.00	8.00	3.34
165	5825	4.34	4.79	4.59	3.57	4.25	3.33	8.08	8.08	3.42



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

Worst Modulation Used for Conformance Testing			
Number of Transmit Chains	Modulation Mode	Data Rate / MCS	Worst Data Rate / MCS
1	802.11a	6-54 Mbps	6 Mbps
3	802.11a	6-54 Mbps	CDD 6 Mbps
1	802.11ac (VHT20)	MCS0-9/Nss1	MCS0Nss1
2	802.11ac (VHT20)	MCS0-9/Nss1-2	SDM MCS0Nss2
3	802.11ac (VHT20)	MCS0-9/Nss1-3	CDD MCS0Nss1
			SDM MCS0Nss3
1	802.11ac (VHT40)	MCS0-9/Nss1	MCS0Nss1
2	802.11ac (VHT40)	MCS0-9/Nss1-2	SDM MCS0Nss2
3	802.11ac (VHT40)	MCS0-9/Nss1-3	CDD MCS0Nss1
1	802.11ac (VHT80)	MCS0-9/Nss1	MCS0Nss1
2	802.11ac (VHT80)	MCS0-9/Nss1-2	SDM MCS0Nss2
3	802.11ac (VHT80)	MCS0-9/Nss1-3	CDD MCS0Nss1

Note 1: IEEE Std. 802.11n-2009 modulation consists of HT20 and HT40 (HT: High Throughput).
The EUT supports HT20 and HT40. Worst modulation mode of Guard Interval (GI) is 400ns.

Note 2: IEEE Std. 802.11ac modulation consists of VHT20, VHT40, VHT80 and VHT160 (VHT: Very High Throughput). Then EUT support VHT20, VHT40 and VHT80.

Note 3: Modulation modes consist of below configuration:
11a: IEEE 802.11a, HT20/HT40: IEEE 802.11n, VHT20/VHT40/VHT80: IEEE 802.11ac.

no test, other test results can cover

need test

Below table is Pre-Q Test Plan mode

FCC 5G Test Plan mode select								
Test Items	AC Power Line Conducted Emissions	Frequency Stability	Maximum Conducted Output Power	Power Spectral Density	26dB Bandwidth & 99% Occupied Bandwidth	Radiated Emissions Below 1GHz	Radiated Emissions Above 1GHz	Bandedge Emissions
non-modulation Mode		Need Test						
11a Chain3 6Mbps		covered by non-modulation mode	Need Test	covered by VHT20 CDD MCS0	covered by VHT20 CDD MCS0	covered by VHT20 CDD MCS0	Need Test	Need Test



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11a Chain4 6Mbps			Need Test	chain3+4+5	chain3+4+5	chain3+4+5	Need Test	Need Test
11a Chain5 6Mbps			Need Test				Need Test	Need Test
11a Chain3+4 SDM 6Mbps		covered by non-modulation mode	covered by VHT20 CDD MCS0 chain3+4+5	covered by VHT20 CDD MCS0 chain3+4+5	covered by VHT20 CDD MCS0 chain3+4+5	covered by VHT20 CDD MCS0 chain3+4+5	covered by VHT20 CDD MCS0 chain3+4+5	covered by VHT20 CDD MCS0 chain3+4+5
11a Chain4+5 SDM 6Mbps								
11a Chain3+5 SDM 6Mbps								
11a Chain3+4+5 CDD 6Mbps		covered by non-modulation mode	Need Test	Need Test	Need Test	Need Test	Need Test use maximized board limit power index to fill in CDD's power index table	Need Test use maximized board limit power index to fill in CDD's power index table
11n (HT20) Chain3 MCS0		covered by non-modulation mode	covered by VHT20 CDD MCS0 chain3+4+5	covered by VHT20 CDD MCS0 chain3+4+5	covered by VHT20 CDD MCS0 chain3+4+5	covered by VHT20 CDD MCS0 chain3+4+5	covered by VHT20 CDD MCS0 chain3+4+5	covered by VHT20 CDD MCS0 chain3+4+5
11n (HT20) Chain4 MCS0								
11n (HT20) Chain5 MCS0								
11n (HT20) Chain3+4 SDM MCS8		covered by non-modulation mode	covered by VHT20 CDD MCS0 chain3+4+5	covered by VHT20 CDD MCS0 chain3+4+5	covered by VHT20 CDD MCS0 chain3+4+5	covered by VHT20 CDD MCS0 chain3+4+5	covered by VHT20 CDD MCS0 chain3+4+5	covered by VHT20 CDD MCS0 chain3+4+5
11n (HT20) Chain4+5 SDM MCS8								
11n (HT20) Chain3+5 SDM MCS8								
11n (HT20) Chain3+4+5 CDD MCS0		covered by non-modulation mode	covered by VHT20 CDD MCS0 chain3+4+5	covered by VHT20 CDD MCS0 chain3+4+5	covered by VHT20 CDD MCS0 chain3+4+5	covered by VHT20 CDD MCS0 chain3+4+5	covered by VHT20 CDD MCS0 chain3+4+5	covered by VHT20 CDD MCS0 chain3+4+5
11n (HT20) Chain3+4+5 SDM MCS16								
11n (HT20) Chain3+4+5 SDM MCS23								
11n (HT20) Chain3+4+5 BF MCS0								
11n (HT40) Chain3 MCS0		covered by non-modulation mode	covered by VHT40 CDD MCS0 chain3+4+5	covered by VHT40 CDD MCS0 chain3+4+5	covered by VHT40 CDD MCS0 chain3+4+5	covered by VHT40 CDD MCS0 chain3+4+5	covered by VHT40 CDD MCS0 chain3+4+5	covered by VHT40 CDD MCS0 chain3+4+5
11n (HT40) Chain4 MCS0								
11n (HT40) Chain5 MCS0								
11n (HT40) Chain3+4 SDM MCS8		covered by non-modulation mode	covered by VHT40 CDD MCS0	covered by VHT40 CDD MCS0	covered by VHT40 CDD MCS0		covered by VHT40 CDD MCS0 chain3+4+5	covered by VHT40 CDD MCS0 chain3+4+5



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11n (HT40) Chain4+5 SDM MCS8			chain3+4+5	chain3+4+5	chain3+4+5			
11n (HT40) Chain3+5 SDM MCS8								
11n (HT40) Chain3+4+5 CDD MCS0								
11n (HT40) Chain3+4+5 SDM MCS23		covered by non-modulation mode	covered by VHT40 CDD MCS0 chain3+4+5	covered by VHT40 CDD MCS0 chain3+4+5	covered by VHT40 CDD MCS0 chain3+4+5		covered by VHT40 CDD MCS0 chain3+4+5	covered by VHT40 CDD MCS0 chain3+4+5
11n (HT40) Chain3+4+5 BF MCS0								
11ac (VHT20) Chain3 MCS0Nss1			Need Test				Need Test	Need Test
11ac (VHT20) Chain4 MCS0Nss1		covered by non-modulation mode	Need Test	covered by VHT20 CDD MCS0 chain3+4+5	covered by VHT20 CDD MCS0 chain3+4+5		Need Test	Need Test
11ac (VHT20) Chain5 MCS0Nss1			Need Test				Need Test	Need Test
11ac (VHT20) Chain3+4 SDM MCS0Nss2			Need Test			covered by VHT20 CDD MCS0 chain3+4+5	Need Test	Need Test
11ac (VHT20) Chain4+5 SDM MCS0Nss2		covered by non-modulation mode	Need Test	covered by VHT20 CDD MCS0 chain3+4+5	covered by VHT20 CDD MCS0 chain3+4+5		Need Test	Need Test
11ac (VHT20) Chain3+5 SDM MCS0Nss2			Need Test				Need Test	Need Test
11ac (VHT20) Chain3+4+5 CDD MCS0Nss1			Need Test	Need Test	Need Test	Need Test	Need Test use maximized board limit power index to fill in CDD's power index table	Need Test use maximized board limit power index to fill in CDD's power index table
11ac (VHT20) Chain3+4+5 CDD MCS0Nss2		covered by non-modulation mode	covered by VHT20 CDD MCS0 chain3+4+5	covered by VHT20 CDD MCS0 chain3+4+5	covered by VHT20 CDD MCS0 chain3+4+5		covered by VHT20 CDD MCS0 chain3+4+5	covered by VHT20 CDD MCS0 chain3+4+5
11ac (VHT20) Chain3+4+5 SDM MCS0Nss3			Need Test	Need Test		covered by VHT20 CDD MCS0 chain3+4+5	Need Test use maximized board limit power index to fill in CDD's power index table	Need Test use maximized board limit power index to fill in CDD's power index table
11ac (VHT20) Chain3+4+5 BF MCS0Nss1		covered by non-modulation mode	covered by VHT20 CDD MCS0 chain3+4+5	covered by VHT20 CDD MCS0 chain3+4+5	covered by VHT20 CDD MCS0 chain3+4+5		covered by VHT20 BF MCS0Nss1 chain3+4+5	covered by VHT20 BF MCS0Nss1 chain3+4+5
11ac (VHT20) Chain3+4+5 BF MCS0Nss2		covered by non-modulation mode	covered by VHT20 CDD MCS0 chain3+4+5	covered by VHT20 CDD MCS0 chain3+4+5	covered by VHT20 CDD MCS0 chain3+4+5		covered by VHT20 BF MCS0Nss1 chain3+4+5	covered by VHT20 BF MCS0Nss1 chain3+4+5
11ac (VHT40) Chain3 MCS0Nss1		covered by non-modulation mode	Need Test	covered by VHT40 CDD MCS0	covered by VHT40 CDD MCS0	covered by VHT40 CDD MCS0	Need Test	Need Test



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11ac (VHT40) Chain4 MCS0Nss1			Need Test	chain3+4+5	chain3+4+5	chain3+4+5	Need Test	Need Test
11ac (VHT40) Chain5 MCS0Nss1			Need Test				Need Test	Need Test
11ac (VHT40) Chain3+4 SDM MCS0Nss2			Need Test				Need Test	Need Test
11ac (VHT40) Chain4+5 SDM MCS0Nss2		covered by non-modulation mode	Need Test	covered by VHT40 CDD MCS0 chain3+4+5	covered by VHT40 CDD MCS0 chain3+4+5		Need Test	Need Test
11ac (VHT40) Chain3+5 SDM MCS0Nss2			Need Test				Need Test	Need Test
11ac (VHT40) Chain3+4+5 CDD MCS0Nss1		covered by non-modulation mode	Need Test	Need Test	Need Test	Need Test	Need Test use maximized board limit power index to fill in CDD's power index table	Need Test use maximized board limit power index to fill in CDD's power index table
11ac (VHT40) Chain3+4+5 SDM MCS0Nss3		covered by non-modulation mode	covered by VHT40 CDD MCS0 chain3+4+5	covered by VHT40 CDD MCS0 chain3+4+5	covered by VHT40 CDD MCS0 chain3+4+5	covered by VHT40 CDD MCS0 chain3+4+5	covered by VHT40 CDD MCS0 chain3+4+5	covered by VHT40 CDD MCS0 chain3+4+5
11ac (VHT40) Chain3+4+5 BF MCS0Nss1		covered by non-modulation mode	Coverd by VHT40 CDD use Calculation from ANT gain diff.	Coverd by VHT40 CDD use Calculation from ANT gain diff.	covered by VHT40 CDD MCS0 chain3+4+5	covered by VHT40 CDD MCS0 chain3+4+5	Need Test use maximized board limit power index to fill in CDD's power index table	Need Test use maximized board limit power index to fill in CDD's power index table
11ac (VHT40) Chain3+4+5 BF MCS0Nss2		covered by non-modulation mode	covered by VHT40 BF MCS0Nss1 chain3+4+5	covered by VHT40 BF MCS0Nss1 chain3+4+5	covered by VHT40 CDD MCS0 chain3+4+5		covered by VHT40 BF MCS0Nss1 chain3+4+5	covered by VHT40 BF MCS0Nss1 chain3+4+5
11ac (VHT80) Chain3 MCS0NSS1			Need Test				Need Test	Need Test
11ac (VHT80) Chain4 MCS0Nss1		covered by non-modulation mode	Need Test	covered by VHT80 CDD MCS0 chain3+4+5	covered by VHT80 CDD MCS0 chain3+4+5		Need Test	Need Test
11ac (VHT80) Chain5 MCS0Nss1			Need Test				Need Test	Need Test
11ac (VHT80) Chain3+4 SDM MCS0Nss2			Need Test			covered by VHT80 CDD MCS0 chain3+4+5	Need Test	Need Test
11ac (VHT80) Chain4+5 SDM MCS0Nss2		covered by non-modulation mode	Need Test	covered by VHT80 CDD MCS0 chain3+4+5	covered by VHT80 CDD MCS0 chain3+4+5		Need Test	Need Test
11ac (VHT80) Chain3+5 SDM MCS0Nss2			Need Test				Need Test	Need Test
11ac (VHT80) Chain3+4+5 CDD MCS0Nss1		covered by non-modulation mode	Need Test	Need Test	Need Test	Need Test	Need Test use maximized board limit power index to fill in CDD's power index table	Need Test use maximized board limit power index to fill in CDD's power index table



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11ac (VHT80) Chain3+4+5 SDM MCS0Nss3			covered by VHT80 CDD MCS0 chain3+4+5	covered by VHT80 CDD MCS0 chain3+4+5	covered by VHT80 CDD MCS0 chain3+4+5		covered by VHT80 CDD MCS0 chain3+4+5	covered by VHT80 CDD MCS0 chain3+4+5
11ac (VHT80) Chain3+4+5 BF MCS0Nss1		covered by non-modulation mode	Covered by VHT80 CDD use Calculation from ANT gain diff.	Covered by VHT80 CDD use Calculation from ANT gain diff.	covered by VHT80 CDD MCS0 chain3+4+5	covered by VHT80 CDD MCS0 chain3+4+5	Need Test use maximized board limit power index to fill in CDD's power index table	Need Test use maximized board limit power index to fill in CDD's power index table
11ac (VHT80) Chain3+4+5 BF MCS0Nss2		covered by non-modulation mode	covered by VHT80 BF MCS0NSS1 chain3+4+5	covered by VHT80 BF MCS0NSS1 chain3+4+5	covered by VHT80 CDD MCS0 chain3+4+5		covered by VHT80 BF MCS0NSS1 chain3+4+5	covered by VHT80 BF MCS0NSS1 chain3+4+5
11ac (VHT80) Chain3+4+5 Normal Link	Need Test							



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Use Pre-Q test result to choose the final worst case test modes and record.

Below table is worst case test mode.

Test Items	Mode	Channel	Data Rate	Chain	Note
AC Power Line Conducted Emissions	Normal Link	-	-	-	-
Maximum Conducted Output Power	11a	36/44/48 149/157/165	6Mbps	3	-
		36/44/48 149/157/165	6Mbps	4	-
		36/44/48 149/157/165	6Mbps	5	-
	11a	36/44/48 149/157/165	CDD 6Mbps	3+4+5	-
	11ac (VHT20)	36/44/48 149/157/165	MCS0Nss1	3	-
		36/44/48 149/157/165	MCS0Nss1	4	-
		36/44/48 149/157/165	MCS0Nss1	5	-
	11ac (VHT20)	36/44/48 149/157/165	SDM MCS0Nss2	3+4	-
		36/44/48 149/157/165	SDM MCS0Nss2	4+5	-
		36/44/48 149/157/165	SDM MCS0Nss2	3+5	-
	11ac (VHT20)	36/44/48 149/157/165	CDD MCS0Nss1	3+4+5	-
	11ac (VHT20)	36/44/48 149/157/165	SDM MCS0Nss3	3+4+5	-
	11ac (VHT40)	38/46/ 151/159	MCS0Nss1	3	-
		38/46/ 151/159	MCS0Nss1	4	-
		38/46/ 151/159	MCS0Nss1	5	-
	11ac (VHT40)	38/46/ 151/159	SDM MCS0Nss2	3+4	-
		38/46/ 151/159	SDM MCS0Nss2	4+5	-
		38/46/ 151/159	SDM MCS0Nss2	3+5	-
	11ac (VHT40)	38/46/ 151/159	CDD MCS0Nss1	3+4+5	-



Maximum Conducted Output Power	11ac (VHT80)	42/155	MCS0Nss1	3	-
		42/155	MCS0Nss1	4	-
		42/155	MCS0Nss1	5	-
	11ac (VHT80)	42/155	SDM MCS0Nss2	3+4	-
		42/155	SDM MCS0Nss2	4+5	-
		42/155	SDM MCS0Nss2	3+5	-
	11ac (VHT80)	42/155	CDD MCS0Nss1	3+4+5	-
Power Spectral Density	11a	36/44/48 149/157/165	CDD 6Mbps	3+4+5	-
	11ac (VHT20)	36/44/48 149/157/165	CDD MCS0Nss1	3+4+5	-
	11ac (VHT20)	36/44/48 149/157/165	SDM MCS0Nss3	3+4+5	-
	11ac (VHT40)	38/46/ 151/159	CDD MCS0Nss1	3+4+5	-
	11ac (VHT80)	42/155	CDD MCS0Nss1	3+4+5	-
26dB / 6dB Bandwidth and 99% Occupied Bandwidth	11a	36/44/48 149/157/165	CDD 6Mbps	3+4+5	-
	11ac (VHT20)	36/44/48 149/157/165	CDD MCS0Nss1	3+4+5	-
	11ac (VHT40)	38/46/ 151/159	CDD MCS0Nss1	3+4+5	-
	11ac (VHT80)	42/155	CDD MCS0Nss1	3+4+5	-
Radiated Emissions Below 1GHz	Normal Link	-	-	-	-



Radiated Emissions Above 1GHz	11a	36/149/165	6Mbps	3	-
		44/48/157	6Mbps	4	-
		N/A	6Mbps	5	-
	11a	36/44/48 149/157/165	CDD 6Mbps	3+4+5	-
	11ac (VHT20)	36/149/165	MCS0Nss1	3	-
		44/48/157	MCS0Nss1	4	-
		N/A	MCS0Nss1	5	-
	11ac (VHT20)	157	SDM MCS0Nss2	3+4	-
		44/48/149	SDM MCS0Nss2	4+5	-
		36/165	SDM MCS0Nss2	3+5	-
	11ac (VHT20)	36/44/48 149/157/165	CDD MCS0Nss1	3+4+5	-
	11ac (VHT20)	36/44/48 149/157/165	BF MCS0Nss1	3+4+5	-
	11ac (VHT40)	38/46/ 151/159	MCS0Nss1	3	-
		N/A	MCS0Nss1	4	-
		N/A	MCS0Nss1	5	-
	11ac (VHT40)	38/46	SDM MCS0Nss2	3+4	-
		151	SDM MCS0Nss2	4+5	-
		159	SDM MCS0Nss2	3+5	-
	11ac (VHT40)	38/46/ 151/159	CDD MCS0Nss1	3+4+5	-
	11ac (VHT40)	38/46/ 151/159	BF MCS0Nss1	3+4+5	-
	11ac (VHT80)	42	MCS0Nss1	3	-
		N/A	MCS0Nss1	4	-
		155	MCS0Nss1	5	-
	11ac (VHT80)	42	SDM MCS0Nss2	3+4	-
		155	SDM MCS0Nss2	4+5	-
		N/A	SDM MCS0Nss2	3+5	-
	11ac (VHT80)	42/155	CDD MCS0Nss1	3+4+5	-
	11ac (VHT80)	42/155	BF MCS0Nss1	3+4+5	-



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Band Edge Emissions	11a	36/149/165	6Mbps	3	-
		44/48/157	6Mbps	4	-
		N/A	6Mbps	5	-
	11a	36/44/48 149/157/165	CDD 6Mbps	3+4+5	-
	11ac (VHT20)	36/149/165	MCS0Nss1	3	-
		44/48/157	MCS0Nss1	4	-
		N/A	MCS0Nss1	5	-
	11ac (VHT20)	157	SDM MCS0Nss2	3+4	-
		44/48/149	SDM MCS0Nss2	4+5	-
		36/165	SDM MCS0Nss2	3+5	-
	11ac (VHT20)	36/44/48 149/157/165	CDD MCS0Nss1	3+4+5	-
	11ac (VHT20)	36/44/48 149/157/165	BF MCS0Nss1	3+4+5	-
	11ac (VHT40)	38/46 151/159	MCS0Nss1	3	-
		54	MCS0Nss1	4	-
		N/A	MCS0Nss1	5	-
	11ac (VHT40)	38/46	SDM MCS0Nss2	3+4	-
		151	SDM MCS0Nss2	4+5	-
		159	SDM MCS0Nss2	3+5	-
	11ac (VHT40)	38/46/ 151/159	CDD MCS0Nss1	3+4+5	-
	11ac (VHT40)	38/46/ 151/159	BF MCS0Nss1	3+4+5	-
	11ac (VHT80)	42/138	MCS0Nss1	3	-
		N/A	MCS0Nss1	4	-
		155	MCS0Nss1	5	-
	11ac (VHT80)	42	SDM MCS0Nss2	3+4	-
		155	SDM MCS0Nss2	4+5	-
		N/A	SDM MCS0Nss2	3+5	-
	11ac (VHT80)	42/155	CDD MCS0Nss1	3+4+5	-
	11ac (VHT80)	42/155	BF MCS0Nss1	3+4+5	-



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Frequency Stability	Un-modulation Mode	44/60 116/157	-	3+4+5	-
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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
Chain 3	11a	1	6Mbps	36	66	17.32
				44	66	17.92
				48	66	17.98
				149	52	15.09
				157	52	15.38
				165	52	14.93
Chain 4	11a	1	6Mbps	36	66	16.48
				44	66	16.02
				48	66	16.12
				149	52	13.28
				157	52	12.75
				165	52	13.32
Chain 5	11a	1	6Mbps	36	66	17.01
				44	66	17.03
				48	66	17.26
				149	52	14.96
				157	52	15.06
				165	52	15.03
Chain 3+4+5	11a	3	CDD 6Mbps	36	66	21.94
				44	66	22.08
				48	66	22.20
				149	52	19.57
				157	52	19.54
				165	52	19.44
Chain 3	11ac (VHT20)	1	MCS0Nss1	36	71	18.42
				44	71	18.57
				48	71	18.64
				149	58	16.33
				157	58	16.27
				165	58	16.28
Chain 4	11ac (VHT20)	1	MCS0Nss1	36	71	17.89
				44	71	17.58
				48	71	17.61
				149	58	14.89
				157	58	14.46
				165	58	14.96
Chain 5	11ac (VHT20)	1	MCS0Nss1	36	71	18.23
				44	71	18.38
				48	71	18.42
				149	58	16.36
				157	58	16.48
				165	58	16.33



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Chain 3+4	11ac (VHT20)	2	SDM MCS0Nss2	36	70	21.19
				44	70	21.23
				48	70	21.05
				149	65	19.88
				157	65	19.64
				165	65	19.88
Chain 4+5	11ac (VHT20)	2	SDM MCS0Nss2	36	70	20.55
				44	70	20.11
				48	70	20.15
				149	65	19.57
				157	65	19.98
				165	65	19.91
Chain 3+5	11ac (VHT20)	2	SDM MCS0Nss2	36	70	20.90
				44	70	21.14
				48	70	21.19
				149	65	20.68
				157	65	20.60
				165	65	20.23
Chain 3+4+5	11ac (VHT20)	3	CDD MCS0Nss1	36	66	21.86
				44	66	21.86
				48	66	21.82
				149	52	19.73
				157	52	19.73
				165	52	19.48
Chain 3+4+5	11ac (VHT20)	3	SDM MCS0Nss3	36	66	22.26
				44	66	22.25
				48	66	22.22
				149	52	18.82
				157	52	18.51
				165	52	18.75
Chain 3	11ac (VHT40)	1	MCS0Nss1	38	56	15.02
				46	56	14.62
				151	47	14.06
				159	47	14.11
Chain 4	11ac (VHT40)	1	MCS0Nss1	38	56	13.61
				46	56	13.71
				151	47	11.02
				159	47	11.03
Chain 5	11ac (VHT40)	1	MCS0Nss1	38	56	14.21
				46	56	14.39
				151	47	13.03
				159	47	12.94
Chain 3+4	11ac (VHT40)	2	SDM MCS0Nss2	38	52	16.68
				46	52	16.64
				151	56	17.88
				159	56	17.82



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Chain 4+5	11ac (VHT40)	2	SDM MCS0Nss2	38	52	15.72
				46	52	15.93
				151	56	16.97
				159	56	17.09
Chain 3+5	11ac (VHT40)	2	SDM MCS0Nss2	38	52	17.31
				46	52	17.28
				151	56	18.47
				159	56	18.41
Chain 3+4+5	11ac (VHT40)	3	CDD MCS0Nss1	38	59	20.55
				46	59	20.55
				151	45	17.51
				159	45	17.30
Chain 3	11ac (VHT80)	1	MCS0Nss1	42	59	14.86
				155	54	14.02
Chain 4	11ac (VHT80)	1	MCS0Nss1	42	59	14.89
				155	54	14.21
Chain 5	11ac (VHT80)	1	MCS0Nss1	42	59	15.22
				155	54	14.66
Chain 3+4	11ac (VHT80)	2	SDM MCS0Nss2	42	52	16.59
				155	52	17.05
Chain 4+5	11ac (VHT80)	2	SDM MCS0Nss2	42	52	16.16
				155	52	15.82
Chain 3+5	11ac (VHT80)	2	SDM MCS0Nss2	42	52	17.16
				155	52	17.43
Chain 3+4+5	11ac (VHT80)	3	CDD MCS0Nss1	42	48	18.01
				155	42	16.94



1.13 EUT Operation during Test

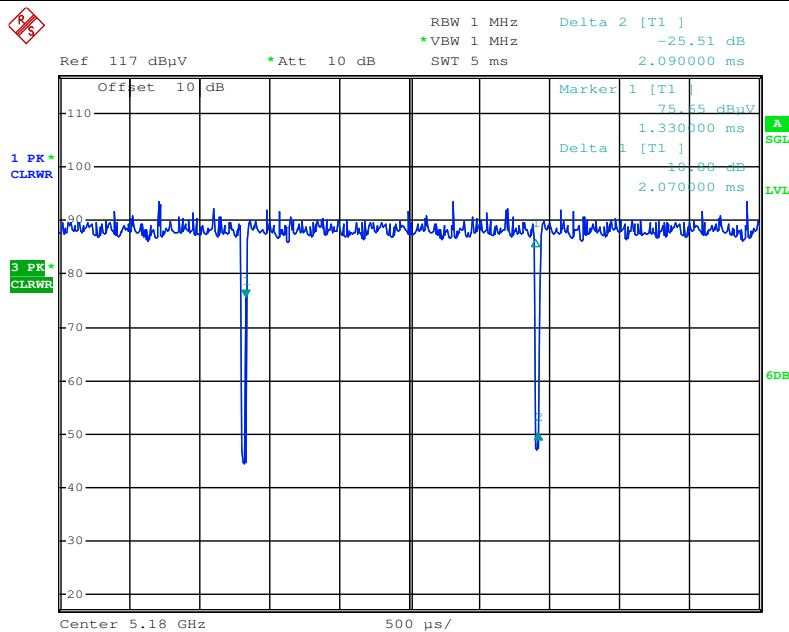
During the test, "Mtool 2.0.1.0" under WIN XP was executed the test program to control the EUT continuously transmit/receive RF signal.

1.14 Test Tool and Duty Cycle

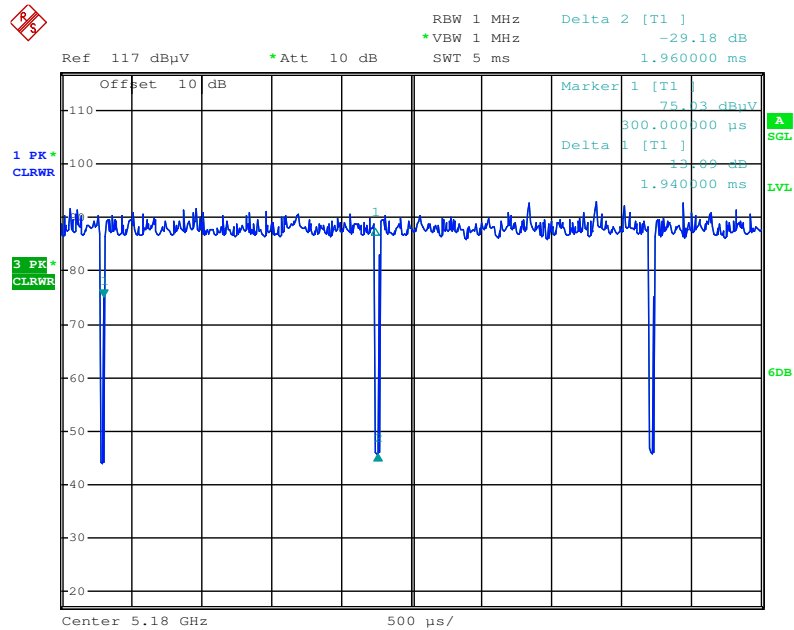
For non-beamforming mode:

Test Tool	Mtool 2.0.1.0				
Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11a / 6Mbps	2.070	2.090	99.04	0.04	0.01
802.11ac VHT20 / MCS0Nss1	1.940	1.960	98.98	0.04	0.01
802.11ac VHT40 / MCS0Nss1	0.940	0.970	96.91	0.14	1.06
802.11ac VHT80 / MCS0Nss1	0.460	0.480	95.83	0.18	2.17

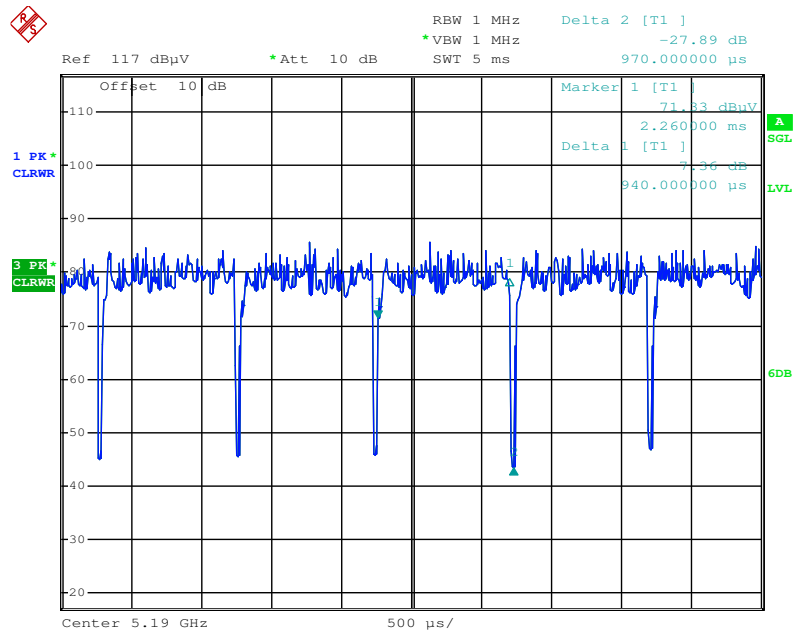
Duty cycle Plot on Configuration IEEE 802.11a / 6Mbps



Date: 27.OCT.2014 19:20:22

**Duty cycle Plot on Configuration IEEE 802.11ac VHT20 / MCS0Nss1**

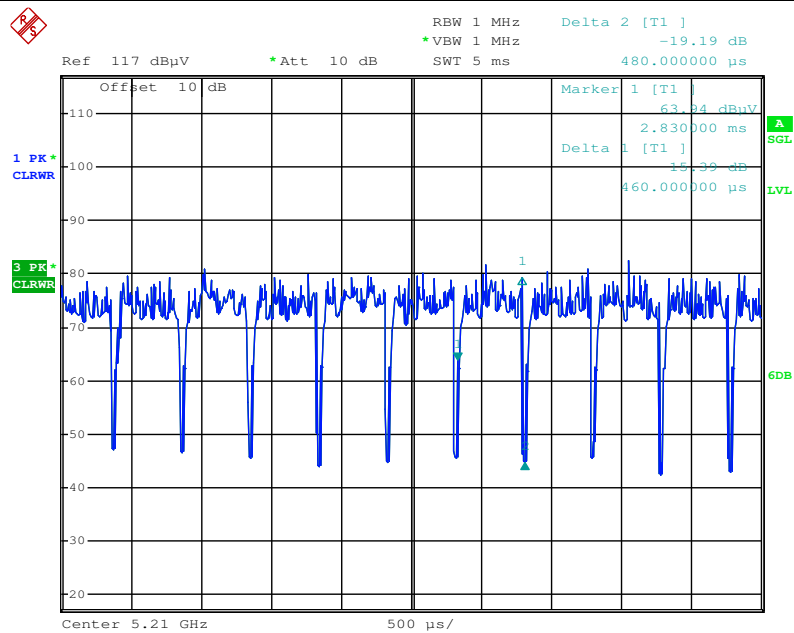
Date: 27.OCT.2014 19:21:24

Duty cycle Plot on Configuration IEEE 802.11ac VHT40 / MCS0Nss1

Date: 27.OCT.2014 19:22:36



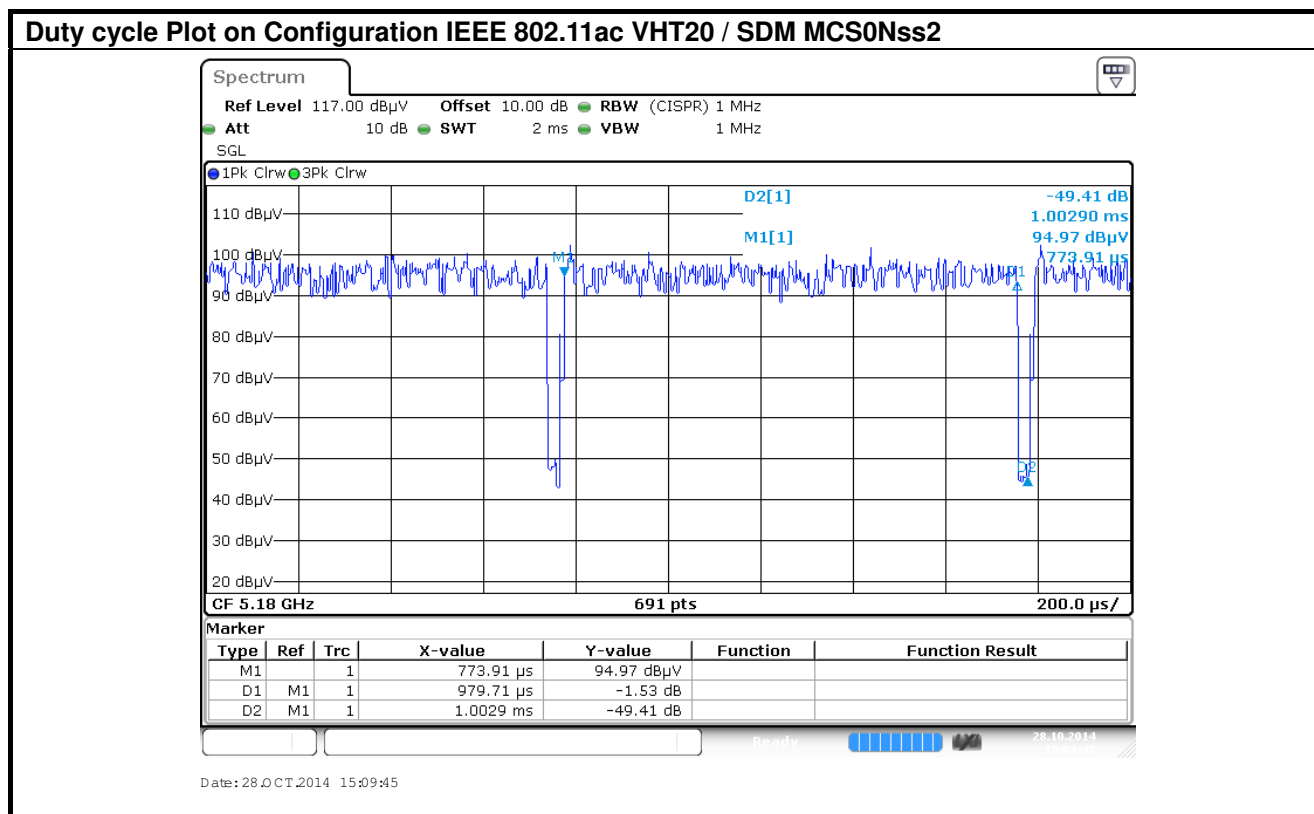
Duty cycle Plot on Configuration IEEE 802.11ac VHT80 / MCS0Nss1



Date: 27.OCT.2014 19:23:36

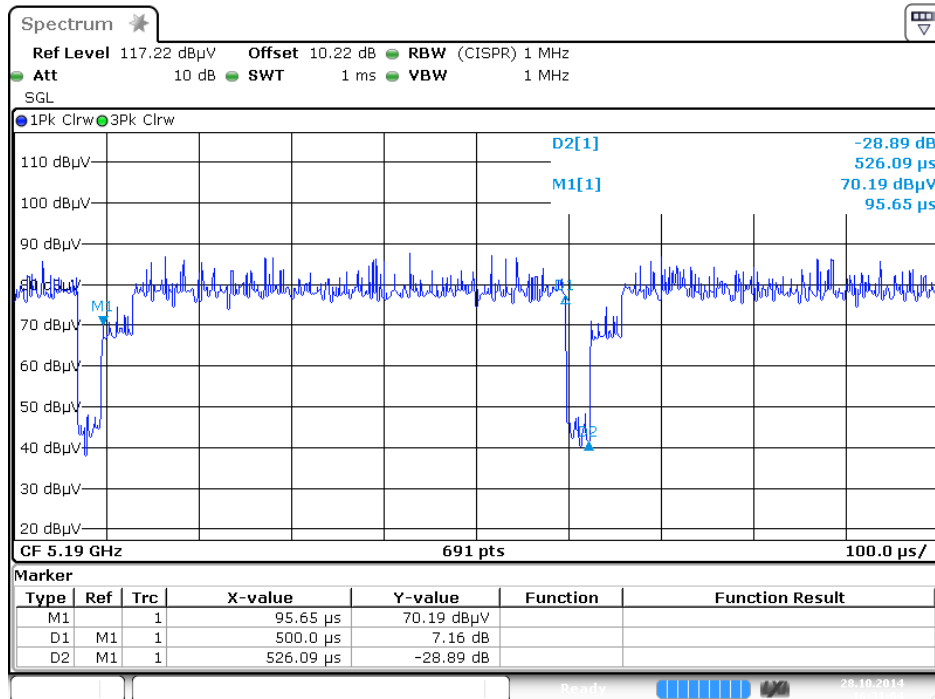


Test Tool	Mtool 2.0.1.0				
Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11ac VHT20 / SDM MCS0Nss2	0.979	1.002	97.70%	0.10	1.02
802.11ac VHT40 / SDM MCS0Nss2	0.500	0.526	95.06%	0.22	2.00
802.11ac VHT80 / SDM MCS0Nss2	0.254	0.281	90.39%	0.44	3.94



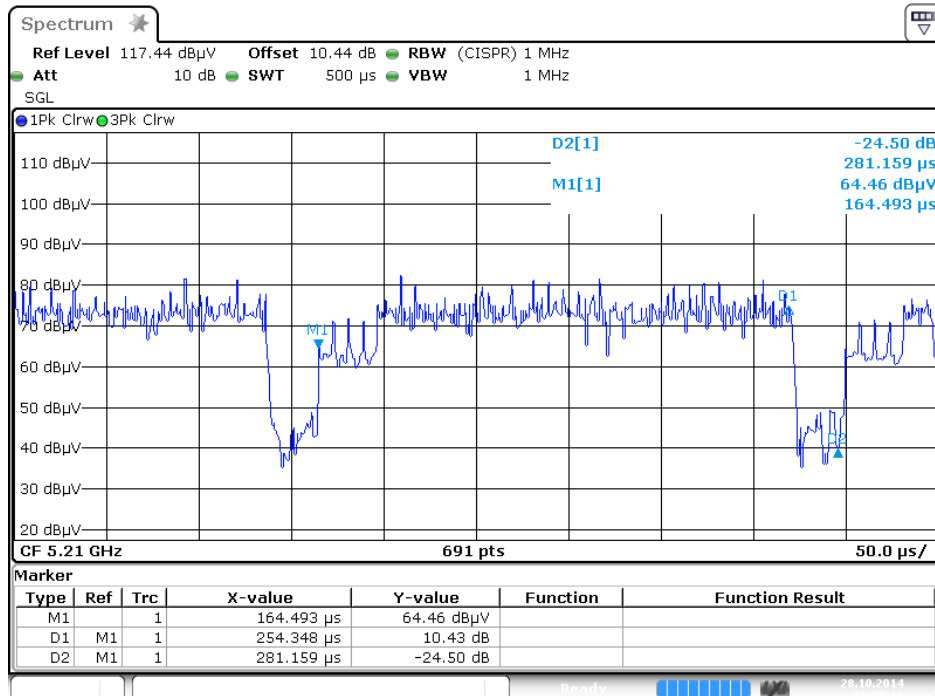


Duty cycle Plot on Configuration IEEE 802.11ac VHT40 / SDM MCS0Nss2



Date: 28 OCT 2014 16:31:04

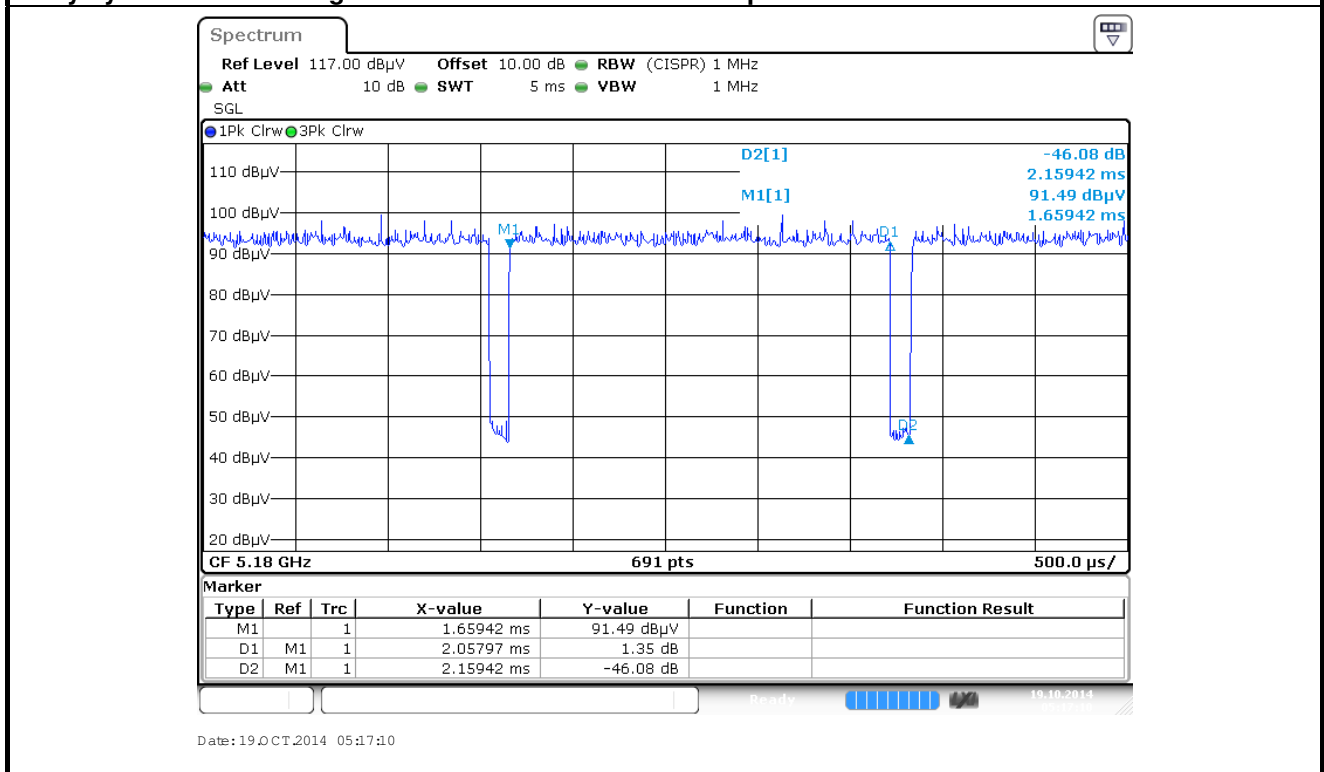
Duty cycle Plot on Configuration IEEE 802.11ac VHT80 / SDM MCS0Nss2

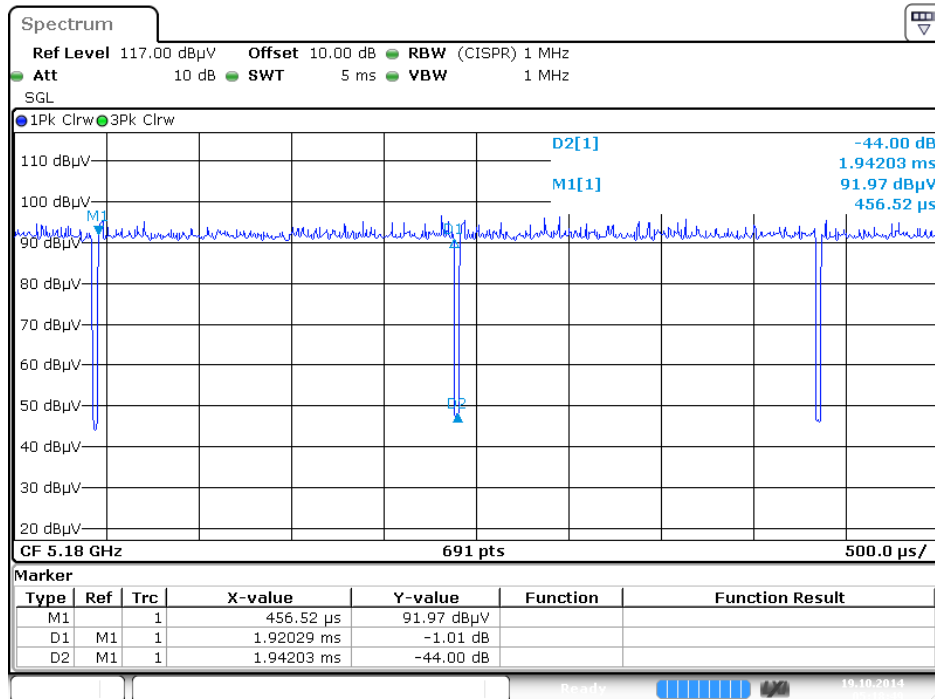


Date: 28 OCT 2014 17:27:12

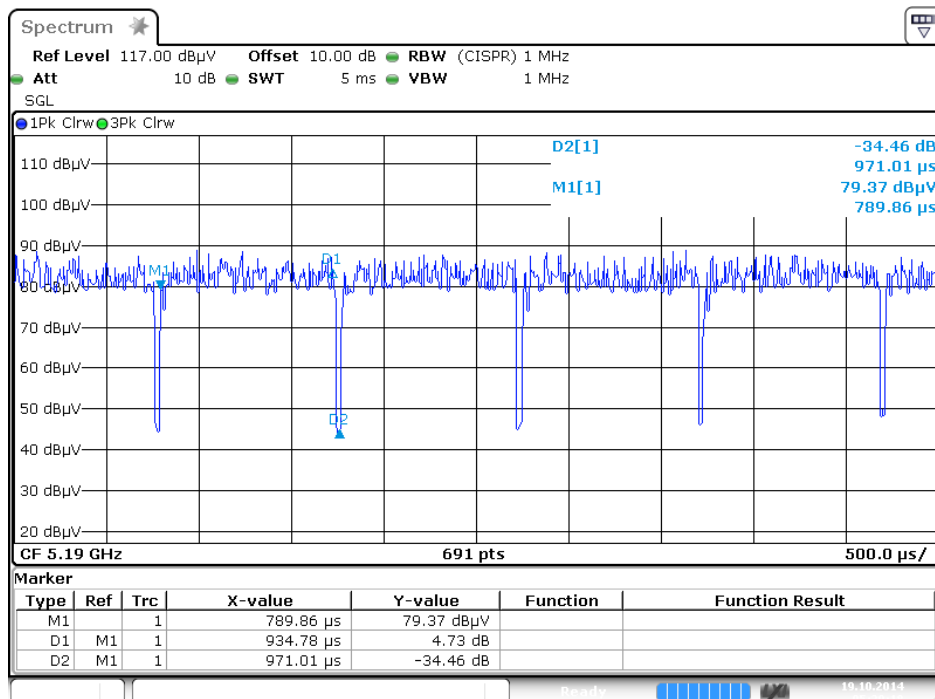


Test Tool	Mtool 2.0.1.0				
Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11a / CDD 6Mbps	2.058	2.159	95.30	0.21	0.49
802.11ac VHT20 / CDD MCS0Nss1	1.920	1.942	98.88	0.05	0.01
802.11ac VHT40 / CDD MCS0Nss1	0.935	0.971	96.27	0.17	1.07
802.11ac VHT80 / CDD MCS0Nss1	0.461	0.487	94.64	0.24	2.17

Duty cycle Plot on Configuration IEEE 802.11a / CDD 6Mbps

**Duty cycle Plot on Configuration IEEE 802.11ac VHT20 / CDD MCS0Nss1**

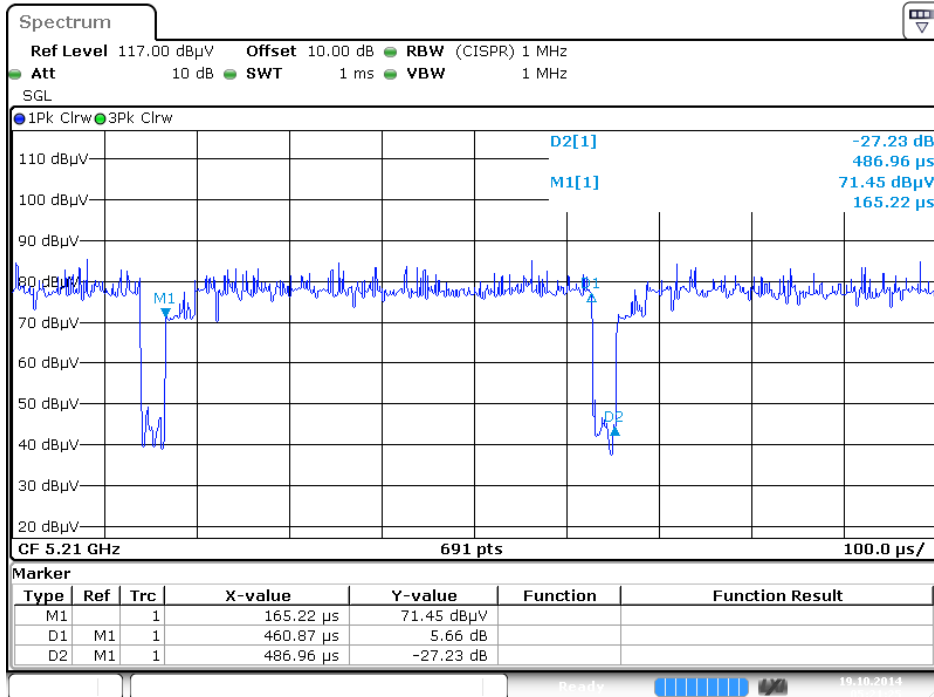
Date: 19 OCT 2014 05:18:49

Duty cycle Plot on Configuration IEEE 802.11ac VHT40 / CDD MCS0Nss1

Date: 19 OCT 2014 05:20:17



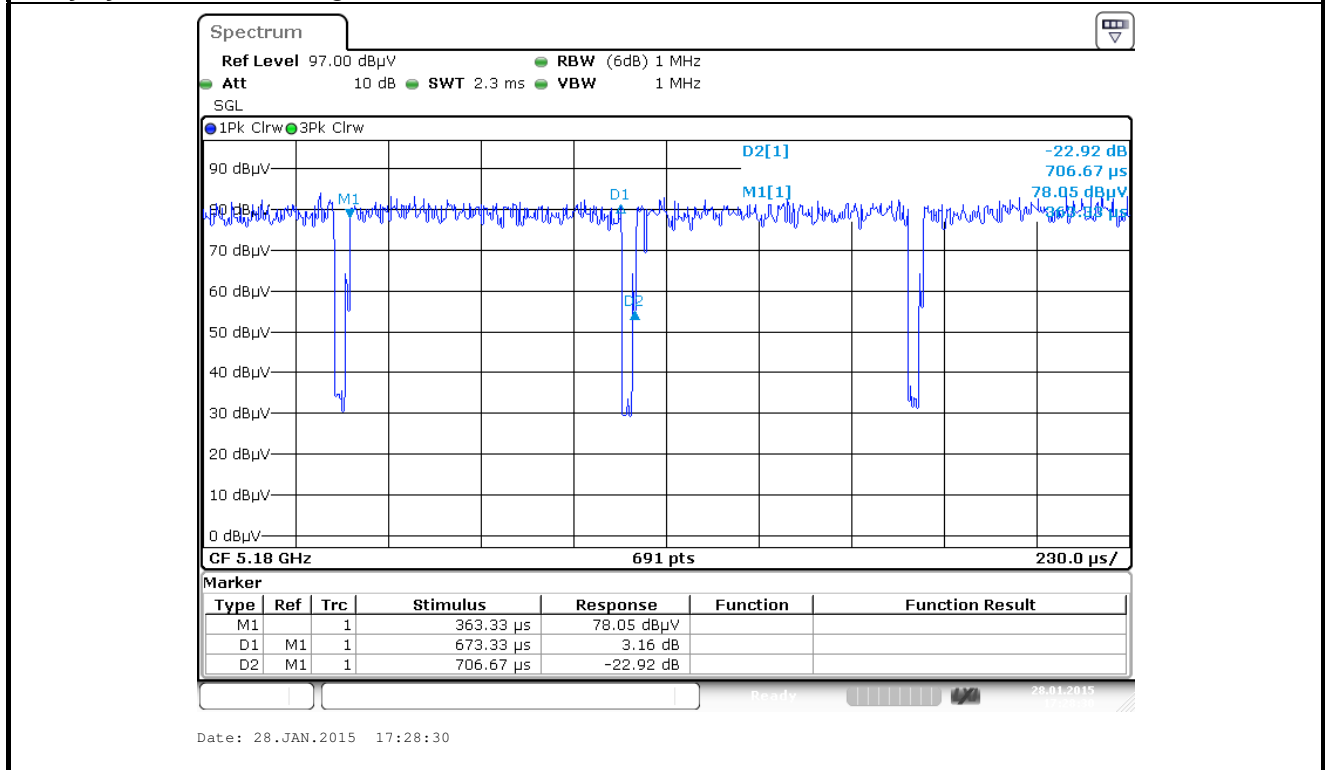
Duty cycle Plot on Configuration IEEE 802.11ac VHT80 / CDD MCS0Nss1



Date: 19 OCT 2014 05:21:25



Test Tool	Mtool 2.0.1.0				
Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11ac VHT20 / SDM MCS0Nss3	0.673	0.707	95.28	0.21	1.49

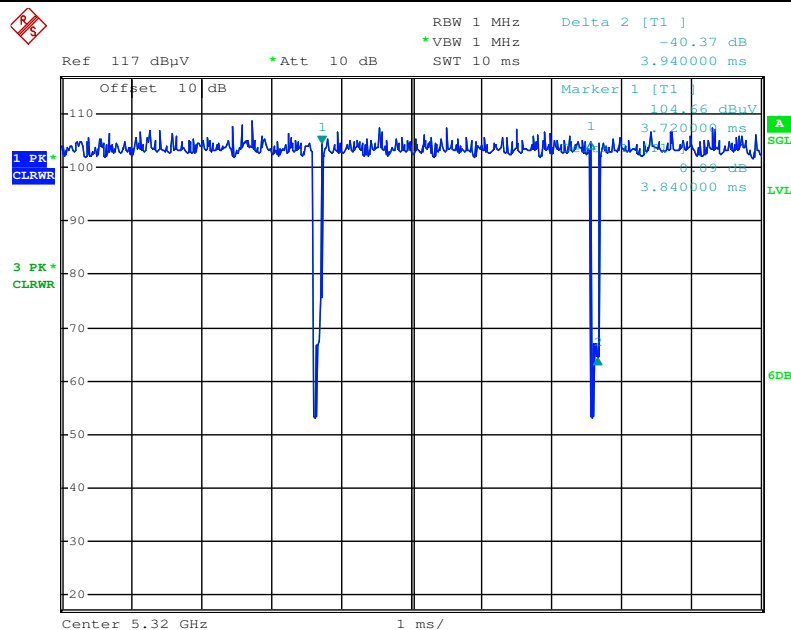
Duty cycle Plot on Configuration IEEE 802.11ac VHT20 / SDM MCS0Nss3



For beamforming mode:

Test Tool	Mtool 2.0.1.0				
Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11ac VHT20 / BF MCS0Nss1	3.840	3.940	97.46	0.11	0.26
802.11ac VHT40 / BF MCS0Nss1	4.620	4.700	98.30	0.07	0.01
802.11ac VHT80 / BF MCS0Nss1	5.160	5.360	96.27	0.17	0.19

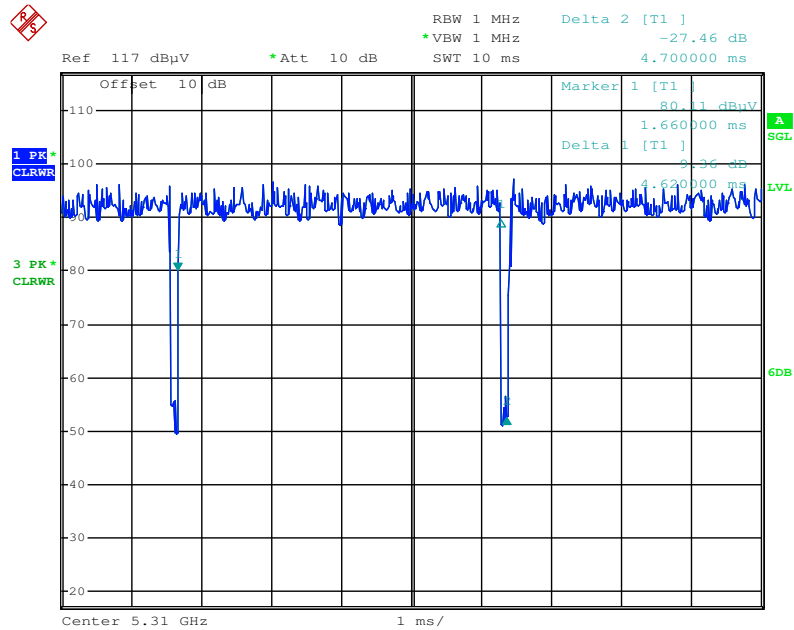
Duty cycle Plot on Configuration IEEE 802.11ac VHT20 / BF MCS0Nss1



Date: 27.OCT.2014 22:26:46

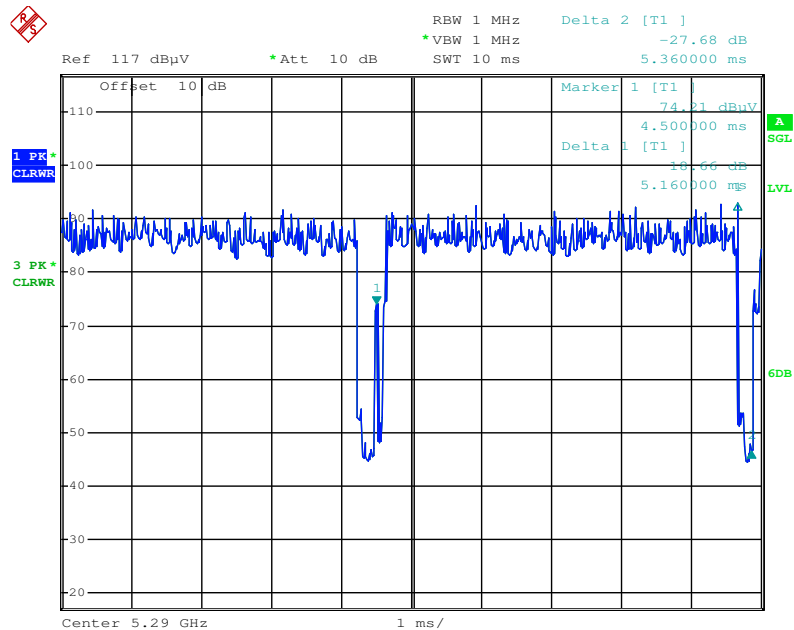


Duty cycle Plot on Configuration IEEE 802.11ac VHT40 / BF MCS0Nss1



Date: 27.OCT.2014 22:28:59

Duty cycle Plot on Configuration IEEE 802.11ac VHT80 / BF MCS0Nss1



Date: 27.OCT.2014 22:35:40

**1.15 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 :**For Non-Beam forming:**

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

For Beam forming:

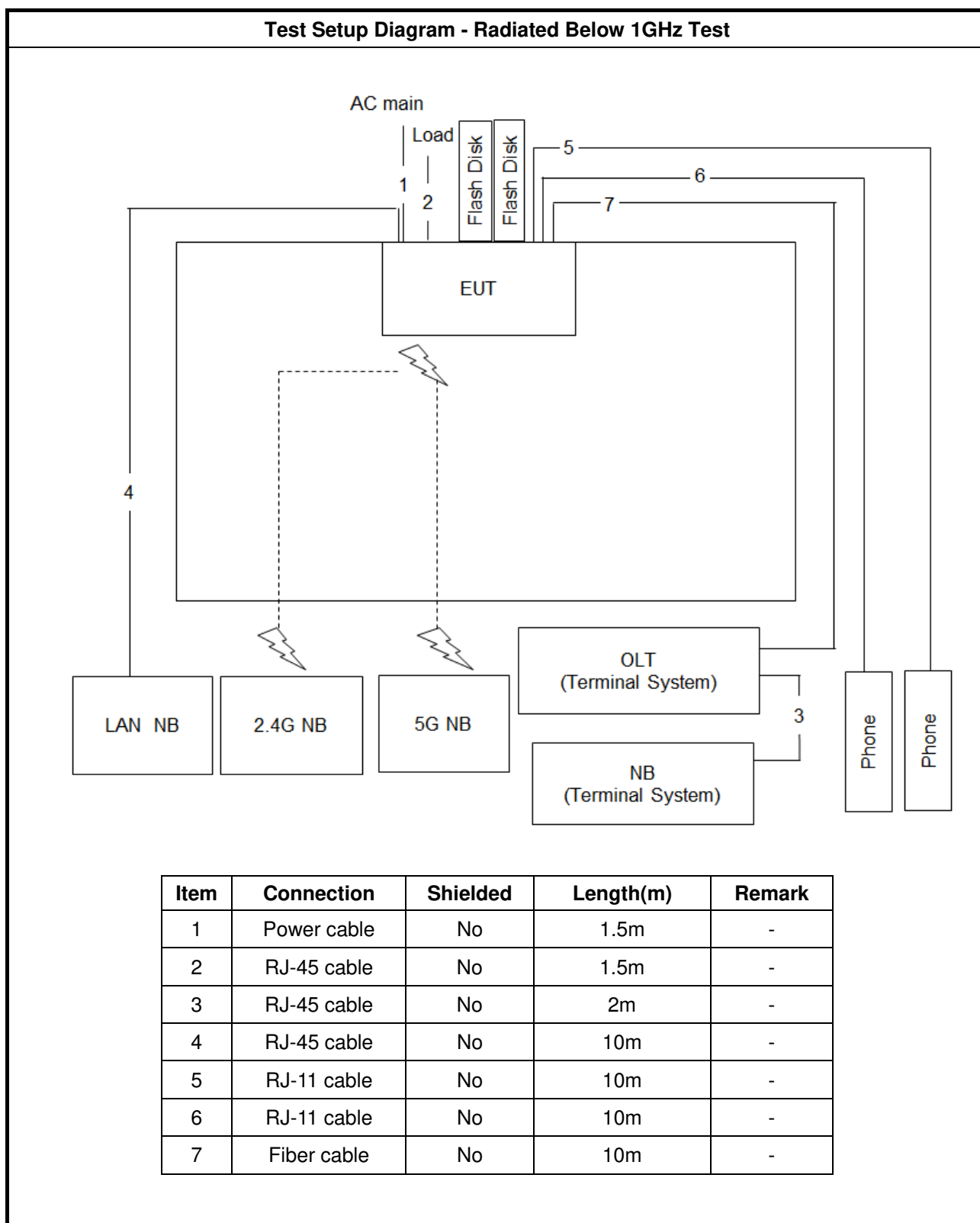
Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
1	NB	DELL	E6430	DoC
2	NB	DELL	M1330	DoC
3	WLAN ac Dongle	Netgear	A6200	PY31220200
4	Adapter	AcBel	WAC011	N/A

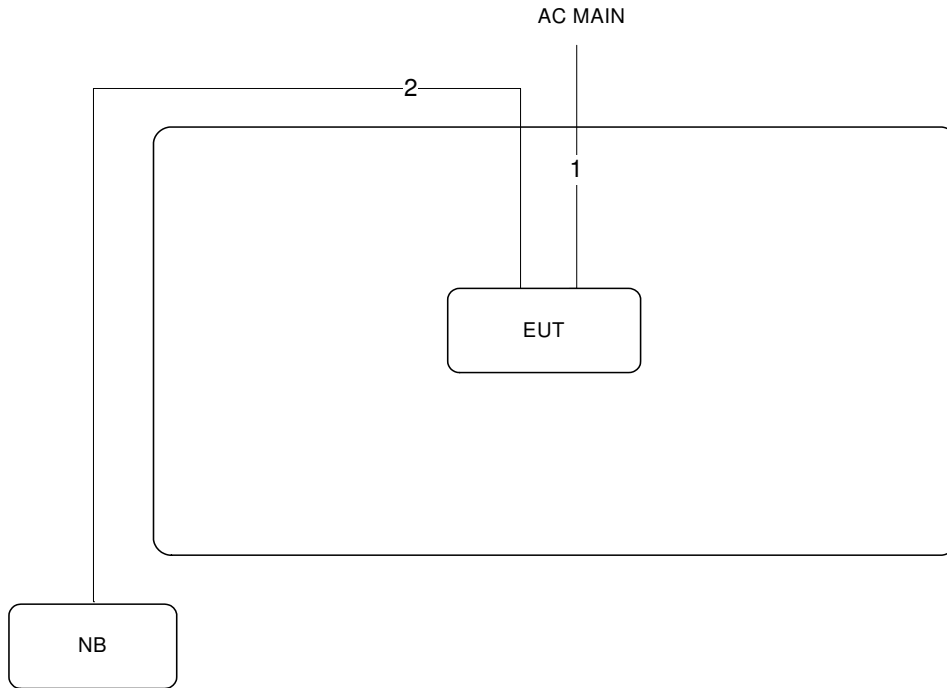
For RF Conducted Test:

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

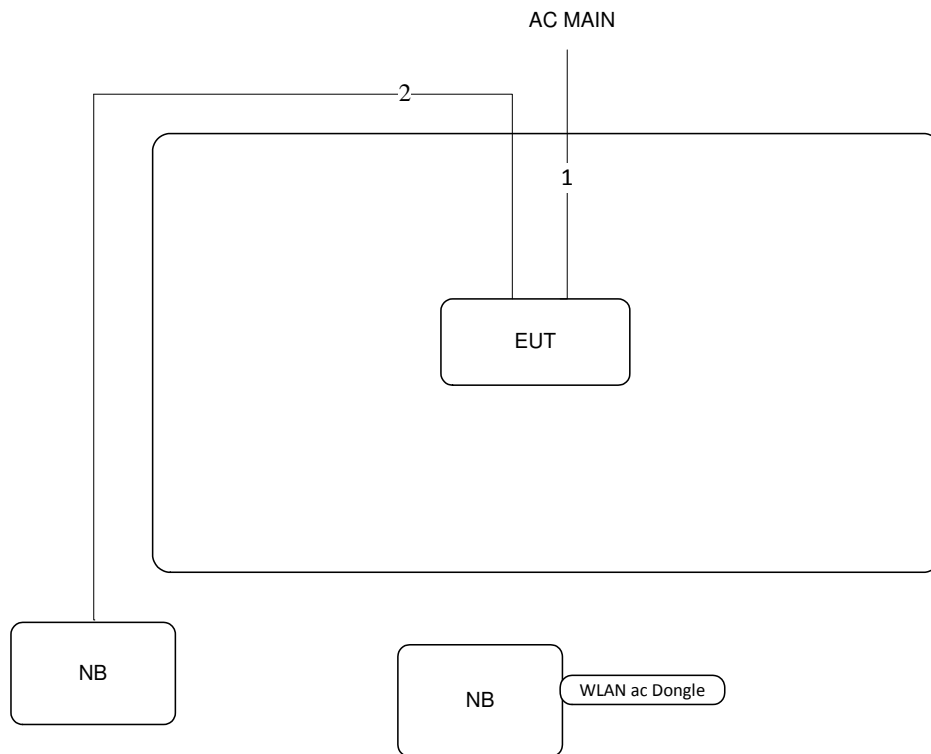
**1.16 Testing Location Information**

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

1.17 Test Setup Diagram


For Non-Beam forming:
Test Setup Diagram - Radiated Above 1GHz Test


Item	Connection	Shielded	Length(m)	Remark
1	Power cable	No	1.5m	-
2	RJ-45 cable	No	10m	-

For Beam forming:
Test Setup Diagram - Radiated Above 1GHz Test


Item	Connection	Shielded	Length(m)	Remark
1	Power cable	No	1.5m	-
2	RJ-45 cable	No	10m	-

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.

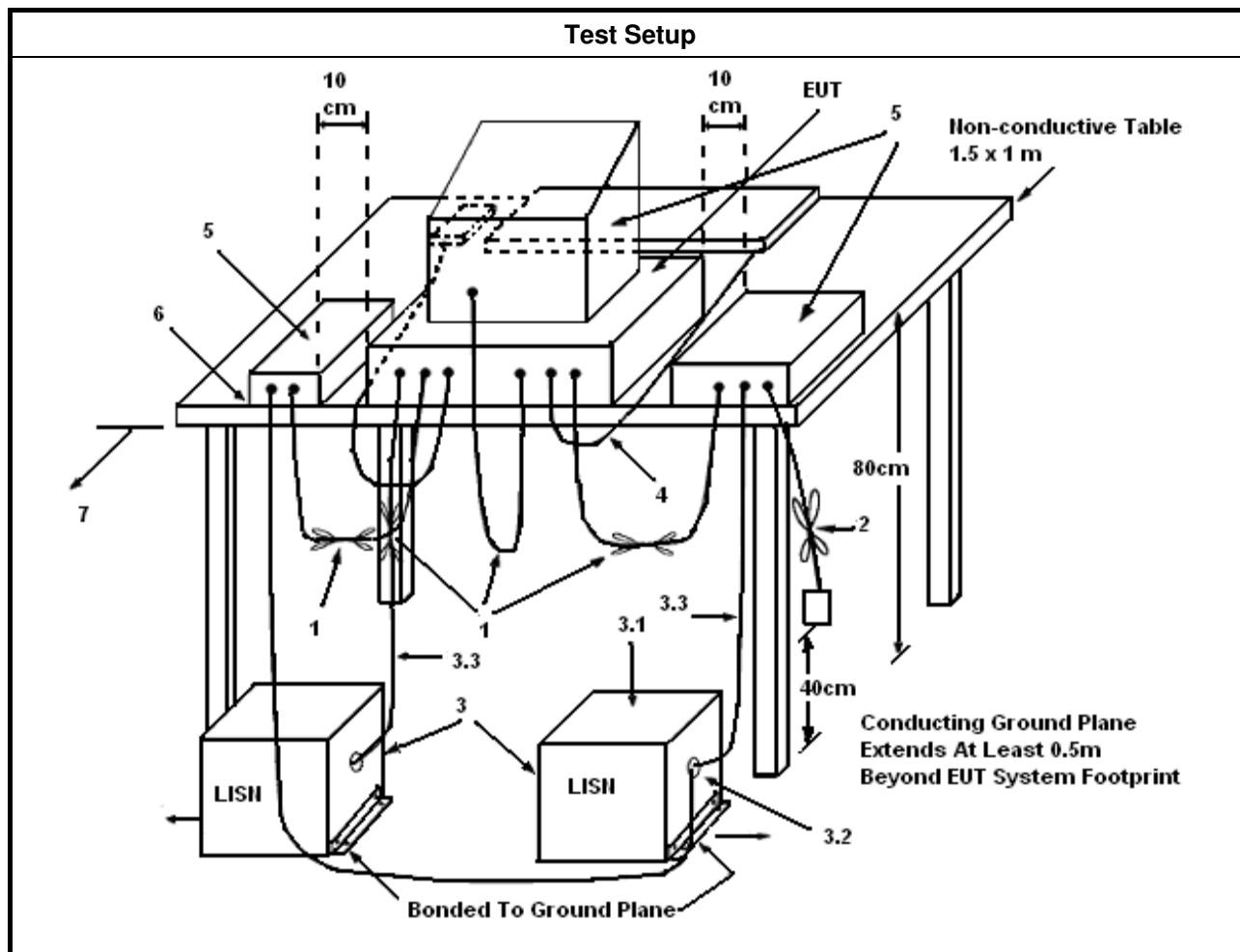
2.1.3 Test method

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

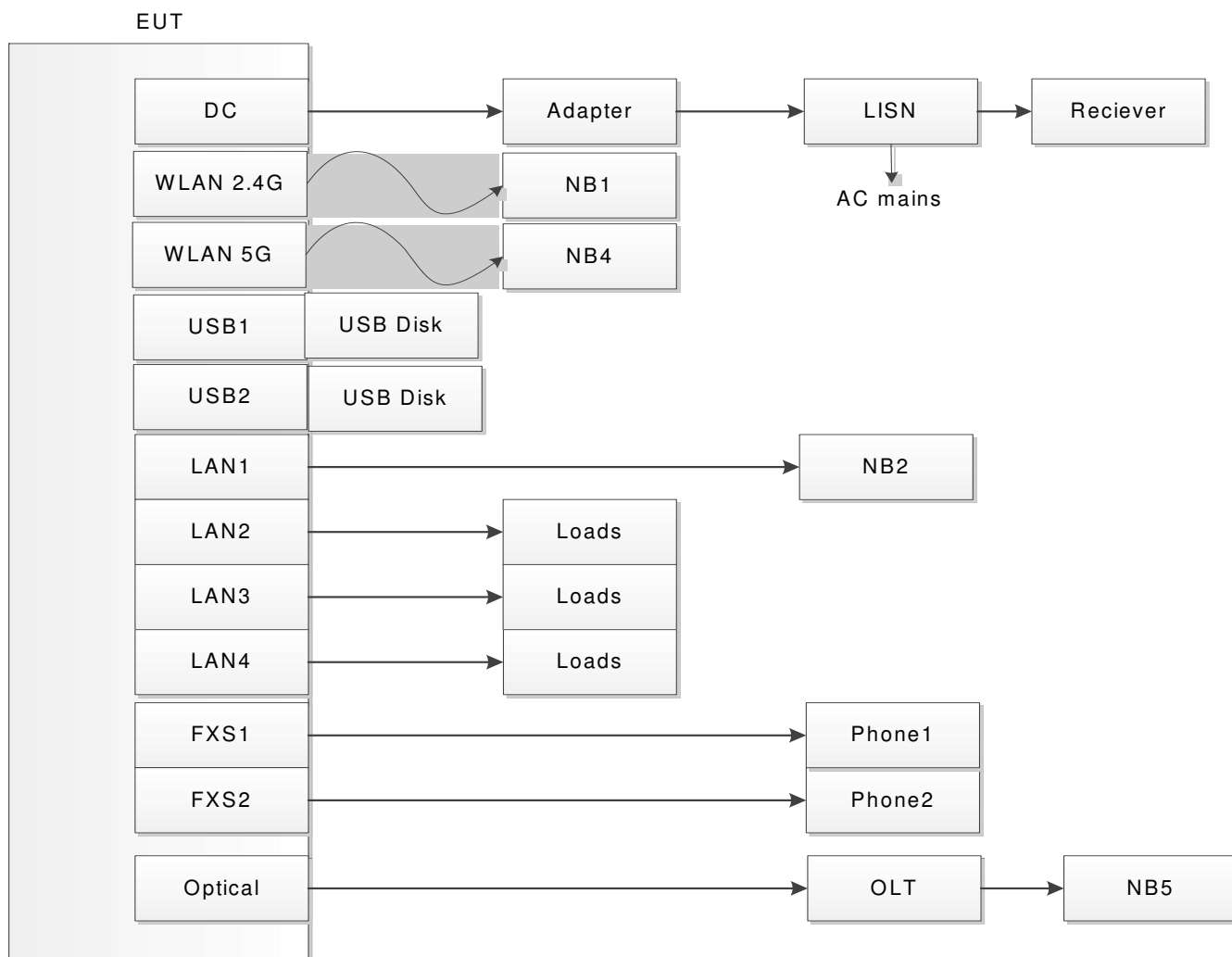
Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

- 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.
7. 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 2.4G	NoteBook1 (NB1)	Link at 802.11n HT40 MCS15 mode with NB1 to NB2 traffic 30Mbps by IxChariot.
WLAN 5G	NoteBook4 (NB4)	Link at 802.11ac VHT80 MCS4 NSS2 mode with NB4 to NB2 traffic 30Mbps by IxChariot.
USB1-2	USB disk	Run FTP test. Tx/Rx file 100M between USB1 and USB2
LAN1	NoteBook2 (NB2)	Link at 1000Mbps mode with traffic 90Mbps by IxChariot.
LAN2-4	Loads in 100ohm	NA
FXS1-2	Phone1 & 2	Establish a connection between two phones, off-hook
Optical	OLT (NB5)	Link at 1000Mbps mode with NB5 to NB2 traffic 30Mbps by IxChariot.



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 function works normally .

2.1.7 Test Results

Temperature	23°C	Humidity	56%
Test Engineer	Hank Yang, Gavin Peng		

Test Phase

Line

Level (dBuV)

80

70

60

50

40

30

20

10

0

0.150.2

0.5

1

2

5

10

20

30

Frequency (MHz)

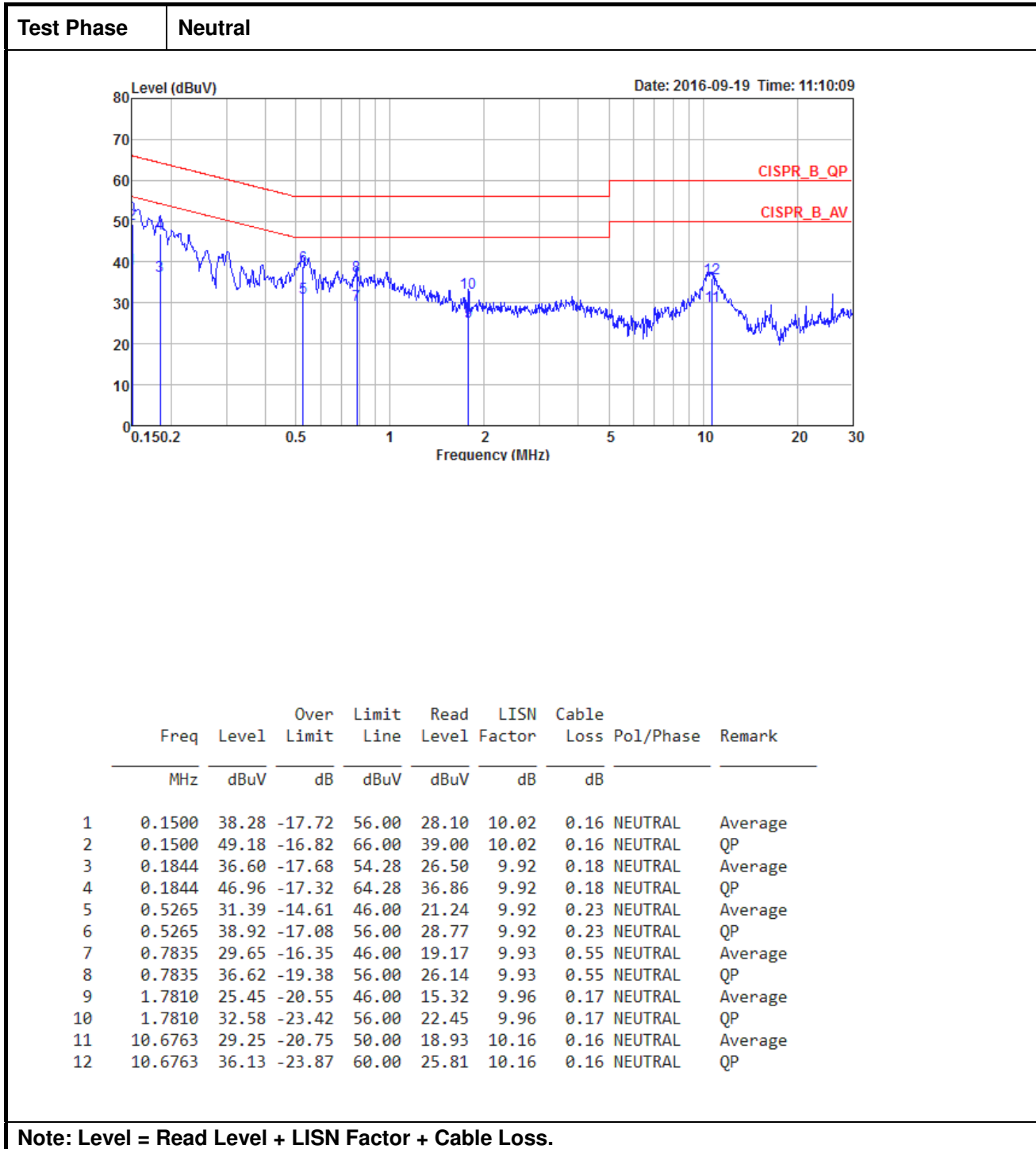
Date: 2016-09-19 Time: 11:07:04

CISPR_B_QP

CISPR_B_AV

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

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



2.2 Maximum Conducted Output Power Measurement

2.2.1 Limit

Frequency Band	Limit
5150-5250MHz	1W
5250-5350MHz	250 mW or 11 dBm + 10log B **Note 2**
5470-5725MHz	250 mW or 11 dBm + 10log B **Note 2**
5725-5850MHz	1W

Note : " B" is the 26 dB emission bandwidth in MHz.

Note 1: If transmitting antennas of directional gain greater than 6dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

Note 2: Devices operating in the 5.25-5.35 GHz band and the 5.47-5.725 GHz band shall employ a TPC mechanism. The U-NII device is required to have the capability to operate at least 6 dB below the mean EIRP value of 30dBm. A TPC mechanism is not required for systems with an e.i.r.p. of less than 500mW.(27dBm)

2.2.2 Measuring Instruments

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

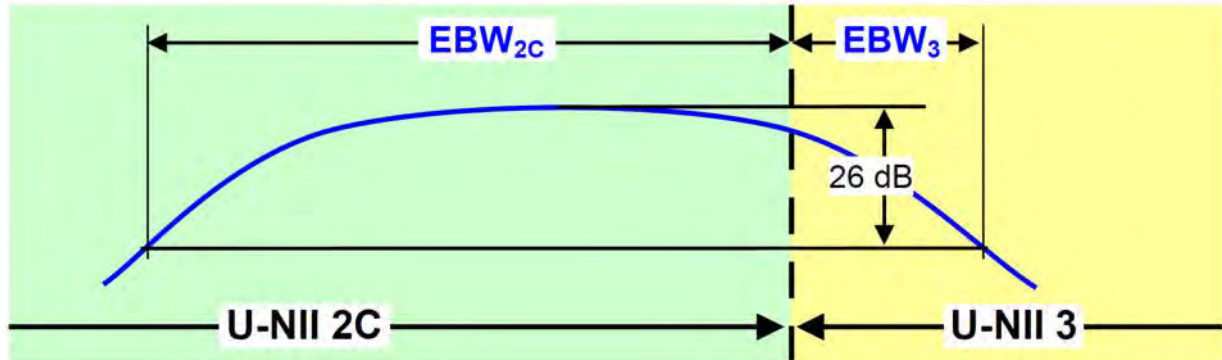
2.2.3 Test method

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

Power Meter Parameter	Setting
Detector	Average

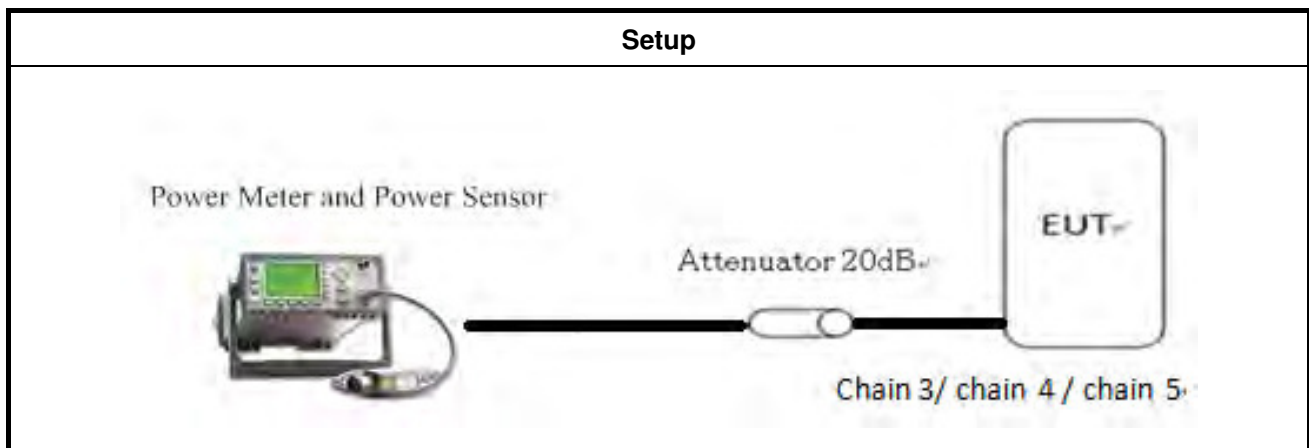
- Test procedures refer KDB789033 D02 v01r03 General UNII Test Procedures New Rules v01 section (E) 3).
- The transmitter output (antenna port) was connected to Spectrum.
- Measure duty cycle and record each antenna port results in Ch1.14
- The transmitter output (antenna port) was connected to the power meter.
- Multiple antenna systems was performed in accordance with KDB662911 D01 v02r01 Multiple Transmitter Output v02r01 Emissions Testing of Transmitters with Multiple Outputs in the Same Band.
- When measuring maximum conducted output power with multiple antenna system, add every result of the values by mathematic formula example as below.
- Total Conducted Output Power = $10\log[(\text{Chain3(mW)} + \text{chain4(mW)} + \text{chain5(mW)})]$
Example:
Chain 3 max conducted Power = 7.23dBm ; (5.284mW)
Chain 4 max conducted Power = 8.12dBm ; (6.486mW)
Chain 5 max conducted Power = 7.89dBm ; (6.152mW)
Total Conducted Power = $10\log(5.284\text{mW} + 6.486\text{mW} + 6.152\text{mW}) = 12.53\text{dBm}$
- Band-crossing emissions: For an emission that crosses the boundary between two adjacent U-NII bands, the boundary frequency between the bands serves as one edge for defining the portion of the EBW that falls within a particular U-NII band.

However, the -26 dB points are measured relative to the highest point on the contiguous segment—regardless of which band contains that highest point



Emission Bandwidth (EBW) within a Band for Band-Crossing Signals

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	Serway Li	Test Date	Nov. 01, 2014 ~ Feb. 05, 2015

Configuration IEEE 802.11a / 6Mbps / Chain 3

Channel	Frequency (MHz)	Duty Cycle (%)	Conducted Power (dBm)	Max. Limit (dBm)	Result
36	5180	99.04	17.32	30.00	Complies
44	5220	99.04	17.92	30.00	Complies
48	5240	99.04	17.98	30.00	Complies
149	5745	99.04	15.09	30.00	Complies
157	5785	99.04	15.38	30.00	Complies
165	5825	99.04	14.93	30.00	Complies

Configuration IEEE 802.11a / 6Mbps / Chain 4

Channel	Frequency (MHz)	Duty Cycle (%)	Conducted Power (dBm)	Max. Limit (dBm)	Result
36	5180	99.04	16.48	30.00	Complies
44	5220	99.04	16.02	30.00	Complies
48	5240	99.04	16.12	30.00	Complies
149	5745	99.04	13.28	30.00	Complies
157	5785	99.04	12.75	30.00	Complies
165	5825	99.04	13.32	30.00	Complies

Configuration IEEE 802.11a / 6Mbps / Chain 5

Channel	Frequency (MHz)	Duty Cycle (%)	Conducted Power (dBm)	Max. Limit (dBm)	Result
36	5180	99.04	17.01	30.00	Complies
44	5220	99.04	17.03	30.00	Complies
48	5240	99.04	17.26	30.00	Complies
149	5745	99.04	14.96	30.00	Complies
157	5785	99.04	15.06	30.00	Complies
165	5825	99.04	15.03	30.00	Complies

**Configuration IEEE 802.11a / CDD 6Mbps / Chain 3 + Chain 4 + Chain 5**

Channel	Frequency (MHz)	Duty Cycle (%)	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
			Chain 3	Chain 4	Chain 5			
36	5180	95.30	17.95	16.86	16.57	21.94	28.26	Complies
44	5220	95.30	18.13	16.93	16.74	22.08	28.77	Complies
48	5240	95.30	18.27	17.04	16.82	22.20	28.36	Complies
149	5745	95.30	15.28	13.89	15.11	19.57	28.83	Complies
157	5785	95.30	15.32	13.85	15.01	19.54	28.30	Complies
165	5825	95.30	15.06	13.78	15.04	19.44	27.92	Complies

Note:

Total Conducted Output Power = Conducted Output Power [TX 1(unit in W) + TX 2(unit in W) + TX 3(unit in W)](unit in dBm)

Note:

5180 MHz= Antenna Gain= 7.74dBi >6dBi, So Limit=30-(7.74-6)=28.26 dBm

5220 MHz= Antenna Gain= 7.23dBi >6dBi, So Limit=30-(7.23-6)=28.77 dBm

5240 MHz= Antenna Gain= 7.64dBi >6dBi, So Limit=30-(7.64-6)=28.36 dBm

5745 MHz= Antenna Gain= 7.17dBi >6dBi, So Limit=30-(7.17-6)=28.83 dBm

5785 MHz= Antenna Gain= 7.70dBi >6dBi, So Limit=30-(7.70-6)=28.30 dBm

5825 MHz= Antenna Gain= 8.08dBi >6dBi, So Limit=30-(8.08-6)=27.92 dBm

**Configuration IEEE 802.11ac VHT20 / MCS0Nss1 / Chain 3**

Channel	Frequency (MHz)	Duty Cycle (%)	Conducted Power (dBm)	Max. Limit (dBm)	Result
36	5180	98.98	18.42	30.00	Complies
44	5220	98.98	18.57	30.00	Complies
48	5240	98.98	18.64	30.00	Complies
149	5745	98.98	16.33	30.00	Complies
157	5785	98.98	16.27	30.00	Complies
165	5825	98.98	16.28	30.00	Complies

Configuration IEEE 802.11ac VHT20 / MCS0Nss1 / Chain 4

Channel	Frequency (MHz)	Duty Cycle (%)	Conducted Power (dBm)	Max. Limit (dBm)	Result
36	5180	98.98	17.89	30.00	Complies
44	5220	98.98	17.58	30.00	Complies
48	5240	98.98	17.61	30.00	Complies
149	5745	98.98	14.89	30.00	Complies
157	5785	98.98	14.46	30.00	Complies
165	5825	98.98	14.96	30.00	Complies

Configuration IEEE 802.11ac VHT20 / MCS0Nss1 / Chain 5

Channel	Frequency (MHz)	Duty Cycle (%)	Conducted Power (dBm)	Max. Limit (dBm)	Result
36	5180	98.98	18.23	30.00	Complies
44	5220	98.98	18.38	30.00	Complies
48	5240	98.98	18.42	30.00	Complies
149	5745	98.98	16.36	30.00	Complies
157	5785	98.98	16.48	30.00	Complies
165	5825	98.98	16.33	30.00	Complies

Configuration IEEE 802.11ac VHT20 / SDM MCS0Nss2 / Chain 3 + Chain 4

Channel	Frequency (MHz)	Duty Cycle (%)	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
			Chain 3	Chain 4			
36	5180	97.70	18.96	17.24	21.19	30.00	Complies
44	5220	97.70	18.86	17.46	21.23	30.00	Complies
48	5240	97.70	18.77	17.17	21.05	30.00	Complies
149	5745	97.70	17.54	16.08	19.88	30.00	Complies
157	5785	97.70	17.32	15.82	19.64	30.00	Complies
165	5825	97.70	17.61	15.97	19.88	30.00	Complies

Note:

Total Conducted Output Power = Conducted Output Power [TX 1(unit in W) + TX 2(unit in W)](unit in dBm)

Configuration IEEE 802.11ac VHT20 / SDM MCS0Nss2 / Chain 4 + Chain 5

Channel	Frequency (MHz)	Duty Cycle (%)	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
			Chain 4	Chain 5			
36	5180	97.70	17.32	17.75	20.55	30.00	Complies
44	5220	97.70	17.18	17.02	20.11	30.00	Complies
48	5240	97.70	17.27	17.01	20.15	30.00	Complies
149	5745	97.70	15.64	17.32	19.57	30.00	Complies
157	5785	97.70	16.12	17.68	19.98	30.00	Complies
165	5825	97.70	16.09	17.58	19.91	30.00	Complies

Note:

Total Conducted Output Power = Conducted Output Power [TX 1(unit in W) + TX 2(unit in W)](unit in dBm)

**Configuration IEEE 802.11ac VHT20 / SDM MCS0Nss2 / Chain 3 + Chain 5**

Channel	Frequency (MHz)	Duty Cycle (%)	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
			Chain 3	Chain 5			
36	5180	97.70	18.42	17.28	20.90	30.00	Complies
44	5220	97.70	18.65	17.53	21.14	30.00	Complies
48	5240	97.70	18.77	17.49	21.19	30.00	Complies
149	5745	97.70	17.87	17.47	20.68	30.00	Complies
157	5785	97.70	17.89	17.26	20.60	30.00	Complies
165	5825	97.70	17.26	17.17	20.23	30.00	Complies

Note:

Total Conducted Output Power = Conducted Output Power [TX 1(unit in W) + TX 2(unit in W)](unit in dBm)

Configuration IEEE 802.11ac VHT20 / CDD MCS0Nss1 / Chain 3 + Chain 4 + Chain 5

Channel	Frequency (MHz)	Duty Cycle (%)	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
			Chain 3	Chain 4	Chain 5			
36	5180	98.88	17.77	17.05	16.32	21.86	28.26	Complies
44	5220	98.88	17.65	17.02	16.52	21.86	28.77	Complies
48	5240	98.88	17.68	16.98	16.38	21.82	28.36	Complies
149	5745	98.88	15.85	13.58	15.14	19.73	28.83	Complies
157	5785	98.88	15.67	13.68	15.28	19.73	28.30	Complies
165	5825	98.88	15.05	13.74	15.19	19.48	27.92	Complies

Note:

Total Conducted Output Power = Conducted Output Power [TX 1(unit in W) + TX 2(unit in W) + TX 3(unit in W)](unit in dBm)

Note:

5180 MHz= Antenna Gain= 7.74dBi >6dBi, So Limit=30-(7.74-6)=28.26 dBm

5220 MHz= Antenna Gain= 7.23dBi >6dBi, So Limit=30-(7.23-6)=28.77 dBm

5240 MHz= Antenna Gain= 7.64dBi >6dBi, So Limit=30-(7.64-6)=28.36 dBm

5745 MHz= Antenna Gain= 7.17dBi >6dBi, So Limit=30-(7.17-6)=28.83 dBm

5785 MHz= Antenna Gain= 7.70dBi >6dBi, So Limit=30-(7.70-6)=28.30 dBm

5825 MHz= Antenna Gain= 8.08dBi >6dBi, So Limit=30-(8.08-6)=27.92 dBm

**Configuration IEEE 802.11ac VHT20 / SDM MCS0Nss3 / Chain 3 + Chain 4 + Chain 5**

Channel	Frequency (MHz)	Duty Cycle (%)	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
			Chain 3	Chain 4	Chain 5			
36	5180	95.28	18.57	16.44	17.18	22.26	30.00	Complies
44	5220	95.28	18.59	16.37	17.18	22.25	30.00	Complies
48	5240	95.28	18.44	16.32	17.32	22.22	30.00	Complies
149	5745	95.28	14.95	12.43	14.38	18.82	30.00	Complies
157	5785	95.28	14.58	12.19	14.11	18.51	30.00	Complies
165	5825	95.28	14.94	12.46	14.17	18.75	30.00	Complies

Note:

Total Conducted Output Power = Conducted Output Power [TX 1(unit in W) + TX 2(unit in W) + TX 3(unit in W)](unit in dBm)

Configuration IEEE 802.11ac VHT40 / MCS0Nss1 / Chain 3

Channel	Frequency (MHz)	Duty Cycle (%)	Conducted Power (dBm)	Max. Limit (dBm)	Result
38	5190	96.91	15.02	30.00	Complies
46	5230	96.91	14.62	30.00	Complies
151	5755	96.91	14.06	30.00	Complies
159	5795	96.91	14.11	30.00	Complies

Configuration IEEE 802.11ac VHT40 / MCS0Nss1 / Chain 4

Channel	Frequency (MHz)	Duty Cycle (%)	Conducted Power (dBm)	Max. Limit (dBm)	Result
38	5190	96.91	13.61	30.00	Complies
46	5230	96.91	13.71	30.00	Complies
151	5755	96.91	11.02	30.00	Complies
159	5795	96.91	11.03	30.00	Complies

Configuration IEEE 802.11ac VHT40 / MCS0Nss1 / Chain 5

Channel	Frequency (MHz)	Duty Cycle (%)	Conducted Power (dBm)	Max. Limit (dBm)	Result
38	5190	96.91	14.21	30.00	Complies
46	5230	96.91	14.39	30.00	Complies
151	5755	96.91	13.03	30.00	Complies
159	5795	96.91	12.94	30.00	Complies

Configuration IEEE 802.11ac VHT40 / SDM MCS0Nss2 / Chain 3 + Chain 4

Channel	Frequency (MHz)	Duty Cycle (%)	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
			Chain 3	Chain 4			
38	5190	95.06	14.42	12.76	16.68	30.00	Complies
46	5230	95.06	14.52	12.52	16.64	30.00	Complies
151	5755	95.06	15.97	13.38	17.88	30.00	Complies
159	5795	95.06	15.88	13.38	17.82	30.00	Complies

Note:

Total Conducted Output Power = Conducted Output Power [TX 1(unit in W) + TX 2(unit in W)](unit in dBm)

**Configuration IEEE 802.11ac VHT40 / SDM MCS0Nss2 / Chain 4 + Chain 5**

Channel	Frequency (MHz)	Duty Cycle (%)	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
			Chain 4	Chain 5			
38	5190	95.06	12.67	12.75	15.72	30.00	Complies
46	5230	95.06	12.72	13.12	15.93	30.00	Complies
151	5755	95.06	13.38	14.47	16.97	30.00	Complies
159	5795	95.06	13.34	14.72	17.09	30.00	Complies

Note:

Total Conducted Output Power = Conducted Output Power [TX 1(unit in W) + TX 2(unit in W)](unit in dBm)

Configuration IEEE 802.11ac VHT40 / SDM MCS0Nss2 / Chain 3 + Chain 5

Channel	Frequency (MHz)	Duty Cycle (%)	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
			Chain 3	Chain 5			
38	5190	95.06	15.38	12.87	17.31	30.00	Complies
46	5230	95.06	15.18	13.11	17.28	30.00	Complies
151	5755	95.06	16.15	14.65	18.47	30.00	Complies
159	5795	95.06	16.18	14.44	18.41	30.00	Complies

Note:

Total Conducted Output Power = Conducted Output Power [TX 1(unit in W) + TX 2(unit in W)](unit in dBm)

Configuration IEEE 802.11ac VHT40 / CDD MCS0Nss1 / Chain 3 + Chain 4 + Chain 5

Channel	Frequency (MHz)	Duty Cycle (%)	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
			Chain 3	Chain 4	Chain 5			
38	5190	96.27	17.15	14.65	15.12	20.55	28.54	Complies
46	5230	96.27	17.12	14.72	15.11	20.55	28.48	Complies
151	5755	96.27	14.05	10.78	12.78	17.51	28.75	Complies
159	5795	96.27	13.67	10.89	12.59	17.30	28.00	Complies

Note:

Total Conducted Output Power = Conducted Output Power [TX 1(unit in W) + TX 2(unit in W) + TX 3(unit in W)](unit in dBm)

Note:

5190 MHz= Antenna Gain= 7.46dBi >6dBi, So Limit=30-(7.46-6)=28.54 dBm

5230 MHz= Antenna Gain= 7.52dBi >6dBi, So Limit=30-(7.52-6)=28.48 dBm

5755 MHz= Antenna Gain= 7.25dBi >6dBi, So Limit=30-(7.25-6)=28.75 dBm

5795 MHz= Antenna Gain= 8.00dBi >6dBi, So Limit=30-(8.00-6)=28.00 dBm

Configuration IEEE 802.11ac VHT80 / MCS0Nss1 / Chain 3

Channel	Frequency (MHz)	Duty Cycle (%)	Conducted Power (dBm)	Max. Limit (dBm)	Result
42	5210	95.83	14.86	30.00	Complies
155	5775	95.83	14.02	30.00	Complies

Configuration IEEE 802.11ac VHT80 / MCS0Nss1 / Chain 4

Channel	Frequency (MHz)	Duty Cycle (%)	Conducted Power (dBm)	Max. Limit (dBm)	Result
42	5210	95.83	14.89	30.00	Complies
155	5775	95.83	14.21	30.00	Complies

Configuration IEEE 802.11ac VHT80 / MCS0Nss1 / Chain 5

Channel	Frequency (MHz)	Duty Cycle (%)	Conducted Power (dBm)	Max. Limit (dBm)	Result
42	5210	95.83	15.22	30.00	Complies
155	5775	95.83	14.66	30.00	Complies

Configuration IEEE 802.11ac VHT80 / SDM MCS0Nss2 / Chain 3 + Chain 4

Channel	Frequency (MHz)	Duty Cycle (%)	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
			Chain 3	Chain 4			
42	5210	90.39	14.46	12.47	16.59	30.00	Complies
155	5775	90.39	14.72	13.24	17.05	30.00	Complies

Note:

Total Conducted Output Power = Conducted Output Power [TX 1(unit in W) + TX 2(unit in W)](unit in dBm)

Configuration IEEE 802.11ac VHT80 / SDM MCS0Nss2 / Chain 4 + Chain 5

Channel	Frequency (MHz)	Duty Cycle (%)	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
			Chain 4	Chain 5			
42	5210	90.39	13.06	13.23	16.16	30.00	Complies
155	5775	90.39	12.07	13.44	15.82	30.00	Complies

Note:

Total Conducted Output Power = Conducted Output Power [TX 1(unit in W) + TX 2(unit in W)](unit in dBm)

Configuration IEEE 802.11ac VHT80 / SDM MCS0Nss2 / Chain 3 + Chain 5

Channel	Frequency (MHz)	Duty Cycle (%)	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
			Chain 3	Chain 5			
42	5210	90.39	14.97	13.13	17.16	30.00	Complies
155	5775	90.39	14.78	14.02	17.43	30.00	Complies

Note:
Total Conducted Output Power = Conducted Output Power [TX 1(unit in W) + TX 2(unit in W)](unit in dBm)

Configuration IEEE 802.11ac VHT80 / CDD MCS0Nss1 / Chain 3 + Chain 4 + Chain 5

Channel	Frequency (MHz)	Duty Cycle (%)	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
			Chain 3	Chain 4	Chain 5			
42	5210	94.64	14.45	12.52	12.45	18.01	28.71	Complies
155	5775	94.64	13.65	10.98	11.38	16.94	28.44	Complies

Note:
Total Conducted Output Power = Conducted Output Power [TX 1(unit in W) + TX 2(unit in W) + TX 3(unit in W)](unit in dBm)

Note:

5210 MHz= Antenna Gain= 7.29dBi >6dBi, So Limit=30-(7.29-6)=28.71 dBm
5775 MHz= Antenna Gain= 7.56dBi >6dBi, So Limit=30-(7.56-6)=28.44 dBm

Note:

1. SISO: individual antenna gain (i.e. Port A use port A antenna Gain.)
2. For 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

$g_{j,k} = 10^{G_k/20}$ 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.

3. For SDM directional Gain calculation formula as below:

If all transmit signals are completely uncorrelated, then

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

2.3 Power Spectral Density Measurement

2.3.1 Limit

Band	Frequency Band	Limit
1	5150-5250MHz	17 dBm/MHz
4	5725-5850MHz	30 dBm/500kHz

1. The Band1,2&3 power spectral density is defined as the highest level of power in dBm per 1 MHz generated by the transmitter within the power envelope
2. The Band4 power spectral density is defined as the highest level of power in dBm per 500kHz generated by the transmitter within the power envelope
3. If transmitting antennas of directional gain greater than 6dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

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. Setting of the spectrum analyzer. (refer to KDB789033 D02 v01r03 General UNII Test Procedures New Rules v01 section (F).

Spectrum Parameter	Setting
Span	Bandwidth is greater than the EUT emission bandwidth
RBW	1MHz
VBW	≥ 3MHz
Sweep Point	≥ 2 Span / RBW
Sweep Time	auto.
Detector	RMS
Trace	Average
Trigger	Free Run
Trace Average	100 times

2. The test procedures refer to KDB789033 D02 v01r03 General UNII Test Procedures v01 section F and KDB662911 D01 v02r01 Multiple Transmitter Output v01r02" In-Band Power Spectral Density (PSD) Measurements item (1).
3. Connect the transmitter output (antenna port) to the spectrum analyzer.
4. EUT parameters is set as maximum conducted power measurements. (refer to clause 1.14)
5. Ensure that the number of measurement points in the sweep need $\geq 2 \times \text{span/RBW}$
6. Find the peak value of the trace and remark this peak point.
7. Record the spectrum's power reading level. (mW)
8. The band 4 measurement result need extra add one factor. factor = $10\log(500\text{kHz}/1\text{MHz})$ dB
9. When measuring power spectral density with multiple antenna systems, add every result of the values by mathematic formula as below.

