



FCC RADIO TEST REPORT

FCC ID : RSE-OWA3111
Equipment Name : MESH Extender
Trade Name : Technicolor
Model Number : OWA3111, GFEX310
Product Code : MESH Extender
Applicant : Technicolor Delivery Technologies Belgium
Prins Boudewijnlaan 47 Edegem B-2650
Belgium
Standard : 47 CFR FCC Part 15 Subpart C § 15.247

The product was received on Jun. 08, 2020, and testing was started from Jun. 08, 2020 and completed on Jul. 17, 2020. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013, 47 CFR FCC Part 15 Subpart C, KDB558074 D01 v05r02, KDB 662911 D01 v02r01 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. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Approved by: Sam Chen

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Appendix A. Radiated Emission Co-location Test

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Photographs of EUT v01



Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Measured	Limit
2.1	15.207	AC Power Line Conducted Emissions	PASS	370.5kHz 30.44dBuV (Margin -18.05dB)	FCC 15.207
2.2	15.247(b)(3)	Maximum Conducted Output Power	PASS	Power [dBm]: 11b: 22.89dBm 11g: 24.73dBm 11ax(20M): 24.90dBm 11ax(40M): 24.30dBm	30 dBm
2.3	15.247(e)	Power Spectral Density	PASS	PSD [dBm]: 11b: 0.65dBm/3kHz 11g: -1.65dBm/3kHz 11ax(20M): -1.76dBm/3kHz 11ax(40M): -5.00dBm/3kHz	8dBm/3kHz
2.4	15.247(a)(2)	6dB Spectrum and 99% Occupied Bandwidth	PASS	6dB Bandwidth [MHz] 11b: 7.000MHz 11g: 16.275MHz 11ax(20M): 18.650MHz 11ax(40M): 35.650MHz 99% Occupied [MHz] 11b: 10.470MHz 11g: 19.465MHz 11ax(20M): 19.290MHz 11ax(40M): 37.981MHz	≥500kHz
2.5	15.247(d)	Radiated Emissions	PASS	30MHz 36.33dBuV/m (Margin -3.67dB)	-
2.6	15.247(d)	Band Edge Emissions	PASS	2.39GHz 49.41dBuV/m (Margin -4.59dB)	-
2.7	15.203	Antenna Requirements	PASS	-	-

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

1. The test configuration, test mode and test software were written in this test report are declared by the manufacturer.
2. The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Reviewed by: Sam Chen

Report Producer: Viola Huang



1. General Information

1.1. Product Details

Items	Description			
Equipment Name	MESH Extender			
Trade Name	Technicolor			
Model Number	OWA3111, GFEX310			
Product Code	MESH Extender			
FCC ID	RSE-OWA3111			
Power Type	From power adapter			
Antenna Type	Please refer to section 1.10			
EUT Stage	<input checked="" type="checkbox"/>	Product Unit	<input type="checkbox"/>	Pre-Sample
Operating Band Conducted Output Power	2400 ~ 2483.5MHz		<input checked="" type="checkbox"/>	IEEE 802.11b: 22.89 dBm
			<input checked="" type="checkbox"/>	IEEE 802.11g: 24.73 dBm
			<input checked="" type="checkbox"/>	IEEE 802.11ax 20MHz: 24.90 dBm
			<input checked="" type="checkbox"/>	IEEE 802.11ax 40MHz: 24.30dBm
Product Type	For IEEE 802.11b: WLAN(1TX, 1RX) For IEEE 802.11g: WLAN(2TX, 2RX) For IEEE 802.11n: WLAN(2TX, 2RX) For IEEE 802.11ac: WLAN(2TX, 2RX) For IEEE 802.11ax: WLAN(2TX, 2RX)			
Number of Channel	11 channels for 11n/ac/ax (20MHz) / 7 channel for 11n/ac/ax (40MHz)			
Nominal Chennel Bandwidth	20MHz / 40MHz			
Modulation	802.11b: DSSS (DBPSK, DQPSK, CCK) 802.11g: OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11n: OFDM (BPSK / QPSK / 16QAM / 64QAM) See the below table 802.11ac: OFDM (BPSK / QPSK / 16QAM / 64QAM/ 256QAM) See the below table 802.11ax: OFDMA (BPSK / QPSK / 16QAM / 64QAM/ 256QAM/ 1024QAM) See the below table			
Data Rate (Mbps)	11b mode: DSSS (1/2/5.5/11) 11g mode: OFDM (6/9/12/18/24/36/48/54) 11n(20MHz) mode : (MCS0~MCS15); 11n(40MHz) mode : (MCS0~MCS15) See the below table 11ac(20MHz) mode : (MCS0~MCS9 for Nss1~Nss2);			



	11ac(40MHz) mode : (MCS0~MCS9 for Nss1~Nss2) See the below table 11ax(20MHz) mode : (MCS0~MCS11 for Nss1~Nss2) See the below table 11ax(40MHz) mode : (MCS0~MCS11 for Nss1~Nss2) See the below table
I/O Ports	LAN Port x 1 WAN Port x 1 USB Port x 1
Hardware Version	BETA 2
Software Version	19.4.0292-4849007-20200616180558-f2534517ca3ad3f315c2e982b801 eb89d87dc5a6