Total PSD = $10 \log (\text{Chain3(mW)} + \text{Chain4(mW)} + \text{Chain5(mW)})$

Example 1: In Band 1, Chain 3 = -3.62dBm/MHz; Chain 4 = -4.52dBm/MHz;

Chain 5 = -3.78dBm/MHz

Total PSD = $10 \log (0.435\text{mW} + 0.353\text{mW} + 0.419\text{mW}) = 0.817\text{dBm/MHz}$

Example 2: in Band 4, factor= $10 \log(500\text{kHz}/1\text{MHz}) = -3.01$

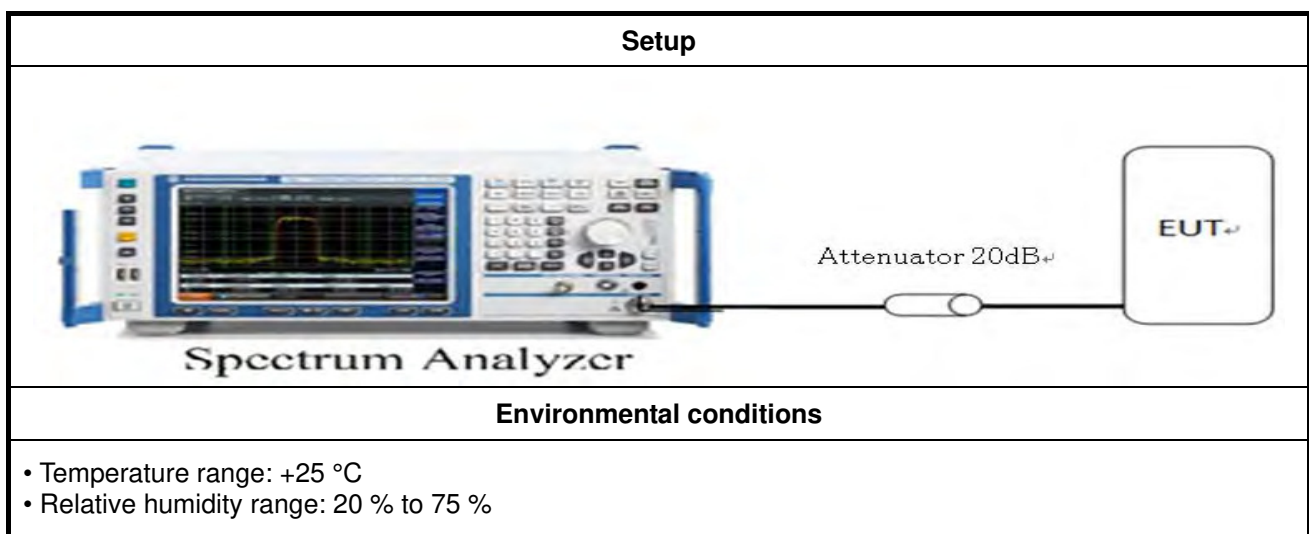
Chain 3 = -3.62dBm/MHz + factor = -6.63dBm/500kHz ;

Chain 4 = -4.52dBm/MHz + factor = -7.53dBm/500kHz ;

Chain 5 = -3.78dBm/MHz + factor = -6.73dBm/500kHz ,

Total PSD = $10 \log (0.2175\text{mW} + 0.176\text{mW} + 0.209\text{mW}) = -2.2\text{dBm/500kHz}$

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	Serway Li	Test Date	Nov. 01, 2014 ~ Feb. 05, 2015

Power Density Configuration IEEE 802.11a / CDD 6Mbps / Chain 3 + Chain 4 + Chain 5

Channel	Frequency (MHz)	Total Power Density (dBm/MHz)	Directional gain (Note)	Limit (dBm/MHz)	Result
36	5180	8.49	7.74	15.26	PASS
44	5220	8.63	7.23	15.77	PASS
48	5240	8.74	7.64	15.36	PASS

Note:

5180 MHz= Directional gain= 7.74dBi >6dBi, So Limit=17-(7.74-6)=15.26 dBm/MHz

5220 MHz= Directional gain= 7.23dBi >6dBi, So Limit=17-(7.23-6)=15.77 dBm/MHz

5240 MHz= Directional gain= 7.64dBi >6dBi, So Limit=17-(7.64-6)=15.36 dBm/MHz

Channel	Frequency (MHz)	Power Density (dBm/3kHz)			Total Power Density (dBm/3kHz)	BWCF Factor (3kHz to 500 kHz)	Directional gain (Note)	Total Power Density (dBm/500kHz)	Limit (dBm/500 kHz)	Result
		Chain 3	Chain 4	Chain 5						
149	5745	-11.02	-11.50	-13.68	-7.15	22.22	7.17	15.07	28.83	PASS
157	5785	-11.83	-11.49	-14.51	-7.65	22.22	7.70	14.57	28.30	PASS
165	5825	-11.85	-11.27	-14.92	-7.64	22.22	8.08	14.58	27.92	PASS

Note:

5745 MHz= Directional gain= 7.17dBi >6dBi, So Limit=30-(7.17-6)=28.83 dBm/500kHz

5785 MHz= Directional gain= 7.70dBi >6dBi, So Limit=30-(7.70-6)=28.30 dBm/500kHz

5825 MHz= Directional gain= 8.08dBi >6dBi, So Limit=30-(8.08-6)=27.92 dBm/500kHz

Note: The PSD (CDD) directional Gain calculation formula as below:

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

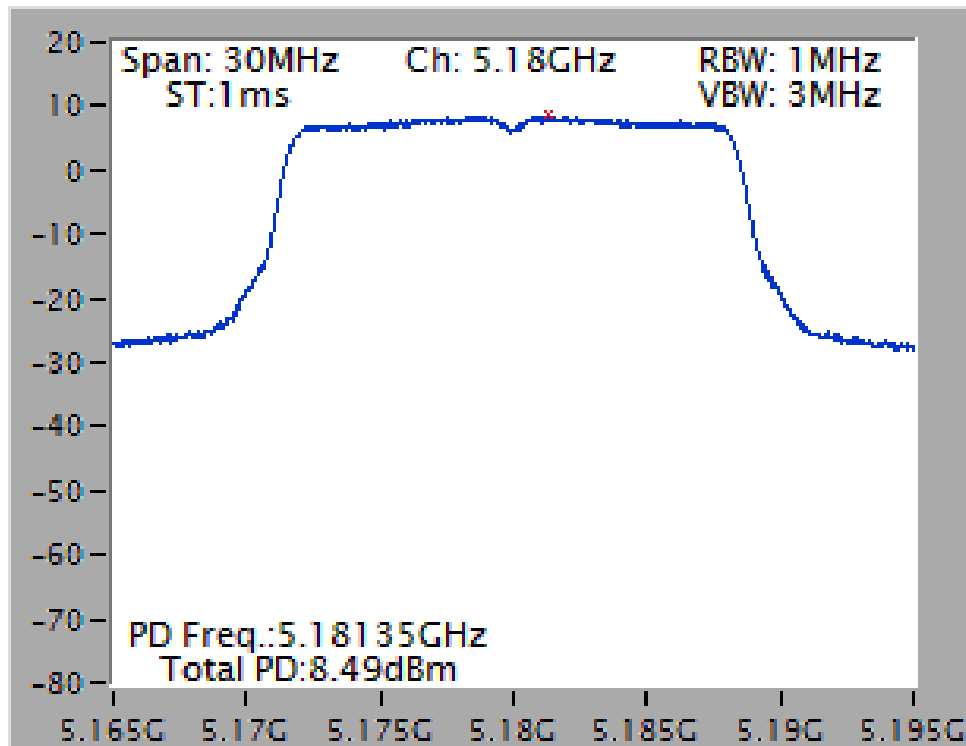
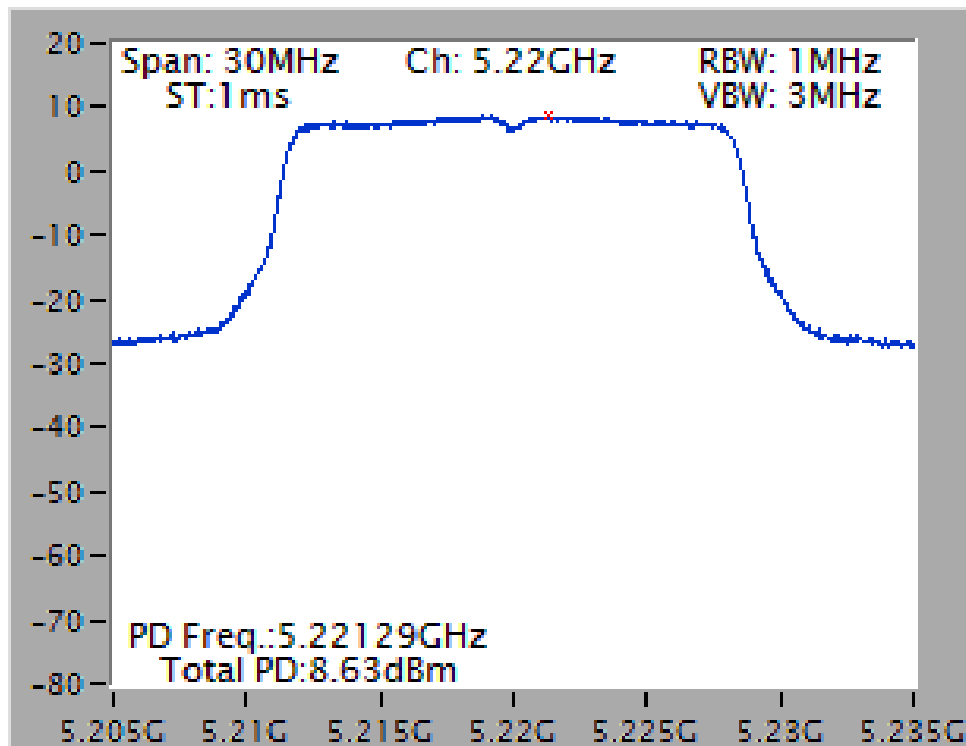
where

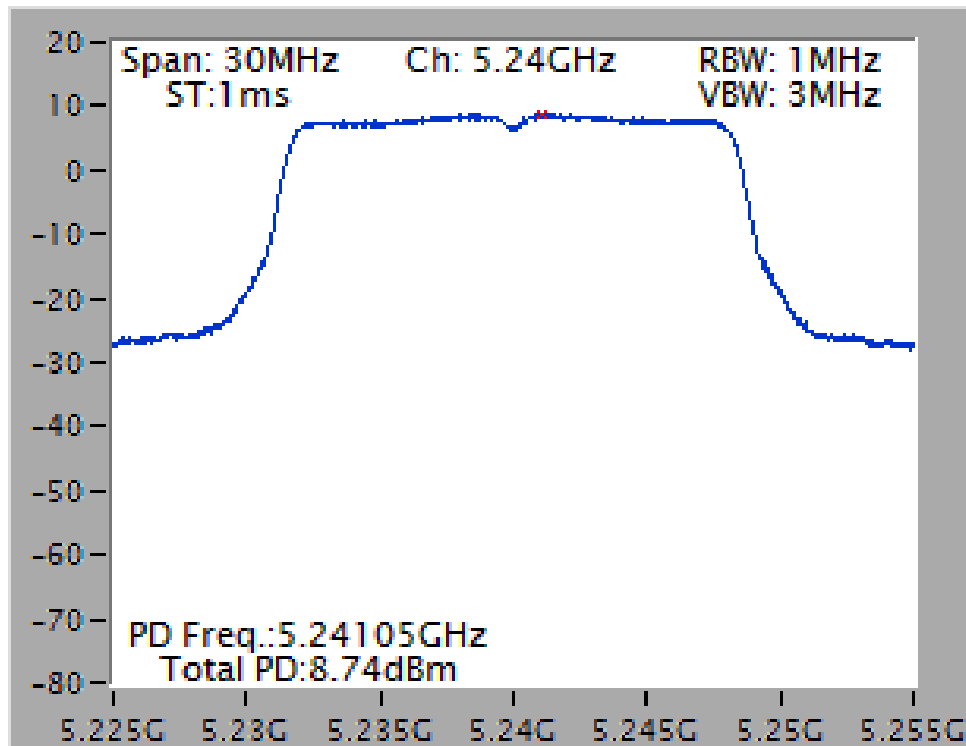
Each antenna is driven by no more than one spatial stream:

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

N_{ANT} = the total number of antennas

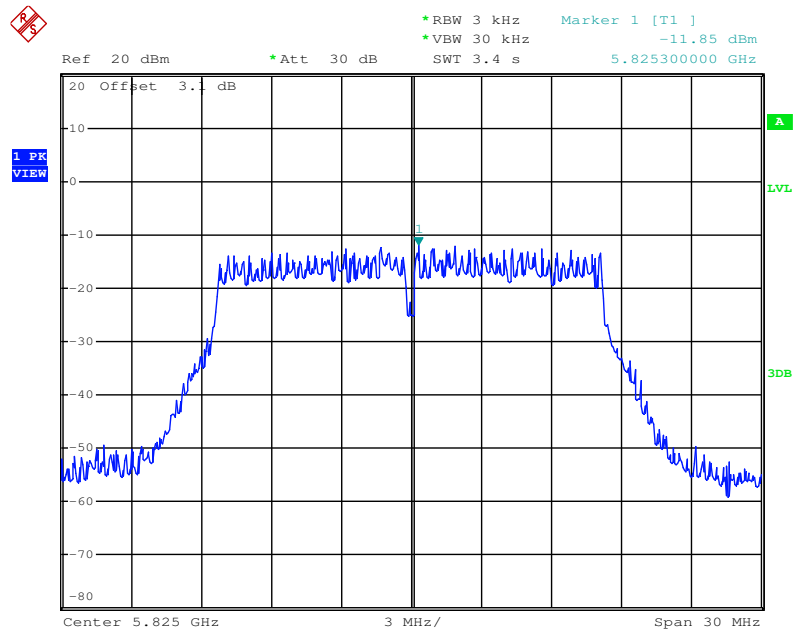
$g_{j,k} = 10^{G_k/20}$ if the kth antenna is being fed by spatial stream j, or zero if it is not;
 G_k is the gain in dBi of the kth antenna.

Power Density Plot on Configuration IEEE 802.11a / CDD 6Mbps / Chain 3 + Chain 4 + Chain 5 / 5180 MHz

Power Density Plot on Configuration IEEE 802.11a / CDD 6Mbps / Chain 3 + Chain 4 + Chain 5 / 5220 MHz


Power Density Plot on Configuration IEEE 802.11a / CDD 6Mbps / Chain 3 + Chain 4 + Chain 5 / 5240 MHz


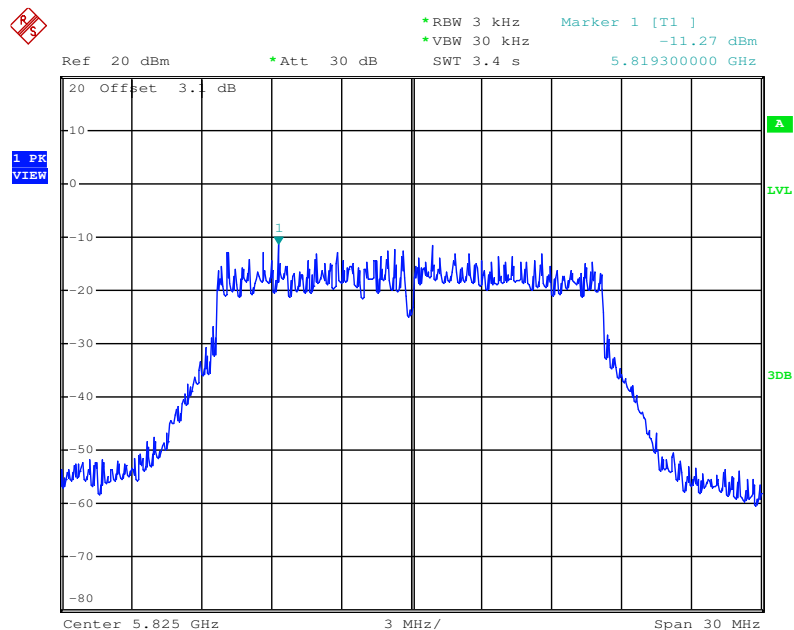


Power Density Plot on Configuration IEEE 802.11a / CDD 6Mbps / Chain 3 / 5825 MHz



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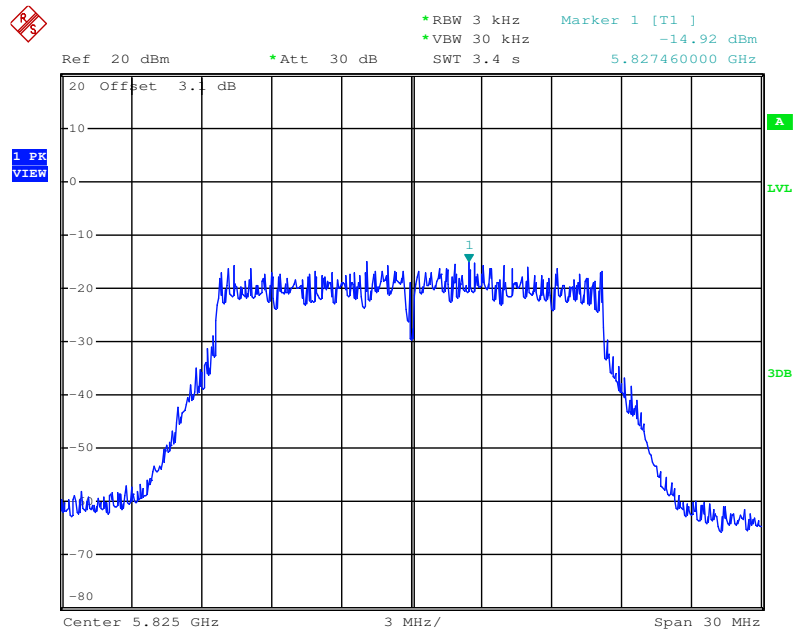
Power Density Plot on Configuration IEEE 802.11a / CDD 6Mbps / Chain 4 / 5825 MHz



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Power Density Plot on Configuration IEEE 802.11a / CDD 6Mbps / Chain 5 / 5825 MHz



Date: 5.NOV.2014 21:58:12

Power Density Configuration IEEE 802.11ac VHT20 / CDD MCS0Nss1 / Chain 3 + Chain 4 + Chain 5

Channel	Frequency (MHz)	Total Power Density (dBm/MHz)	Directional gain (Note)	Limit (dBm/MHz)	Result
36	5180	8.52	7.74	15.26	PASS
44	5220	8.50	7.23	15.77	PASS
48	5240	8.44	7.64	15.36	PASS

Note:

5180 MHz= Directional gain = 7.74dBi >6dBi, So Limit=17-(7.74-6)=15.26 dBm/MHz

5220 MHz= Directional gain = 7.23dBi >6dBi, So Limit=17-(7.23-6)=15.77 dBm/MHz

5240 MHz= Directional gain = 7.64dBi >6dBi, So Limit=17-(7.64-6)=15.36 dBm/MHz

Channel	Frequency (MHz)	Power Density (dBm/3kHz)			Total Power Density (dBm /3kHz)	BWCF Factor (3kHz to 500 kHz)	Directional gain (Note)	Total Power Density (dBm/ 500kHz)	Limit (dBm/ 500 kHz)	Result
		Chain 3	Chain 4	Chain 5						
149	5745	-11.24	-10.83	-13.00	-6.82	22.22	7.17	15.40	28.83	PASS
157	5785	-10.93	-12.67	-13.58	-7.48	22.22	7.70	14.74	28.30	PASS
165	5825	-10.26	-11.75	-12.86	-6.72	22.22	8.08	15.50	27.92	PASS

Note:

5745 MHz= Directional gain = 7.17dBi >6dBi, So Limit=30-(7.17-6)=28.83 dBm/500kHz

5785 MHz= Directional gain = 7.70dBi >6dBi, So Limit=30-(7.70-6)=28.30 dBm/500kHz

5825 MHz= Directional gain = 8.08dBi >6dBi, So Limit=30-(8.08-6)=27.92 dBm/500kHz

Note: The PSD (CDD) directional Gain calculation formula as below:

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

Directional gain = 10 log

where

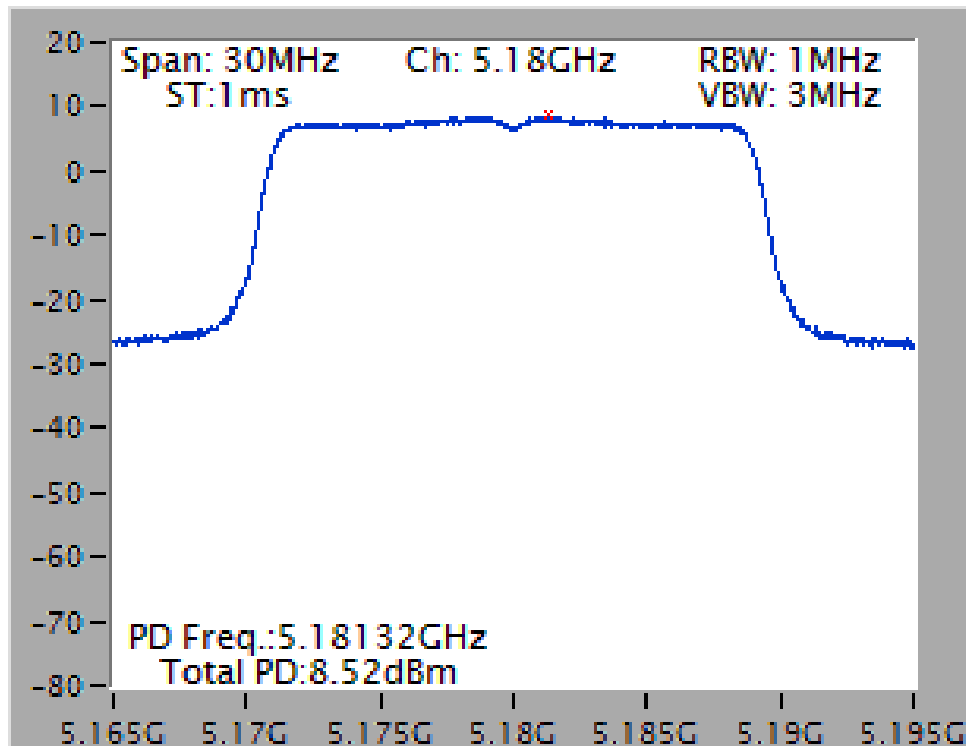
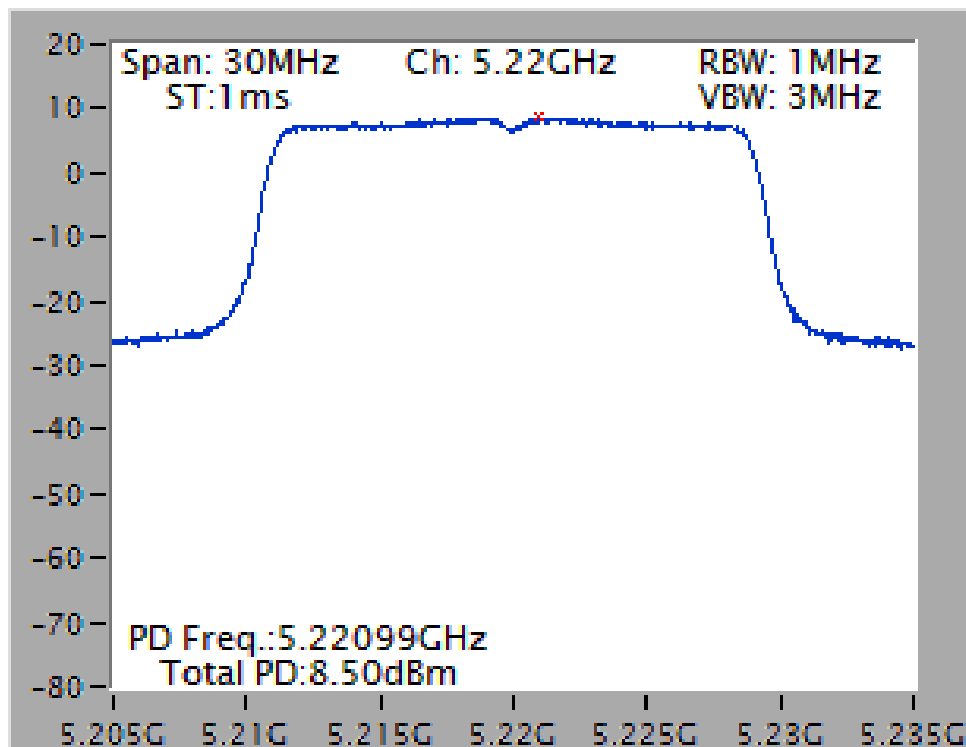
Each antenna is driven by no more than one spatial stream:

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

N_{ANT} = the total number of antennas

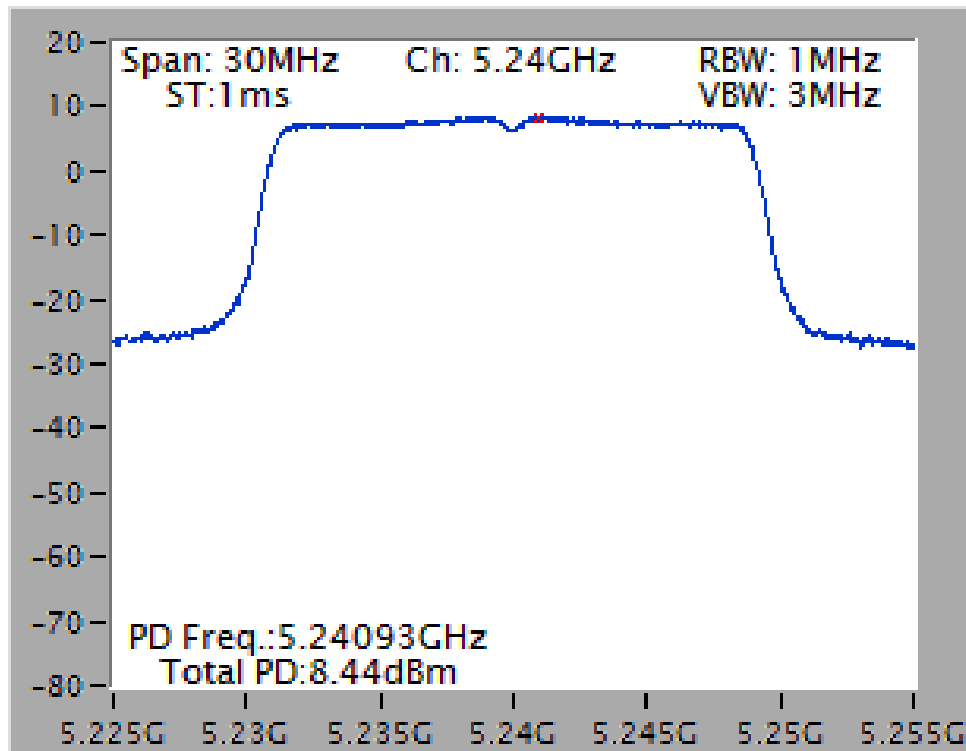
$g_{j,k} = 10^{G_k/20}$ if the kth antenna is being fed by spatial stream j, or zero if it is not;

G_k is the gain in dBi of the kth antenna.

Power Density Plot on Configuration IEEE 802.11ac VHT20 / CDD MCS0Nss1 / Chain 3 + Chain 4 + Chain 5 / 5180 MHz

Power Density Plot on Configuration IEEE 802.11ac VHT20 / CDD MCS0Nss1 / Chain 3 + Chain 4 + Chain 5 / 5220 MHz


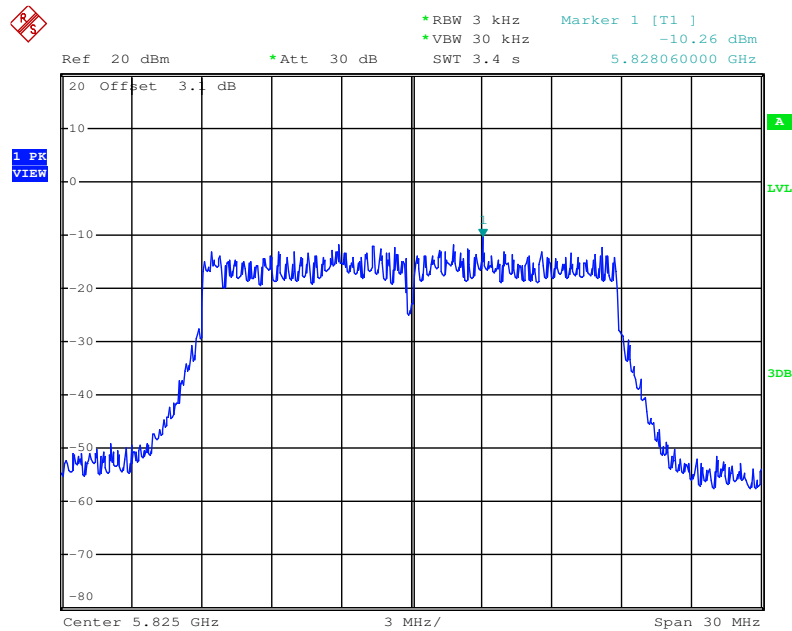


Power Density Plot on Configuration IEEE 802.11ac VHT20 / CDD MCS0Nss1 / Chain 3 + Chain 4 + Chain 5 / 5240 MHz



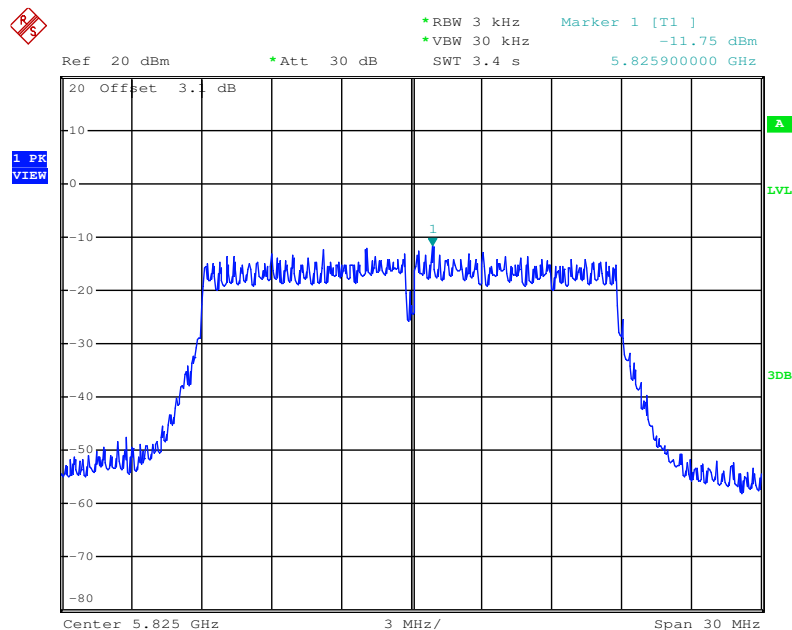


Power Density Plot on Configuration IEEE 802.11ac VHT20 / CDD MCS0Nss1 / Chain 3 / 5825 MHz



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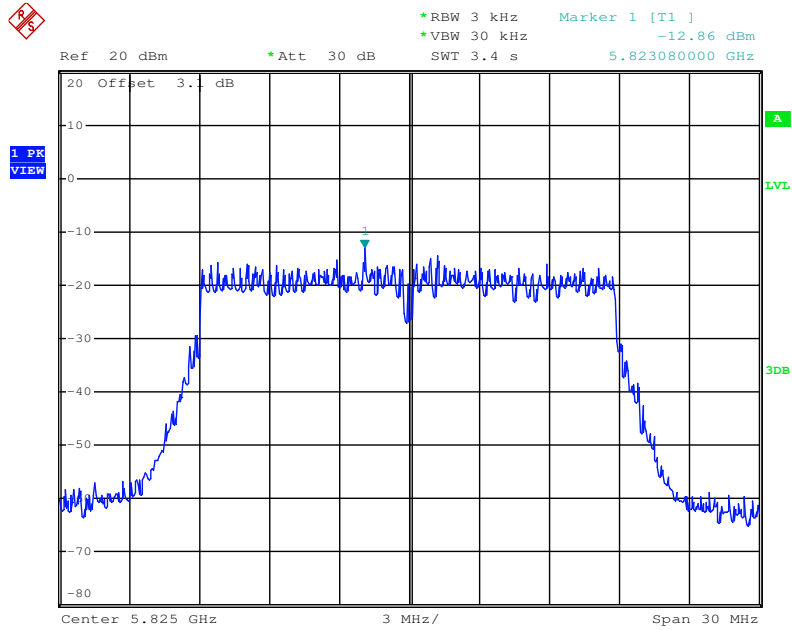
Power Density Plot on Configuration IEEE 802.11ac VHT20 / CDD MCS0Nss1 / Chain 4 / 5825 MHz



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Power Density Plot on Configuration IEEE 802.11ac VHT20 / CDD MCS0Nss1 / Chain 5 / 5825 MHz



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Power Density Configuration IEEE 802.11ac VHT20 / SDM MCS0Nss3 / Chain 3 + Chain 4 + Chain 5

Channel	Frequency (MHz)	Total Power Density (dBm/MHz)	Directional gain (Note)	Limit (dBm/MHz)	Result
36	5180	8.04	2.97	17.00	PASS
44	5220	8.01	2.47	17.00	PASS
48	5240	8.03	2.89	17.00	PASS

Note:

5180 MHz= Directional gain = 2.97dBi <6dBi, so the limit doesn't reduce.

5220 MHz= Directional gain = 2.47dBi <6dBi, so the limit doesn't reduce.

5240 MHz= Directional gain = 2.89dBi <6dBi, so the limit doesn't reduce.

Channel	Frequency (MHz)	Power Density (dBm/3kHz)			Total Power Density (dBm /3kHz)	BWCF Factor (3kHz to 500 kHz)	Directional gain (Note)	Total Power Density (dBm/ 500kHz)	Limit (dBm/ 500 kHz)	Result
		Chain 3	Chain 4	Chain 5						
149	5745	-10.96	-12.62	-9.92	-6.26	22.22	2.52	15.96	30.00	PASS
157	5785	-10.60	-12.56	-11.46	-6.70	22.22	3.07	15.52	30.00	PASS
165	5825	-10.05	-12.18	-9.72	-5.75	22.22	3.42	16.47	30.00	PASS

Note:

5745 MHz= Directional gain = 2.52dBi <6dBi, so the limit doesn't reduce.

5785 MHz= Directional gain = 3.07dBi <6dBi, so the limit doesn't reduce.

5825 MHz= Directional gain = 3.42dBi <6dBi, so the limit doesn't reduce.

Note : Refer to KDB 662911 F d) (ii)

For SDM mode, directional gain is calculated as

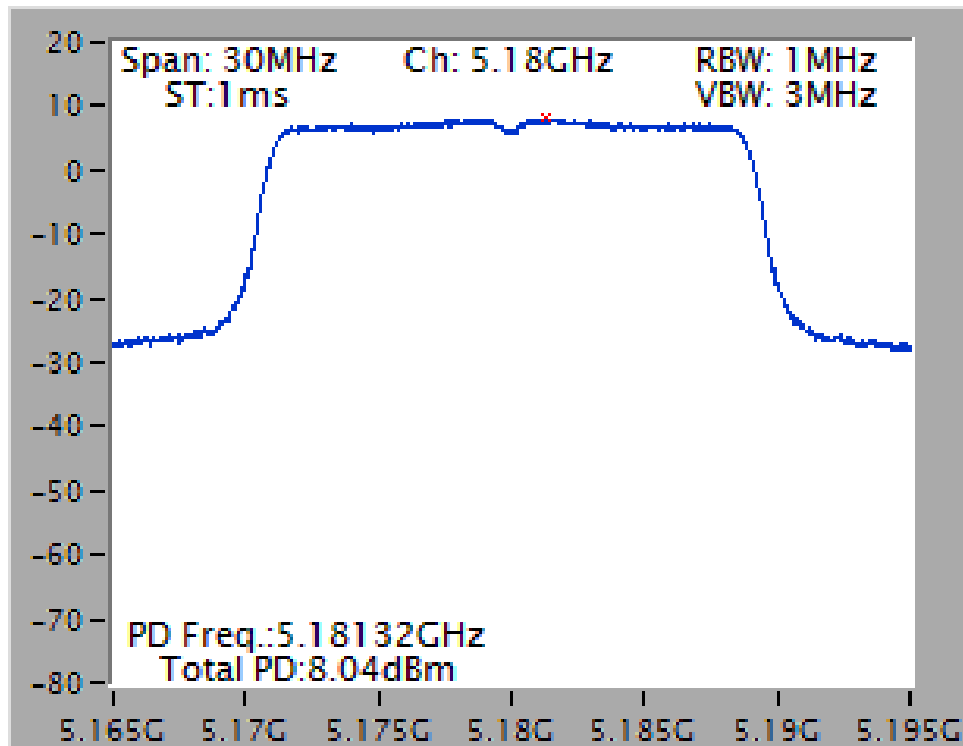
$$\text{Directional gain} = 10 \log \left[(10^{\frac{G_1}{10}} + 10^{\frac{G_2}{10}} + \dots + 10^{\frac{G_N}{10}}) / N_{ANT} \right] \text{ dBi},$$

If directional Gain > 6dBi, the Max PSD limit need to be reduced.

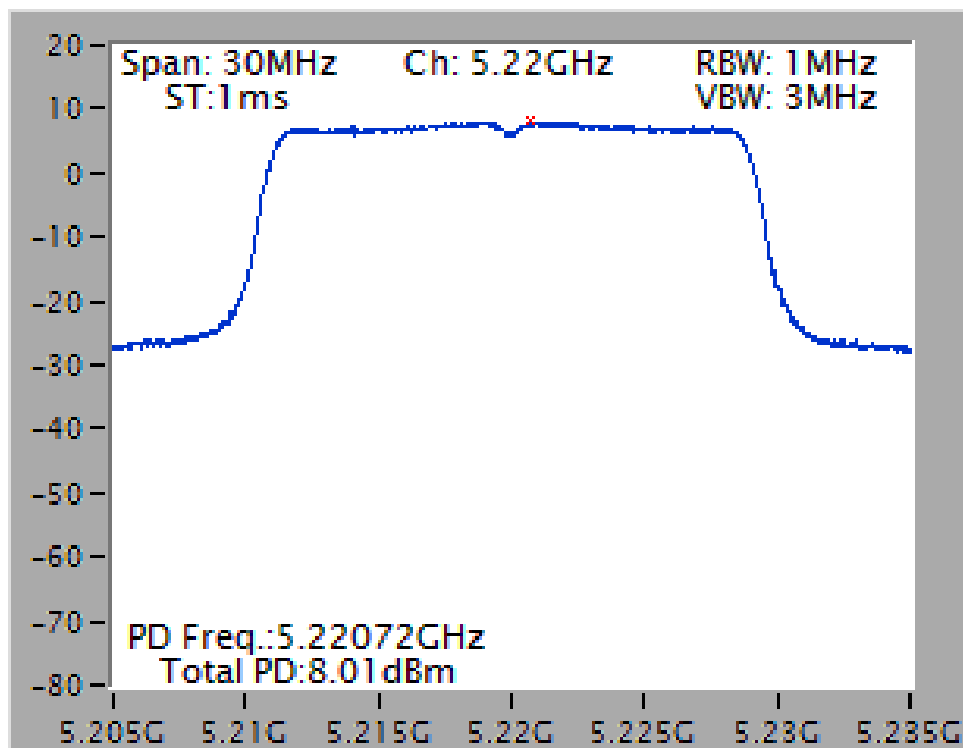
Example : If Directional Gain = 7.5dBi , then the PSD limit = 17dBm-(7.5-6)dB = 15.5dBm



Power Density Plot on Configuration IEEE 802.11ac VHT20 / SDM MCS0Nss3 / Chain 3 + Chain 4 + Chain 5 / 5180 MHz

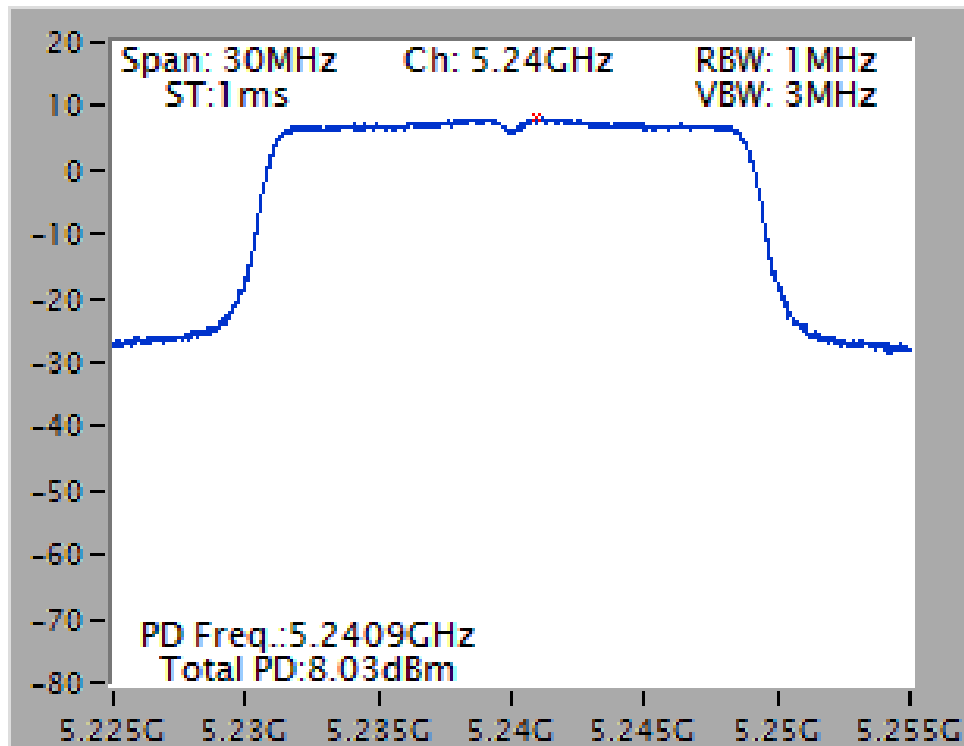


Power Density Plot on Configuration IEEE 802.11ac VHT20 / SDM MCS0Nss3 / Chain 3 + Chain 4 + Chain 5 / 5220 MHz



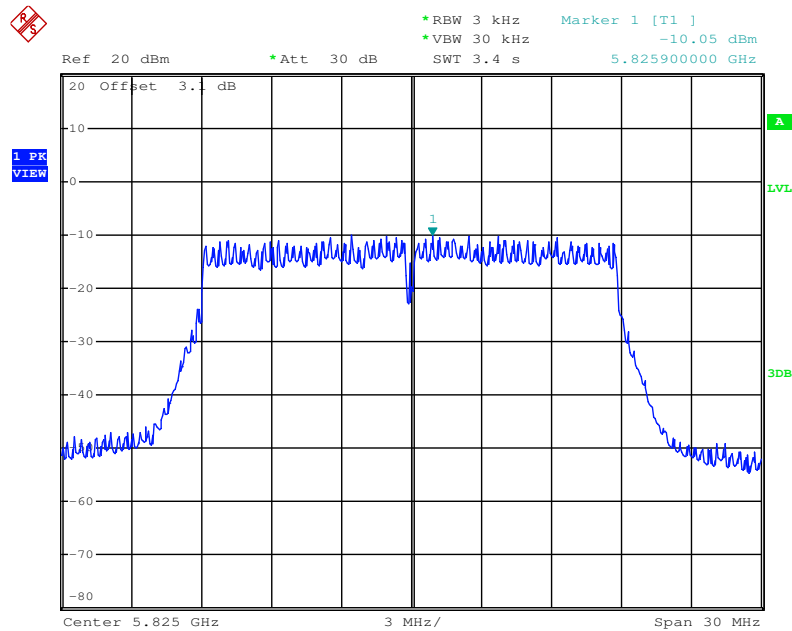


Power Density Plot on Configuration IEEE 802.11ac VHT20 / SDM MCS0Nss3 / Chain 3 + Chain 4 + Chain 5 / 5240 MHz



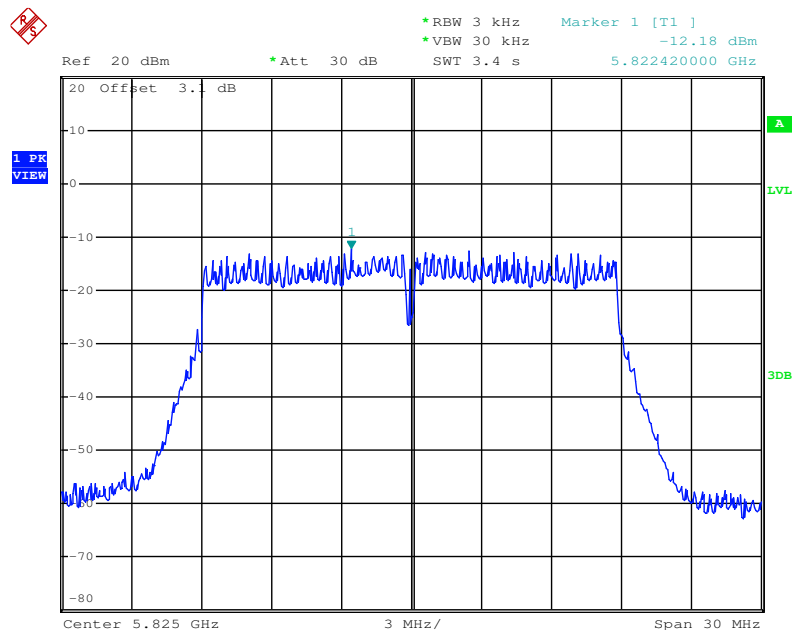


Power Density Plot on Configuration IEEE 802.11ac VHT20 / SDM MCS0Nss3 / Chain 3 / 5825 MHz



Date: 11.NOV.2014 10:50:36

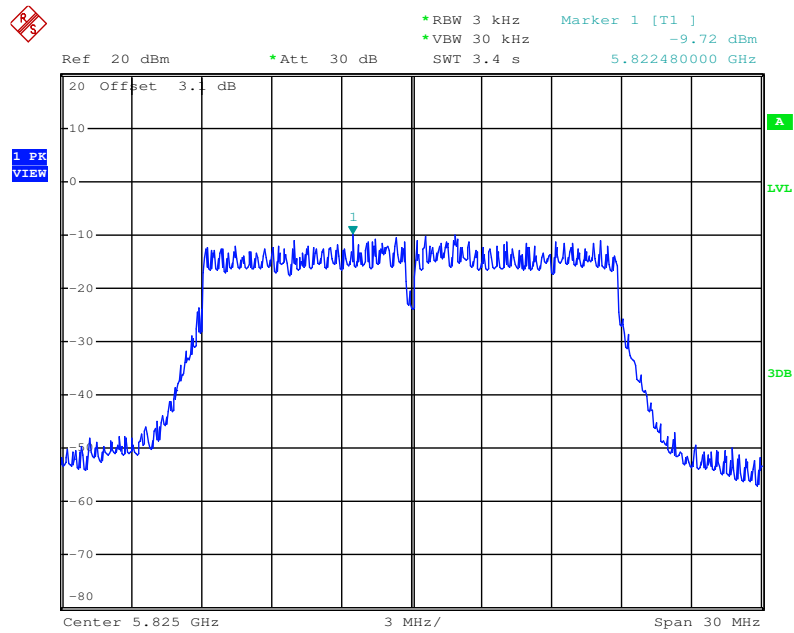
Power Density Plot on Configuration IEEE 802.11ac VHT20 / SDM MCS0Nss3 / Chain 4 / 5825 MHz



Date: 11.NOV.2014 10:47:51



Power Density Plot on Configuration IEEE 802.11ac VHT20 / SDM MCS0Nss3 / Chain 5 / 5825 MHz



Date: 11.NOV.2014 10:46:39

Power Density Configuration IEEE 802.11ac VHT40 / CDD MCS0Nss1 / Chain 3 + Chain 4 + Chain 5

Channel	Frequency (MHz)	Total Power Density (dBm/MHz)	Directional gain (Note)	Limit (dBm/MHz)	Result
38	5190	4.07	7.46	15.54	PASS
46	5230	4.07	7.52	15.48	PASS

Note:

5190 MHz= Directional gain = 7.46dBi >6dBi, So Limit=17-(7.46-6)=15.54 dBm/MHz

5230 MHz= Directional gain = 7.52dBi >6dBi, So Limit=17-(7.52-6)=15.48 dBm/MHz

Channel	Frequency (MHz)	Power Density (dBm/3kHz)			Total Power Density (dBm /3kHz)	BWCF Factor (3kHz to 500 kHz)	Directional gain (Note)	Total Power Density (dBm/ 500kHz)	Limit (dBm/ 500 kHz)	Result
		Chain 3	Chain 4	Chain 5						
151	5755	-14.45	-17.83	-20.38	-12.11	22.22	7.25	10.11	28.75	PASS
159	5795	-16.36	-16.94	-19.61	-12.65	22.22	8.00	9.57	28.00	PASS

Note:

5755 MHz= Directional gain = 7.25dBi >6dBi, So Limit=30-(7.25-6)=28.75 dBm/500kHz

5795 MHz= Directional gain = 8.00dBi >6dBi, So Limit=30-(8.00-6)=28.00 dBm/500kHz

Note: The PSD (CDD) directional Gain calculation formula as below:

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

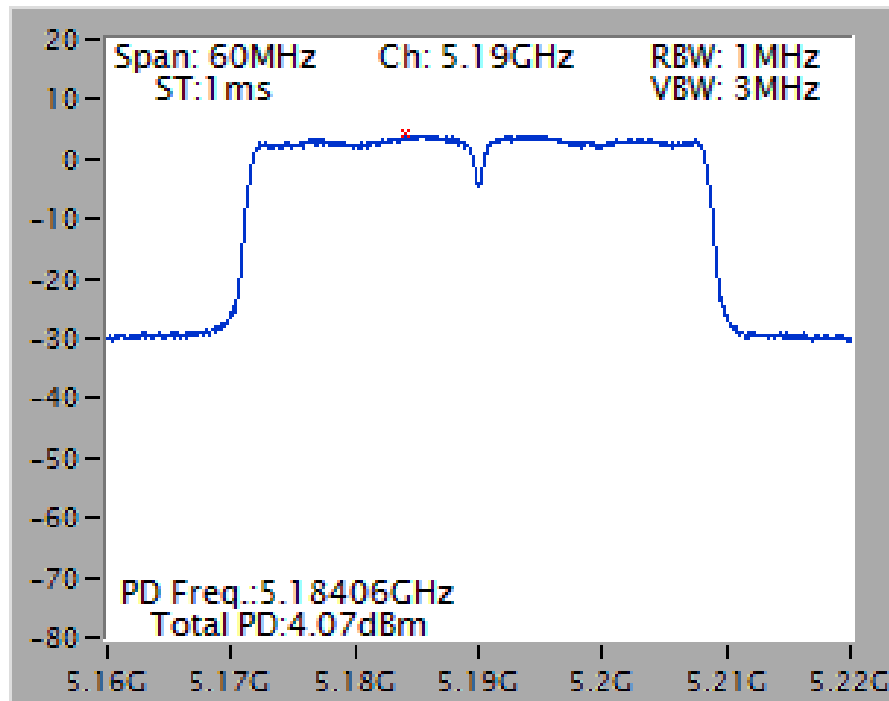
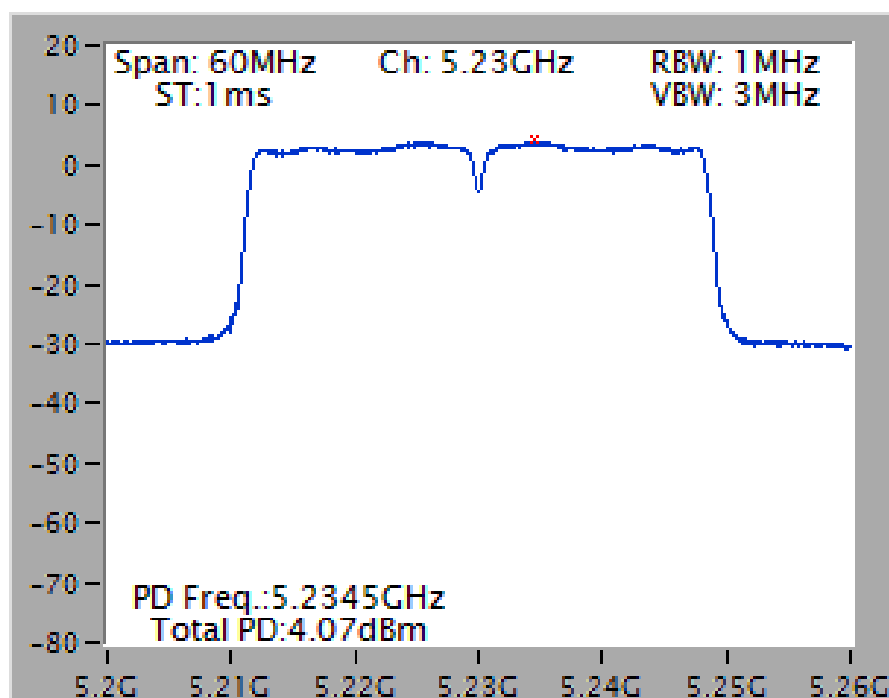
where

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

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

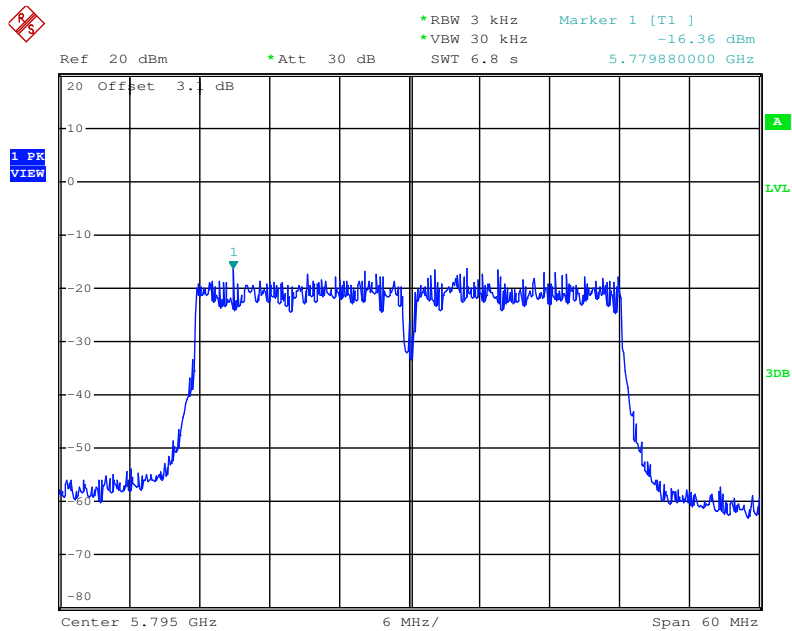
N_{ANT} = the total number of antennas

$g_{j,k} = 10^{G_k/20}$ 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.

Power Density Plot on Configuration IEEE 802.11ac VHT40 / CDD MCS0Nss1 / Chain 3 + Chain 4 + Chain 5 / 5190 MHz

Power Density Plot on Configuration IEEE 802.11ac VHT40 / CDD MCS0Nss1 / Chain 3 + Chain 4 + Chain 5 / 5230 MHz


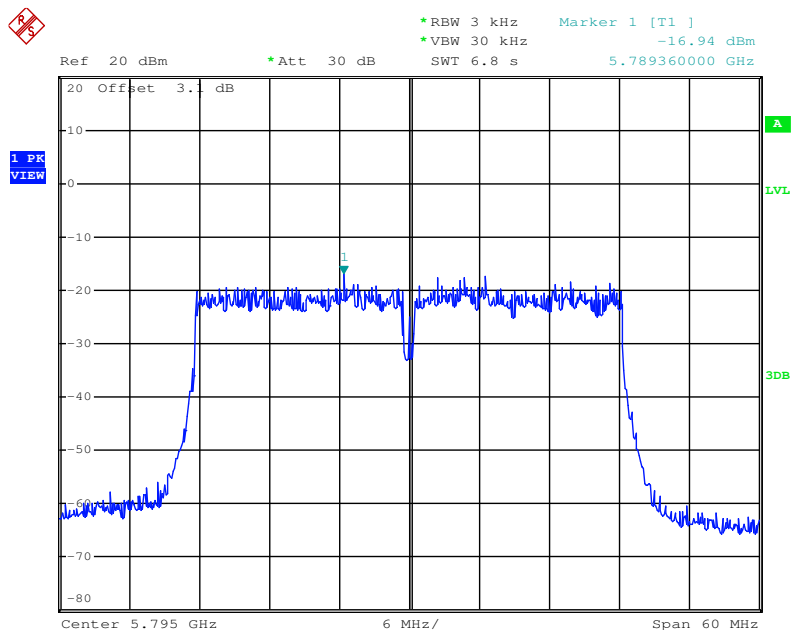


Power Density Plot on Configuration IEEE 802.11ac VHT40 / CDD MCS0Nss1 / Chain 3 / 5795 MHz



Date: 5.NOV.2014 21:42:36

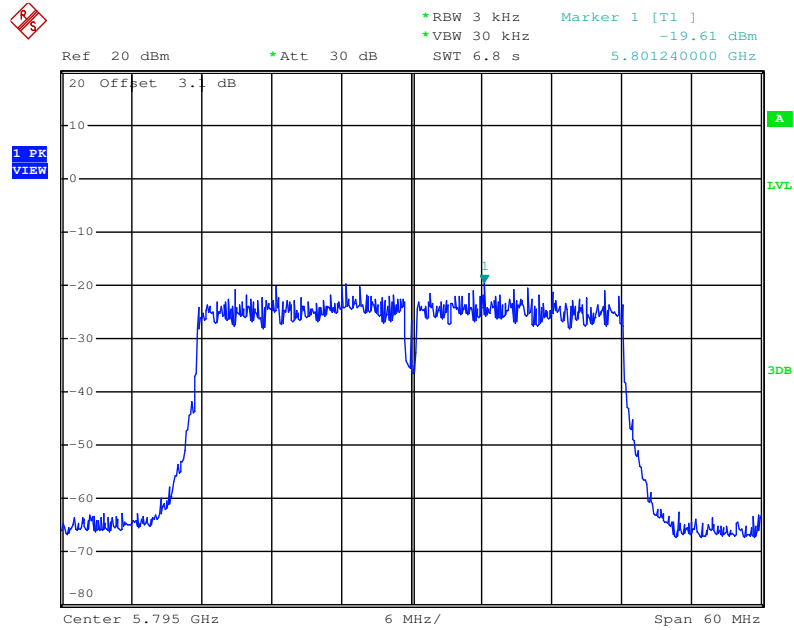
Power Density Plot on Configuration IEEE 802.11ac VHT40 / CDD MCS0Nss1 / Chain 4 / 5795 MHz



Date: 5.NOV.2014 21:43:26



Power Density Plot on Configuration IEEE 802.11ac VHT40 / CDD MCS0Nss1 / Chain 5 / 5795 MHz



Date: 5.NOV.2014 21:44:03

Power Density Configuration IEEE 802.11ac VHT80 / CDD MCS0Nss1 / Chain 3 + Chain 4 + Chain 5

Channel	Frequency (MHz)	Total Power Density (dBm/MHz)	Directional gain (Note)	Limit (dBm/MHz)	Result
42	5210	-1.66	7.29	15.71	PASS

Note:

5210 MHz= Directional gain = 7.29dBi >6dBi, So Limit=17-(7.29-6)=15.71 dBm/MHz

Channel	Frequency (MHz)	Power Density (dBm/3kHz)			Total Power Density (dBm /3kHz)	BWCF Factor (3kHz to 500 kHz)	Directional gain (Note)	Total Power Density (dBm/ 500kHz)	Limit (dBm/ 500 kHz)	Result
		Chain 3	Chain 4	Chain 5						
155	5775	-20.09	-21.09	-21.94	-16.20	22.22	7.56	6.02	28.44	PASS

Note:

5775 MHz= Directional gain = 7.56dBi >6dBi, So Limit=30-(7.56-6)=28.44 dBm/500kHz

Note: The PSD (CDD) directional Gain calculation formula as below:

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

Directional gain = 10 log [

where

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

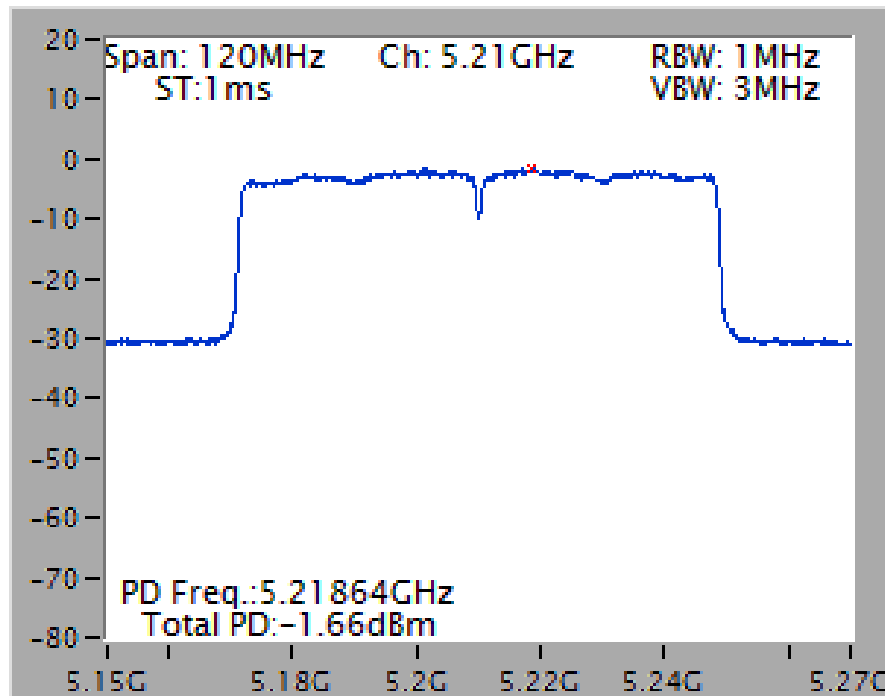
N_{SS} = the number of independent spatial streams of data;

N_{ANT} = the total number of antennas

$g_{j,k} = 10^{G_k/20}$ if the kth antenna is being fed by spatial stream j, or zero if it is not;
Gk is the gain in dBi of the kth antenna.

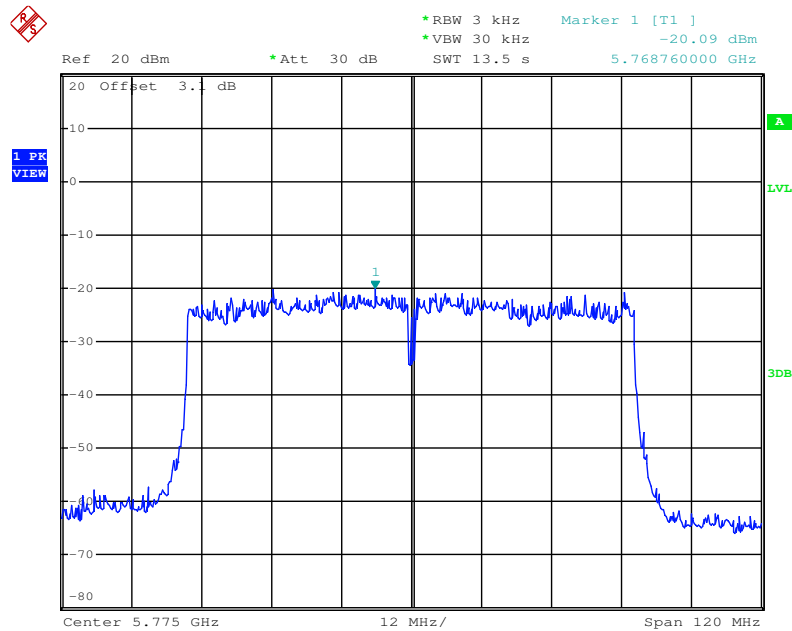


Power Density Plot on Configuration IEEE 802.11ac VHT80 / CDD MCS0Nss1 / Chain 3 + Chain 4 + Chain 5 / 5210 MHz



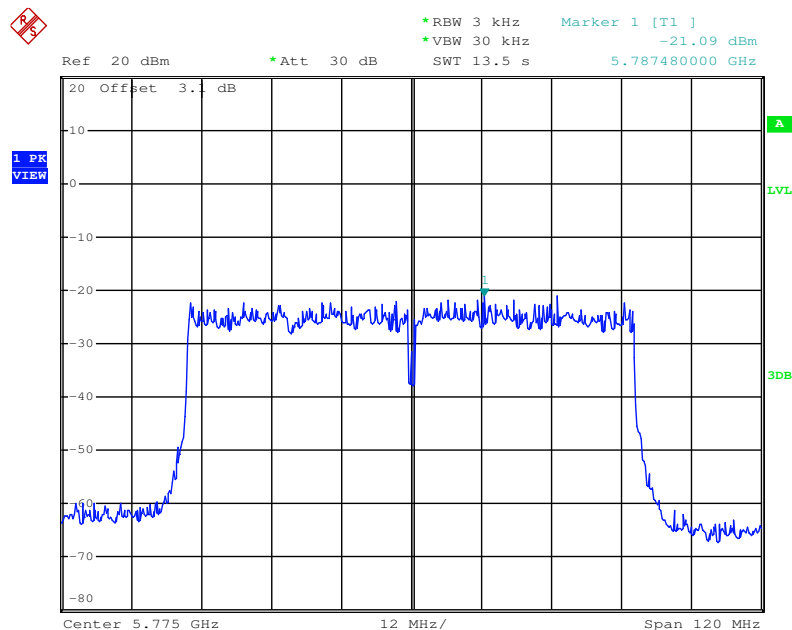


Power Density Plot on Configuration IEEE 802.11ac VHT80 / CDD MCS0Nss1 / Chain 3 / 5775 MHz



Date: 5.NOV.2014 21:41:29

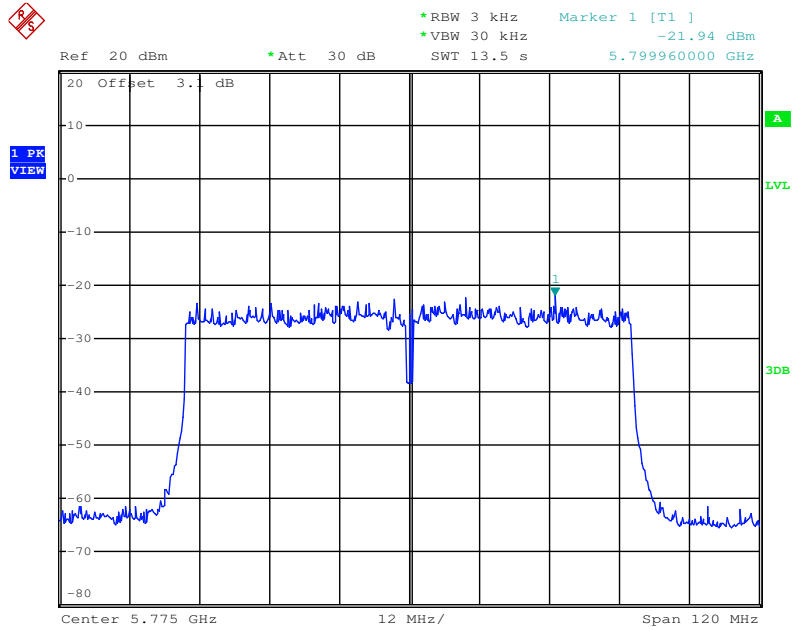
Power Density Plot on Configuration IEEE 802.11ac VHT80 / CDD MCS0Nss1 / Chain 4 / 5775 MHz



Date: 5.NOV.2014 21:39:52



Power Density Plot on Configuration IEEE 802.11ac VHT80 / CDD MCS0Nss1 / Chain 5 / 5775 MHz



Date: 5.NOV.2014 21:39:01

2.4 26dB/6dB Bandwidth and 99 Percent Occupied Bandwidth Measurement

2.4.1 Limit

Band	Frequency Band	Limit
1	5150-5250MHz	NA
4	5725-5850MHz	≥ 500kHz

2.4.2 Measuring Instruments

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

2.4.3 Test method

- Setting of the Spectrum Analyzer. The below setting is refer to KDB789033 D02 v01r03 General UNII Test Procedures New Rules v01.
- Measurement 802.11a \ 802.11n(HT20) \ 802.11ac(VHT20)

Spectrum Analyzer setting parameter as below table.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	80MHz
RBW	300kHz
VBW	1MHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto couple

- Measurement 802.11n(HT40) \ 802.11ac(VHT40)

Spectrum Analyzer setting parameter as below table.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	120MHz
RBW	500kHz
VBW	2MHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto couple

4. Measurement 802.11ac(VHT80)

Spectrum Analyzer setting parameter as below table.

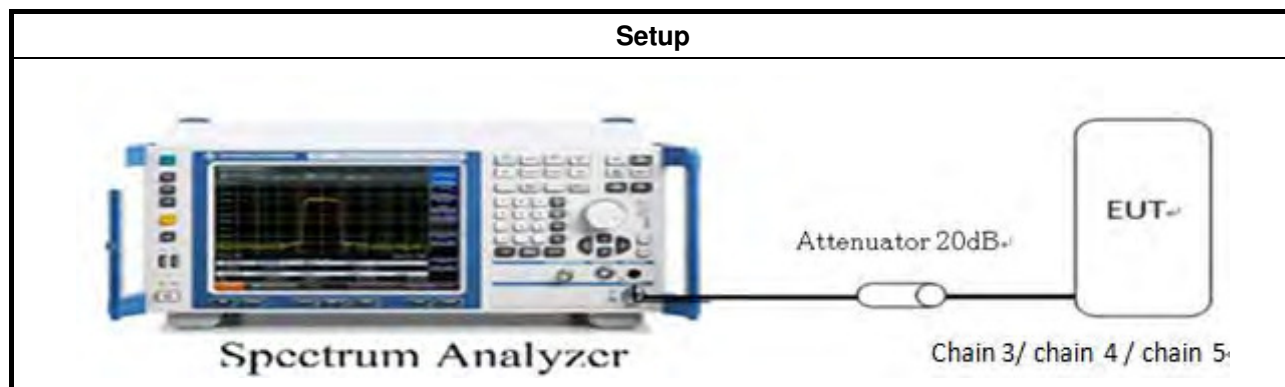
Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	200MHz
RBW	1MHz
VBW	3MHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto couple

5. Test procedures refer to KDB789033 D02 v01r03General UNII Test Procedures New Rules v01 section C and D.
6. Connect the transmitter output (antenna port) to the spectrum analyzer.
7. The transmitter output (antenna port) was connected to the spectrum analyzer in peak, Max hold mode.
8. 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 26 dB below the maximum level on the right and the left side of the emission.
9. The 26 dB bandwidth is the frequency difference between the two markers.
10. Use the Spectrum Analyzer 99% Occupied bandwidth function to measure.
11. Repeat the above procedure until the measurements for all frequencies are completed.
12. The band 4 Measurement Spectrum Analyzer setting parameter as below table:

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

13. The transmitter output (antenna port) was connected to the spectrum analyzer in peak, Max hold mode.
14. 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.
15. 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	Serway Li	Test Date	Nov. 01, 2014 ~ Feb. 05, 2015

Configuration IEEE 802.11a / CDD 6Mbps / Chain 3 + Chain 4 + Chain 5

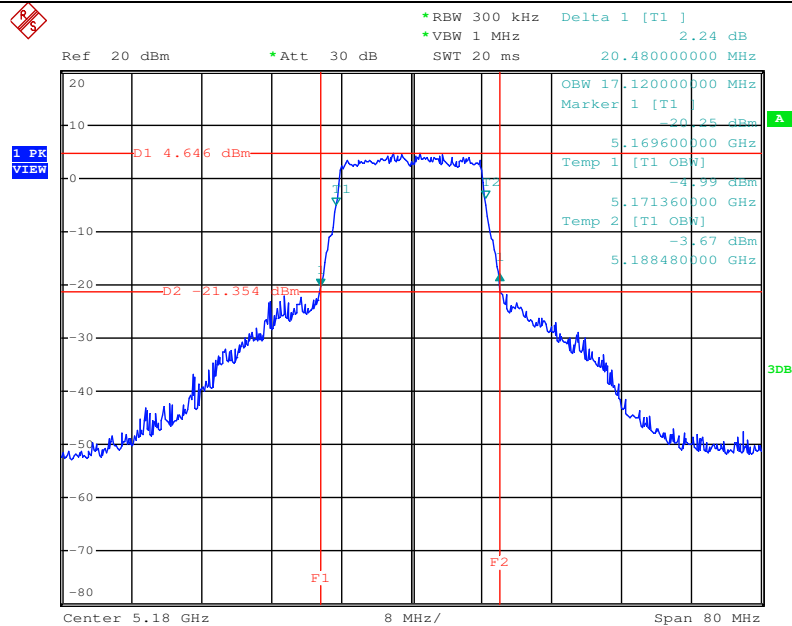
Channel	Frequency	26dB Bandwidth (MHz)			99% Occupied Bandwidth(MHz)		
		Chain 3	Chain 4	Chain 5	Chain 3	Chain 4	Chain 5
36	5180	20.48	20.32	20.16	17.12	16.96	16.96
44	5220	20.48	20.32	20.32	16.96	16.96	16.96
48	5240	21.12	20.16	20.32	17.28	16.96	16.96
149	5745	20.32	20.48	20.16	16.96	16.96	16.96
157	5785	20.32	20.32	20.16	16.80	16.80	16.80
165	5825	20.32	20.16	20.48	16.96	16.96	16.96

Configuration IEEE 802.11a / CDD 6Mbps / Chain 3 + Chain 4 + Chain 5

Channel	Frequency	6dB Bandwidth (MHz)			Min. Limit (kHz)	Test Result
		Chain 3	Chain 4	Chain 5		
149	5745	16.40	16.40	16.40	500	Complies
157	5785	16.40	16.40	16.40	500	Complies
165	5825	16.40	16.40	16.40	500	Complies

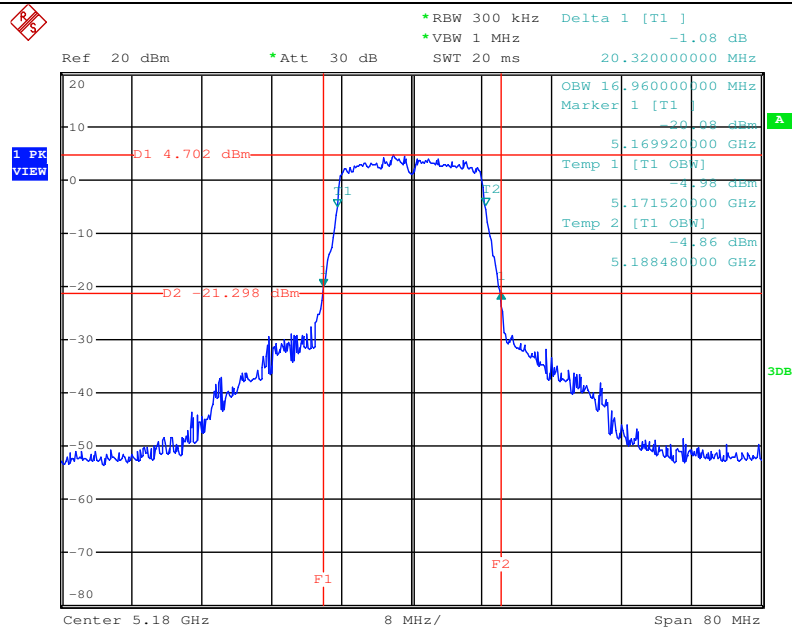


26 dB Bandwidth & 99% bandwidth Plot on Configuration IEEE 802.11a / CDD 6Mbps / Chain 3 / 5180 MHz



Date: 4.NOV.2014 20:02:09

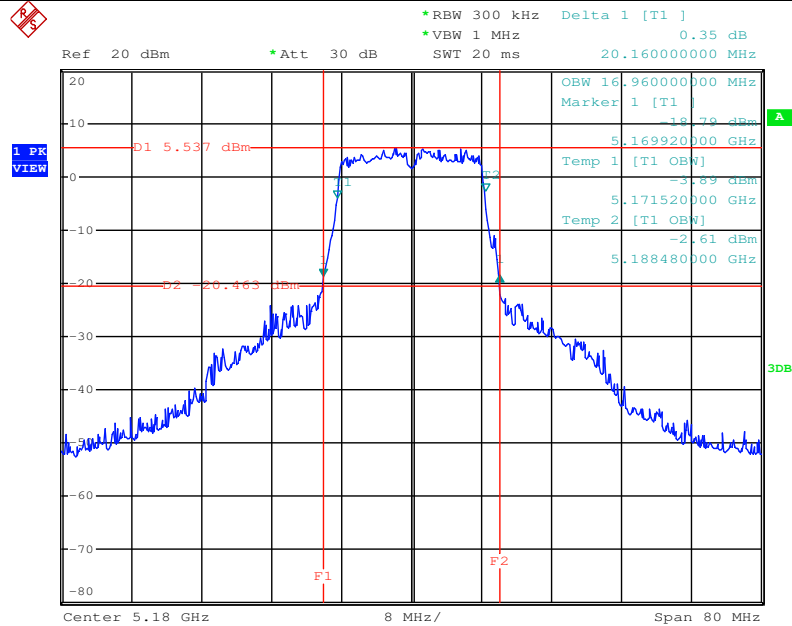
26 dB Bandwidth & 99% bandwidth Plot on Configuration IEEE 802.11a / CDD 6Mbps / Chain 4 / 5180 MHz



Date: 4.NOV.2014 20:01:29

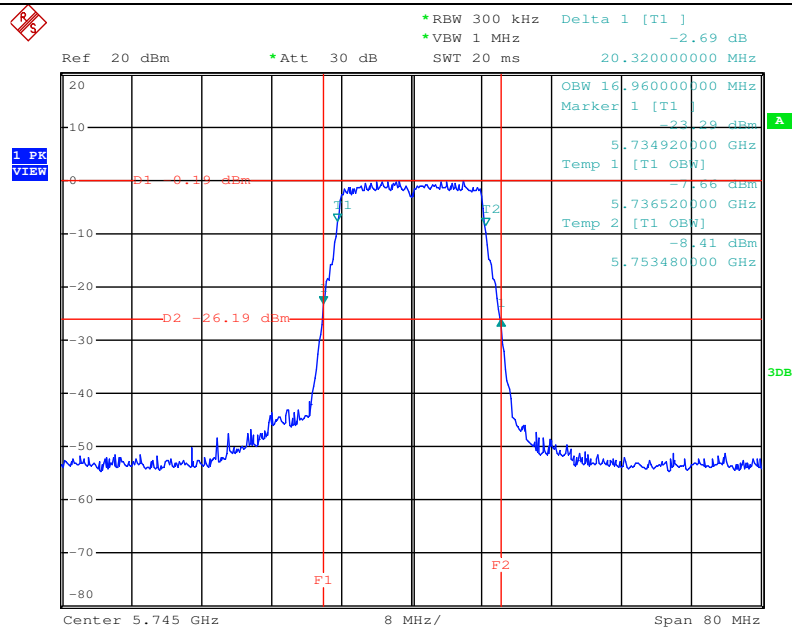


26 dB Bandwidth & 99% bandwidth Plot on Configuration IEEE 802.11a / CDD 6Mbps / Chain 5 / 5180 MHz



Date: 4.NOV.2014 20:00:56

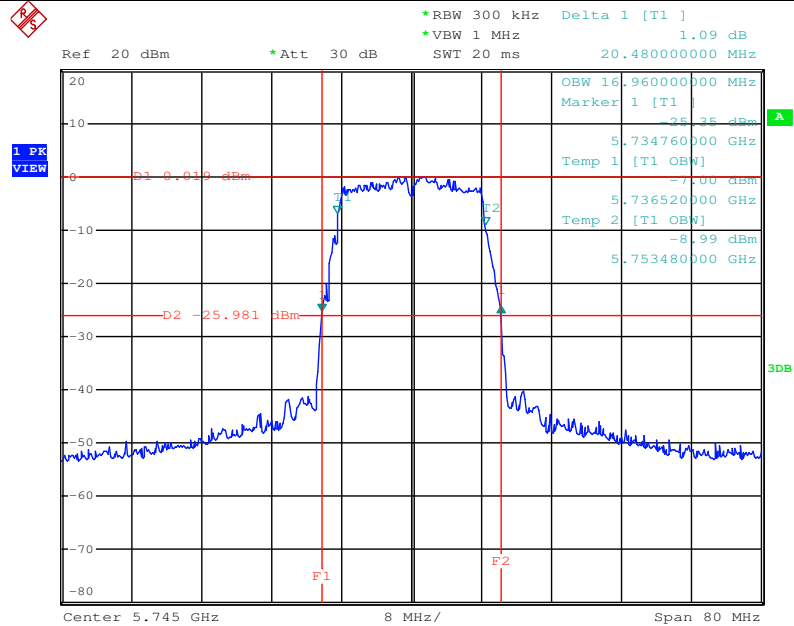
26 dB Bandwidth & 99% bandwidth Plot on Configuration IEEE 802.11a / CDD 6Mbps / Chain 3 / 5745 MHz



Date: 3.FEB.2015 20:25:38

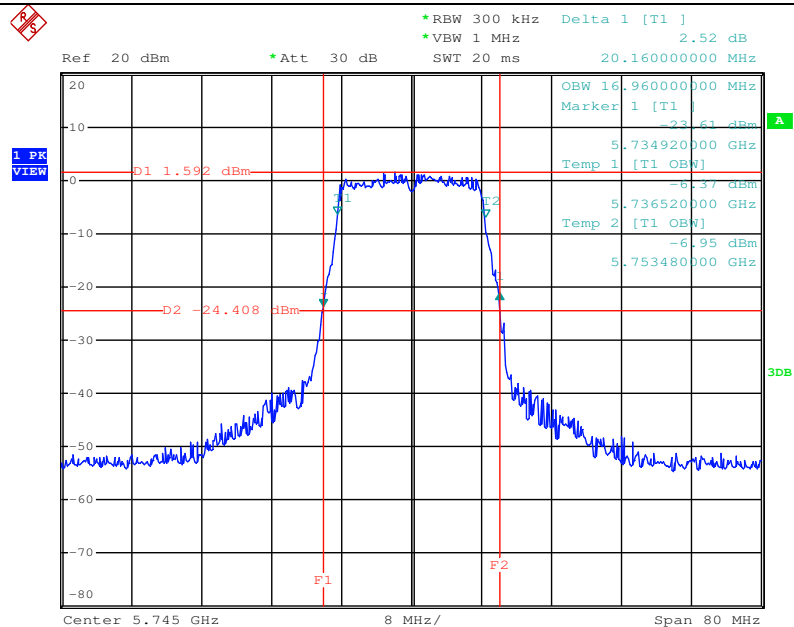


26 dB Bandwidth & 99% bandwidth Plot on Configuration IEEE 802.11a / CDD 6Mbps / Chain 4 / 5745 MHz



Date: 5.FEB.2015 10:00:53

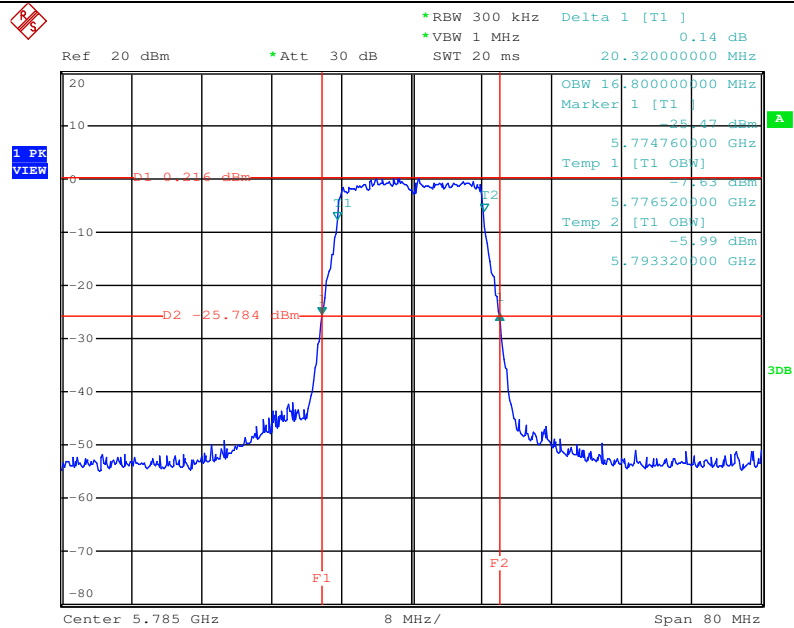
26 dB Bandwidth & 99% bandwidth Plot on Configuration IEEE 802.11a / CDD 6Mbps / Chain 5 / 5745 MHz



Date: 3.FEB.2015 20:29:05

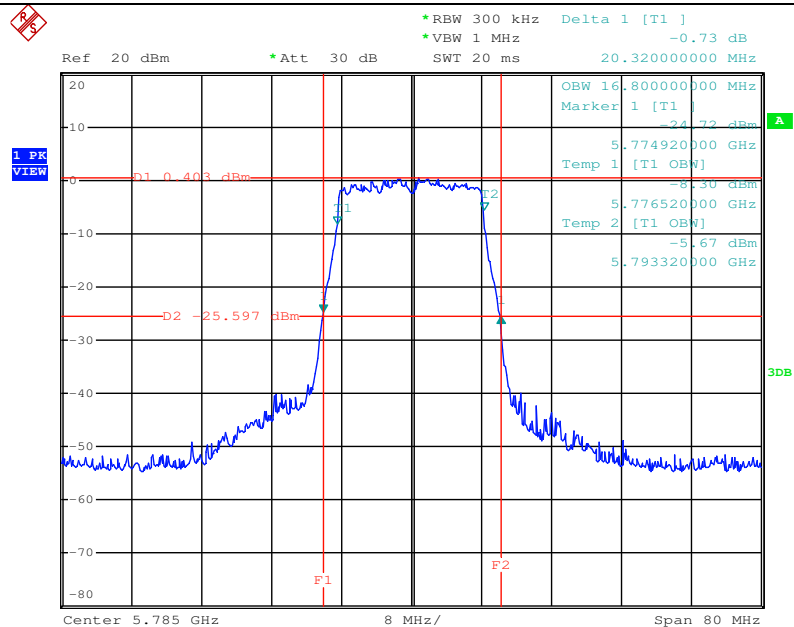


26 dB Bandwidth & 99% bandwidth Plot on Configuration IEEE 802.11a / CDD 6Mbps / Chain 3 / 5785 MHz

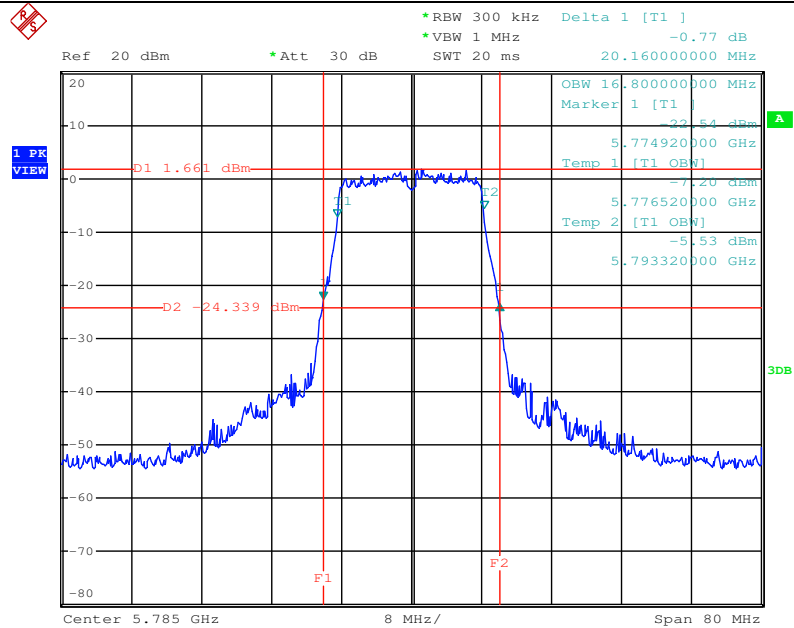


Date: 3.FEB.2015 20:33:29

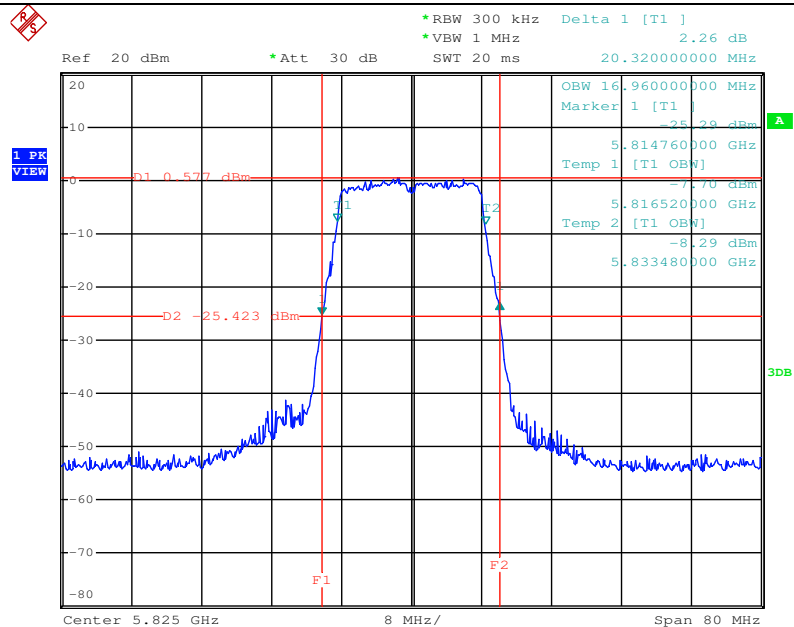
26 dB Bandwidth & 99% bandwidth Plot on Configuration IEEE 802.11a / CDD 6Mbps / Chain 4 / 5785 MHz



Date: 3.FEB.2015 20:32:34

**26 dB Bandwidth & 99% bandwidth Plot on Configuration IEEE 802.11a / CDD 6Mbps / Chain 5 / 5785 MHz**

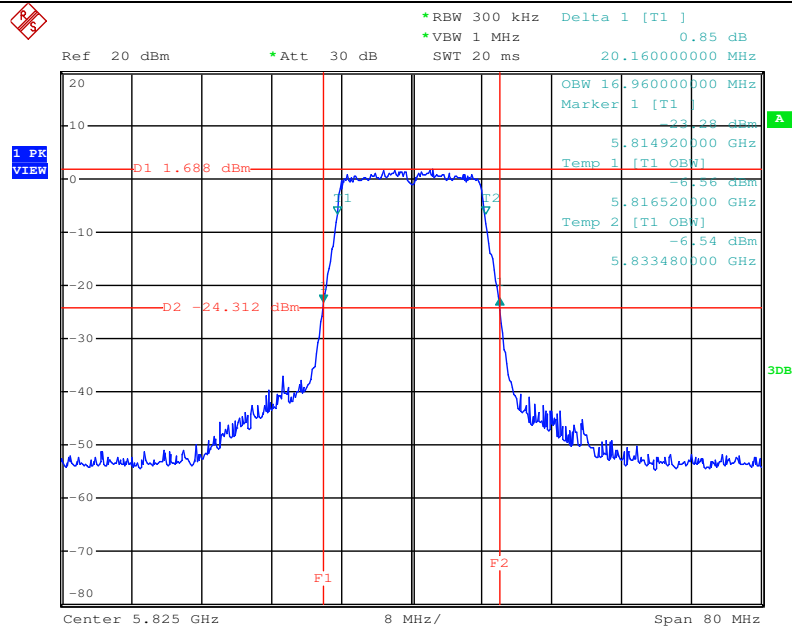
Date: 3.FEB.2015 20:31:33

26 dB Bandwidth & 99% bandwidth Plot on Configuration IEEE 802.11a / CDD 6Mbps / Chain 3 / 5825 MHz

Date: 3.FEB.2015 20:35:01

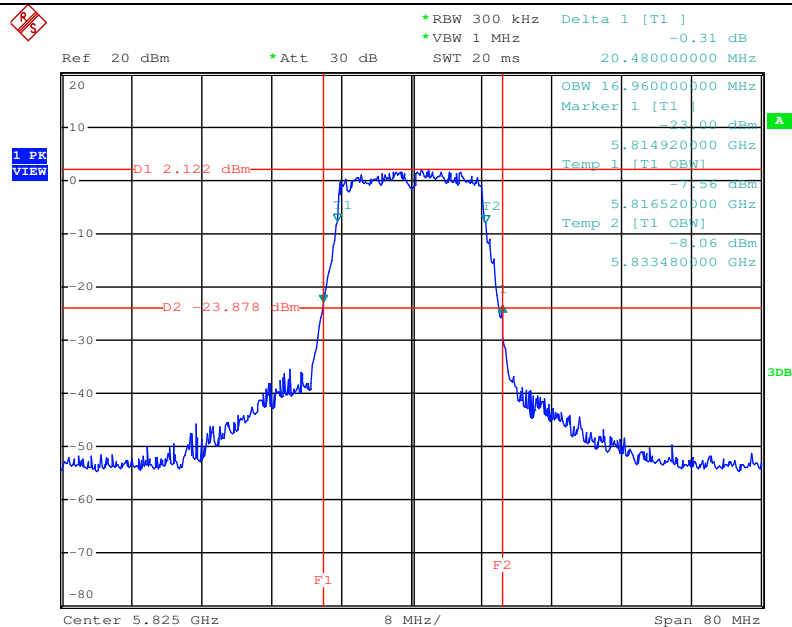


26 dB Bandwidth & 99% bandwidth Plot on Configuration IEEE 802.11a / CDD 6Mbps / Chain 4 / 5825 MHz



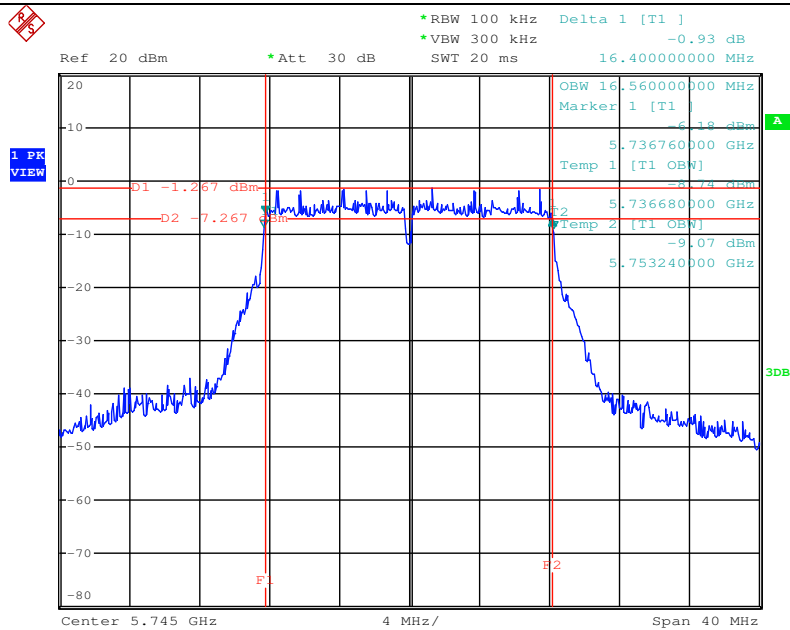
Date: 3.FEB.2015 20:35:33

26 dB Bandwidth & 99% bandwidth Plot on Configuration IEEE 802.11a / CDD 6Mbps / Chain 5 / 5825 MHz



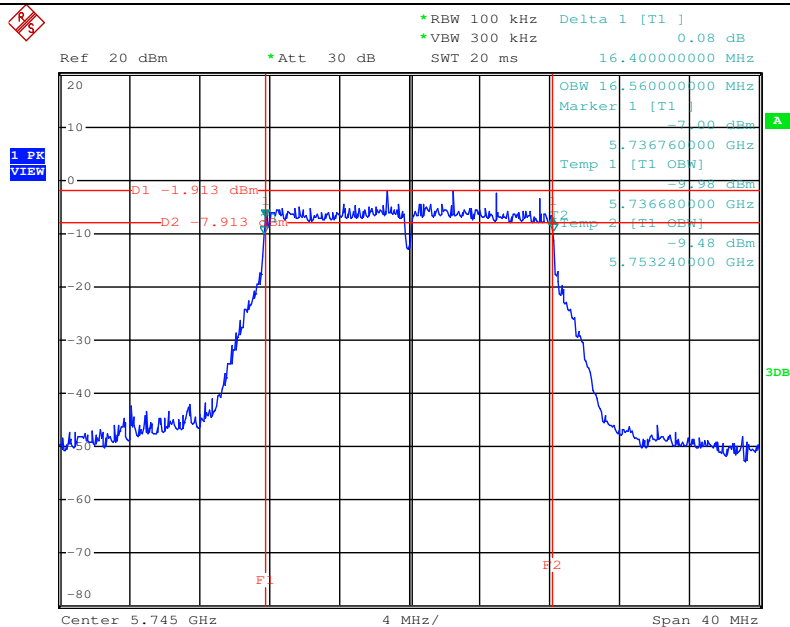
Date: 3.FEB.2015 20:36:35

6 dB Bandwidth Plot on Configuration IEEE 802.11a / CDD 6Mbps / Chain 3 / 5745 MHz



Date: 4.NOV.2014 19:39:27

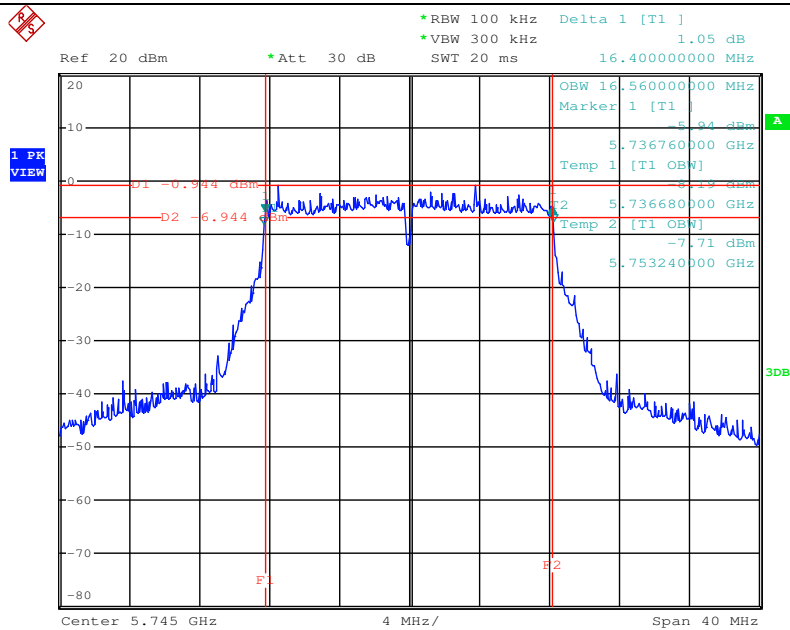
6 dB Bandwidth Plot on Configuration IEEE 802.11a / CDD 6Mbps / Chain 4 / 5745 MHz



Date: 4.NOV.2014 19:40:19

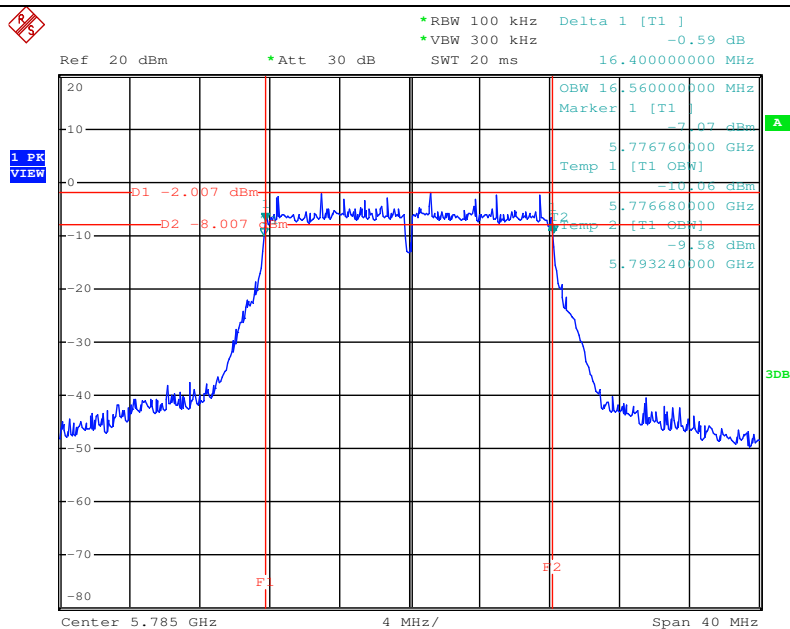


6 dB Bandwidth Plot on Configuration IEEE 802.11a / CDD 6Mbps / Chain 5 / 5745 MHz



Date: 4.NOV.2014 19:40:57

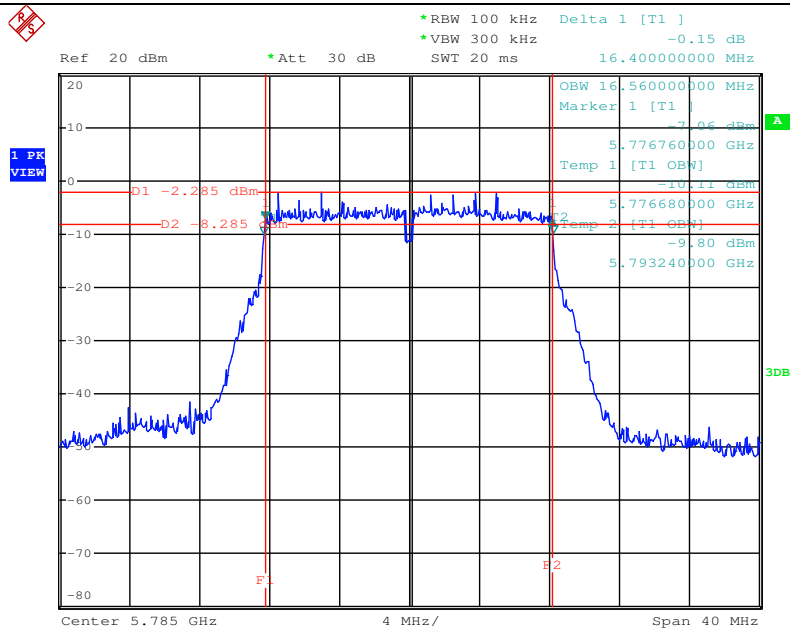
6 dB Bandwidth Plot on Configuration IEEE 802.11a / CDD 6Mbps / Chain 3 / 5785 MHz



Date: 4.NOV.2014 19:44:39

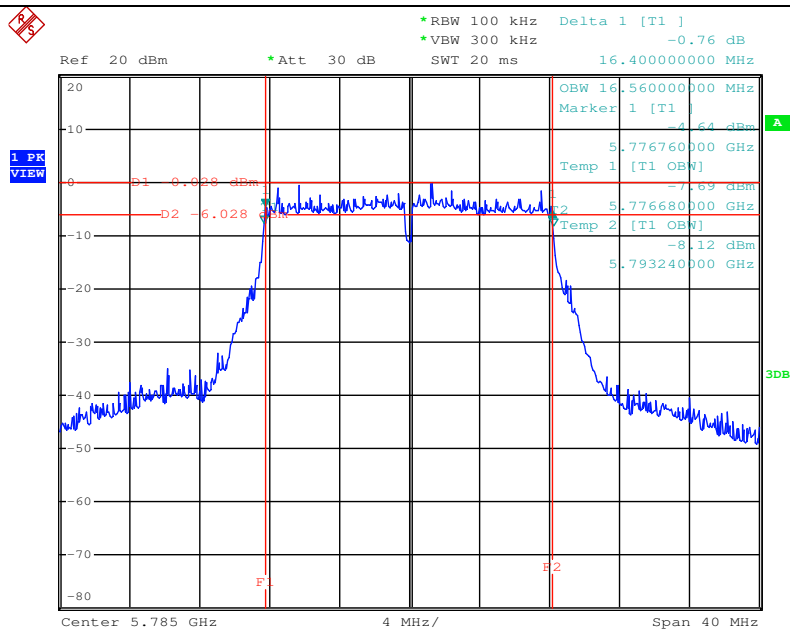


6 dB Bandwidth Plot on Configuration IEEE 802.11a / CDD 6Mbps / Chain 4 / 5785 MHz



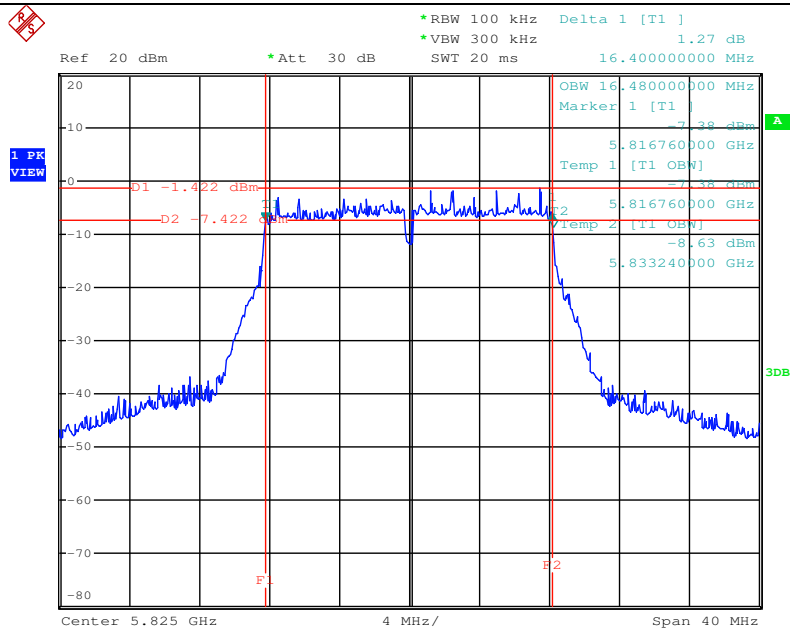
Date: 4.NOV.2014 19:43:58

6 dB Bandwidth Plot on Configuration IEEE 802.11a / CDD 6Mbps / Chain 5 / 5785 MHz



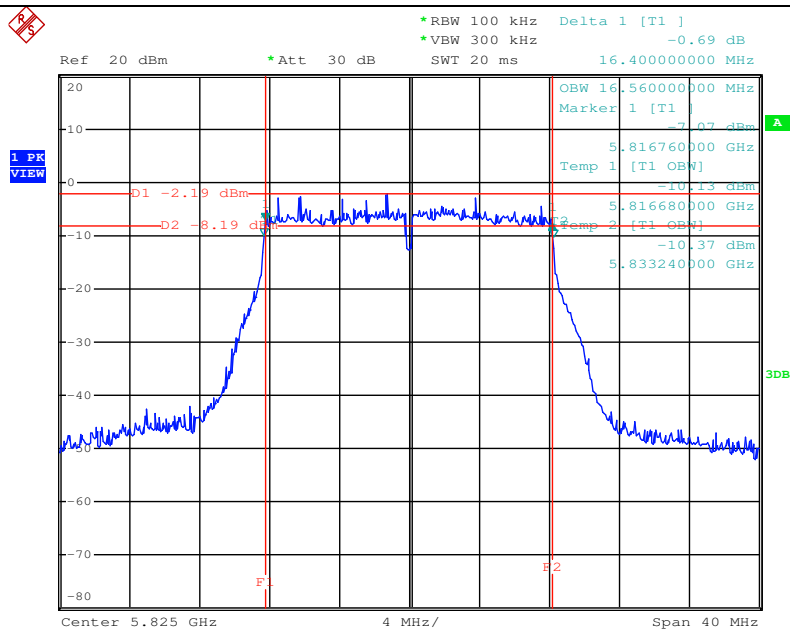
Date: 4.NOV.2014 19:43:26

6 dB Bandwidth Plot on Configuration IEEE 802.11a / CDD 6Mbps / Chain 3 / 5825 MHz



Date: 4.NOV.2014 19:45:13

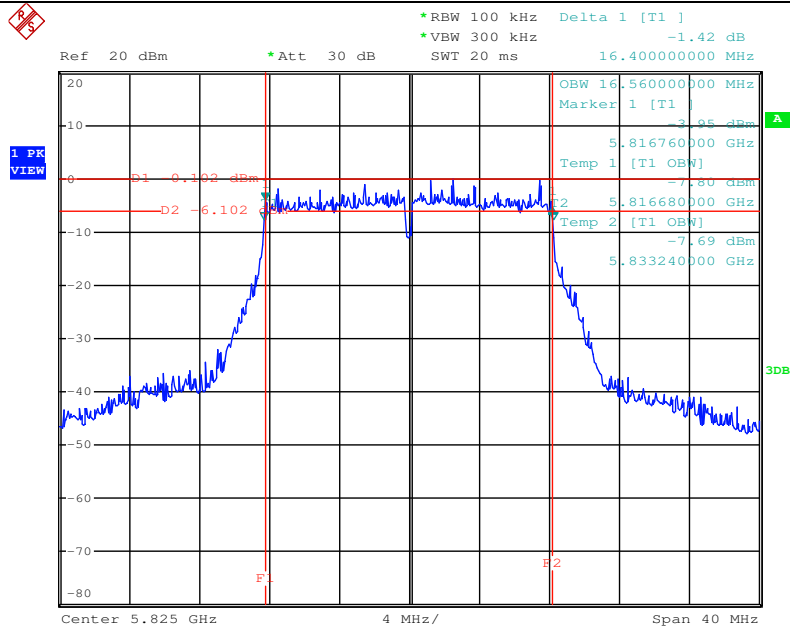
6 dB Bandwidth Plot on Configuration IEEE 802.11a / CDD 6Mbps / Chain 4 / 5825 MHz



Date: 4.NOV.2014 19:45:49



6 dB Bandwidth Plot on Configuration IEEE 802.11a / CDD 6Mbps / Chain 5 / 5825 MHz



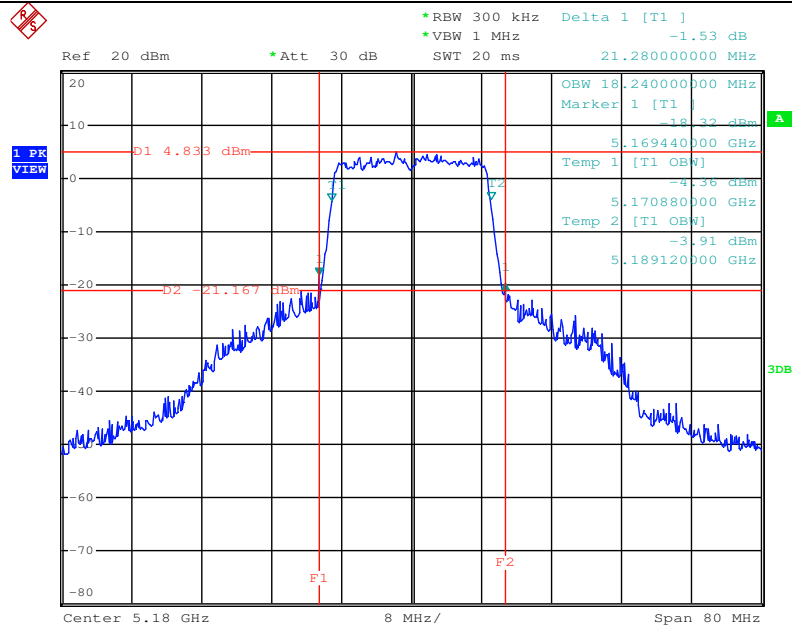
Date: 4.NOV.2014 19:46:22

**Configuration IEEE 802.11ac VHT20 / CDD MCS0Nss1 / Chain 3 + Chain 4 + Chain 5**

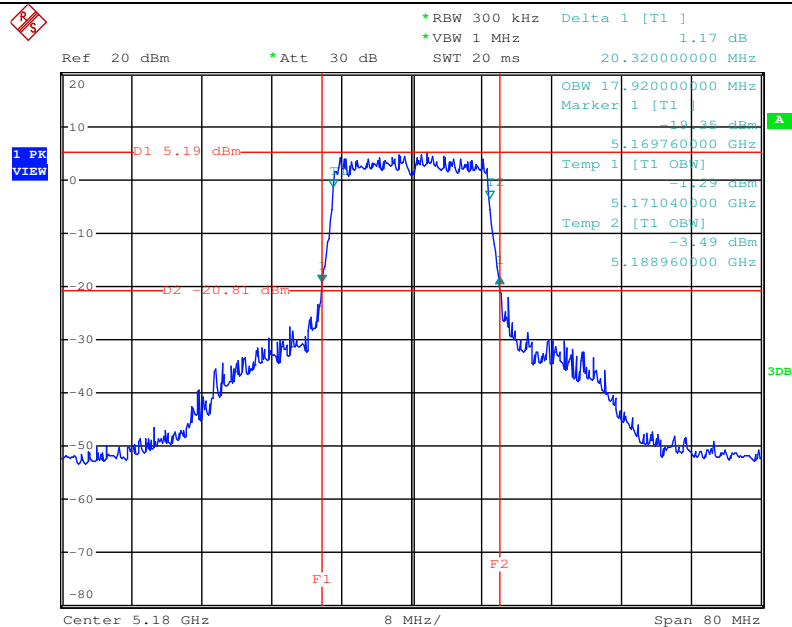
Channel	Frequency	26dB Bandwidth (MHz)			99% Occupied Bandwidth(MHz)		
		Chain 3	Chain 4	Chain 5	Chain 3	Chain 4	Chain 5
36	5180	21.28	20.32	21.44	18.24	17.92	17.92
44	5220	21.76	20.64	20.64	18.24	17.92	17.92
48	5240	24.00	20.48	21.60	18.24	17.92	17.92
149	5745	20.48	20.48	20.80	17.92	17.76	17.92
157	5785	20.48	20.32	20.48	17.92	17.92	17.92
165	5825	20.48	20.16	20.48	17.92	17.92	17.92

Configuration IEEE 802.11ac VHT20 / CDD MCS0Nss1 / Chain 3 + Chain 4 + Chain 5

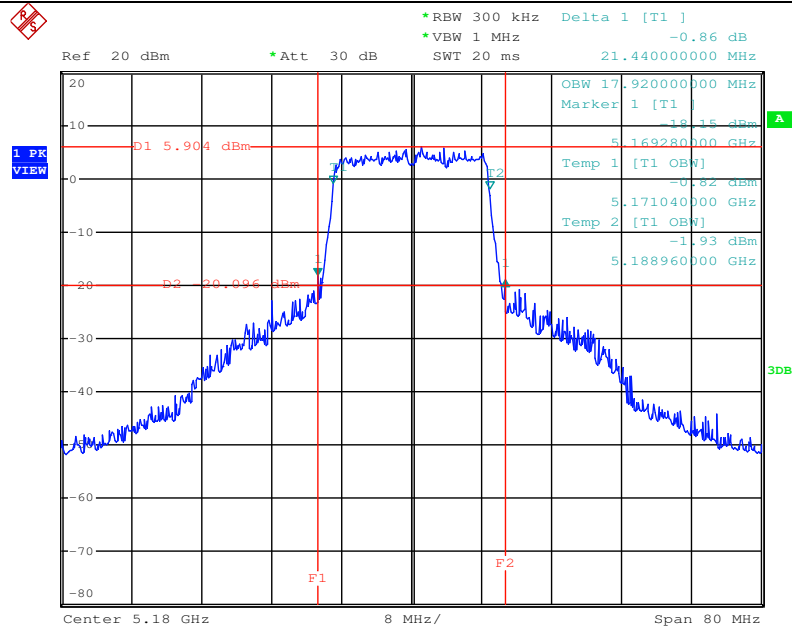
Channel	Frequency	6dB Bandwidth (MHz)			Min. Limit (kHz)	Test Result
		Chain 3	Chain 4	Chain 5		
149	5745	17.68	17.68	17.60	500	Complies
157	5785	17.68	17.68	17.60	500	Complies
165	5825	17.60	17.60	17.60	500	Complies

**26 dB Bandwidth & 99% bandwidth Plot on Configuration IEEE 802.11ac VHT20 / CDD MCS0Nss1 / Chain 3 / 5180 MHz**

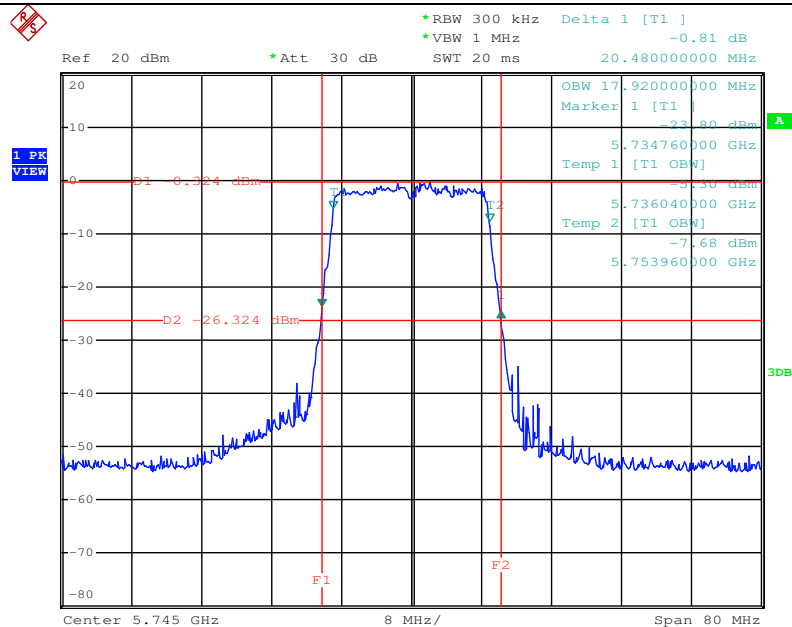
Date: 4.NOV.2014 20:45:22

26 dB Bandwidth & 99% bandwidth Plot on Configuration IEEE 802.11ac VHT20 / CDD MCS0Nss1 / Chain 4 / 5180 MHz

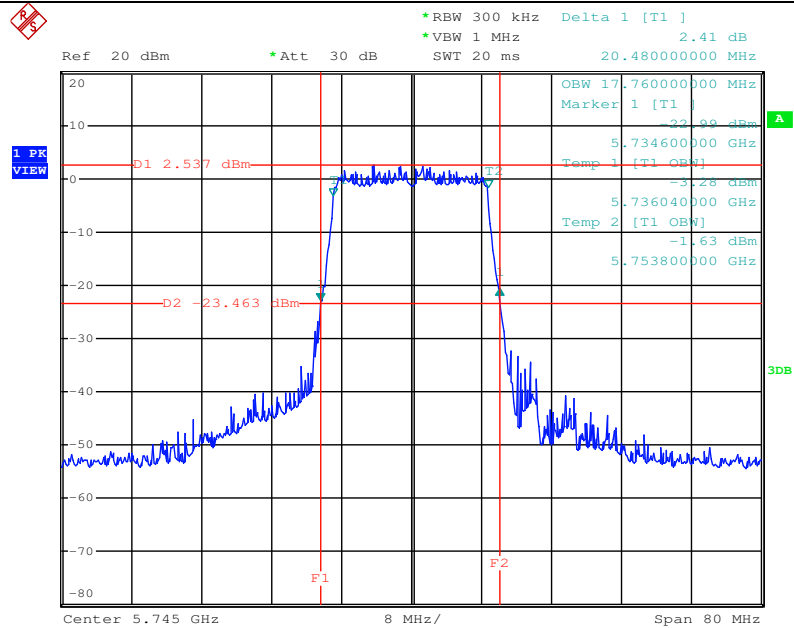
Date: 4.NOV.2014 20:44:50

**26 dB Bandwidth & 99% bandwidth Plot on Configuration IEEE 802.11ac VHT20 / CDD MCS0Nss1 / Chain 5 / 5180 MHz**

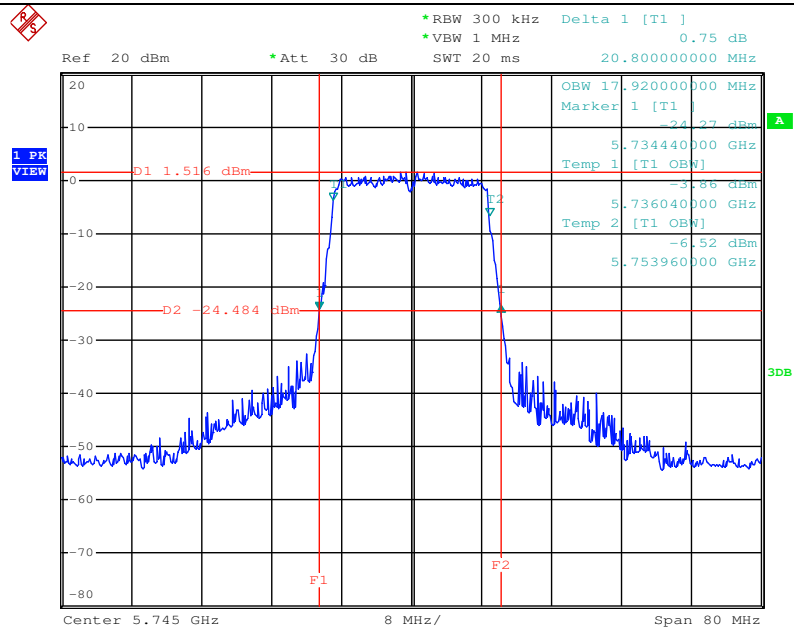
Date: 4.NOV.2014 20:44:16

26 dB Bandwidth & 99% bandwidth Plot on Configuration IEEE 802.11ac VHT20 / CDD MCS0Nss1 / Chain 3 / 5745 MHz

Date: 3.FEB.2015 20:40:48

**26 dB Bandwidth & 99% bandwidth Plot on Configuration IEEE 802.11ac VHT20 / CDD MCS0Nss1 / Chain 4 / 5745 MHz**

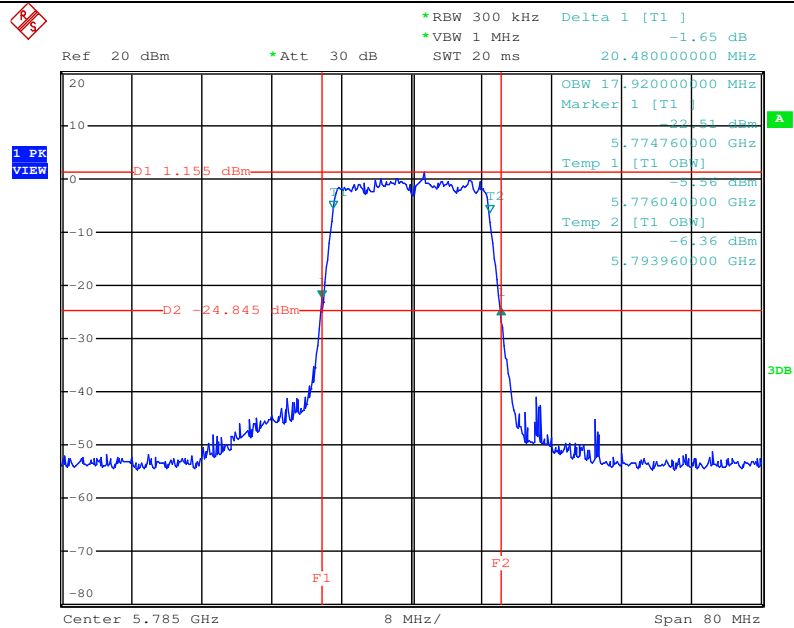
Date: 3.FEB.2015 20:39:51

26 dB Bandwidth & 99% bandwidth Plot on Configuration IEEE 802.11ac VHT20 / CDD MCS0Nss1 / Chain 5 / 5745 MHz

Date: 3.FEB.2015 20:38:41

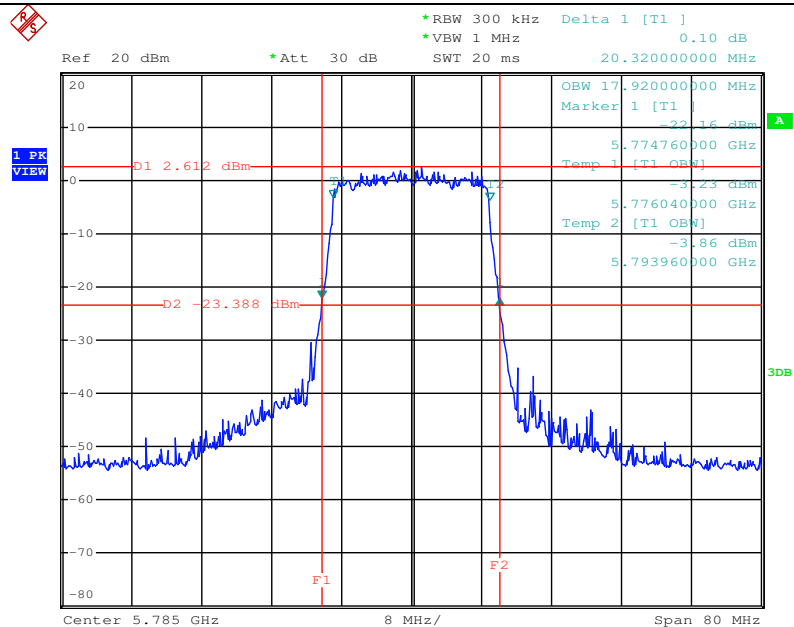


26 dB Bandwidth & 99% bandwidth Plot on Configuration IEEE 802.11ac VHT20 / CDD MCS0Nss1 / Chain 3 / 5785 MHz

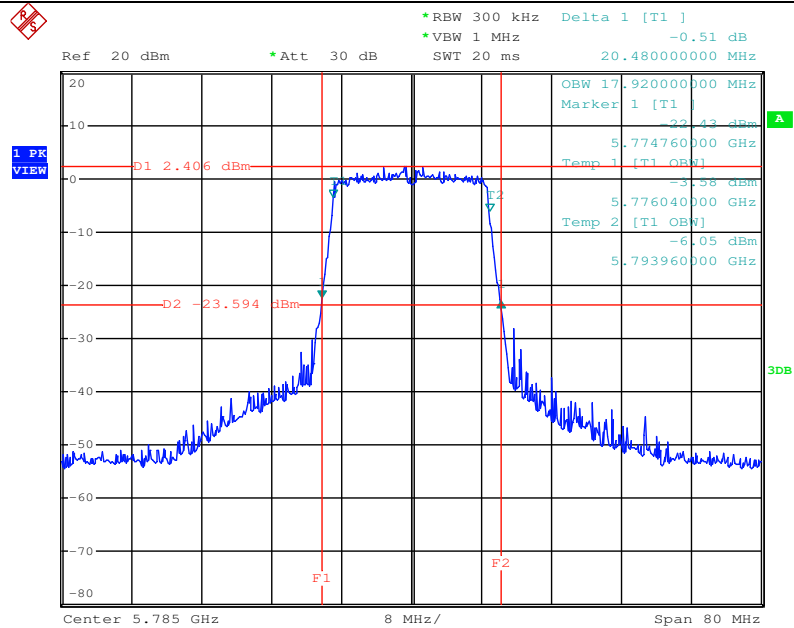


Date: 3.FEB.2015 20:44:21

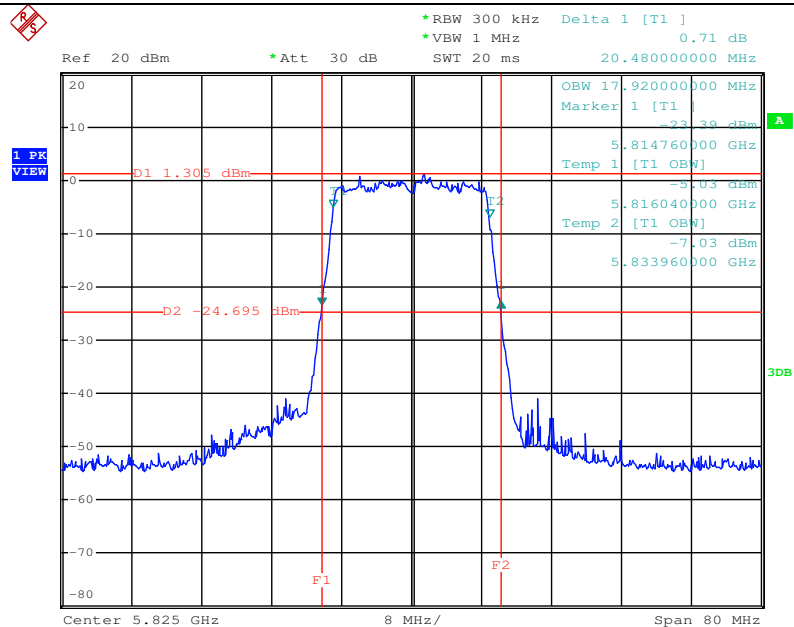
26 dB Bandwidth & 99% bandwidth Plot on Configuration IEEE 802.11ac VHT20 / CDD MCS0Nss1 / Chain 4 / 5785 MHz



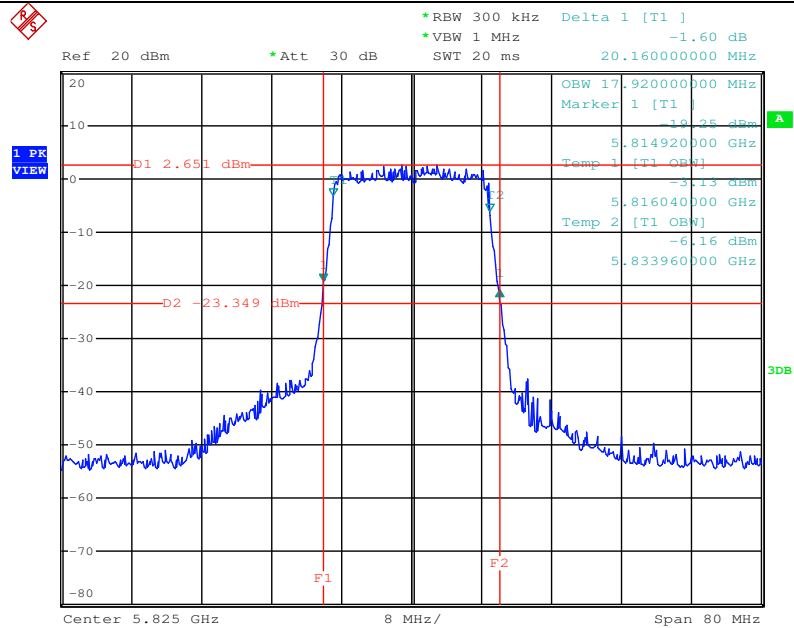
Date: 3.FEB.2015 20:45:11

**26 dB Bandwidth & 99% bandwidth Plot on Configuration IEEE 802.11ac VHT20 / CDD MCS0Nss1 / Chain 5 / 5785 MHz**

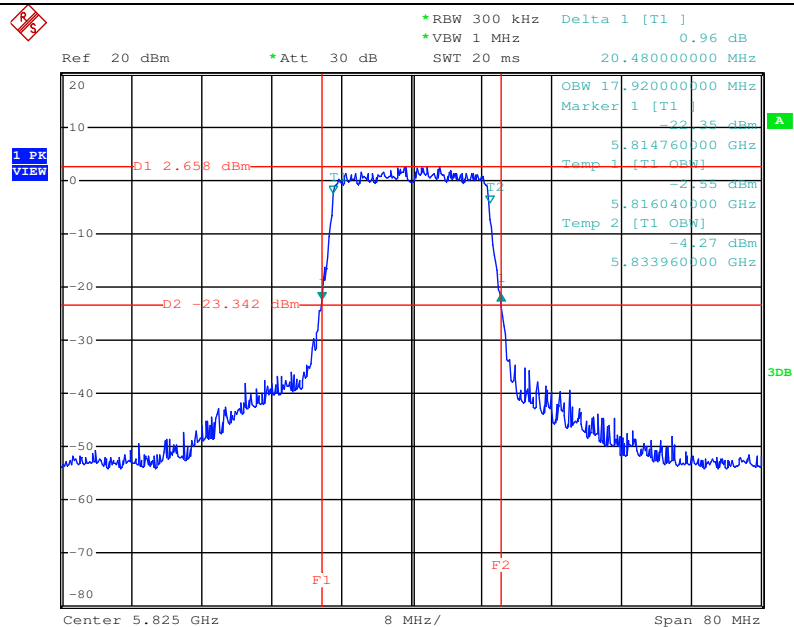
Date: 3.FEB.2015 20:46:16

26 dB Bandwidth & 99% bandwidth Plot on Configuration IEEE 802.11ac VHT20 / CDD MCS0Nss1 / Chain 3 / 5825 MHz

Date: 3.FEB.2015 20:50:04

**26 dB Bandwidth & 99% bandwidth Plot on Configuration IEEE 802.11ac VHT20 / CDD MCS0Nss1 / Chain 4 / 5825 MHz**

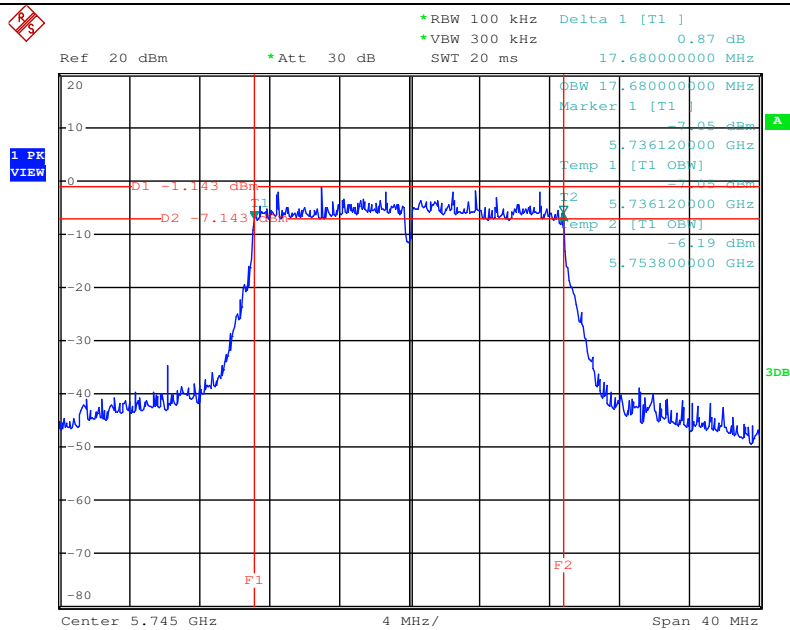
Date: 3.FEB.2015 20:48:52

26 dB Bandwidth & 99% bandwidth Plot on Configuration IEEE 802.11ac VHT20 / CDD MCS0Nss1 / Chain 5 / 5825 MHz

Date: 3.FEB.2015 20:47:25

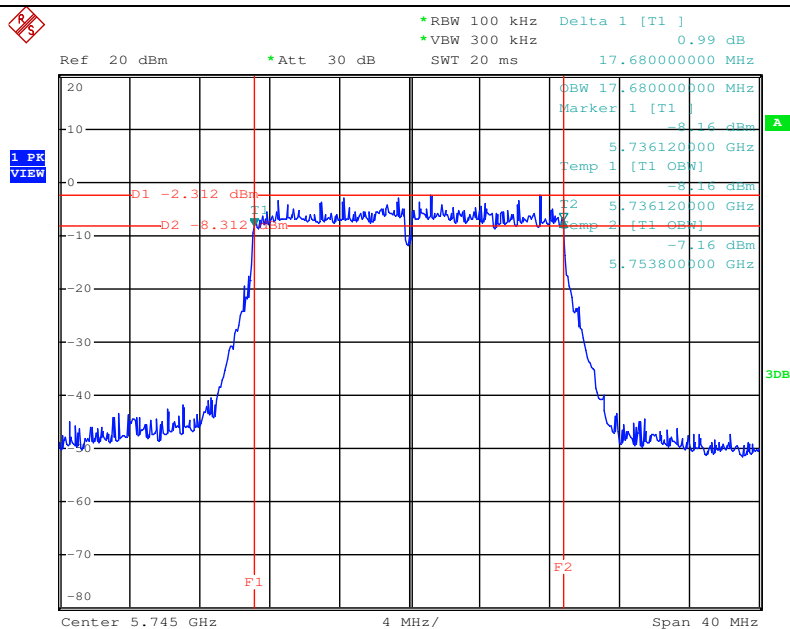


6 dB Bandwidth Plot on Configuration IEEE 802.11ac VHT20 / CDD MCS0Nss1 / Chain 3 / 5745 MHz



Date: 4.NOV.2014 19:52:13

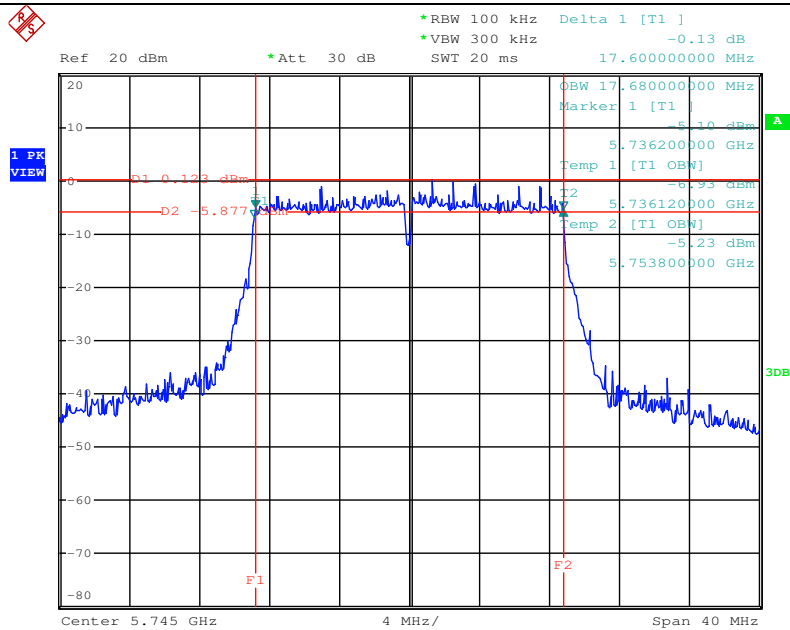
6 dB Bandwidth Plot on Configuration IEEE 802.11ac VHT20 / CDD MCS0Nss1 / Chain 4 / 5745 MHz



Date: 4.NOV.2014 19:51:39

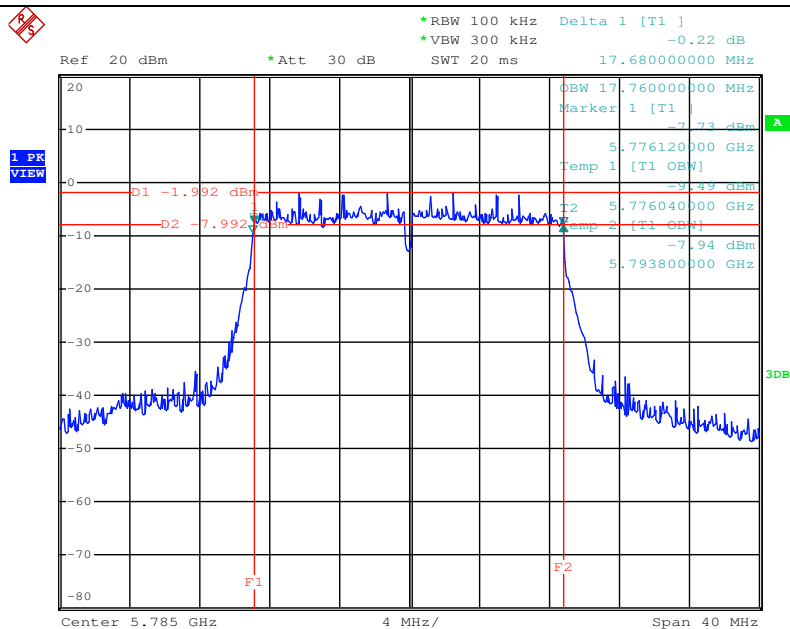


6 dB Bandwidth Plot on Configuration IEEE 802.11ac VHT20 / CDD MCS0Nss1 / Chain 5 / 5745 MHz



Date: 4.NOV.2014 19:51:07

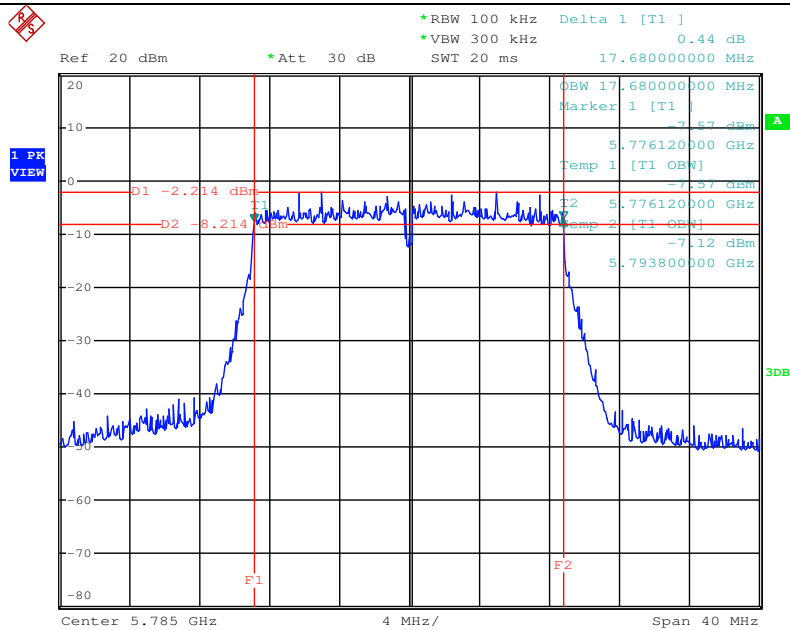
6 dB Bandwidth Plot on Configuration IEEE 802.11ac VHT20 / CDD MCS0Nss1 / Chain 3 / 5785 MHz



Date: 4.NOV.2014 19:49:22

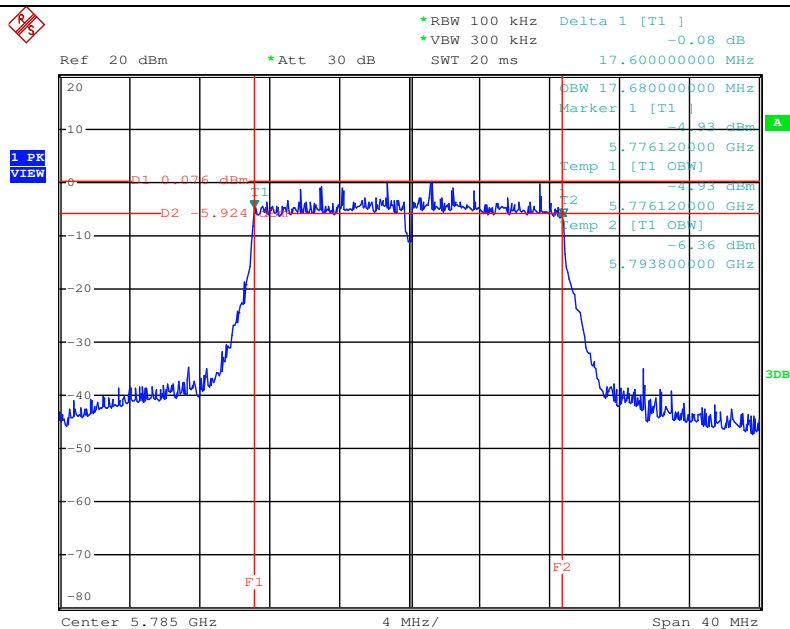


6 dB Bandwidth Plot on Configuration IEEE 802.11ac VHT20 / CDD MCS0Nss1 / Chain 4 / 5785 MHz



Date: 4.NOV.2014 19:49:55

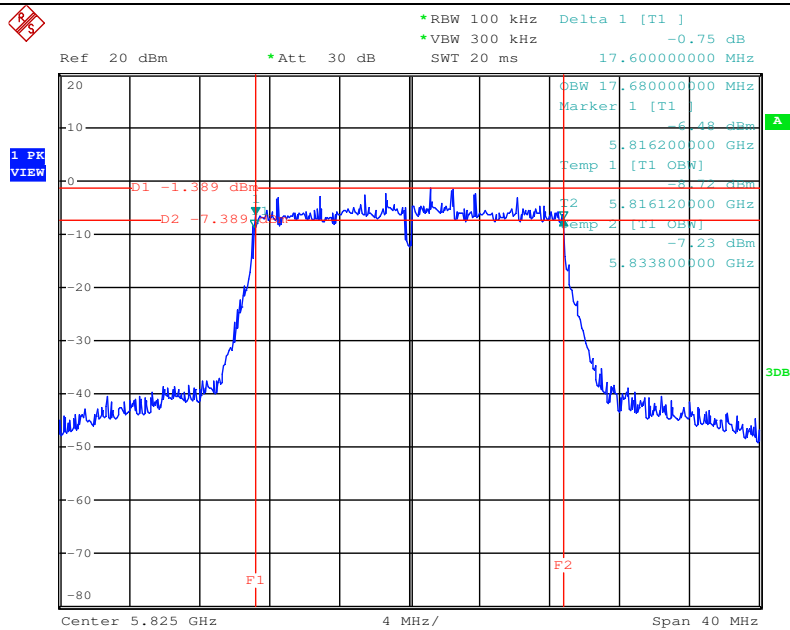
6 dB Bandwidth Plot on Configuration IEEE 802.11ac VHT20 / CDD MCS0Nss1 / Chain 5 / 5785 MHz



Date: 4.NOV.2014 19:50:34

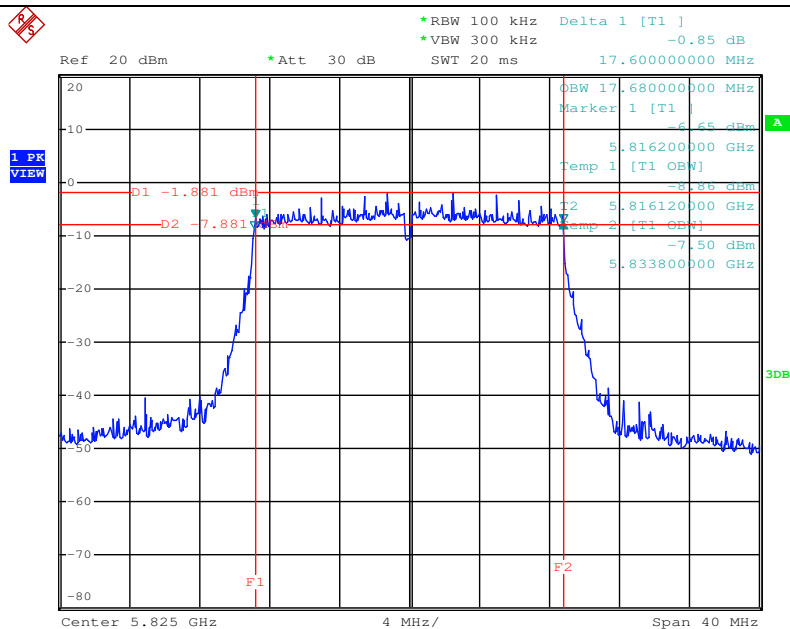


6 dB Bandwidth Plot on Configuration IEEE 802.11ac VHT20 / CDD MCS0Nss1 / Chain 3 / 5825 MHz



Date: 4.NOV.2014 19:48:46

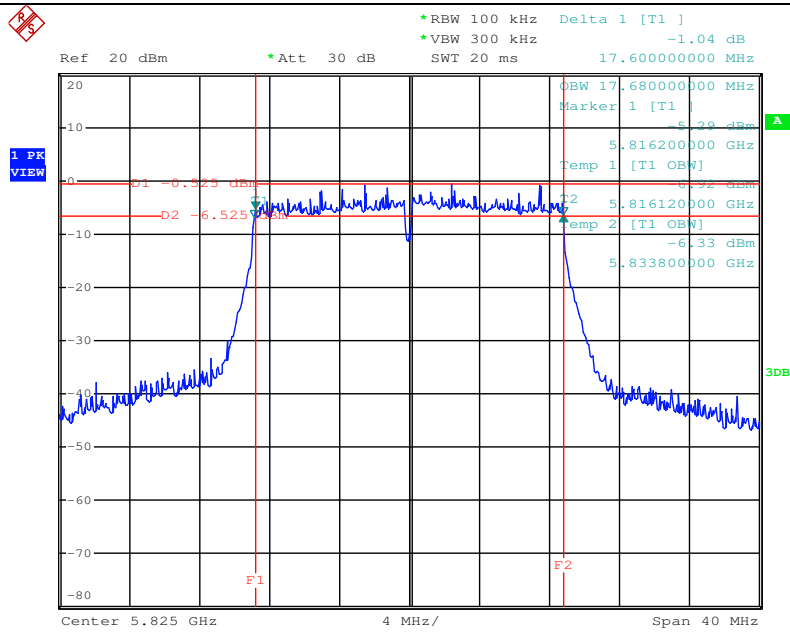
6 dB Bandwidth Plot on Configuration IEEE 802.11ac VHT20 / CDD MCS0Nss1 / Chain 4 / 5825 MHz



Date: 4.NOV.2014 19:48:09



6 dB Bandwidth Plot on Configuration IEEE 802.11ac VHT20 / CDD MCS0Nss1 / Chain 5 / 5825 MHz



Date: 4.NOV.2014 19:47:32

**Configuration IEEE 802.11ac VHT40 / CDD MCS0Nss1 / Chain 3 + Chain 4 + Chain 5**

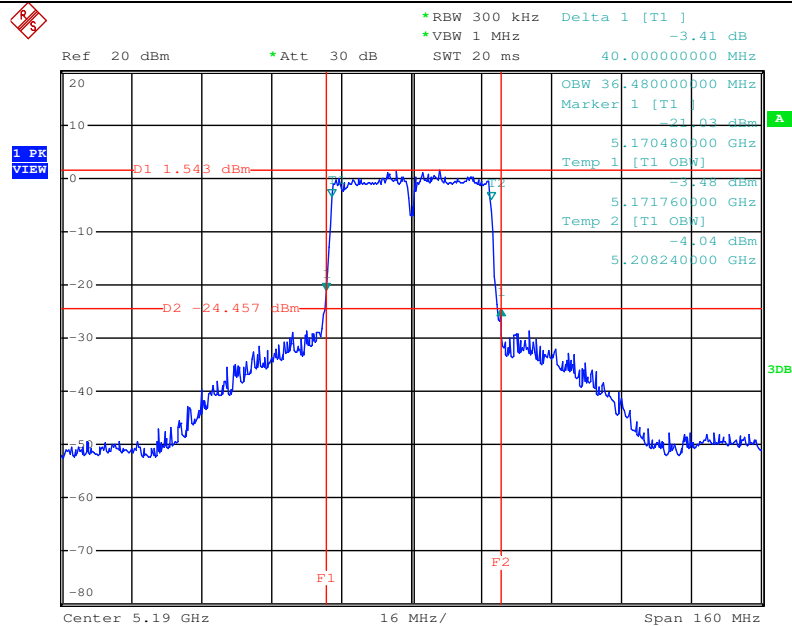
Channel	Frequency	26dB Bandwidth (MHz)			99% Occupied Bandwidth(MHz)		
		Chain 3	Chain 4	Chain 5	Chain 3	Chain 4	Chain 5
38	5190	40.00	39.04	39.04	36.48	36.48	36.48
46	5230	39.68	39.04	39.04	36.48	36.48	36.48
151	5755	39.04	39.04	39.04	36.48	36.48	36.48
159	5795	39.68	39.04	39.04	36.48	36.48	36.48

Configuration IEEE 802.11ac VHT40 / CDD MCS0Nss1 / Chain 3 + Chain 4 + Chain 5

Channel	Frequency	6dB Bandwidth (MHz)			Min. Limit (kHz)	Test Result
		Chain 3	Chain 4	Chain 5		
151	5755	36.16	36.48	36.16	500	Complies
159	5795	36.32	36.32	36.32	500	Complies

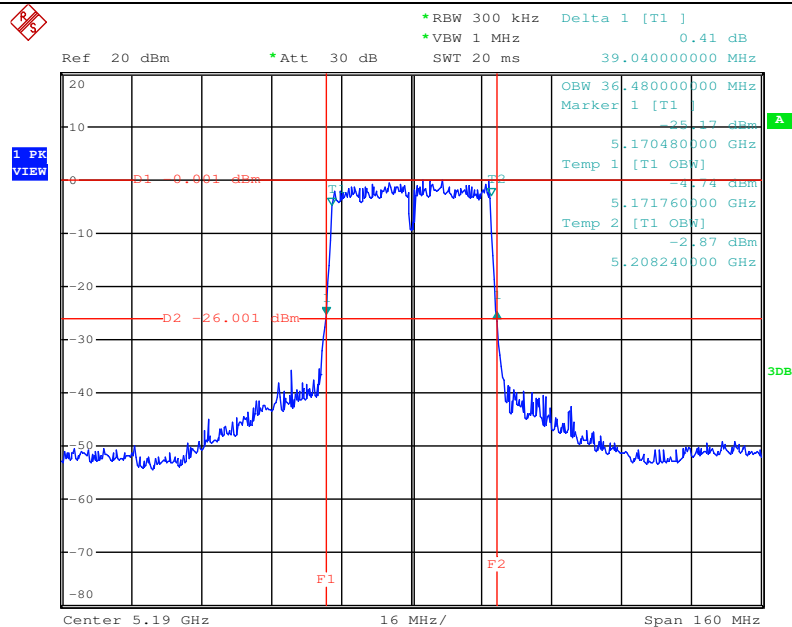


26 dB Bandwidth & 99% bandwidth Plot on Configuration IEEE 802.11ac VHT40 / CDD MCS0Nss1 / Chain 3 / 5190 MHz

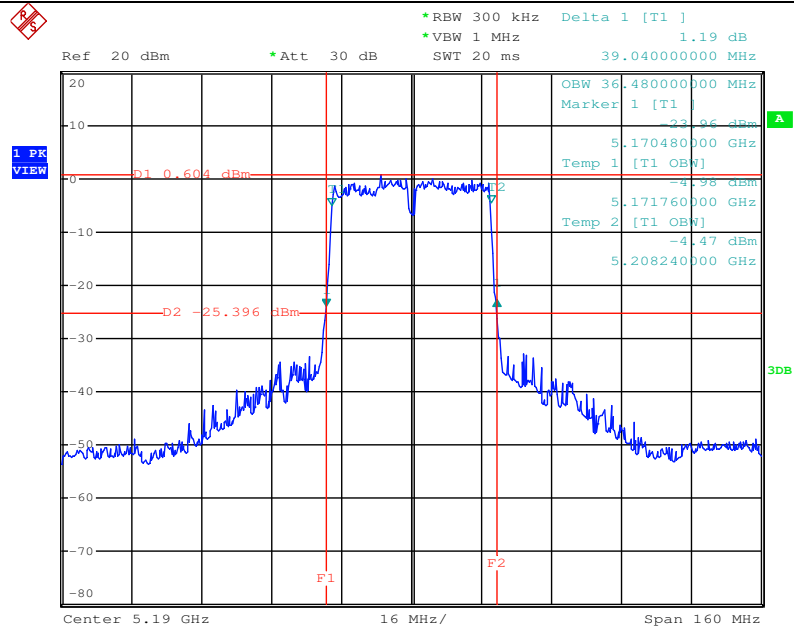


Date: 4.NOV.2014 21:01:08

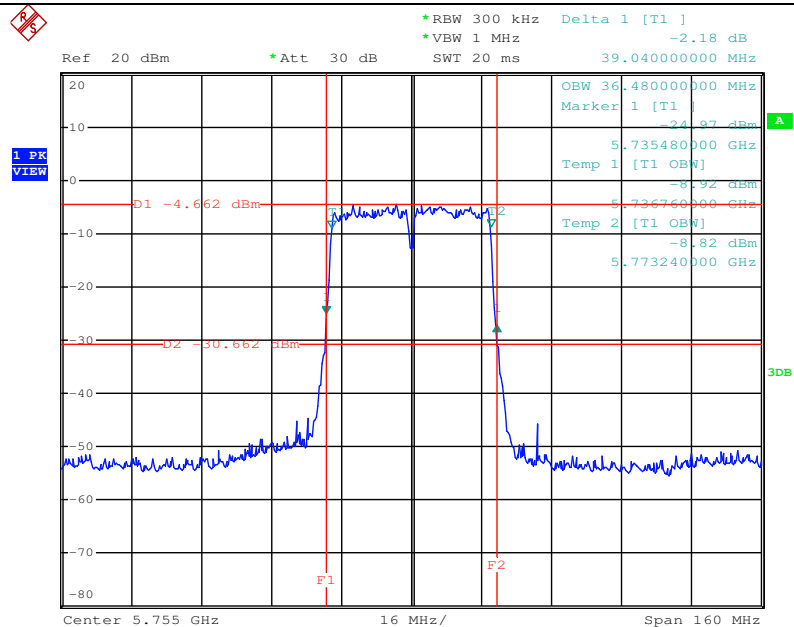
26 dB Bandwidth & 99% bandwidth Plot on Configuration IEEE 802.11ac VHT40 / CDD MCS0Nss1 / Chain 4 / 5190 MHz



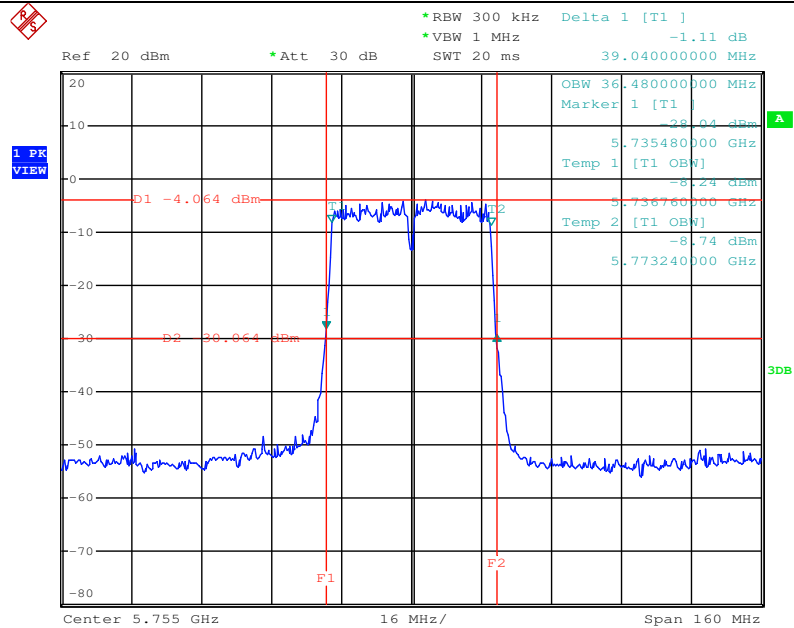
Date: 4.NOV.2014 21:01:43

**26 dB Bandwidth & 99% bandwidth Plot on Configuration IEEE 802.11ac VHT40 / CDD MCS0Nss1 / Chain 5 / 5190 MHz**

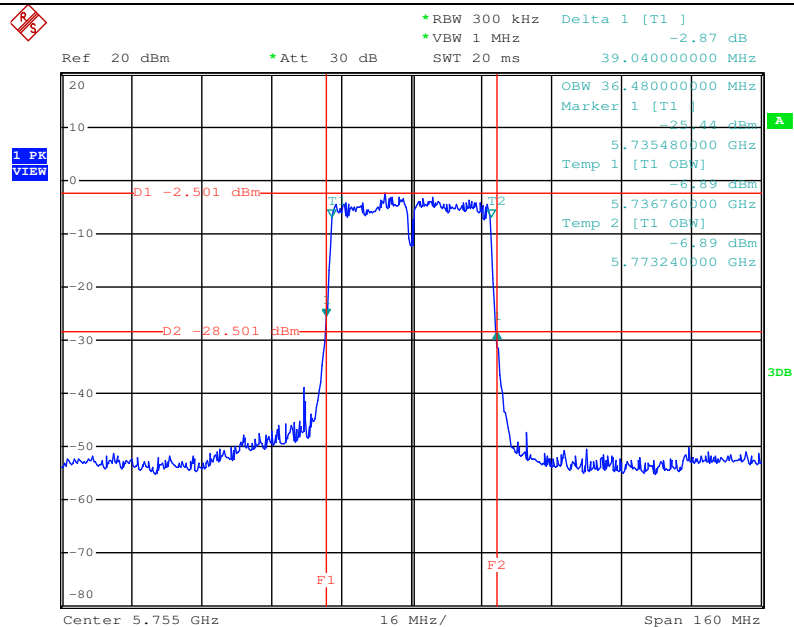
Date: 4.NOV.2014 21:02:15

26 dB Bandwidth & 99% bandwidth Plot on Configuration IEEE 802.11ac VHT40 / CDD MCS0Nss1 / Chain 3 / 5755 MHz

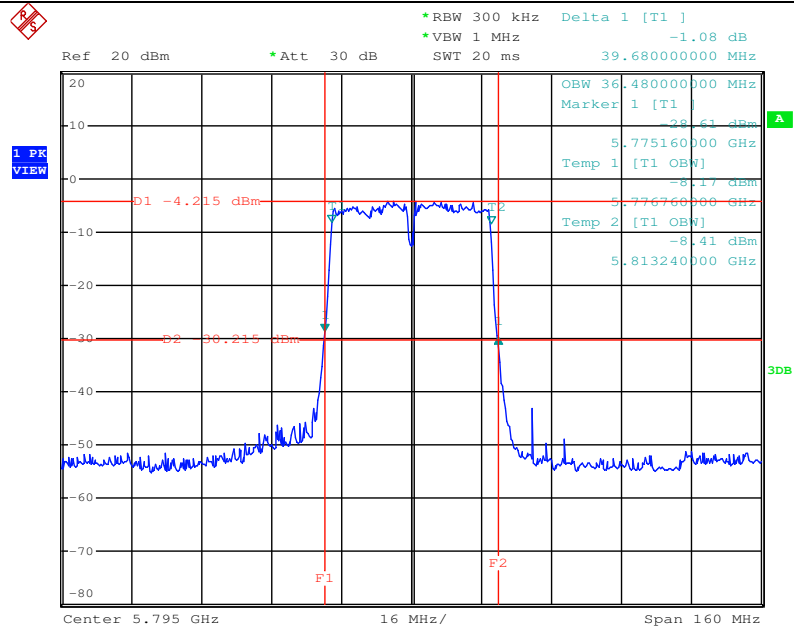
Date: 3.FEB.2015 20:53:31

**26 dB Bandwidth & 99% bandwidth Plot on Configuration IEEE 802.11ac VHT40 / CDD MCS0Nss1 / Chain 4 / 5755 MHz**

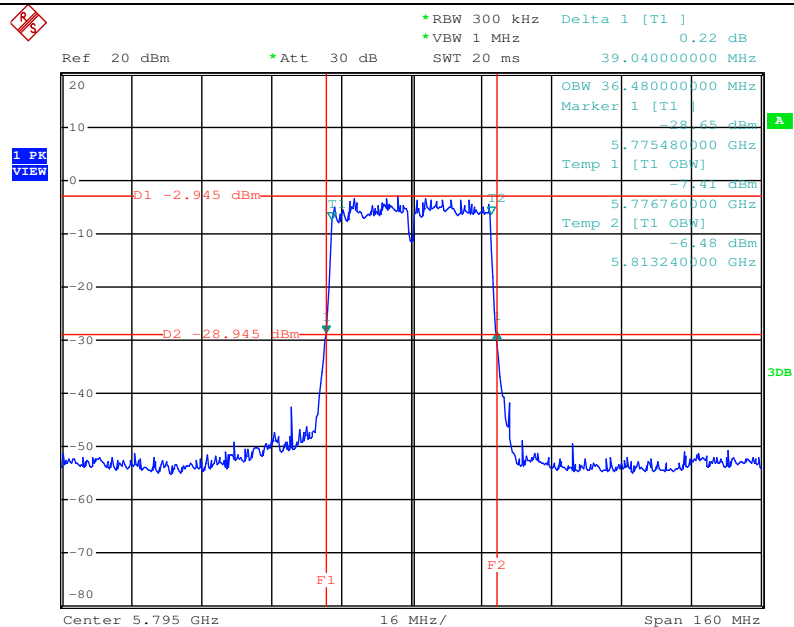
Date: 3.FEB.2015 20:54:42

26 dB Bandwidth & 99% bandwidth Plot on Configuration IEEE 802.11ac VHT40 / CDD MCS0Nss1 / Chain 5 / 5755 MHz

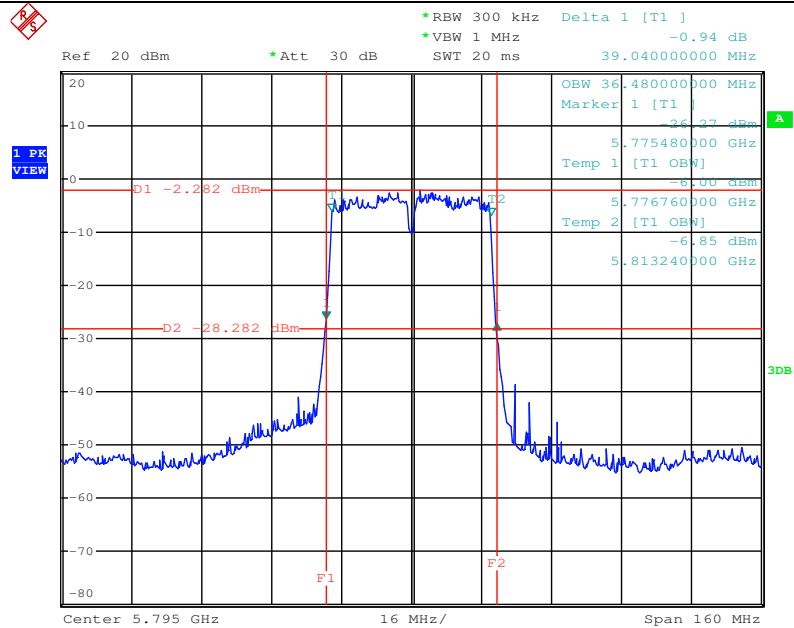
Date: 3.FEB.2015 20:55:40

**26 dB Bandwidth & 99% bandwidth Plot on Configuration IEEE 802.11ac VHT40 / CDD MCS0Nss1 / Chain 3 / 5795 MHz**

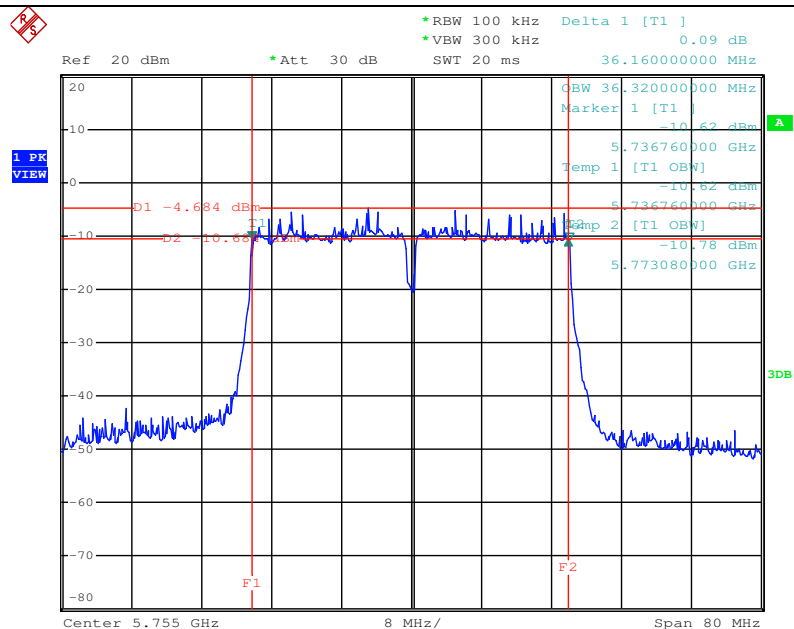
Date: 3.FEB.2015 20:59:13

26 dB Bandwidth & 99% bandwidth Plot on Configuration IEEE 802.11ac VHT40 / CDD MCS0Nss1 / Chain 4 / 5795 MHz

Date: 3.FEB.2015 20:58:08

**26 dB Bandwidth & 99% bandwidth Plot on Configuration IEEE 802.11ac VHT40 / CDD MCS0Nss1 / Chain 5 / 5795 MHz**

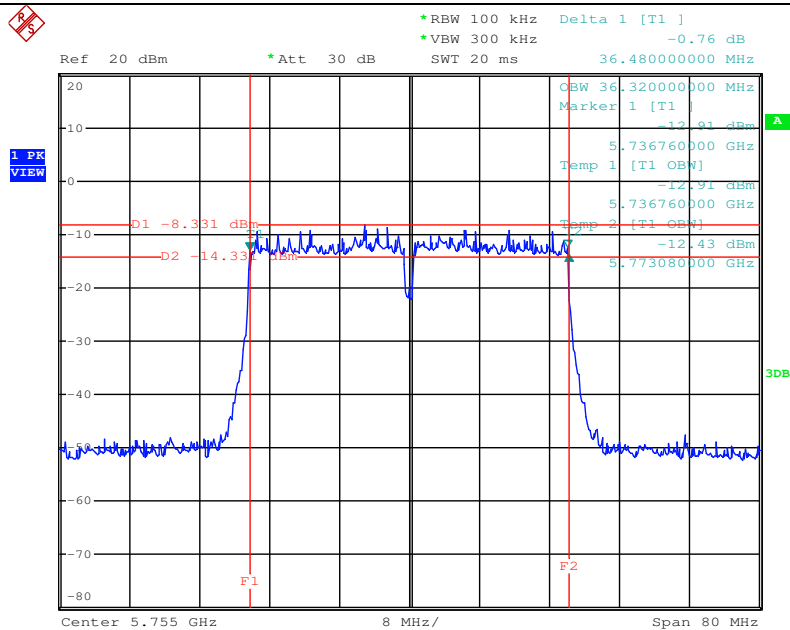
Date: 3.FEB.2015 20:56:25

6 dB Bandwidth Plot on Configuration IEEE 802.11ac VHT40 / CDD MCS0Nss1 / Chain 3 / 5755 MHz

Date: 4.NOV.2014 19:53:07

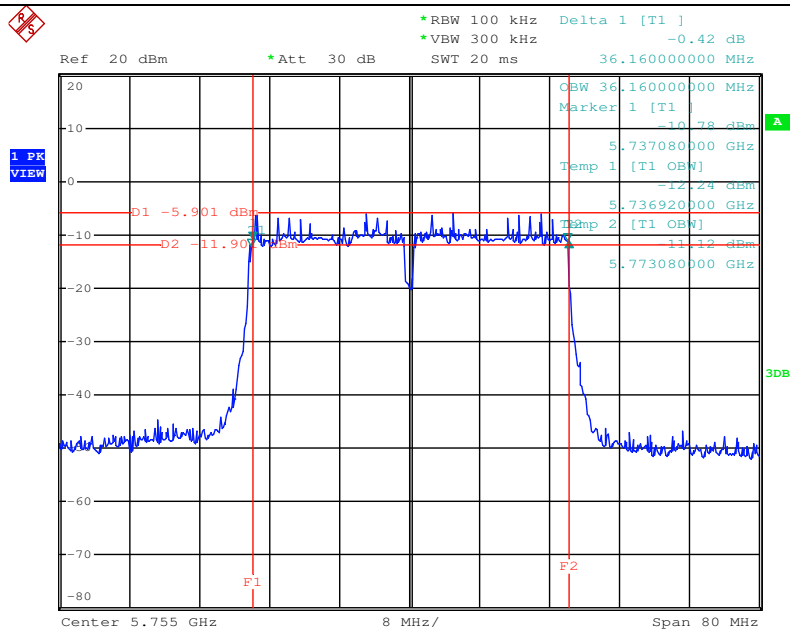


6 dB Bandwidth Plot on Configuration IEEE 802.11ac VHT40 / CDD MCS0Nss1 / Chain 4 / 5755 MHz



Date: 4.NOV.2014 19:53:47

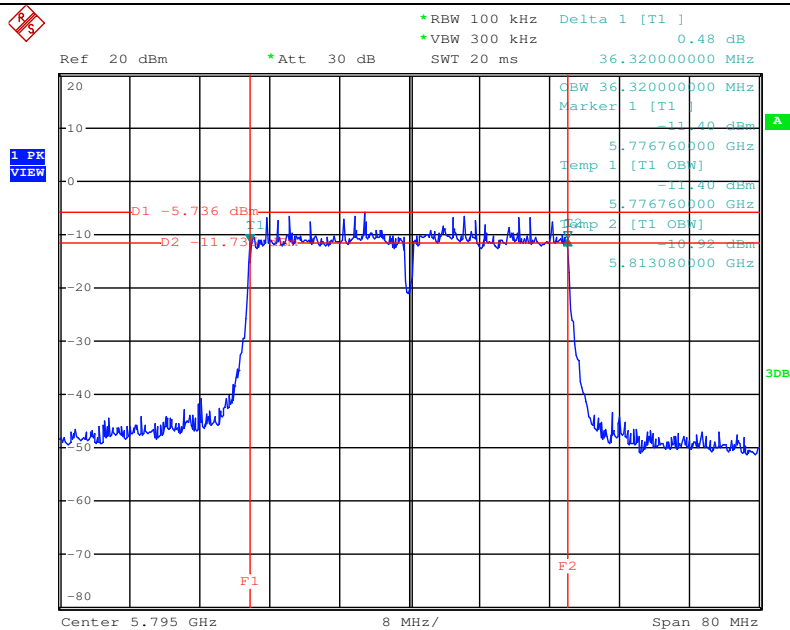
6 dB Bandwidth Plot on Configuration IEEE 802.11ac VHT40 / CDD MCS0Nss1 / Chain 5 / 5755 MHz



Date: 4.NOV.2014 19:54:22

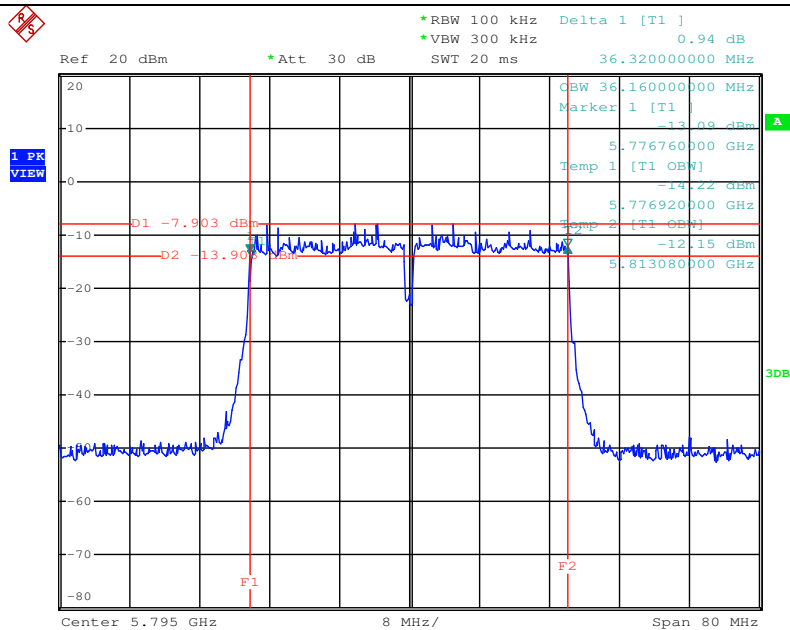


6 dB Bandwidth Plot on Configuration IEEE 802.11ac VHT40 / CDD MCS0Nss1 / Chain 3 / 5795 MHz



Date: 4.NOV.2014 19:56:18

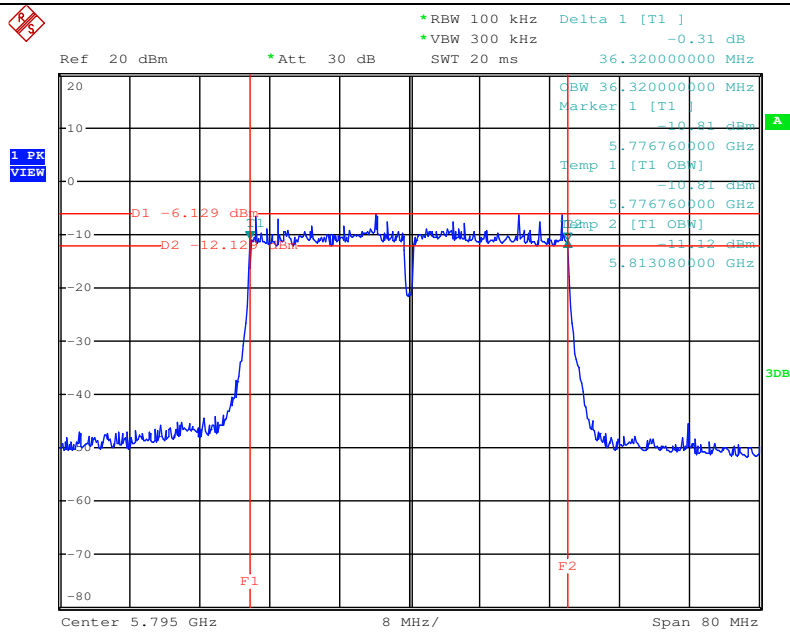
6 dB Bandwidth Plot on Configuration IEEE 802.11ac VHT40 / CDD MCS0Nss1 / Chain 4 / 5795 MHz



Date: 4.NOV.2014 19:55:38



6 dB Bandwidth Plot on Configuration IEEE 802.11ac VHT40 / CDD MCS0Nss1 / Chain 5 / 5795 MHz



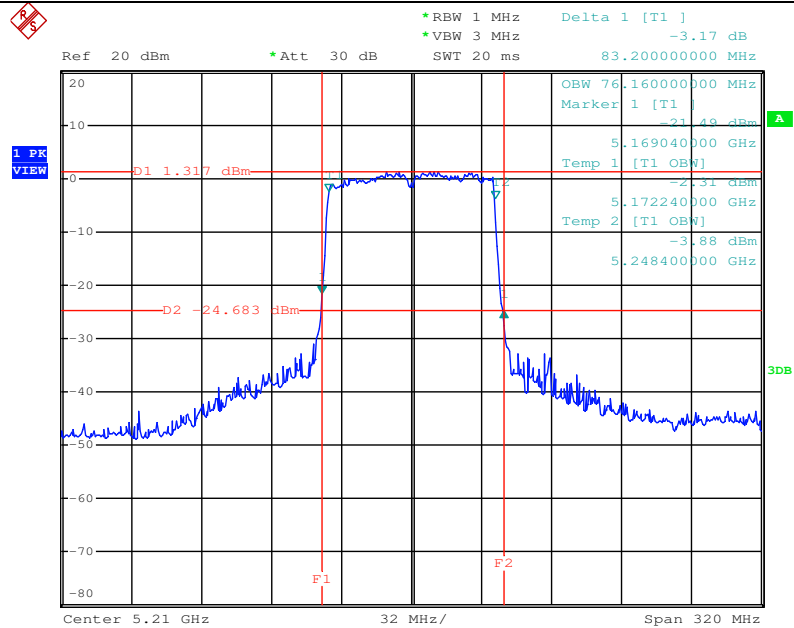
Date: 4.NOV.2014 19:54:57

**Configuration IEEE 802.11ac VHT80 / CDD MCS0Nss1 / Chain 3 + Chain 4 + Chain 5**

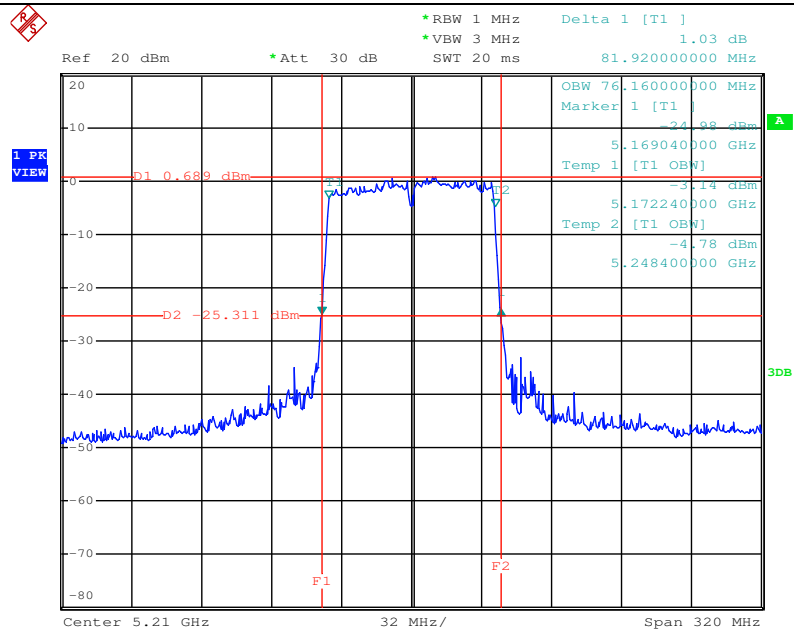
Channel	Frequency	26dB Bandwidth (MHz)			99% Occupied Bandwidth(MHz)		
		Chain 3	Chain 4	Chain 5	Chain 3	Chain 4	Chain 5
42	5210	83.20	81.92	82.56	76.16	76.16	76.16
155	5775	83.20	81.92	82.56	76.80	76.16	76.16

Configuration IEEE 802.11ac VHT80 / CDD MCS0Nss1 / Chain 3 + Chain 4 + Chain 5

Channel	Frequency	6dB Bandwidth (MHz)			Min. Limit (kHz)	Test Result
		Chain 3	Chain 4	Chain 5		
155	5775	75.84	75.84	74.24	500	Complies

**26 dB Bandwidth & 99% bandwidth Plot on Configuration IEEE 802.11ac VHT80 / CDD MCS0Nss1 / Chain 3 / 5210 MHz**

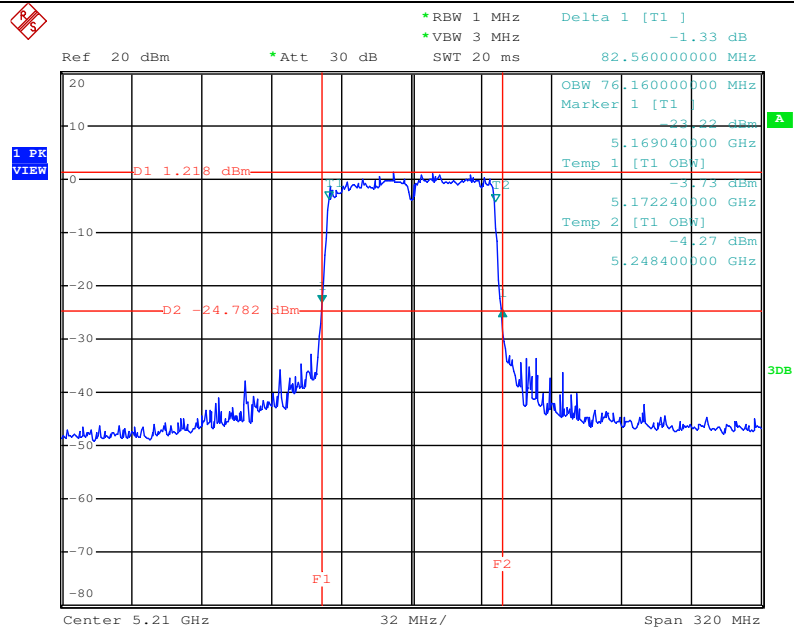
Date: 4.NOV.2014 21:15:22

26 dB Bandwidth & 99% bandwidth Plot on Configuration IEEE 802.11ac VHT80 / CDD MCS0Nss1 / Chain 4 / 5210 MHz

Date: 4.NOV.2014 21:14:45



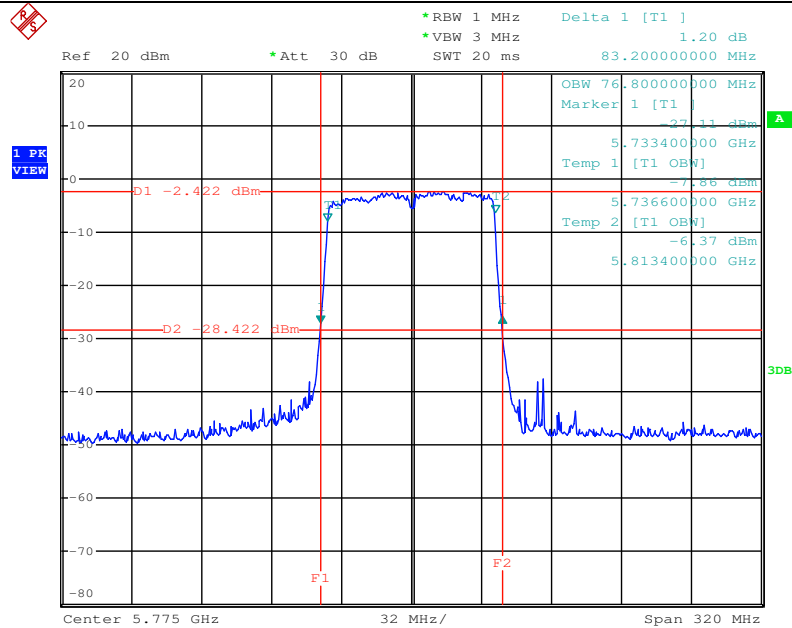
26 dB Bandwidth & 99% bandwidth Plot on Configuration IEEE 802.11ac VHT80 / CDD MCS0Nss1 / Chain 5 / 5210 MHz



Date: 4.NOV.2014 21:14:09

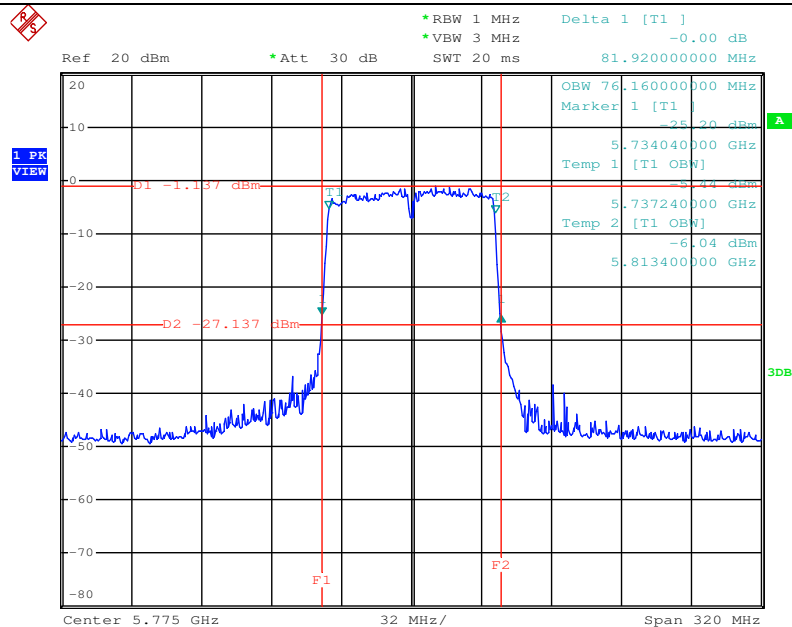


26 dB Bandwidth & 99% bandwidth Plot on Configuration IEEE 802.11ac VHT80 / CDD MCS0Nss1 / Chain 3 / 5775 MHz

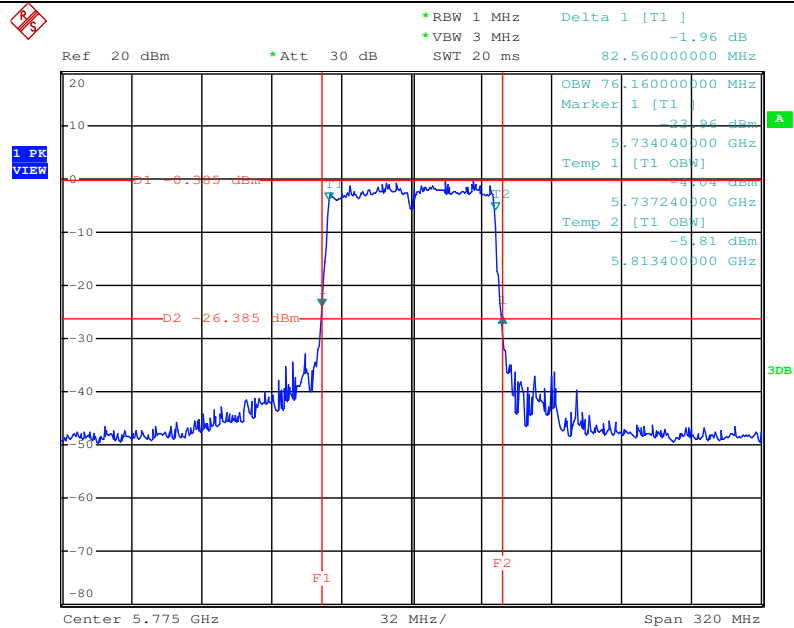


Date: 3.FEB.2015 21:01:32

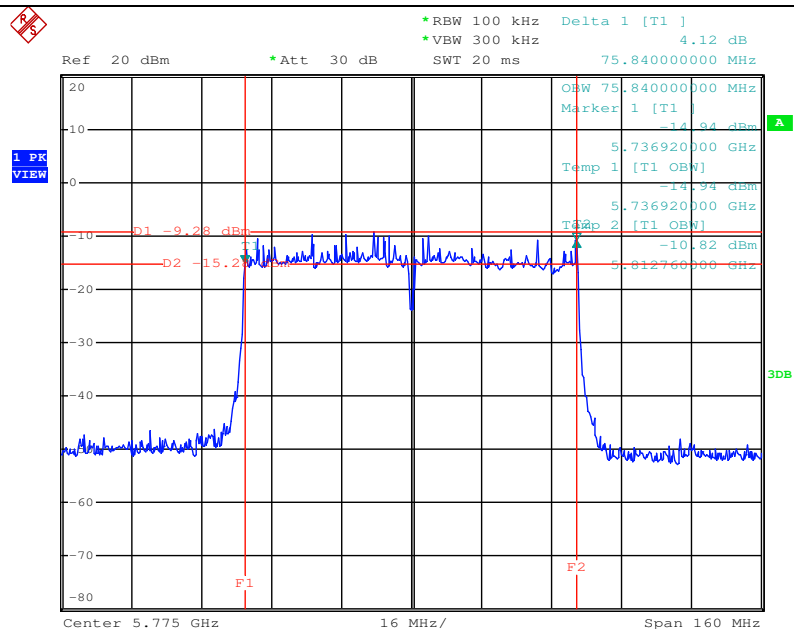
26 dB Bandwidth & 99% bandwidth Plot on Configuration IEEE 802.11ac VHT80 / CDD MCS0Nss1 / Chain 4 / 5775 MHz



Date: 3.FEB.2015 21:02:50

**26 dB Bandwidth & 99% bandwidth Plot on Configuration IEEE 802.11ac VHT80 / CDD MCS0Nss1 / Chain 5 / 5775 MHz**

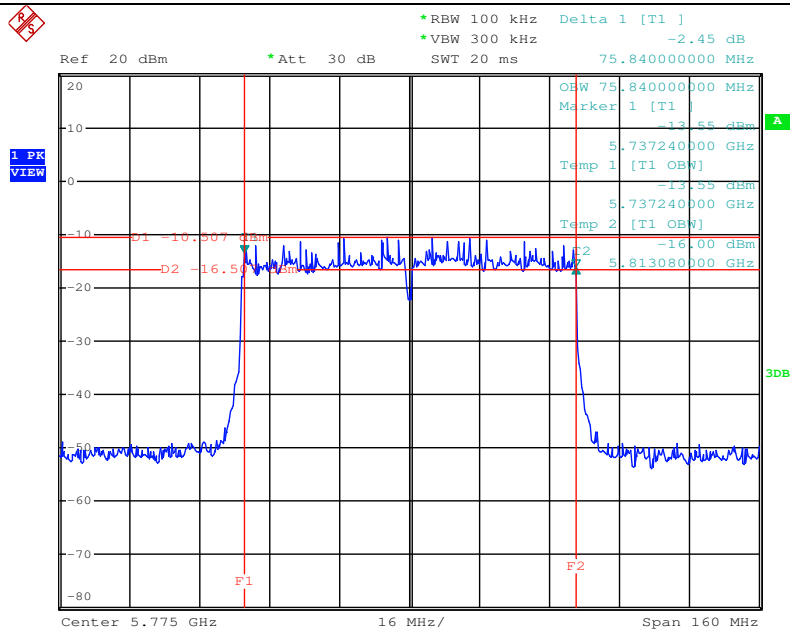
Date: 3.FEB.2015 21:03:46

6 dB Bandwidth Plot on Configuration IEEE 802.11ac VHT80 / CDD MCS0Nss1 / Chain 3 / 5775 MHz

Date: 4.NOV.2014 19:57:11

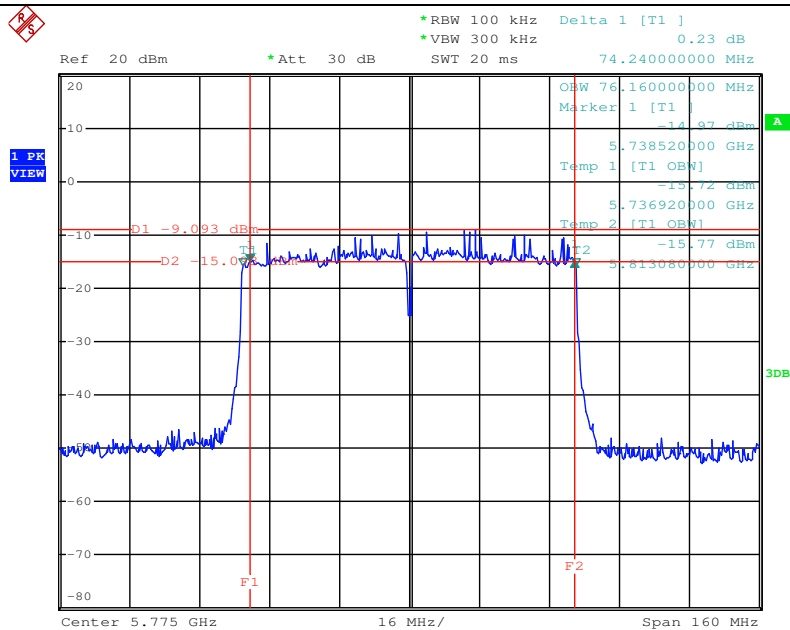


6 dB Bandwidth Plot on Configuration IEEE 802.11ac VHT80 / CDD MCS0Nss1 / Chain 4 / 5775 MHz



Date: 4.NOV.2014 19:57:46

6 dB Bandwidth Plot on Configuration IEEE 802.11ac VHT80 / CDD MCS0Nss1 / Chain 5 / 5775 MHz



Date: 4.NOV.2014 19:59:29

2.5 Radiated Emissions Measurement

2.5.1 Limit

- In case the emission falls within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

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

- Limit of unwanted emission out of the restricted band, according to 15.407(b)

Frequency range (MHz)	EIRP Limit (dBm)	Field Strength at 3m (dBμV/m)
5150~5250	2400/F(kHz)	300
5250~5350	24000/F(kHz)	30
5470~5725	30	30
5725~5825	100	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 and receiver.

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	40GHz
RBW / VBW (Emission in restricted band)	1MHz / 3MHz for Peak, 1MHz / 1/T for Average
RBW / VBW (Emission in non-restricted band)	100kHz / 300kHz for peak

- The following table is the setting of receiver.

Receiver Parameter	Setting
Attenuation	Auto
Frequency 9kHz~150kHz	RBW 200Hz for QP
Frequency 150kHz~30MHz	RBW 9kHz for QP
Frequency 30MHz~1000MHz	RBW 120kHz for QP

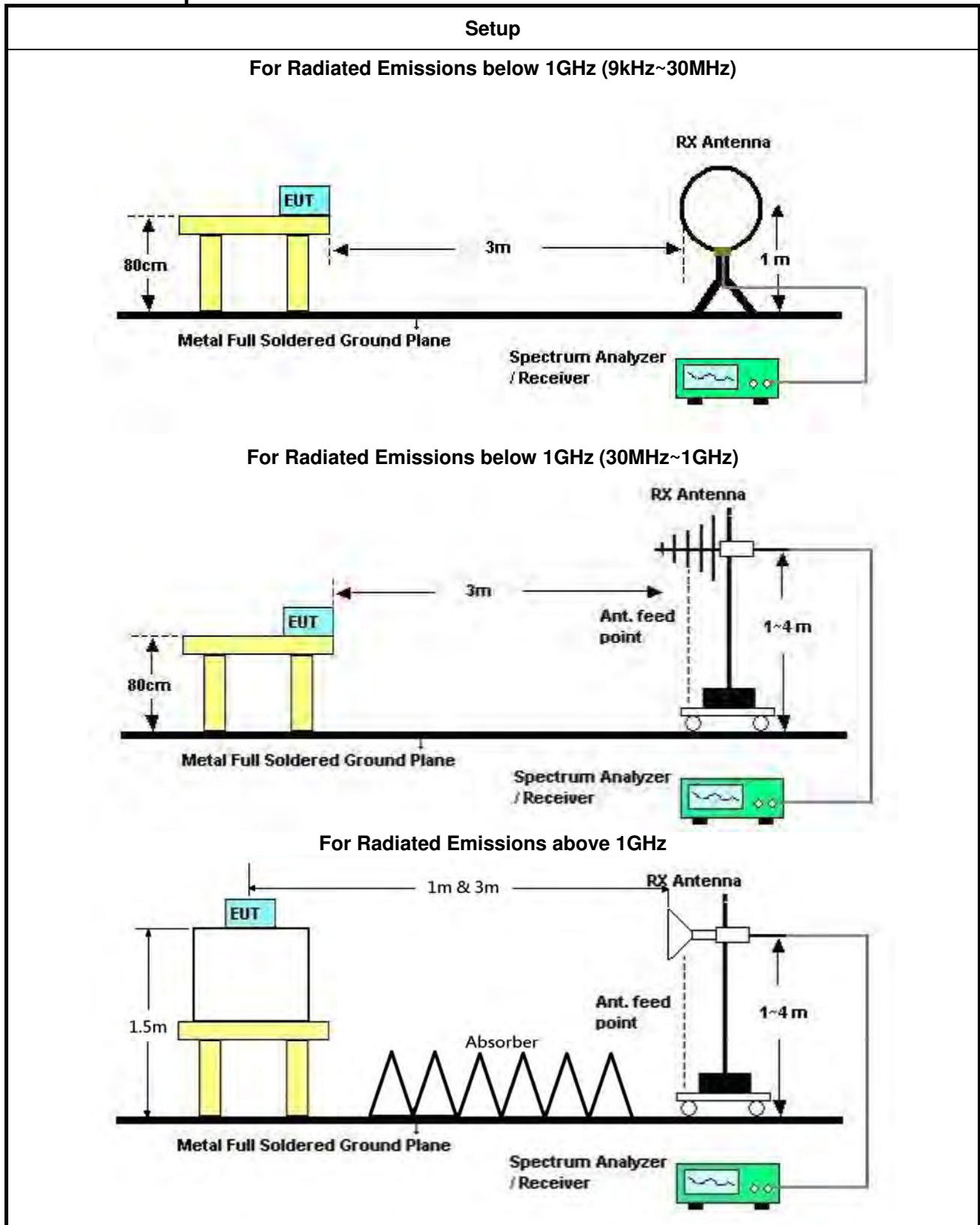
- Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable



antenna tower was placed 3 meters far away from the turntable.

4. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
5. 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.
6. 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 1/T 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. In case 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

For Non-beamforming mode:

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

For beamforming mode:

The EUT was programmed to be in beamforming transmitting mode.

**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

CISPR/VCCI/CNS_B

-6dB

Frequency (MHz)

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

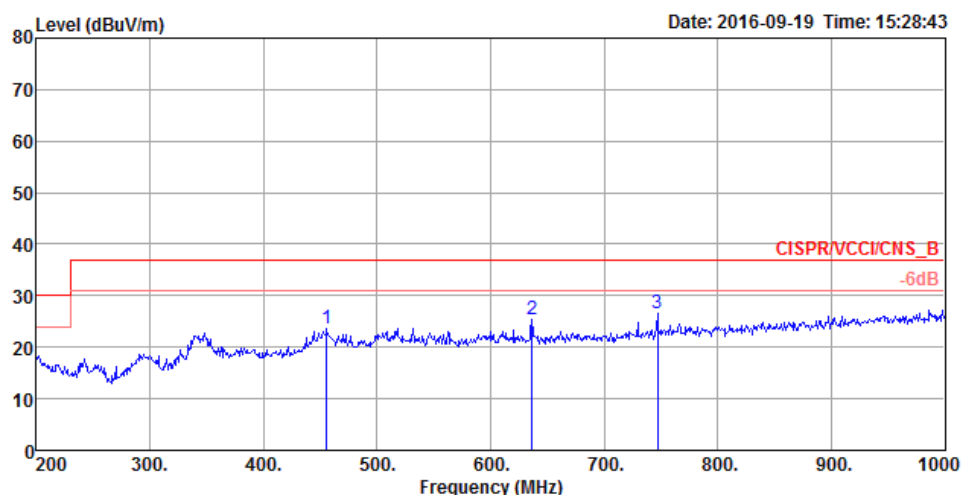
Note 1: The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

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

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

Radiated Emissions (200MHz~1GHz)

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



	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	Pol/Phase
1	455.83	23.76	37.00	-13.24	31.27	28.19	16.90	3.78	Peak	300	31	HORIZONTAL
2	636.25	25.52	37.00	-11.48	30.14	28.39	19.30	4.47	Peak	200	173	HORIZONTAL
3	746.83	26.66	37.00	-10.34	29.22	28.10	20.56	4.98	Peak	100	61	HORIZONTAL

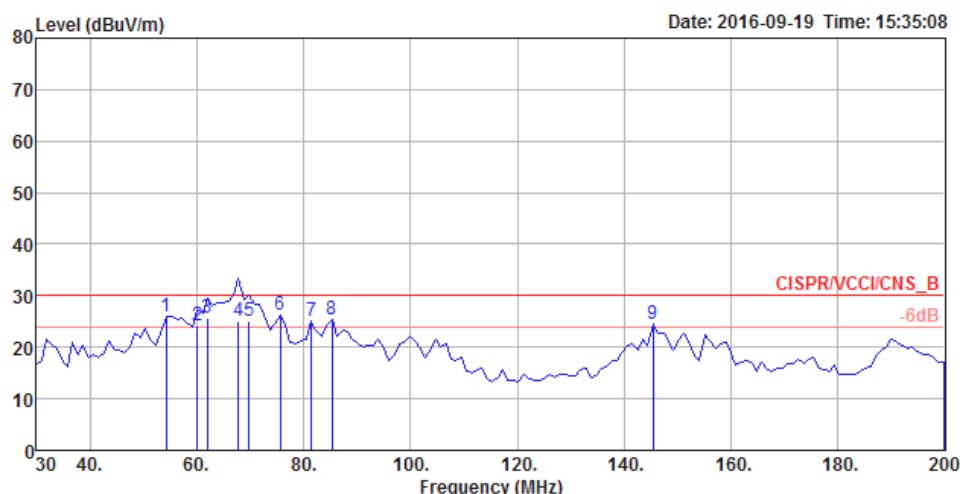
Note 1: The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

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

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

Radiated Emissions (30MHz~200MHz)

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



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

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

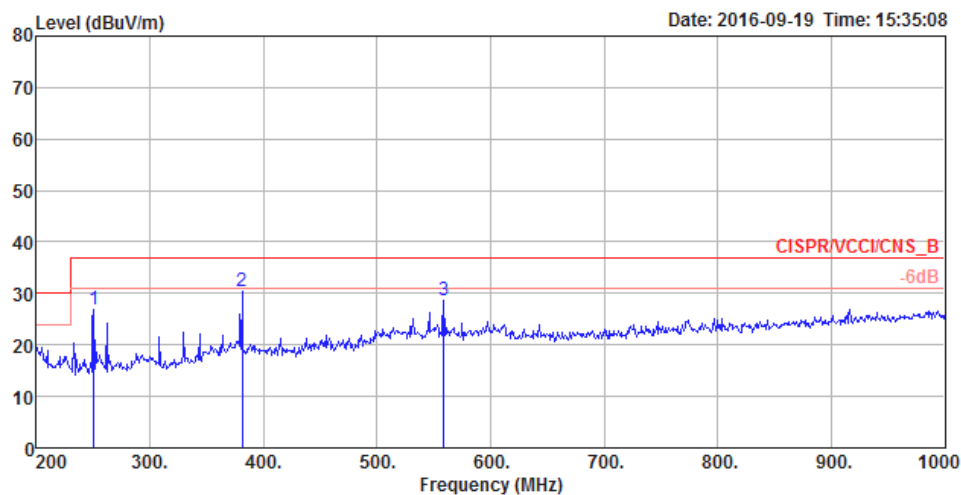
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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



Radiated Emissions (200MHz~1GHz)

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

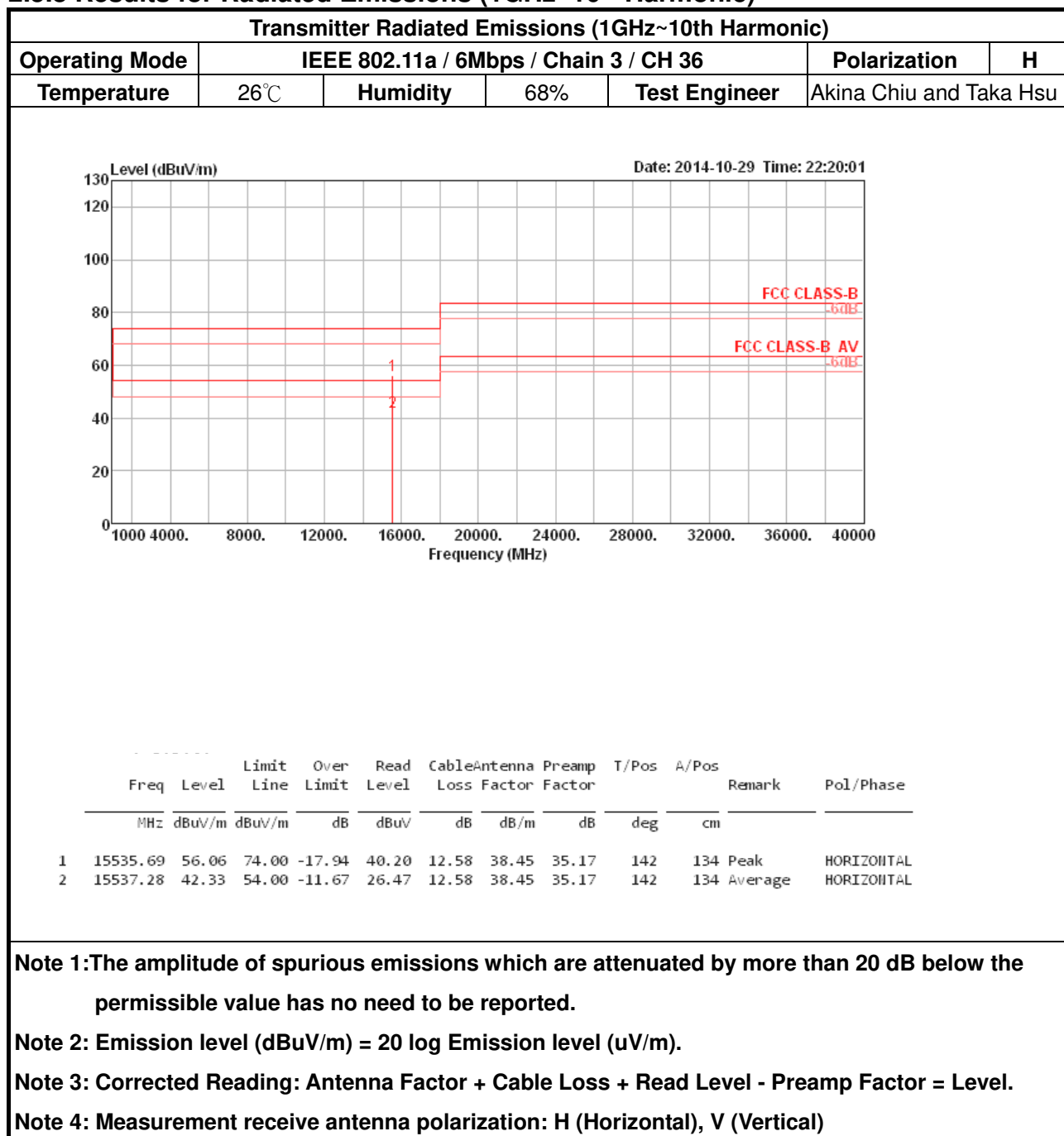


	Freq	Level	Limit	Over	Read	Preamp	Antenna	Cable	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	250.19	26.88	37.00	-10.12	38.82	27.22	12.48	2.80	Peak	200	56	VERTICAL
2	381.14	30.31	37.00	-6.69	38.63	27.72	15.93	3.47	Peak	200	120	VERTICAL
3	558.65	28.72	37.00	-8.28	34.56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

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

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

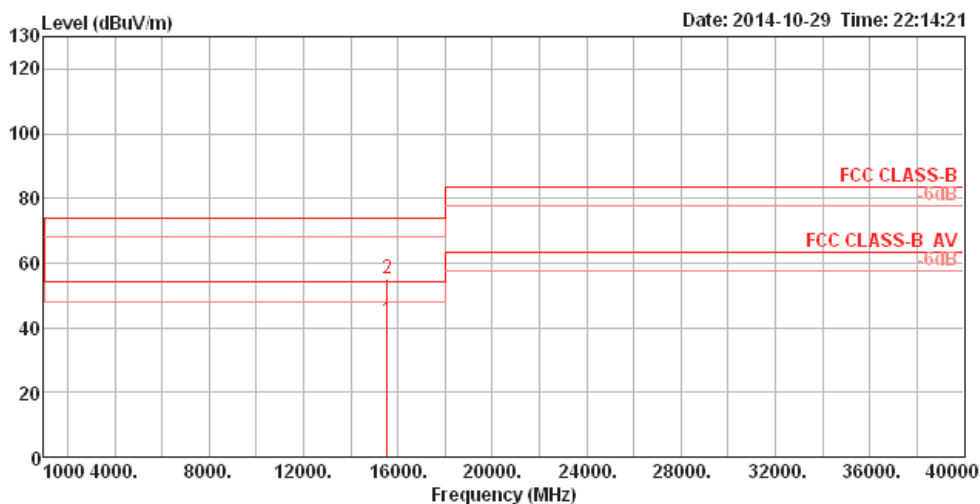
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

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




Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	IEEE 802.11a / 6Mbps / Chain 3 / CH 36			Polarization	V
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



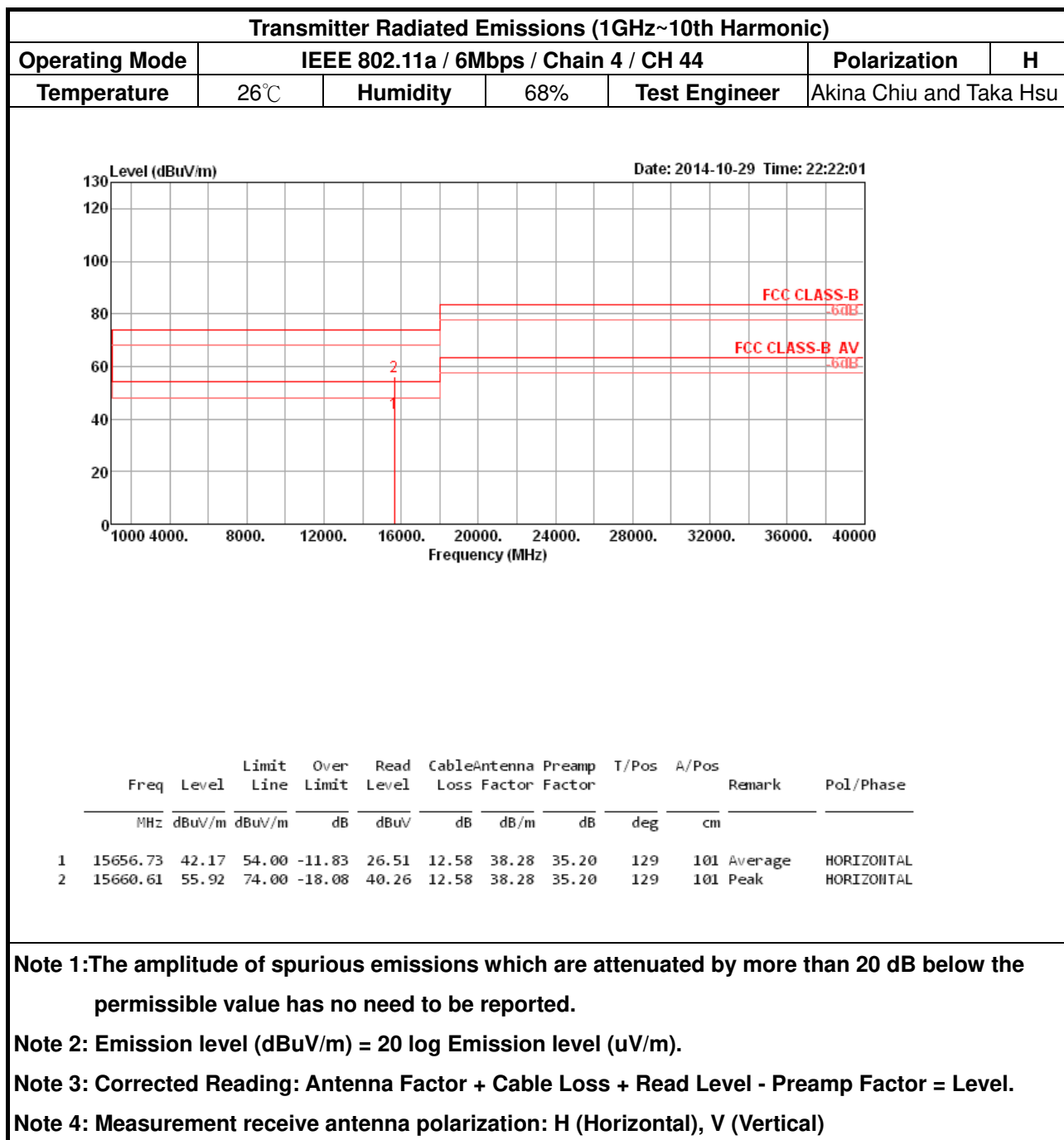
	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	15542.18	42.30	54.00	-11.70	26.44	12.58	38.45	35.17	251	100	Average	VERTICAL
2	15544.71	55.24	74.00	-18.76	39.40	12.58	38.43	35.17	251	100	Peak	VERTICAL

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).

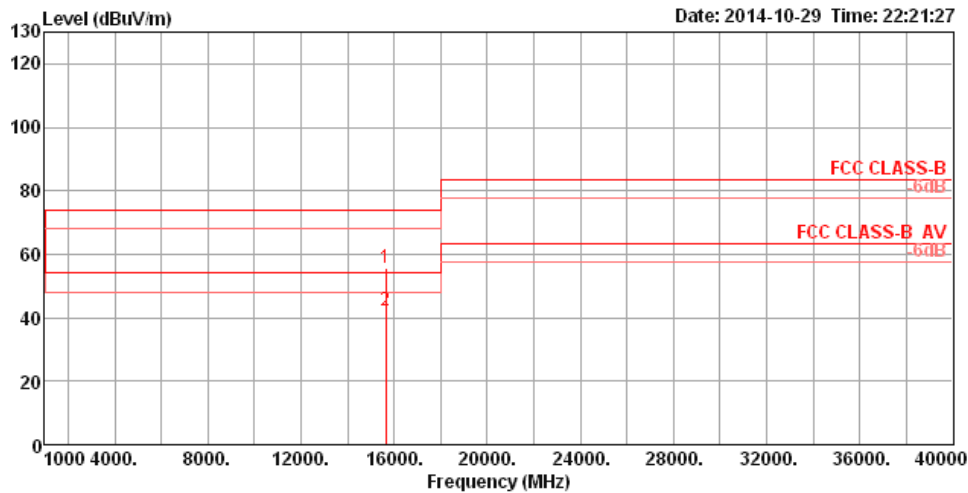
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

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



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

Operating Mode	IEEE 802.11a / 6Mbps / Chain 4 / CH 44			Polarization	V
Temperature	26℃	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



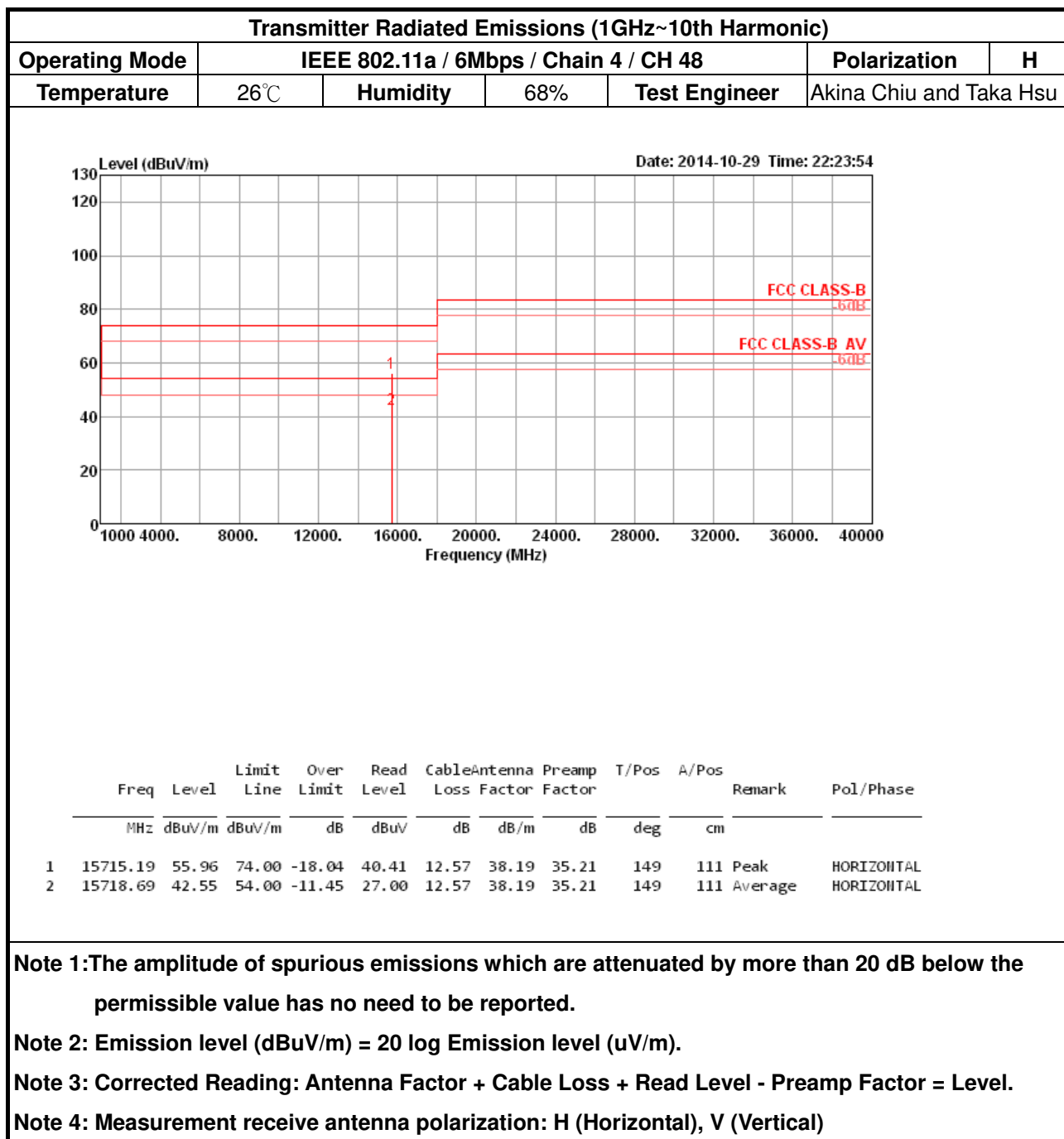
	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	15662.58	55.89	74.00	-18.11	40.25	12.58	38.26	35.20	207	101	Peak	VERTICAL
2	15663.21	42.12	54.00	-11.88	26.48	12.58	38.26	35.20	207	101	Average	VERTICAL

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.