802.11n Data Rate spec

Standard	INDEX	Data Rate (Mbps)		Standard	INDEX	Data Rate (Mbps)	
		LGI (800ns)	SGL (400ns)			LGI (800ns)	SGL (400ns)
-	-	LGI (800ns)	SGL (400ns)	-	-	LGI (800ns)	SGL (400ns)
11n 20MHz Nss = 1	MCS0	6.5	7.2	11n 40MHz Nss = 1	MCS0	13.5	15
	MCS1	13	14.4		MCS1	27	30
	MCS2	19.5	21.7		MCS2	40.5	45
	MCS3	26	28.9		MCS3	54	60
	MCS4	39	43.3		MCS4	81	90
	MCS5	52	57.8		MCS5	108	120
	MCS6	58.5	65		MCS6	121.5	135
11n 20MHz Nss = 2	MCS7	65	72.2	MCS7	135	150	
	MCS8	13	14.4	11n 40MHz Nss = 2	MCS8	27	30
	MCS9	26	28.9		MCS9	54	60
	MCS10	39	43.3		MCS10	81	90
	MCS11	52	57.8		MCS11	108	120
	MCS12	78	86.7		MCS12	162	180
	MCS13	104	115.6		MCS13	216	240
	MCS14	117	130		MCS14	243	270
MCS15	130	144.4	MCS15		270	300	



802.11ac Data Rate spec

Standard	INDEX	Data Rate (Mbps)		Standard	INDEX	Data Rate (Mbps)	
-	-	LGI (800ns)	SGL (400ns)	-	-	LGI (800ns)	SGL (400ns)
11ac 20MHz N _{ss} = 1	MCS0	6.5	7.2	11ac 40MHz N _{ss} = 1	MCS0	13.5	15.0
	MCS1	13.0	14.4		MCS1	27	30.0
	MCS2	19.5	21.7		MCS2	40.5	45.0
	MCS3	26	28.9		MCS3	54	60.0
	MCS4	39	43.3		MCS4	81	90.0
	MCS5	52	57.8		MCS5	108	120.0
	MCS6	58.5	65		MCS6	121.5	135.0
	MCS7	65	72.2		MCS7	135.0	150.0
	MCS8	78	86.7		MCS8	162.0	180.0
	MCS9	Note	Note		MCS9	180.0	200.0

NOTE: MCS 9 is invalid due to mod(NCBPS/NES, DR) not being equal to 0.

Standard	INDEX	Data Rate (Mbps)		Standard	INDEX	Data Rate (Mbps)	
-	-	LGI (800ns)	SGL (400ns)	-	-	LGI (800ns)	SGL (400ns)
11ac 20MHz N _{ss} = 2	MCS0	13.0	14.4	11ac 40MHz N _{ss} = 2	MCS0	27.0	30.0
	MCS1	26.0	28.9		MCS1	54.0	60.0
	MCS2	39.0	43.3		MCS2	81.0	90.0
	MCS3	52.0	57.8		MCS3	108.0	120.0
	MCS4	78.0	86.7		MCS4	162.0	180.0
	MCS5	104.0	115.6		MCS5	216.0	240.0
	MCS6	117.0	130.0		MCS6	243.0	270.0
	MCS7	130.0	144.4		MCS7	270.0	300.0
	MCS8	156.0	173.3		MCS8	324.0	360.0
	MCS9	13.0	14.4		MCS9	360.0	400.0



802.11ax Data Rate spec

Standard	INDEX	Data Rate (Mbps)			Standard	INDEX	Data Rate (Mbps)		
		SGI (0.8us)	MGI (1.6us)	LGI (3.2us)			SGI (0.8us)	MGI (1.6us)	LGI (3.2us)
-	-				-	-			
11ax 20MHz N _{ss} = 1	MCS0	8.6	8.1	7.3	11ax 40MHz N _{ss} = 1	MCS0	17.2	16.3	14.6
	MCS1	17.2	16.3	14.6		MCS1	34.4	32.5	29.3
	MCS2	25.8	24.4	21.9		MCS2	51.6	48.8	43.9
	MCS3	34.4	32.5	29.3		MCS3	68.8	65	58.5
	MCS4	51.6	48.8	43.9		MCS4	103.2	97.5	87.8
	MCS5	68.8	65	58.5		MCS5	137.6	130	117
	MCS6	77.4	73.1	65.8		MCS6	154.9	146.3	131.6
	MCS7	86	81.3	73.1		MCS7	172.1	162.5	146.3
	MCS8	103.2	97.5	87.8		MCS8	206.5	195	175.5
	MCS9	114.7	108.3	97.5		MCS9	229.4	216.7	195
	MCS10	129	121.9	109.7		MCS10	258.1	243.8	219.4
	MCS11	143.4	135.4	121.9		MCS11	286.8	270.8	243.8
11ax 20MHz N _{ss} = 2	MCS0	17.2	16.3	14.6	11ax 40MHz N _{ss} = 2	MCS0	34.4	32.5	29.3
	MCS1	34.4	32.5	29.3		MCS1	68.8	65	58.5
	MCS2	51.6	48.8	43.9		MCS2	103.2	97.5	87.8
	MCS3	68.8	65	58.5		MCS3	137.6	130	117
	MCS4	103.2	97.5	87.8		MCS4	206.5	195	175.5
	MCS5	137.6	130	117		MCS5	275.3	260	234
	MCS6	154.9	146.3	131.6		MCS6	309.7	292.5	263.3
	MCS7	172.1	162.5	146.3		MCS7	344.1	325	292.5
	MCS8	206.5	195	175.5		MCS8	412.9	390	351
	MCS9	229.4	216.7	195		MCS9	458.8	433.3	390
	MCS10	258.1	243.8	219.4		MCS10	516.2	487.5	438.8
	MCS11	286.8	270.8	243.8		MCS11	573.5	541.7	487.5