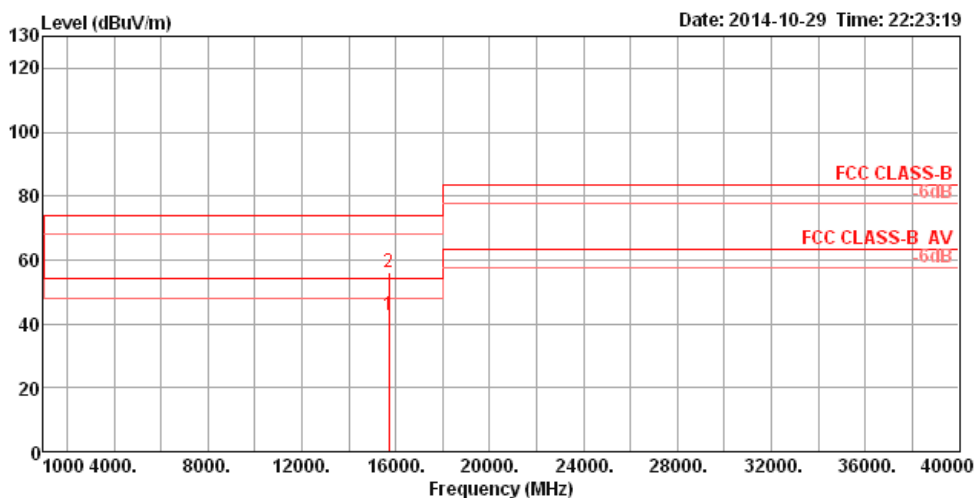
Note 4: Measurement receive antenna polarization: H (Horizontal), V (Vertical)





Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	IEEE 802.11a / 6Mbps / Chain 4 / CH 48			Polarization	V
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm	
1	15718.56	42.51	54.00	-11.49	26.96	12.57	38.19	35.21	192	142 Average	VERTICAL
2	15720.95	55.95	74.00	-18.05	40.40	12.57	38.19	35.21	192	142 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).

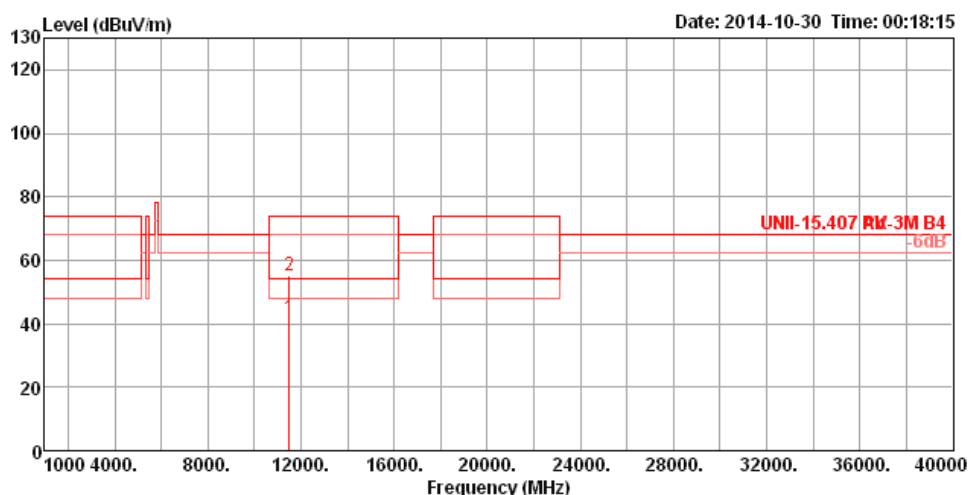
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

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



Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	IEEE 802.11a / 6Mbps / Chain 3 / CH 149				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	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11490.00	41.79	54.00	-12.21	26.74	10.71	39.39	35.05	190	100	Average	HORIZONTAL
2	11490.00	55.28	74.00	-18.72	40.23	10.71	39.39	35.05	190	100	Peak	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).

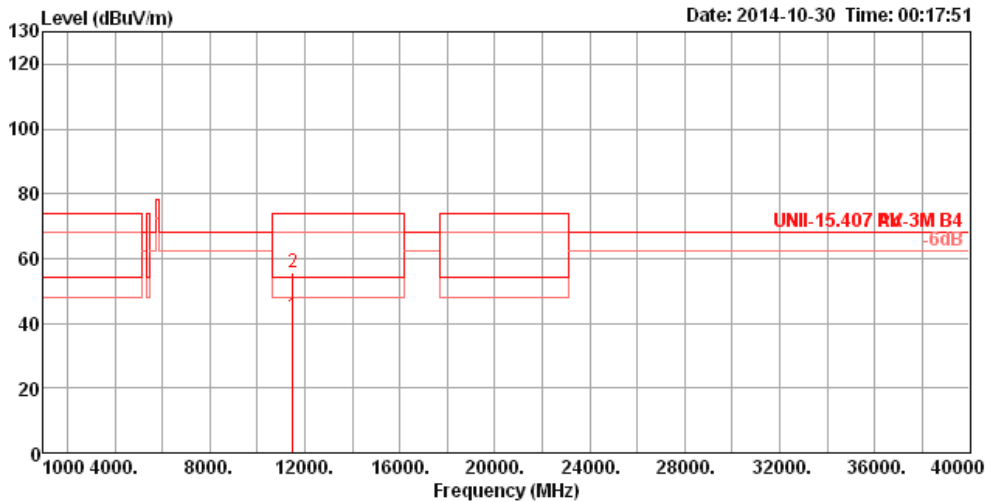
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

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



Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	IEEE 802.11a / 6Mbps / Chain 3 / CH 149			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	11490.00	42.12	54.00	-11.88	27.07	10.71	39.39	35.05	326	100	Average	VERTICAL
2	11490.00	55.88	74.00	-18.12	40.83	10.71	39.39	35.05	326	100	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.

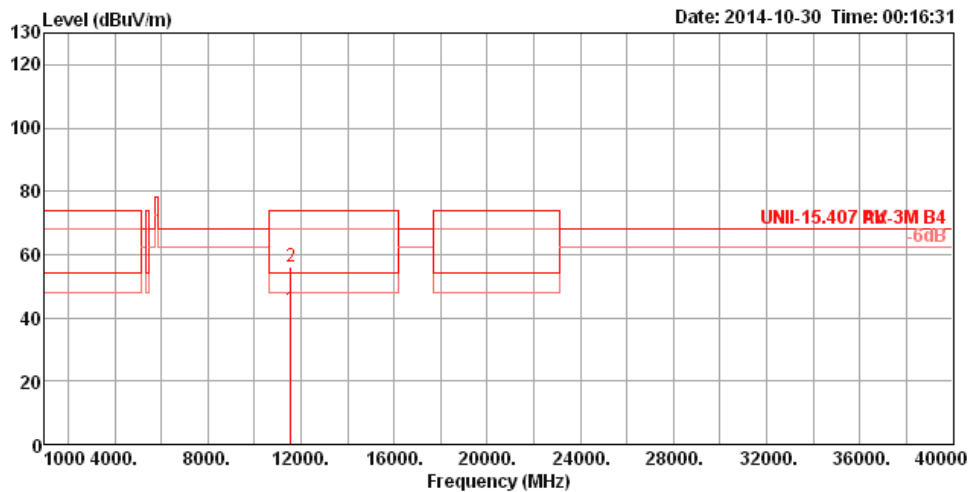
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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 802.11a / 6Mbps / Chain 4 / CH 157				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	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11570.00	42.69	54.00	-11.31	27.55	10.76	39.44	35.06	239	100	Average	HORIZONTAL
2	11570.00	56.29	74.00	-17.71	41.15	10.76	39.44	35.06	239	100	Peak	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.

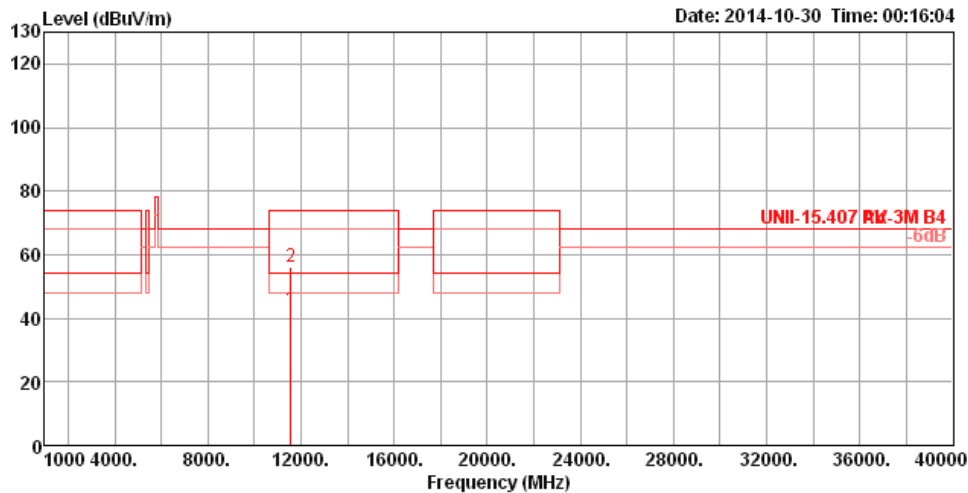
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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 802.11a / 6Mbps / Chain 4 / CH 157			Polarization	V
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



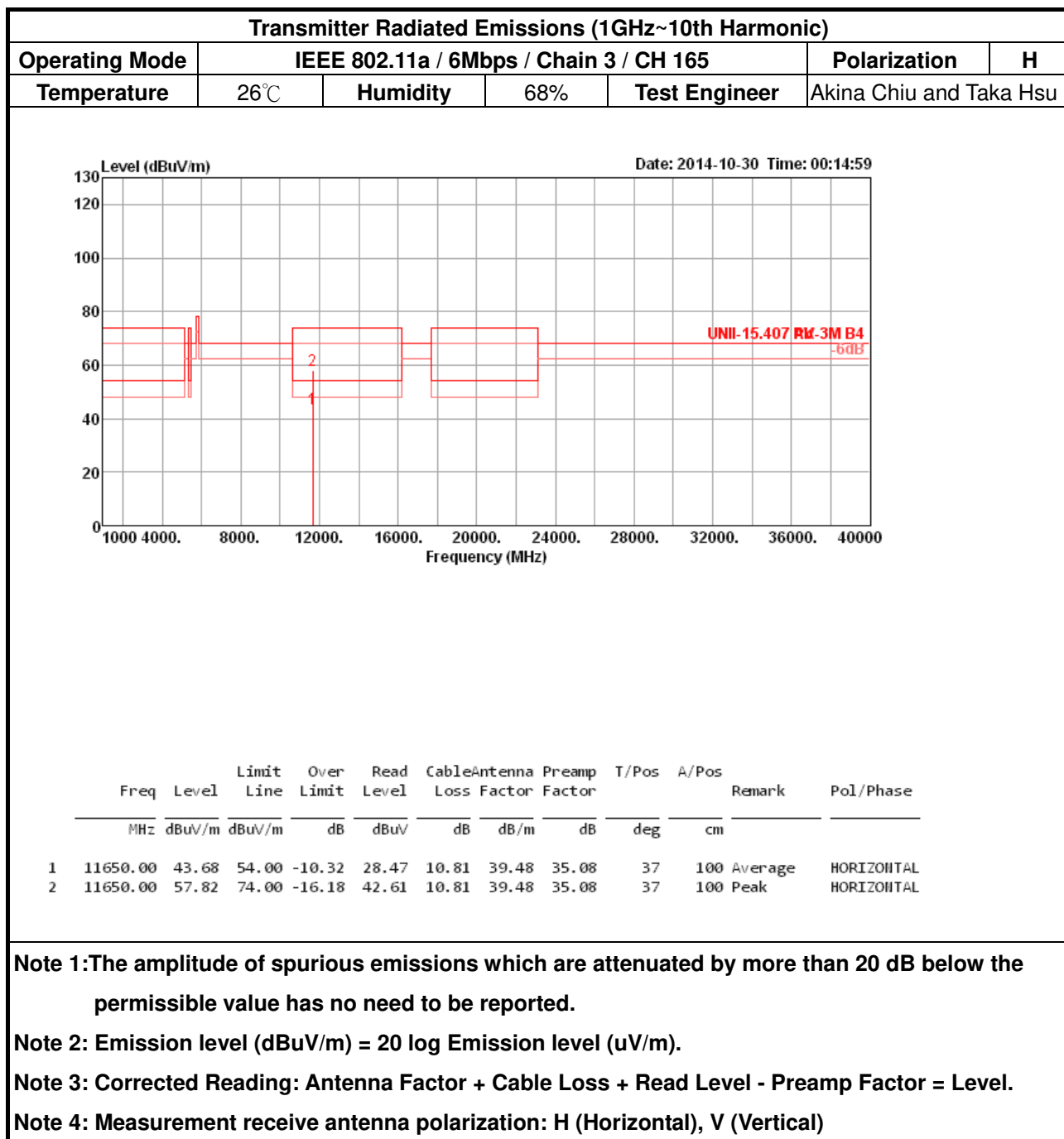
	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm	
1	11570.00	42.84	54.00	-11.16	27.70	10.76	39.44	35.06	167	100 Average	VERTICAL
2	11570.00	56.34	74.00	-17.66	41.20	10.76	39.44	35.06	167	100 Peak	VERTICAL

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.

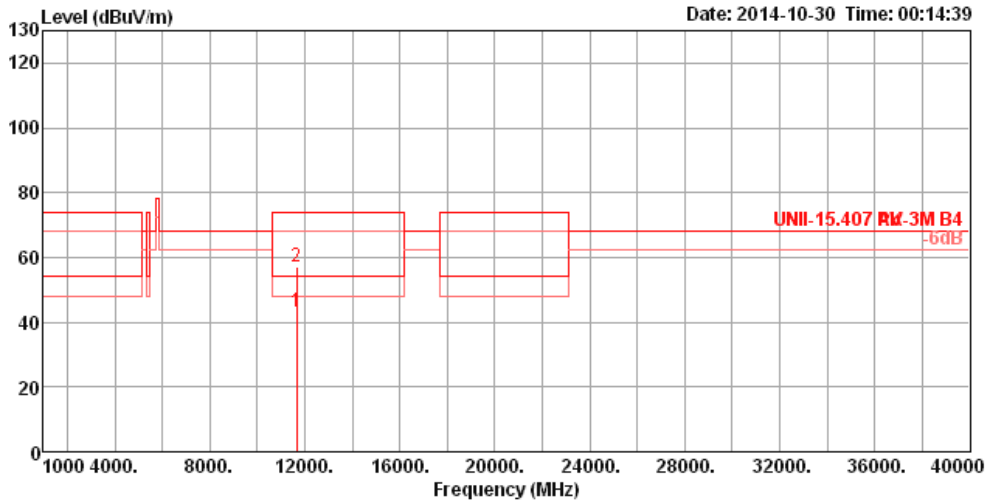
Note 4: Measurement receive antenna polarization: H (Horizontal), V (Vertical)





Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	IEEE 802.11a / 6Mbps / Chain 3 / CH 165			Polarization	V
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



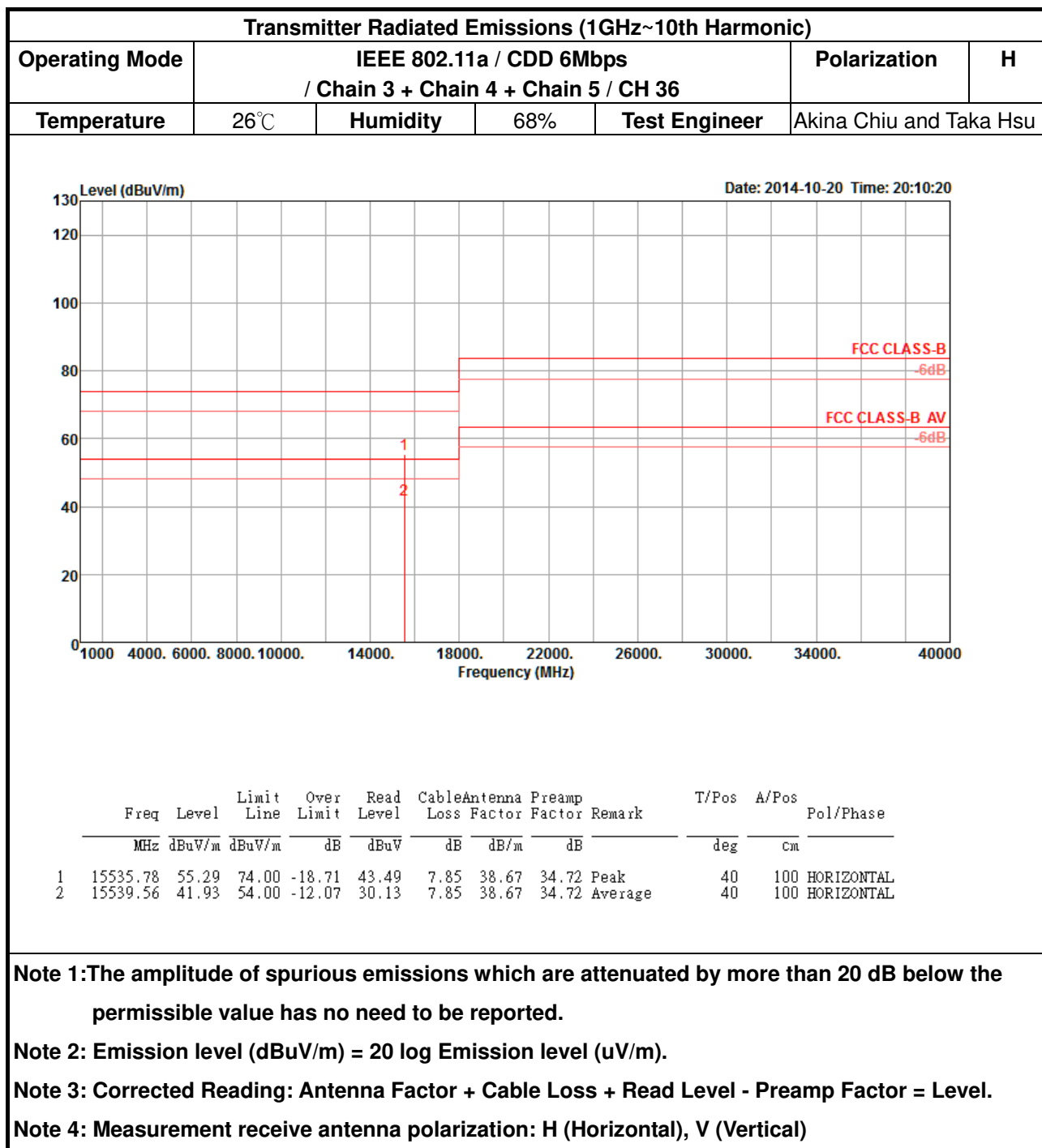
	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11650.00	43.34	54.00	-10.66	28.13	10.81	39.48	35.08	83	100	Average	VERTICAL
2	11650.00	57.07	74.00	-16.93	41.86	10.81	39.48	35.08	83	100	Peak	VERTICAL

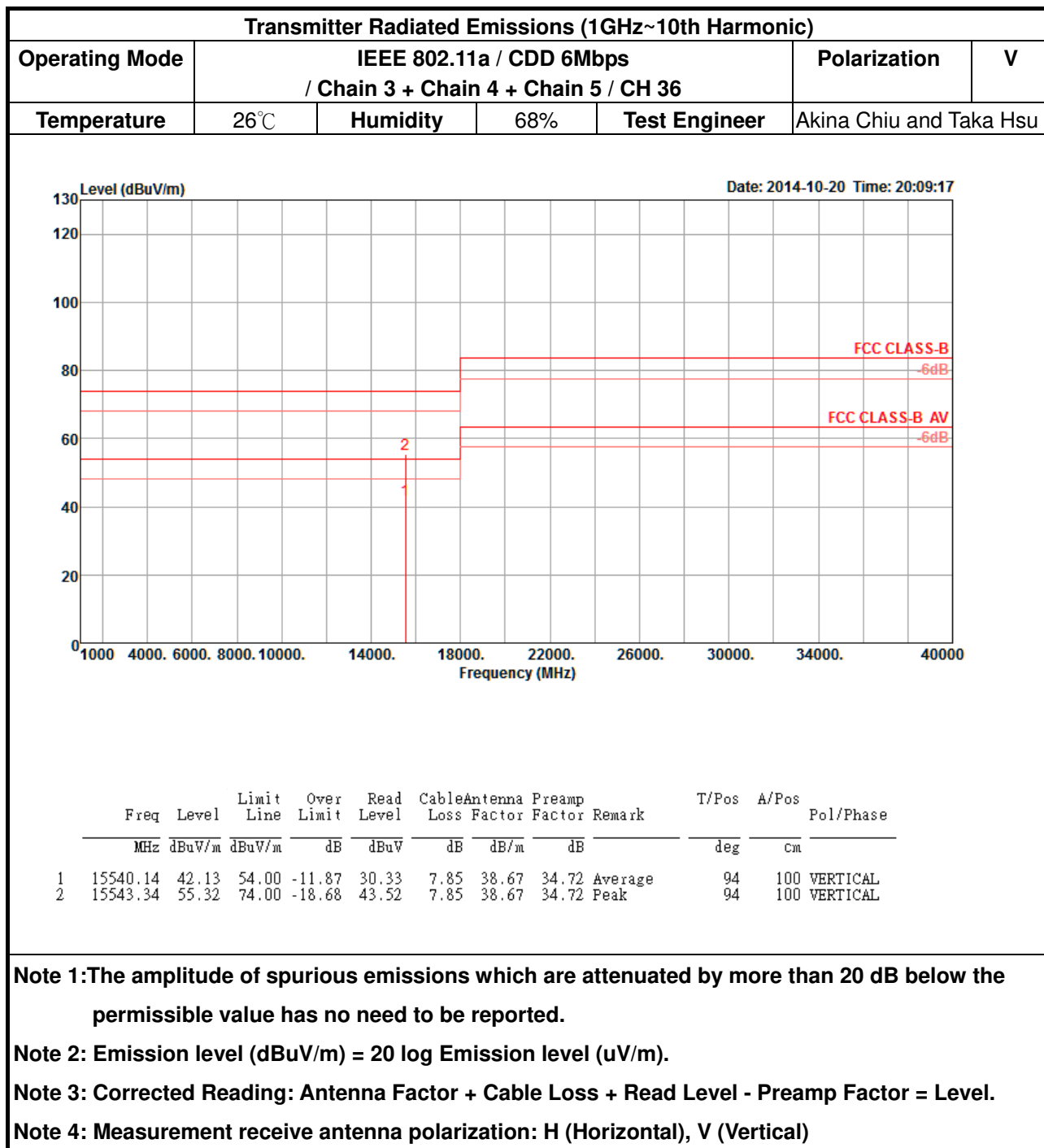
Note 1: The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

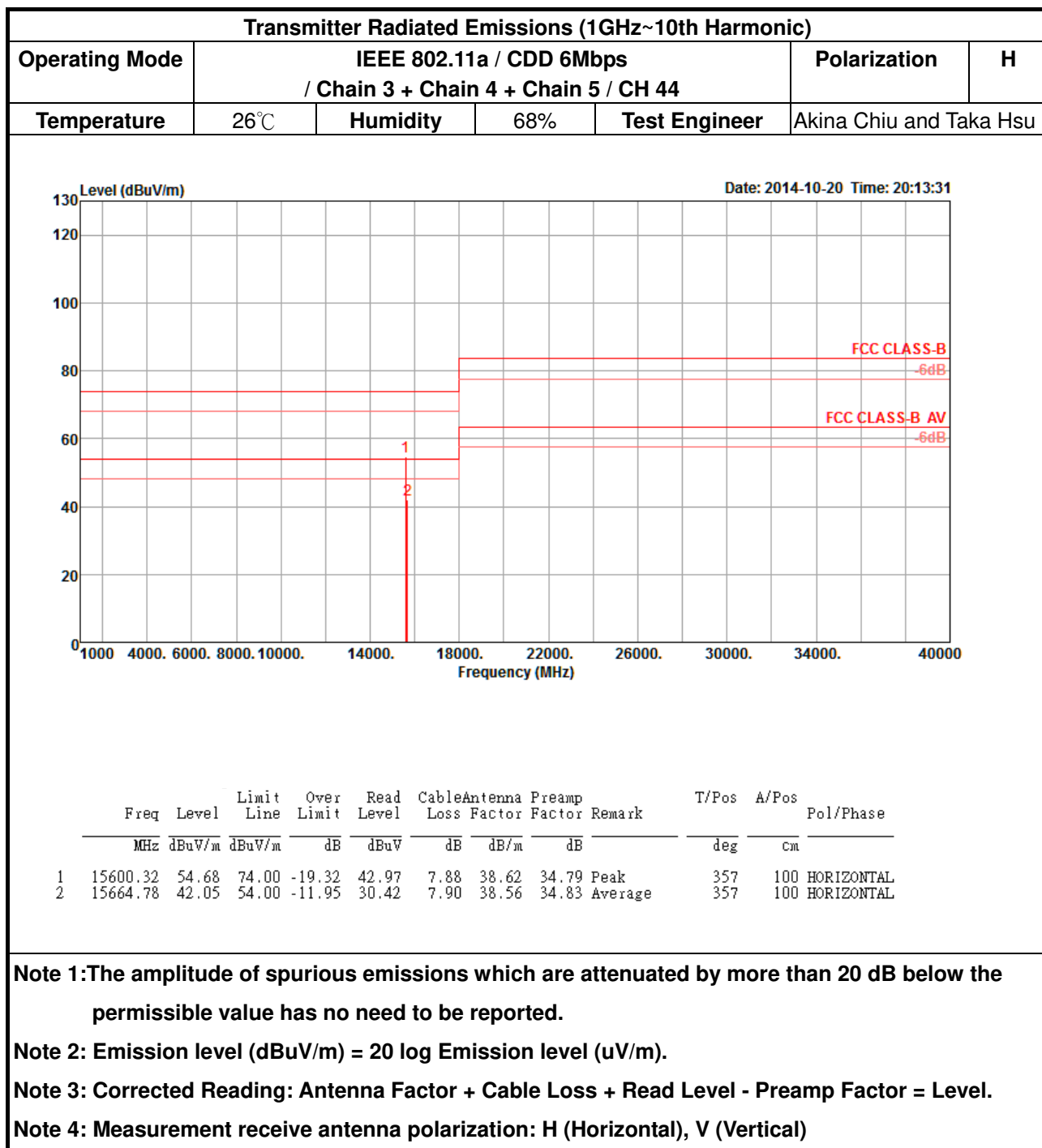
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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

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



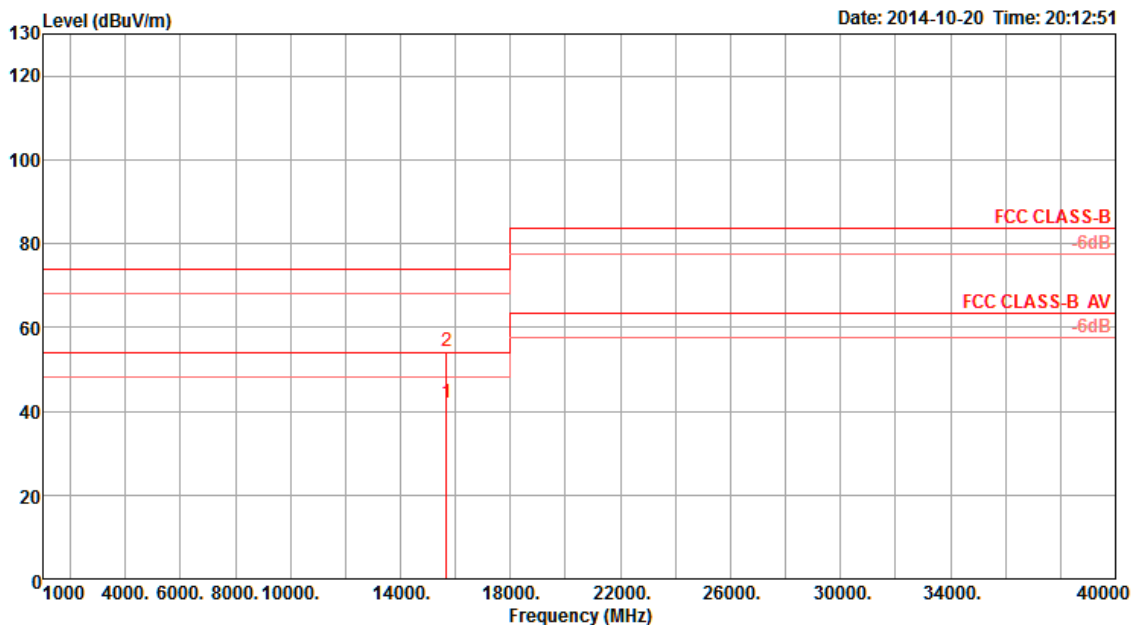






Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	IEEE 802.11a / CDD 6Mbps / Chain 3 + Chain 4 + Chain 5 / CH 44			Polarization	V
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



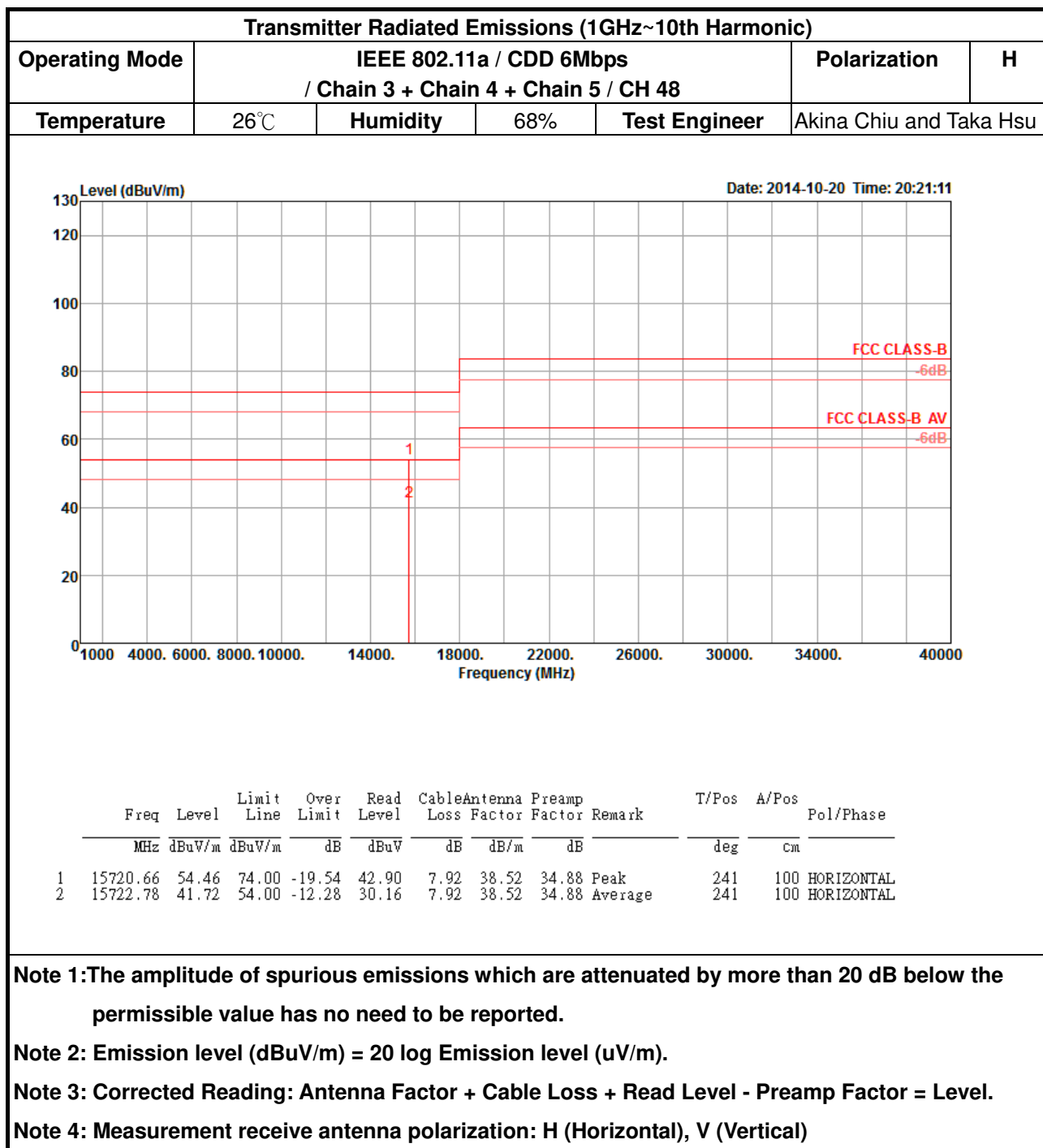
	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp		T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	Remark	deg	cm	
1	15661.16	41.94	54.00	-12.06	30.30	7.89	38.58	34.83	Average	258	100	VERTICAL
2	15662.72	54.46	74.00	-19.54	42.83	7.90	38.56	34.83	Peak	258	100	VERTICAL

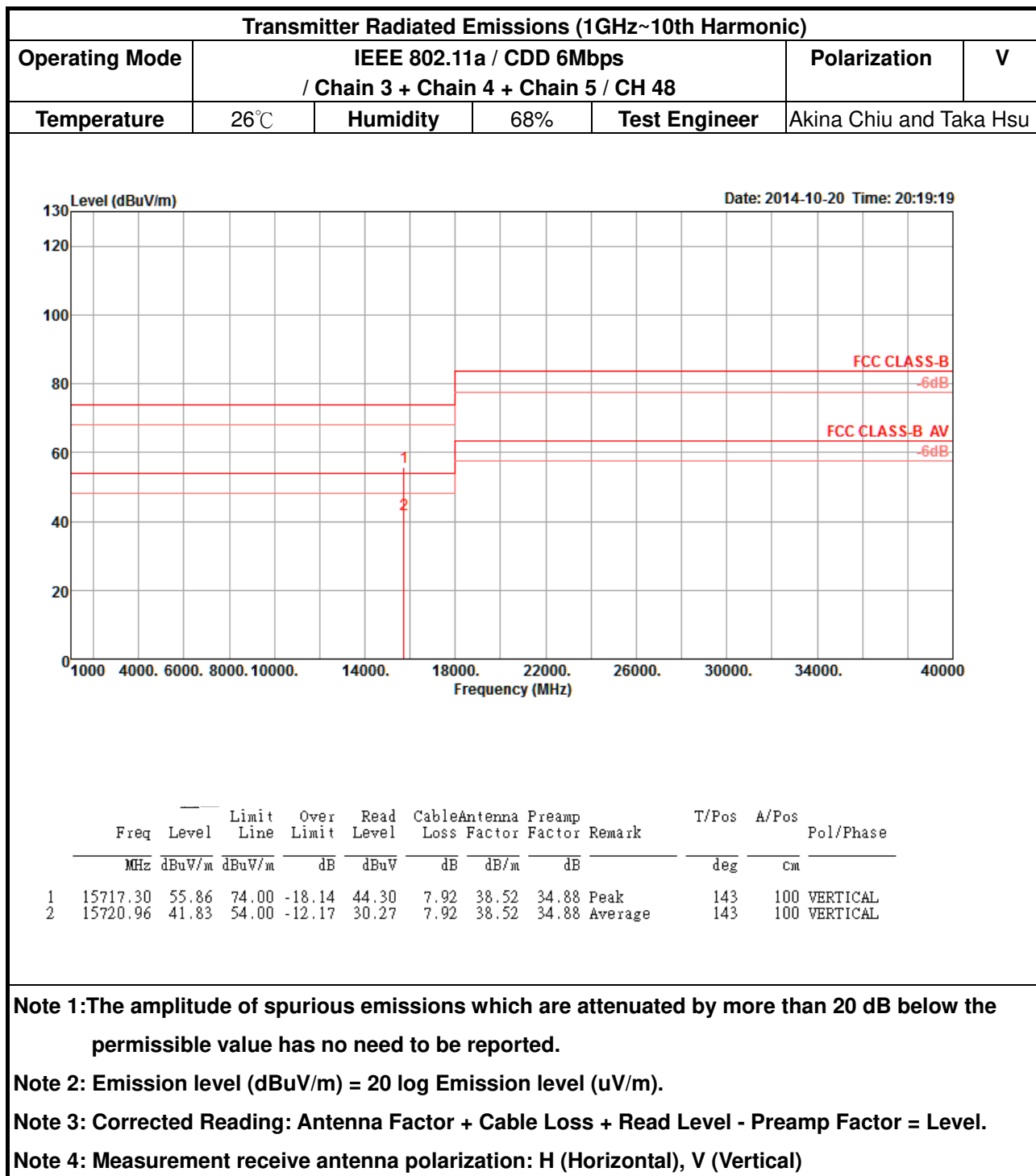
Note 1: The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

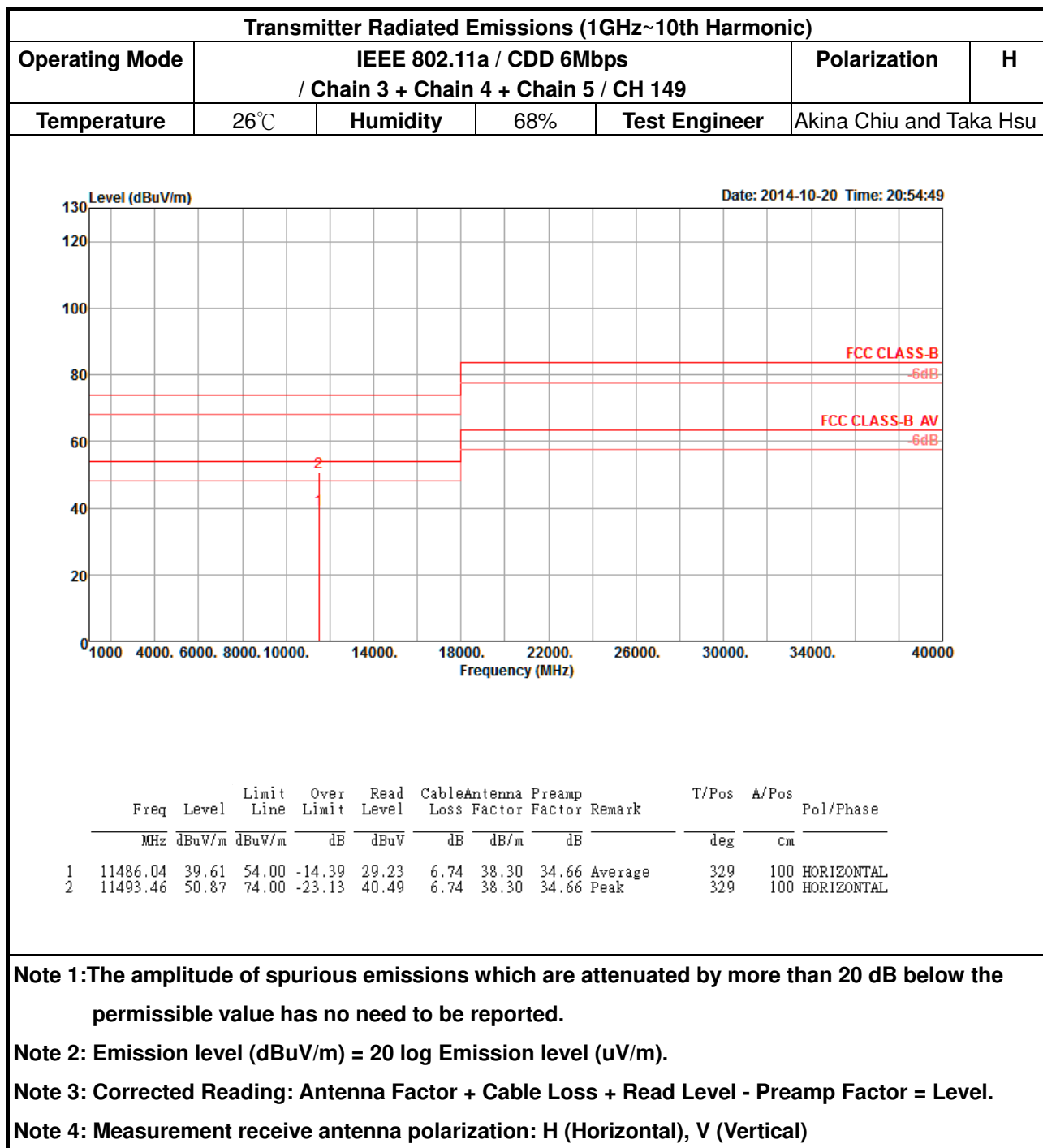
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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

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

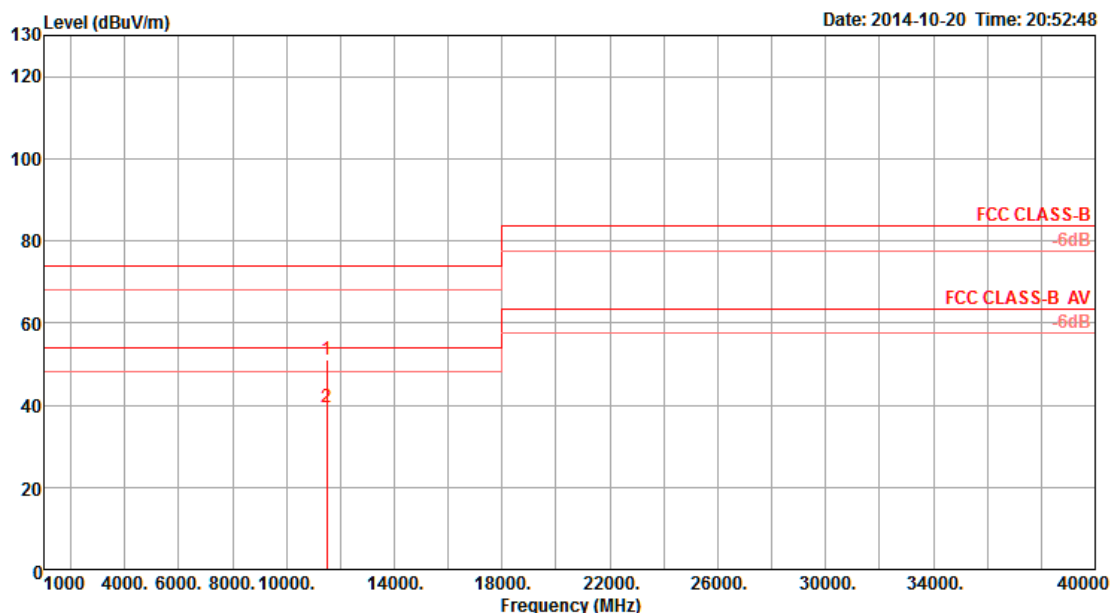






Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	IEEE 802.11a / CDD 6Mbps / Chain 3 + Chain 4 + Chain 5 / CH 149			Polarization	V
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



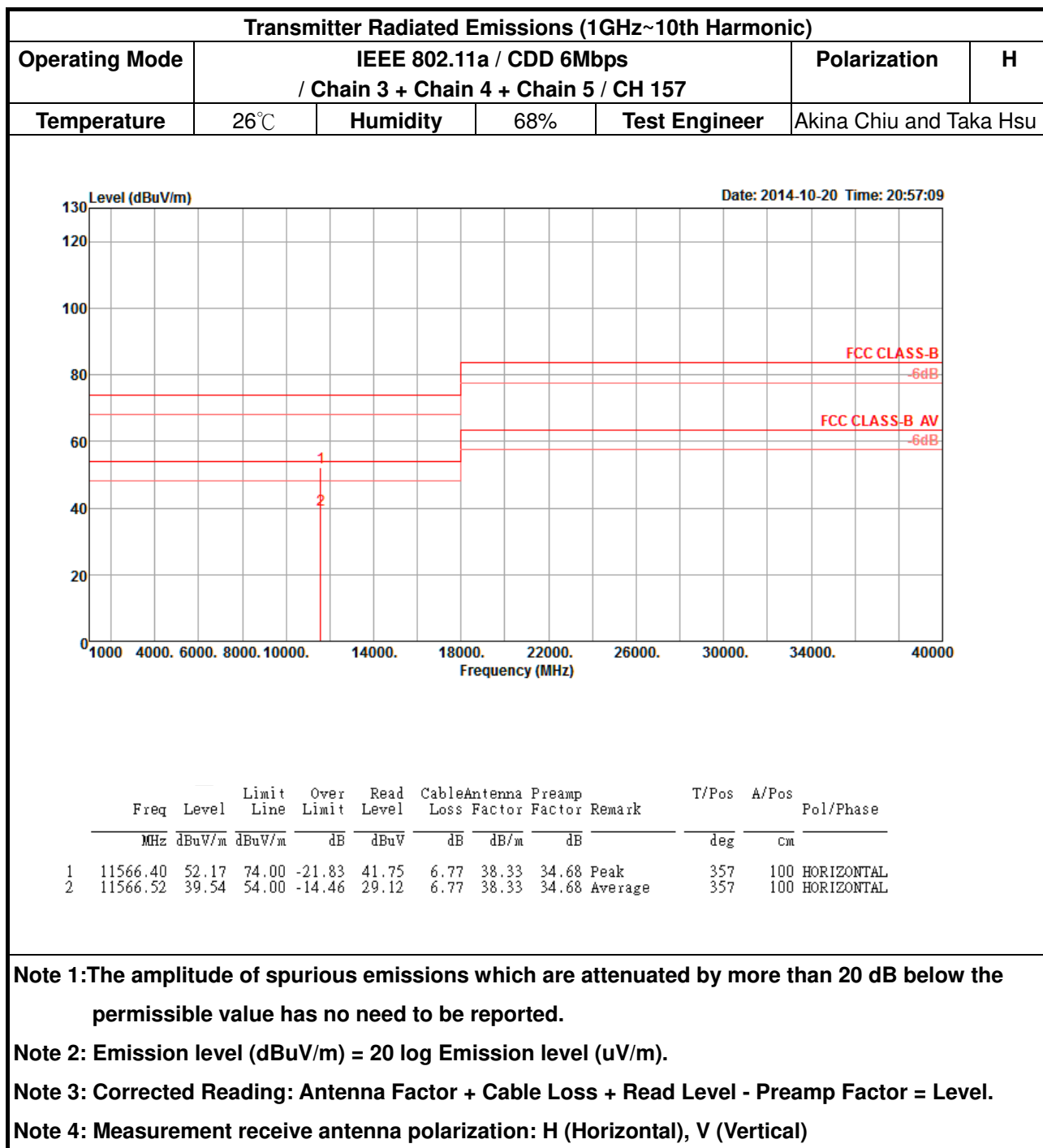
	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	11489.00	50.91	74.00	-23.09	40.53	6.74	38.30	34.66	Peak	92	100	VERTICAL
2	11490.02	39.31	54.00	-14.69	28.93	6.74	38.30	34.66	Average	92	100	VERTICAL

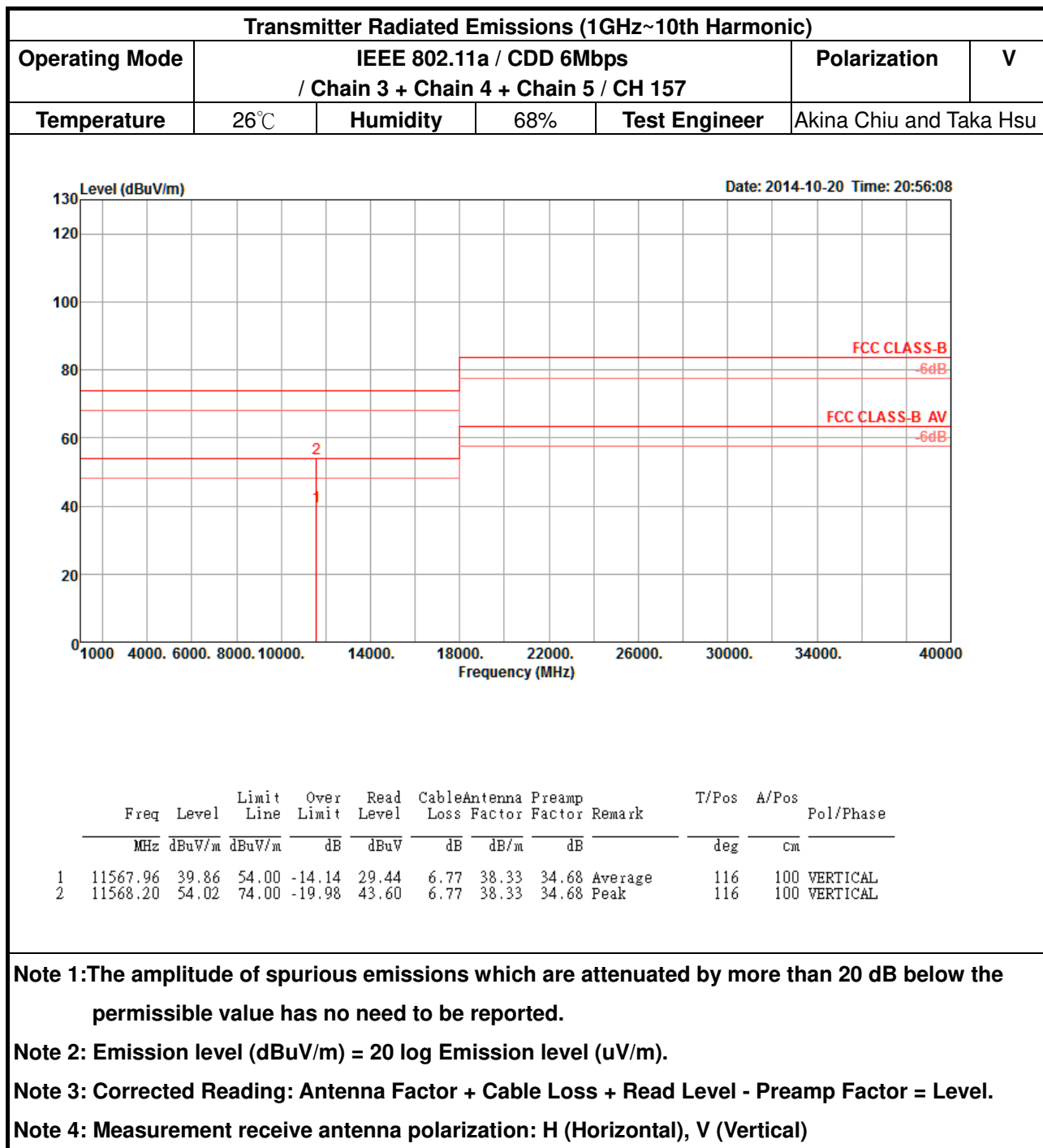
Note 1: The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

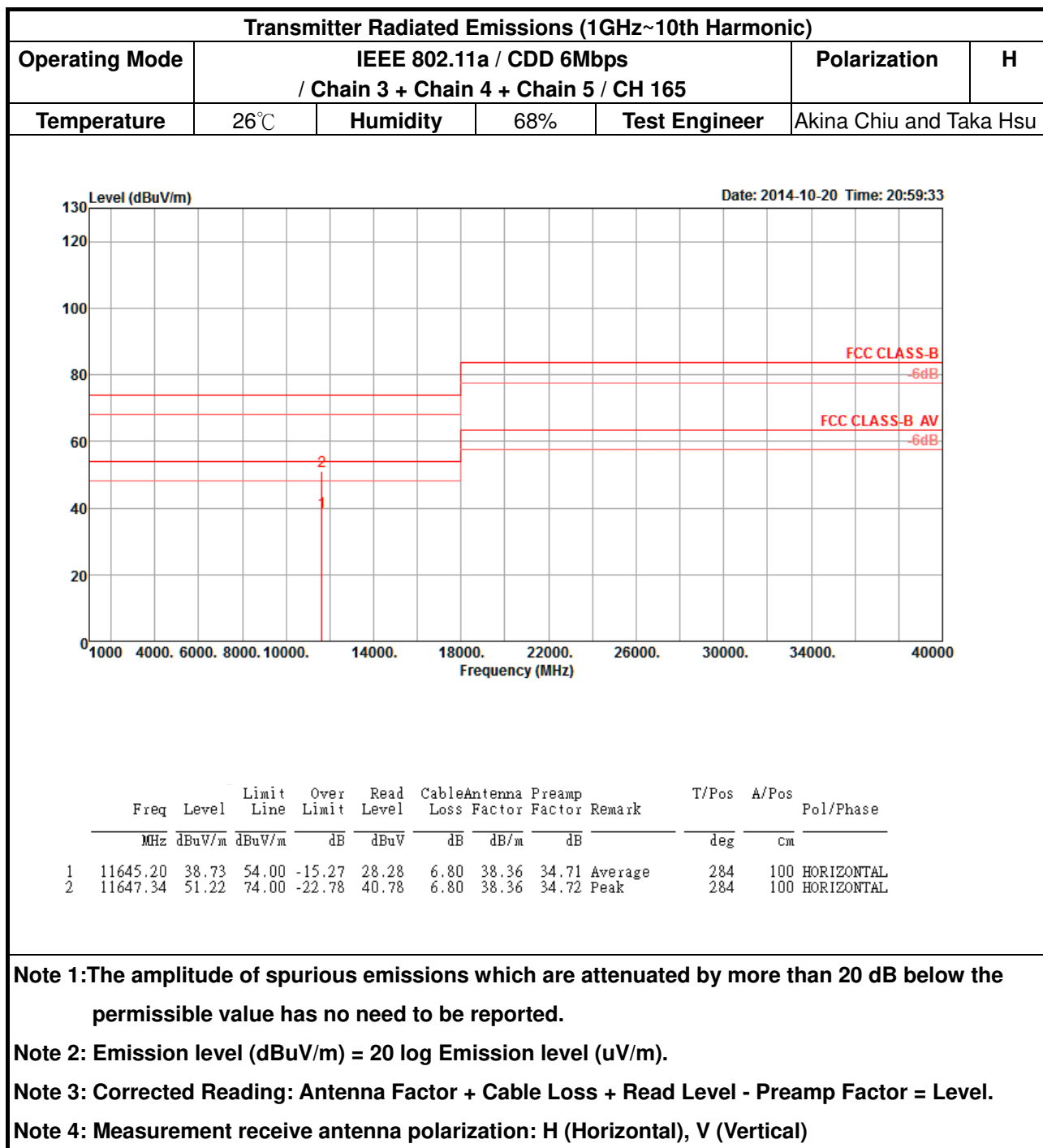
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

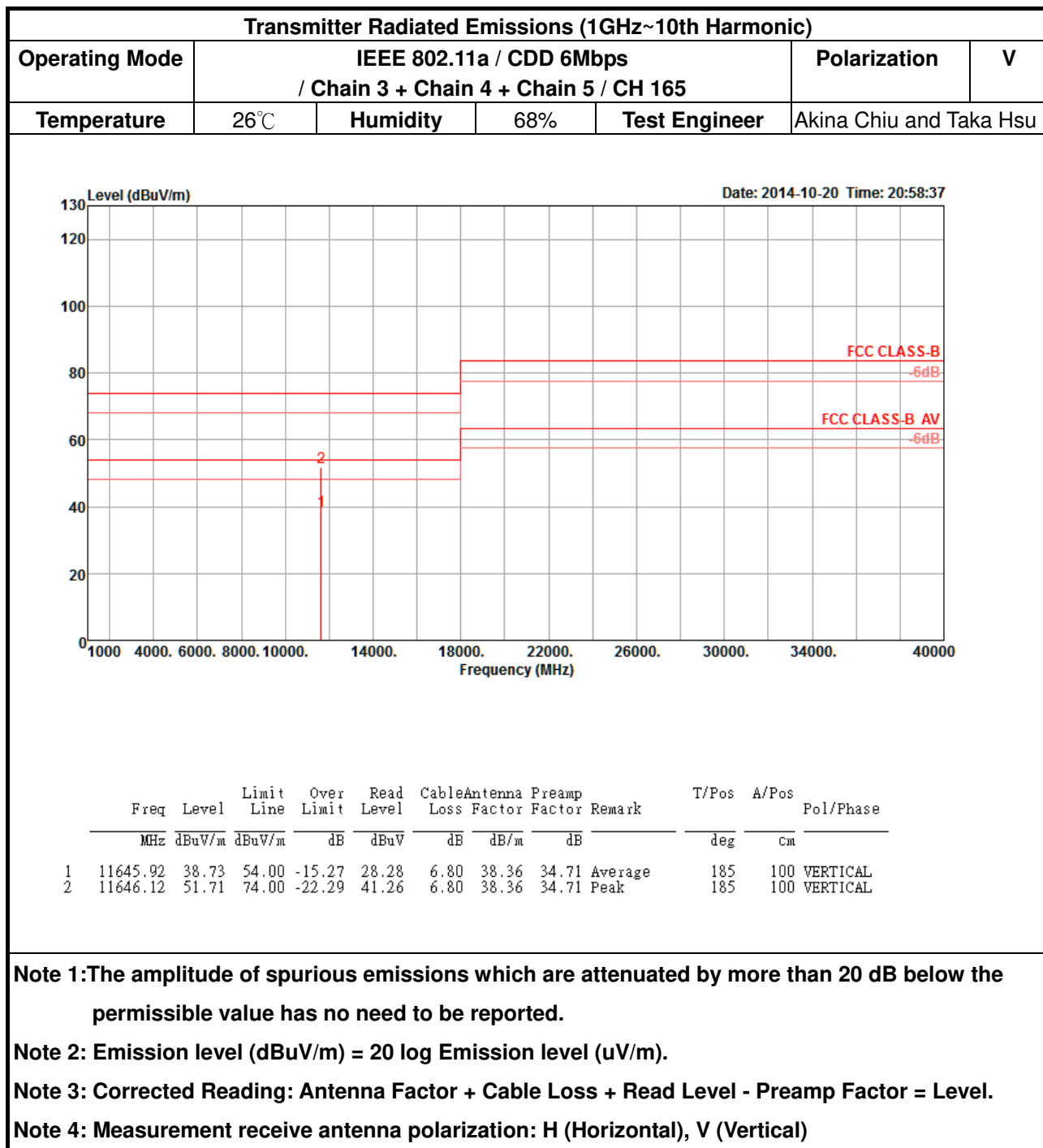
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

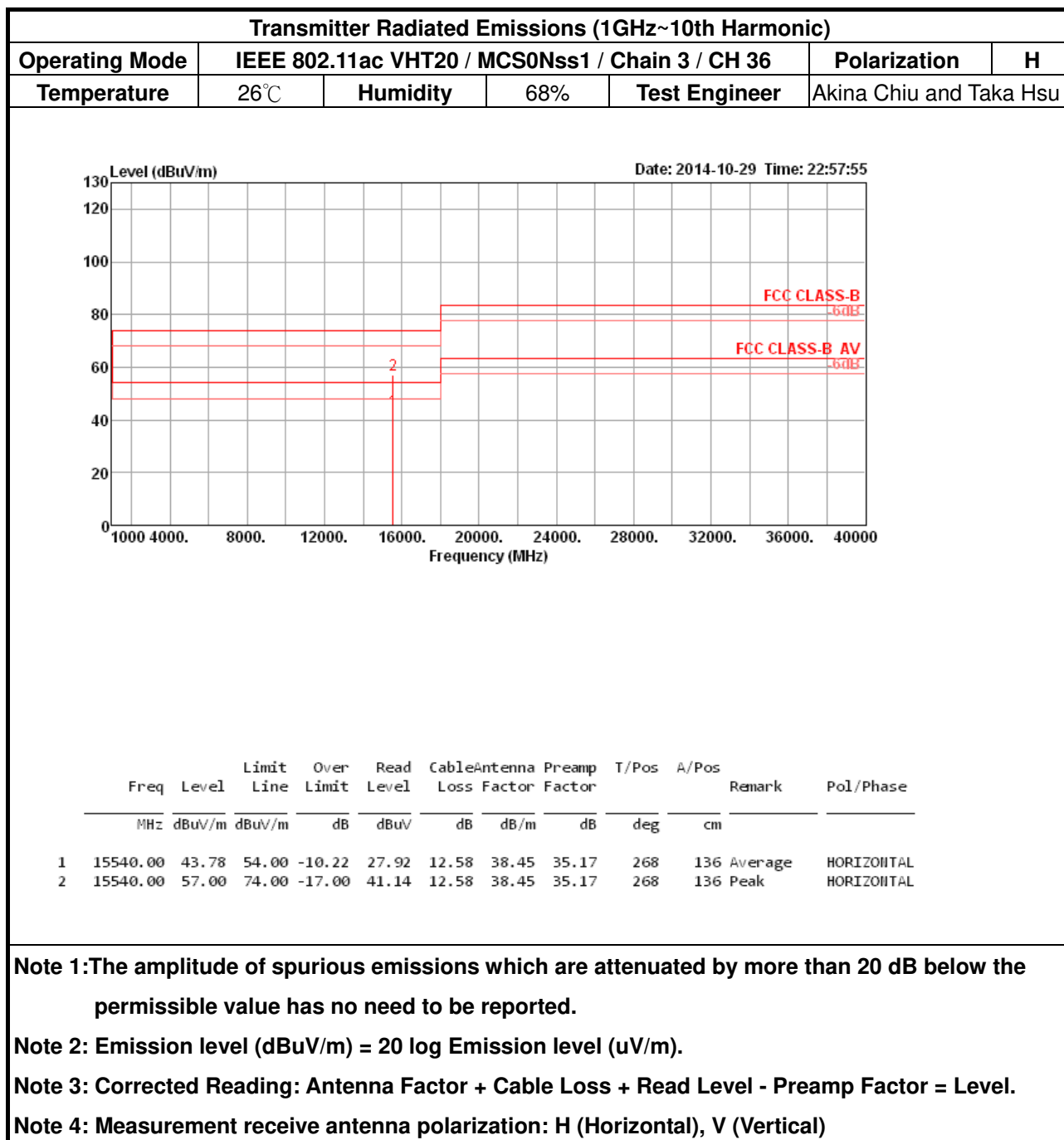
Note 4: Measurement receive antenna polarization: H (Horizontal), V (Vertical)





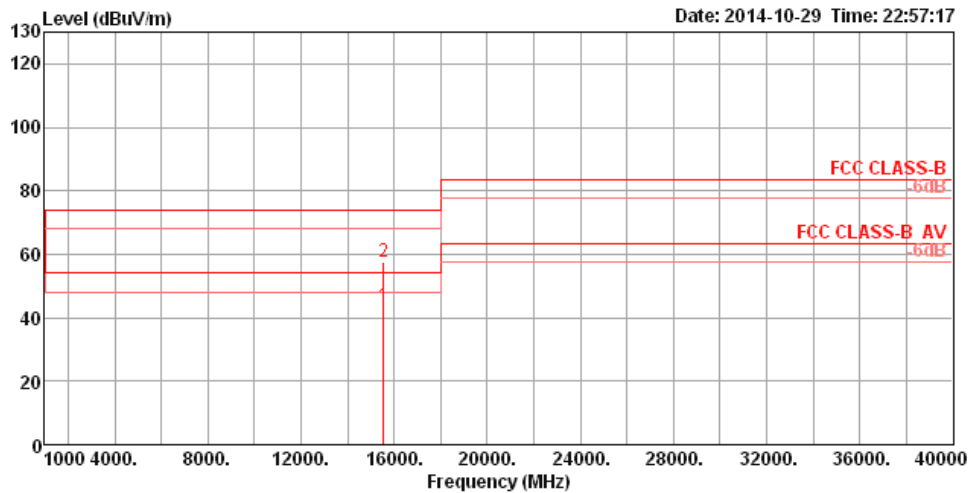






**Transmitter Radiated Emissions (1GHz~10th Harmonic)**

Operating Mode	IEEE 802.11ac VHT20 / MCS0Nss1 / Chain 3 / CH 36			Polarization	V
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



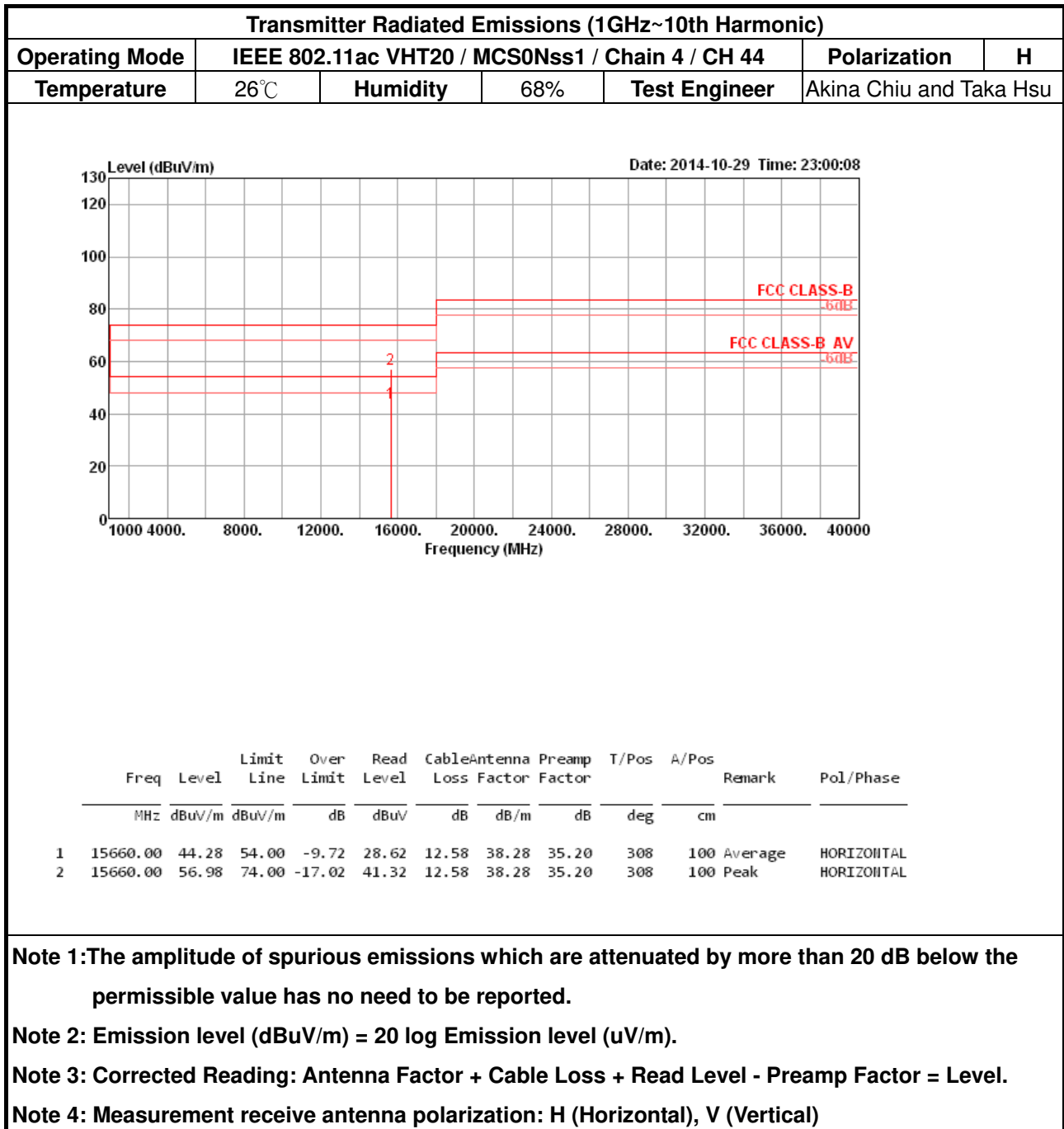
	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	15540.00	43.86	54.00	-10.14	28.00	12.58	38.45	35.17	198	100	Average	VERTICAL
2	15540.00	57.47	74.00	-16.53	41.61	12.58	38.45	35.17	198	100	Peak	VERTICAL

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.

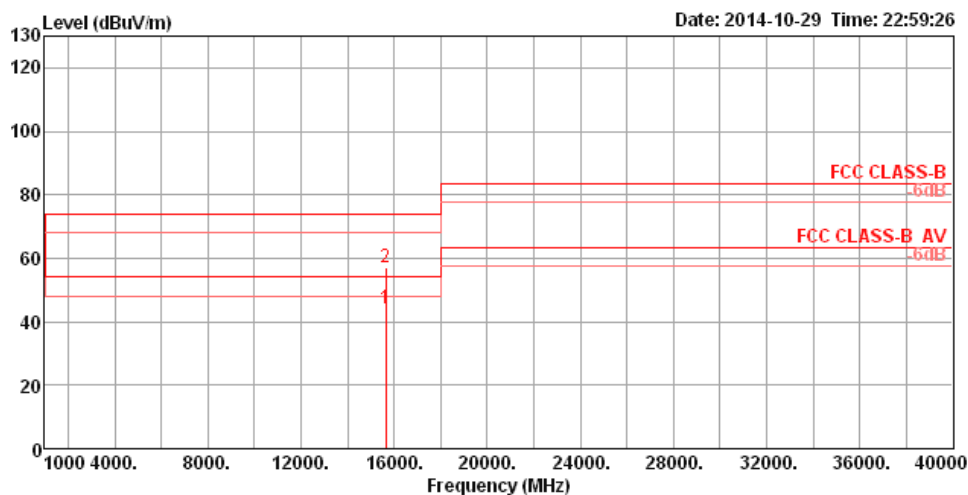
Note 4: Measurement receive antenna polarization: H (Horizontal), V (Vertical)





Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	IEEE 802.11ac VHT20 / MCS0Nss1 / Chain 4 / CH 44			Polarization	V
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



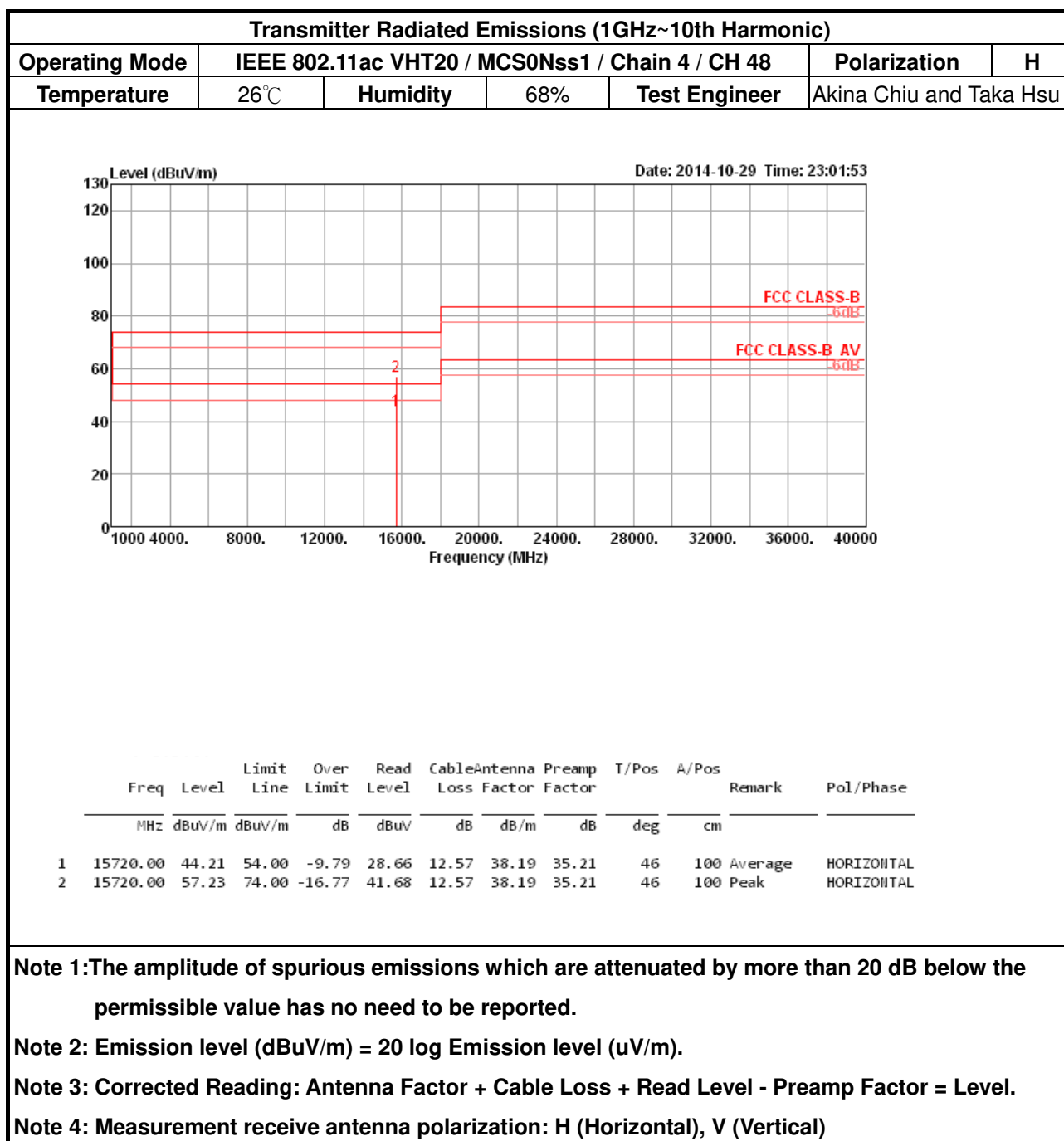
	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	15660.00	44.22	54.00	-9.78	28.56	12.58	38.28	35.20	113	100	Average	VERTICAL
2	15660.00	57.14	74.00	-16.86	41.48	12.58	38.28	35.20	113	100	Peak	VERTICAL

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.

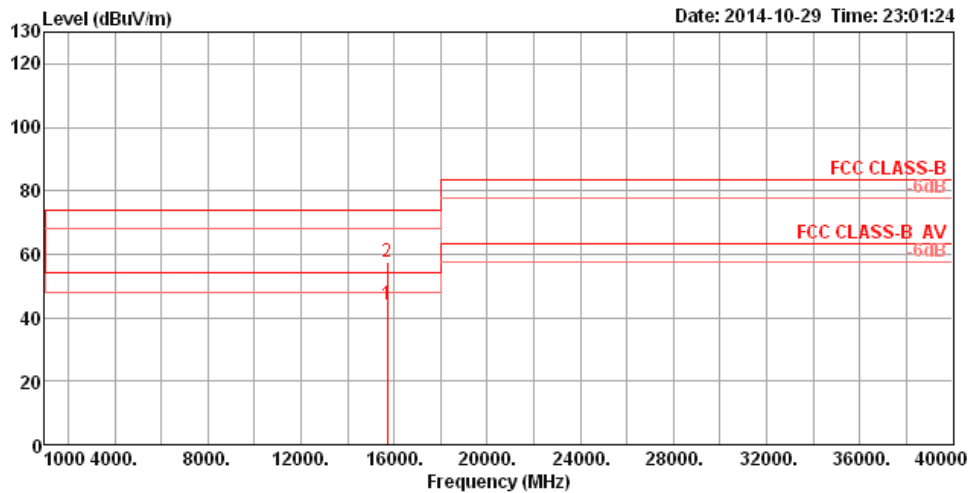
Note 4: Measurement receive antenna polarization: H (Horizontal), V (Vertical)





Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	IEEE 802.11ac VHT20 / MCS0Nss1 / Chain 4 / CH 48			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	15720.00	44.26	54.00	-9.74	28.71	12.57	38.19	35.21	72	100	Average	VERTICAL
2	15720.00	57.48	74.00	-16.52	41.93	12.57	38.19	35.21	72	100	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.

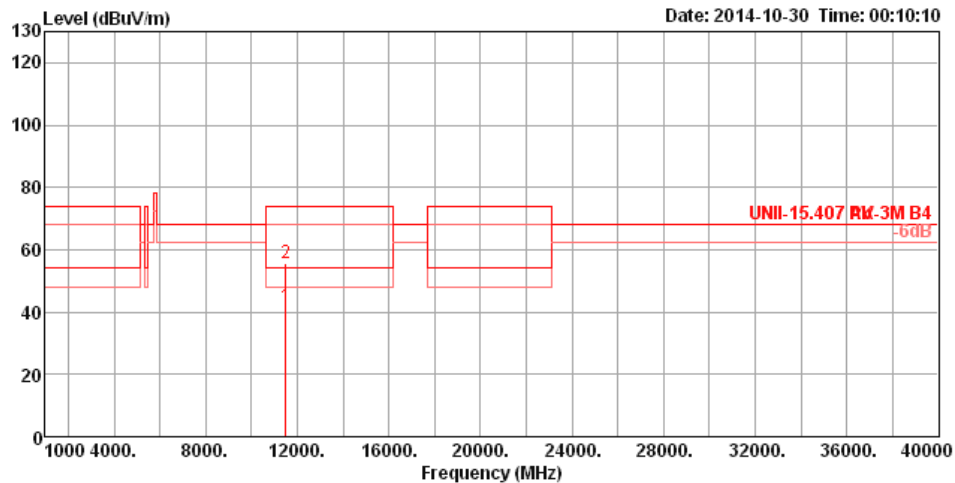
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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 802.11ac VHT20 / MCS0Nss1 / Chain 3 / CH 149			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	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11490.00	41.97	54.00	-12.03	26.92	10.71	39.39	35.05	256	100	Average	HORIZONTAL
2	11490.00	55.53	74.00	-18.47	40.48	10.71	39.39	35.05	256	100	Peak	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).

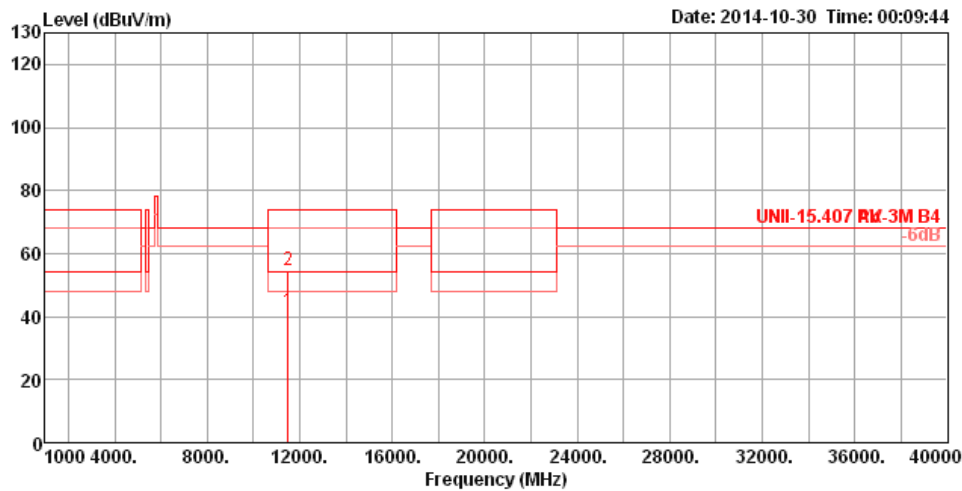
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

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



Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	IEEE 802.11ac VHT20 / MCS0Nss1 / Chain 3 / CH 149			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	11490.00	41.83	54.00	-12.17	26.78	10.71	39.39	35.05	194	100	Average	VERTICAL
2	11490.00	54.87	74.00	-19.13	39.82	10.71	39.39	35.05	194	100	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).

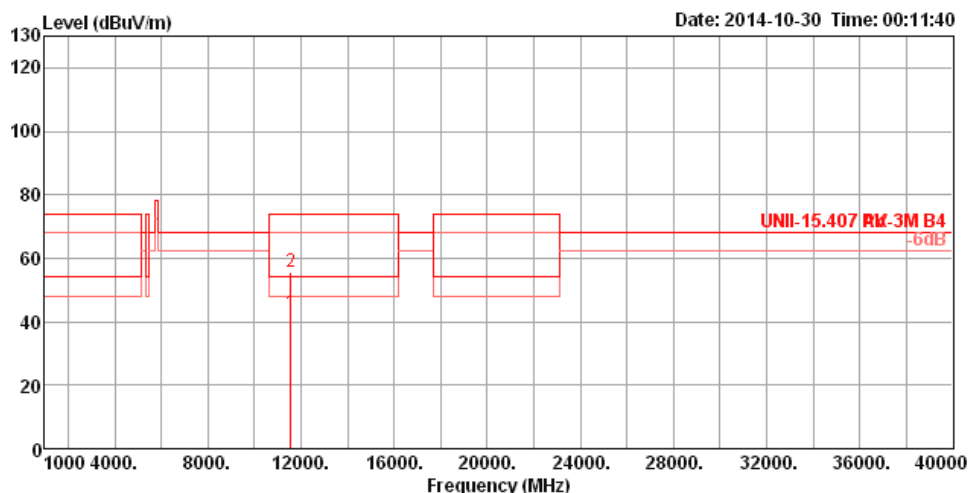
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

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



Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	IEEE 802.11ac VHT20 / MCS0Nss1 / Chain 4 / CH 157				Polarization	H
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu	



	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm	
1	11570.00	42.69	54.00	-11.31	27.55	10.76	39.44	35.06	159	100 Average	HORIZONTAL
2	11570.00	55.68	74.00	-18.32	40.54	10.76	39.44	35.06	159	100 Peak	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).

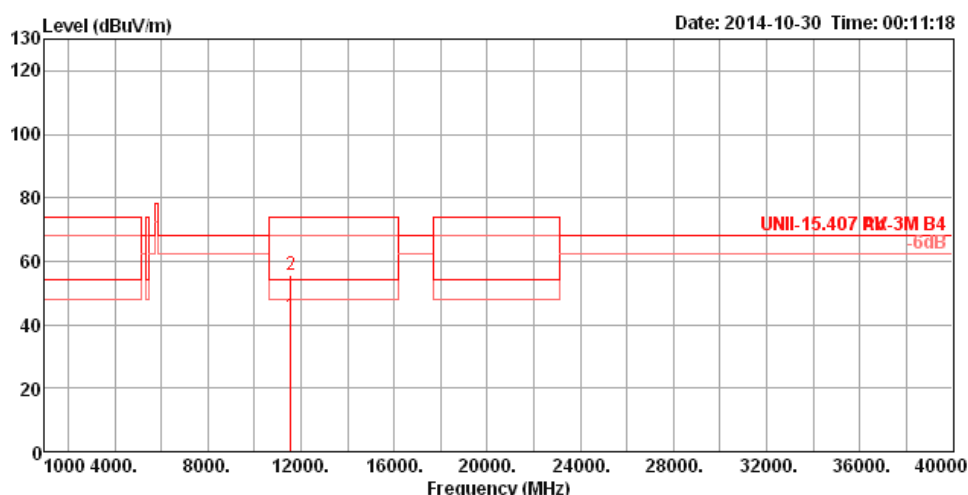
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

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



Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	IEEE 802.11ac VHT20 / MCS0Nss1 / Chain 4 / CH 157			Polarization	V
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



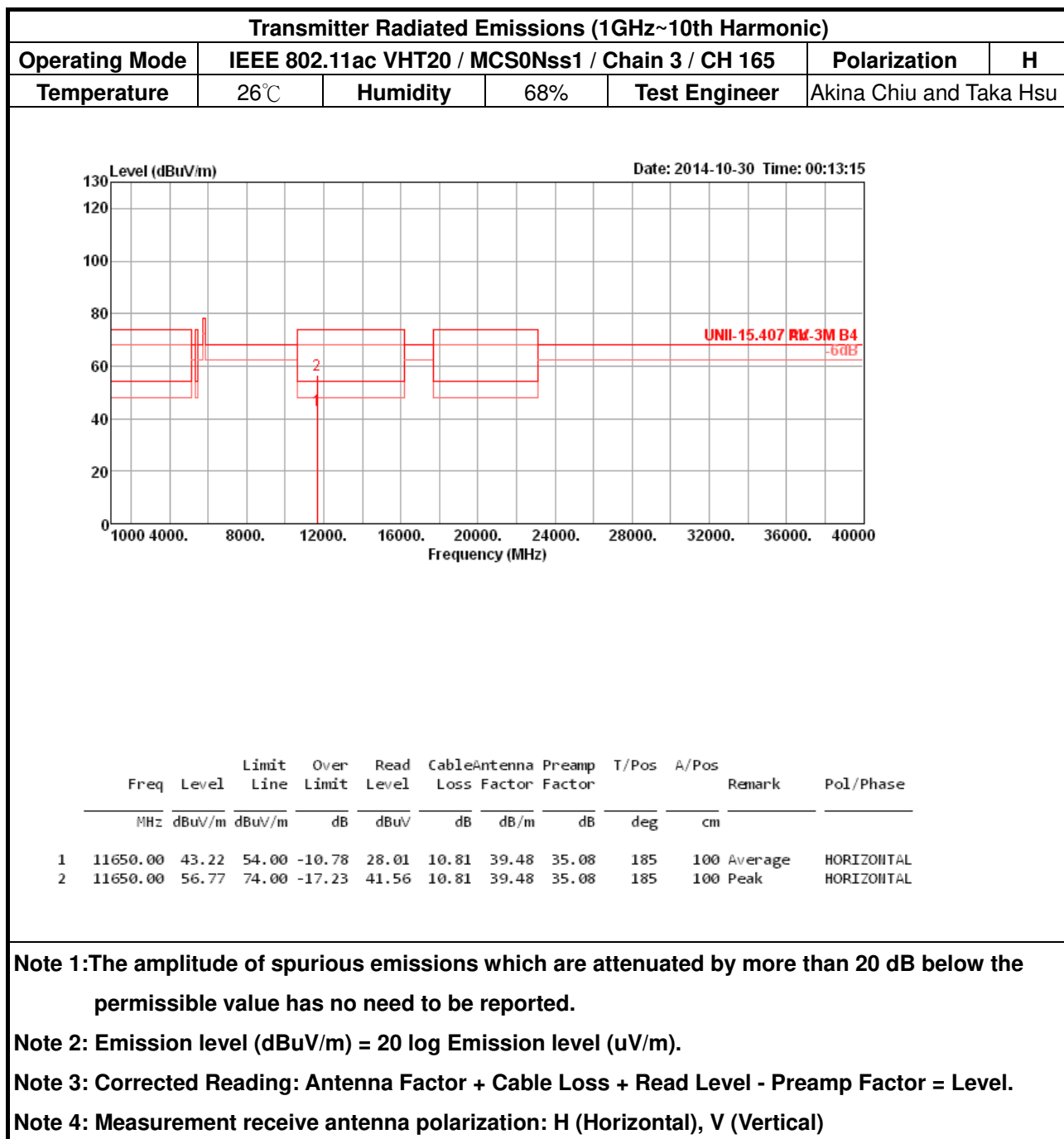
	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11570.00	42.68	54.00	-11.32	27.54	10.76	39.44	35.06	207	100	Average	VERTICAL
2	11570.00	55.78	74.00	-18.22	40.64	10.76	39.44	35.06	207	100	Peak	VERTICAL

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.

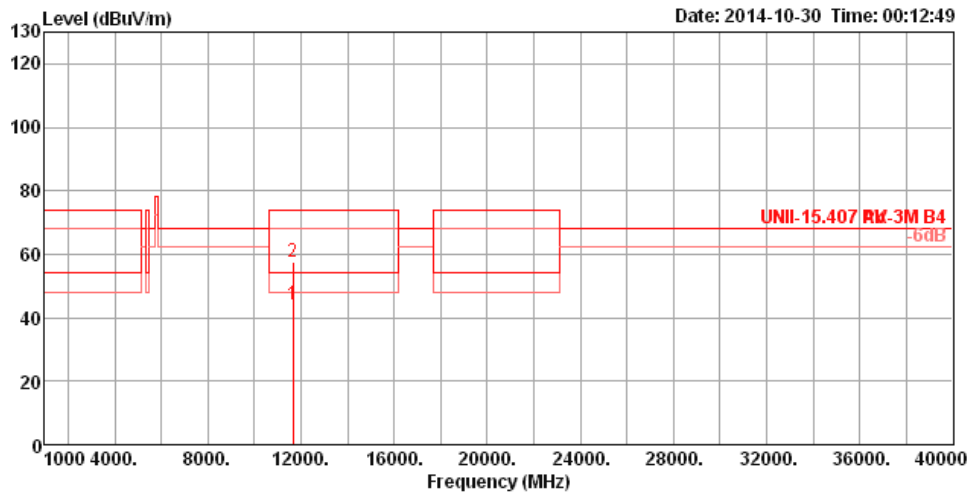
Note 4: Measurement receive antenna polarization: H (Horizontal), V (Vertical)





Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	IEEE 802.11ac VHT20 / MCS0Nss1 / Chain 3 / CH 165			Polarization	V
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



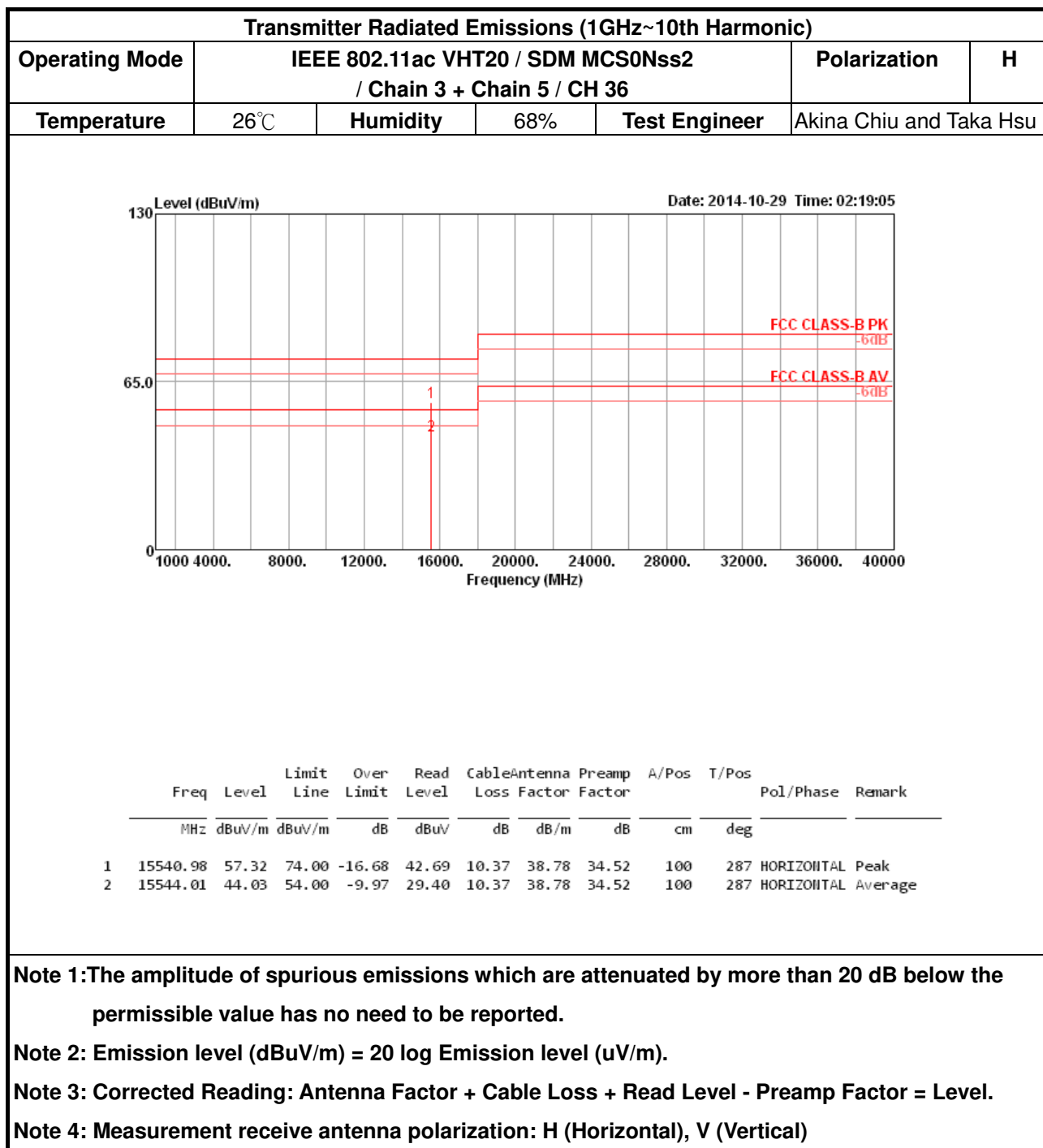
	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11650.00	43.90	54.00	-10.10	28.69	10.81	39.48	35.08	123	100	Average	VERTICAL
2	11650.00	57.43	74.00	-16.57	42.22	10.81	39.48	35.08	123	100	Peak	VERTICAL

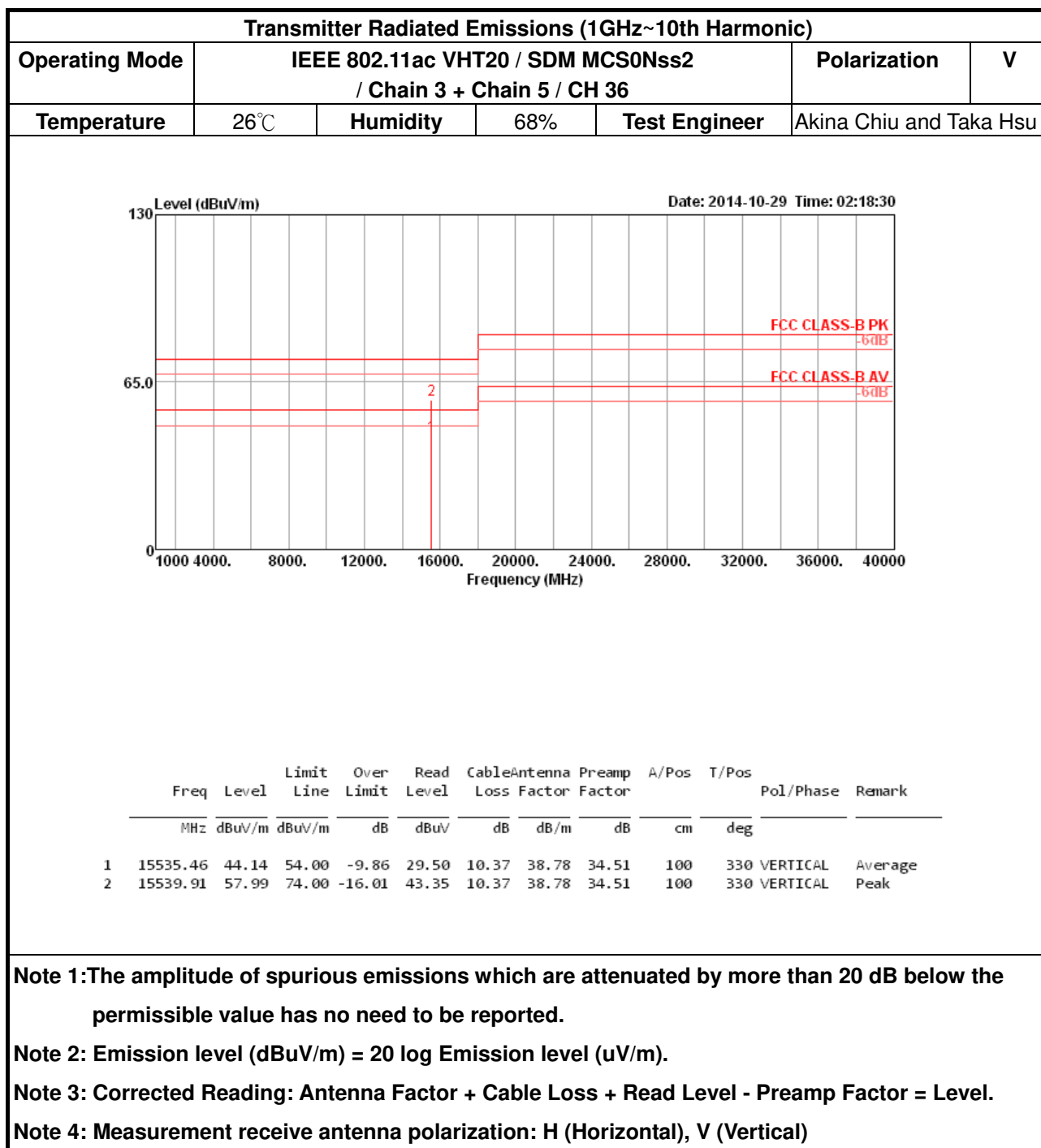
Note 1: The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

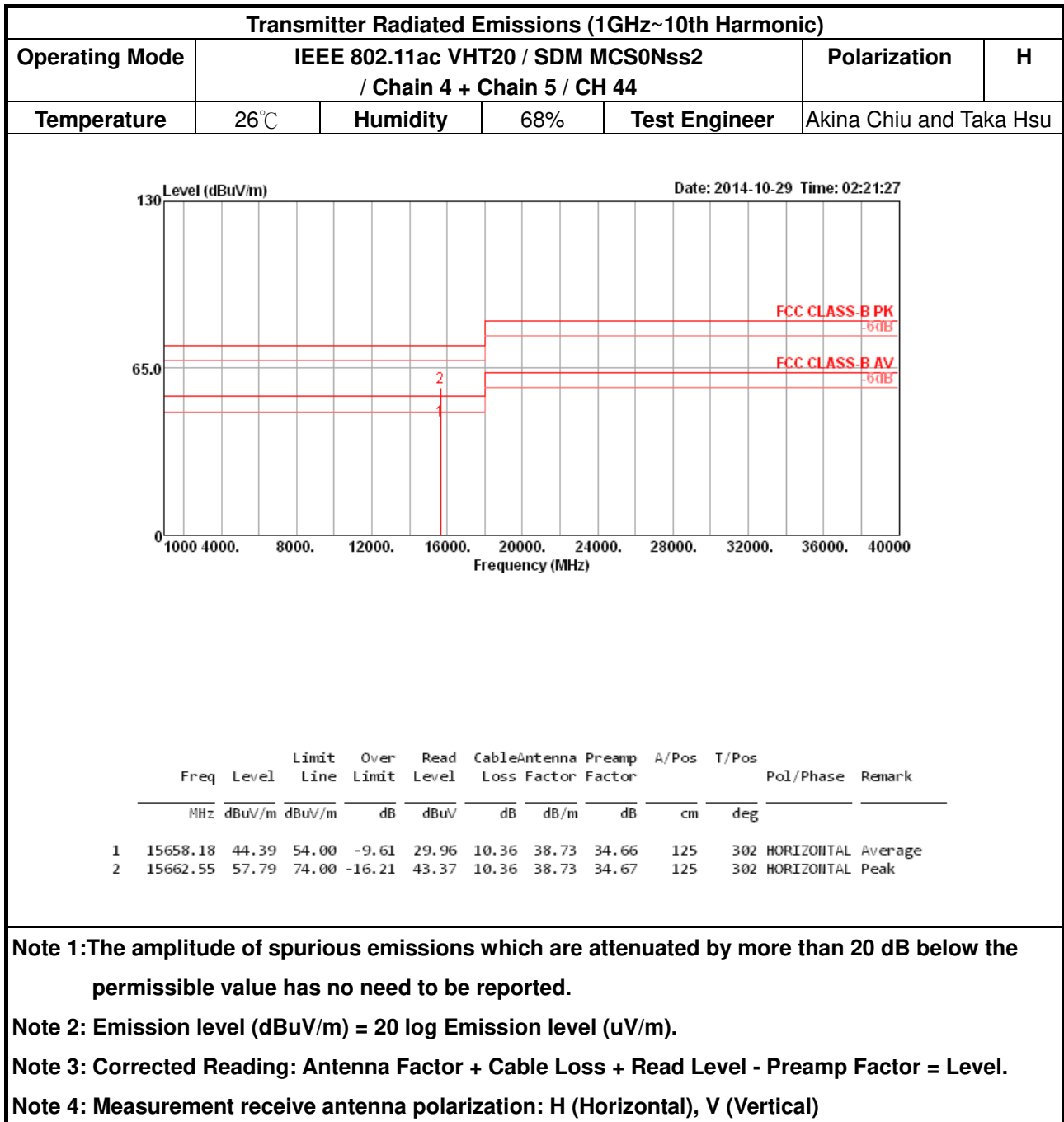
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

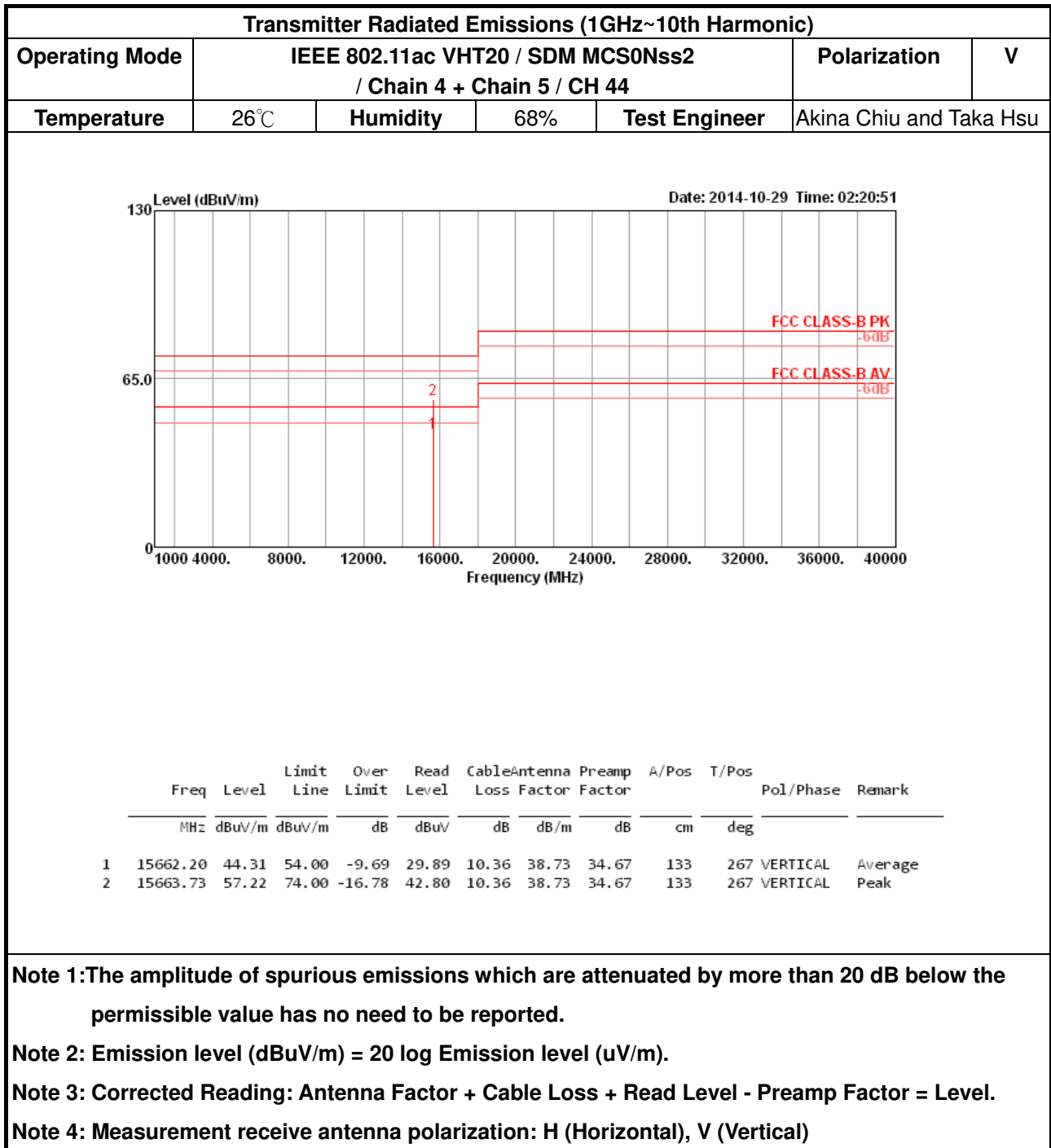
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

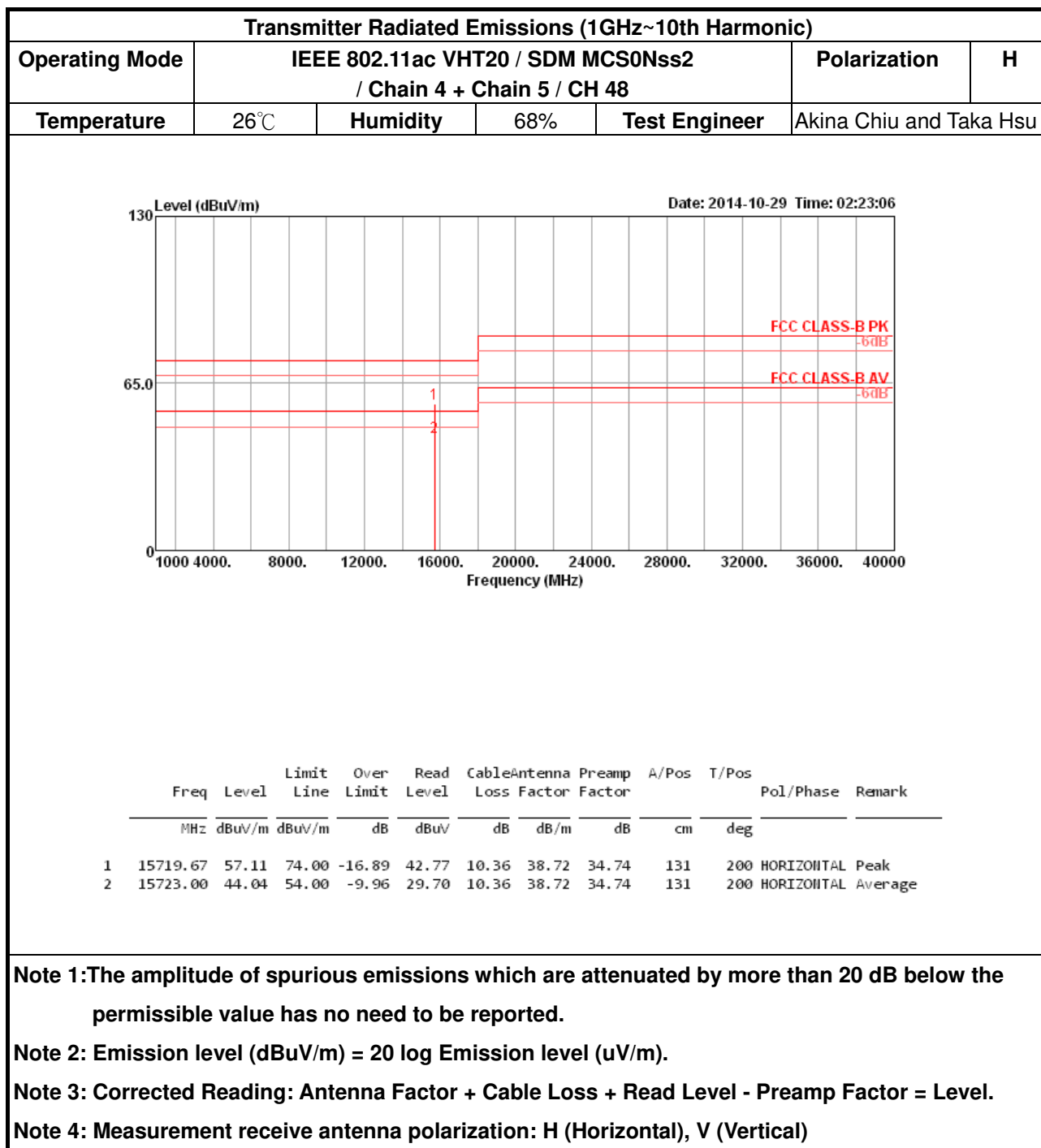
Note 4: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

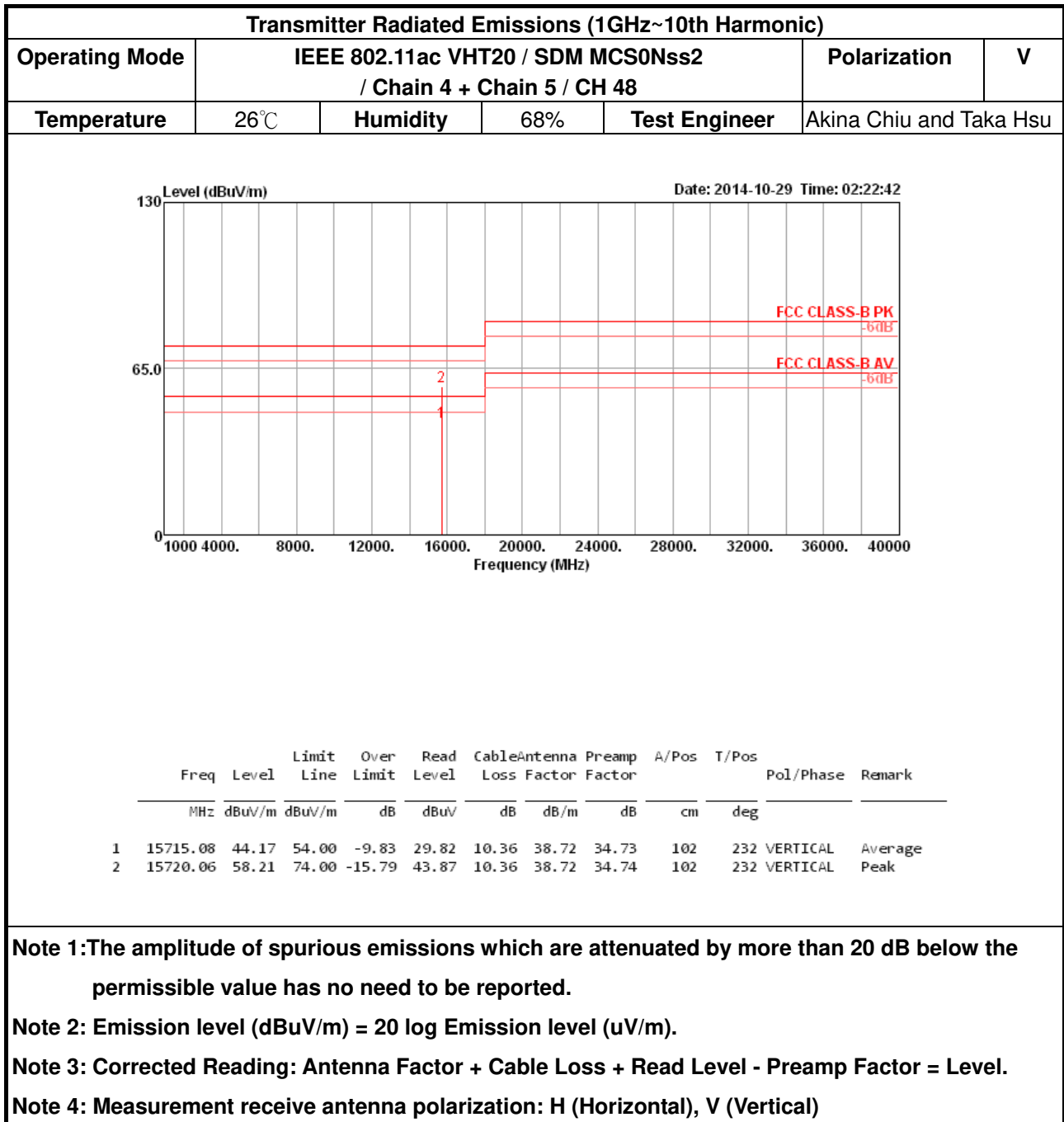


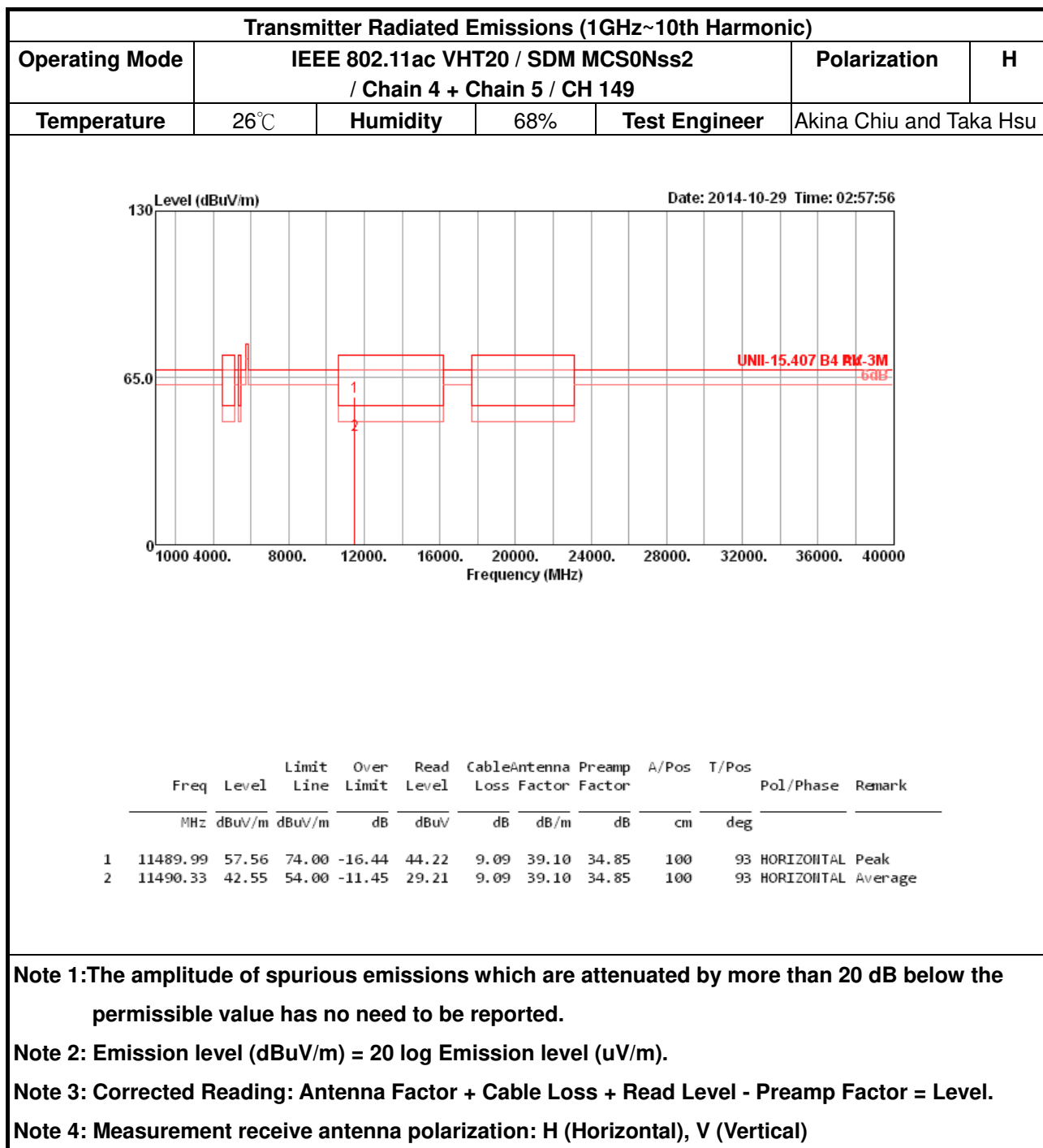






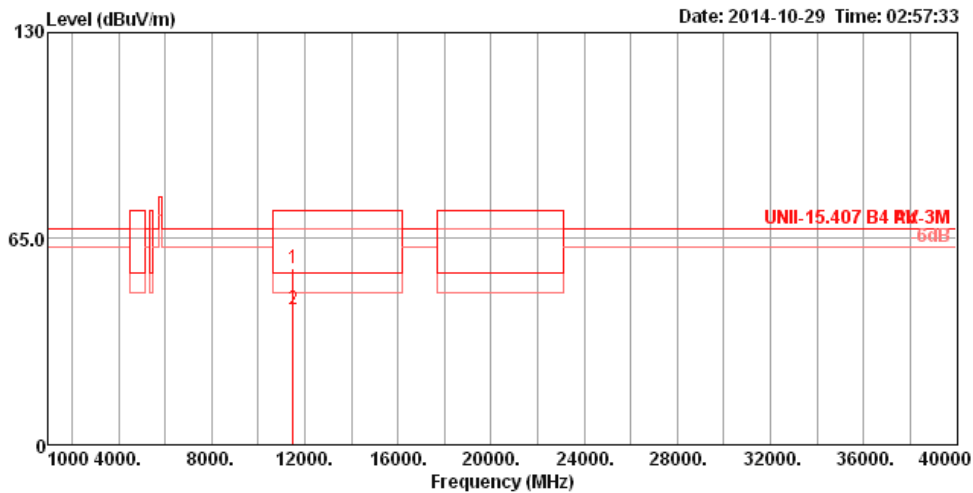






Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	IEEE 802.11ac VHT20 / SDM MCS0Nss2 / Chain 4 + Chain 5 / CH 149				Polarization	V
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu	



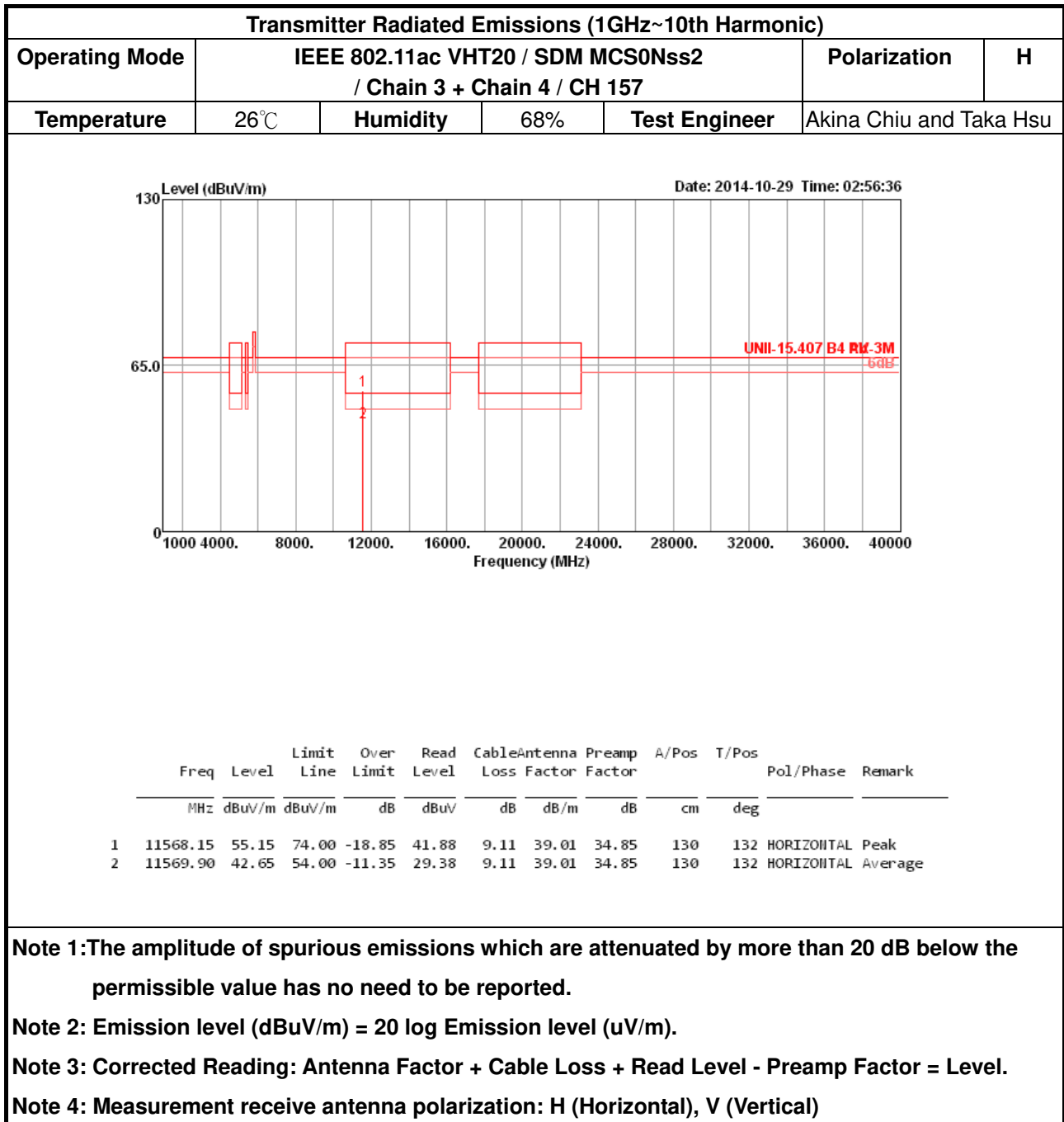
	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	11486.31	55.79	74.00	-18.21	42.45	9.09	39.10	34.85	112	142 VERTICAL	Peak
2	11489.20	42.86	54.00	-11.14	29.52	9.09	39.10	34.85	112	142 VERTICAL	Average

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).

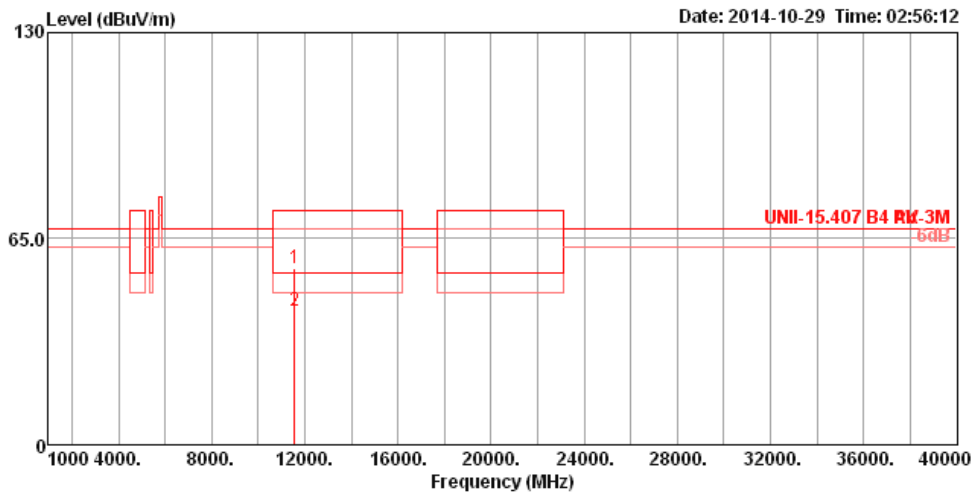
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

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



Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	IEEE 802.11ac VHT20 / SDM MCS0Nss2 / Chain 3 + Chain 4 / CH 157				Polarization	V
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu	



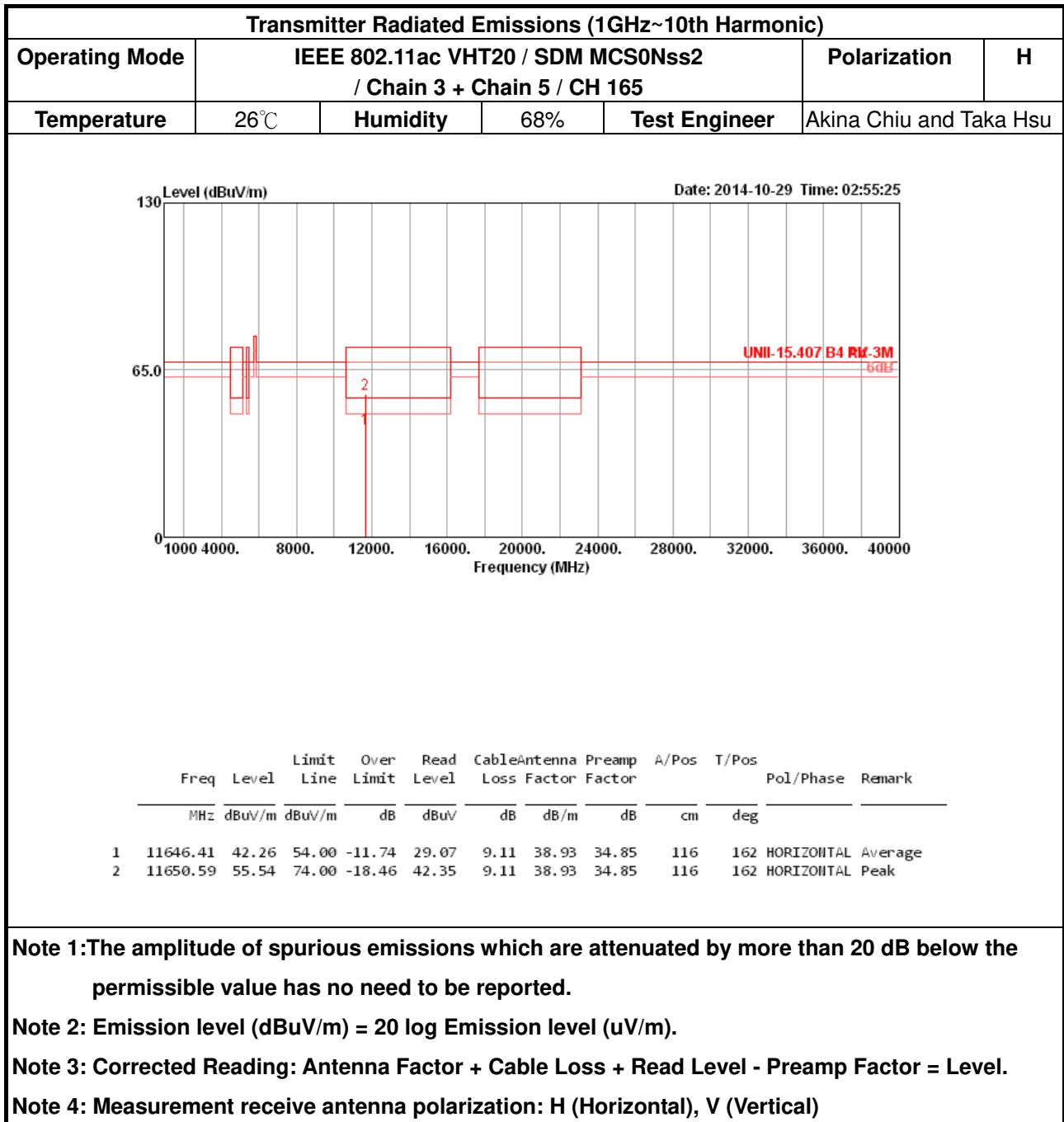
	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11567.93	55.60	74.00	-18.40	42.33	9.11	39.01	34.85	104	295	VERTICAL	Peak
2	11571.40	42.43	54.00	-11.57	29.16	9.11	39.01	34.85	104	295	VERTICAL	Average

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).

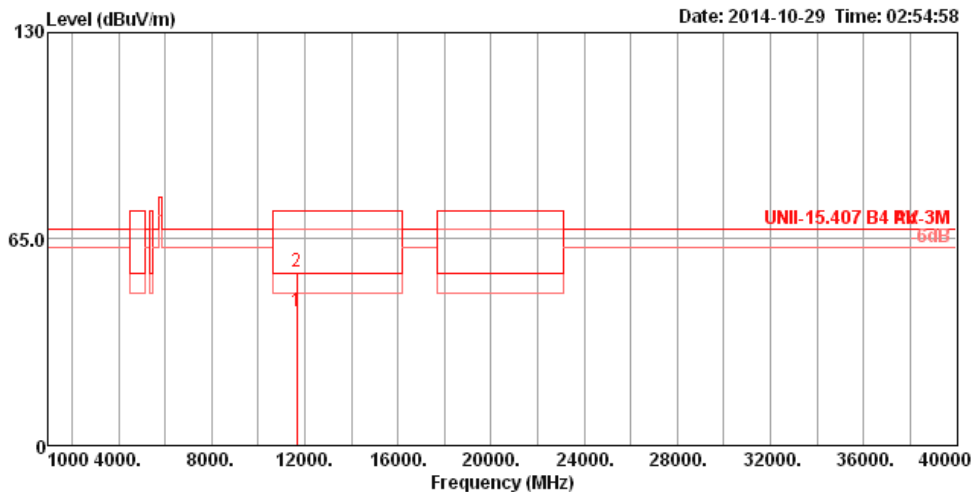
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

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



Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	IEEE 802.11ac VHT20 / SDM MCS0Nss2 / Chain 3 + Chain 5 / CH 165				Polarization	V
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu	



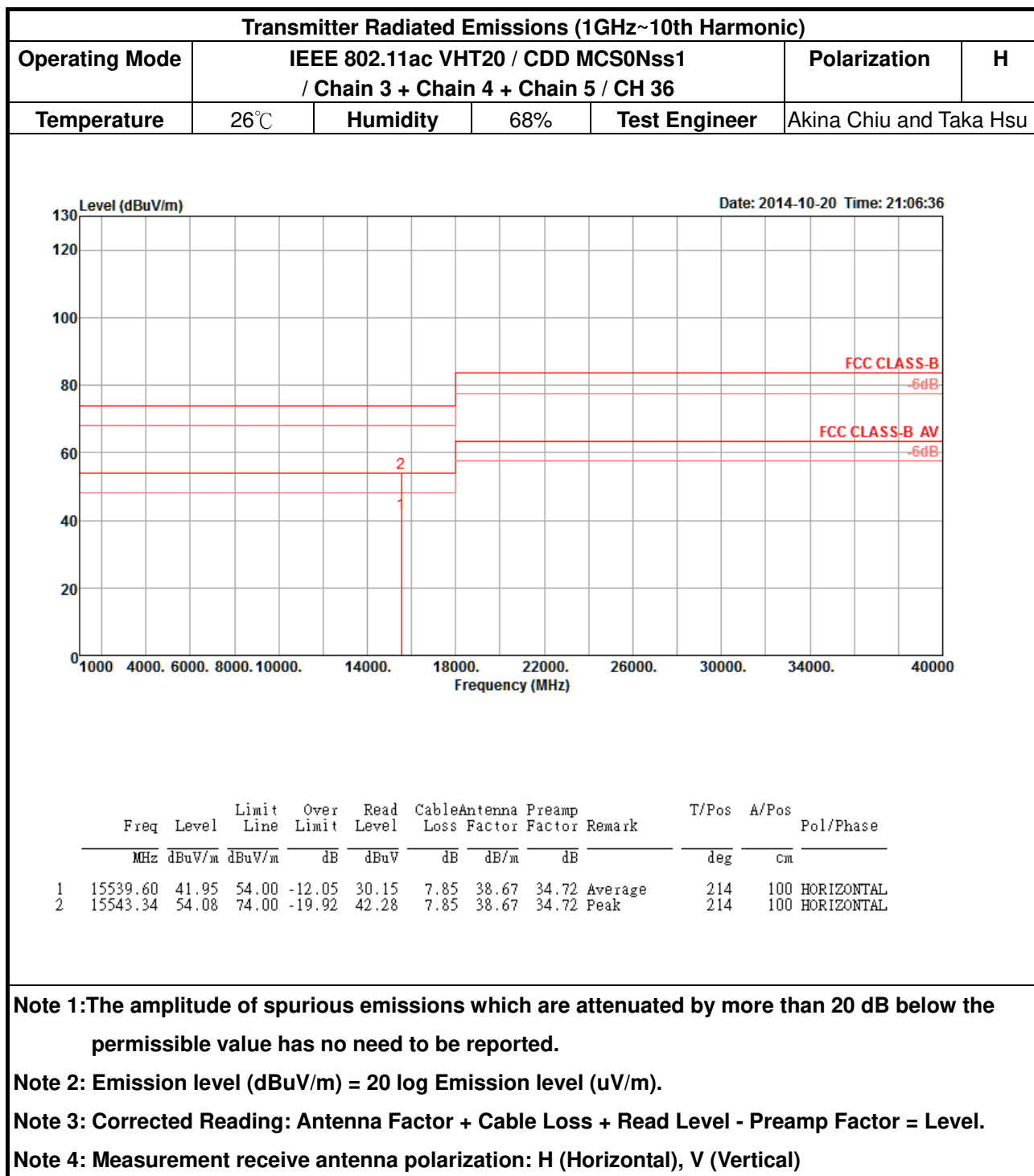
	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11646.44	42.28	54.00	-11.72	29.09	9.11	38.93	34.85	100	36	VERTICAL	Average
2	11654.14	54.83	74.00	-19.17	41.68	9.11	38.89	34.85	100	36	VERTICAL	Peak

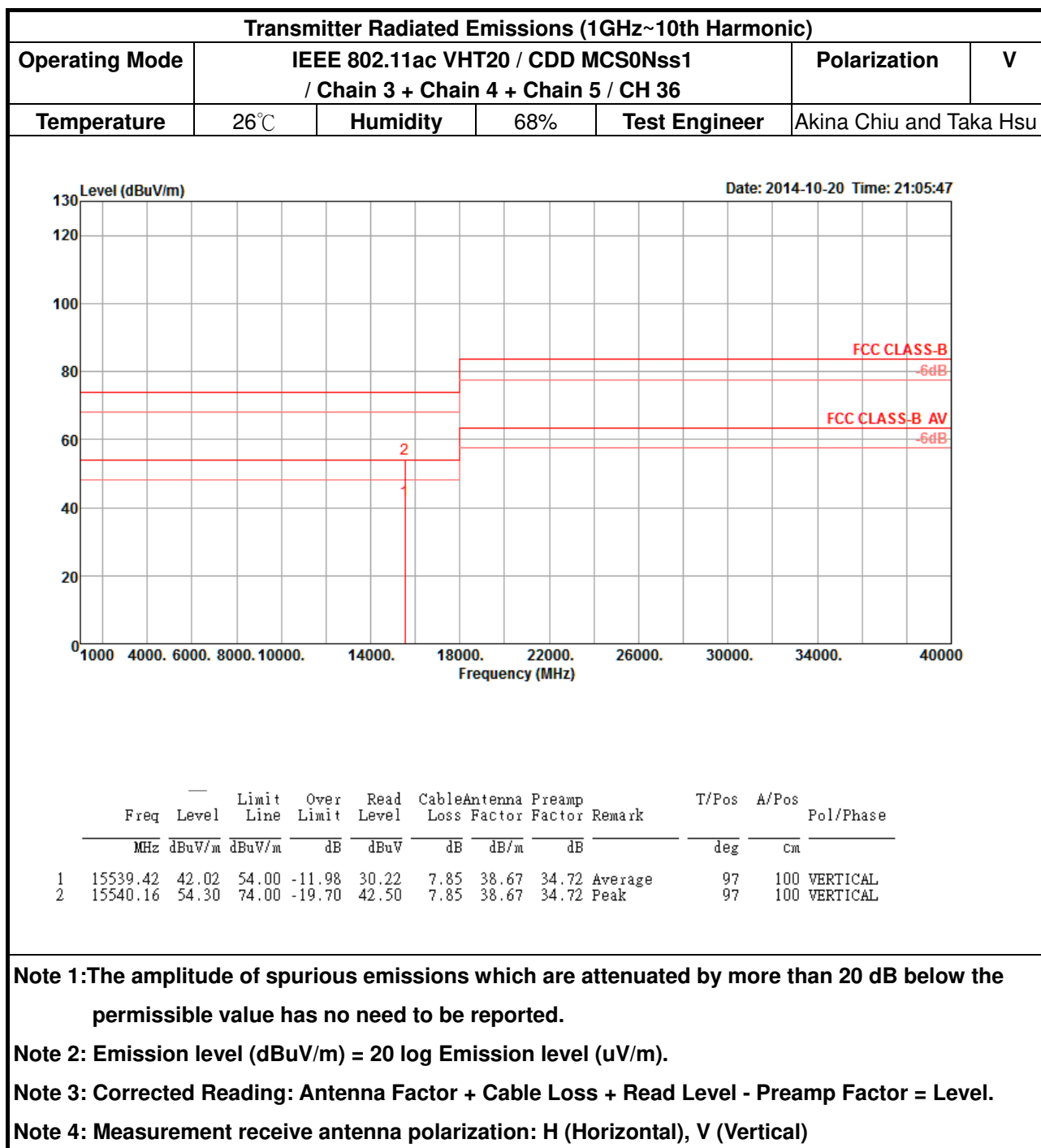
Note 1: The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

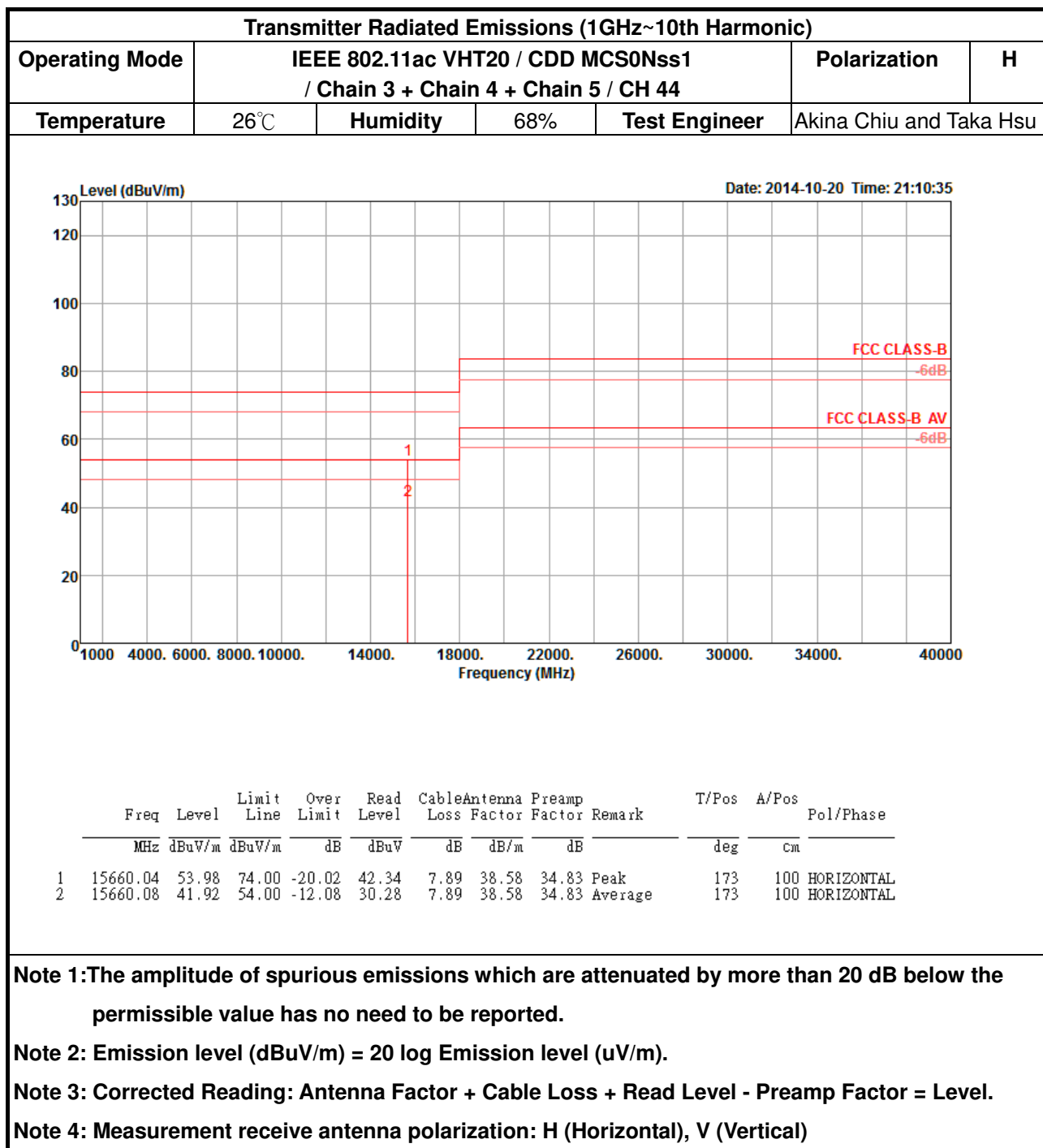
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

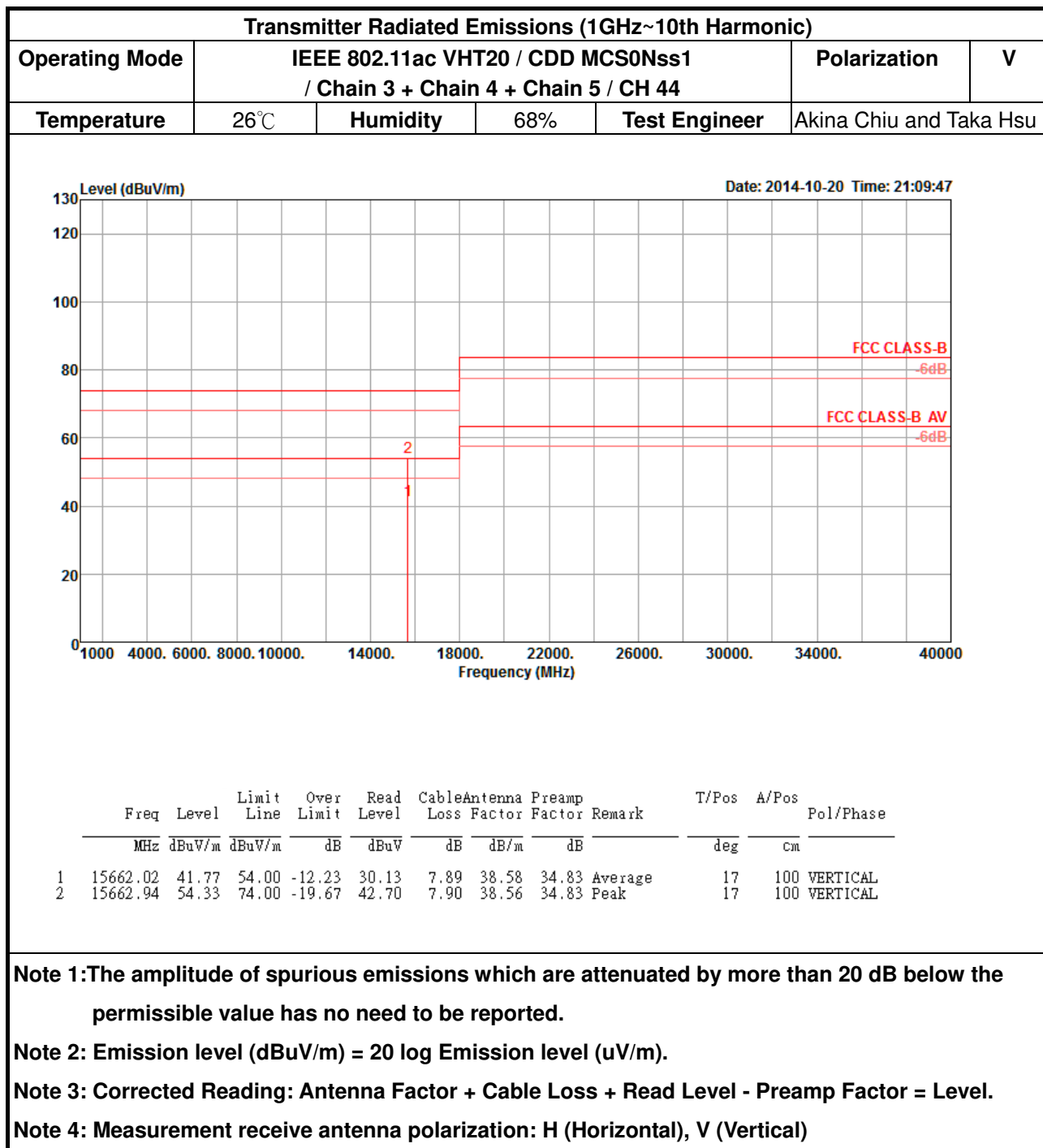
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

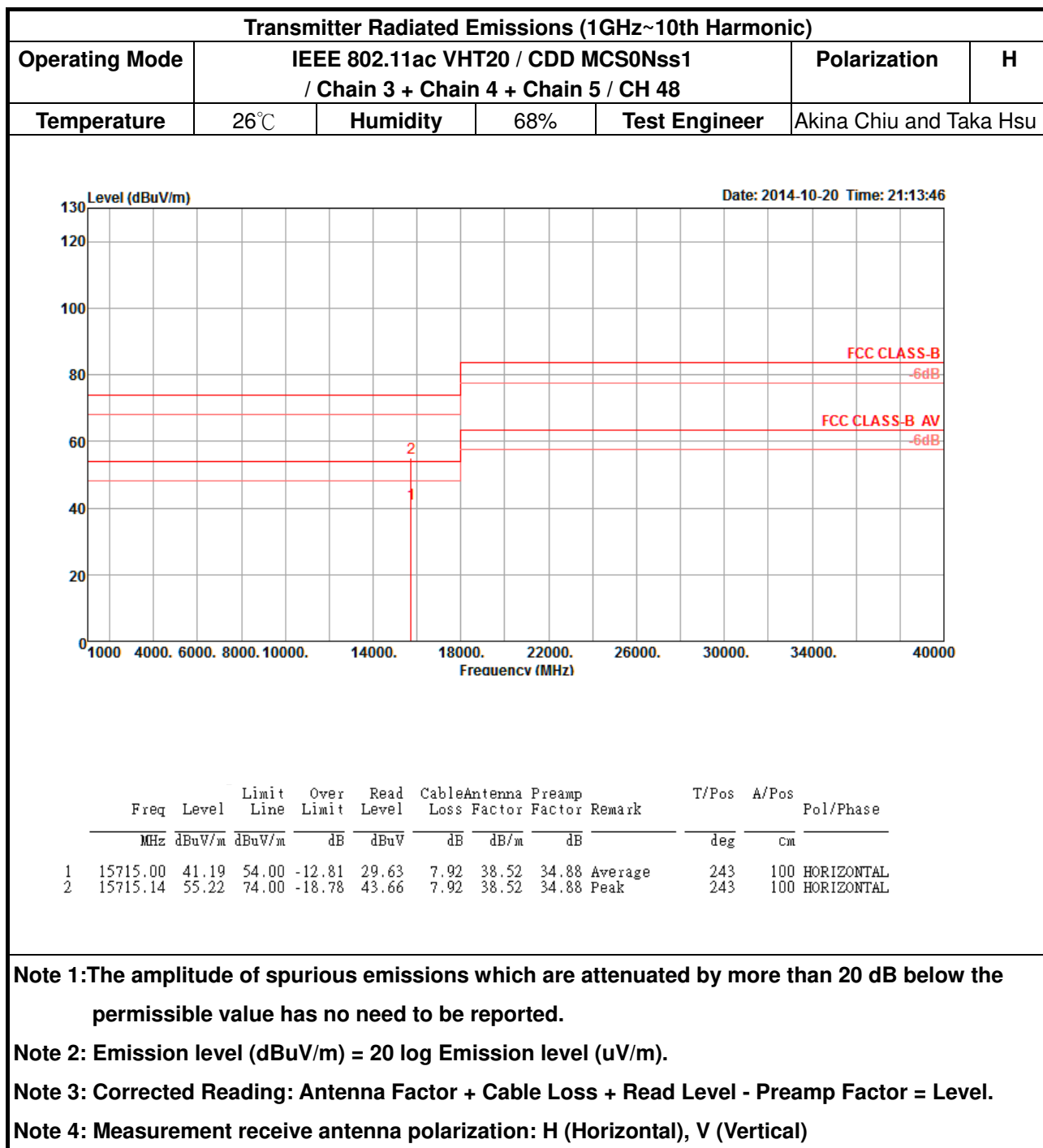
Note 4: Measurement receive antenna polarization: H (Horizontal), V (Vertical)







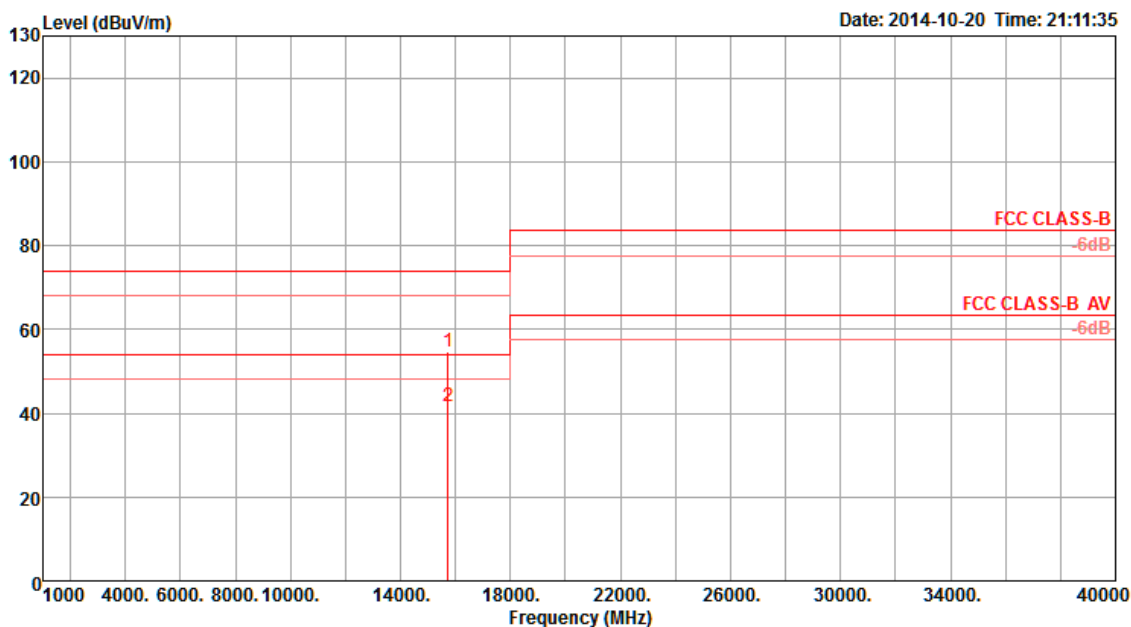






Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	IEEE 802.11ac VHT20 / CDD MCS0Nss1 / Chain 3 + Chain 4 + Chain 5 / CH 48			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	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	Remark	deg	cm	
1	15720.82	54.60	74.00	-19.40	43.04	7.92	38.52	34.88	Peak	301	100	VERTICAL
2	15721.22	41.73	54.00	-12.27	30.17	7.92	38.52	34.88	Average	301	100	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.

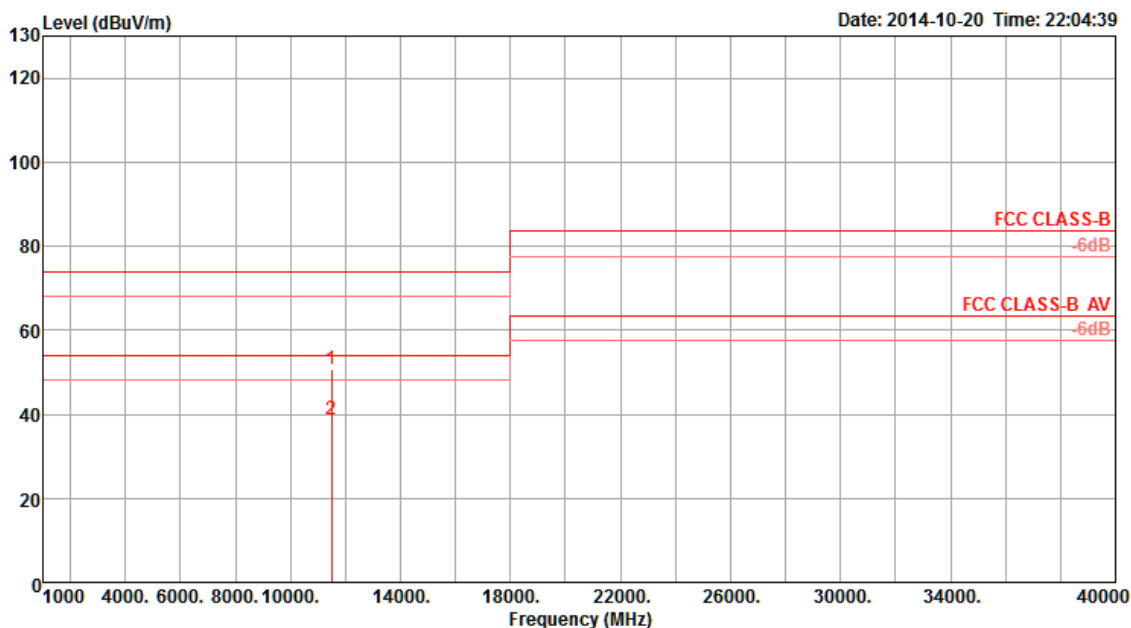
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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 802.11ac VHT20 / CDD MCS0Nss1 / Chain 3 + Chain 4 + Chain 5 / CH 149			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	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	Remark	deg	cm	
1	11485.86	50.76	74.00	-23.24	40.38	6.74	38.30	34.66	Peak	258	100	HORIZONTAL
2	11486.92	38.60	54.00	-15.40	28.22	6.74	38.30	34.66	Average	258	100	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.

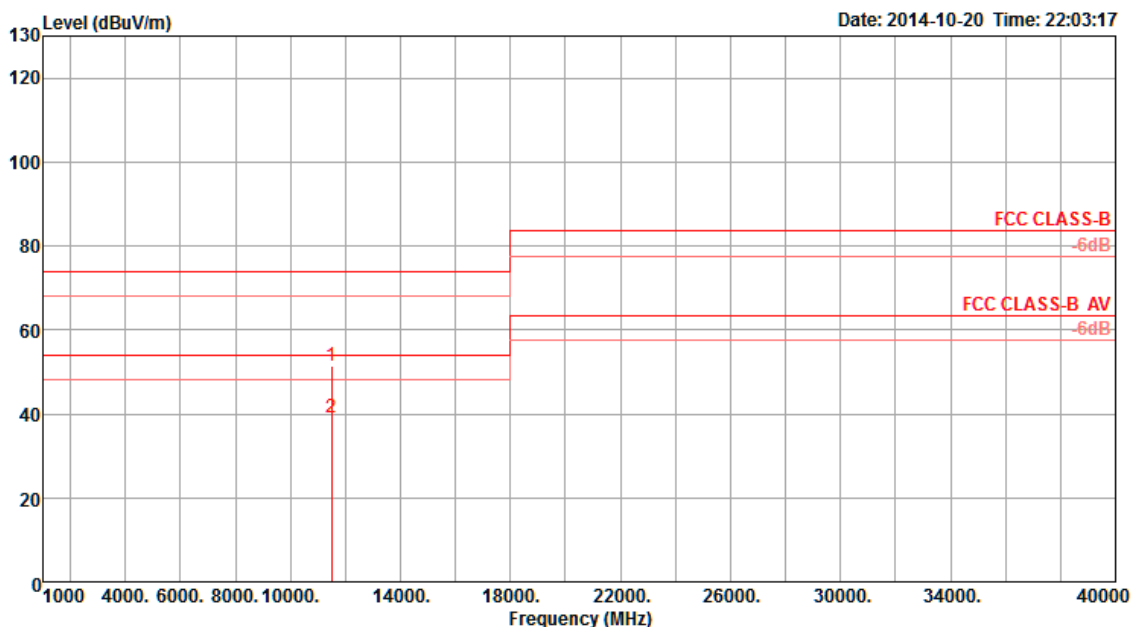
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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 802.11ac VHT20 / CDD MCS0Nss1 / Chain 3 + Chain 4 + Chain 5 / CH 149			Polarization	V
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



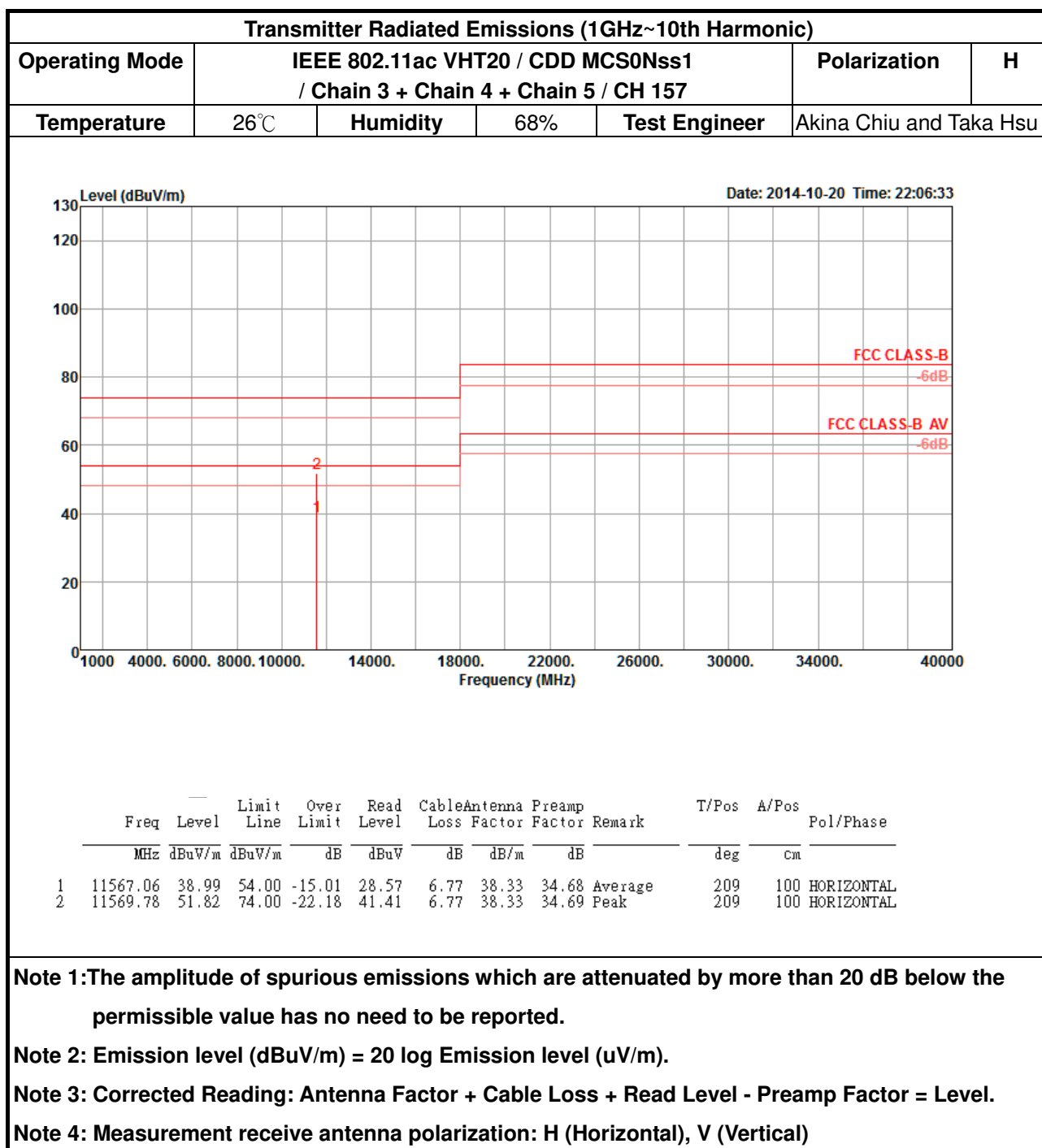
	Freq MHz	Level dBuV/m	Line dBuV/m	Limit dB	Level dBuV	CableAntenna Preamp			Remark	T/Pos deg	A/Pos cm	Pol/Phase
						Loss	Factor	Factor				
						dB	dB/m	dB				
1	11487.40	51.33	74.00	-22.67	40.95	6.74	38.30	34.66	Peak	50	100	VERTICAL
2	11489.94	39.10	54.00	-14.90	28.72	6.74	38.30	34.66	Average	50	100	VERTICAL

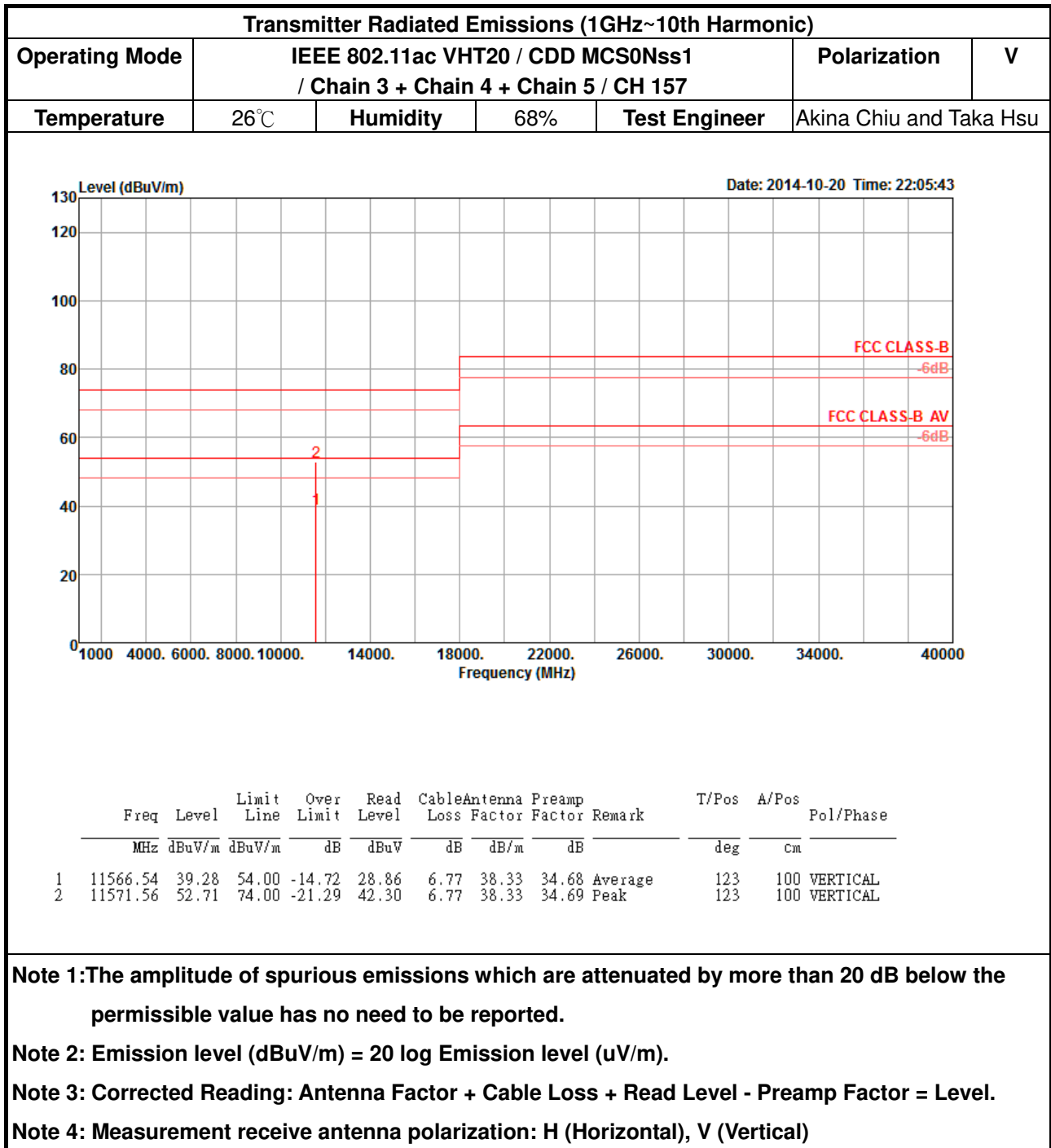
Note 1:The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

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.

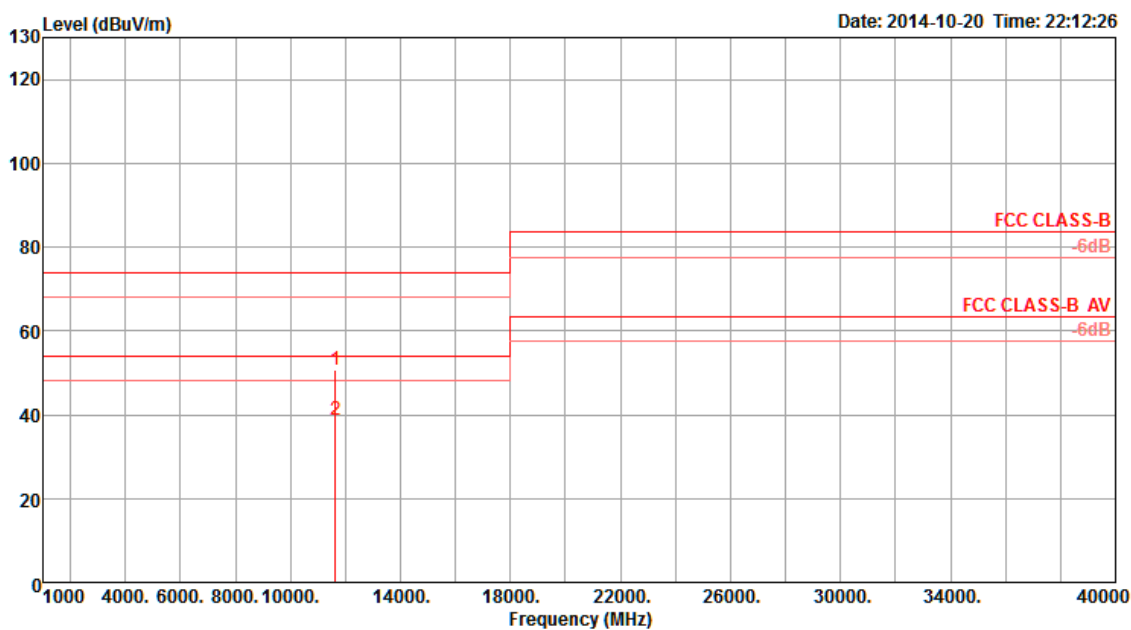
Note 4: Measurement receive antenna polarization: H (Horizontal), V (Vertical)





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

Operating Mode	IEEE 802.11ac VHT20 / CDD MCS0Nss1 / Chain 3 + Chain 4 + Chain 5 / CH 165			Polarization	H
Temperature	26℃	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



	Freq	Level	Limit	Over	Read	CableAntenna	Preamp		T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm	
1	11646.60	50.80	74.00	-23.20	40.36	6.80	38.36	34.72	256	100	HORIZONTAL
2	11647.02	38.59	54.00	-15.41	28.15	6.80	38.36	34.72	254	100	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.

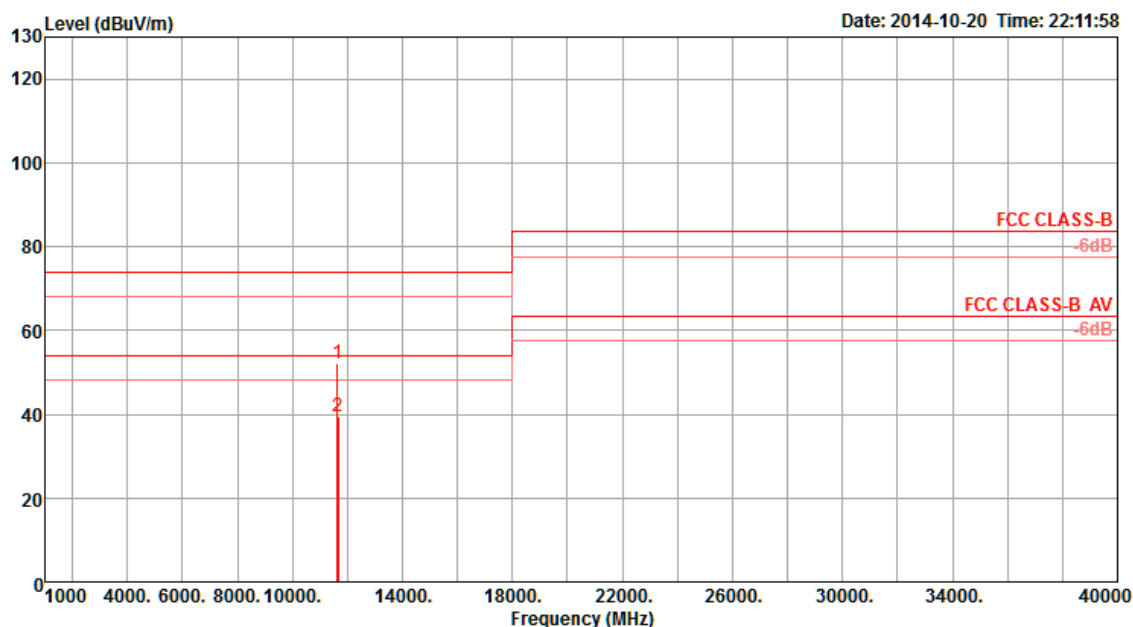
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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 802.11ac VHT20 / CDD MCS0Nss1 / Chain 3 + Chain 4 + Chain 5 / CH 165			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	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	Remark	deg	cm	
1	11648.58	52.05	74.00	-21.95	41.61	6.80	38.36	34.72	Peak	174	100	VERTICAL
2	11650.66	39.34	54.00	-14.66	28.90	6.80	38.36	34.72	Average	174	100	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).

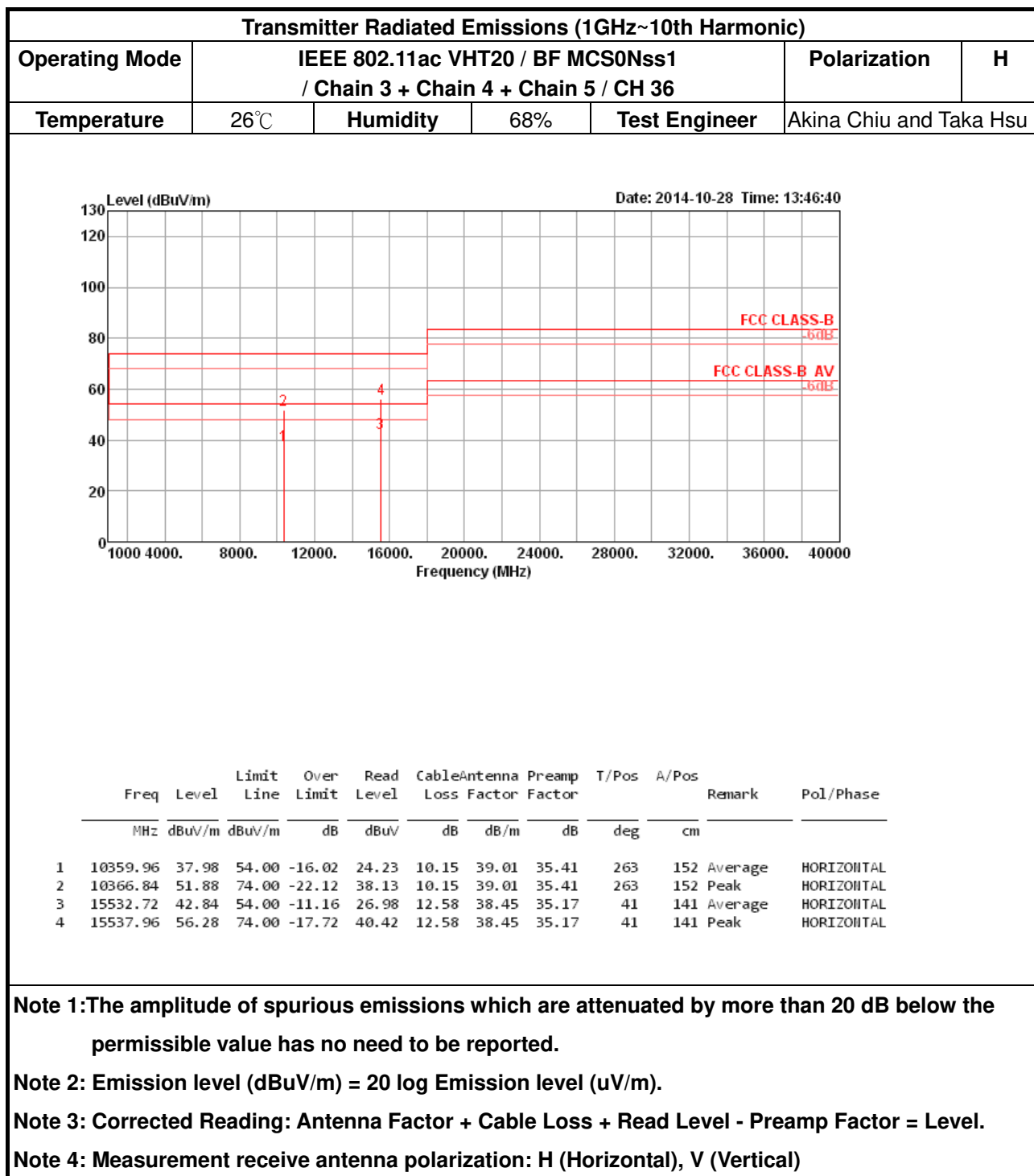
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

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



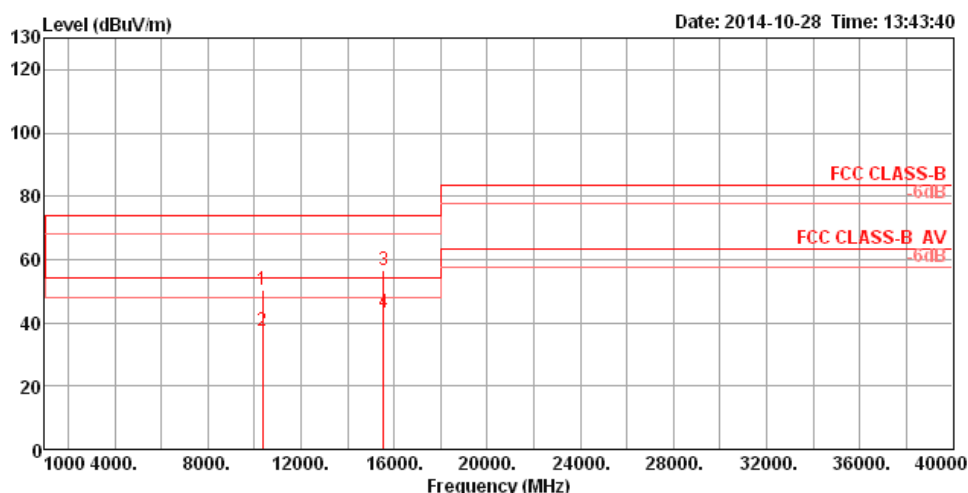
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Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	IEEE 802.11ac VHT20 / BF MCS0Nss1 / Chain 3 + Chain 4 + Chain 5 / CH 36			Polarization	V
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



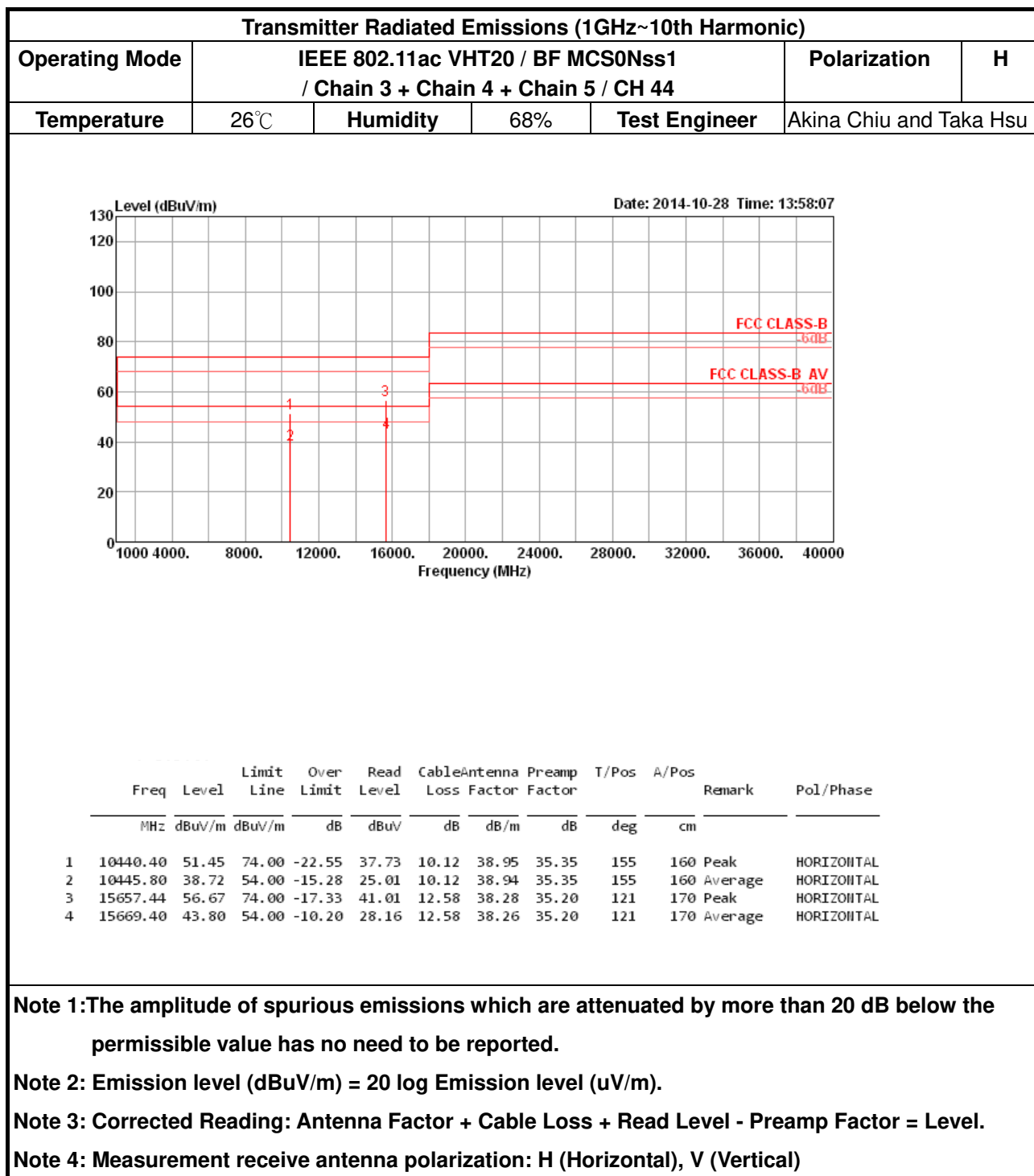
	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm	
1	10354.40	50.26	74.00	-23.74	36.50	10.15	39.02	35.41	114	116 Peak	VERTICAL
2	10369.72	37.38	54.00	-16.62	23.63	10.15	39.01	35.41	114	116 Average	VERTICAL
3	15534.84	56.43	74.00	-17.57	40.57	12.58	38.45	35.17	280	164 Peak	VERTICAL
4	15542.80	42.98	54.00	-11.02	27.12	12.58	38.45	35.17	280	164 Average	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).

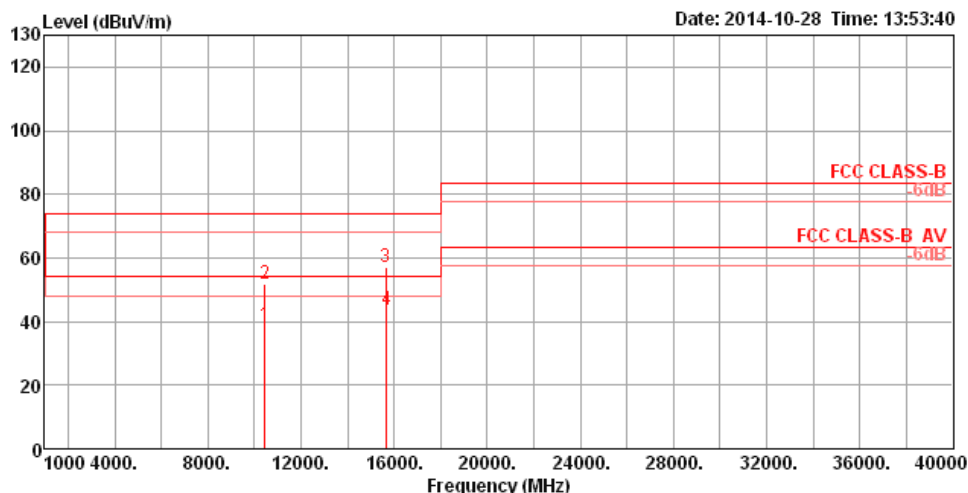
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

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



Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	IEEE 802.11ac VHT20 / BF MCS0Nss1 / Chain 3 + Chain 4 + Chain 5 / CH 44				Polarization	V
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu	



	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm	
1	10440.28	38.73	54.00	-15.27	25.01	10.12	38.95	35.35	113	135 Average	VERTICAL
2	10444.76	52.04	74.00	-21.96	38.33	10.12	38.94	35.35	113	135 Peak	VERTICAL
3	15659.64	57.17	74.00	-16.83	41.51	12.58	38.28	35.20	208	140 Peak	VERTICAL
4	15670.00	43.78	54.00	-10.22	28.14	12.58	38.26	35.20	208	140 Average	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.

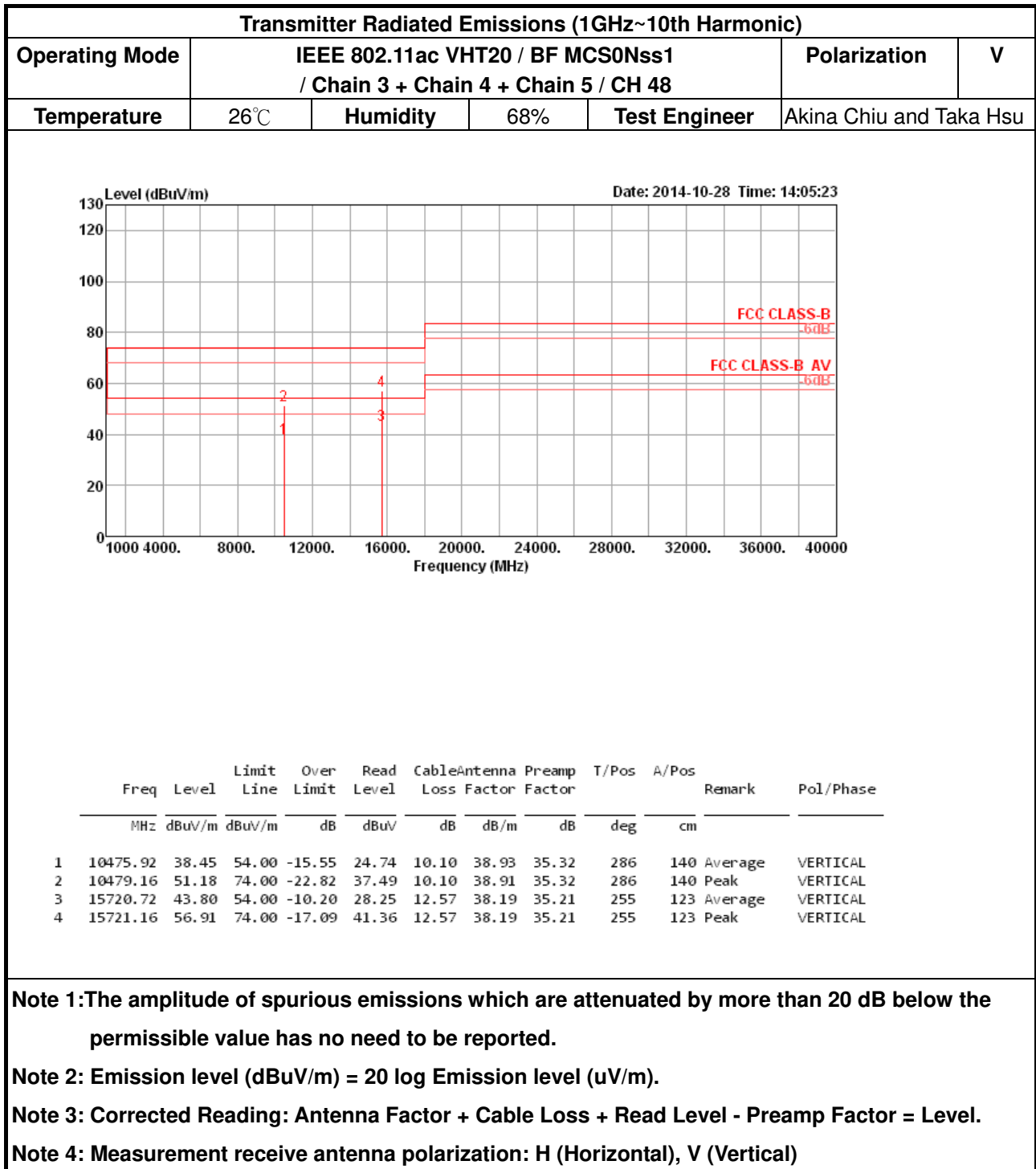
Note 4: Measurement receive antenna polarization: H (Horizontal), V (Vertical)



FCC RADIO TEST REPORT

Report No. : FR402168-02AB

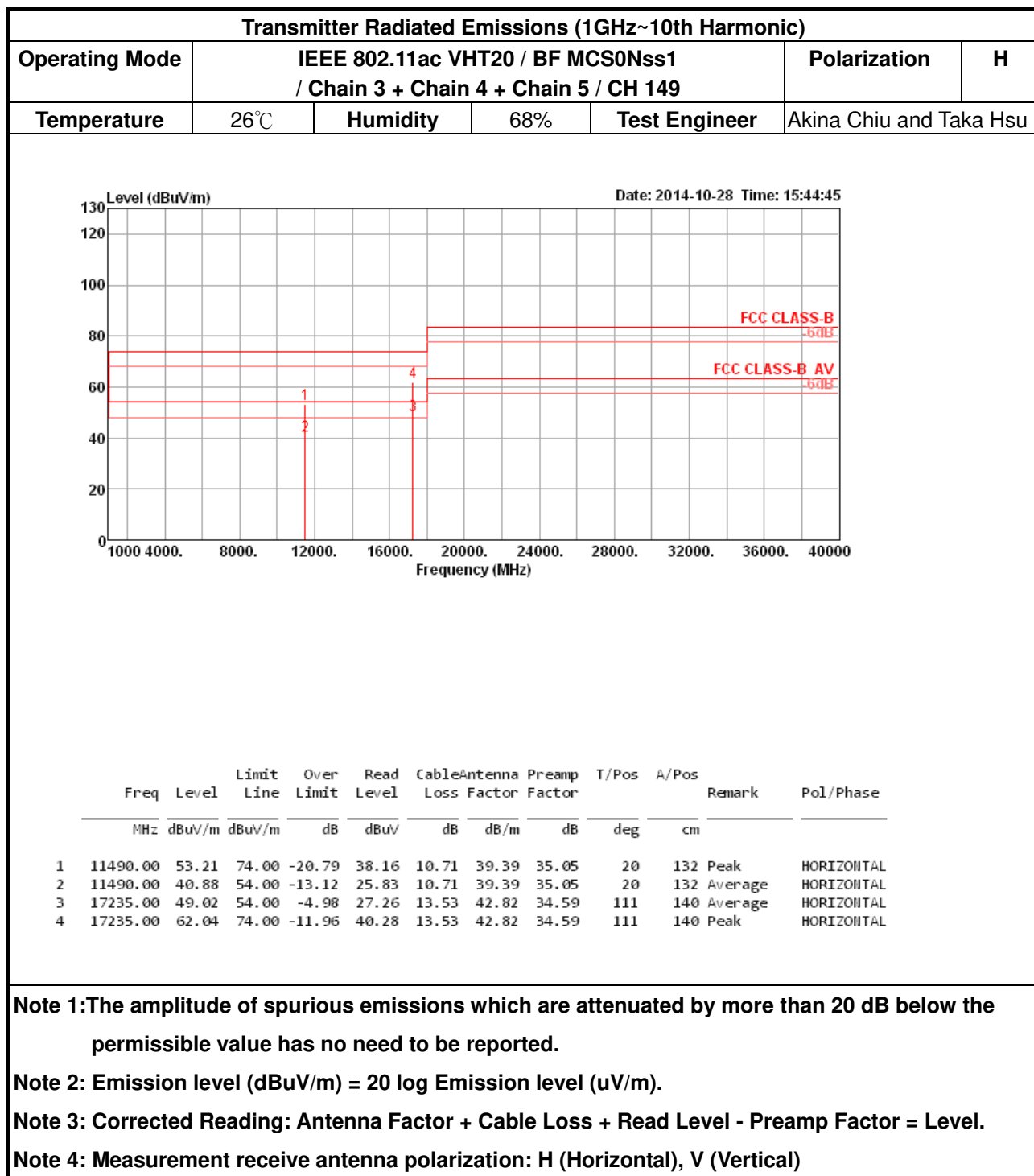
Transmitter Radiated Emissions (1GHz~10th Harmonic)																																																																																			
Operating Mode		IEEE 802.11ac VHT20 / BF MCS0Nss1 / Chain 3 + Chain 4 + Chain 5 / CH 48							Polarization		H																																																																								
Temperature	26℃	Humidity		68%	Test Engineer		Akina Chiu and Taka Hsu																																																																												
Level (dBuV/m) Date: 2014-10-28 Time: 14:07:14 <table><thead><tr><th></th><th>Freq</th><th>Level</th><th>Limit</th><th>Over</th><th>Read</th><th>CableAntenna</th><th>Preamp</th><th>T/Pos</th><th>A/Pos</th><th>Remark</th><th>Pol/Phase</th></tr><tr><th></th><th>MHz</th><th>dBuV/m</th><th>dBuV/m</th><th>dB</th><th>dBuV</th><th>dB</th><th>dB/m</th><th>dB</th><th>deg</th><th>cm</th><th></th></tr></thead><tbody><tr><td>1</td><td>10470.92</td><td>51.05</td><td>74.00</td><td>-22.95</td><td>37.35</td><td>10.11</td><td>38.93</td><td>35.34</td><td>66</td><td>162 Peak</td><td>HORIZONTAL</td></tr><tr><td>2</td><td>10479.84</td><td>38.16</td><td>54.00</td><td>-15.84</td><td>24.47</td><td>10.10</td><td>38.91</td><td>35.32</td><td>66</td><td>162 Average</td><td>HORIZONTAL</td></tr><tr><td>3</td><td>15725.96</td><td>57.33</td><td>74.00</td><td>-16.67</td><td>41.78</td><td>12.57</td><td>38.19</td><td>35.21</td><td>228</td><td>162 Peak</td><td>HORIZONTAL</td></tr><tr><td>4</td><td>15728.76</td><td>43.81</td><td>54.00</td><td>-10.19</td><td>28.27</td><td>12.57</td><td>38.19</td><td>35.22</td><td>228</td><td>162 Average</td><td>HORIZONTAL</td></tr></tbody></table>													Freq	Level	Limit	Over	Read	CableAntenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		1	10470.92	51.05	74.00	-22.95	37.35	10.11	38.93	35.34	66	162 Peak	HORIZONTAL	2	10479.84	38.16	54.00	-15.84	24.47	10.10	38.91	35.32	66	162 Average	HORIZONTAL	3	15725.96	57.33	74.00	-16.67	41.78	12.57	38.19	35.21	228	162 Peak	HORIZONTAL	4	15728.76	43.81	54.00	-10.19	28.27	12.57	38.19	35.22	228	162 Average	HORIZONTAL
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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)																																																																																			

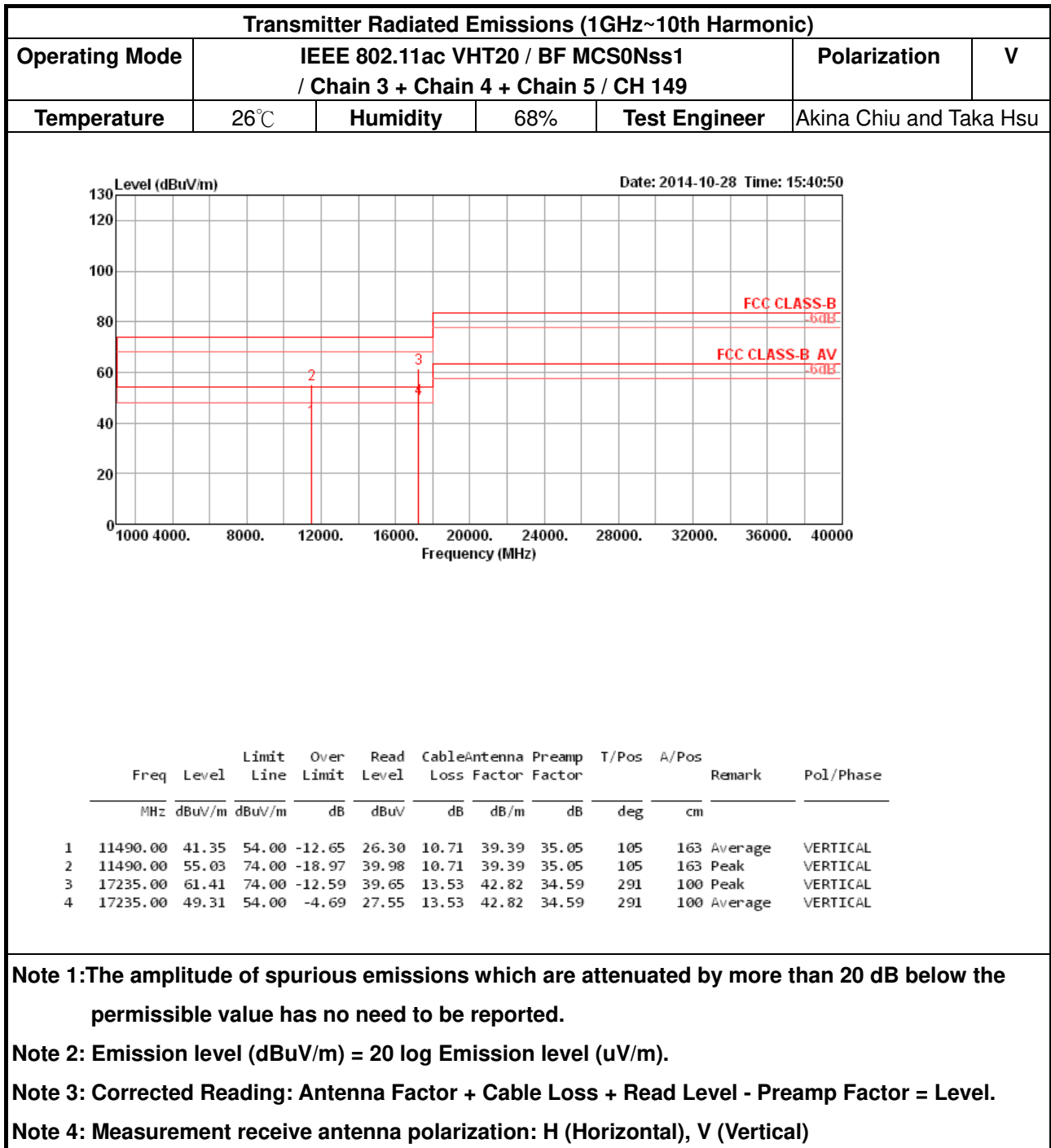


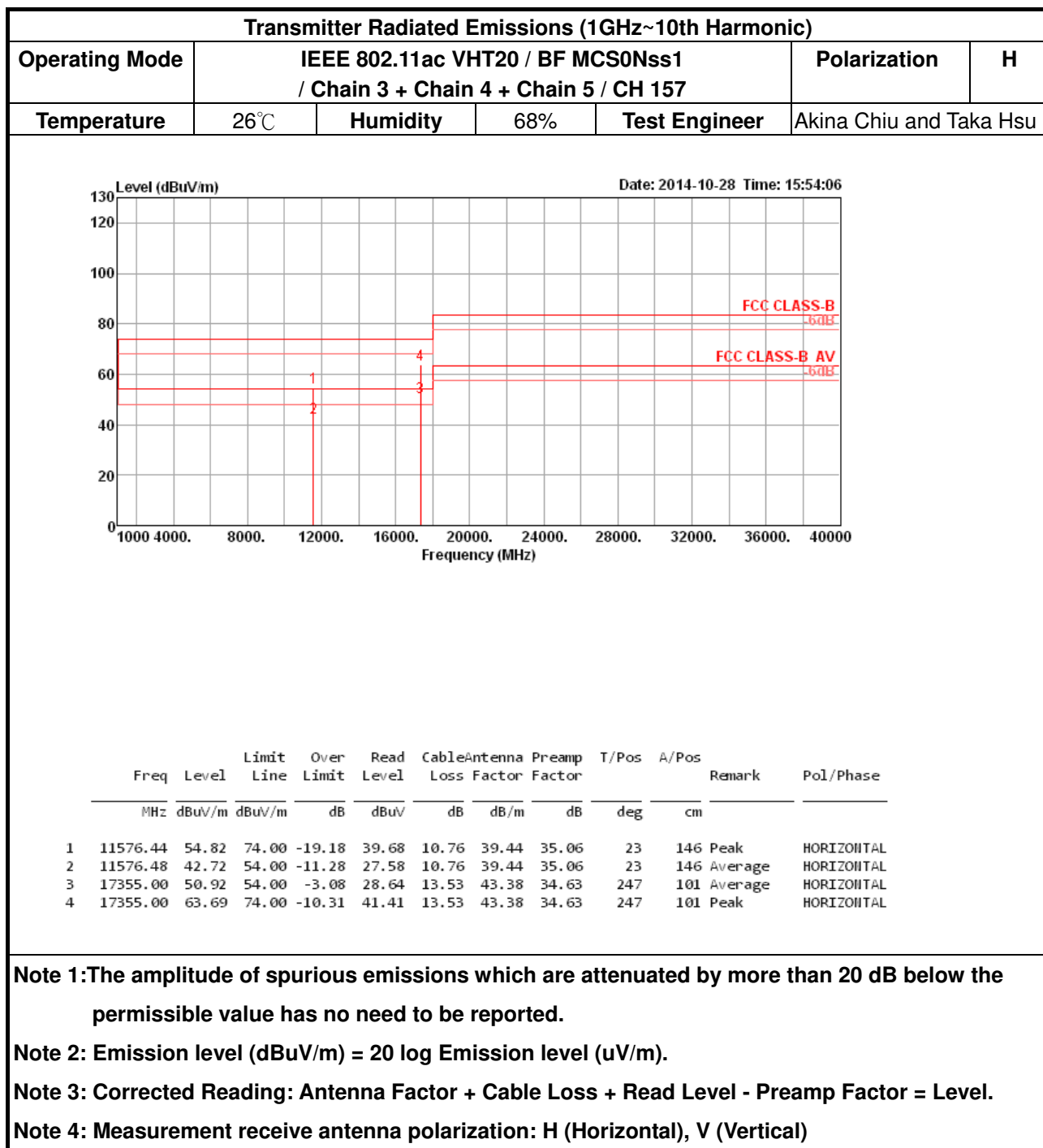


FCC RADIO TEST REPORT

Report No. : FR4O2168-02AB

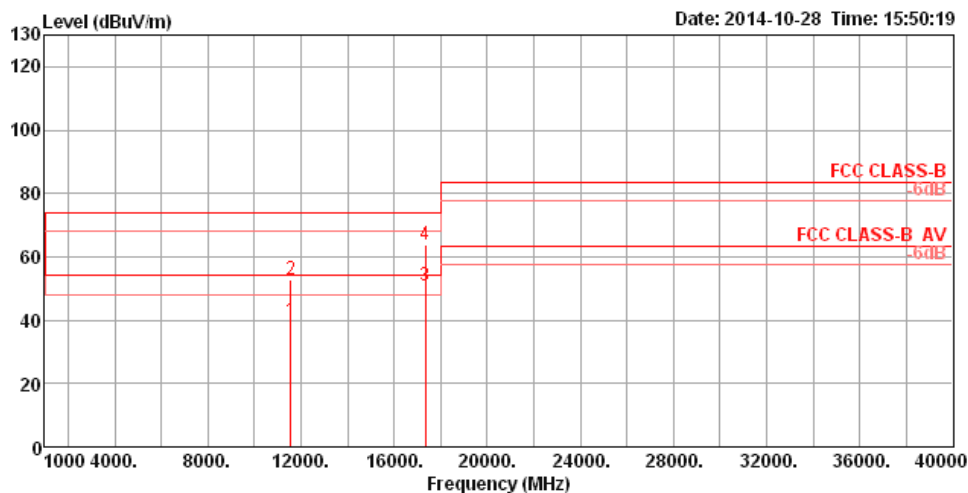






Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	IEEE 802.11ac VHT20 / BF MCS0Nss1 / Chain 3 + Chain 4 + Chain 5 / CH 157			Polarization	V
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	Line	Limit	Level	Loss	Factor	Factor	deg	cm	
1	11570.00	39.66	54.00	-14.34	24.52	10.76	39.44	35.06	176	102 Average	VERTICAL
2	11570.00	52.58	74.00	-21.42	37.44	10.76	39.44	35.06	176	102 Peak	VERTICAL
3	17355.00	50.90	54.00	-3.10	28.62	13.53	43.38	34.63	42	129 Average	VERTICAL
4	17355.00	63.60	74.00	-10.40	41.32	13.53	43.38	34.63	42	129 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.

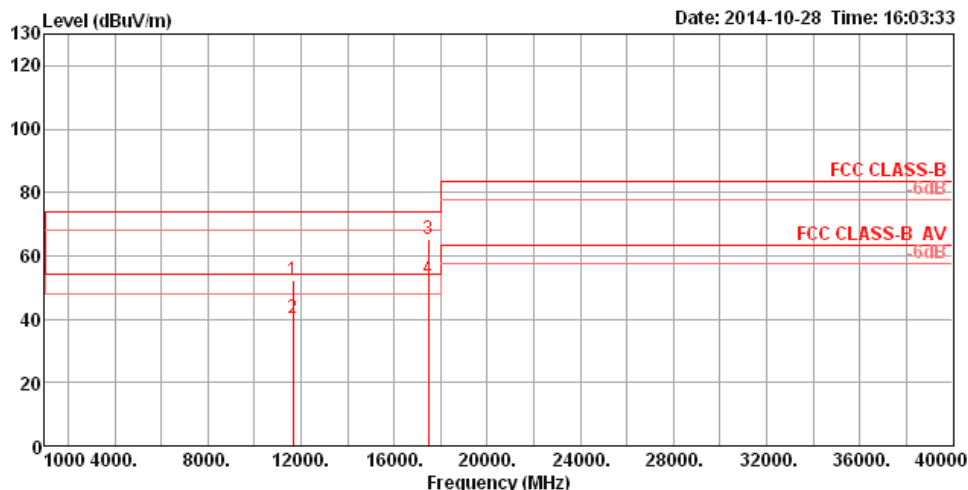
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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 802.11ac VHT20 / BF MCS0Nss1 / Chain 3 + Chain 4 + Chain 5 / CH 165			Polarization	H
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	Line	Limit	Level	Loss	Factor	Factor			
				dB	dBuV	dB	dB/m	dB	deg	cm	
1	11645.60	52.28	74.00	-21.72	37.08	10.79	39.48	35.07	245	116 Peak	HORIZONTAL
2	11650.68	40.41	54.00	-13.59	25.19	10.81	39.49	35.08	245	116 Average	HORIZONTAL
3	17471.80	65.07	74.00	-8.93	42.29	13.53	43.94	34.69	102	118 Peak	HORIZONTAL
4	17474.56	52.64	54.00	-1.36	29.86	13.53	43.94	34.69	102	118 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.

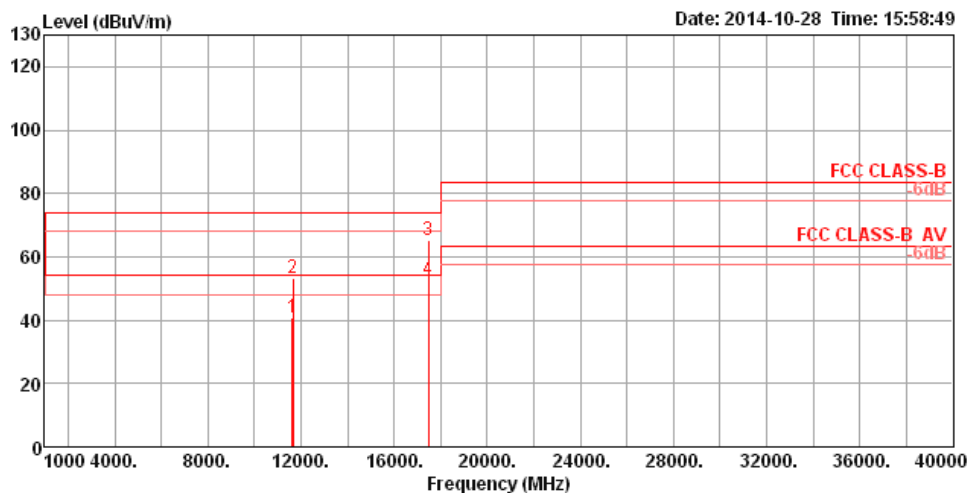
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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 802.11ac VHT20 / BF MCS0Nss1 / Chain 3 + Chain 4 + Chain 5 / CH 165			Polarization	V
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



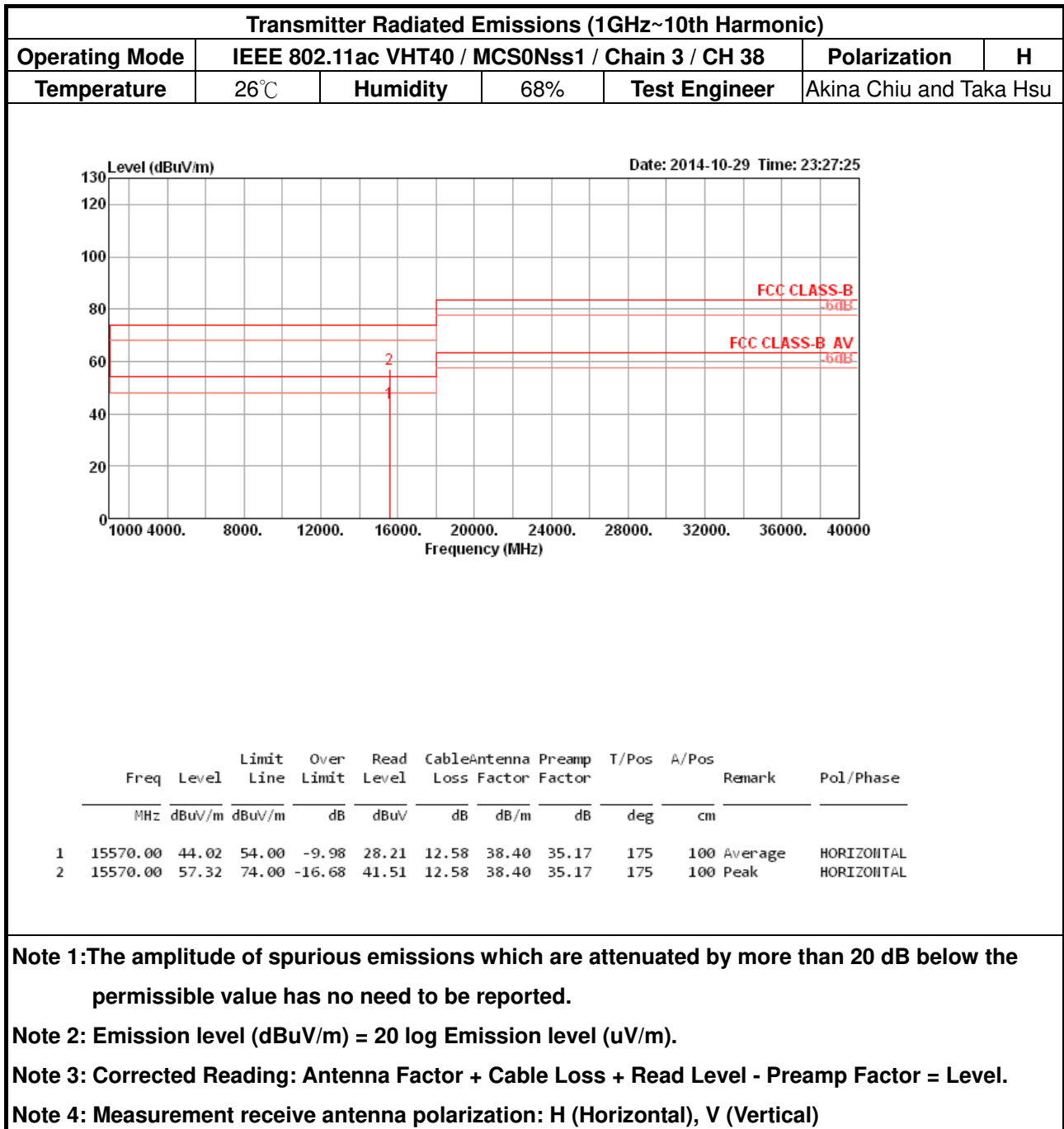
	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm	
1	11644.84	40.61	54.00	-13.39	25.41	10.79	39.48	35.07	113	101 Average	VERTICAL
2	11647.72	53.46	74.00	-20.54	38.25	10.81	39.48	35.08	113	101 Peak	VERTICAL
3	17477.92	65.42	74.00	-8.58	42.64	13.53	43.94	34.69	239	106 Peak	VERTICAL
4	17481.24	52.56	54.00	-1.44	29.78	13.53	43.94	34.69	239	106 Average	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).

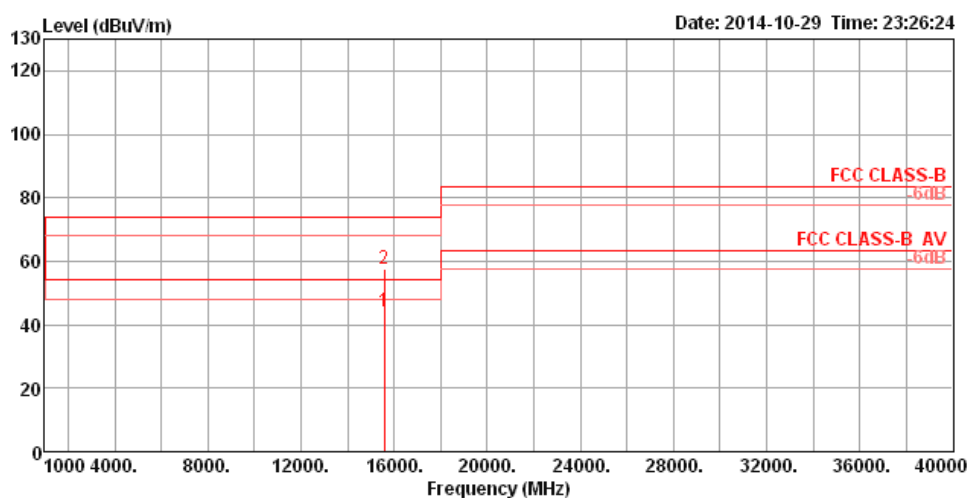
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

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



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

Operating Mode	IEEE 802.11ac VHT40 / MCS0Nss1 / Chain 3 / CH 38			Polarization	V
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



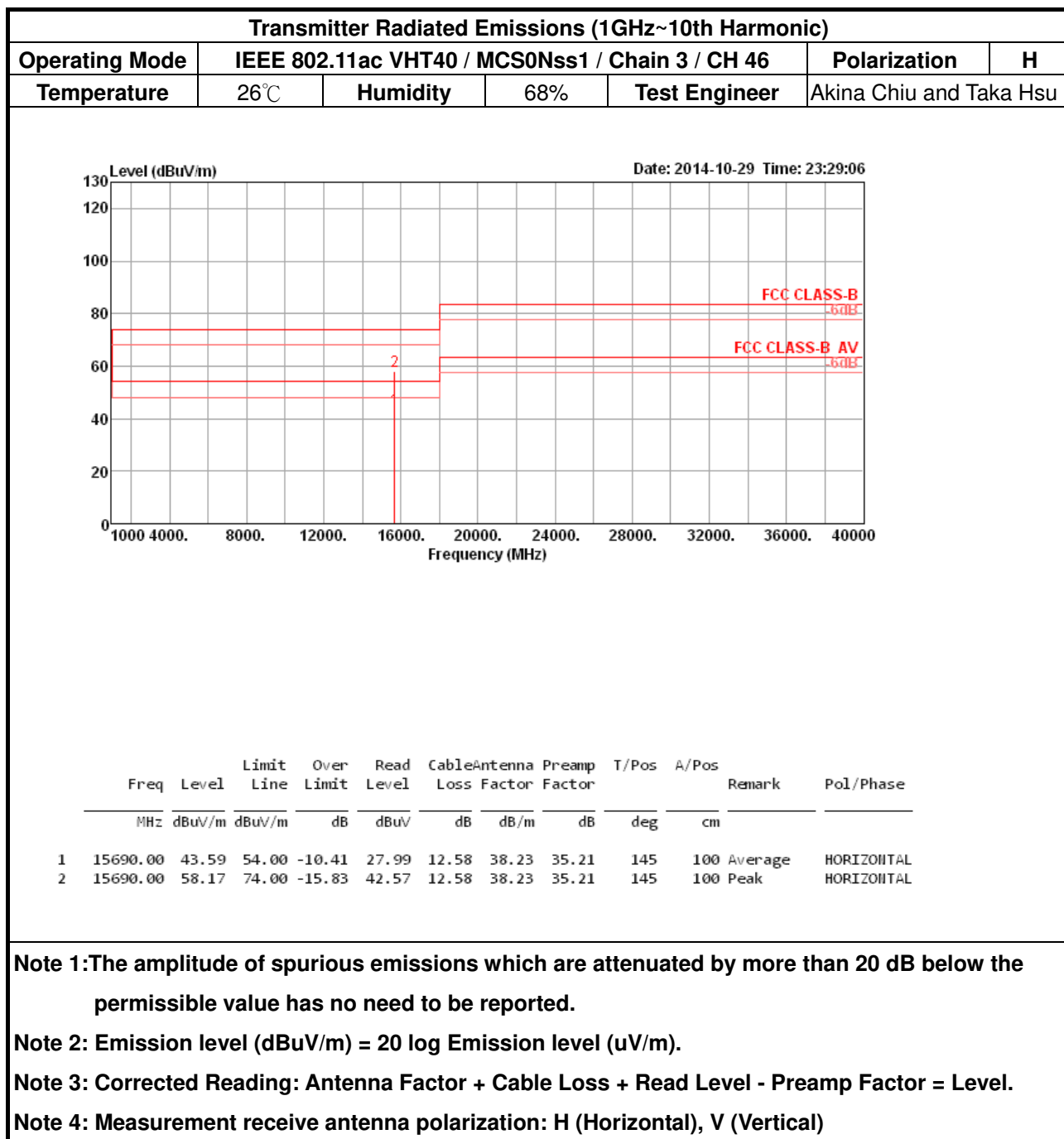
	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	15570.00	44.29	54.00	-9.71	28.48	12.58	38.40	35.17	241	100	Average	VERTICAL
2	15570.00	57.79	74.00	-16.21	41.98	12.58	38.40	35.17	241	100	Peak	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.

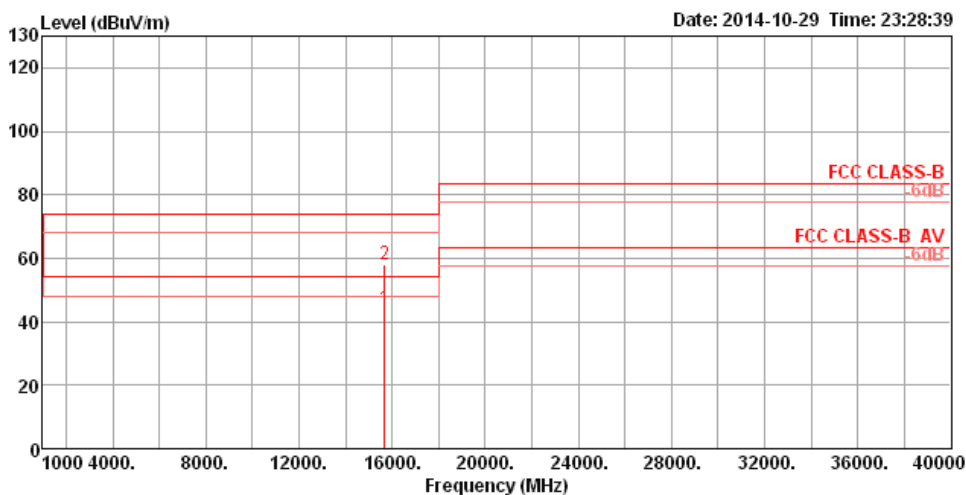
Note 4: Measurement receive antenna polarization: H (Horizontal), V (Vertical)





Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	IEEE 802.11ac VHT40 / MCS0Nss1 / Chain 3 / CH 46			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	15690.00	44.14	54.00	-9.86	28.54	12.58	38.23	35.21	309	100	Average	VERTICAL
2	15690.00	57.84	74.00	-16.16	42.24	12.58	38.23	35.21	309	100	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).

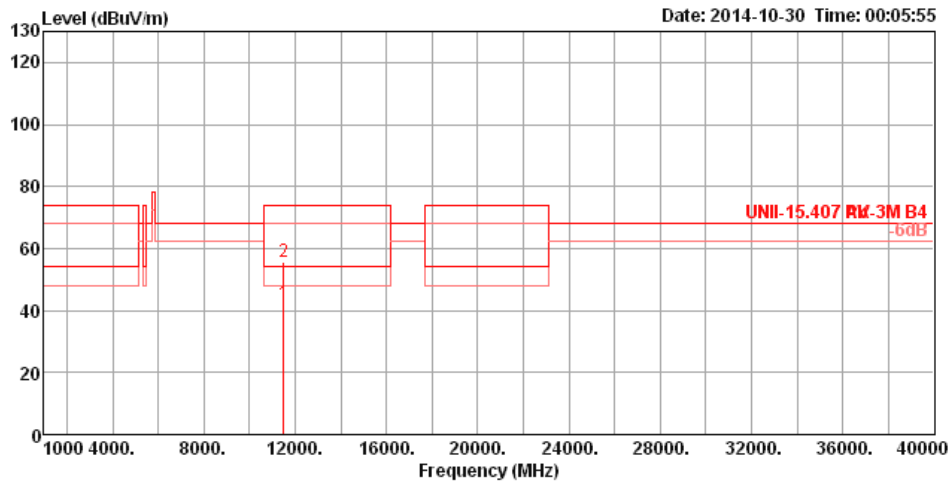
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

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



Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	IEEE 802.11ac VHT40 / MCS0Nss1 / Chain 3 / CH 151			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	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11510.00	42.33	54.00	-11.67	27.26	10.72	39.40	35.05	210	100	Average	HORIZONTAL
2	11510.00	55.56	74.00	-18.44	40.49	10.72	39.40	35.05	210	100	Peak	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).

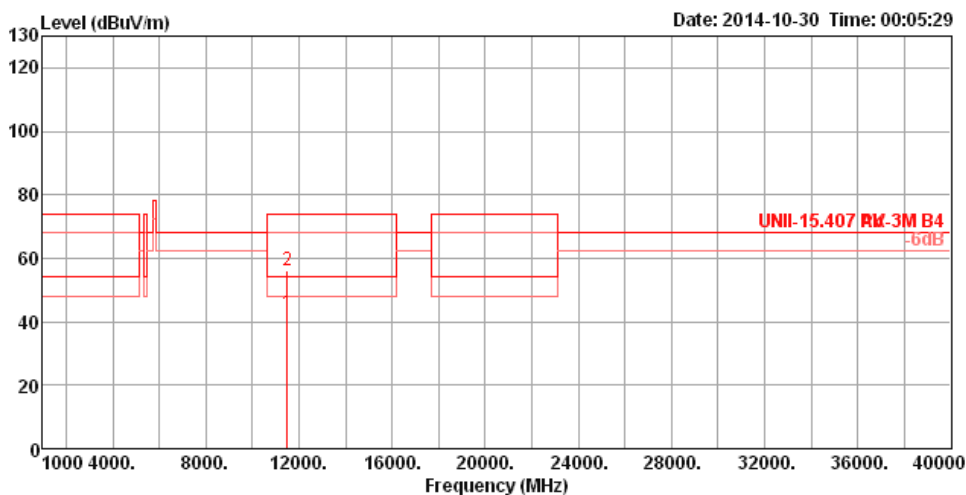
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

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



Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	IEEE 802.11ac VHT40 / MCS0Nss1 / Chain 3 / CH 151			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	11510.00	42.48	54.00	-11.52	27.41	10.72	39.40	35.05	140	100	Average	VERTICAL
2	11510.00	55.89	74.00	-18.11	40.82	10.72	39.40	35.05	140	100	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).

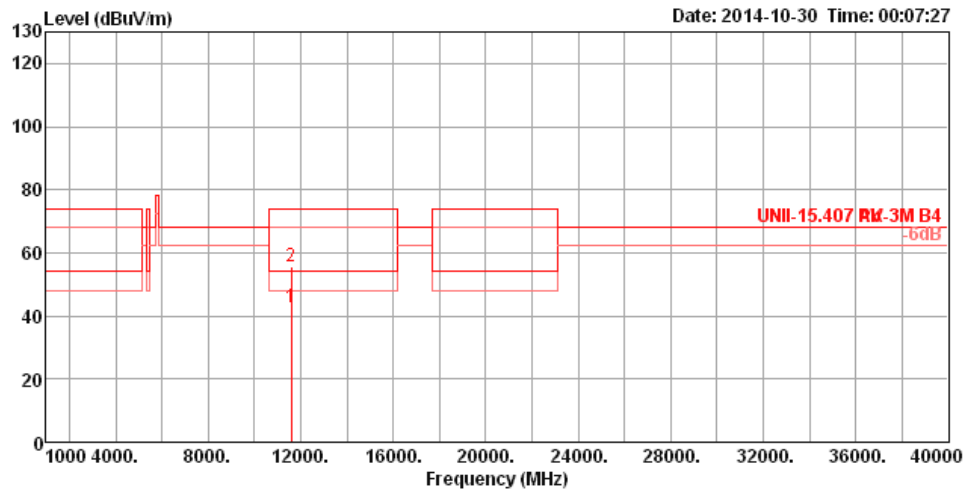
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

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



Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	IEEE 802.11ac VHT40 / MCS0Nss1 / Chain 3 / CH 159			Polarization	H
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm	
1	11590.00	42.63	54.00	-11.37	27.48	10.76	39.45	35.06	112	100 Average	HORIZONTAL
2	11590.00	55.69	74.00	-18.31	40.54	10.76	39.45	35.06	112	100 Peak	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).

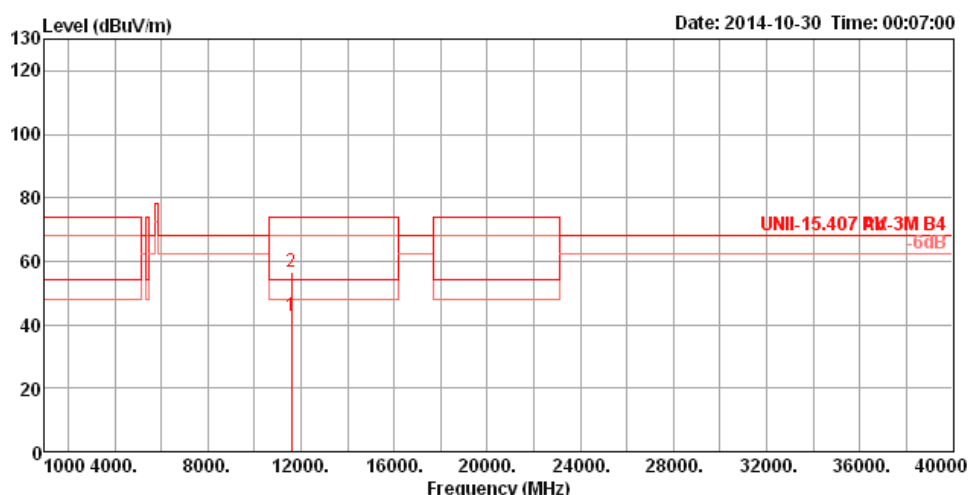
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

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



Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	IEEE 802.11ac VHT40 / MCS0Nss1 / Chain 3 / CH 159			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	11590.00	42.66	54.00	-11.34	27.51	10.76	39.45	35.06	279	100	Average	VERTICAL
2	11590.00	56.51	74.00	-17.49	41.36	10.76	39.45	35.06	279	100	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.

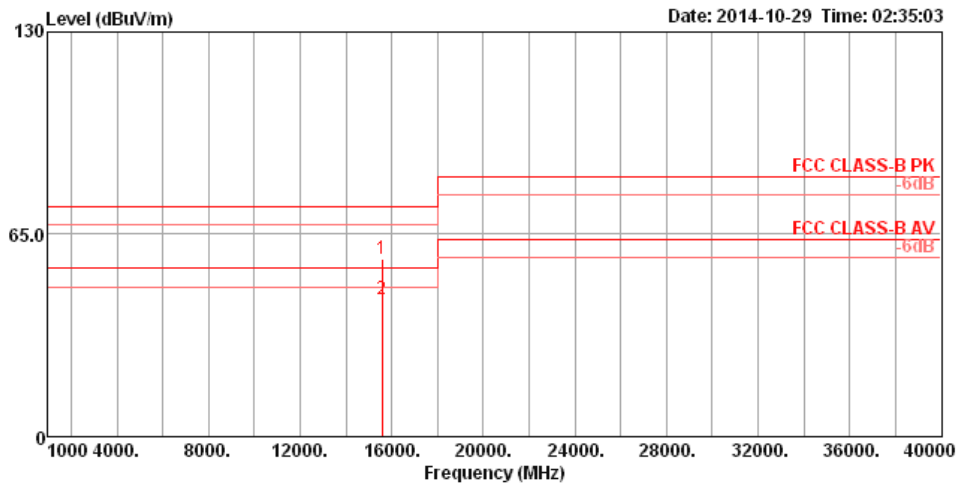
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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 802.11ac VHT40 / SDM MCS0Nss2 / Chain 3 + Chain 4 / CH 38			Polarization	H
Temperature	26℃	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



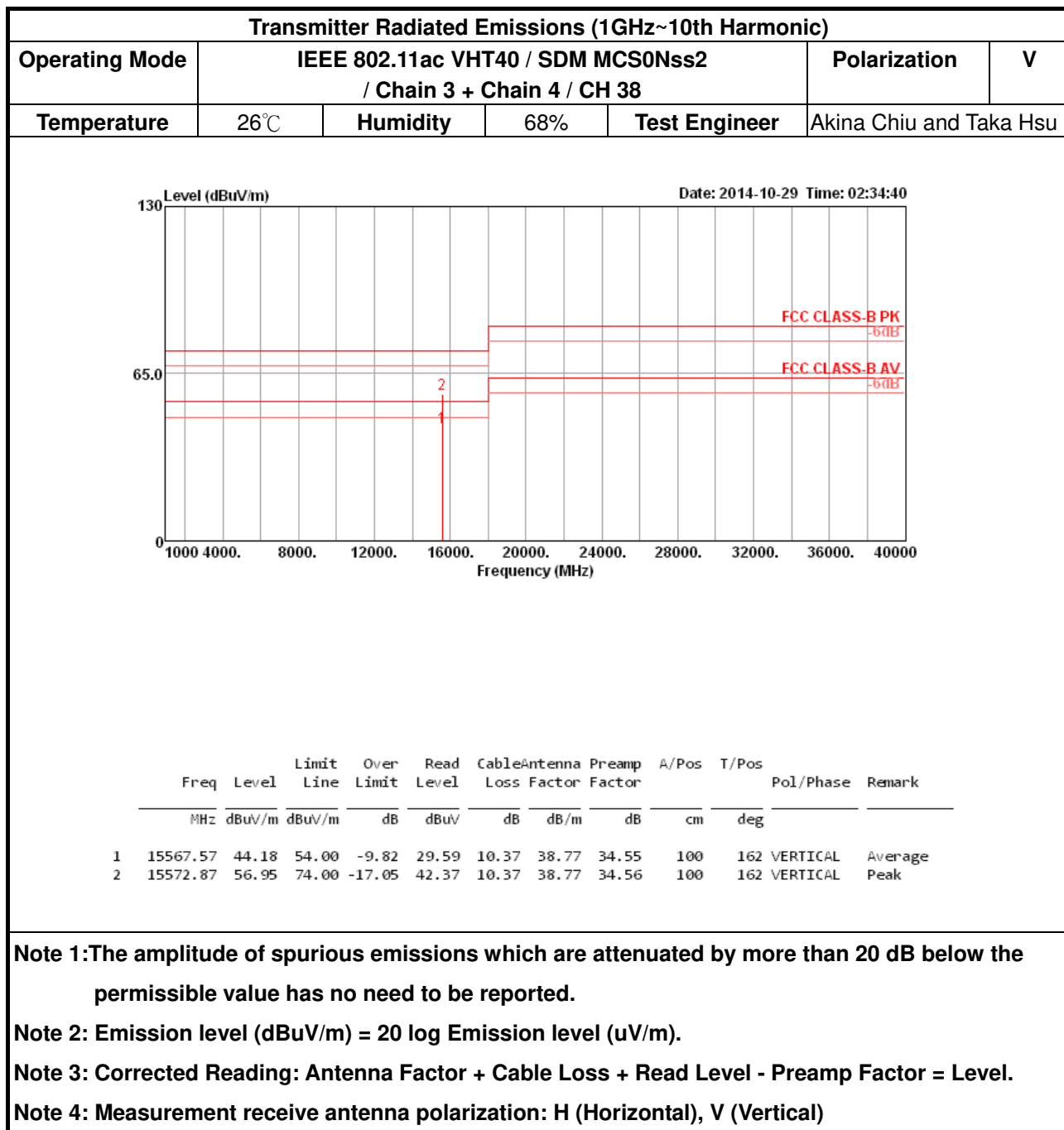
	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15572.05	57.21	74.00	-16.79	42.63	10.37	38.77	34.56	110	110	HORIZONTAL	Peak
2	15573.66	44.15	54.00	-9.85	29.57	10.37	38.77	34.56	110	110	HORIZONTAL	Average

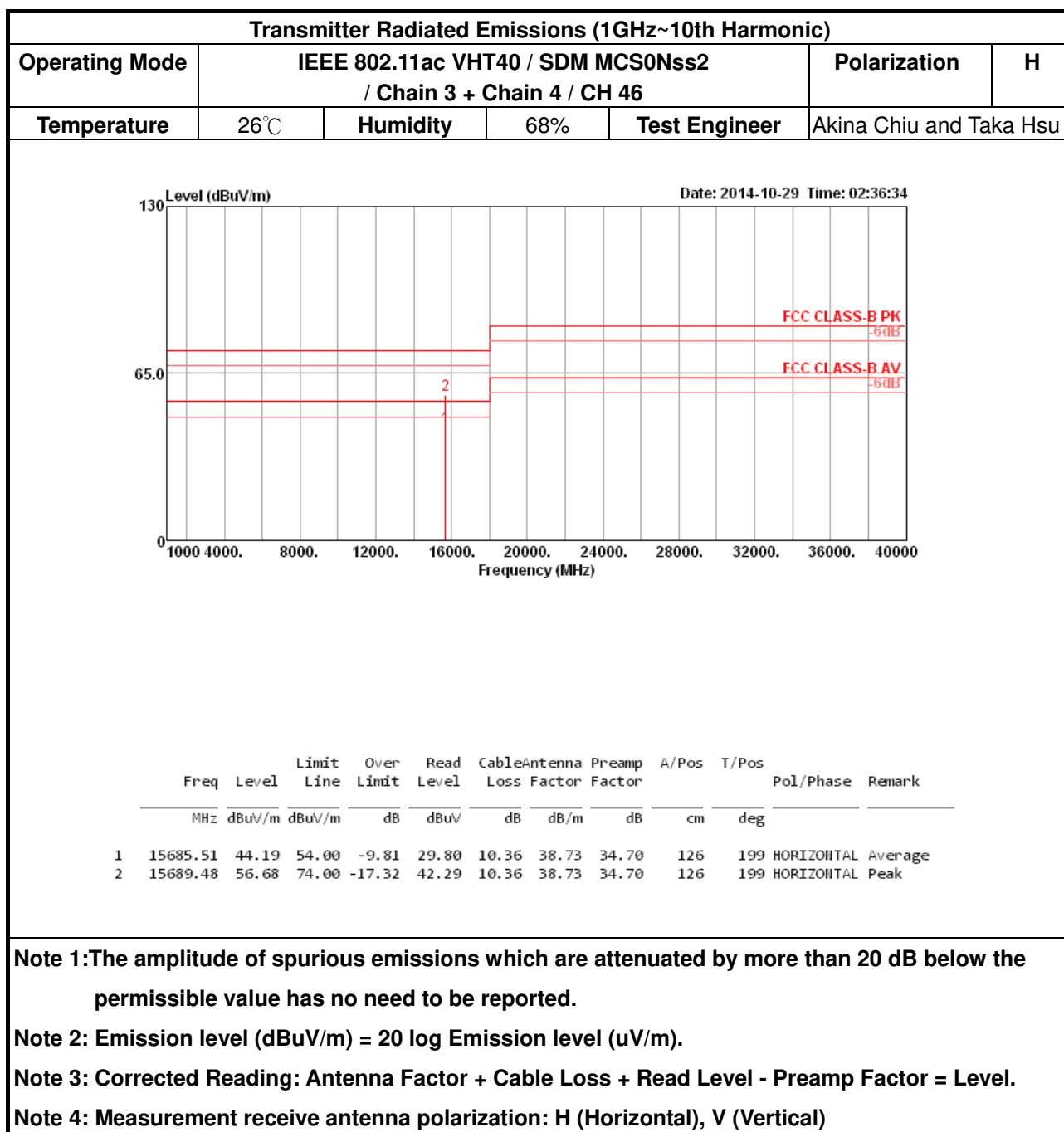
Note 1: The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

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)

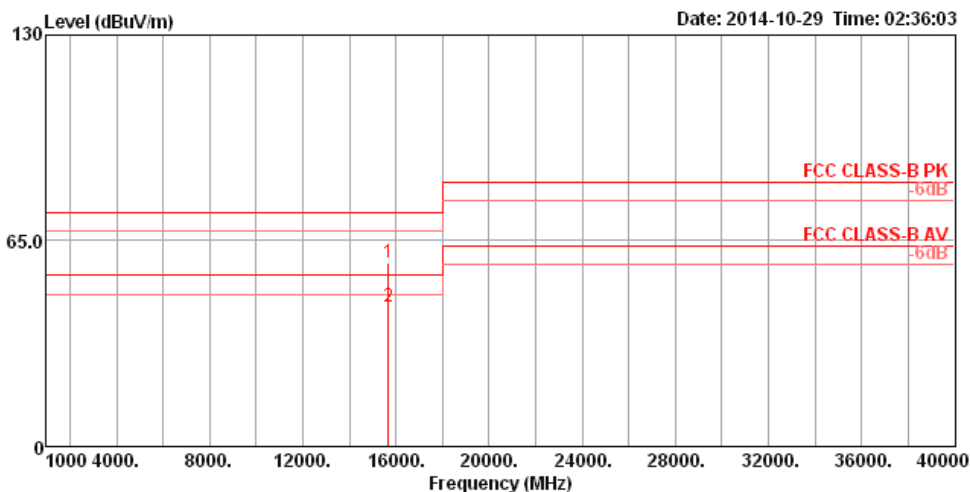






Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	IEEE 802.11ac VHT40 / SDM MCS0Nss2 / Chain 3 + Chain 4 / CH 46			Polarization	V
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



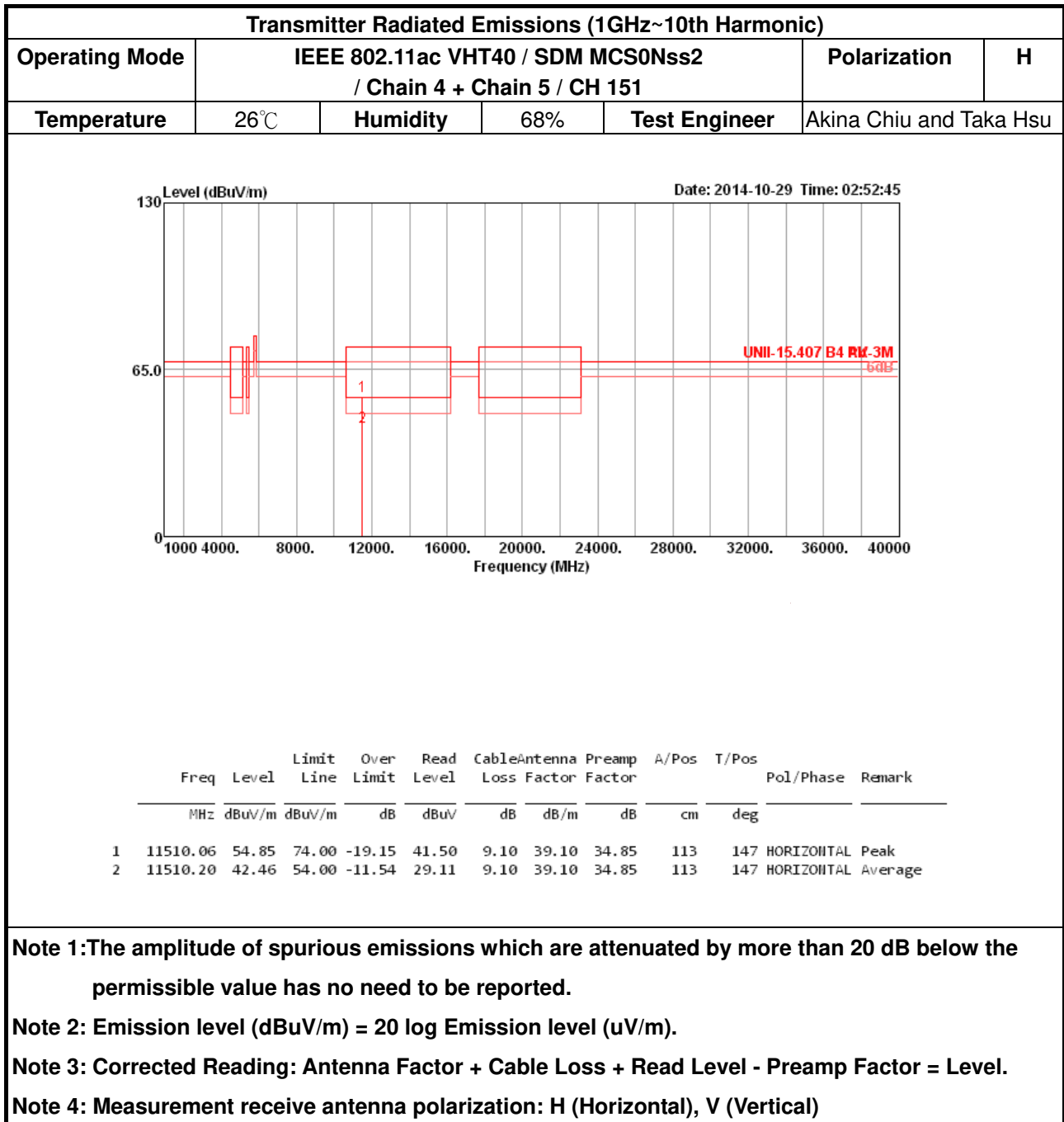
	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	15686.29	57.91	74.00	-16.09	43.52	10.36	38.73	34.70	218	311 VERTICAL	Peak
2	15687.11	44.15	54.00	-9.85	29.76	10.36	38.73	34.70	218	311 VERTICAL	Average

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).

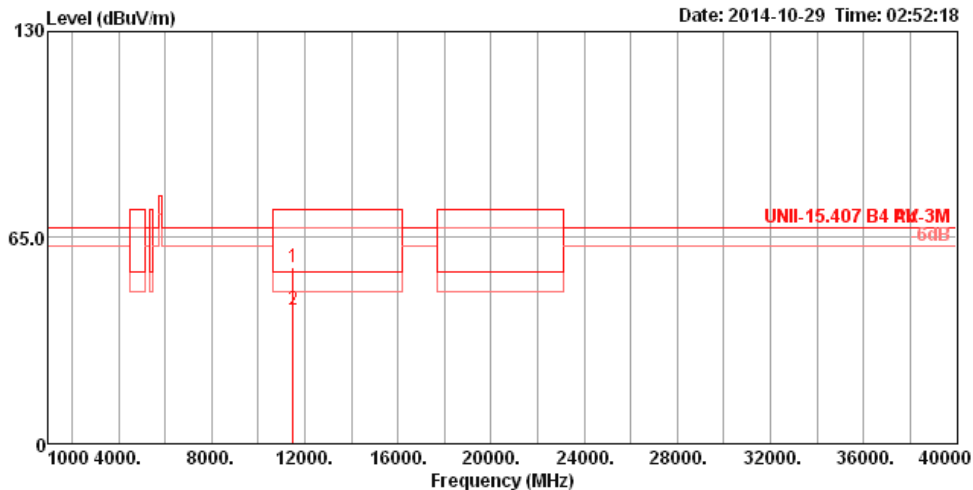
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

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



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

Operating Mode	IEEE 802.11ac VHT40 / SDM MCS0Nss2 / Chain 4 + Chain 5 / CH 151				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	11507.73	55.46	74.00	-18.54	42.11	9.10	39.10	34.85	100	23	VERTICAL	Peak
2	11509.54	42.40	54.00	-11.60	29.05	9.10	39.10	34.85	100	23	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 802.11ac VHT40 / SDM MCS0Nss2 / Chain 3 + Chain 5 / CH 159					Polarization	H
Temperature	26℃	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu		

Date: 2014-10-29 Time: 02:54:18

	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	11585.49	42.50	54.00	-11.50	29.27	9.11	38.97	34.85	100	181	HORIZONTAL	Average
2	11593.26	55.80	74.00	-18.20	42.57	9.11	38.97	34.85	100	181	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.

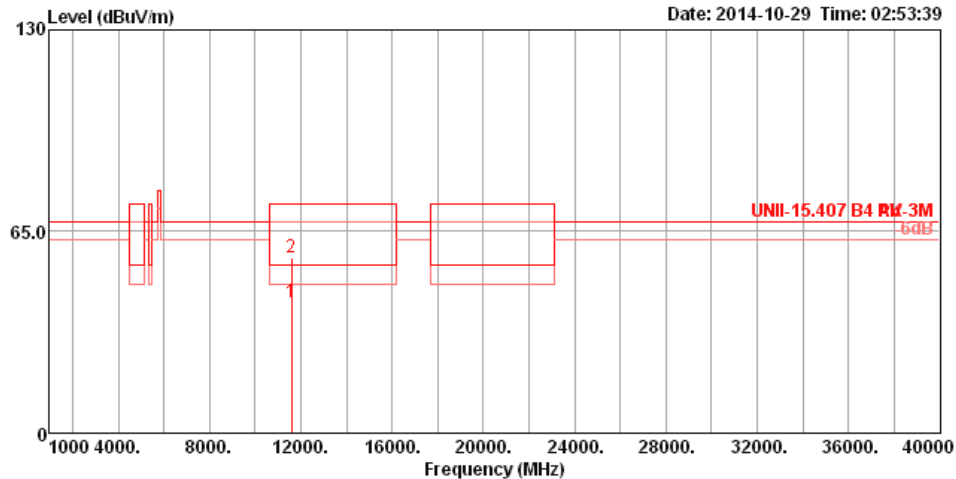
Note 2: Emission level (dBUV/m) = 20 log Emission level (uV/m).

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 802.11ac VHT40 / SDM MCS0Nss2 / Chain 3 + Chain 5 / CH 159				Polarization	V
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu	



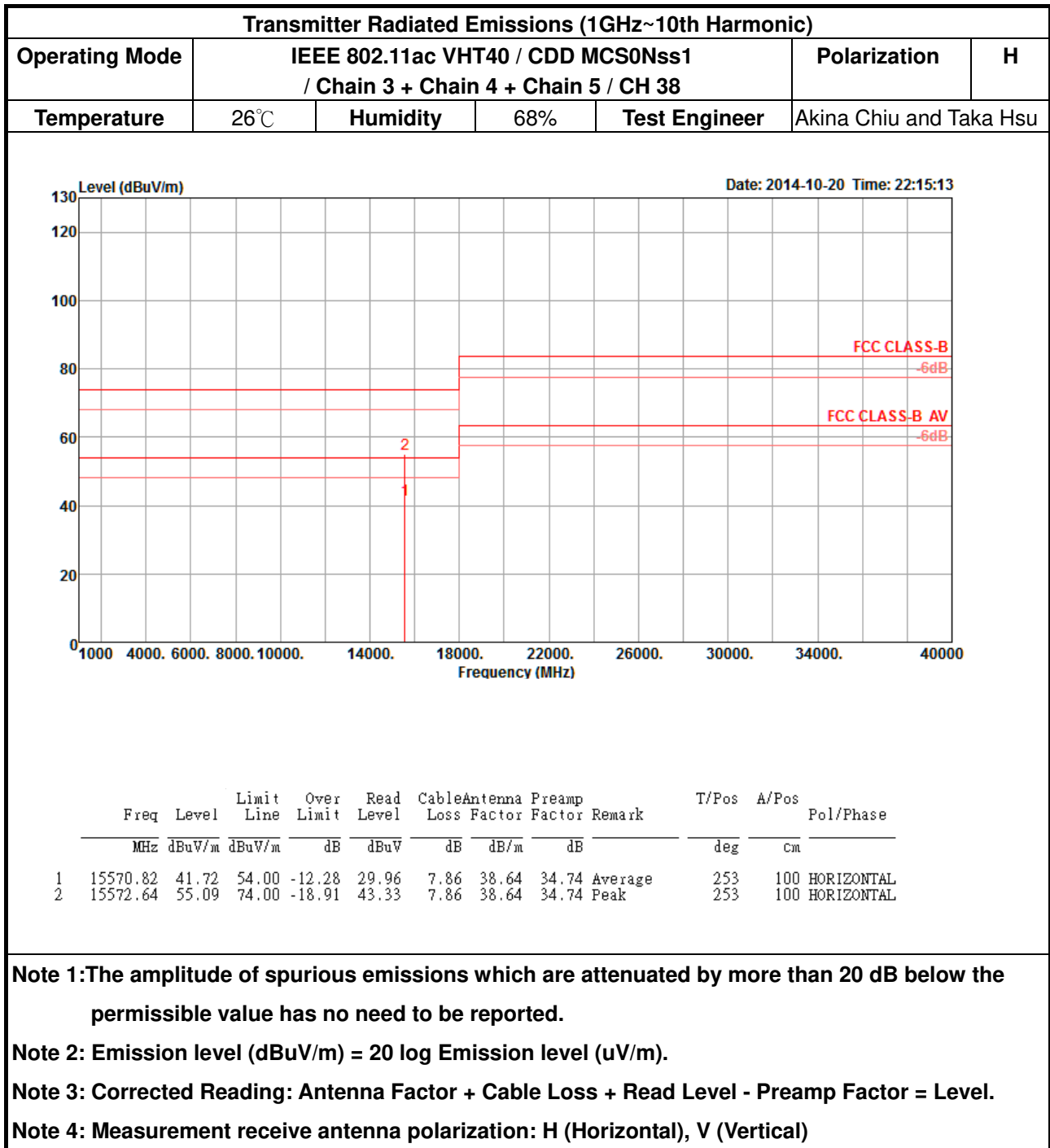
	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11590.65	42.39	54.00	-11.61	29.16	9.11	38.97	34.85	103	267	VERTICAL	Average
2	11594.95	56.51	74.00	-17.49	43.28	9.11	38.97	34.85	103	267	VERTICAL	Peak

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).

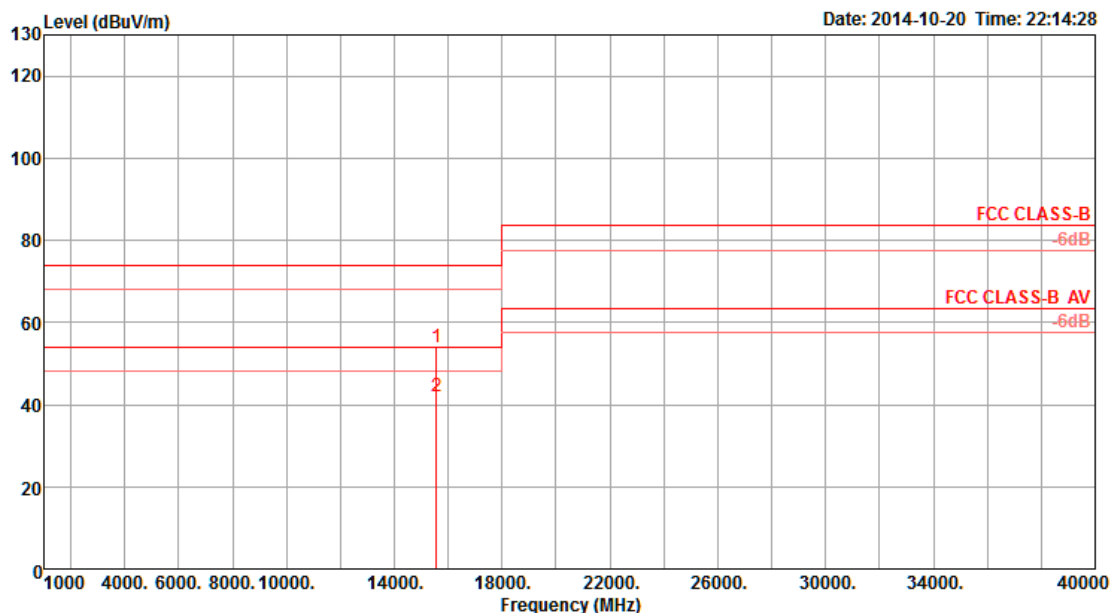
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

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



Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	IEEE 802.11ac VHT40 / CDD MCS0Nss1 / Chain 3 + Chain 4 + Chain 5 / CH 38			Polarization	V
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



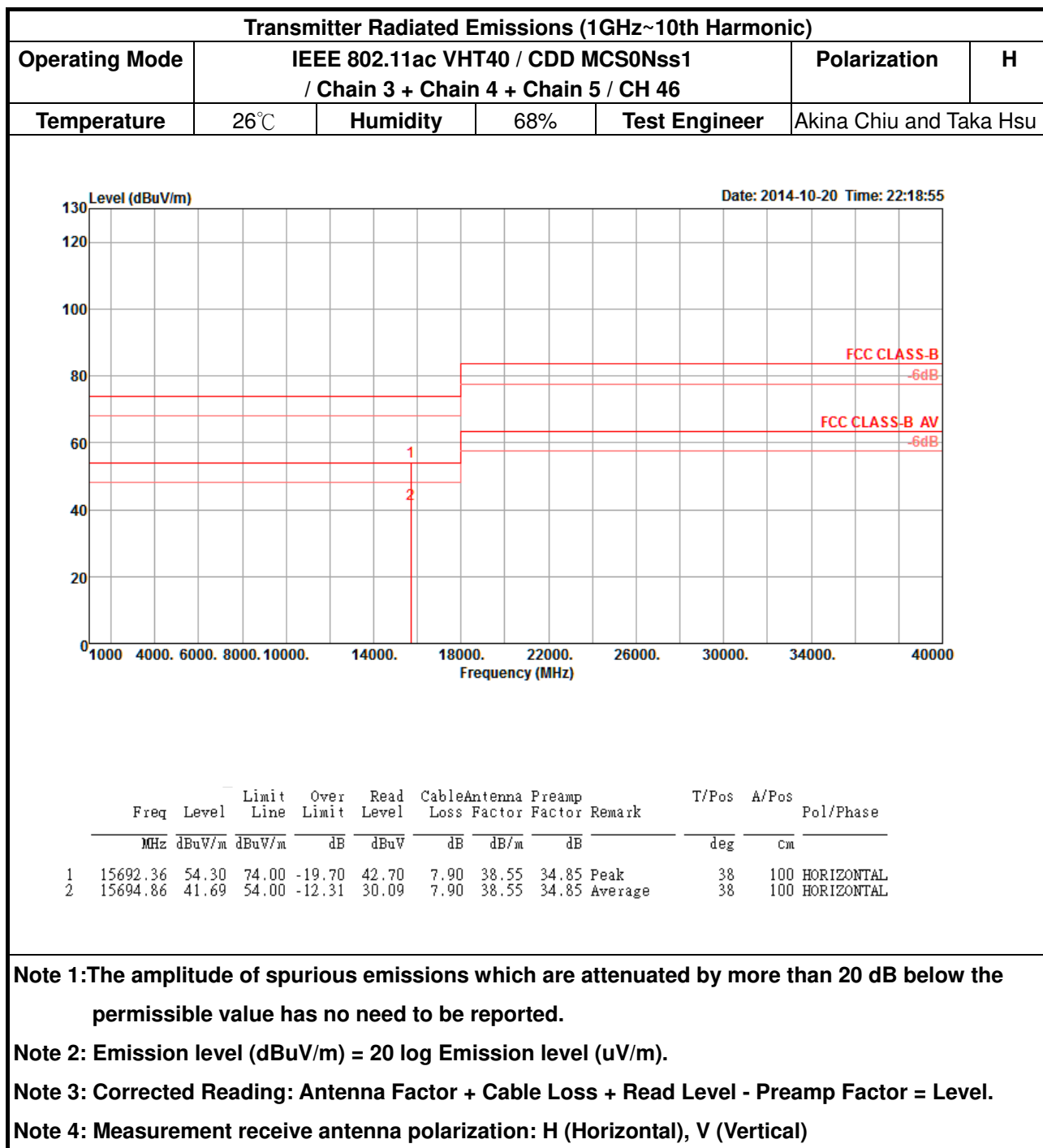
	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp		T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	Remark	deg	cm	
1	15565.28	53.87	74.00	-20.13	42.11	7.86	38.64	34.74	Peak	127	100	VERTICAL
2	15572.96	42.06	54.00	-11.94	30.30	7.86	38.64	34.74	Average	127	100	VERTICAL

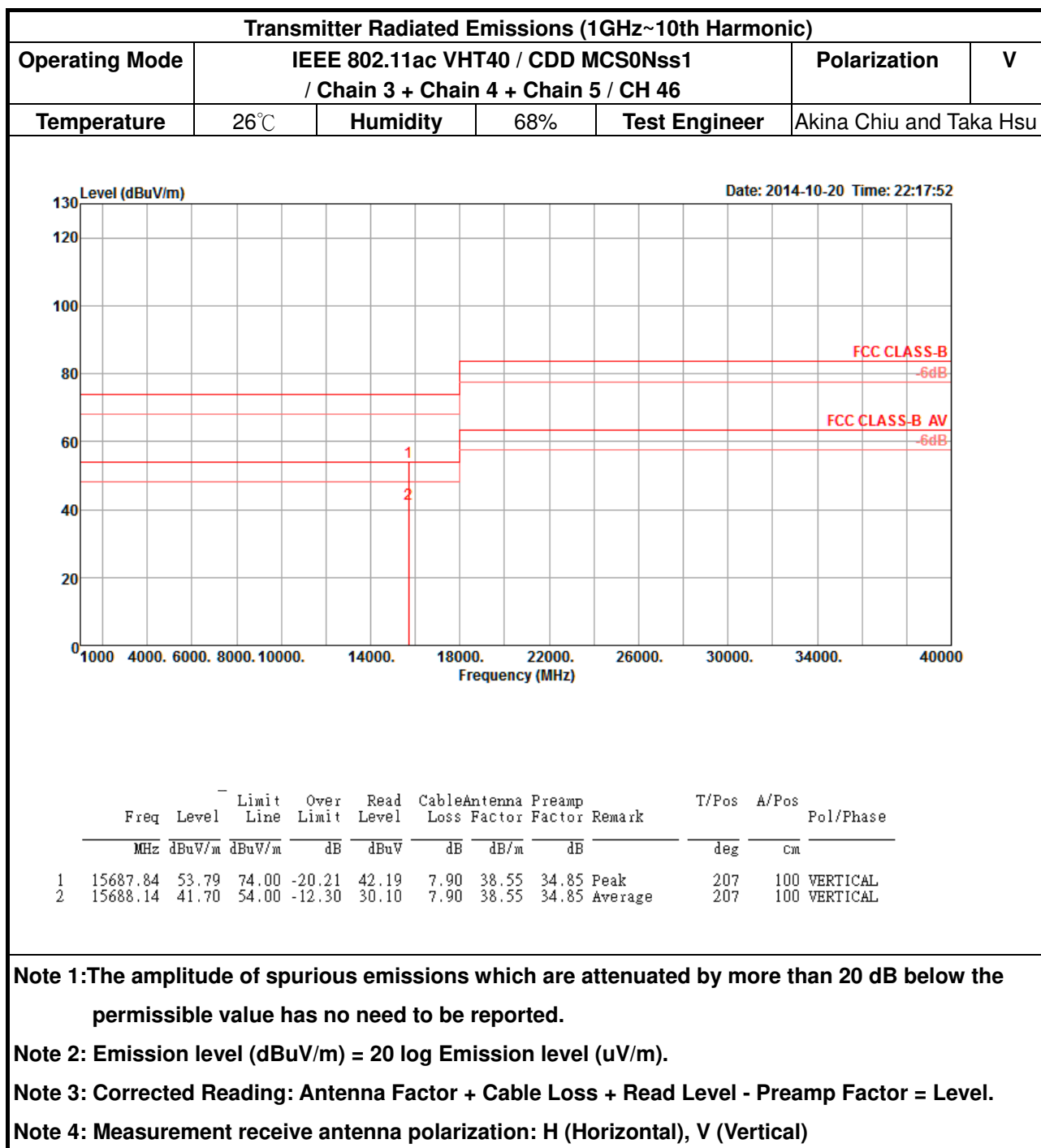
Note 1: The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

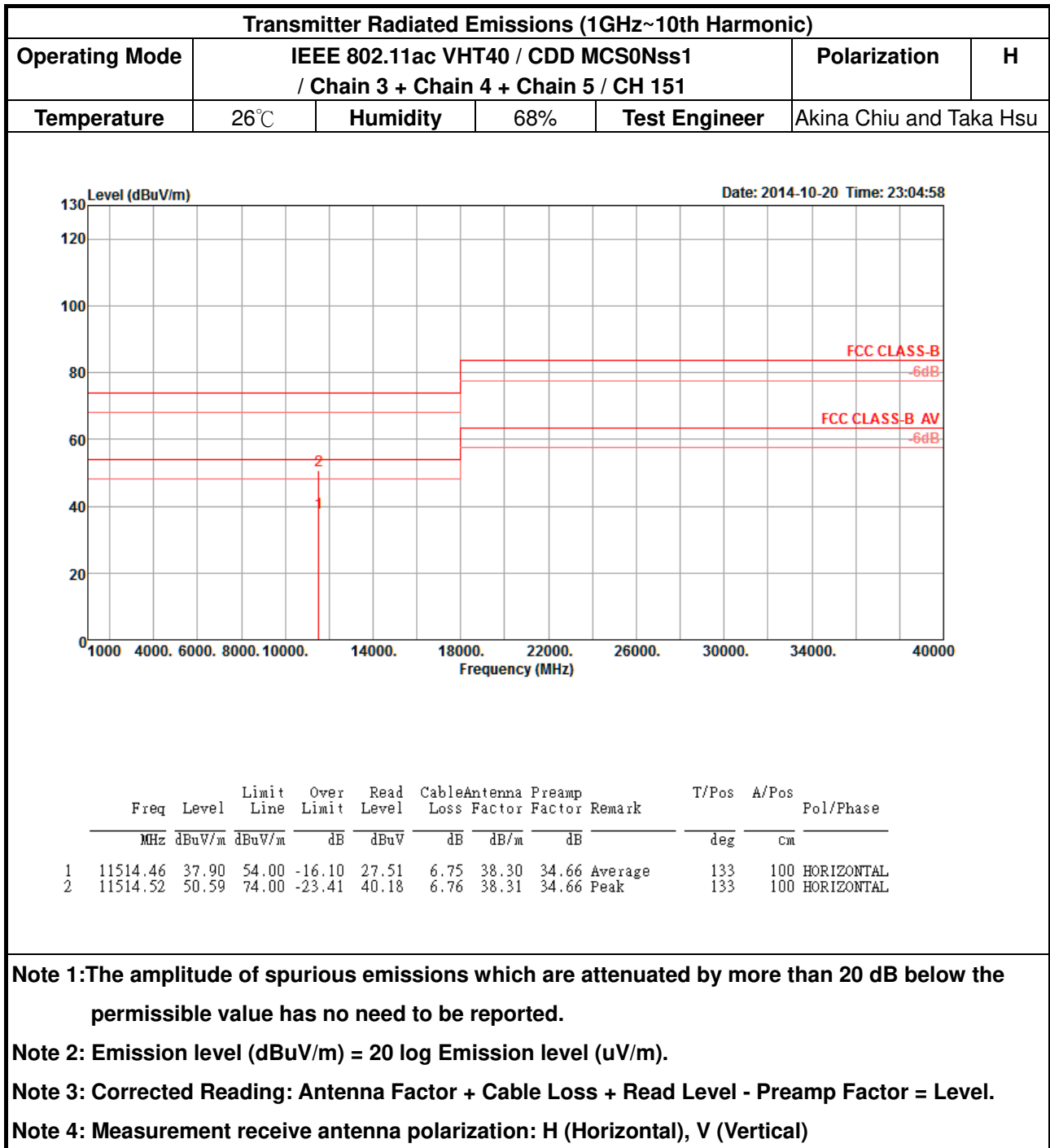
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

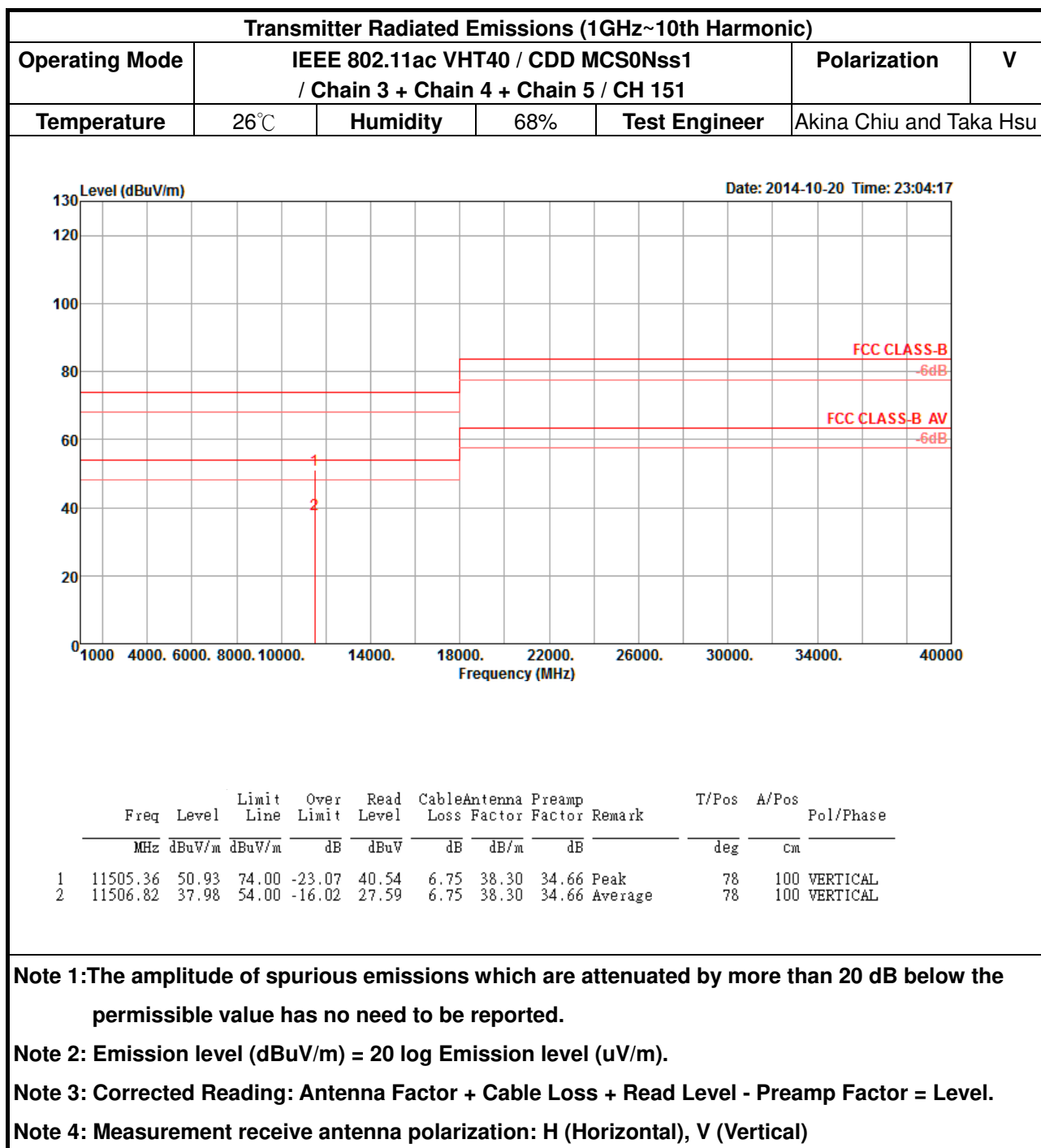
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

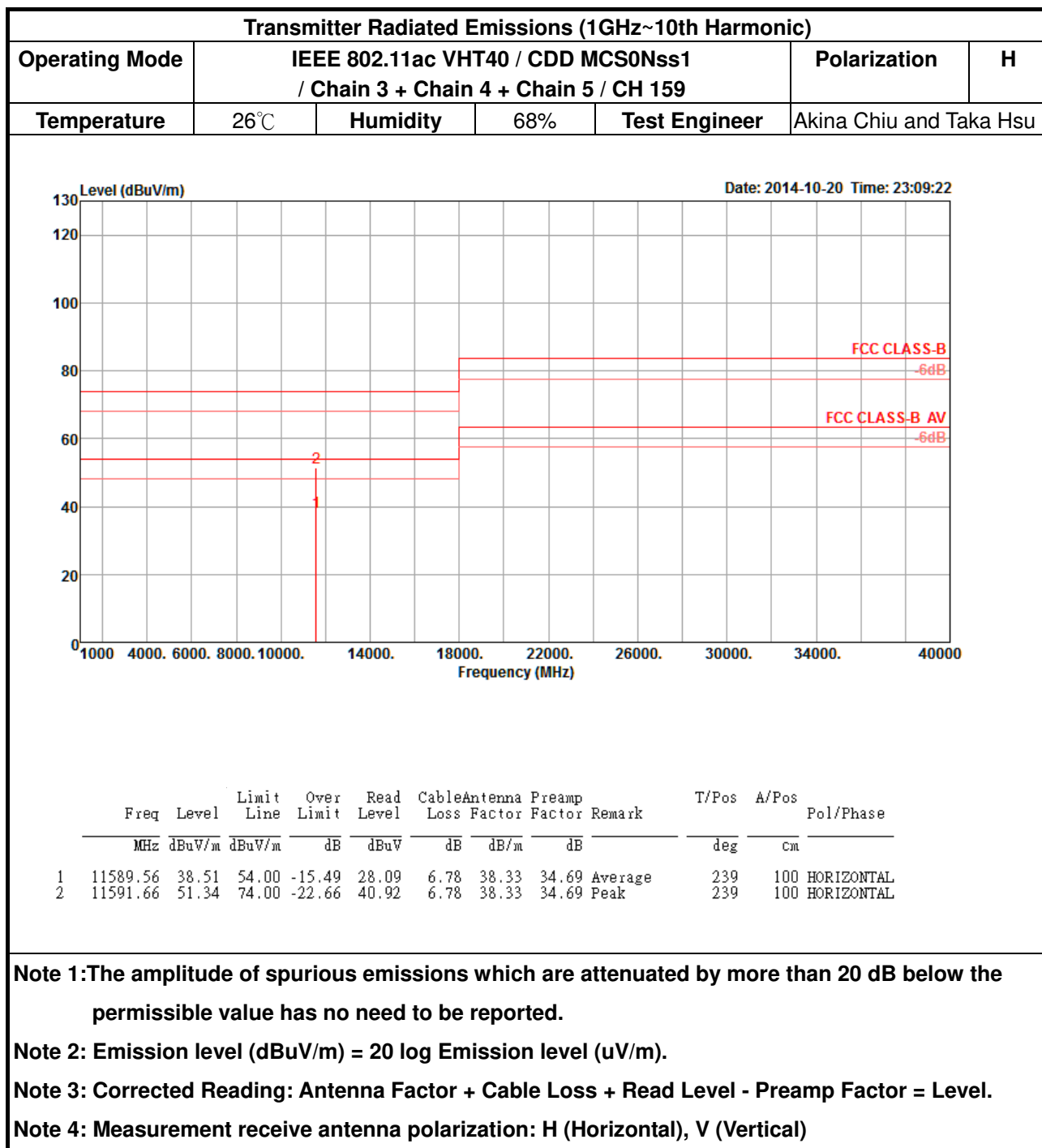
Note 4: Measurement receive antenna polarization: H (Horizontal), V (Vertical)





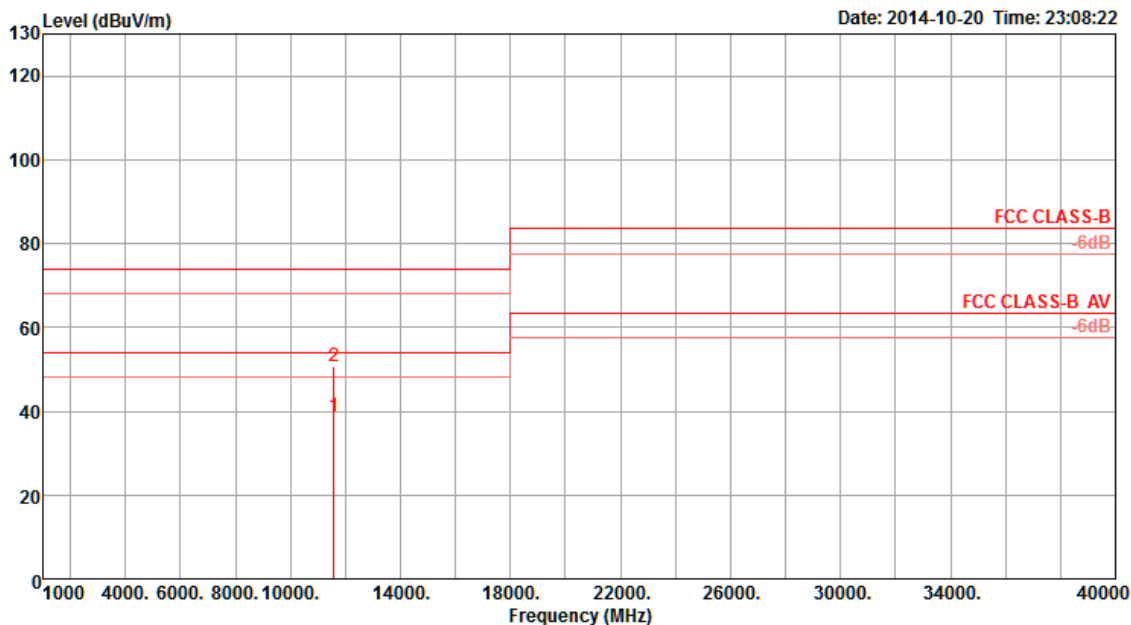






Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	IEEE 802.11ac VHT40 / CDD MCS0Nss1 / Chain 3 + Chain 4 + Chain 5 / CH 159			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	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	Remark	deg	cm	
1	11586.98	38.74	54.00	-15.26	28.32	6.78	38.33	34.69	Average	133	100	VERTICAL
2	11587.04	50.80	74.00	-23.20	40.38	6.78	38.33	34.69	Peak	133	100	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.

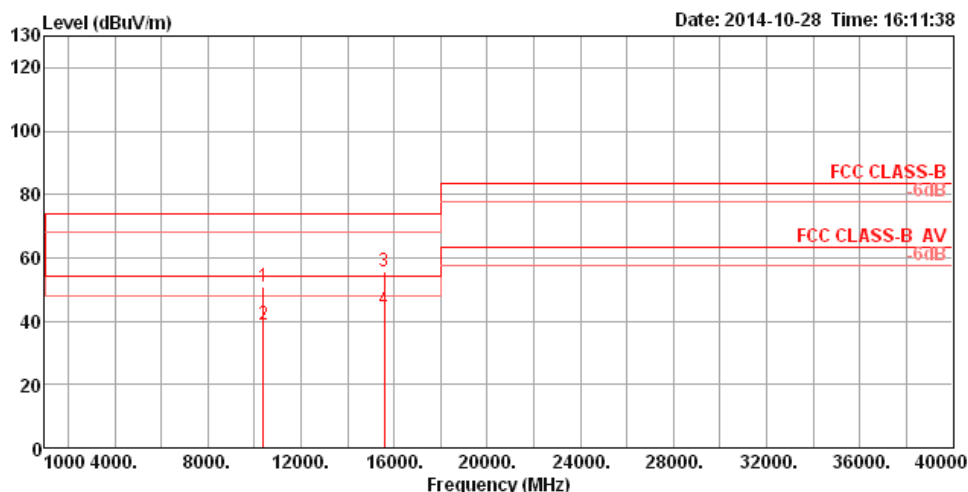
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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 802.11ac VHT40 / BF MCS0Nss1 / Chain 3 + Chain 4 + Chain 5 / CH 38			Polarization	H
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	Line	Limit	Level	Loss	Factor	Factor			
				dB	dBuV	dB	dB/m	dB	deg	cm	
1	10388.64	51.09	74.00	-22.91	37.35	10.14	38.99	35.39	68	100 Peak	HORIZONTAL
2	10391.28	38.71	54.00	-15.29	24.97	10.14	38.99	35.39	68	100 Average	HORIZONTAL
3	15584.32	55.60	74.00	-18.40	39.82	12.58	38.38	35.18	178	116 Peak	HORIZONTAL
4	15588.64	43.61	54.00	-10.39	27.83	12.58	38.38	35.18	178	116 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.

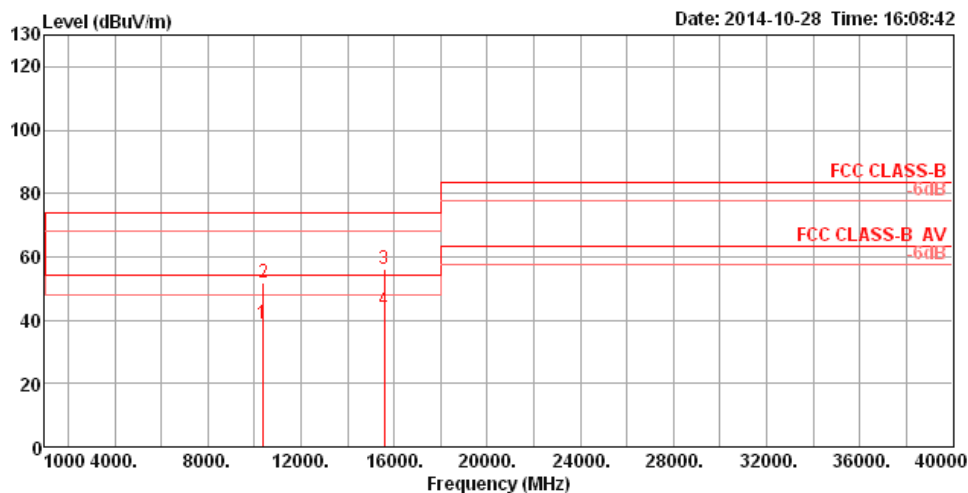
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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 802.11ac VHT40 / BF MCS0Nss1 / Chain 3 + Chain 4 + Chain 5 / CH 38			Polarization	V
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm	
1	10370.80	38.72	54.00	-15.28	24.97	10.15	39.01	35.41	73	100 Average	VERTICAL
2	10383.28	52.03	74.00	-21.97	38.29	10.14	38.99	35.39	73	100 Peak	VERTICAL
3	15571.68	56.14	74.00	-17.86	40.33	12.58	38.40	35.17	208	131 Peak	VERTICAL
4	15587.68	43.38	54.00	-10.62	27.60	12.58	38.38	35.18	208	131 Average	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.

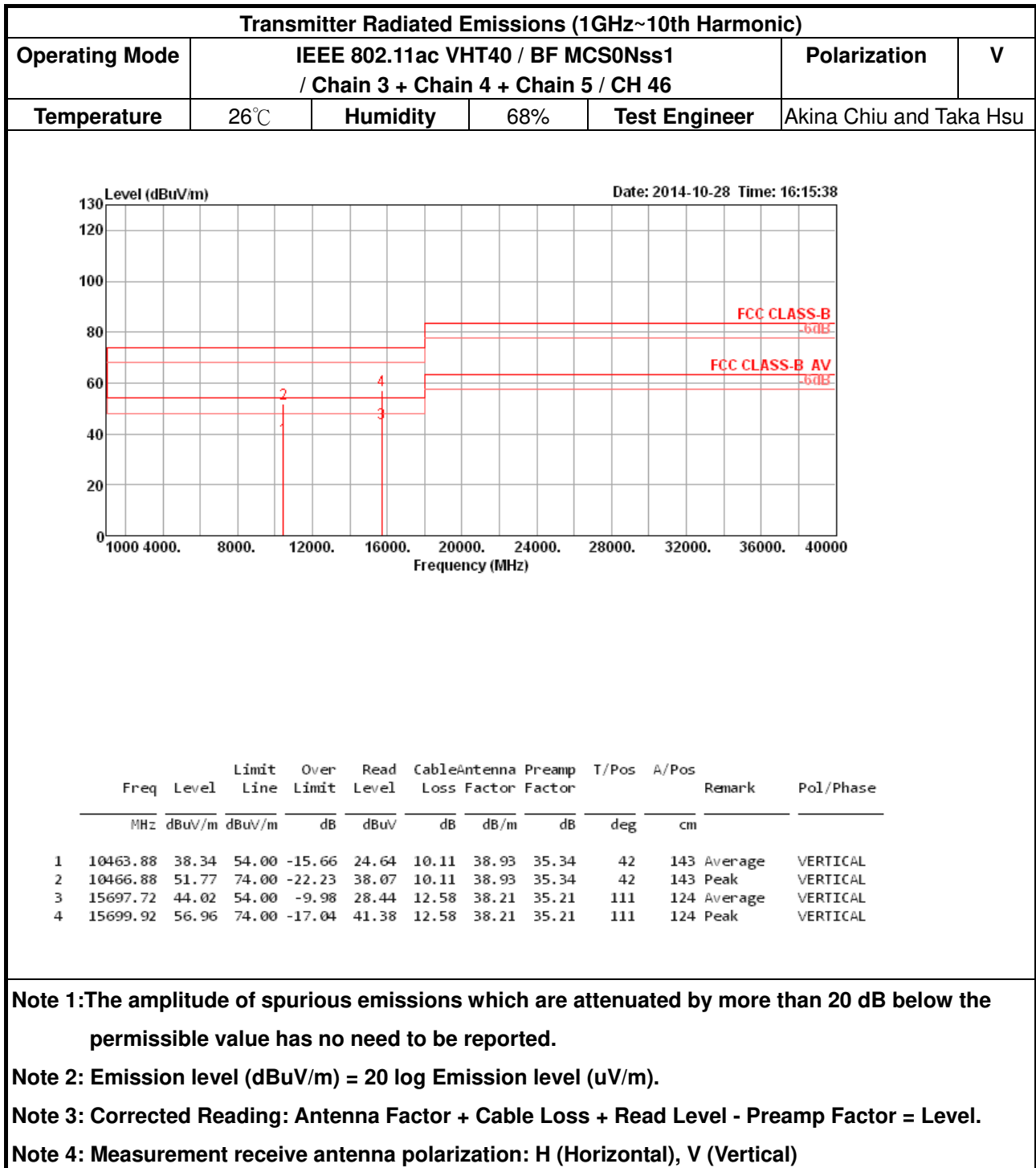
Note 4: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

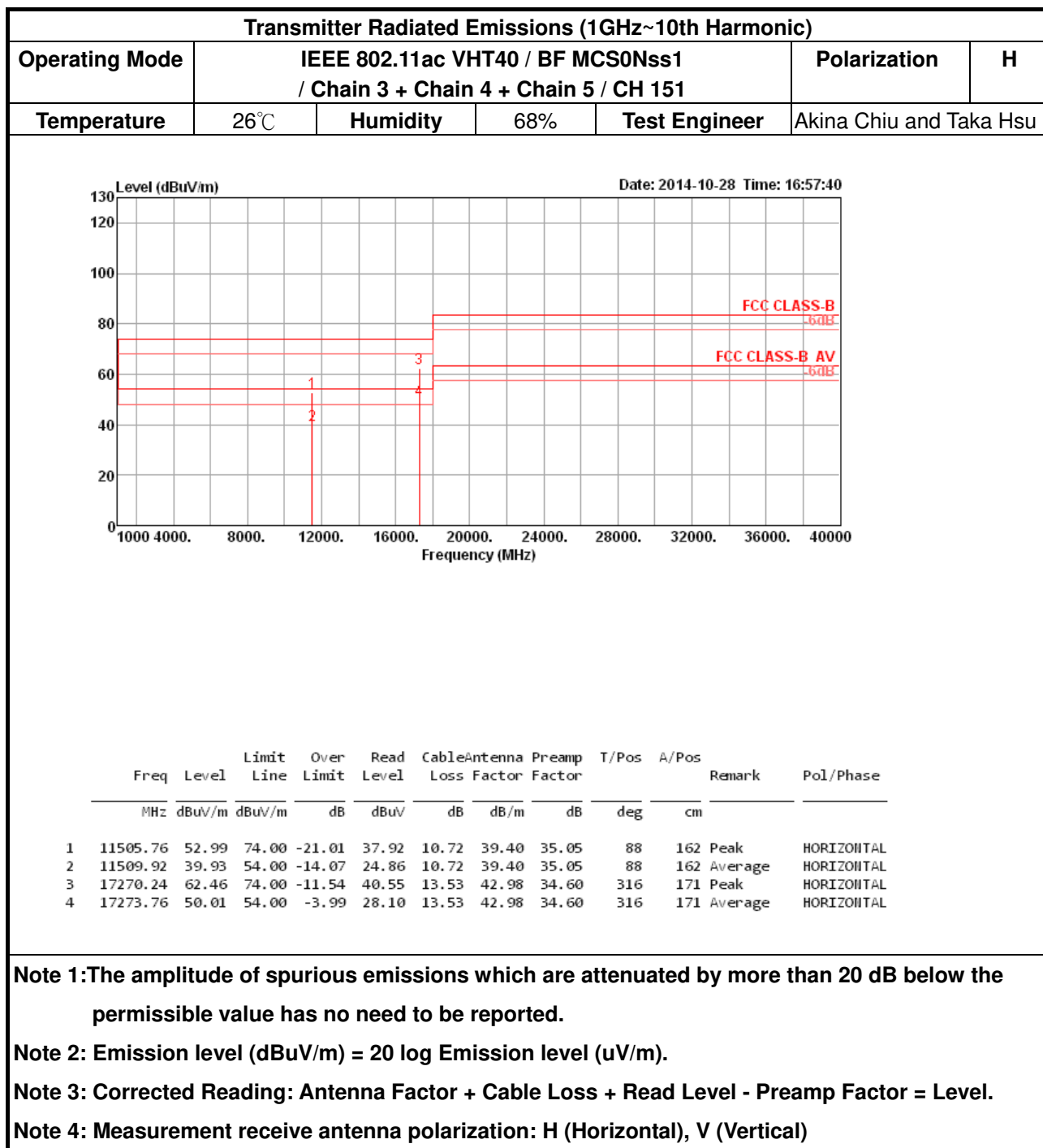


FCC RADIO TEST REPORT

Report No. : FR402168-02AB

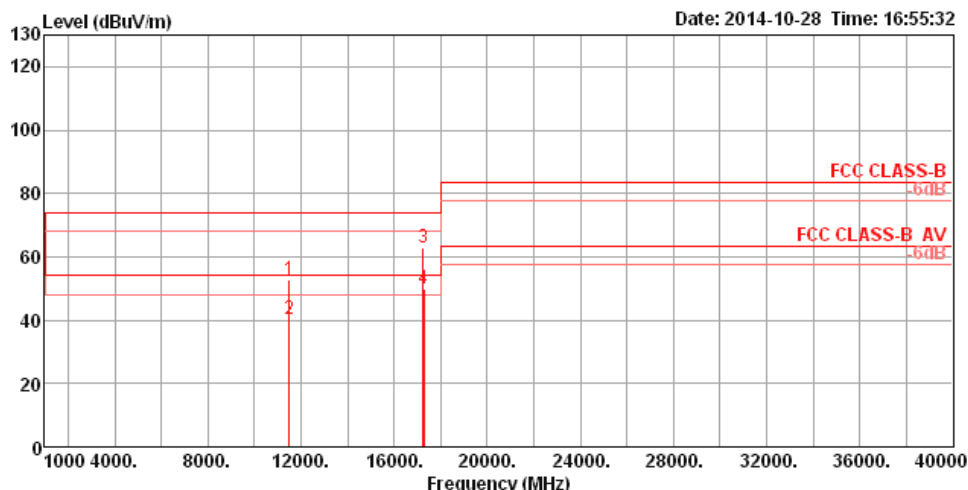
Transmitter Radiated Emissions (1GHz~10th Harmonic)																																																																																			
Operating Mode		IEEE 802.11ac VHT40 / BF MCS0Nss1 / Chain 3 + Chain 4 + Chain 5 / CH 46							Polarization		H																																																																								
Temperature	26℃	Humidity	68%	Test Engineer		Akina Chiu and Taka Hsu																																																																													
Level (dBuV/m) Date: 2014-10-28 Time: 16:17:19 Frequency (MHz) <table><tr><th></th><th>Freq</th><th>Level</th><th>Limit</th><th>Over</th><th>Read</th><th>CableAntenna</th><th>Preamp</th><th>T/Pos</th><th>A/Pos</th><th>Remark</th><th>Pol/Phase</th></tr><tr><th></th><th>MHz</th><th>dBuV/m</th><th>Line</th><th>Limit</th><th>Level</th><th>Loss</th><th>Factor</th><th>Factor</th><th>deg</th><th>cm</th><th></th></tr><tr><td>1</td><td>10459.12</td><td>50.90</td><td>74.00</td><td>-23.10</td><td>37.19</td><td>10.11</td><td>38.94</td><td>35.34</td><td>318</td><td>129 Peak</td><td>HORIZONTAL</td></tr><tr><td>2</td><td>10459.76</td><td>38.40</td><td>54.00</td><td>-15.60</td><td>24.69</td><td>10.11</td><td>38.94</td><td>35.34</td><td>276</td><td>129 Average</td><td>HORIZONTAL</td></tr><tr><td>3</td><td>15686.52</td><td>56.51</td><td>74.00</td><td>-17.49</td><td>40.91</td><td>12.58</td><td>38.23</td><td>35.21</td><td>114</td><td>151 Peak</td><td>HORIZONTAL</td></tr><tr><td>4</td><td>15694.84</td><td>43.88</td><td>54.00</td><td>-10.12</td><td>28.28</td><td>12.58</td><td>38.23</td><td>35.21</td><td>114</td><td>151 Average</td><td>HORIZONTAL</td></tr></table>													Freq	Level	Limit	Over	Read	CableAntenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase		MHz	dBuV/m	Line	Limit	Level	Loss	Factor	Factor	deg	cm		1	10459.12	50.90	74.00	-23.10	37.19	10.11	38.94	35.34	318	129 Peak	HORIZONTAL	2	10459.76	38.40	54.00	-15.60	24.69	10.11	38.94	35.34	276	129 Average	HORIZONTAL	3	15686.52	56.51	74.00	-17.49	40.91	12.58	38.23	35.21	114	151 Peak	HORIZONTAL	4	15694.84	43.88	54.00	-10.12	28.28	12.58	38.23	35.21	114	151 Average	HORIZONTAL
	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase																																																																								
	MHz	dBuV/m	Line	Limit	Level	Loss	Factor	Factor	deg	cm																																																																									
1	10459.12	50.90	74.00	-23.10	37.19	10.11	38.94	35.34	318	129 Peak	HORIZONTAL																																																																								
2	10459.76	38.40	54.00	-15.60	24.69	10.11	38.94	35.34	276	129 Average	HORIZONTAL																																																																								
3	15686.52	56.51	74.00	-17.49	40.91	12.58	38.23	35.21	114	151 Peak	HORIZONTAL																																																																								
4	15694.84	43.88	54.00	-10.12	28.28	12.58	38.23	35.21	114	151 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 802.11ac VHT40 / BF MCS0Nss1 / Chain 3 + Chain 4 + Chain 5 / CH 151			Polarization	V
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	Line	Limit	Level	Loss	Factor	Factor	deg	cm	
1	11505.88	52.96	74.00	-21.04	37.89	10.72	39.40	35.05	311	183 Peak	VERTICAL
2	11509.40	40.30	54.00	-13.70	25.23	10.72	39.40	35.05	311	183 Average	VERTICAL
3	17260.52	62.90	74.00	-11.10	40.99	13.53	42.98	34.60	27	151 Peak	VERTICAL
4	17273.16	50.01	54.00	-3.99	28.10	13.53	42.98	34.60	27	151 Average	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.

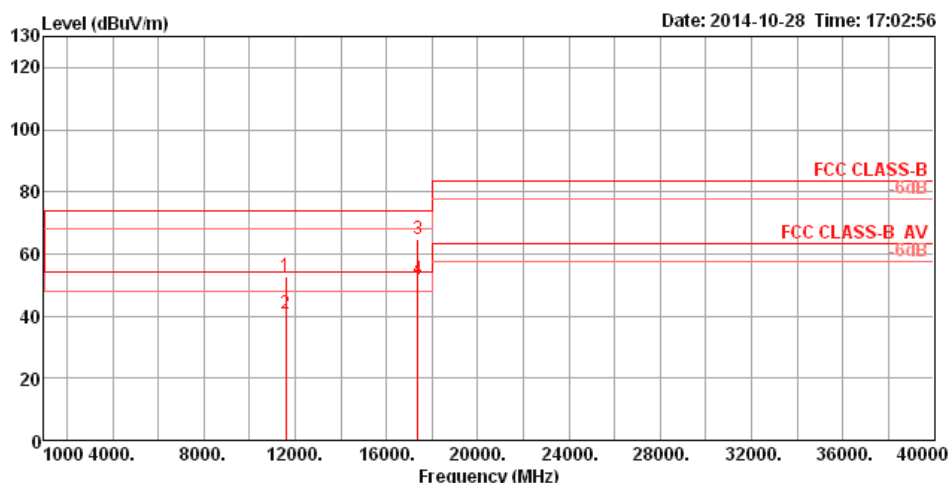
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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 802.11ac VHT40 / BF MCS0Nss1 / Chain 3 + Chain 4 + Chain 5 / CH 159			Polarization	H
Temperature	26℃	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	Line	Limit	Level	Loss	Factor	Factor			
			dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm	
1	11580.20	52.99	74.00	-21.01	37.85	10.76	39.44	35.06	32	122 Peak	HORIZONTAL
2	11589.76	40.58	54.00	-13.42	25.43	10.76	39.45	35.06	32	122 Average	HORIZONTAL
3	17378.44	64.67	74.00	-9.33	42.33	13.53	43.46	34.65	186	115 Peak	HORIZONTAL
4	17393.44	51.74	54.00	-2.26	29.33	13.53	43.54	34.66	186	115 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.

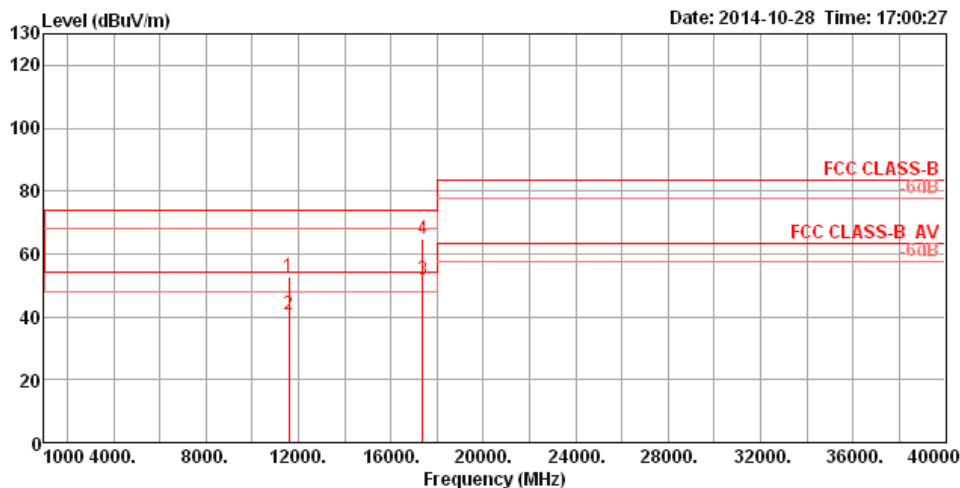
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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 802.11ac VHT40 / BF MCS0Nss1 / Chain 3 + Chain 4 + Chain 5 / CH 159			Polarization	V
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



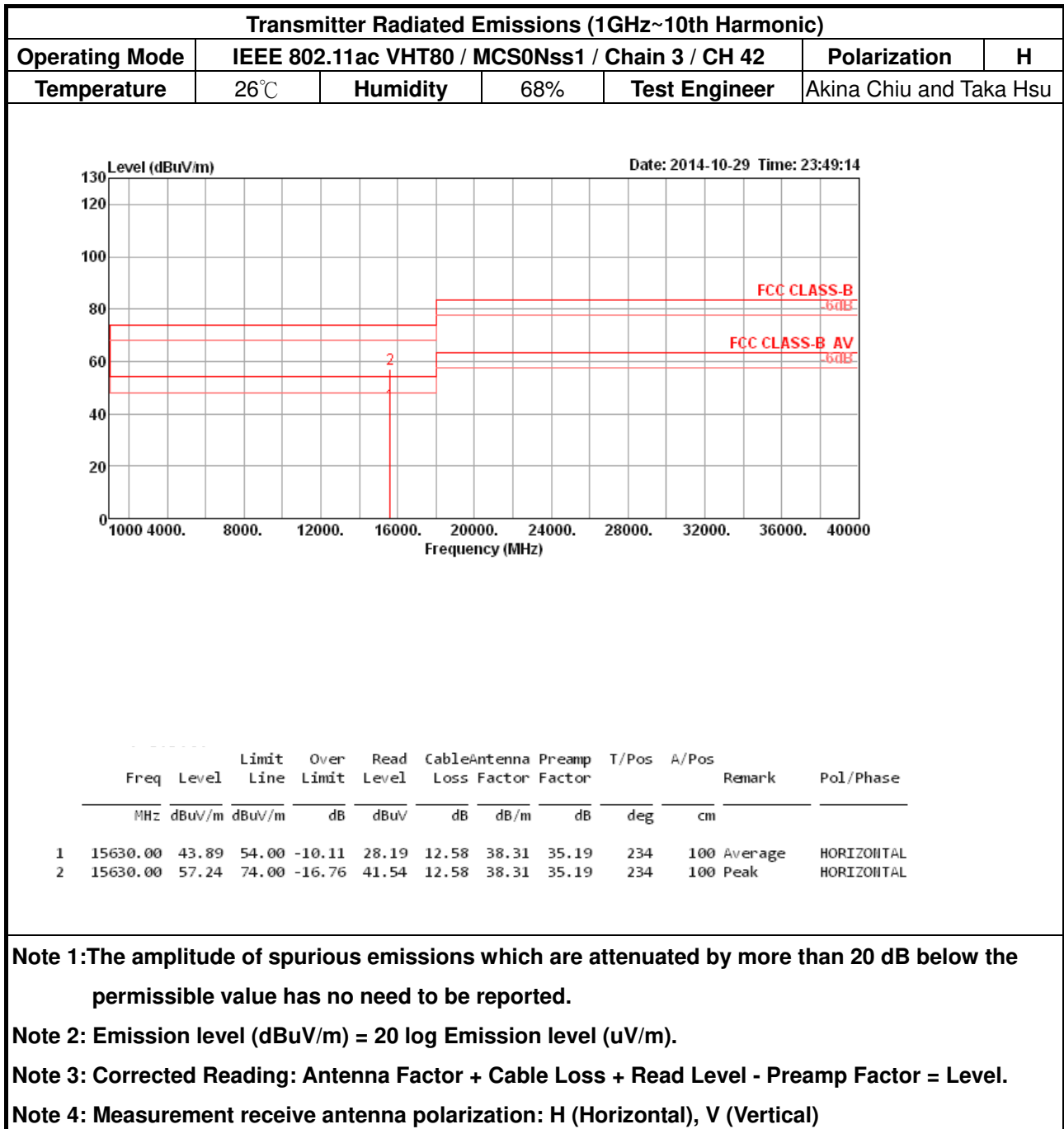
	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11596.36	52.78	74.00	-21.22	37.62	10.78	39.45	35.07	149	120	Peak	VERTICAL
2	11596.84	40.63	54.00	-13.37	25.47	10.78	39.45	35.07	149	120	Average	VERTICAL
3	17386.84	51.83	54.00	-2.17	29.42	13.53	43.54	34.66	291	112	Average	VERTICAL
4	17390.28	64.79	74.00	-9.21	42.38	13.53	43.54	34.66	291	112	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.

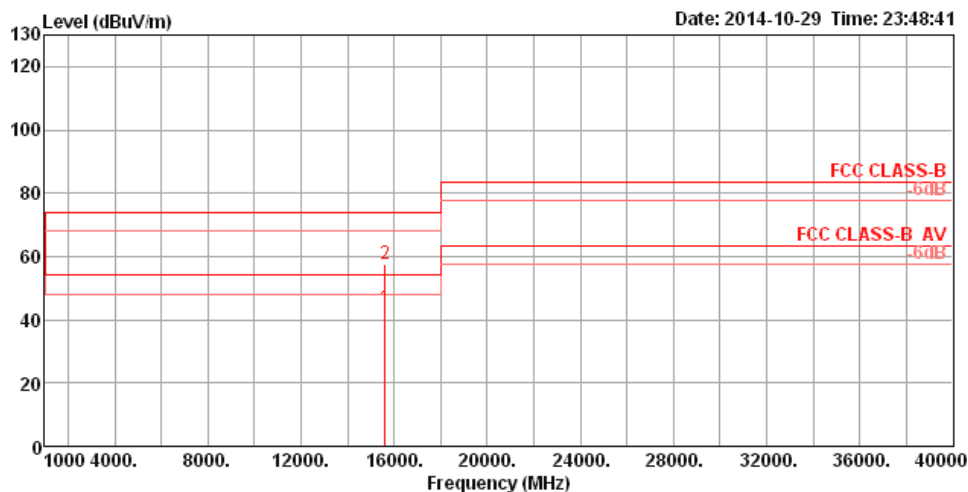
Note 4: Measurement receive antenna polarization: H (Horizontal), V (Vertical)





Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	IEEE 802.11ac VHT80 / MCS0Nss1 / Chain 3 / CH 42			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	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	15630.00	43.77	54.00	-10.23	28.07	12.58	38.31	35.19	164	100	Average	VERTICAL
2	15630.00	57.38	74.00	-16.62	41.68	12.58	38.31	35.19	164	100	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).

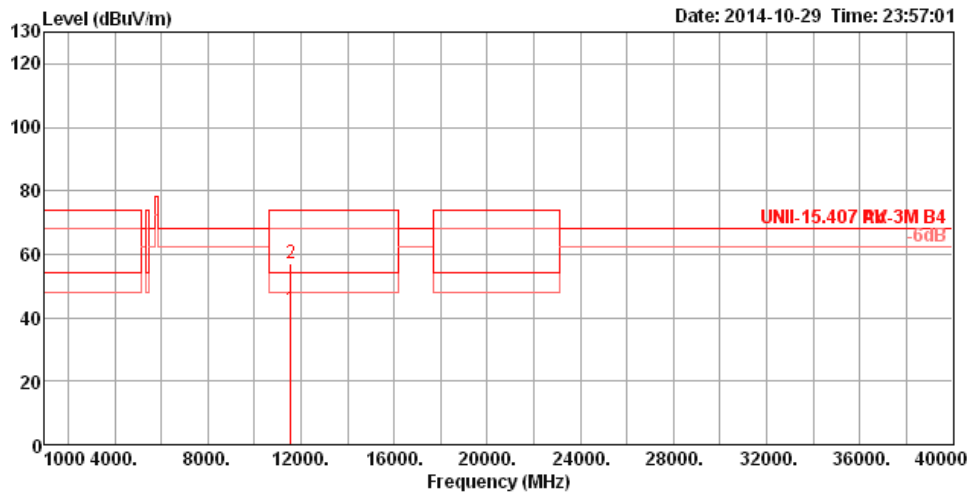
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

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



Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	IEEE 802.11ac VHT80 / MCS0Nss1 / Chain 5 / CH 155				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	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11550.00	42.71	54.00	-11.29	27.59	10.75	39.43	35.06	261	100	Average	HORIZONTAL
2	11550.00	57.02	74.00	-16.98	41.90	10.75	39.43	35.06	261	100	Peak	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).

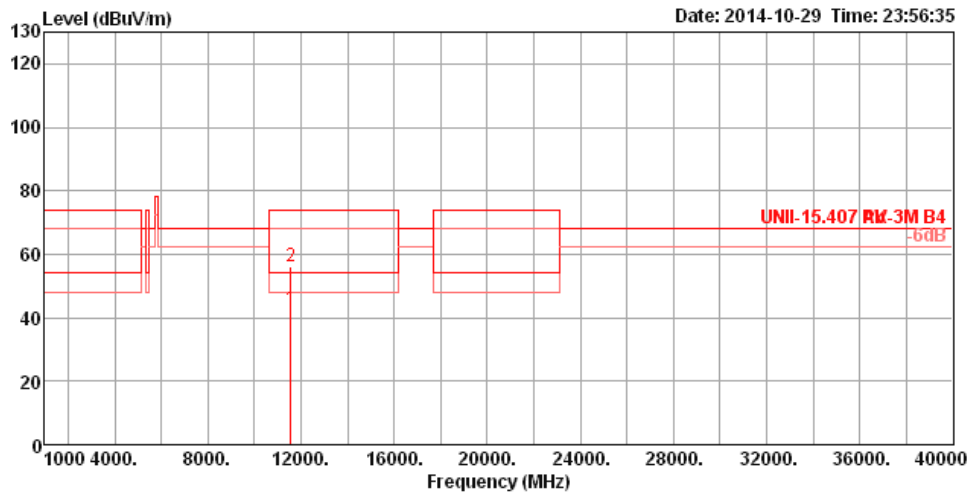
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

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



Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	IEEE 802.11ac VHT80 / MCS0Nss1 / Chain 5 / CH 155			Polarization	V
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



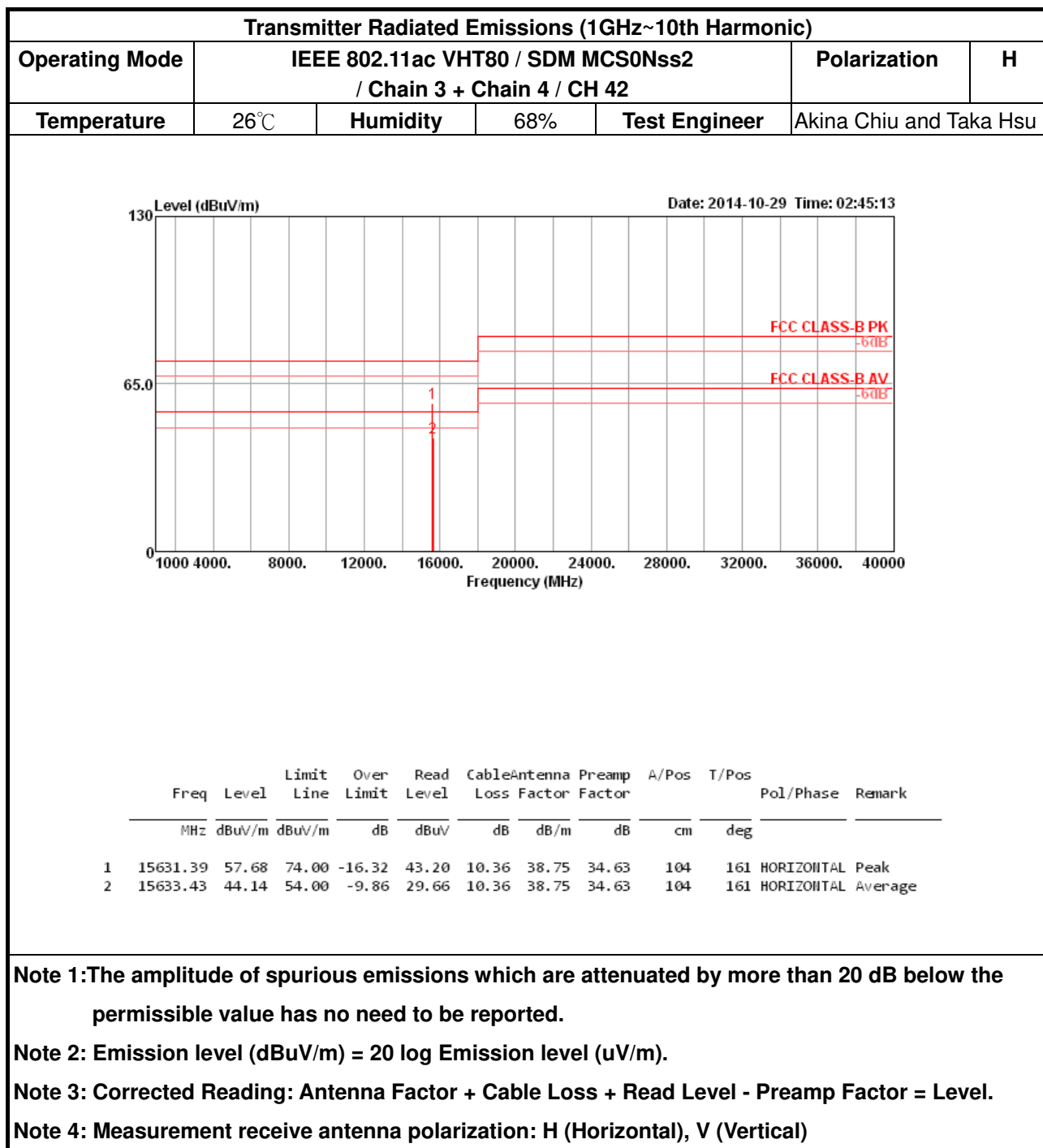
	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11550.00	42.57	54.00	-11.43	27.45	10.75	39.43	35.06	119	100	Average	VERTICAL
2	11550.00	56.20	74.00	-17.80	41.08	10.75	39.43	35.06	119	100	Peak	VERTICAL

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).

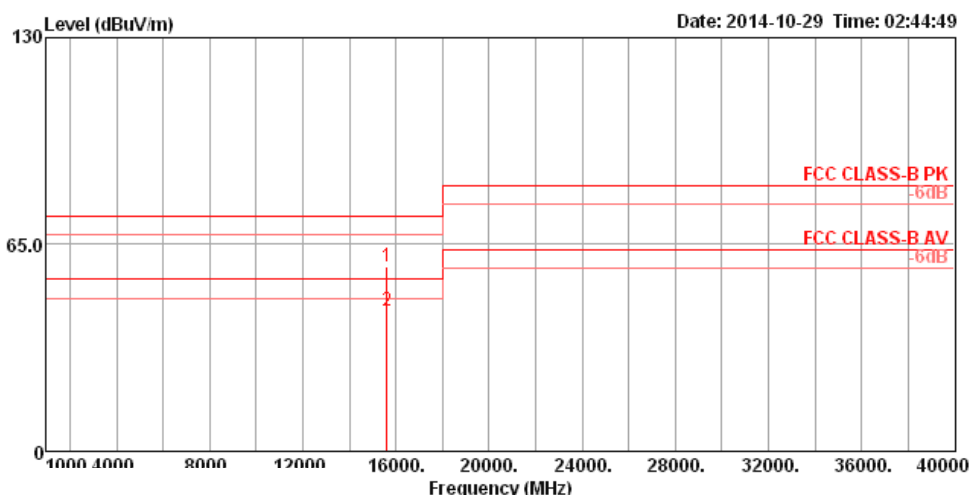
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

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



Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	IEEE 802.11ac VHT80 / SDM MCS0Nss2 / Chain 3 + Chain 4 / CH 42				Polarization	V
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu	



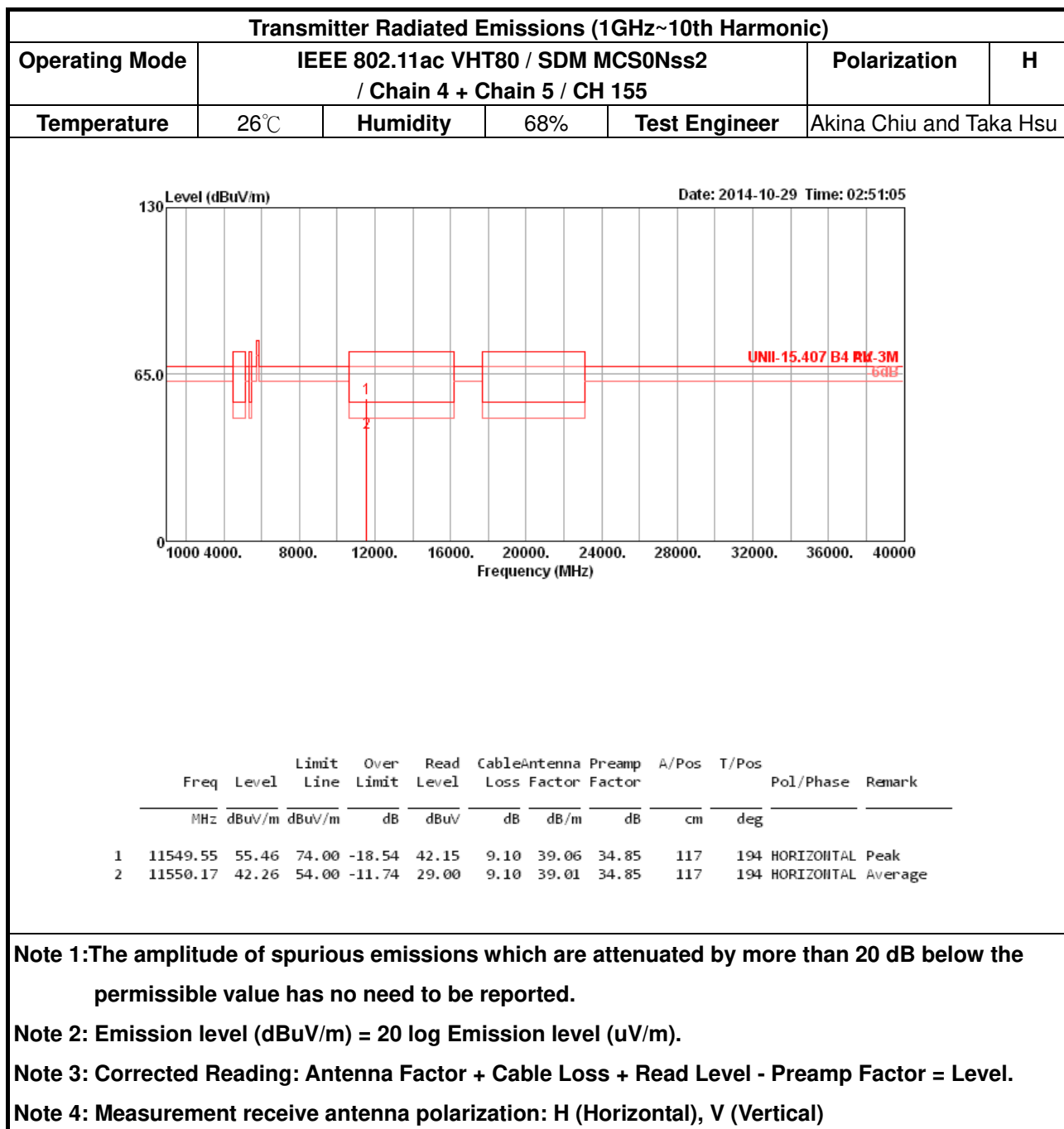
	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15627.86	58.00	74.00	-16.00	43.51	10.36	38.75	34.62	100	45	VERTICAL	Peak
2	15628.34	44.03	54.00	-9.97	29.55	10.36	38.75	34.63	100	45	VERTICAL	Average

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).

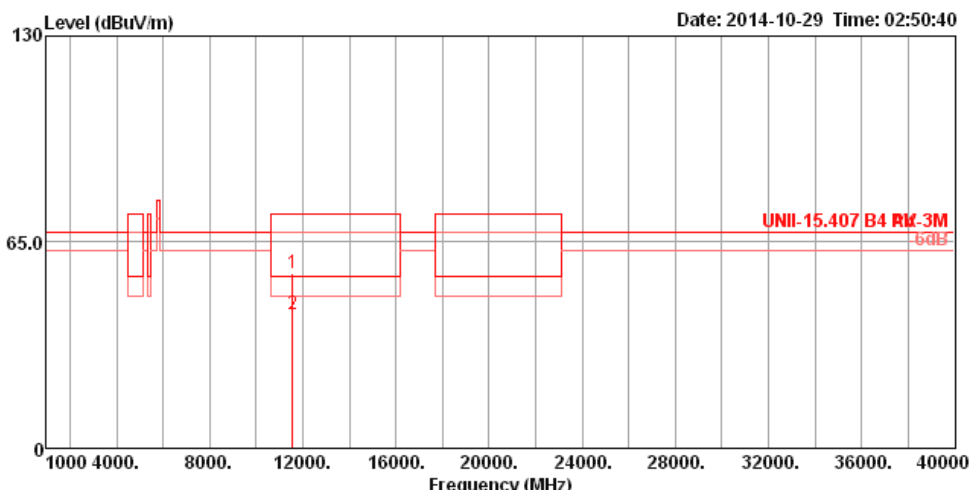
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

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



Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	IEEE 802.11ac VHT80 / SDM MCS0Nss2 / Chain 4 + Chain 5 / CH 155				Polarization	V
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu	



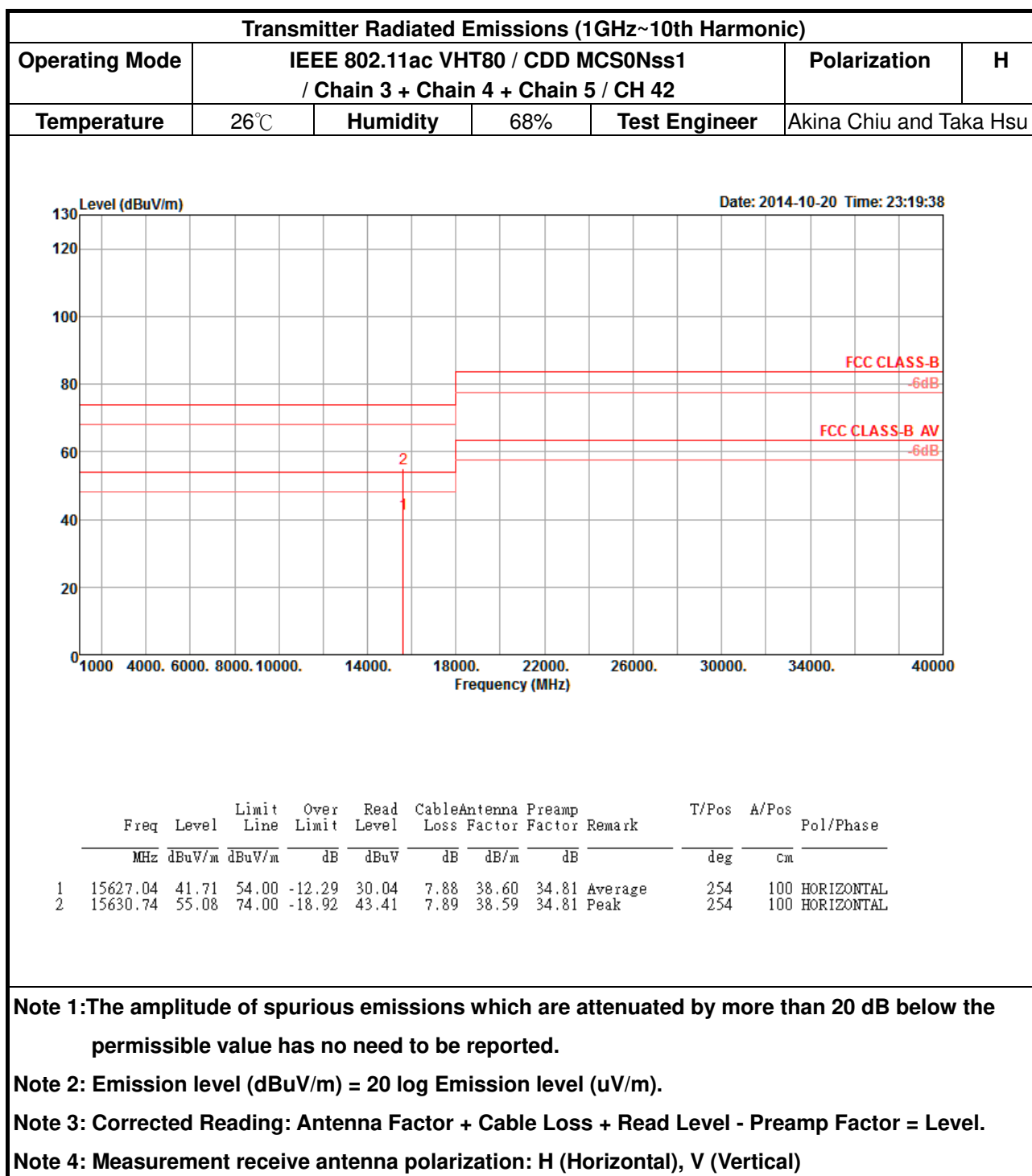
	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11551.17	55.34	74.00	-18.66	42.08	9.10	39.01	34.85	100	272	VERTICAL	Peak
2	11551.88	42.23	54.00	-11.77	28.97	9.10	39.01	34.85	100	272	VERTICAL	Average

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).

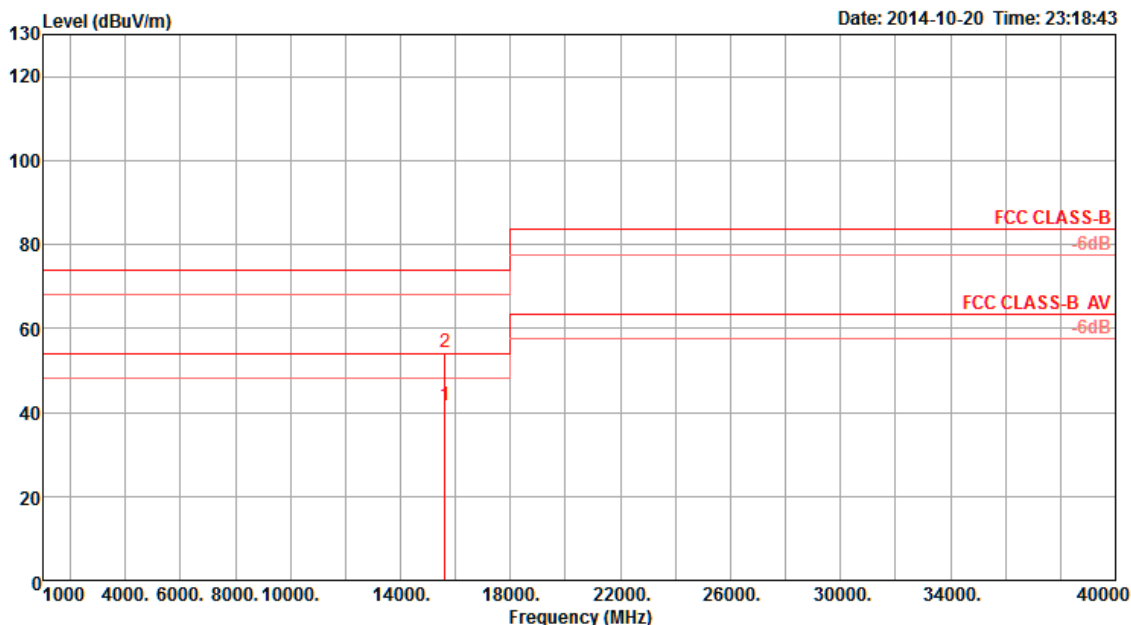
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

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



Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	IEEE 802.11ac VHT80 / CDD MCS0Nss1 / Chain 3 + Chain 4 + Chain 5 / CH 42			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	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	Remark	deg	cm	
1	15630.46	41.70	54.00	-12.30	30.03	7.89	38.59	34.81	Average	118	100	VERTICAL
2	15631.68	54.46	74.00	-19.54	42.79	7.89	38.59	34.81	Peak	118	100	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.

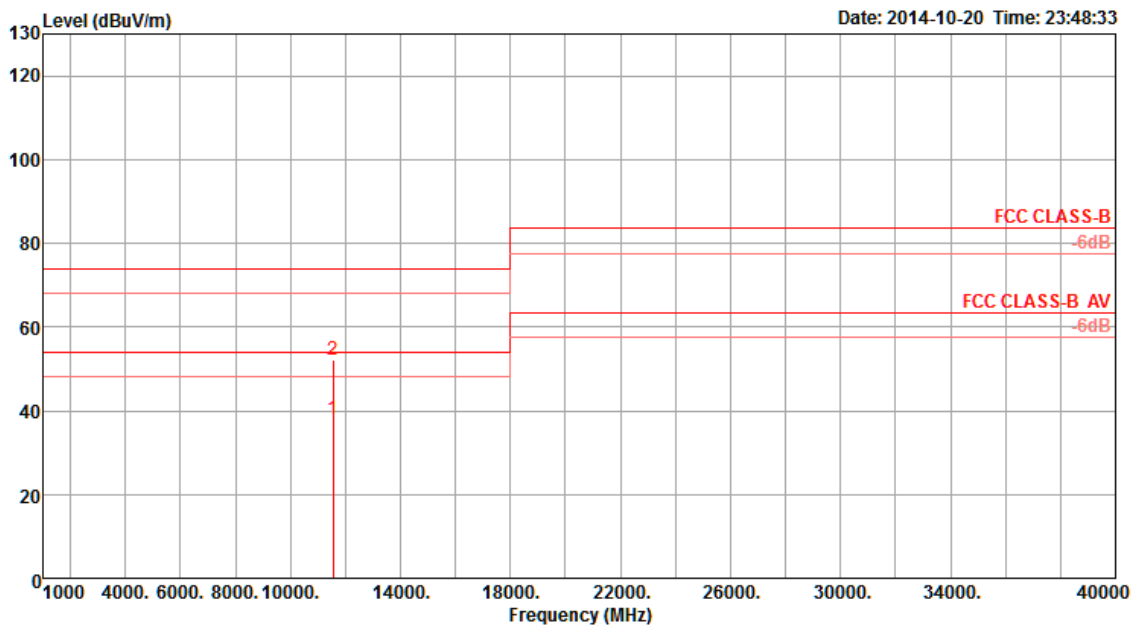
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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 802.11ac VHT80 / CDD MCS0Nss1 / Chain 3 + Chain 4 + Chain 5 / CH 155			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	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	Remark	deg	cm	
1	11548.74	38.09	54.00	-15.91	27.68	6.77	38.32	34.68	Average	180	100	HORIZONTAL
2	11550.21	52.20	74.00	-21.80	41.79	6.77	38.32	34.68	Peak	180	100	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.

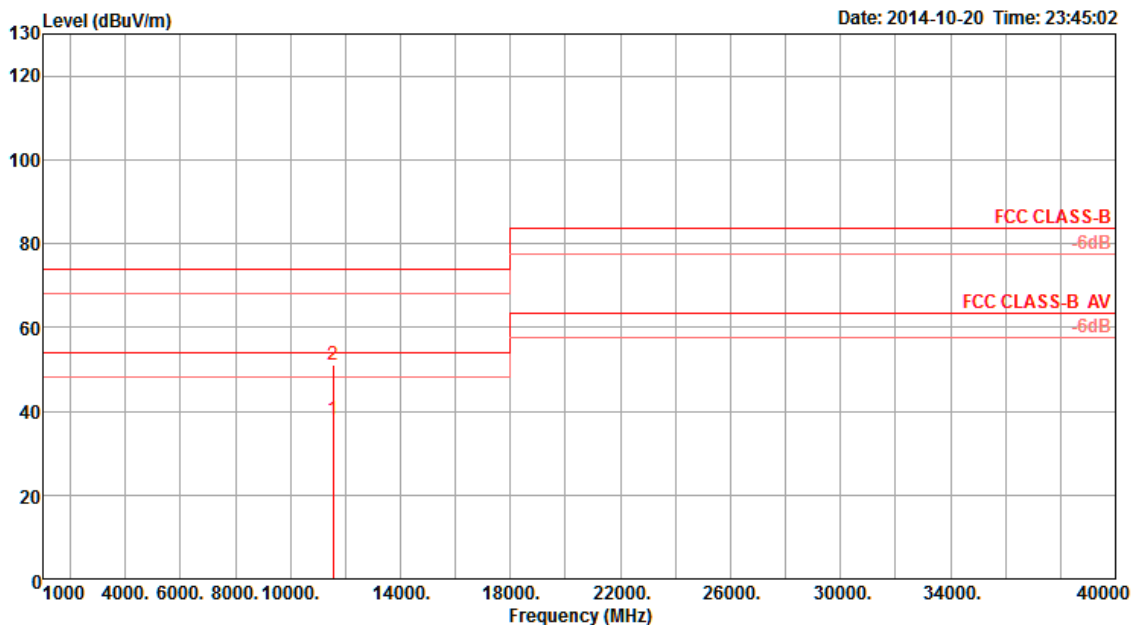
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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 802.11ac VHT80 / CDD MCS0Nss1 / Chain 3 + Chain 4 + Chain 5 / CH 155			Polarization	V
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



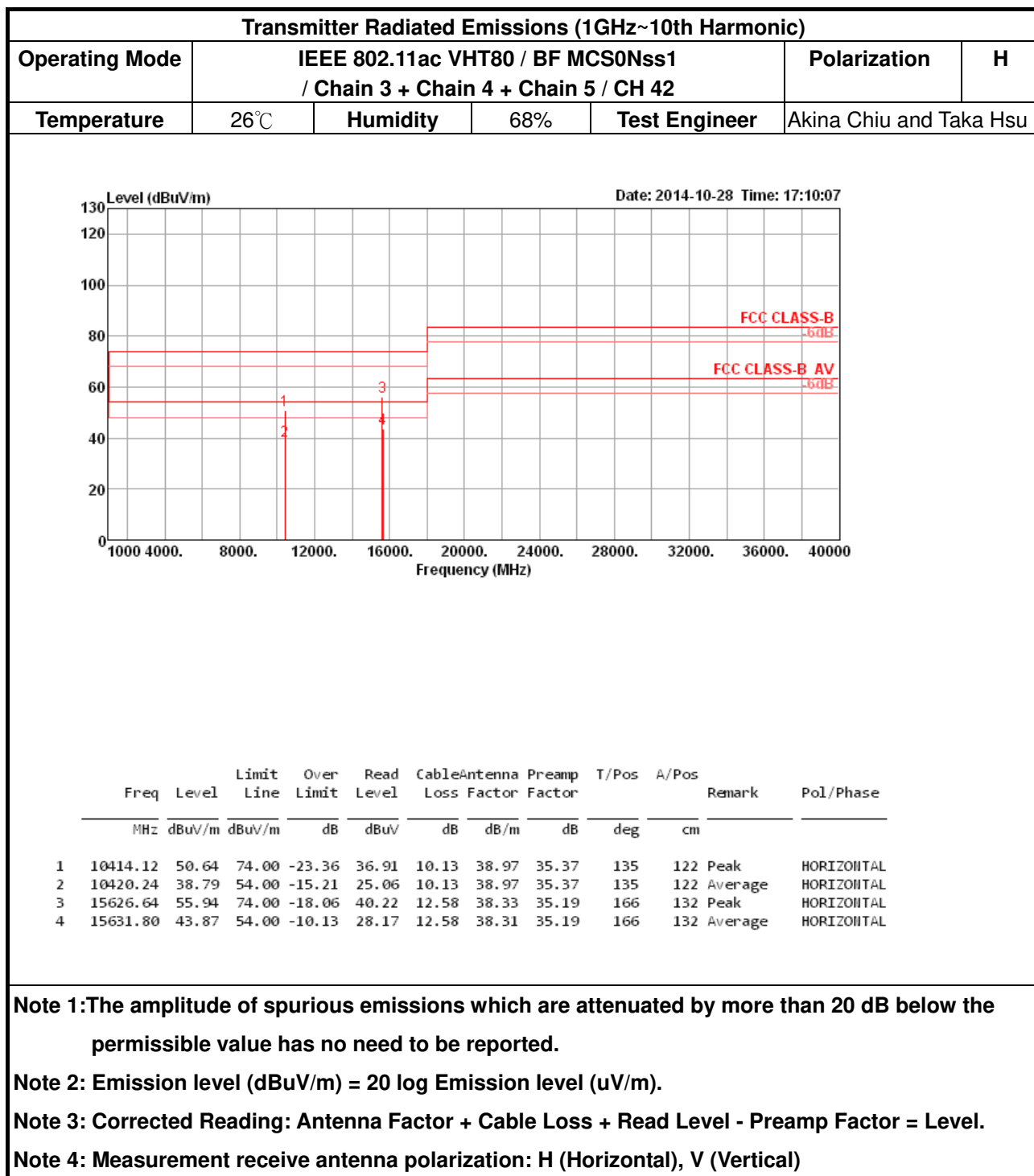
	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp		T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	Remark	deg	cm	
1	11548.75	38.01	54.00	-15.99	27.60	6.77	38.32	34.68	Average	61	100	VERTICAL
2	11550.61	51.07	74.00	-22.93	40.66	6.77	38.32	34.68	Peak	61	100	VERTICAL

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).

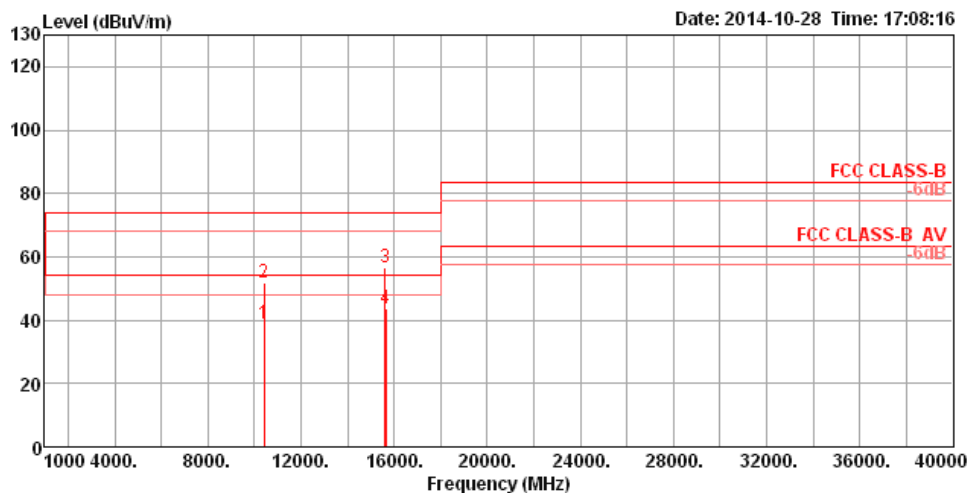
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

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



Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	IEEE 802.11ac VHT80 / BF MCS0Nss1 / Chain 3 + Chain 4 + Chain 5 / CH 42			Polarization	V
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm	
1	10419.84	39.02	54.00	-14.98	25.29	10.13	38.97	35.37	87	113 Average	VERTICAL
2	10424.36	51.78	74.00	-22.22	38.04	10.12	38.97	35.35	87	113 Peak	VERTICAL
3	15629.56	56.70	74.00	-17.30	41.00	12.58	38.31	35.19	303	142 Peak	VERTICAL
4	15633.44	43.85	54.00	-10.15	28.15	12.58	38.31	35.19	303	142 Average	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 802.11ac VHT80 / BF MCS0Nss1 / Chain 3 + Chain 4 + Chain 5 / CH 138							Polarization		H
Temperature	26℃	Humidity		68%	Test Engineer		Akina Chiu and Taka Hsu				

Level (dBuV/m)

Date: 2014-10-28 Time: 17:24:07

Frequency (MHz)

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm	
1	11376.72	40.07	54.00	-13.93	25.13	10.68	39.29	35.03	195	126 Average	HORIZONTAL
2	11387.16	52.26	74.00	-21.74	37.30	10.68	39.31	35.03	195	126 Peak	HORIZONTAL
3	17068.72	61.75	74.00	-12.25	40.70	13.54	42.02	34.51	186	117 Peak	HORIZONTAL
4	17076.68	49.58	54.00	-4.42	28.45	13.54	42.10	34.51	186	117 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.

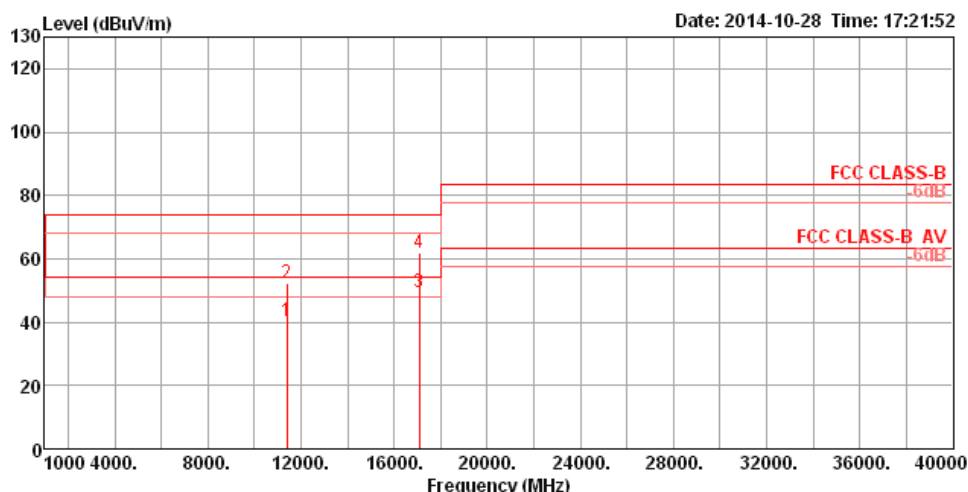
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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 802.11ac VHT80 / BF MCS0Nss1 / Chain 3 + Chain 4 + Chain 5 / CH 138			Polarization	V
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



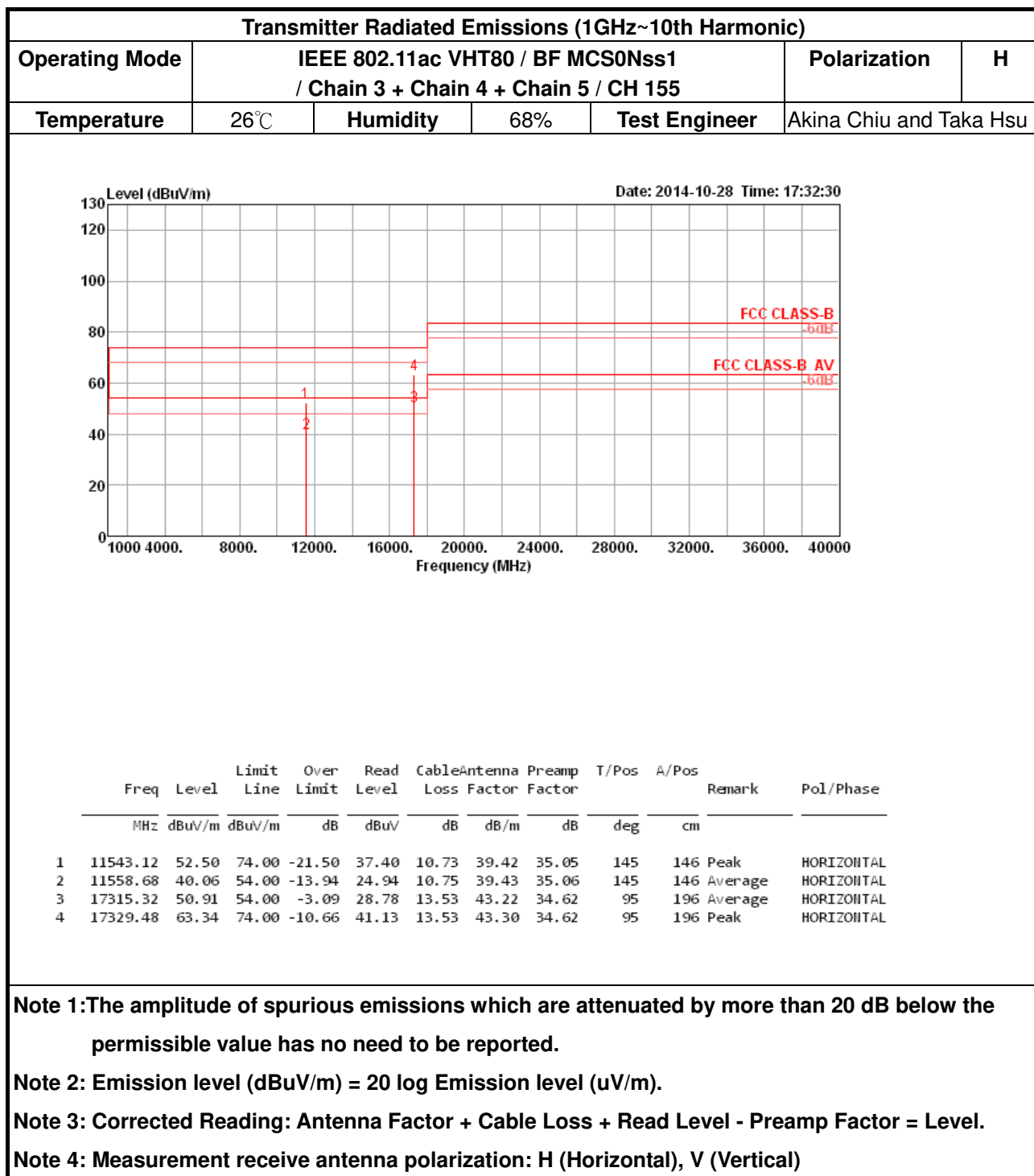
	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	Line	Limit	Level	Loss	Factor	Factor	deg	cm	
1	11385.60	40.25	54.00	-13.75	25.29	10.68	39.31	35.03	149	117 Average	VERTICAL
2	11386.52	52.08	74.00	-21.92	37.12	10.68	39.31	35.03	149	117 Peak	VERTICAL
3	17073.76	49.48	54.00	-4.52	28.35	13.54	42.10	34.51	293	142 Average	VERTICAL
4	17078.96	62.02	74.00	-11.98	40.90	13.54	42.10	34.52	293	142 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).

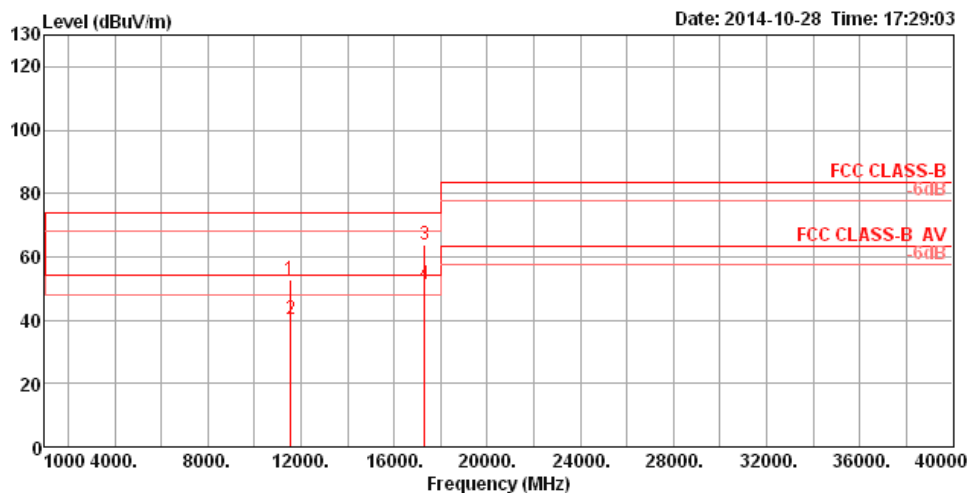
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

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



Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	IEEE 802.11ac VHT80 / BF MCS0Nss1 / Chain 3 + Chain 4 + Chain 5 / CH 155			Polarization	V
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	Line	Limit	Level	Loss	Factor	Factor	deg	cm	
1	11544.36	52.73	74.00	-21.27	37.62	10.75	39.42	35.06	27	121 Peak	VERTICAL
2	11548.48	40.43	54.00	-13.57	25.32	10.75	39.42	35.06	27	121 Average	VERTICAL
3	17316.92	64.01	74.00	-9.99	41.88	13.53	43.22	34.62	220	112 Peak	VERTICAL
4	17326.84	51.10	54.00	-2.90	28.97	13.53	43.22	34.62	220	112 Average	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)

2.6 Band Edge Emissions Measurement

2.6.1 Limit

For transmitters operating in the 5.15~5.35GHz band: all emissions outside of the 5.15~5.35GHz band shall not exceed a -27dBm peak limit or average 54dBuV/m and peak 74dBuV/m limits. For transmitters operating in the 5.470-5.725 GHz band: all emissions outside of the 5.470-5.725 GHz band shall not exceed a -27dBm peak limit or average 54dBuV/m and peak 74dBuV/m limits.

In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

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

Spectrum Analyzer setting parameters are shown in the following table:

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	100 MHz
RBW / VBW (Emission in restricted band)	1MHz / 3MHz for Peak, 1MHz / 1/T for Average
RBW / VBW (Emission in non-restricted band)	100 kHz / 300 kHz for Peak

1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 0.8 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.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. 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.
4. 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.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz VBW and 3MHz RBW for peak reading. Then 1MHz RBW and 1/T

VBW for average reading in spectrum analyzer.

7. 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.
8. 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.
9. 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.
10. In case 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.

2.6.4 Test Setup

This test setup layout is same as Radiated Emissions Measurement

2.6.5 Test Deviation

There is no deviation with the original standard.

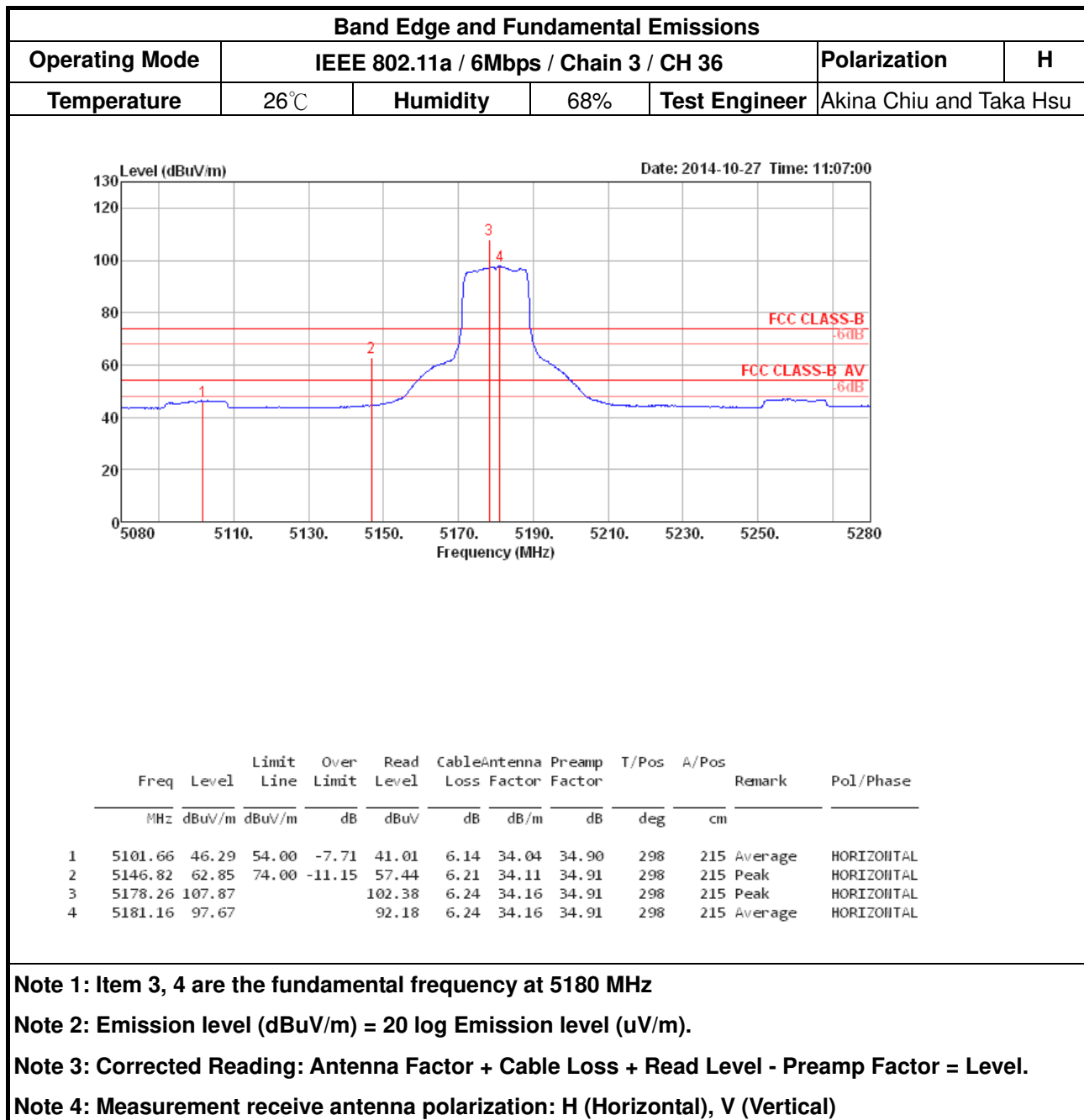
2.6.6 EUT Operation during Test

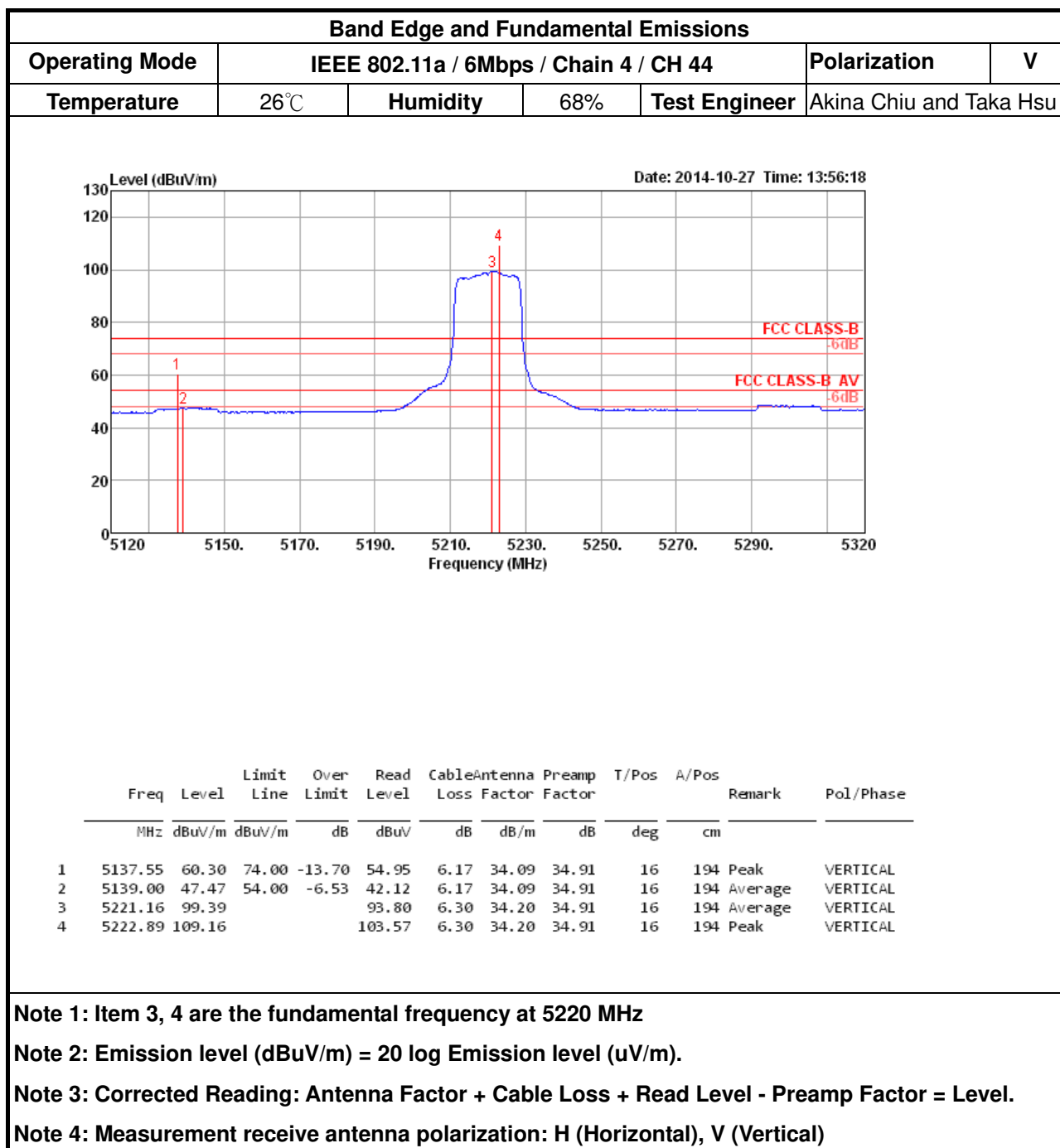
For Non-beamforming mode:

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

For beamforming mode:

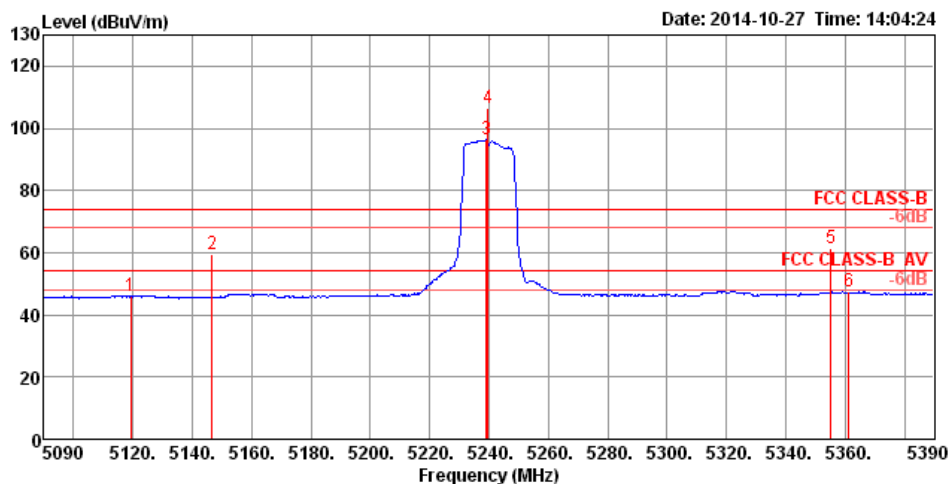
The EUT was programmed to be in beamforming transmitting mode.

1.6.7 Test Results




Band Edge and Fundamental Emissions

Operating Mode	IEEE 802.11a / 6Mbps / Chain 4 / CH 48			Polarization	V
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



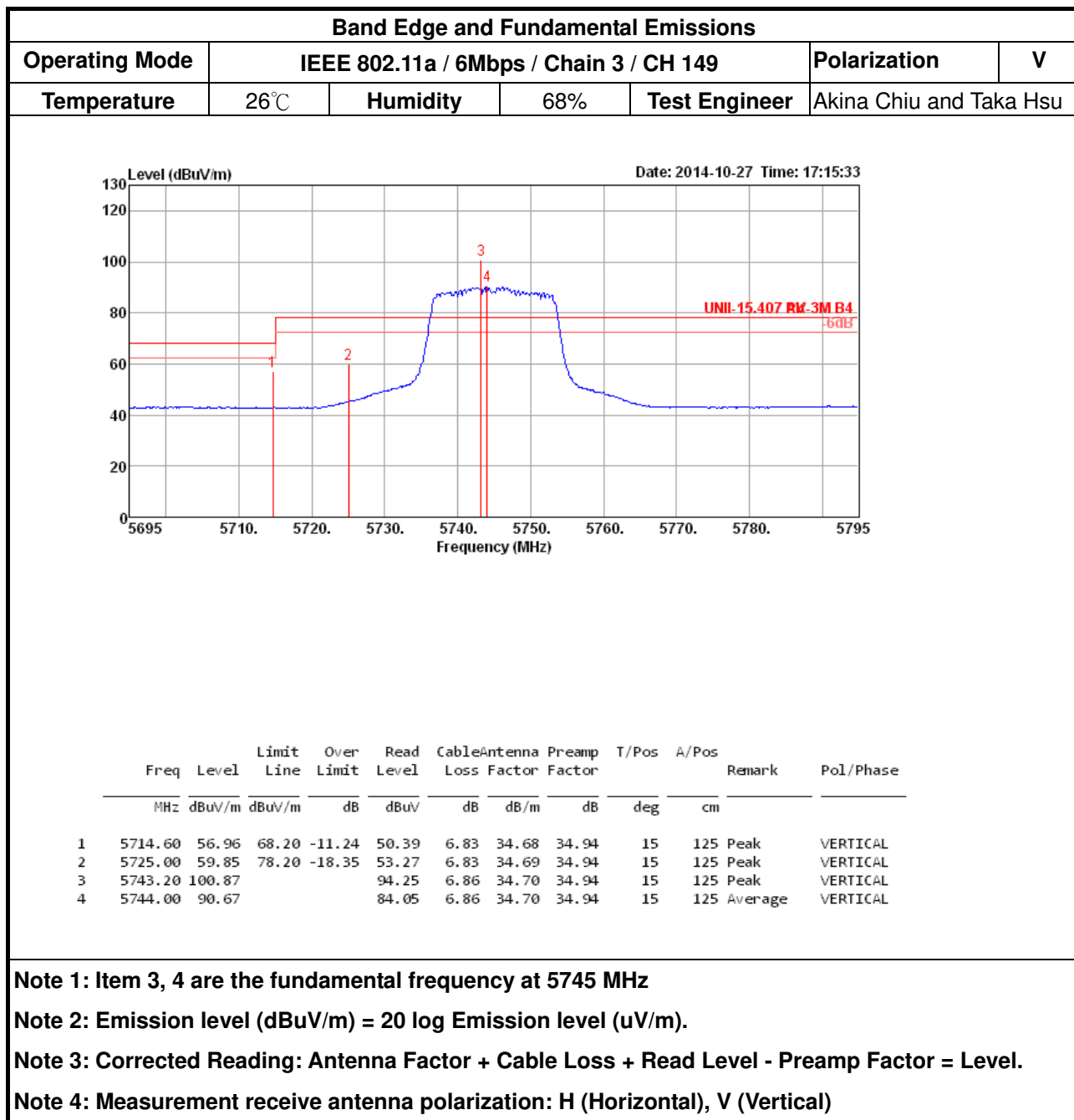
	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5119.18	46.09	54.00	-7.91	40.77	6.17	34.06	34.91	24	189	Average	VERTICAL
2	5146.53	59.32	74.00	-14.68	53.91	6.21	34.11	34.91	24	189	Peak	VERTICAL
3	5239.13	96.46			90.84	6.30	34.23	34.91	24	189	Average	VERTICAL
4	5239.57	106.65			101.03	6.30	34.23	34.91	24	189	Peak	VERTICAL
5	5355.21	61.35	74.00	-12.65	55.40	6.47	34.39	34.91	24	189	Peak	VERTICAL
6	5361.29	47.48	54.00	-6.52	41.51	6.47	34.41	34.91	24	189	Average	VERTICAL

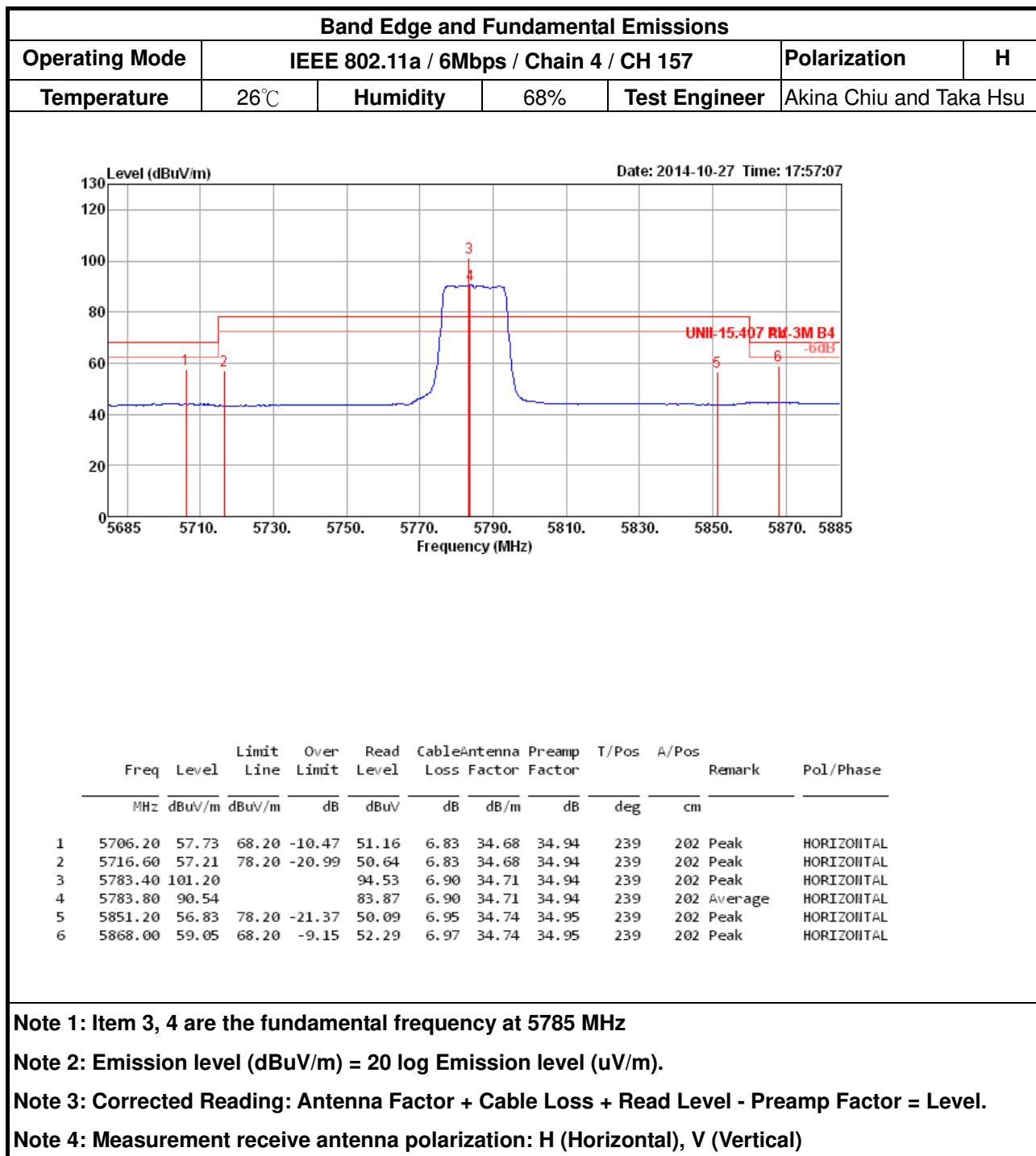
Note 1: Item 3, 4 are the fundamental frequency at 5240 MHz

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.

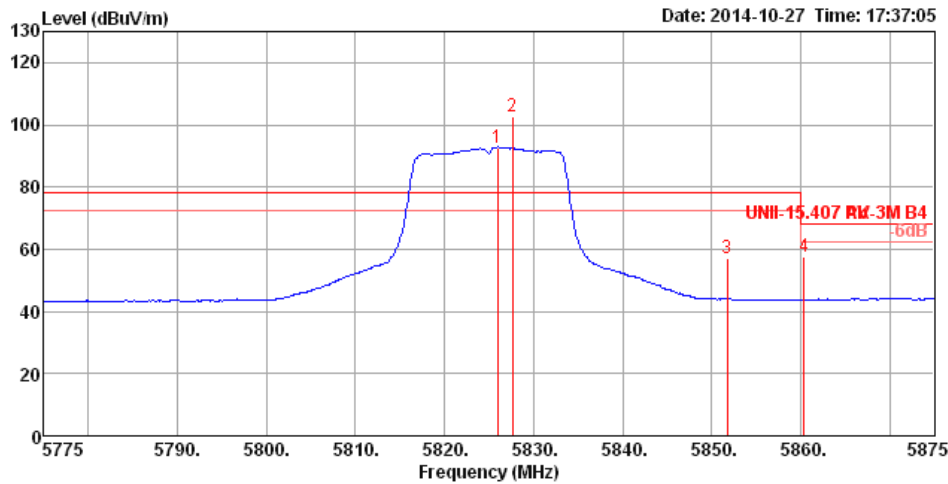
Note 4: Measurement receive antenna polarization: H (Horizontal), V (Vertical)





Band Edge and Fundamental Emissions

Operating Mode	IEEE 802.11a / 6Mbps / Chain 3 / CH 165			Polarization	H
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



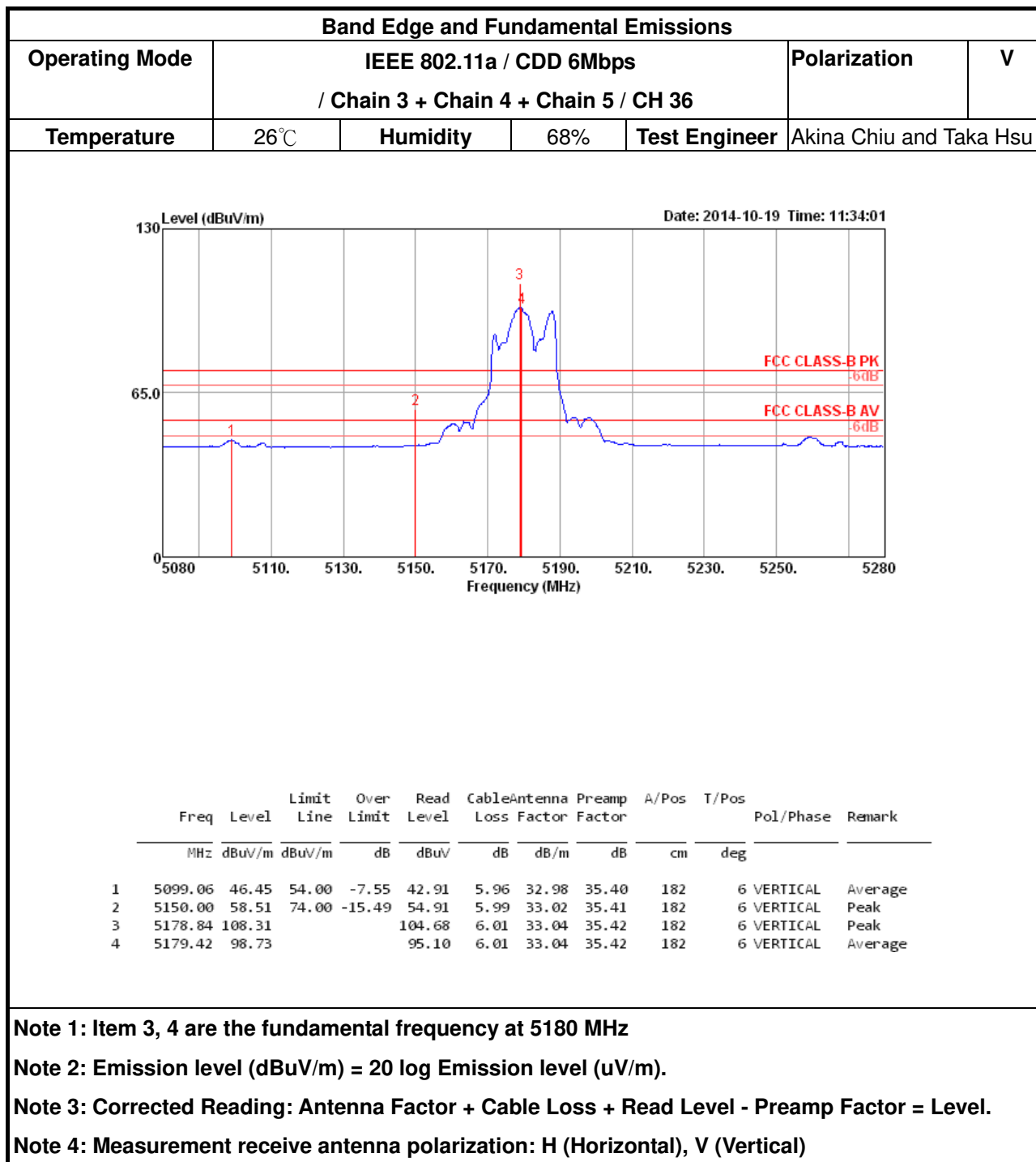
	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5826.00	92.82			86.12	6.92	34.73	34.95	302	218	Average	HORIZONTAL
2	5827.60	102.84			96.14	6.92	34.73	34.95	302	218	Peak	HORIZONTAL
3	5851.80	57.06	78.20	-21.14	50.32	6.95	34.74	34.95	302	218	Peak	HORIZONTAL
4	5860.40	57.43	68.20	-10.77	50.67	6.97	34.74	34.95	302	218	Peak	HORIZONTAL

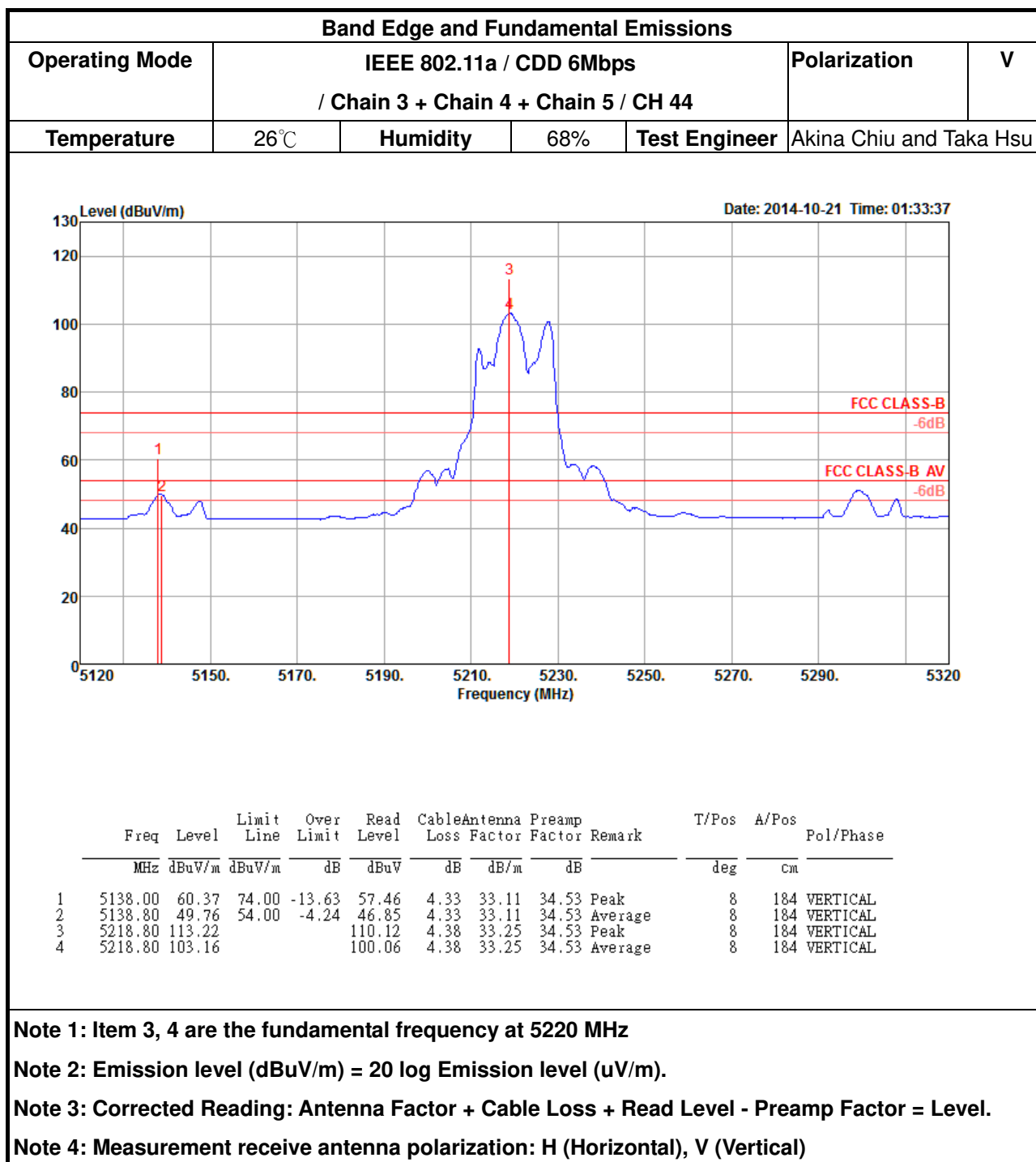
Note 1: Item 1, 2 are the fundamental frequency at 5825 MHz

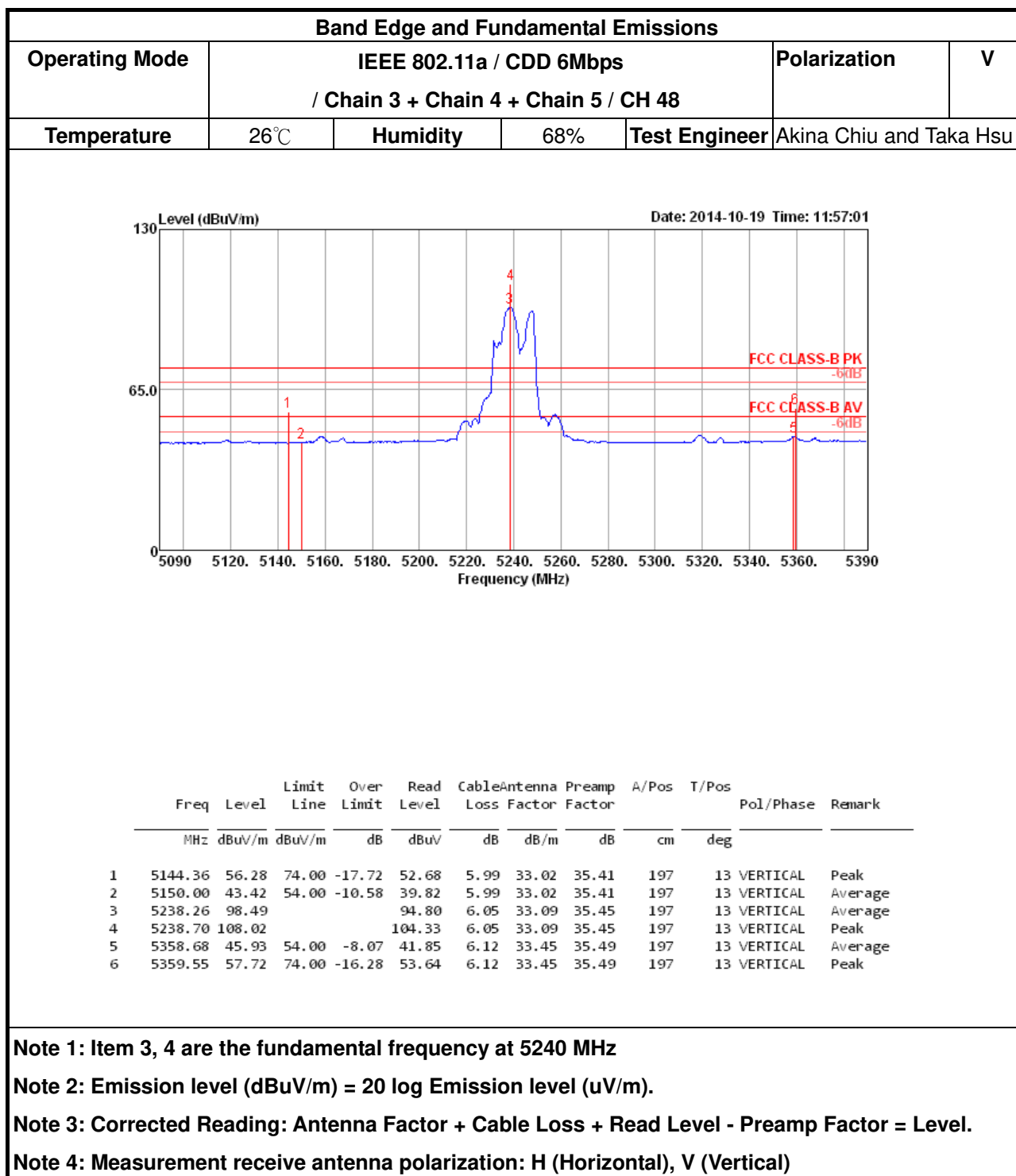
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

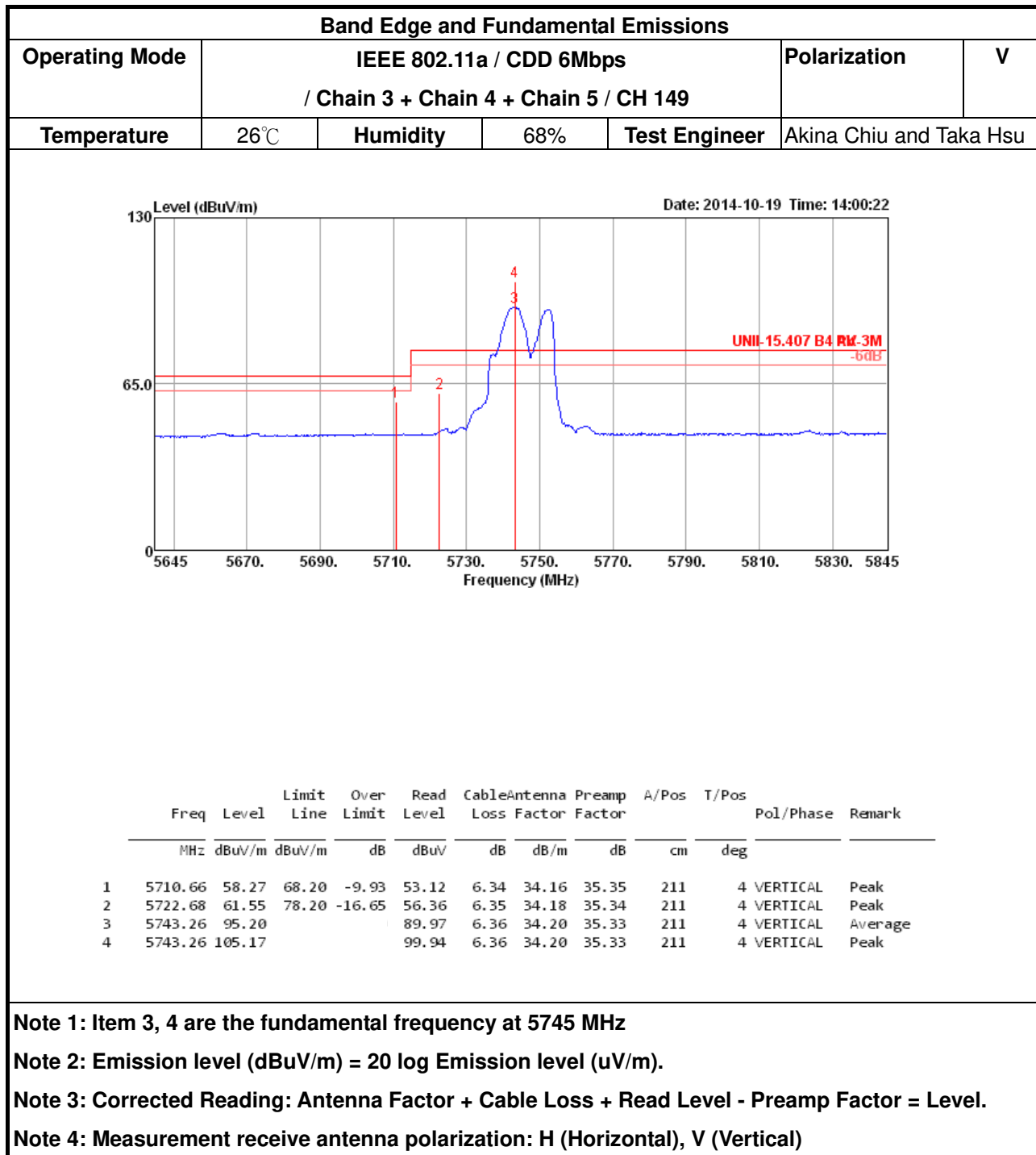
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

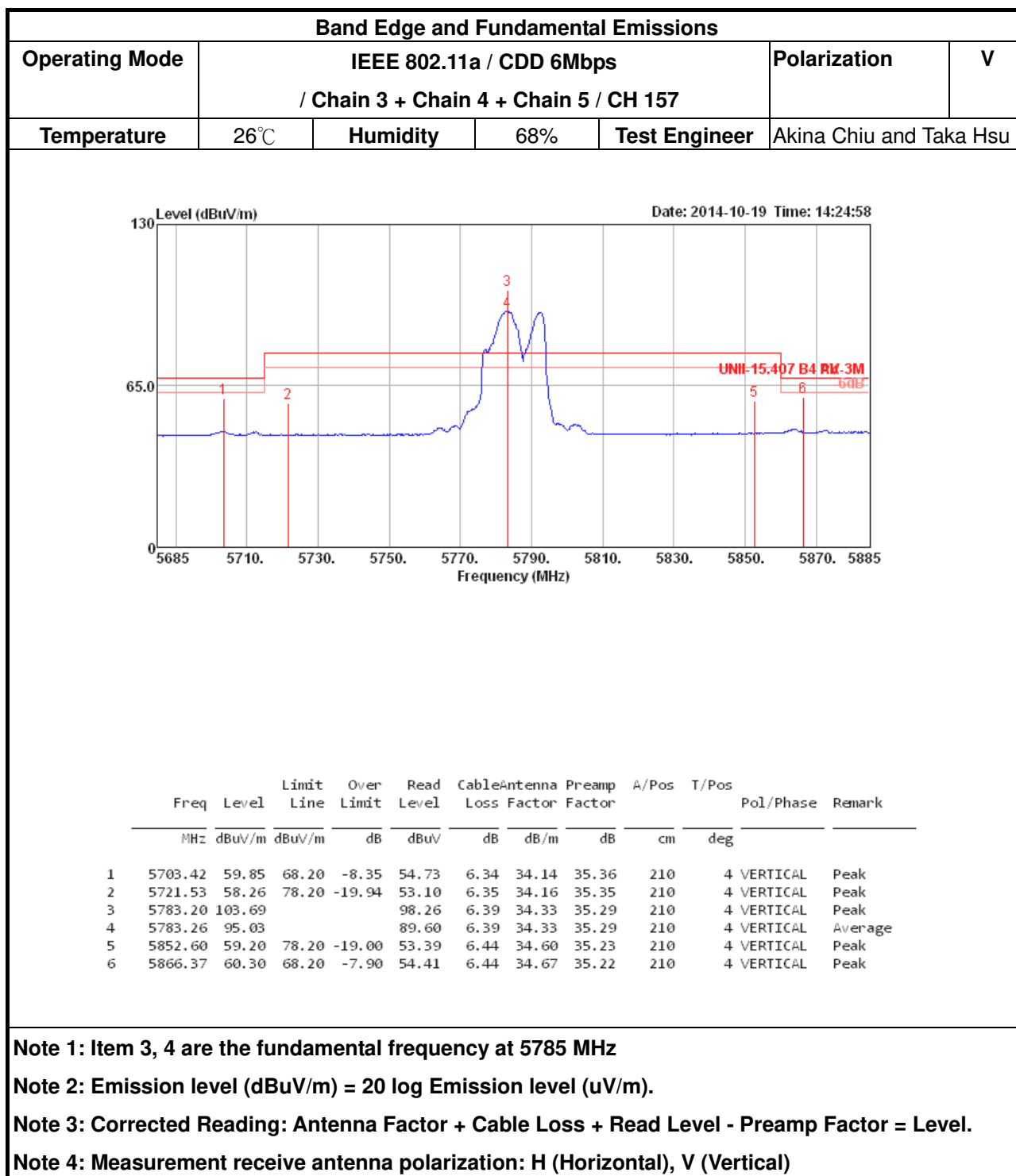
Note 4: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

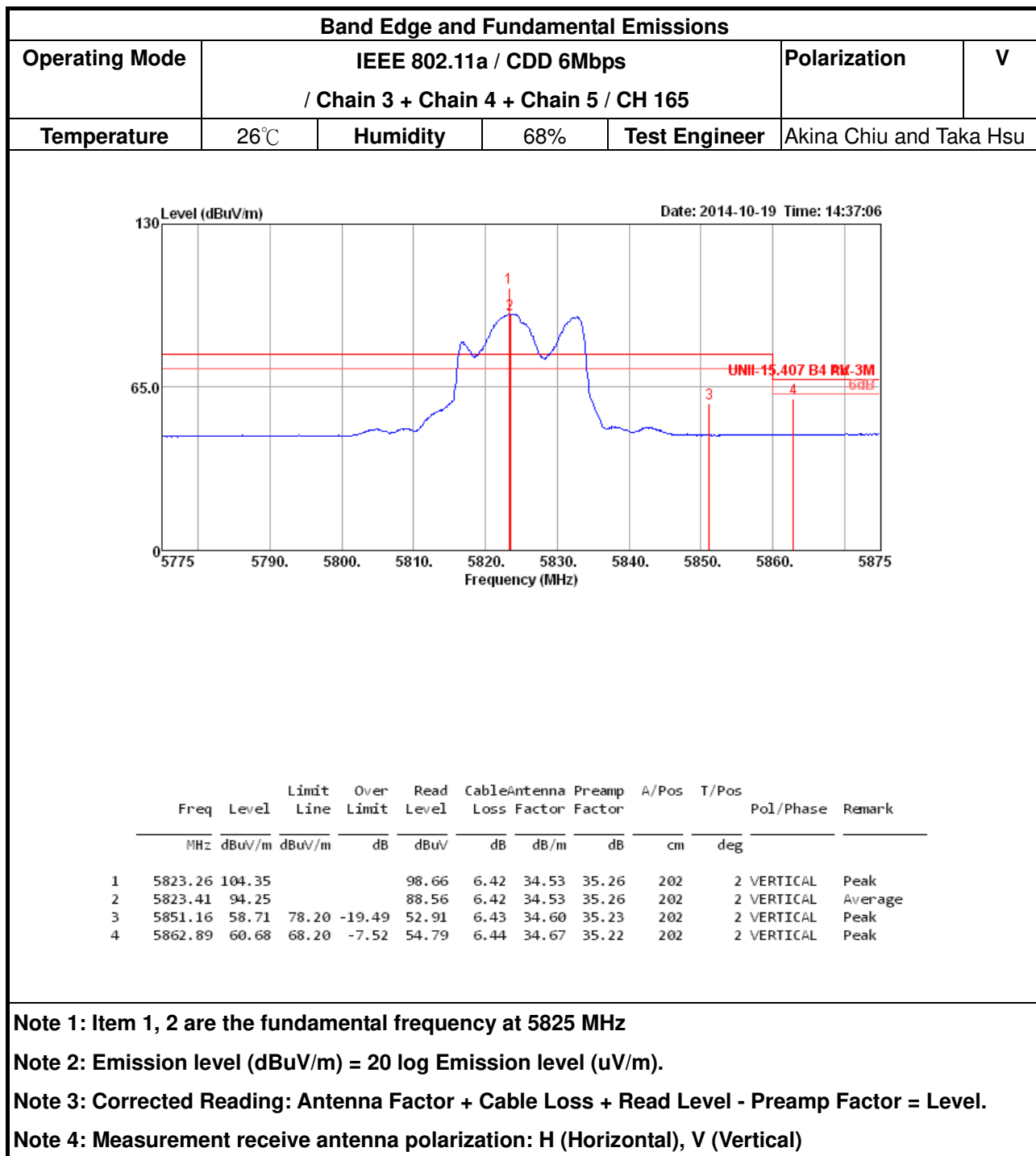






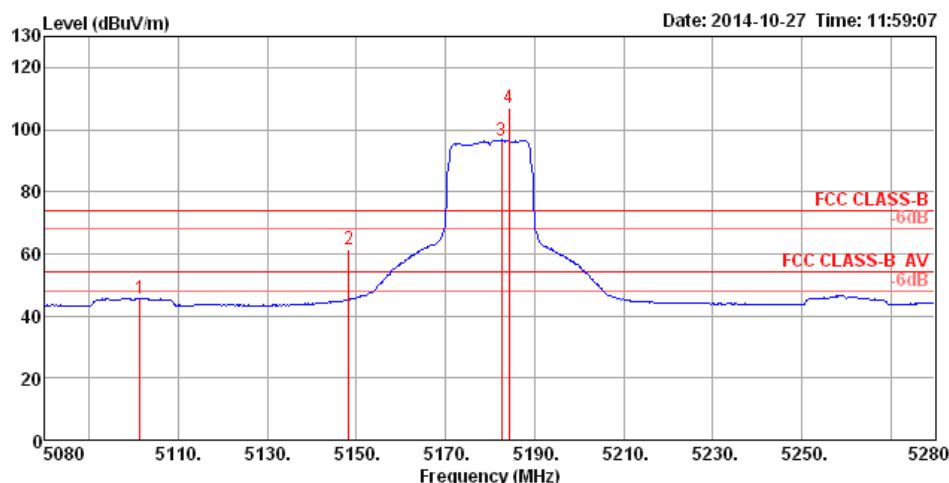






Band Edge and Fundamental Emissions

Operating Mode	IEEE 802.11ac VHT20 / MCS0Nss1 / Chain 3 / CH 36			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	5101.37	45.54	54.00	-8.46	40.26	6.14	34.04	34.90	9	100	Average	VERTICAL
2	5148.26	61.41	74.00	-12.59	56.00	6.21	34.11	34.91	9	100	Peak	VERTICAL
3	5182.60	96.64			91.15	6.24	34.16	34.91	9	100	Average	VERTICAL
4	5184.34	106.87			101.38	6.24	34.16	34.91	9	100	Peak	VERTICAL

Note 1: Item 3, 4 are the fundamental frequency at 5180 MHz

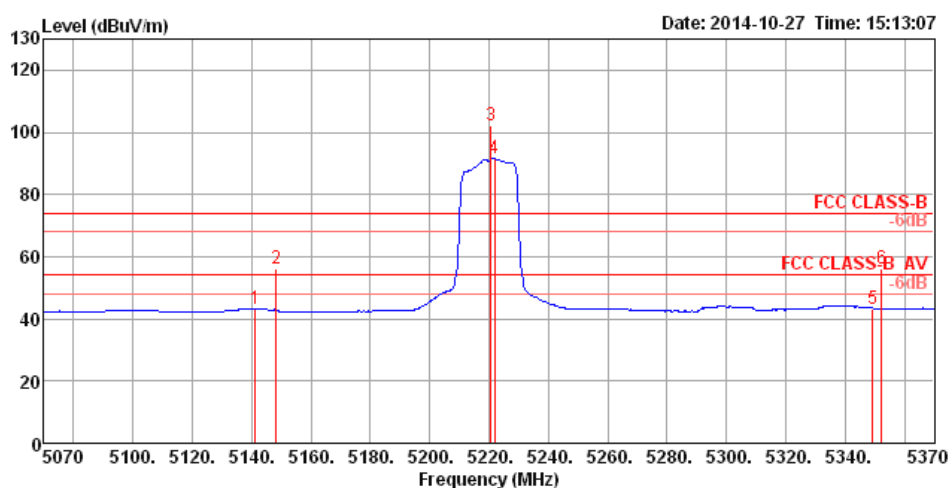
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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 802.11ac VHT20 / MCS0Nss1 / Chain 4 / CH 44			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	Line	Limit	Level	Loss	Factor	Factor	deg	cm		
1	5141.20	43.21	54.00	-10.79	37.84	6.17	34.11	34.91	257	212	Average	HORIZONTAL
2	5148.20	55.98	74.00	-18.02	50.57	6.21	34.11	34.91	257	212	Peak	HORIZONTAL
3	5220.60	102.03			96.44	6.30	34.20	34.91	257	212	Peak	HORIZONTAL
4	5221.80	91.58			85.99	6.30	34.20	34.91	257	212	Average	HORIZONTAL
5	5349.40	43.40	54.00	-10.60	37.45	6.47	34.39	34.91	257	212	Average	HORIZONTAL
6	5352.40	56.29	74.00	-17.71	50.34	6.47	34.39	34.91	257	212	Peak	HORIZONTAL

Note 1: Item 3, 4 are the fundamental frequency at 5220 MHz

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

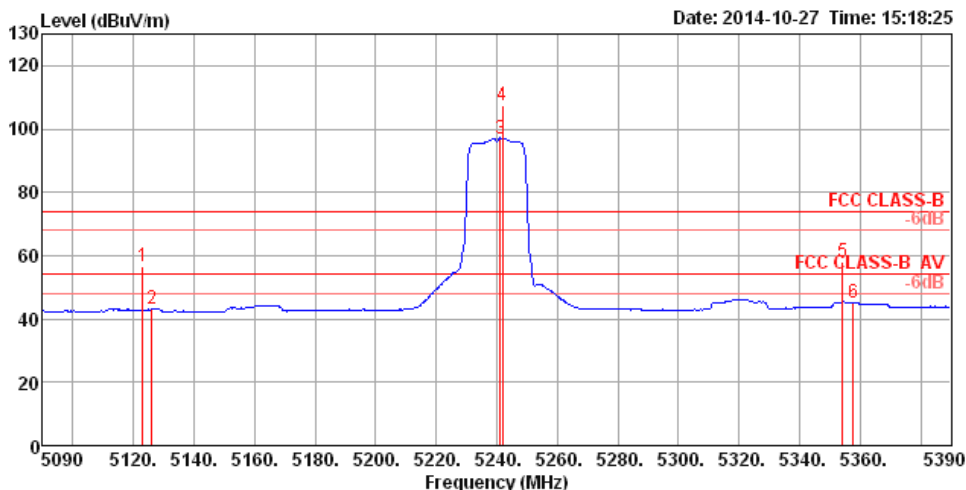
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

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



Band Edge and Fundamental Emissions

Operating Mode	IEEE 802.11ac VHT20 / MCS0Nss1 / Chain 4 / CH 48			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	5123.00	56.41	74.00	-17.59	51.06	6.17	34.09	34.91	17	198	Peak	VERTICAL
2	5126.00	42.96	54.00	-11.04	37.61	6.17	34.09	34.91	17	198	Average	VERTICAL
3	5241.20	97.12			91.50	6.30	34.23	34.91	17	198	Average	VERTICAL
4	5241.80	107.46			101.82	6.30	34.25	34.91	17	198	Peak	VERTICAL
5	5354.20	58.13	74.00	-15.87	52.18	6.47	34.39	34.91	17	198	Peak	VERTICAL
6	5357.80	45.24	54.00	-8.76	39.29	6.47	34.39	34.91	17	198	Average	VERTICAL

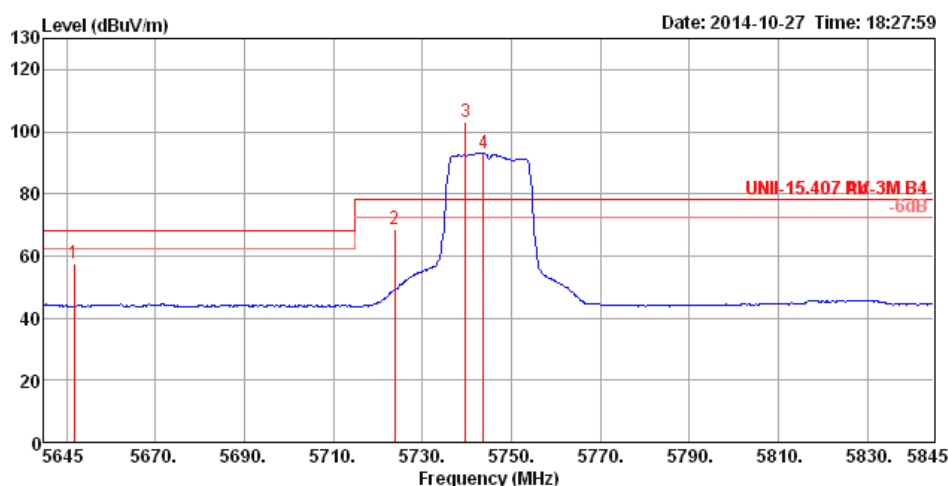
Note 1: Item 3, 4 are the fundamental frequency at 5240 MHz

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 802.11ac VHT20 / MCS0Nss1 / Chain 3 / CH 149			Polarization	H
Temperature	26℃	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase	
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5651.80	57.53	68.20	-10.67	51.04	6.76	34.66	34.93	293	213	Peak	HORIZONTAL
2	5723.80	68.38	78.20	-9.82	61.80	6.83	34.69	34.94	293	213	Peak	HORIZONTAL
3	5739.80	103.32			96.70	6.86	34.70	34.94	293	213	Peak	HORIZONTAL
4	5743.80	93.07			86.45	6.86	34.70	34.94	293	213	Average	HORIZONTAL

Note 1: Item 3, 4 are the fundamental frequency at 5745 MHz

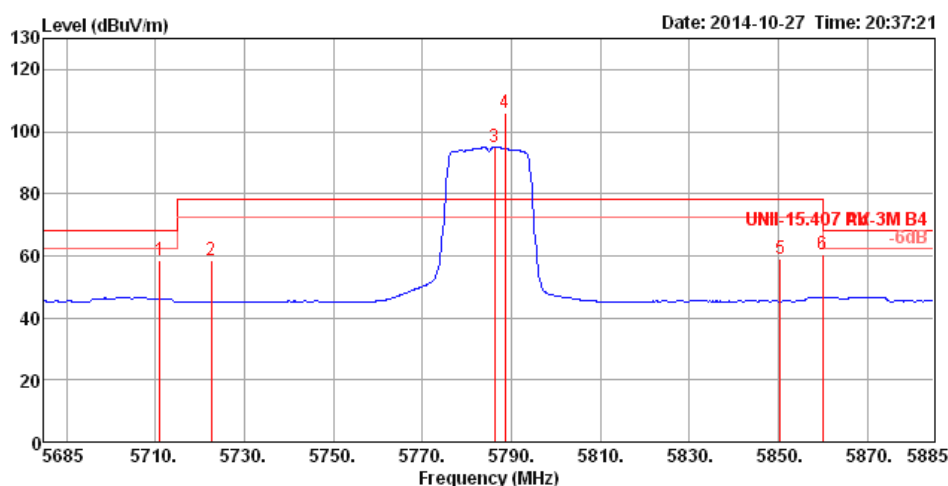
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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 802.11ac VHT20 / MCS0Nss1 / Chain 4 / CH 157			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	5711.00	58.53	68.20	-9.67	51.96	6.83	34.68	34.94	285	207	Peak	VERTICAL
2	5722.60	58.60	78.20	-19.60	52.02	6.83	34.69	34.94	285	207	Peak	VERTICAL
3	5786.20	94.97			88.29	6.90	34.72	34.94	285	207	Average	VERTICAL
4	5788.60	106.13			99.45	6.90	34.72	34.94	285	207	Peak	VERTICAL
5	5850.40	59.02	78.20	-19.18	52.28	6.95	34.74	34.95	285	207	Peak	VERTICAL
6	5860.00	60.21	68.20	-7.99	53.45	6.97	34.74	34.95	285	207	Peak	VERTICAL

Note 1: Item 3, 4 are the fundamental frequency at 5785 MHz

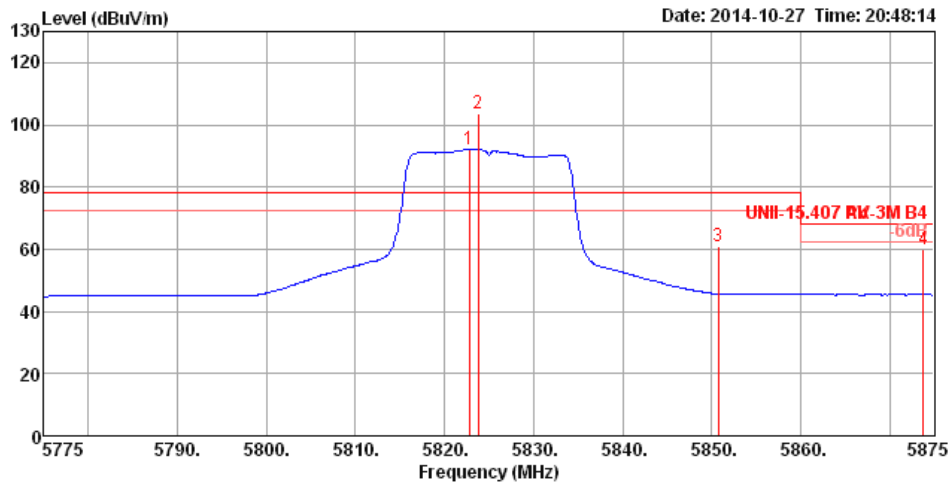
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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 802.11ac VHT20 / MCS0Nss1 / Chain 3 / CH 165			Polarization	H
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



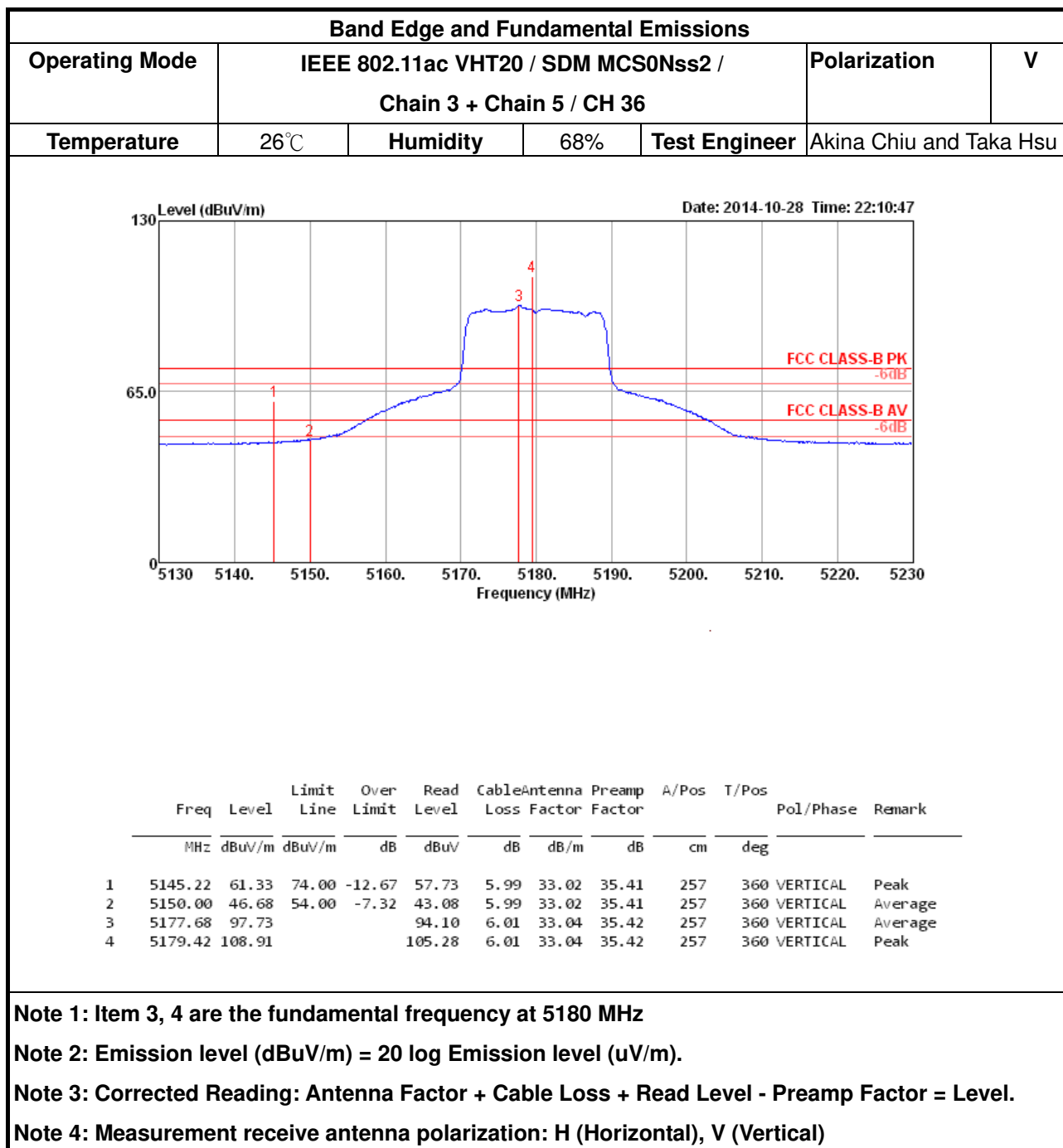
	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5822.80	92.13			85.43	6.92	34.73	34.95	290	109	Average	HORIZONTAL
2	5823.80	103.72			97.02	6.92	34.73	34.95	290	109	Peak	HORIZONTAL
3	5850.80	61.16	78.20	-17.04	54.42	6.95	34.74	34.95	290	109	Peak	HORIZONTAL
4	5873.80	60.06	68.20	-8.14	53.29	6.97	34.75	34.95	290	109	Peak	HORIZONTAL

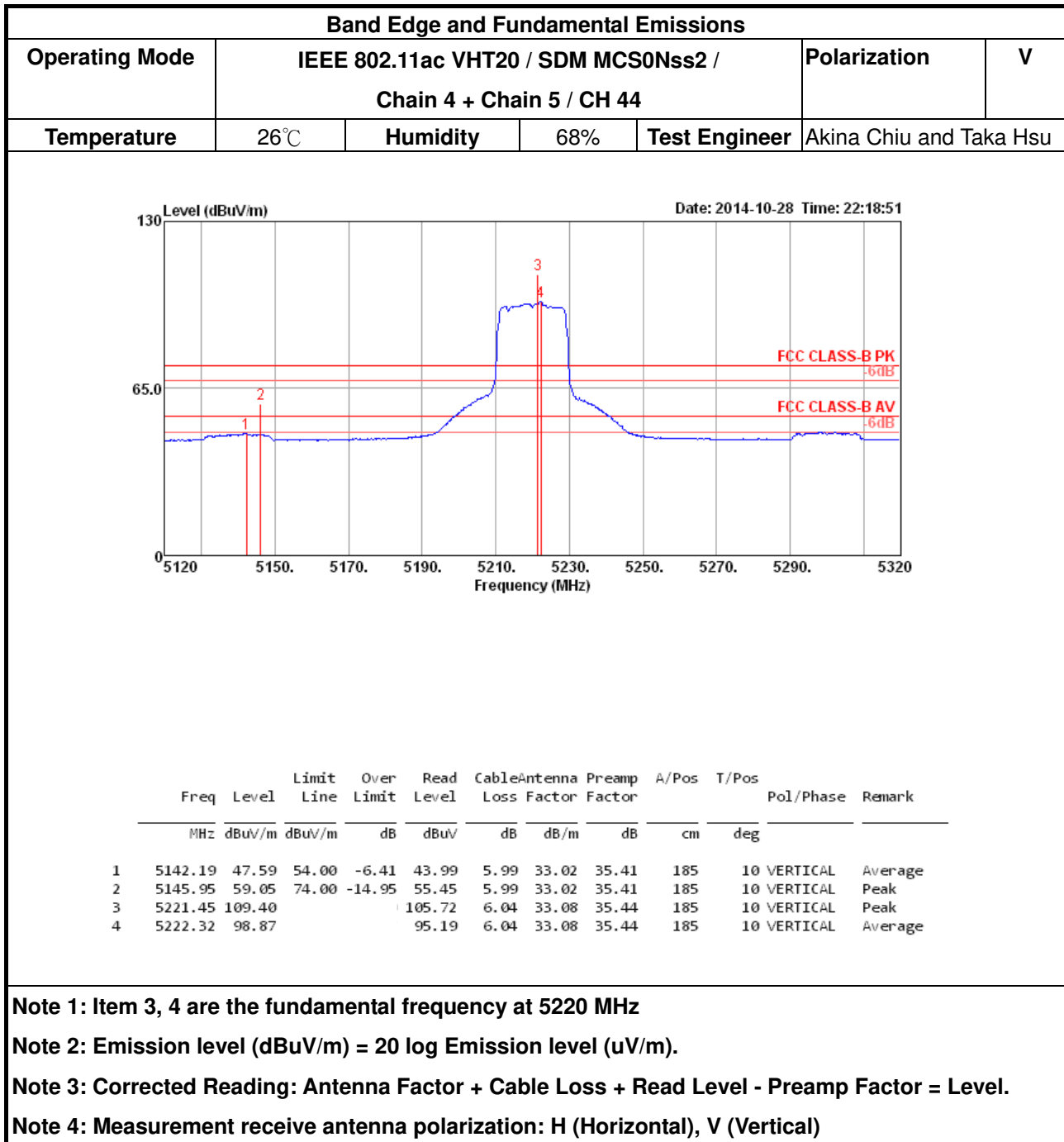
Note 1: Item 1, 2 are the fundamental frequency at 5825 MHz

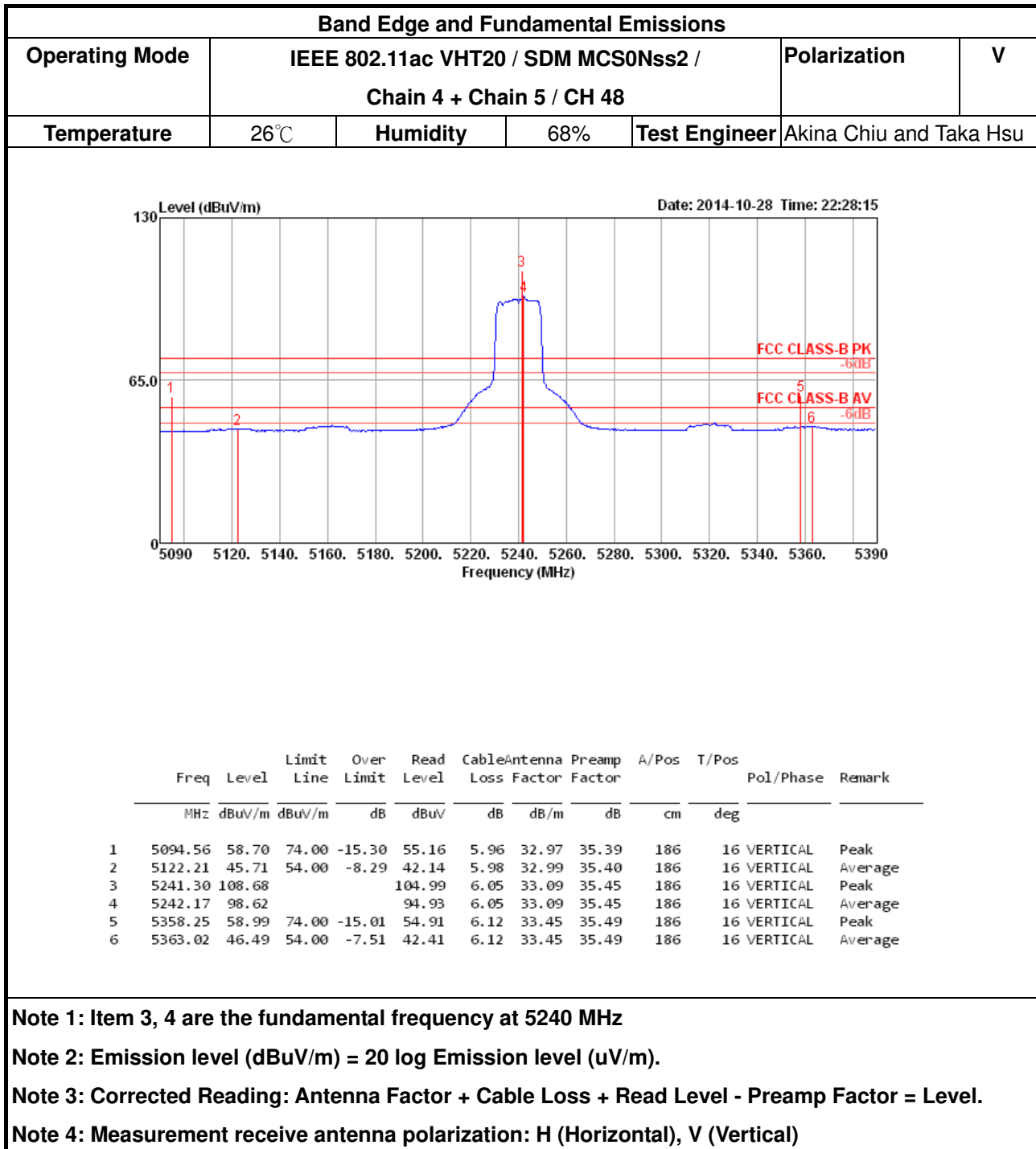
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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

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



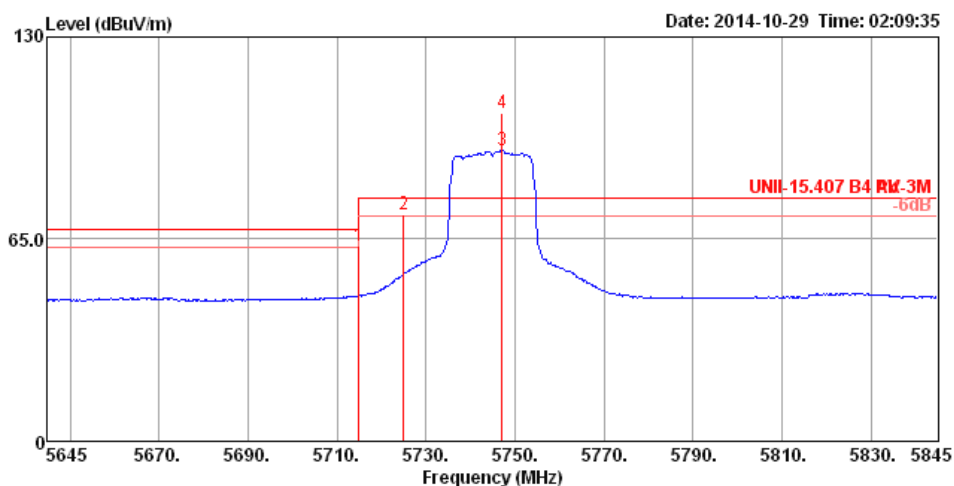






Band Edge and Fundamental Emissions

Operating Mode	IEEE 802.11ac VHT20 / SDM MCS0Nss2 / Chain 4 + Chain 5 / CH 149			Polarization	H
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



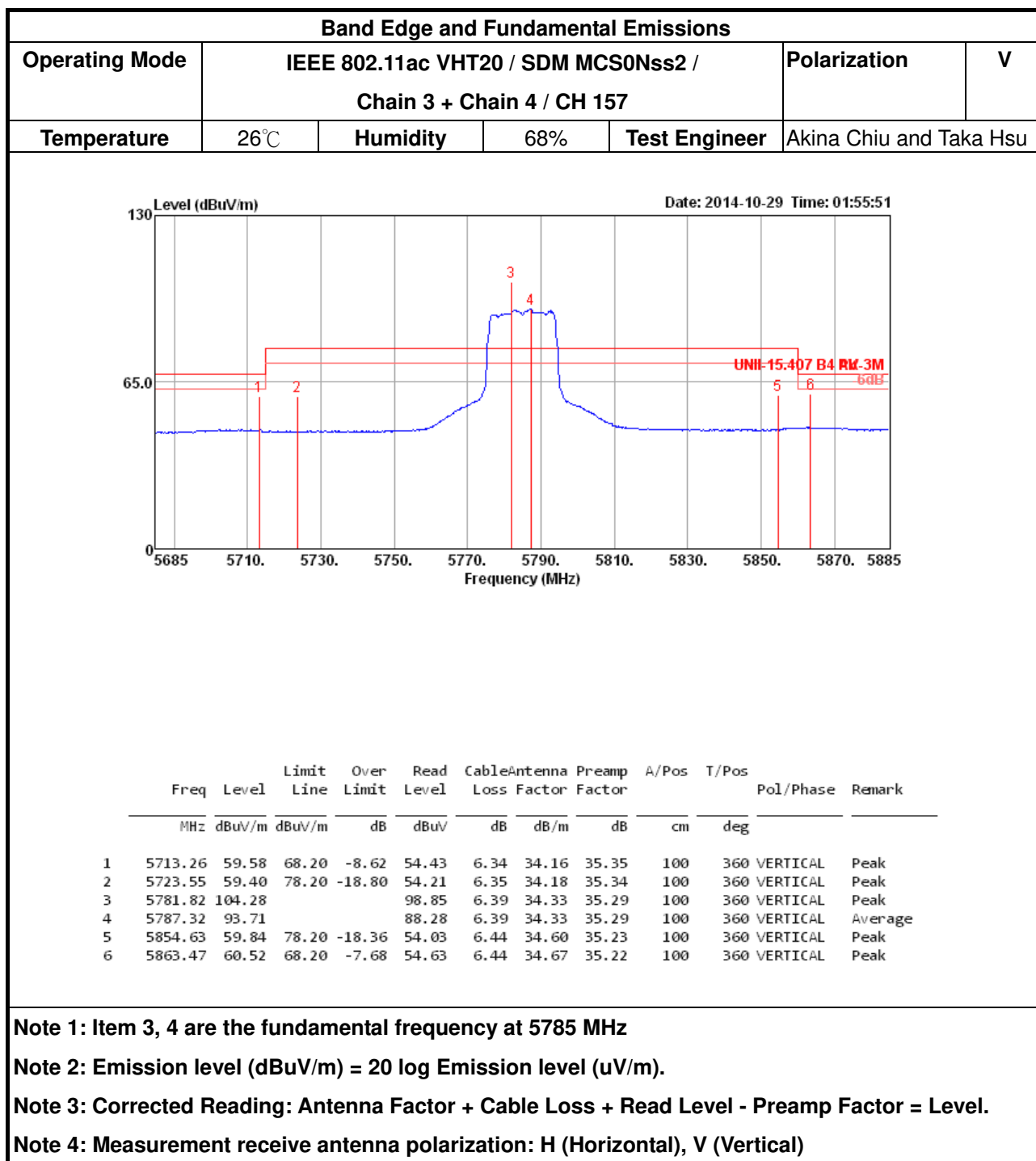
	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5715.00	63.02	68.20	-5.18	57.86	6.35	34.16	35.35	135	256	HORIZONTAL	Peak
2	5725.00	72.87	78.20	-5.33	67.68	6.35	34.18	35.34	135	256	HORIZONTAL	Peak
3	5747.03	93.76			88.51	6.37	34.20	35.32	135	256	HORIZONTAL	Average
4	5747.03	105.41			100.16	6.37	34.20	35.32	135	256	HORIZONTAL	Peak

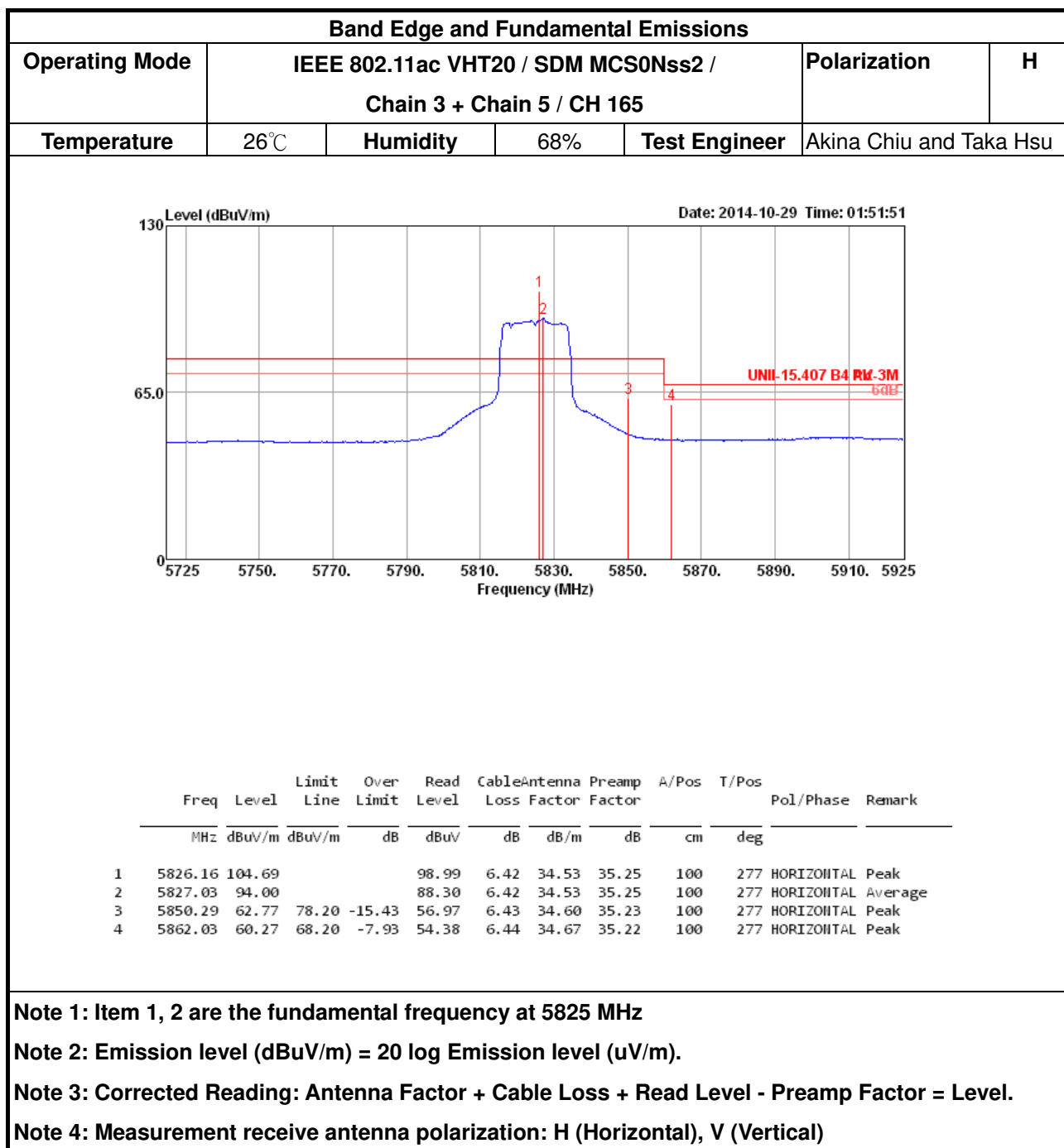
Note 1: Item 3, 4 are the fundamental frequency at 5745 MHz

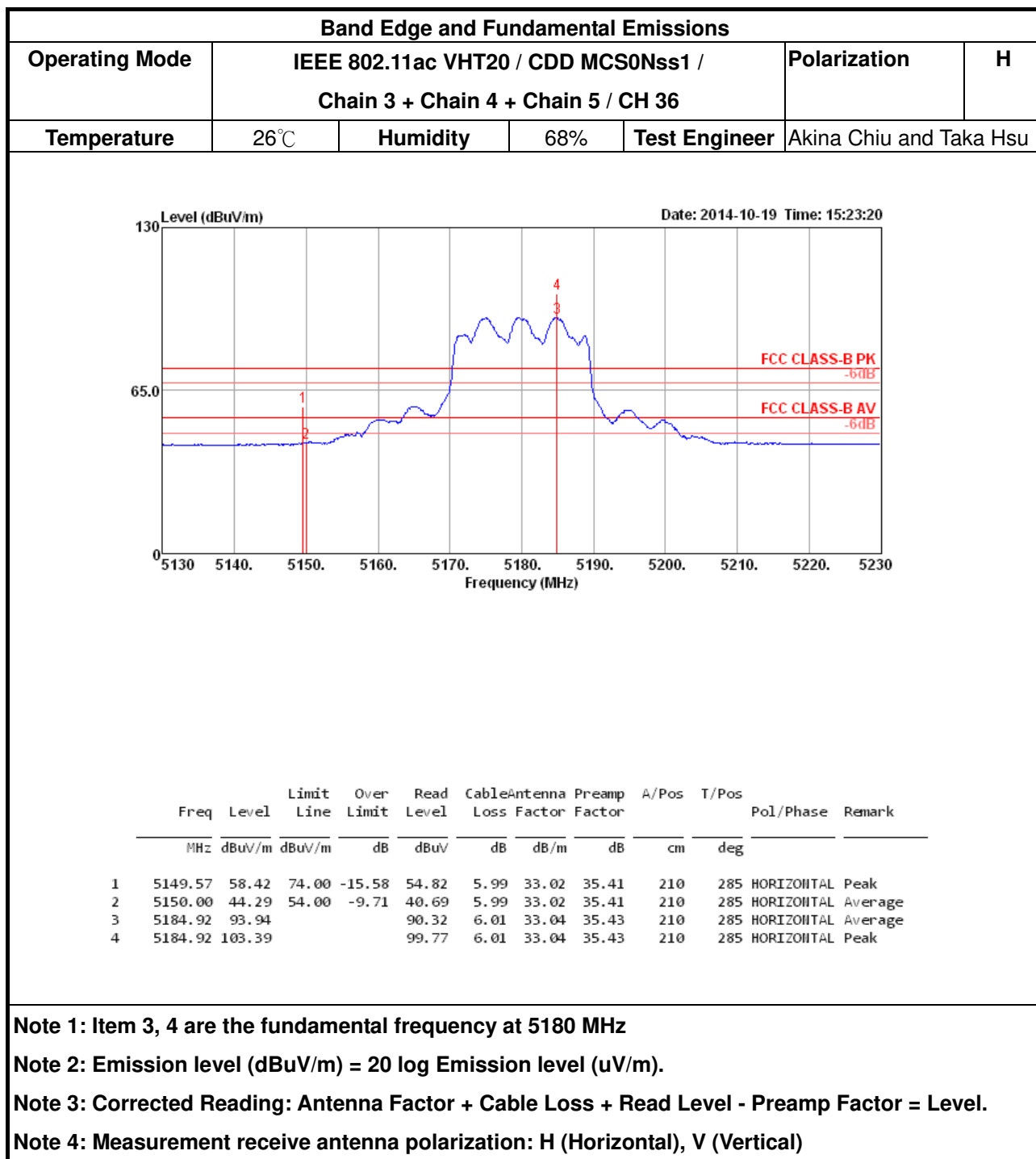
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

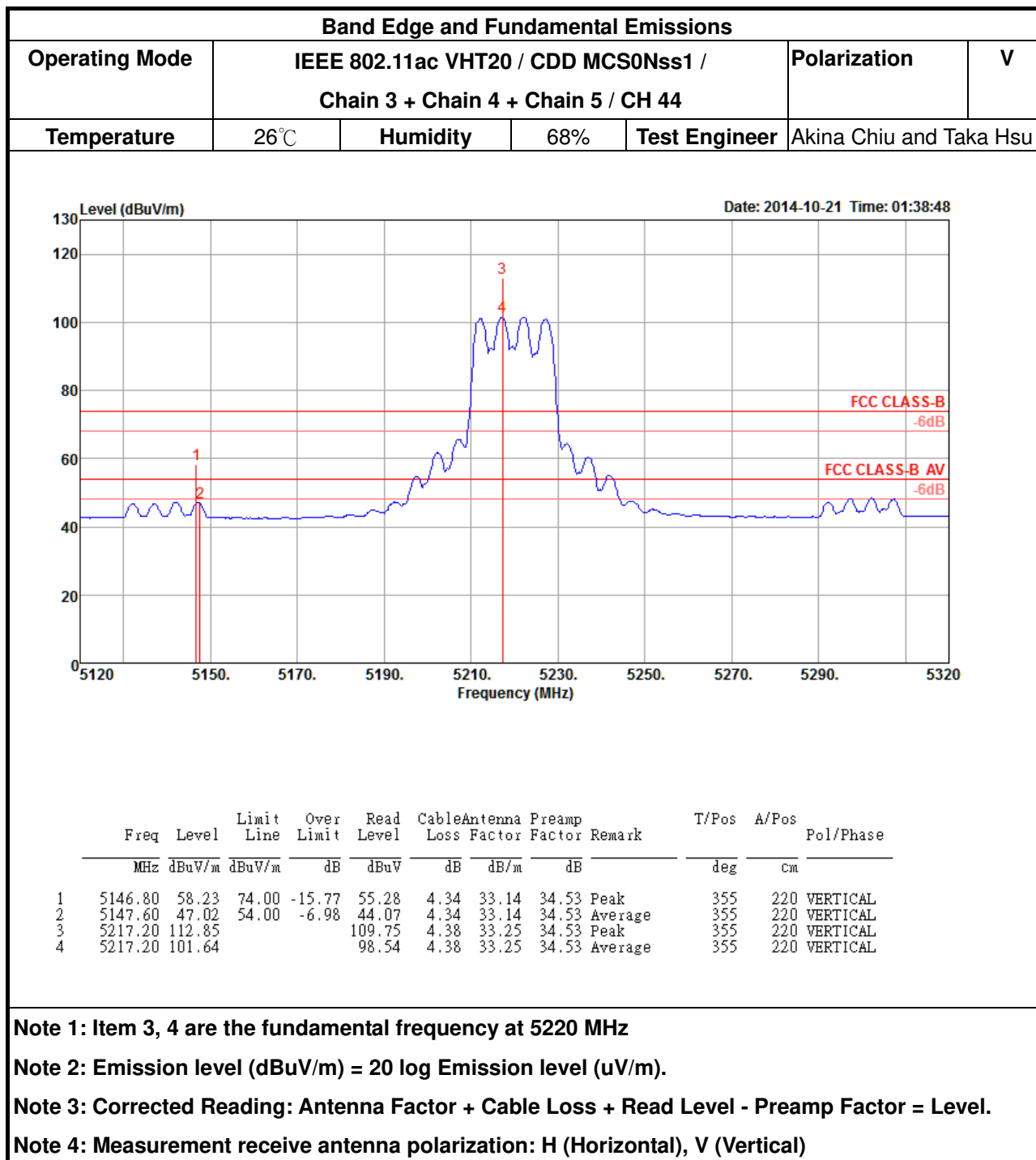
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

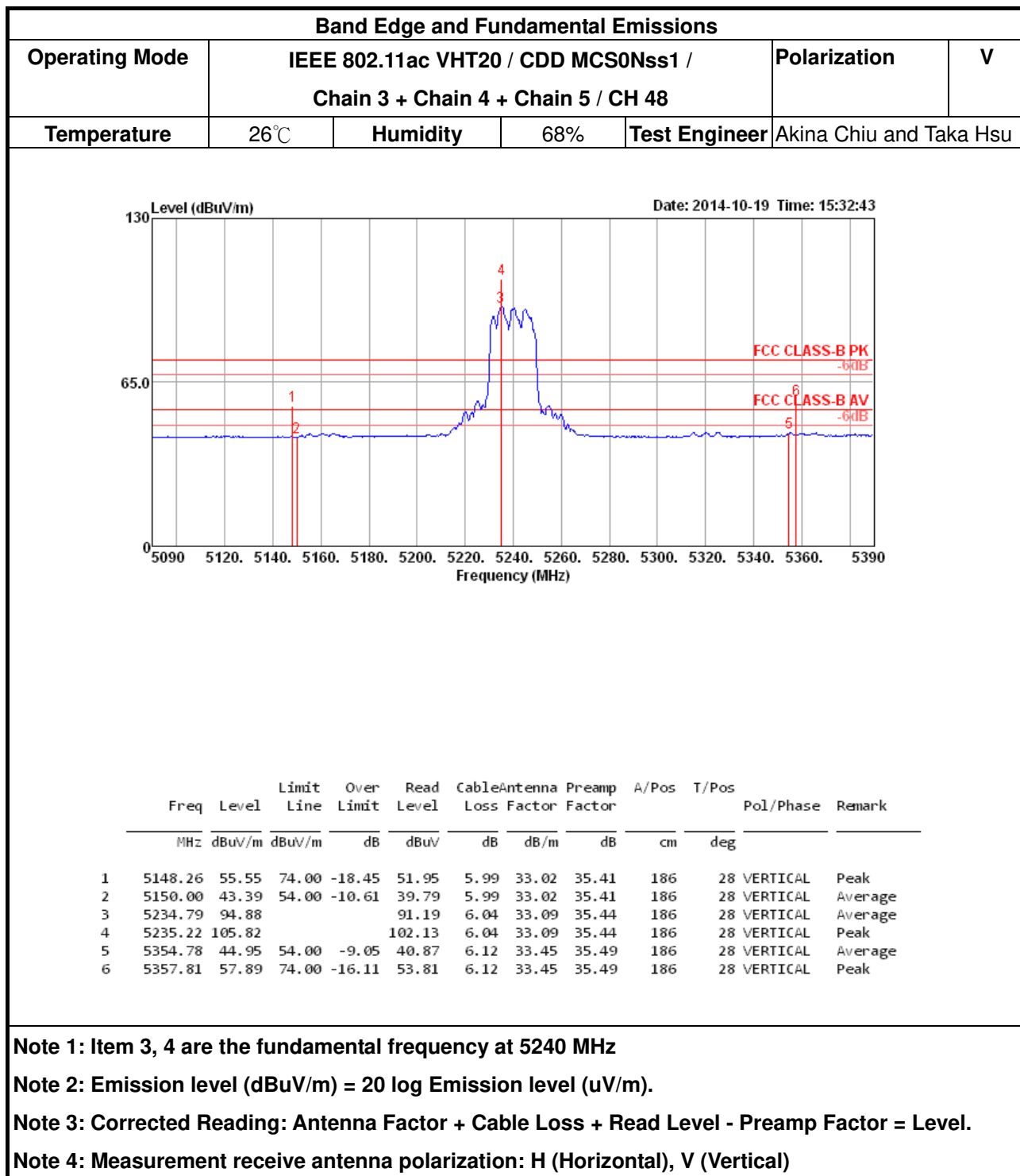
Note 4: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

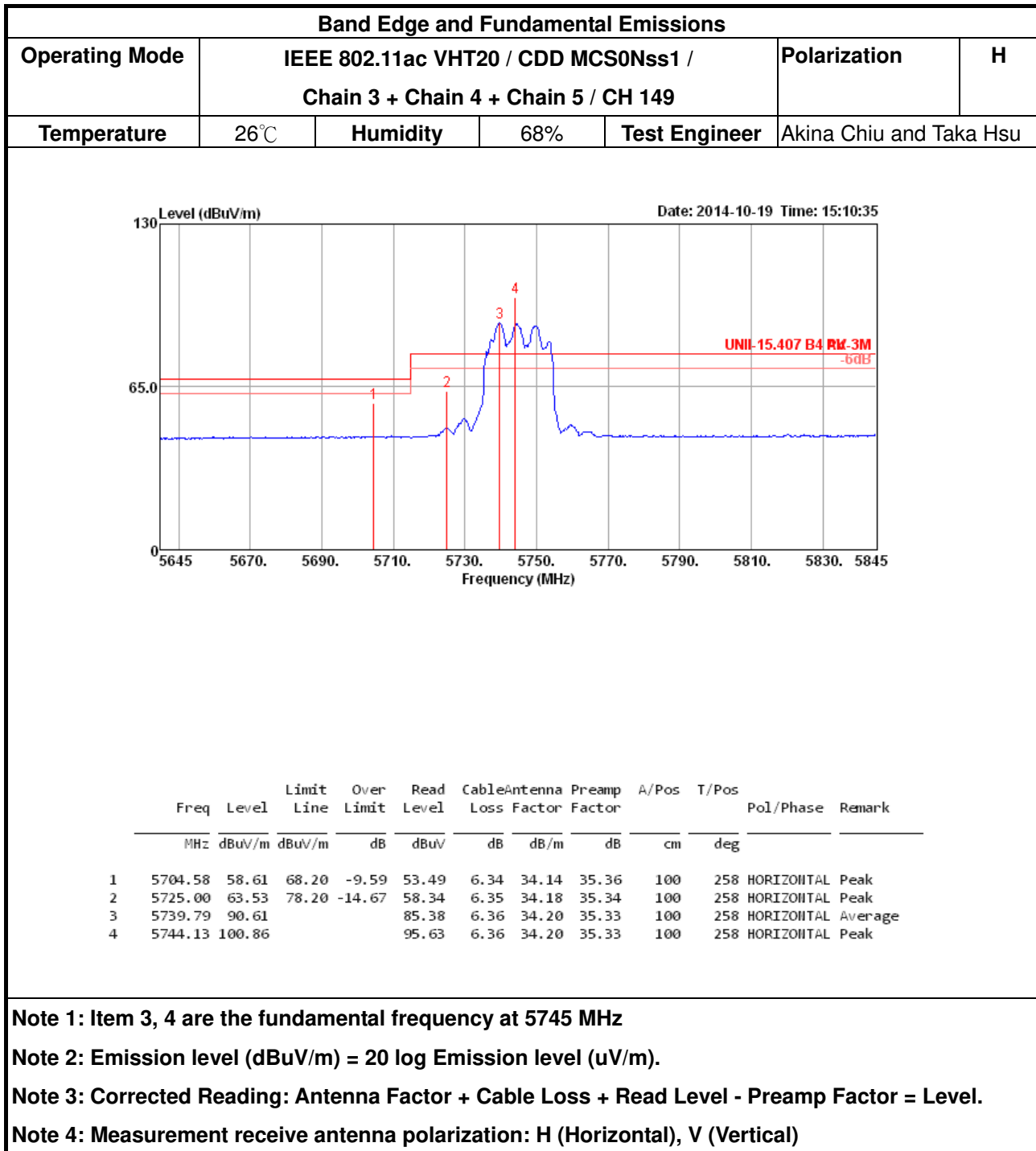














Band Edge and Fundamental Emissions

Operating Mode

IEEE 802.11ac VHT20 / CDD MCS0Nss1 /
Chain 3 + Chain 4 + Chain 5 / CH 157

Polarization

H

Temperature

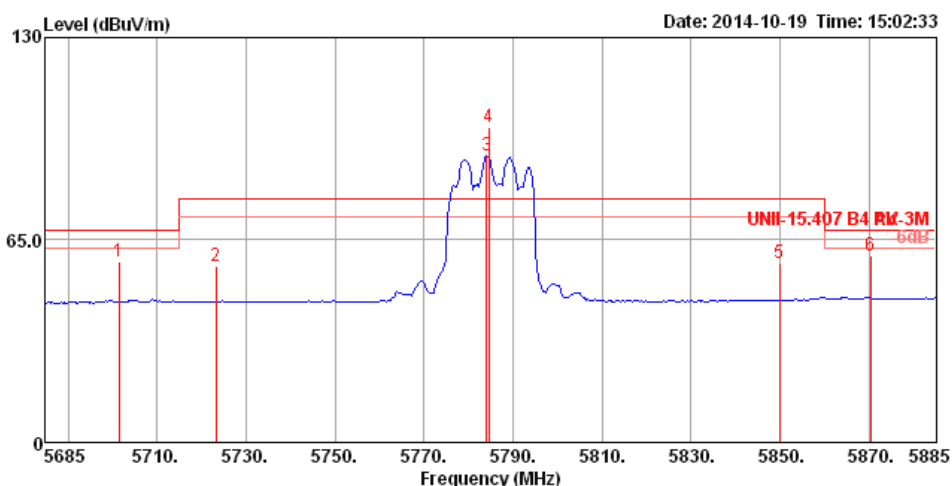
26°C

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	5701.54	58.15	68.20	-10.05	53.03	6.34	34.14	35.36	229	295	HORIZONTAL	Peak
2	5723.26	56.67	78.20	-21.53	51.48	6.35	34.18	35.34	229	295	HORIZONTAL	Peak
3	5784.13	91.87			86.44	6.39	34.33	35.29	229	295	HORIZONTAL	Average
4	5784.57	101.03			95.60	6.39	34.33	35.29	229	295	HORIZONTAL	Peak
5	5850.00	57.71	78.20	-20.49	51.91	6.43	34.60	35.23	229	295	HORIZONTAL	Peak
6	5870.41	60.01	68.20	-8.19	54.10	6.45	34.67	35.21	229	295	HORIZONTAL	Peak

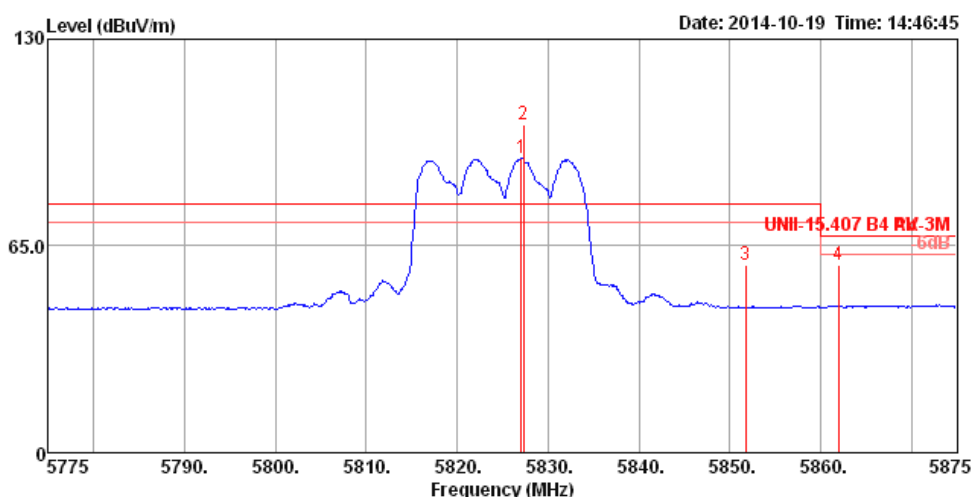
Note 1: Item 3, 4 are the fundamental frequency at 5785 MHz

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 802.11ac VHT20 / CDD MCS0Nss1 / Chain 3 + Chain 4 + Chain 5 / CH 165			Polarization	V
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



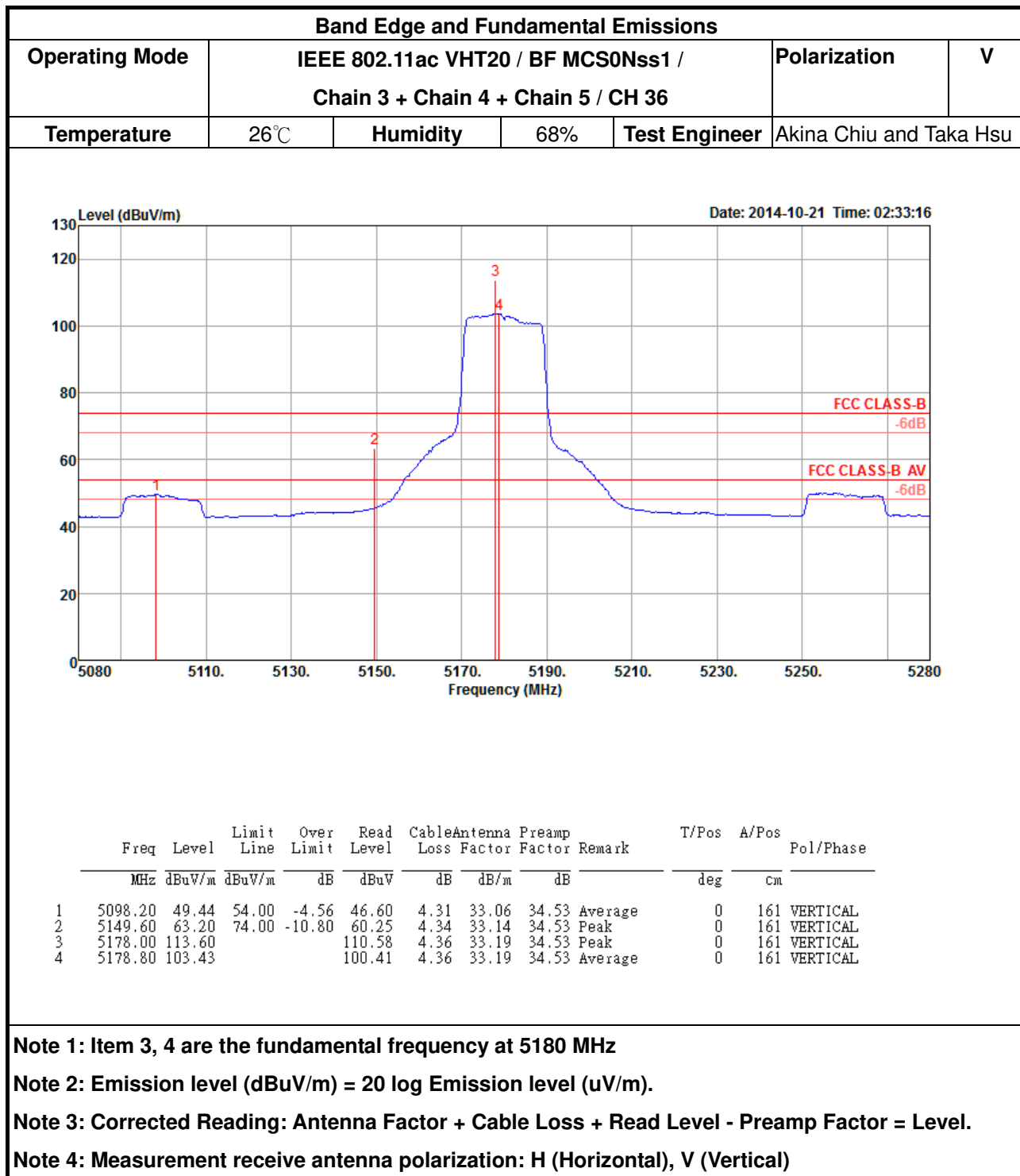
	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5827.03	92.49			86.79	6.42	34.53	35.25	240	5	VERTICAL	Average
2	5827.32	103.06			97.36	6.42	34.53	35.25	240	5	VERTICAL	Peak
3	5851.74	59.08	78.20	-19.12	53.27	6.44	34.60	35.23	240	5	VERTICAL	Peak
4	5862.03	58.96	68.20	-9.24	53.07	6.44	34.67	35.22	240	5	VERTICAL	Peak

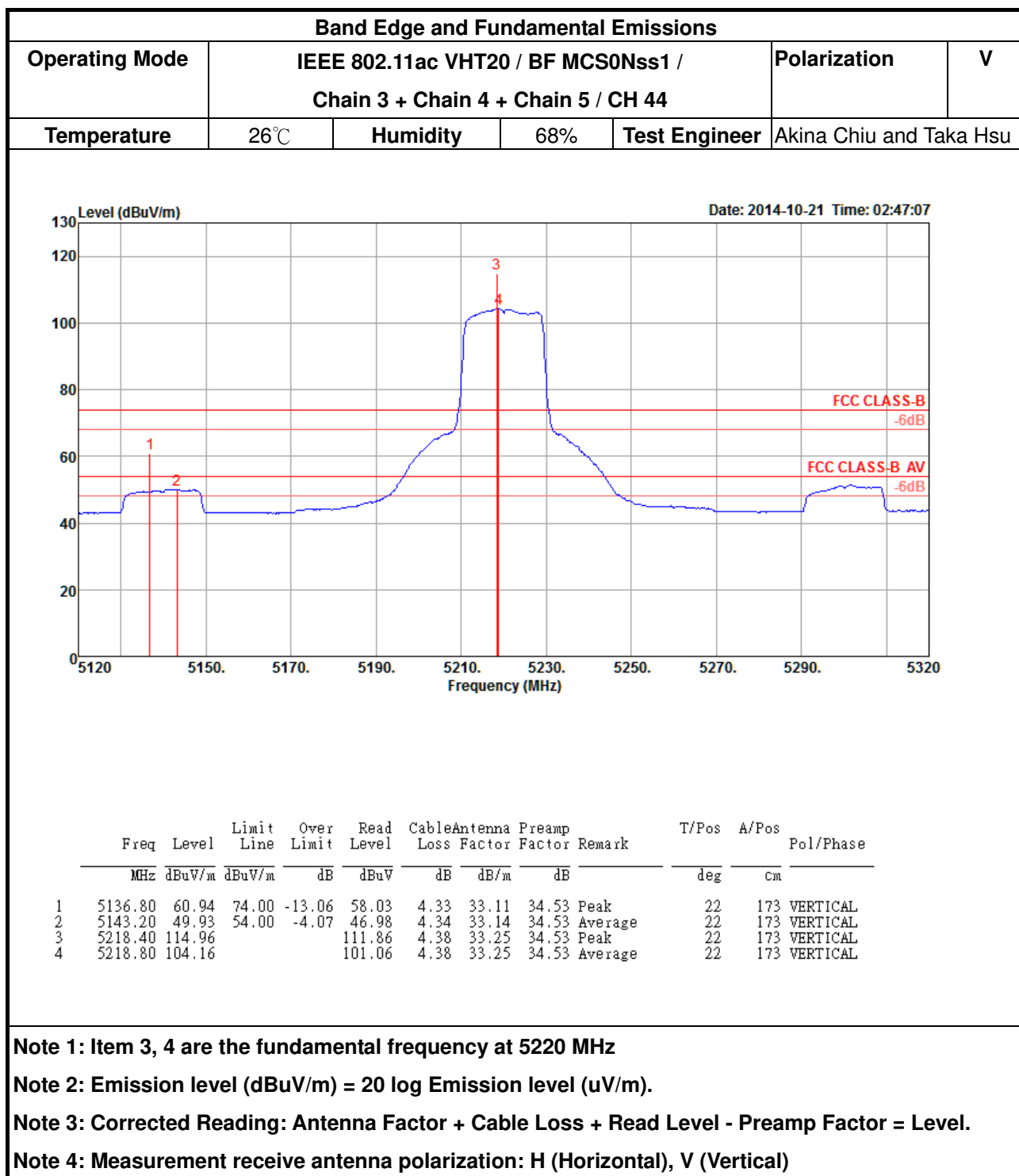
Note 1: Item 1, 2 are the fundamental frequency at 5825 MHz

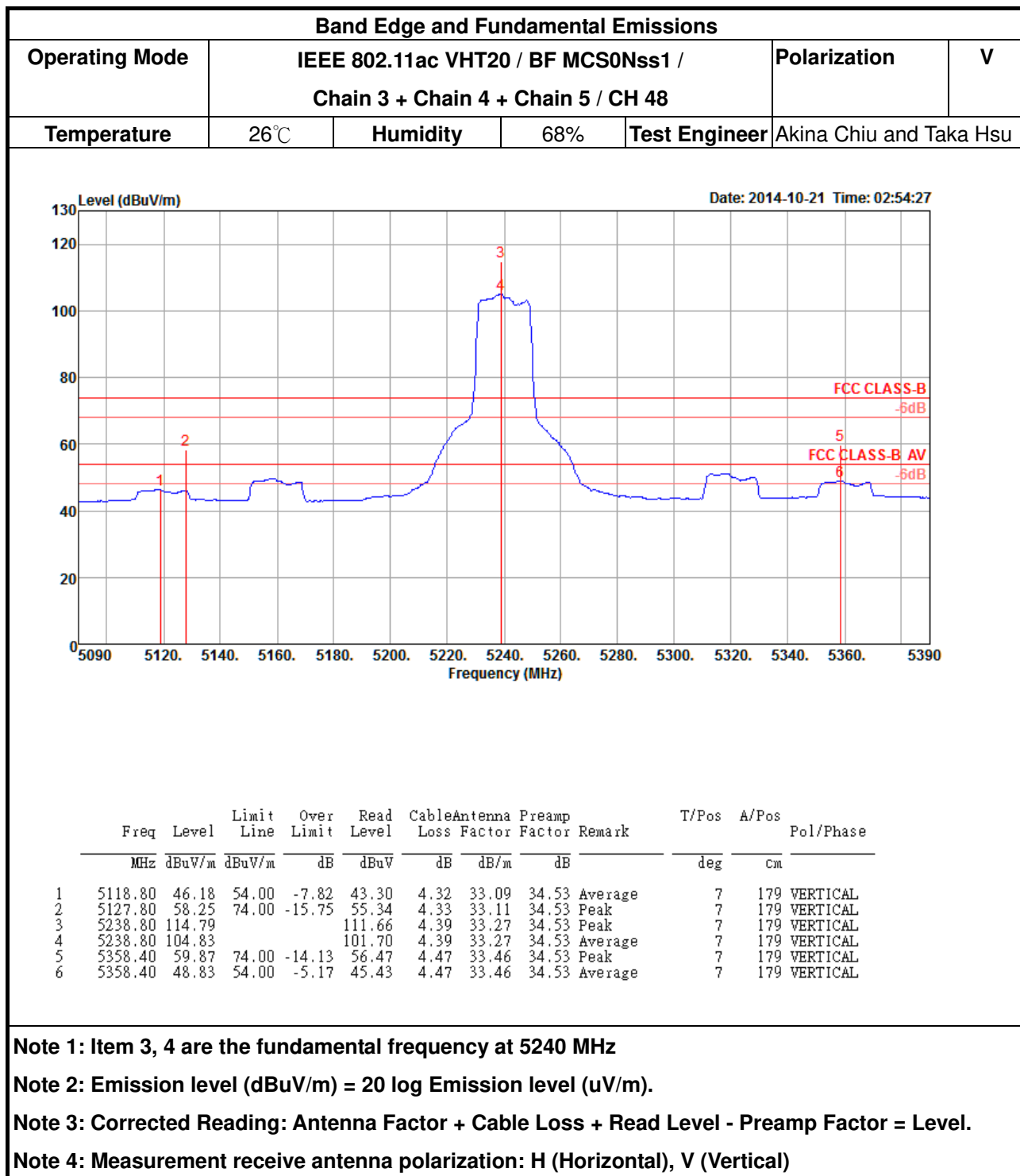
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

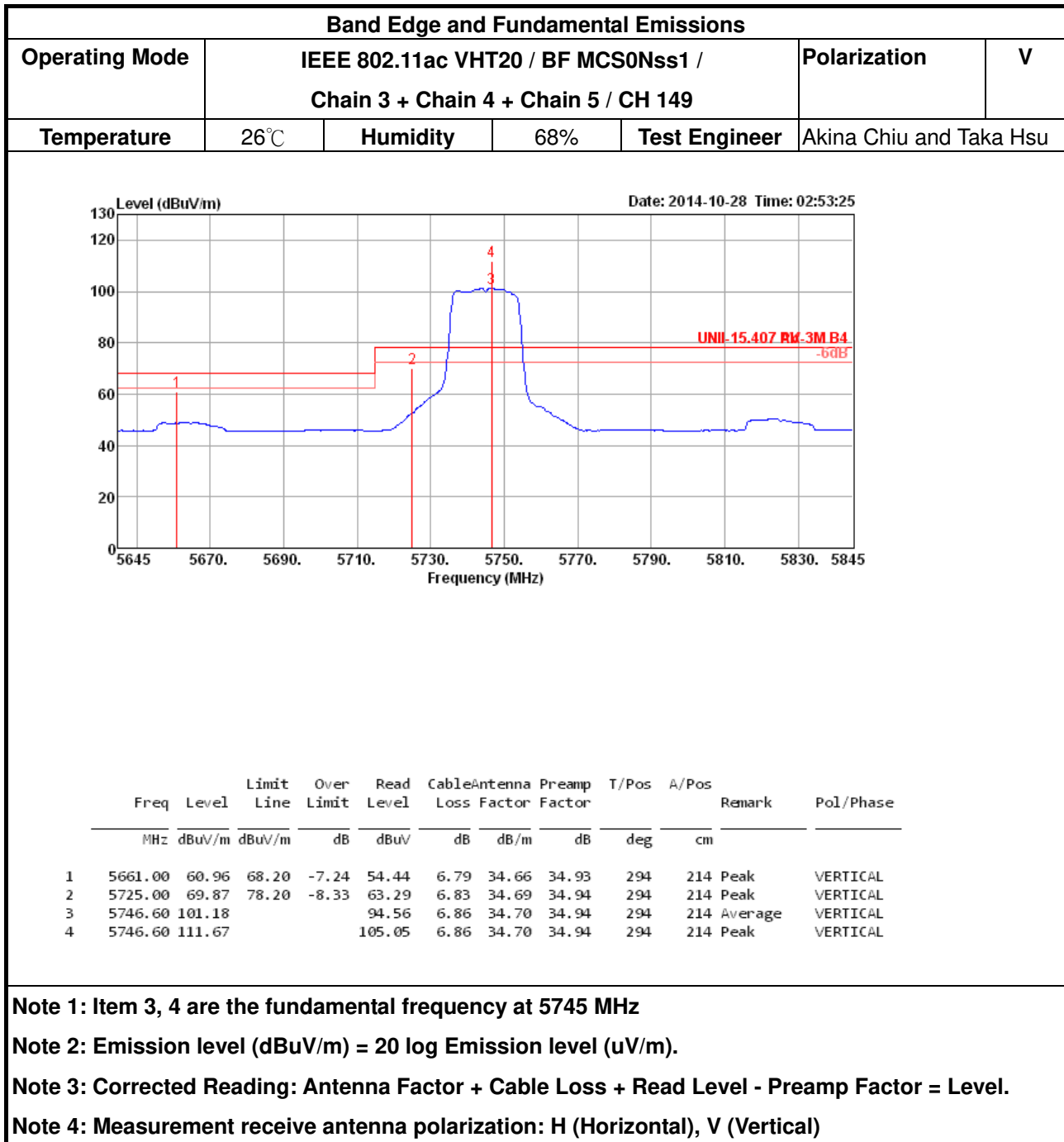
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

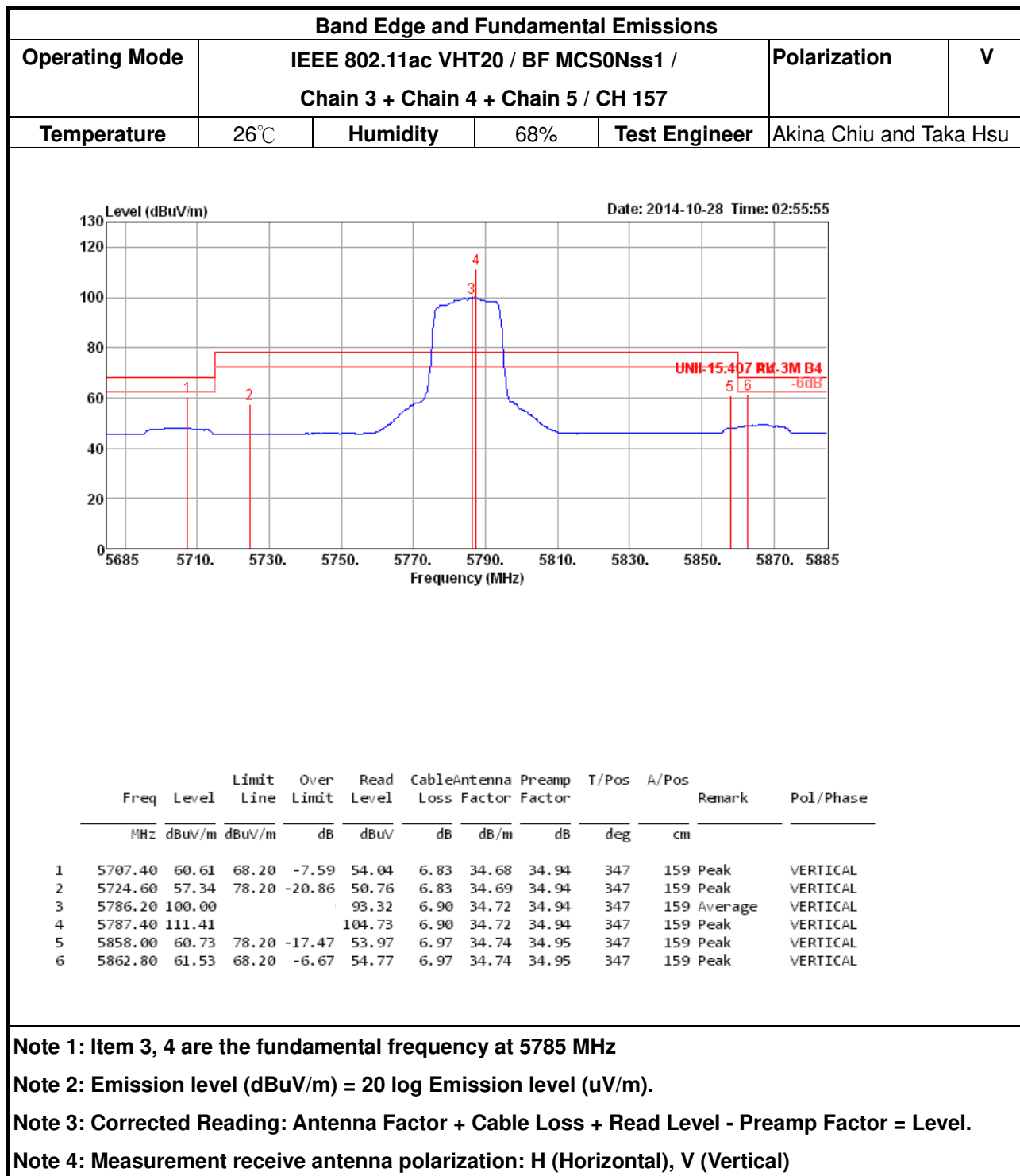
Note 4: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

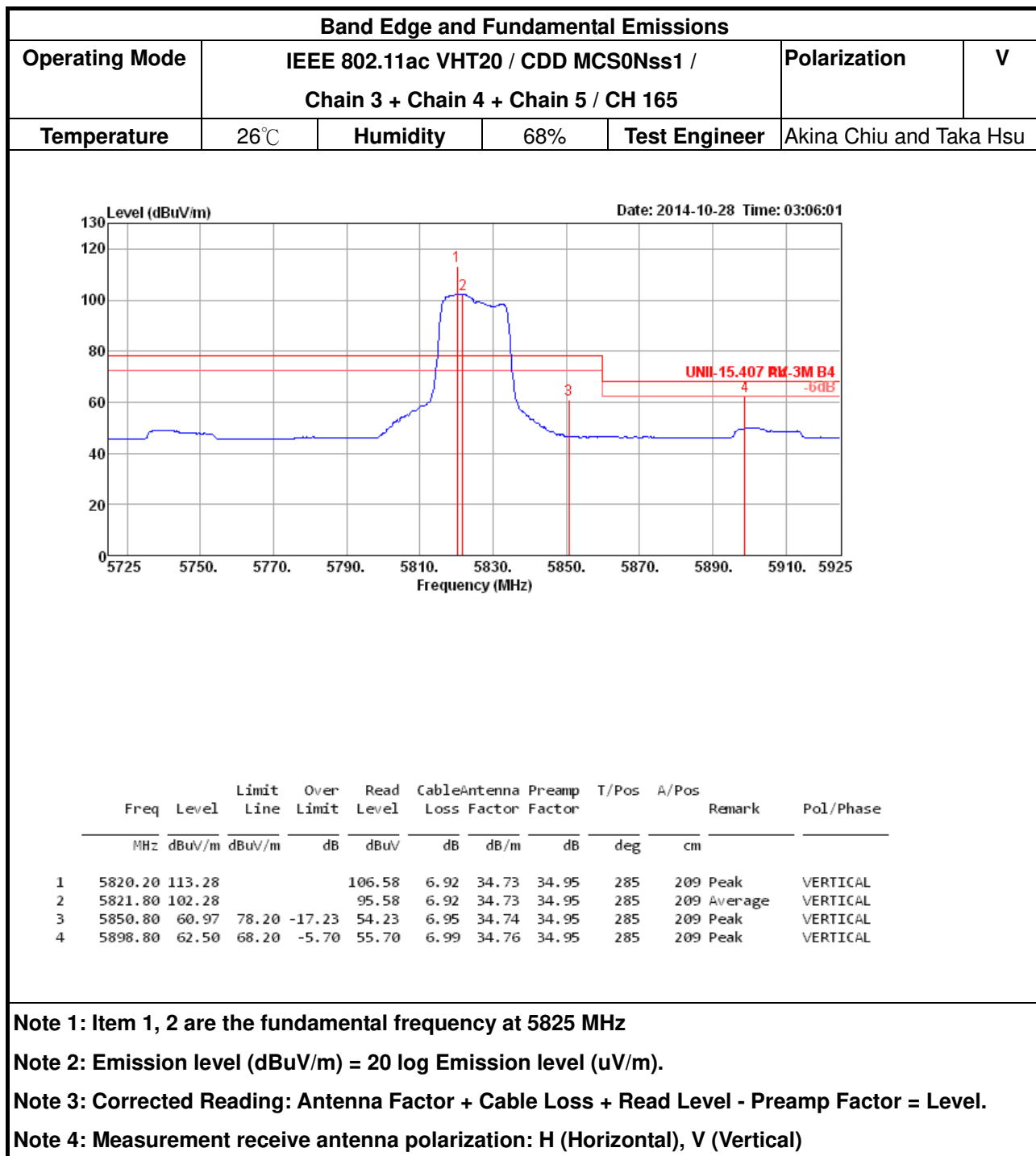


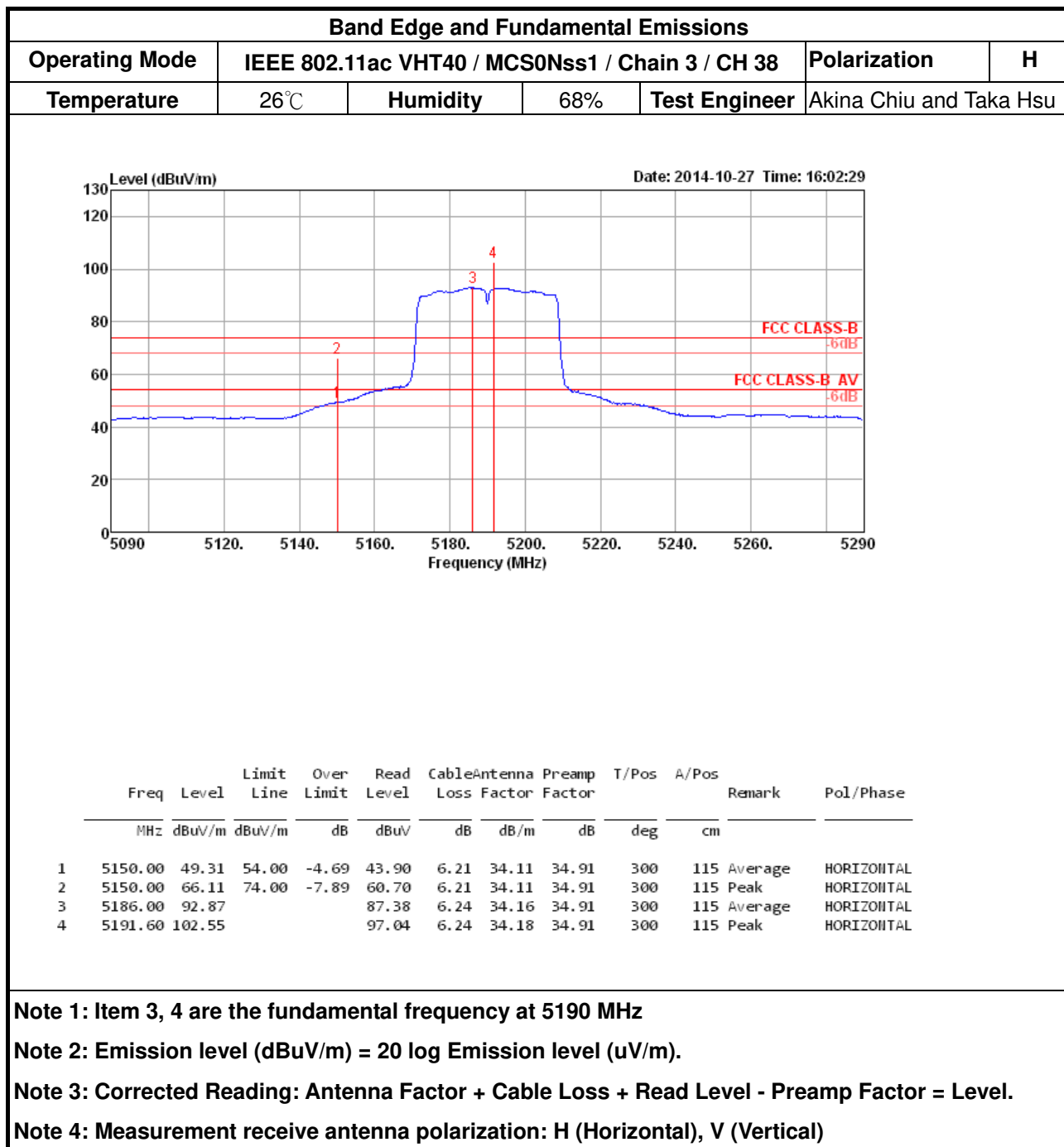








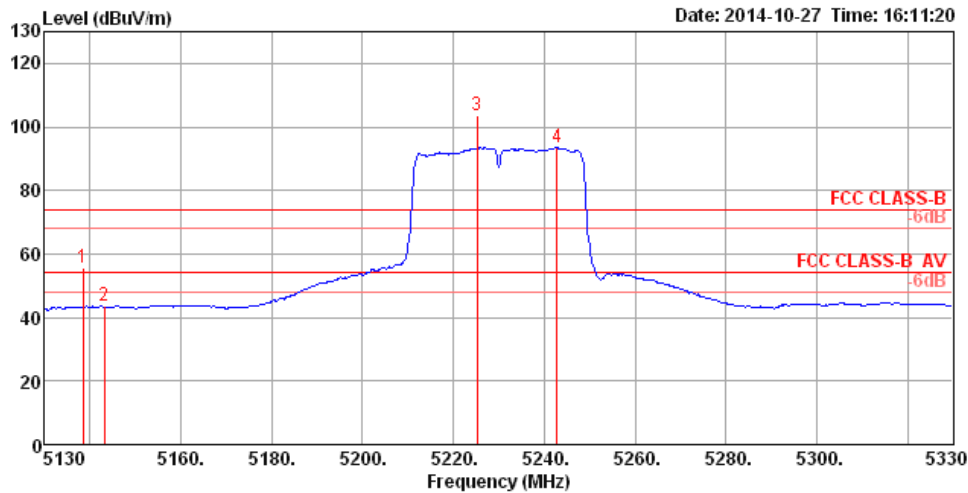






Band Edge and Fundamental Emissions

Operating Mode	IEEE 802.11ac VHT40 / MCS0Nss1 / Chain 3 / CH 46			Polarization	H
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm	
1	5138.40	55.82	74.00	-18.18	50.47	6.17	34.09	34.91	298	212 Peak	HORIZONTAL
2	5143.20	43.73	54.00	-10.27	38.36	6.17	34.11	34.91	298	212 Average	HORIZONTAL
3	5225.20	103.50			97.88	6.30	34.23	34.91	298	212 Peak	HORIZONTAL
4	5242.80	93.55			87.91	6.30	34.25	34.91	298	212 Average	HORIZONTAL

Note 1: Item 3, 4 are the fundamental frequency at 5230 MHz

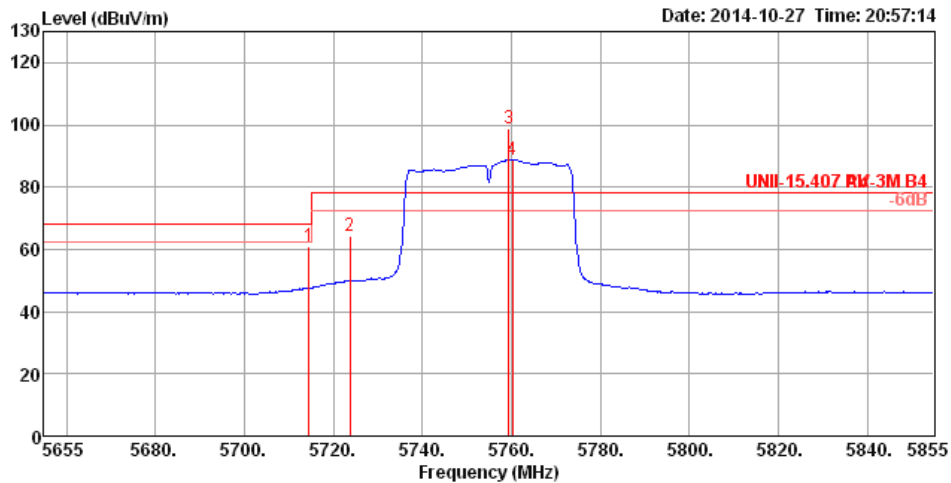
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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 802.11ac VHT40 / MCS0Nss1 / Chain 3 / CH 151			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	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5714.60	60.68	68.20	-7.52	54.11	6.83	34.68	34.94	305	100	Peak	HORIZONTAL
2	5723.80	64.28	78.20	-13.92	57.70	6.83	34.69	34.94	305	100	Peak	HORIZONTAL
3	5759.40	98.86			92.22	6.88	34.70	34.94	305	100	Peak	HORIZONTAL
4	5760.20	88.79			82.15	6.88	34.70	34.94	305	100	Average	HORIZONTAL

Note 1: Item 3, 4 are the fundamental frequency at 5755 MHz

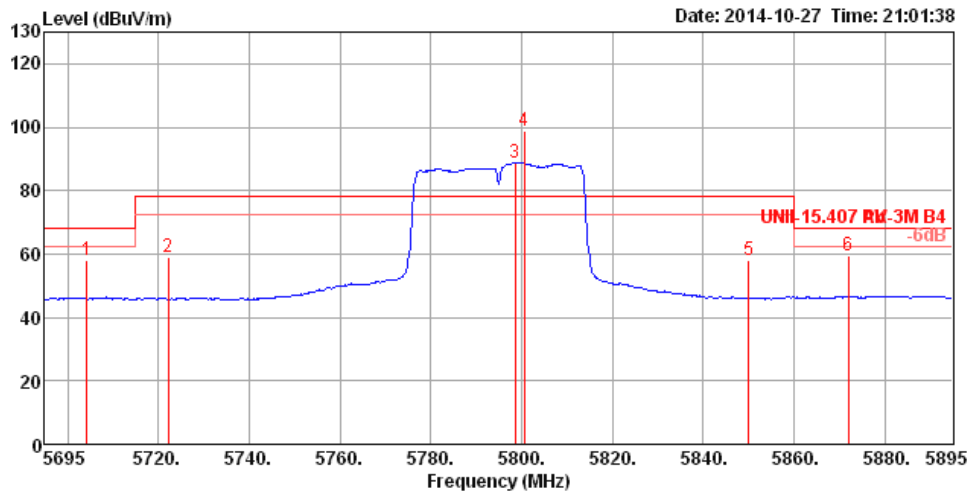
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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 802.11ac VHT40 / MCS0Nss1 / Chain 3 / CH 159			Polarization	H
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



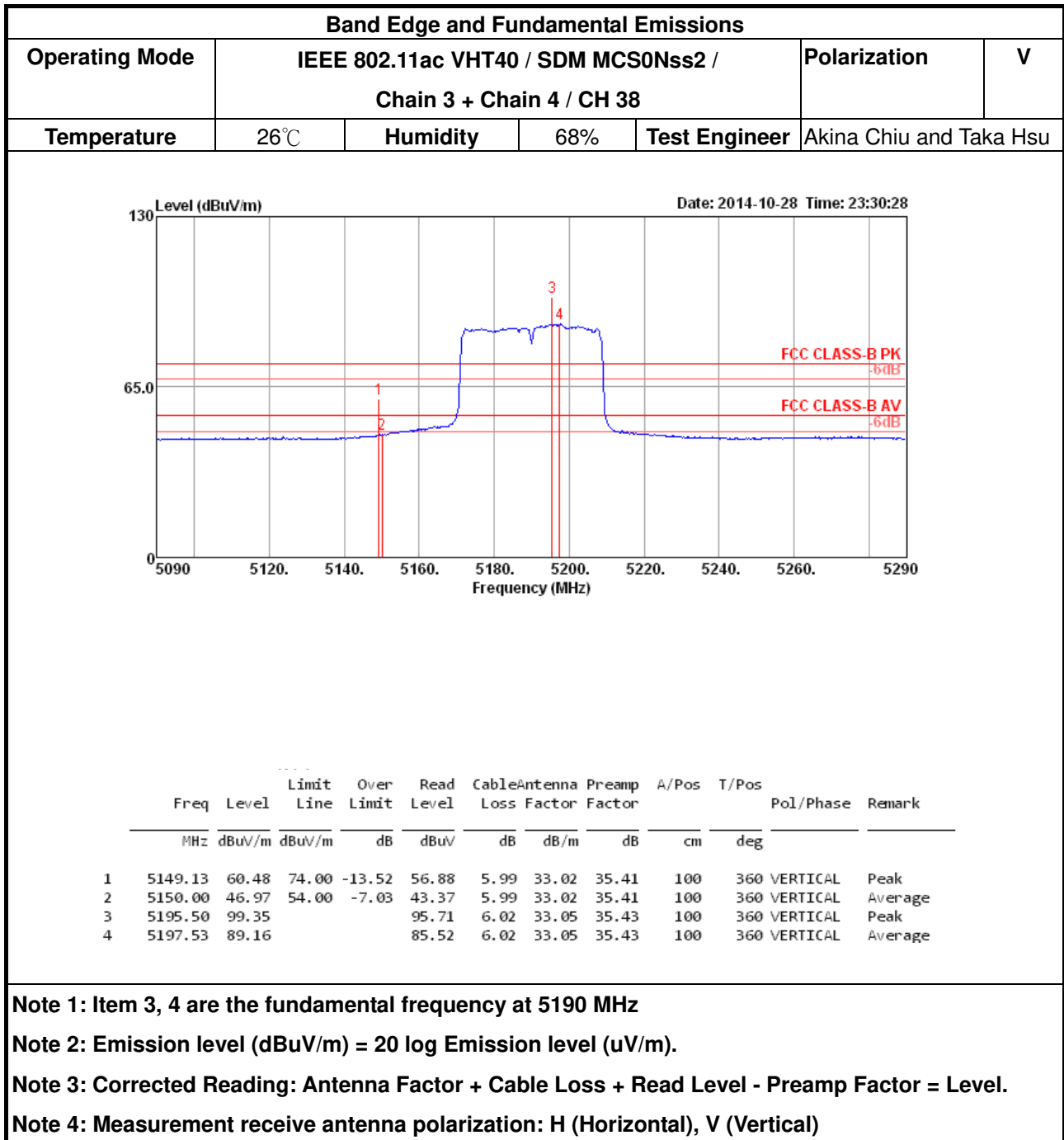
	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5704.20	58.24	68.20	-9.96	51.69	6.81	34.68	34.94	293	110	Peak	HORIZONTAL
2	5722.20	58.83	78.20	-19.37	52.25	6.83	34.69	34.94	293	110	Peak	HORIZONTAL
3	5798.60	88.81			82.13	6.90	34.72	34.94	293	110	Average	HORIZONTAL
4	5800.60	98.83			92.15	6.90	34.72	34.94	293	110	Peak	HORIZONTAL
5	5850.00	58.26	78.20	-19.94	51.52	6.95	34.74	34.95	293	110	Peak	HORIZONTAL
6	5872.00	59.29	68.20	-8.91	52.52	6.97	34.75	34.95	293	110	Peak	HORIZONTAL

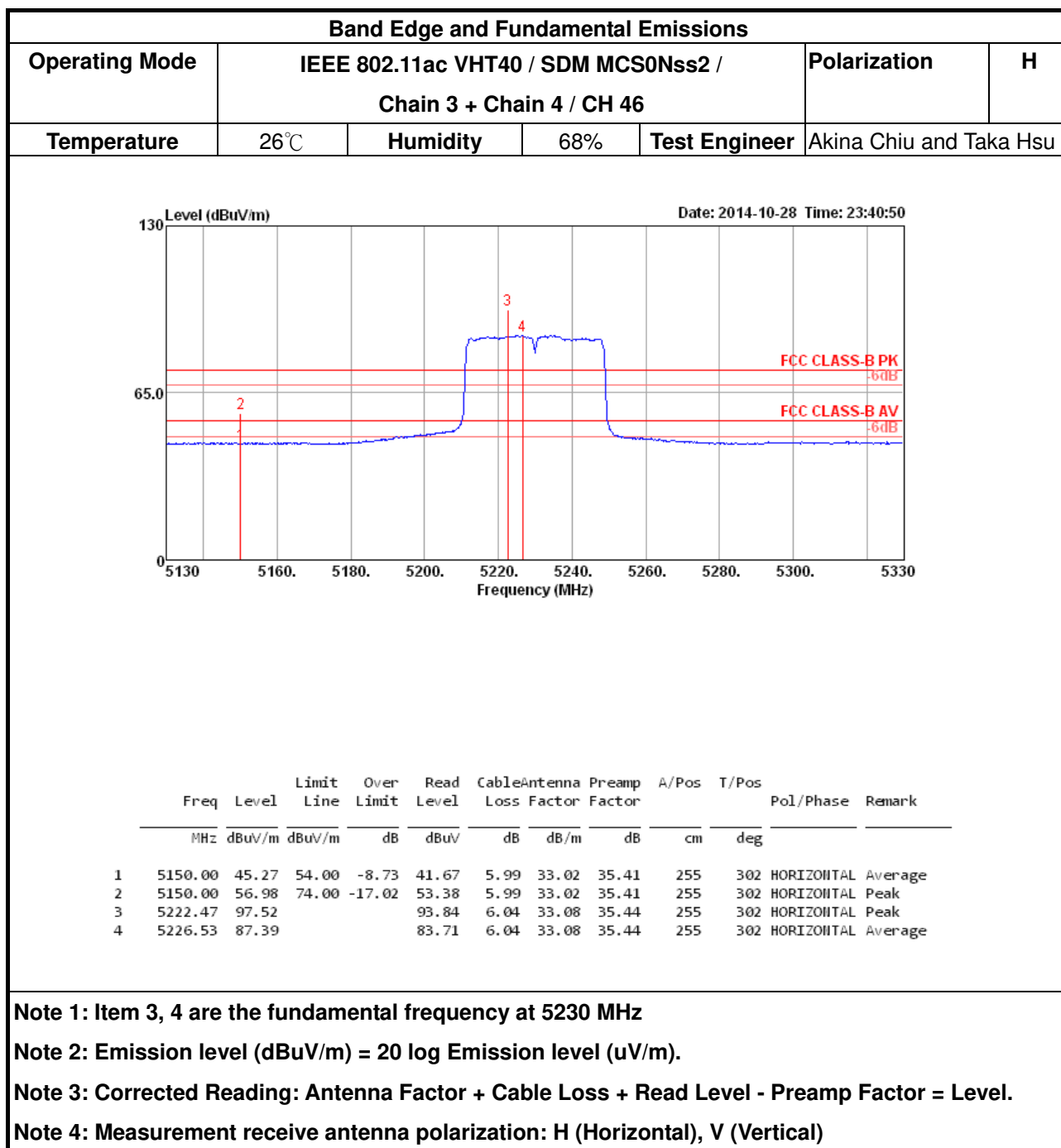
Note 1: Item 3, 4 are the fundamental frequency at 5795 MHz

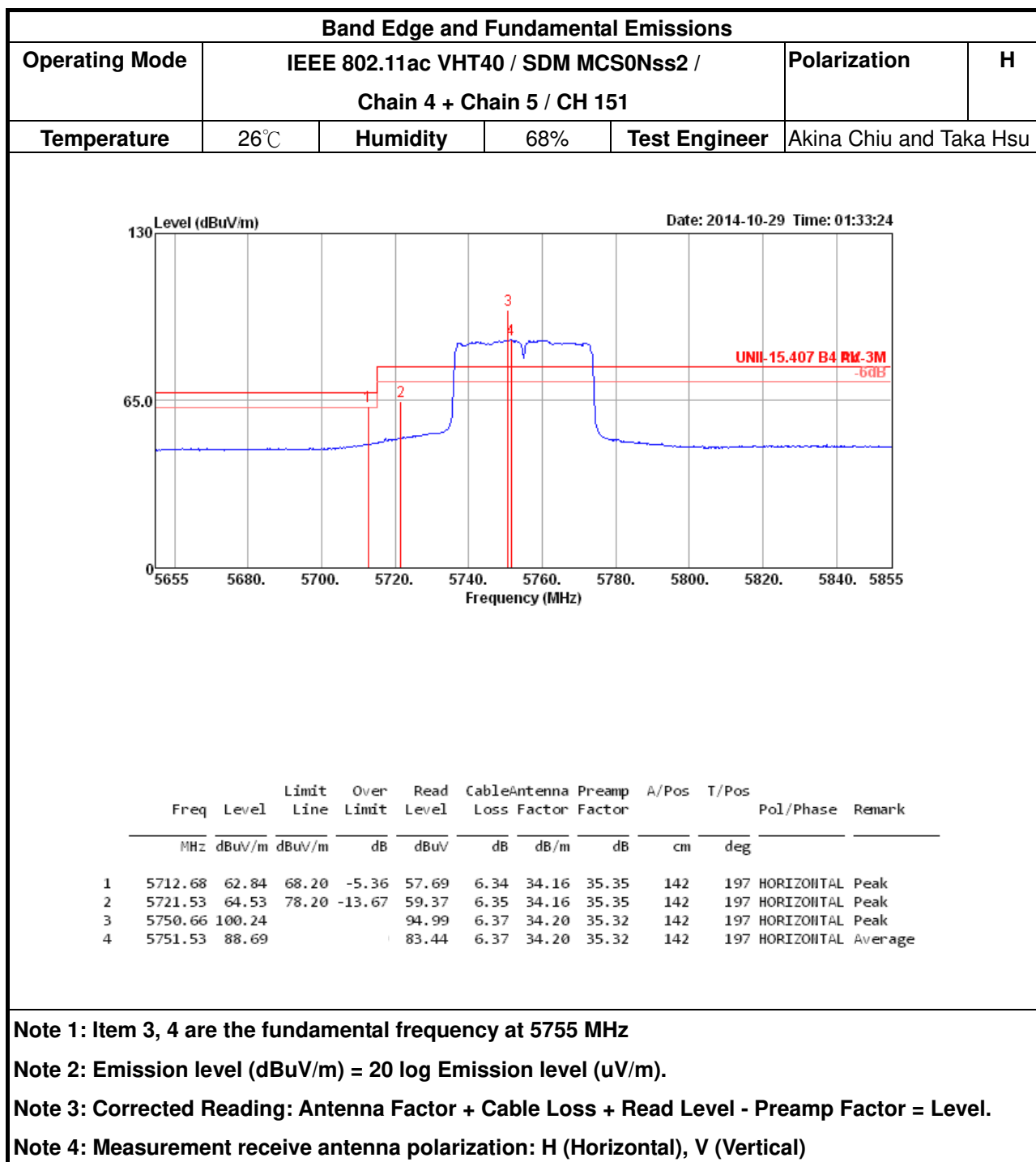
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

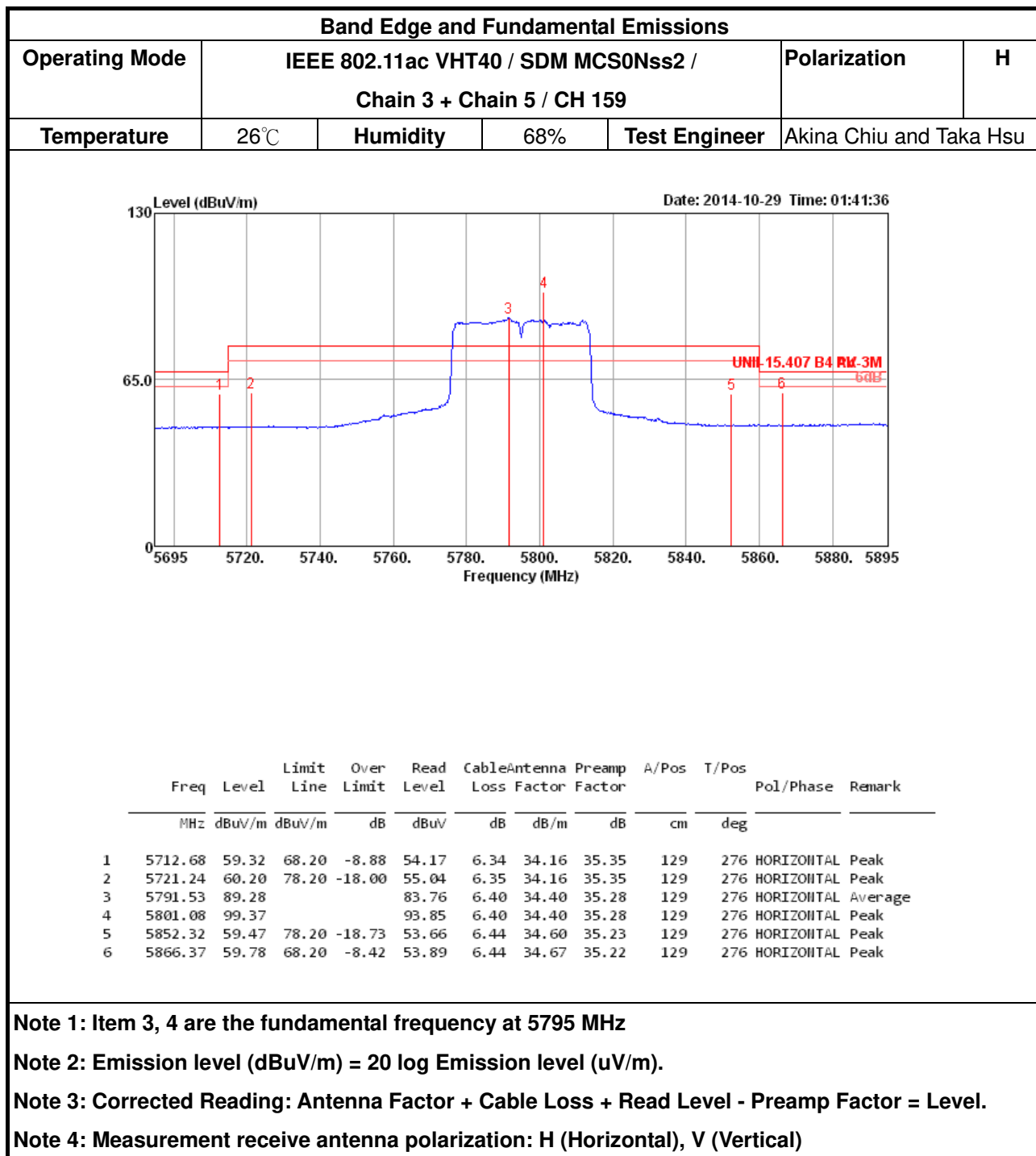
Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

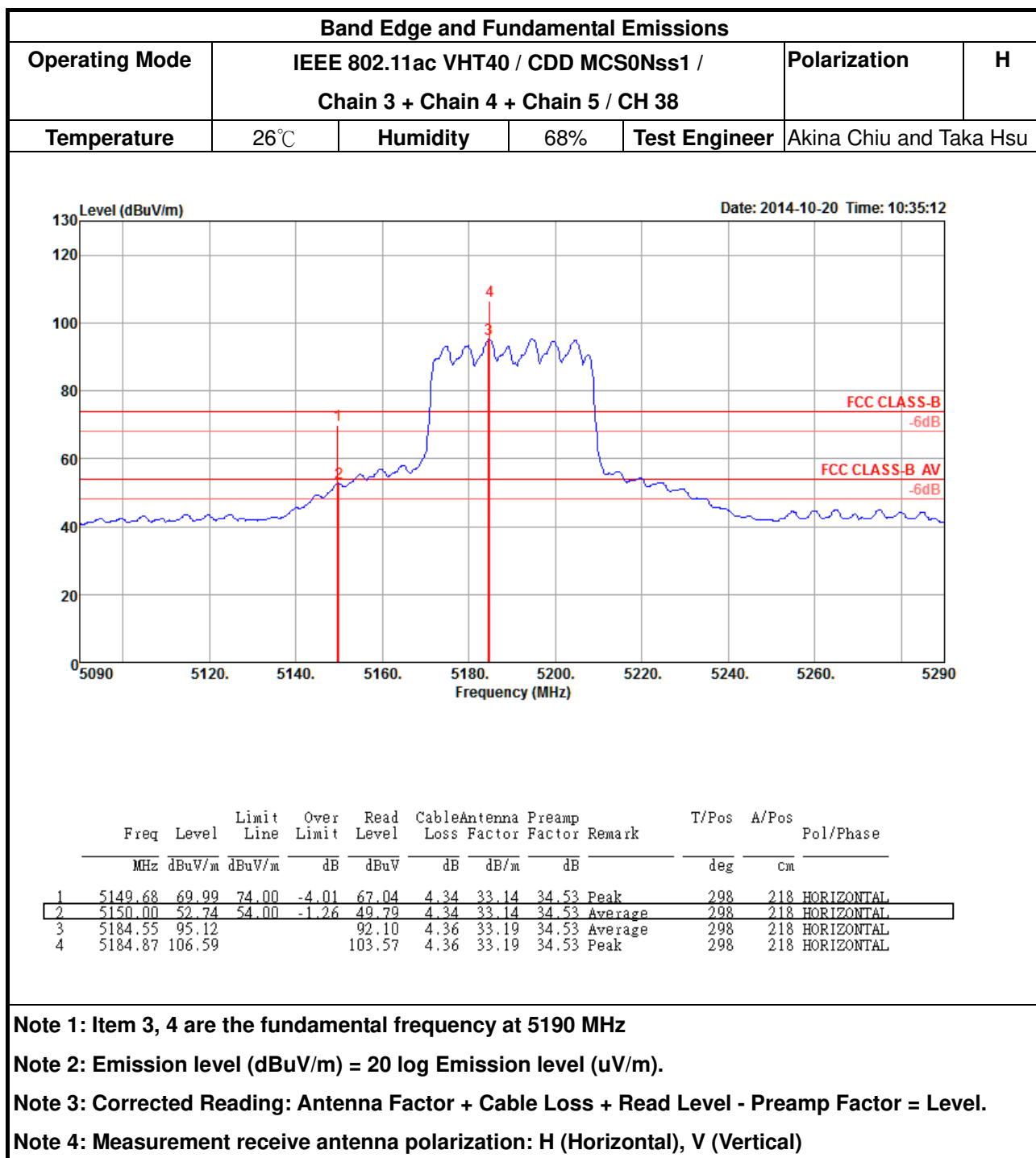
Note 4: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

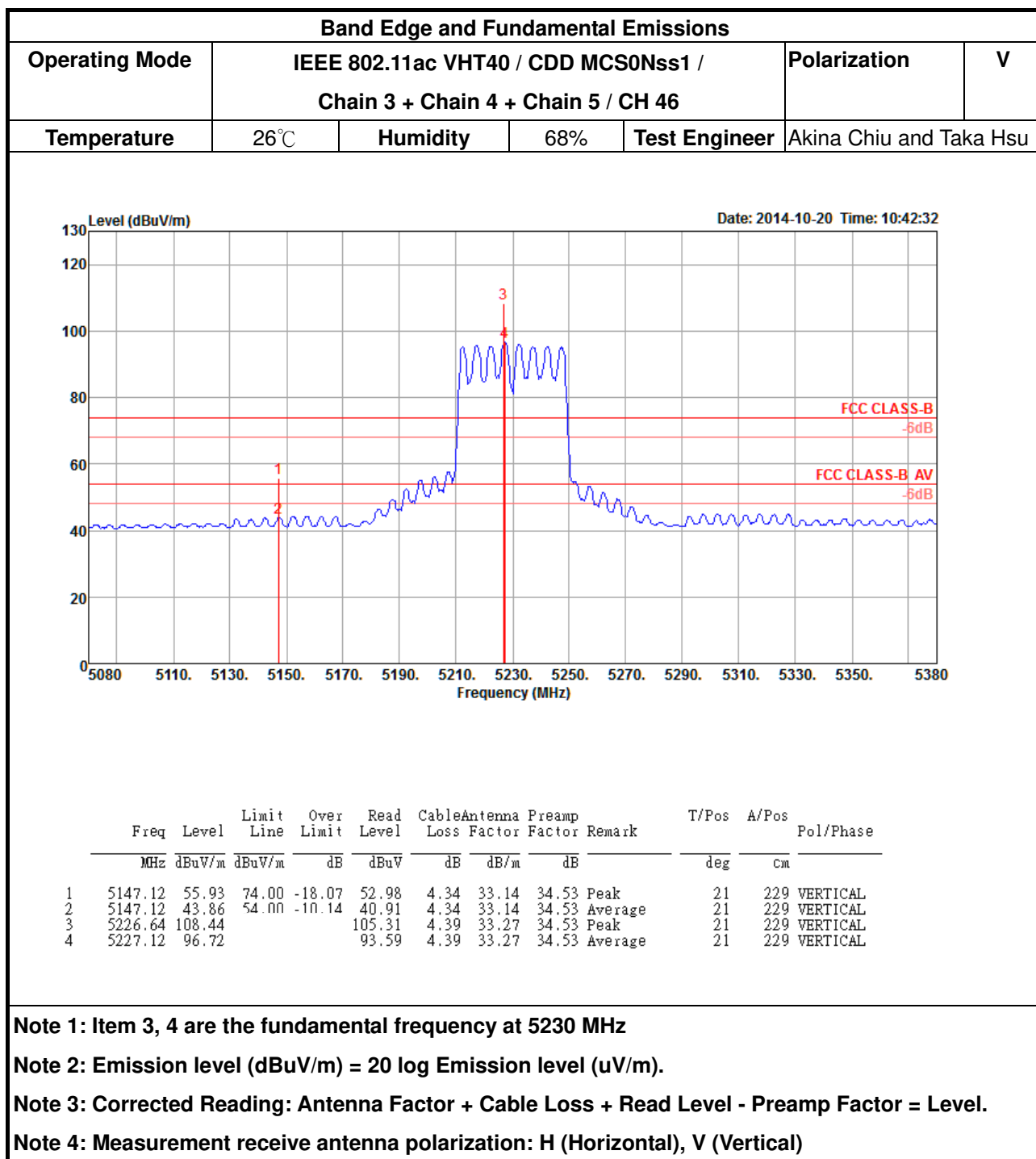


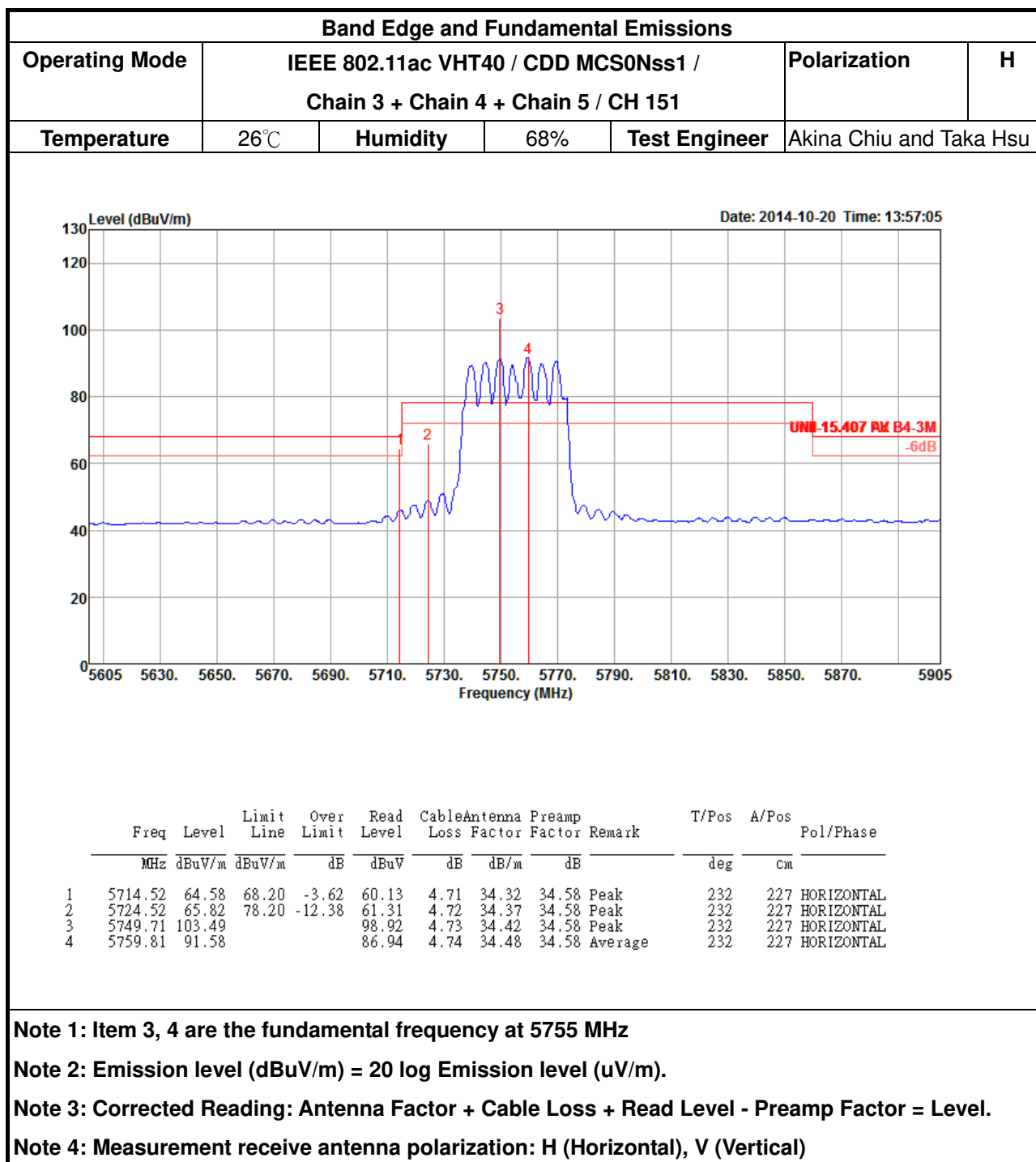


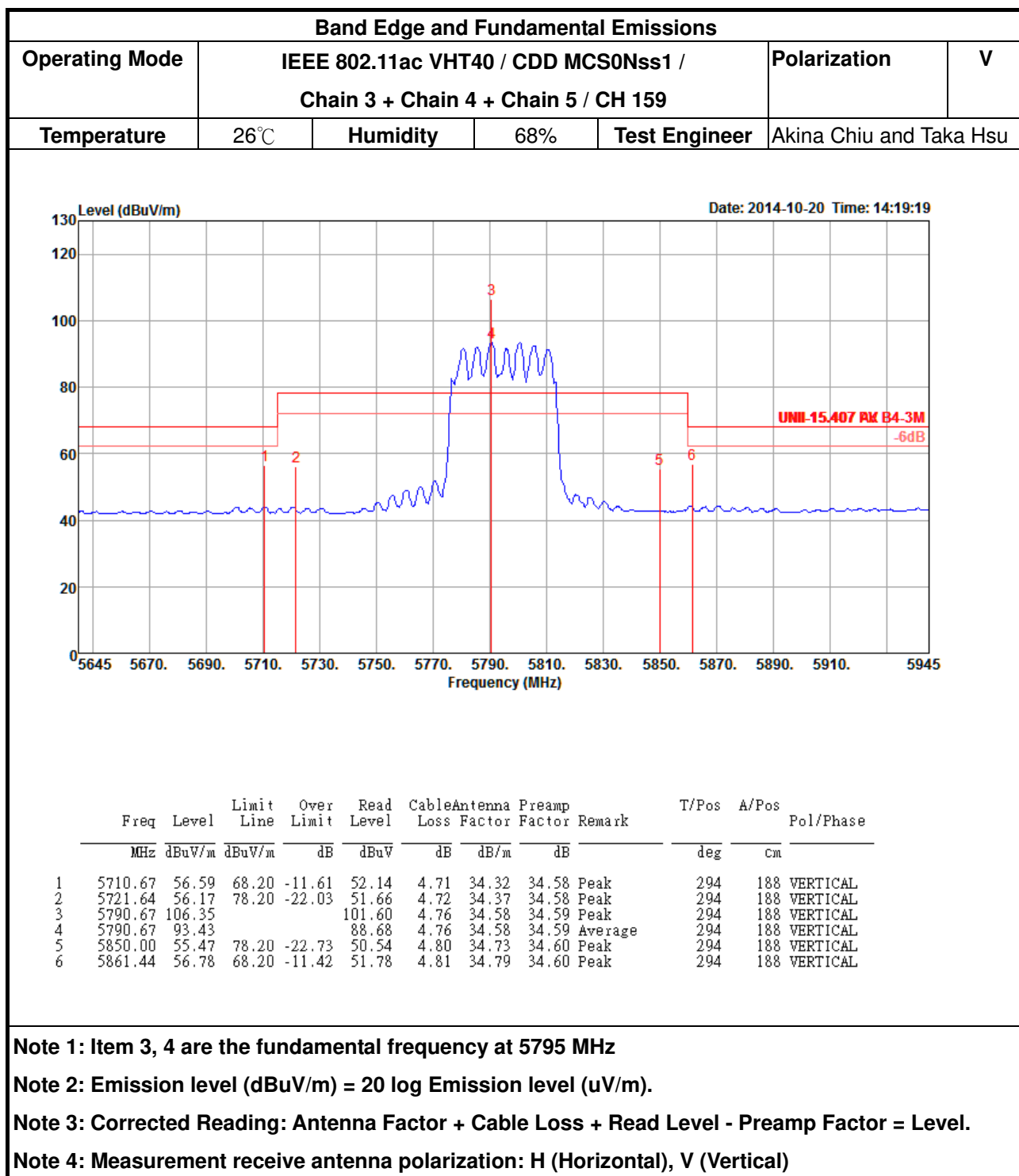


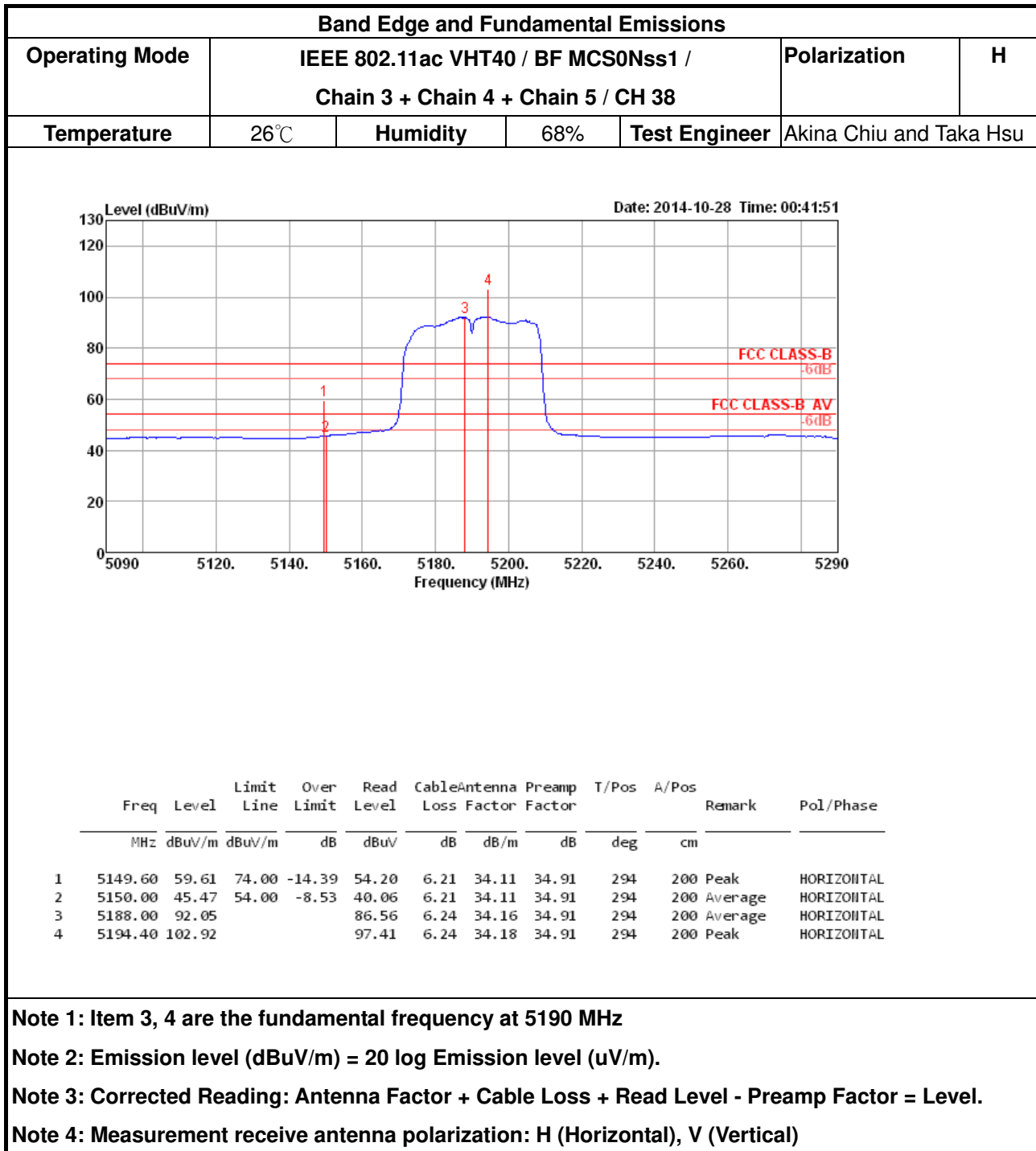












Band Edge and Fundamental Emissions											
Operating Mode	IEEE 802.11ac VHT40 / BF MCS0Nss1 / Chain 3 + Chain 4 + Chain 5 / CH 46								Polarization		H
Temperature	26℃		Humidity		68%		Test Engineer		Akina Chiu and Taka Hsu		

Level (dBuV/m)

Date: 2014-10-28 Time: 00:53:40

Frequency (MHz)

	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	5150.00	44.46	54.00	-9.54	39.05	6.21	34.11	34.91	229	234	Average	HORIZONTAL
2	5150.00	56.39	74.00	-17.61	50.98	6.21	34.11	34.91	229	234	Peak	HORIZONTAL
3	5232.80	92.51			86.89	6.30	34.23	34.91	229	234	Average	HORIZONTAL
4	5234.00	103.22			97.60	6.30	34.23	34.91	229	234	Peak	HORIZONTAL

Note 1: Item 3, 4 are the fundamental frequency at 5230 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 802.11ac VHT40 / BF MCS0Nss1 /
Chain 3 + Chain 4 + Chain 5 / CH 151

Polarization

H

Temperature

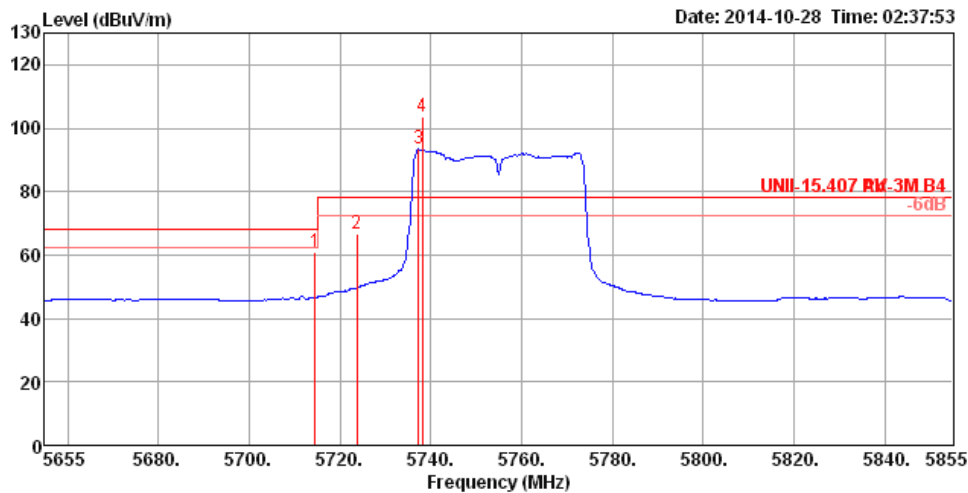
26°C

Humidity

68%

Test Engineer

Akina Chiu and Taka Hsu



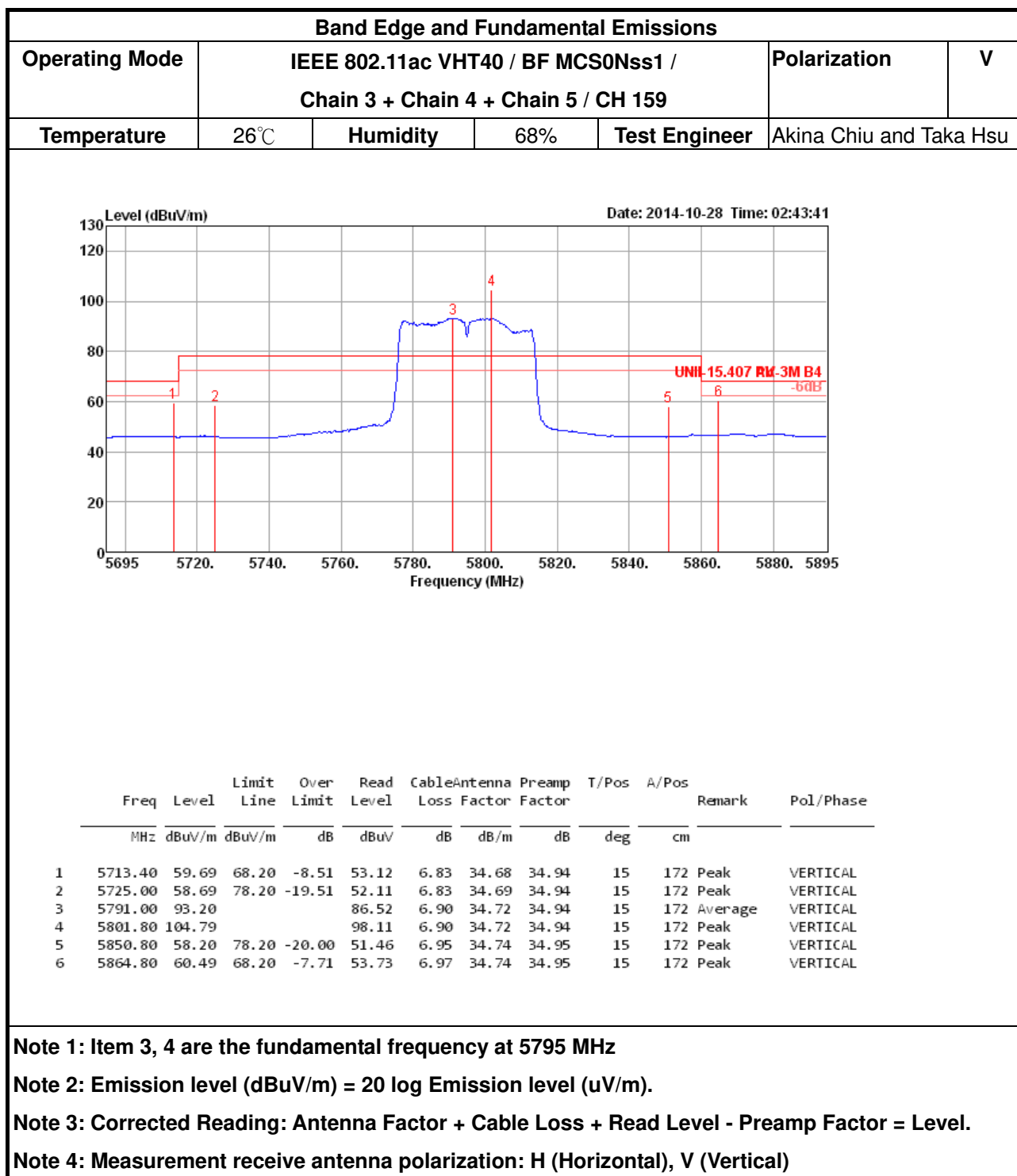
	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5714.60	61.16	68.20	-7.04	54.59	6.83	34.68	34.94	284	213	Peak	HORIZONTAL
2	5723.80	66.58	78.20	-11.62	60.00	6.83	34.69	34.94	284	213	Peak	HORIZONTAL
3	5737.40	93.36			86.74	6.86	34.70	34.94	284	213	Average	HORIZONTAL
4	5738.20	103.63			97.01	6.86	34.70	34.94	284	213	Peak	HORIZONTAL

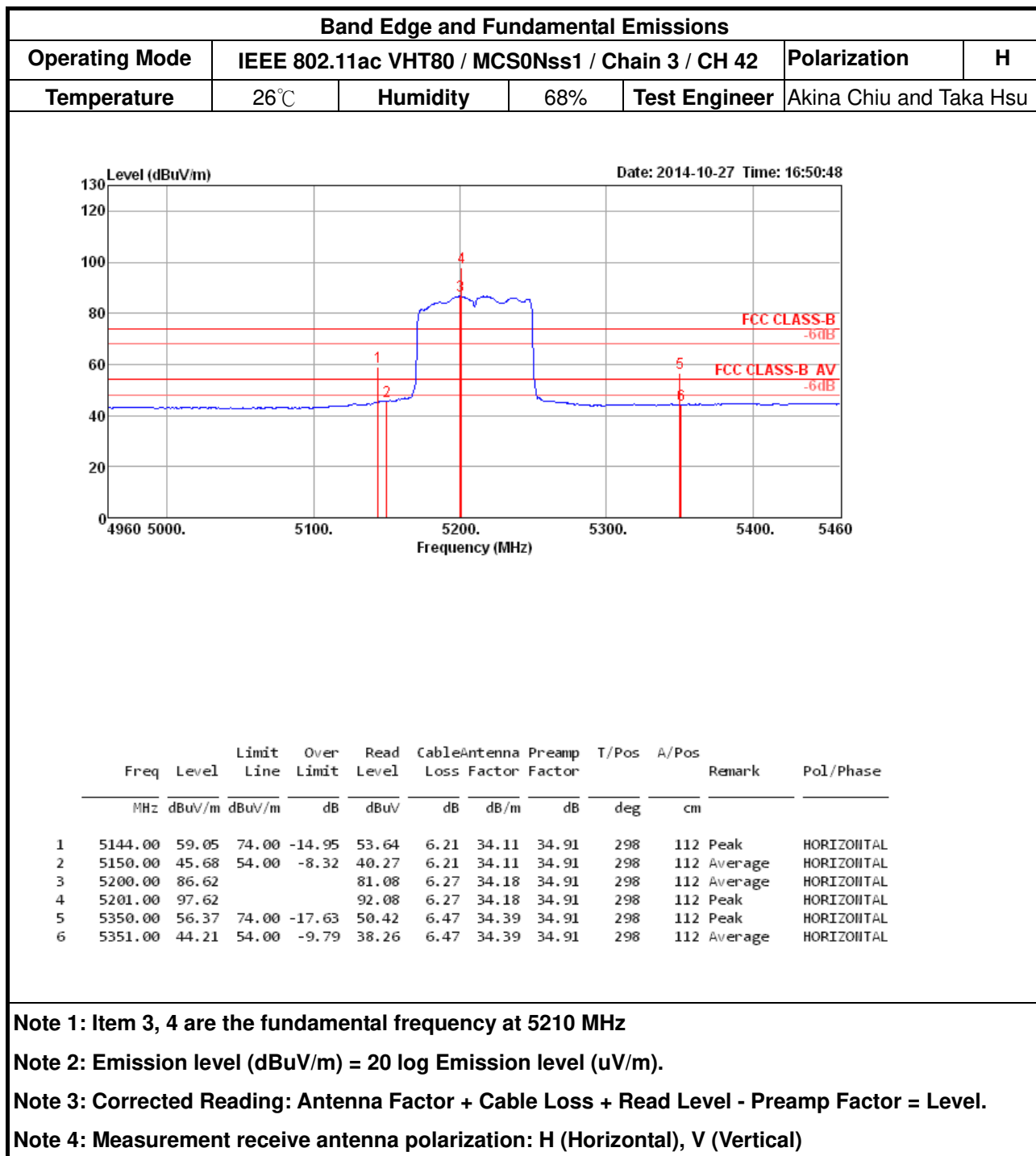
Note 1: Item 3, 4 are the fundamental frequency at 5755 MHz

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 802.11ac VHT80 / MCS0Nss1 / Chain 5 / CH 155							Polarization		H
Temperature		26℃	Humidity		68%	Test Engineer		Akina Chiu and Taka Hsu			

Level (dBuV/m)

1

2

3

4

5

6

UNI-15.407 RM-3M B4

-60dB

Frequency (MHz)

55755620566057005740578058205860590059405975

Date: 2014-10-27 Time: 21:12:23

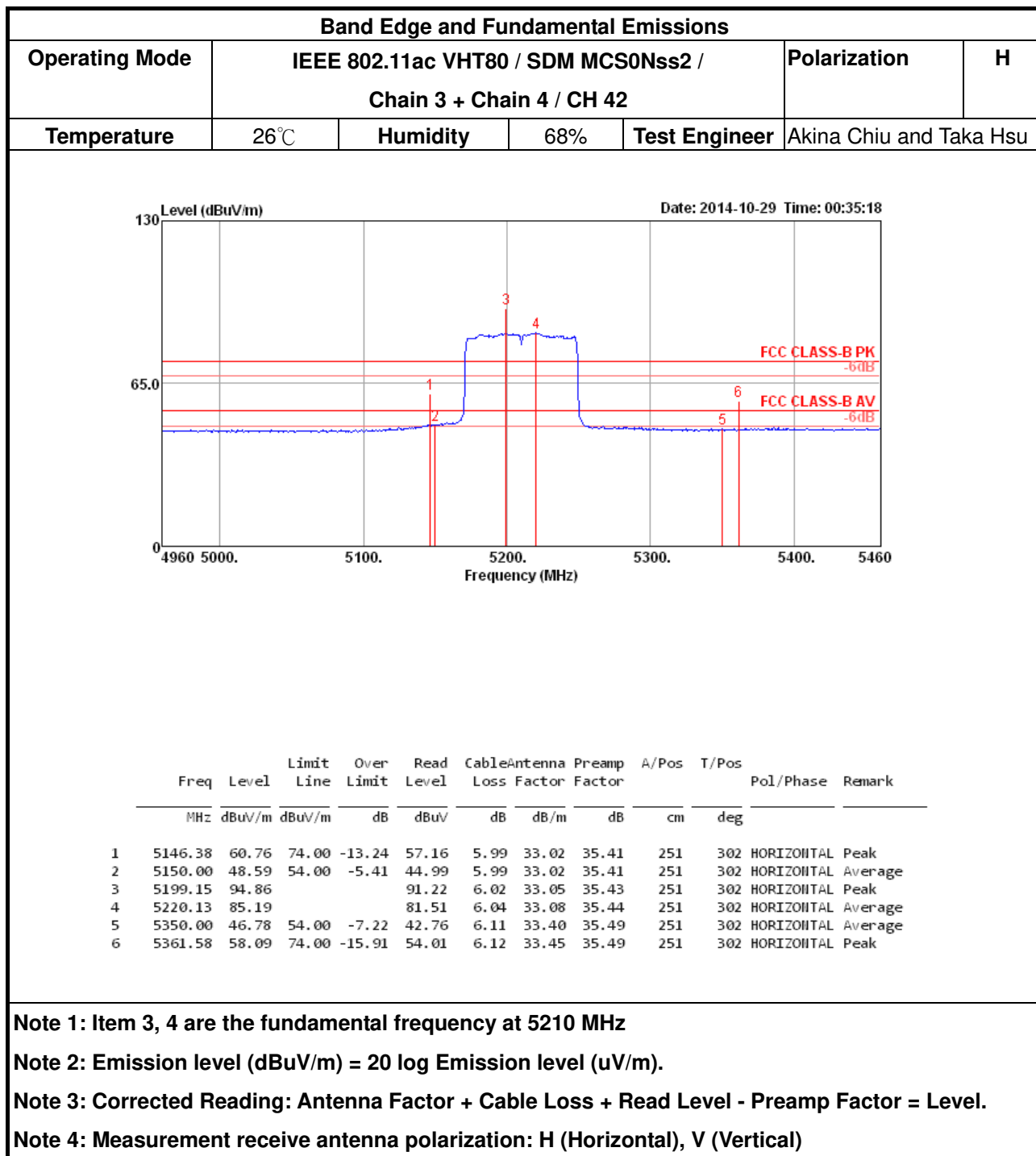
	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5695.80	59.45	68.20	-8.75	52.90	6.81	34.68	34.94	198	166	Peak	HORIZONTAL
2	5721.80	59.94	78.20	-18.26	53.36	6.83	34.69	34.94	198	166	Peak	HORIZONTAL
3	5786.20	84.91			78.23	6.90	34.72	34.94	198	166	Average	HORIZONTAL
4	5787.00	95.35			88.67	6.90	34.72	34.94	198	166	Peak	HORIZONTAL
5	5850.80	58.50	78.20	-19.70	51.76	6.95	34.74	34.95	198	166	Peak	HORIZONTAL
6	5861.60	59.72	68.20	-8.48	52.96	6.97	34.74	34.95	198	166	Peak	HORIZONTAL

Note 1: Item 3, 4 are the fundamental frequency at 5775 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.

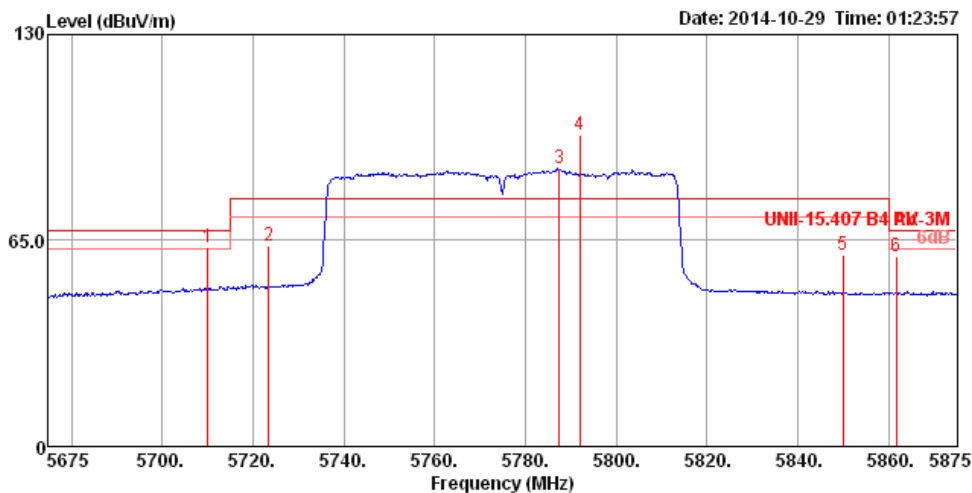
Note 4: Measurement receive antenna polarization: H (Horizontal), V (Vertical)





Band Edge and Fundamental Emissions

Operating Mode	IEEE 802.11ac VHT80 / SDM MCS0Nss2 / Chain 4 + Chain 5 / CH 155			Polarization	V
Temperature	26°C	Humidity	68%	Test Engineer	Akina Chiu and Taka Hsu



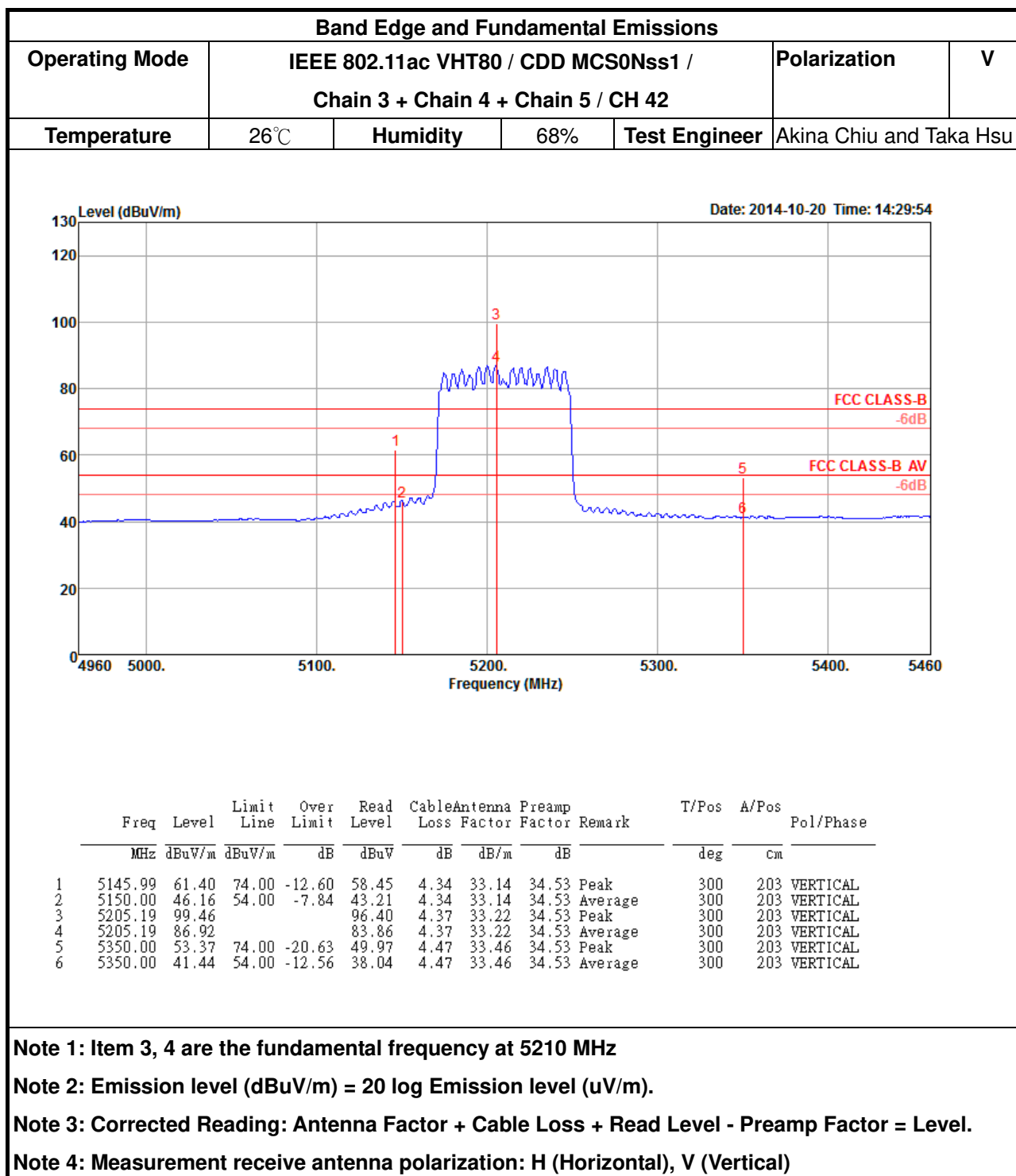
	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5710.08	63.07	68.20	-5.13	57.93	6.34	34.16	35.36	184	7	VERTICAL	Peak
2	5723.55	63.41	78.20	-14.79	58.22	6.35	34.18	35.34	184	7	VERTICAL	Peak
3	5787.45	87.69			82.26	6.39	34.33	35.29	184	7	VERTICAL	Average
4	5792.08	98.29			92.77	6.40	34.40	35.28	184	7	VERTICAL	Peak
5	5850.00	60.50	78.20	-17.70	54.70	6.43	34.60	35.23	184	7	VERTICAL	Peak
6	5861.74	59.99	68.20	-8.21	54.10	6.44	34.67	35.22	184	7	VERTICAL	Peak

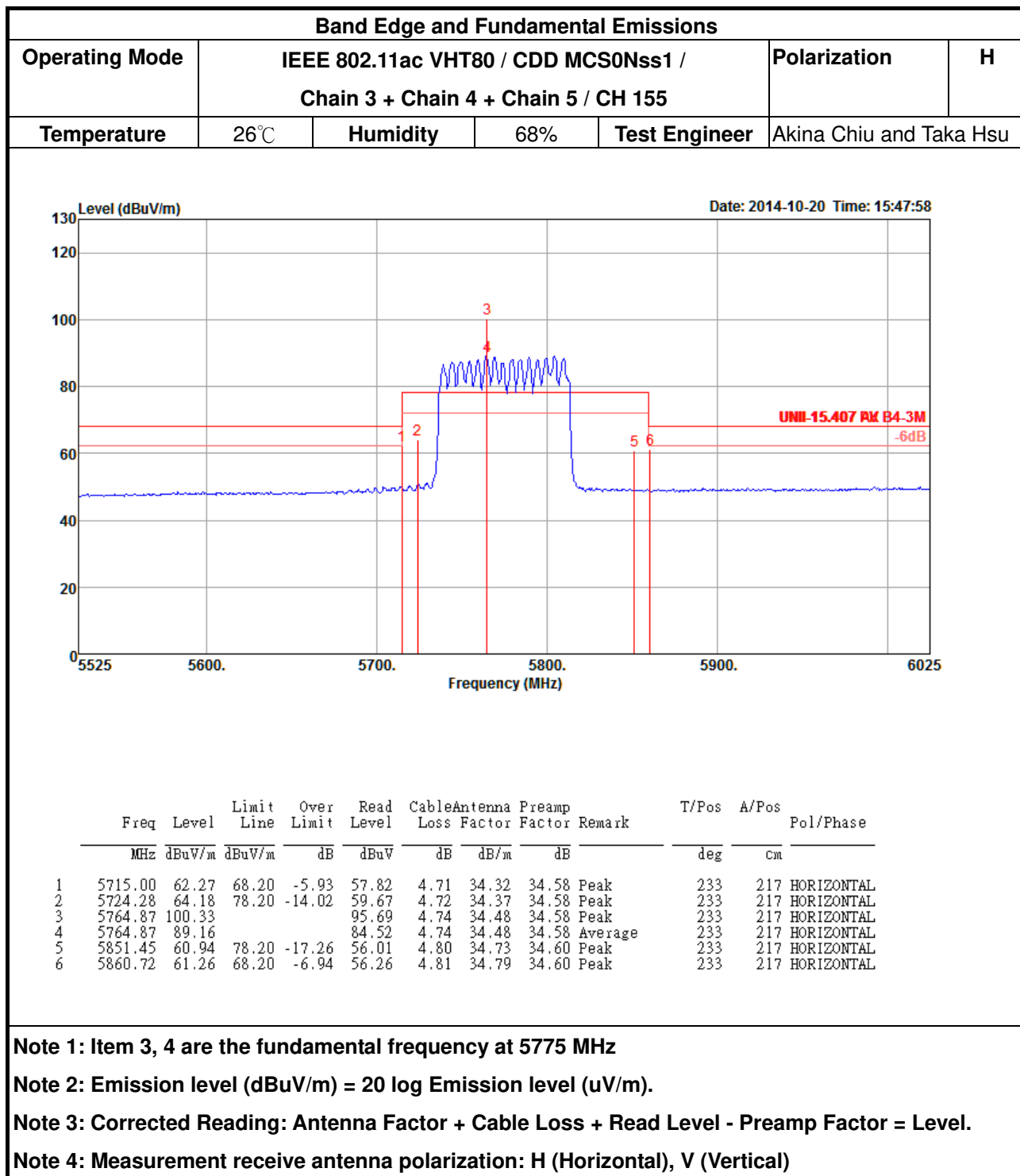
Note 1: Item 3, 4 are the fundamental frequency at 5775 MHz

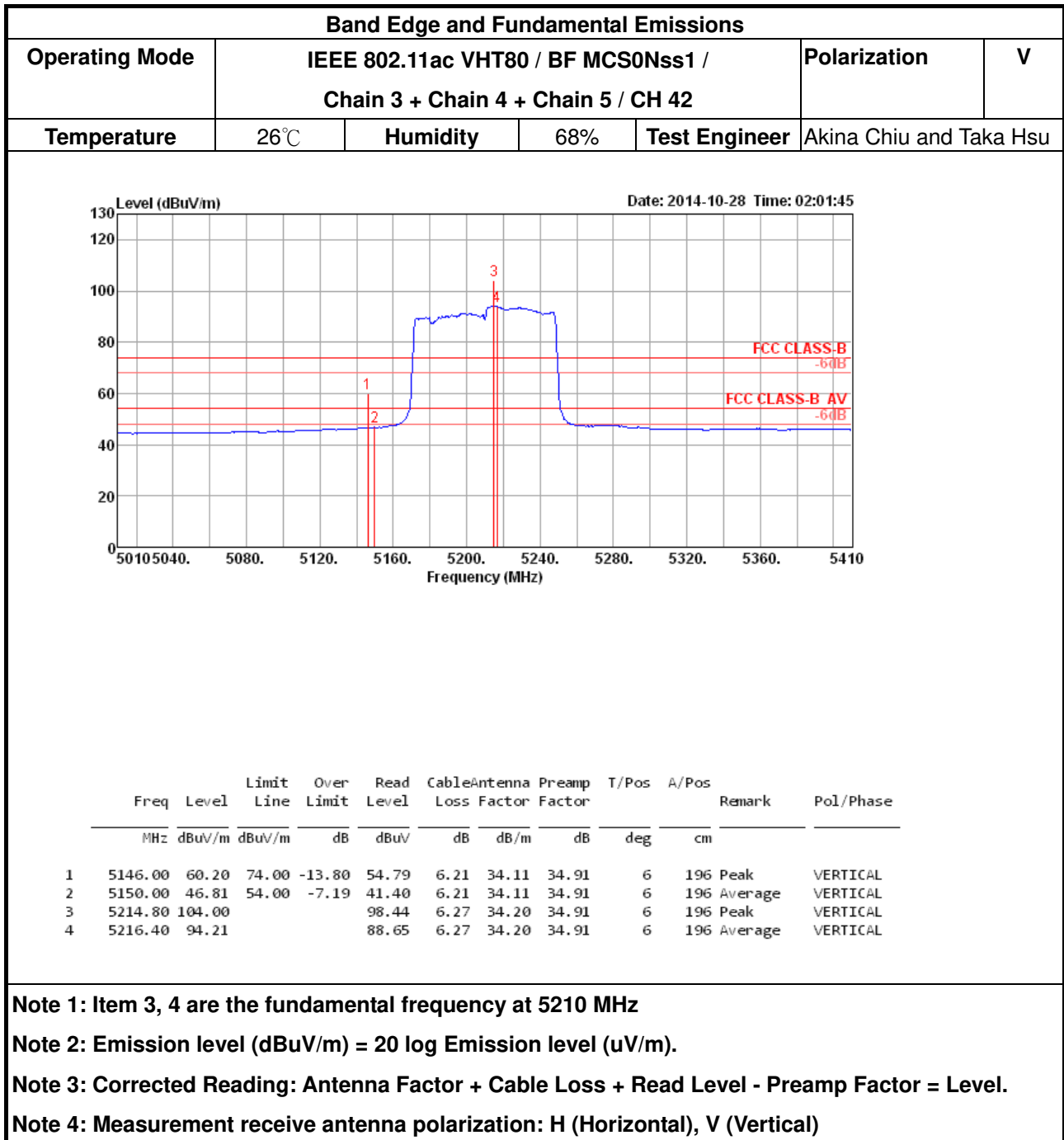
Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).

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 802.11ac VHT80 / BF MCS0Nss1 / Chain 3 + Chain 4 + Chain 5 / CH 155								Polarization		H	
Temperature		26°C		Humidity		68%		Test Engineer		Akina Chiu and Taka Hsu			

Level (dBuV/m)

3

4

2

5

6

UNII-15.407 RW-3M B4

-60dB

Frequency (MHz)

Date: 2014-10-28 Time: 02:33:40

	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	5715.00	60.84	68.20	-7.36	54.27	6.83	34.68	34.94	281	208	Peak	HORIZONTAL
2	5721.00	63.56	78.20	-14.64	56.98	6.83	34.69	34.94	281	208	Peak	HORIZONTAL
3	5782.20	101.46			94.79	6.90	34.71	34.94	281	208	Peak	HORIZONTAL
4	5783.80	91.31			84.64	6.90	34.71	34.94	281	208	Average	HORIZONTAL
5	5850.00	59.10	78.20	-19.10	52.36	6.95	34.74	34.95	281	208	Peak	HORIZONTAL
6	5860.00	59.33	68.20	-8.87	52.57	6.97	34.74	34.95	281	208	Peak	HORIZONTAL

Note 1: Item 3, 4 are the fundamental frequency at 5775 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)

2.7 Frequency Stability Measurement

2.7.1 Limit

The transmitter center frequency tolerance shall be ± 20 ppm maximum for the 5 GHz band.

2.7.2 Measurement Instrument

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

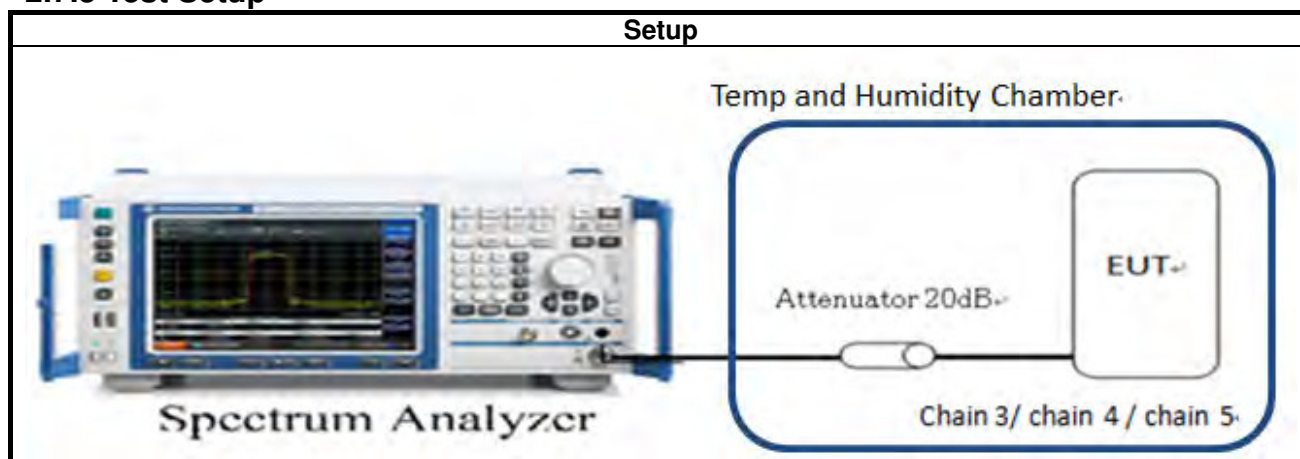
2.7.3 Test method

Spectrum Analyzer setting parameters are shown in the following table :

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Wide enough to capture the entire unmodulation signal.
RBW	10 kHz
VBW	10 kHz
Sweep Time	Auto

1. Connect the transmitter output (antenna port) to the spectrum analyzer.
2. Setting EUT transmit an un-modulated signal on a fixed channel.
3. Set the spectrum analyzer span to view the entire un-modulated emissions bandwidth.
4. Set RBW = 10 kHz, VBW = 10 kHz with peak detector and max-hold settings
5. f_c represents channel frequency. Then the frequency error formula is $(f_c - f)/f_c \times 10^6$ ppm and the limit is less than ± 20 ppm.
6. To test extreme voltage change the primary supply voltage from 85 to 115 percent of the nominal value
7. Extreme temperature rule is $-5^{\circ}\text{C} \sim 70^{\circ}\text{C}$

2.7.3 Test Setup



2.7.4 Test Deviation

There is no deviation with the original standard.

2.7.5 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode using Mtool 2.0.1.0 and wl command.

**2.7.6 Test Result of Frequency Stability**

Temperature	26°C	Humidity	63%
Test Engineer	Serway Li	Test Date	Nov. 01, 2014 ~ Nov. 11, 2014

Voltage vs. Frequency Stability

Voltage (25°C)	Measurement Frequency (MHz)					
(V)	5220			5785		
	Chain 3	Chain 4	Chain 5	Chain 3	Chain 4	Chain 5
126.5	5219.9957	5219.9953	5219.9958	5784.9600	5784.9600	5784.9600
110	5219.9961	5219.9950	5219.9950	5784.9953	5784.9580	5784.9580
102	5219.9944	5219.9980	5219.9975	5784.9966	5784.9962	5784.9962
Max. Deviation (MHz)	0.005600	0.005000	0.005000	0.040000	0.042000	0.042000
Max. Deviation (ppm)	1.07	0.96	0.96	6.91	7.26	7.26

**Temperature vs. Frequency Stability**

Temperature (120V)	Measurement Frequency (MHz)					
(°C)	5220			5785		
	Chain 3	Chain 4	Chain 5	Chain 3	Chain 4	Chain 5
-5	5219.9995	5219.9991	5219.9998	5784.9680	5784.9650	5784.9630
0	5219.9995	5219.9989	5219.9984	5784.9530	5784.9630	5784.9620
10	5219.9985	5219.9987	5219.9988	5784.9560	5784.9570	5784.9540
20	5219.9967	5219.9963	5219.9961	5784.9590	5784.9570	5784.9570
30	5219.9955	5219.9958	5219.9946	5784.9680	5784.9680	5784.9660
40	5219.9931	5219.9938	5219.9942	5784.9720	5784.9650	5784.9680
45	5219.9943	5219.9948	5219.9940	5784.9680	5784.9670	5784.9650
60	5219.9953	5219.9944	5219.9945	5784.9730	5784.9770	5784.9750
70	5219.9958	5219.9954	5219.9956	5784.9660	5784.9690	5784.9620
Max. Deviation (MHz)	0.005700	0.005200	0.006000	0.047000	0.043000	0.046000
Max. Deviation (ppm)	1.09	1.00	1.15	8.12	7.43	7.95



2.8 Antenna Requirements

2.8.1 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.

2.8.2 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	Nov. 01, 2013	Radiation (03CH01-CB)
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	Agilent	8449B	3008A02009	1GHz ~ 26.5GHz	Dec. 17, 2014	Radiation (03CH01-CB)
Pre-Amplifier	MITEQ	TTA1840-35-HG	1864479	18GHz ~ 40GHz	Apr. 22, 2014	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100080	9kHz ~ 40GHz	Oct. 15, 2014	Radiation (03CH01-CB)
EMI Test Receiver	R&S	ESR26	101289	9kHz~26GHz	Aug. 22, 2014	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)
RF Cable-high	Woken	High Cable-3	N/A	1 GHz - 40 GHz	Nov. 15, 2014	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-4	N/A	1 GHz - 40 GHz	Nov. 15, 2014	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)
Signal analyzer	R&S	FSV40	100979	9kHz~40GHz	Dec.12, 2014	Conducted (TH01-CB)
Temp. and Humidity Chamber	Ten Billion	TTH-D3SP	TBN-931011	-30~100 degree	Jun. 03, 2014	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-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. 17, 2013	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. 17, 2013	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. 17, 2013	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. 17, 2013	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-11	-	1 GHz – 26.5 GHz	Nov. 15, 2014	Conducted (TH01-CB)
Power Sensor	Anritsu	MA2411B	1126203	300MHz~40GHz	Oct. 06, 2014	Conducted (TH01-CB)
Power Meter	Anritsu	ML2495A	1210004	300MHz~40GHz	Oct. 06, 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%