1.2. Accessories

Adapter

Model	ADS-24FUA-12 12024EPCU
Technicolor P/N	6265293A
ID	01
Manufacturer	HONOR
Input Power	100-240V~50/60Hz, MAX. 0.7A
Output Power	12V, 2.0A
Cable Length	Non-shielded 1.2m

RJ-45 cable

Cable Length	Non-shielded 1.5m
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1.3. Information Provided by the Manufacturer

Interface Availability

Interface Model Number	Internal AC~DC Power Input:100~240V output: DC 12Vdc	LAN 10/100/1000 Mbps	WAN 10/100/1000 Mbps	USB 2.0	WLAN IEEE 802.11a/b/g/n/ac/ax (2.4GHz 2*2) (5GHz L 2*2 ax) (5GHz H 4*4 ax)
OWA3111, GFEX310	● (2A)	● (1 port)	● (1 port)	● (1 port)	●

Note:

- : Equipped
- : Not Equipped

1.4. General Description of Applied Standards

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

47 CFR FCC Part 15

ANSI C63.10-2013

The following reference test guidance is not within the scope of accreditation of TAF.

FCC KDB 558074 D01 v05r02

FCC KDB 662911 D01 v02r01

FCC KDB 474788 D01 v01r01

All test items have been performed and recorded as per the above standards.



1.5. Table for Multiple Listing

The model names in the following table are all refer to the identical product.

Model Number	Description
OWA3111	For marketing reason the same product will be covered by different name.
GFEX310	

From the above models, model: OWA3111 was selected as representative model for the test and its data was recorded in this report.

1.6. Cabling Attached to the Equipment

Table 1- Cable and Interconnection

Interface	Cable type	Cable length delivered with the modem	“Real life” Cable length that can be attached to this type of interface	Cable length to be used for testing	Internal/external connection
WAN	UTP Cat 5	1 meter	> 10 meter	10 meter	Internal
LAN	UTP Cat 5	1 meter	> 10 meter	10 meter	Internal
USB	STP	1 meter	< 3meter	1 meter	Internal
AC power	-	-	-	-	External

1.7. Panel Drawing



Reset
DC-Power Jack
USB 2.0
LAN
WAN



1.8. Transmit Operating Modes

Transmit Operating Mode				Transmit Multiple Antennas						
<input checked="" type="checkbox"/>	Operating mode 1 (single antenna)			<input checked="" type="checkbox"/>	1TX					
<input checked="" type="checkbox"/>	Operating mode 2 (multiple antenna, no beam forming)			<input checked="" type="checkbox"/>	2TX	<input type="checkbox"/>	3TX	<input type="checkbox"/>	4TX	
<input checked="" type="checkbox"/>	Operating mode 3 (multiple antenna, with beam forming)			<input checked="" type="checkbox"/>	2TX	<input type="checkbox"/>	3TX	<input type="checkbox"/>	4TX	
<input checked="" type="checkbox"/>	802.11b	Operating mode	<input checked="" type="checkbox"/>	1TX	<input type="checkbox"/>	2TX	<input type="checkbox"/>	3TX	<input type="checkbox"/>	Cyclic shift
<input checked="" type="checkbox"/>	802.11g	Operating mode	<input checked="" type="checkbox"/>	1TX	<input checked="" type="checkbox"/>	2TX	<input type="checkbox"/>	3TX	<input type="checkbox"/>	Cyclic shift
<input checked="" type="checkbox"/>	802.11n 20MHz	Operating mode	<input checked="" type="checkbox"/>	1TX	<input checked="" type="checkbox"/>	2TX	<input type="checkbox"/>	3TX	<input type="checkbox"/>	Cyclic shift
<input checked="" type="checkbox"/>	802.11n 40MHz	Operating mode	<input checked="" type="checkbox"/>	1TX	<input checked="" type="checkbox"/>	2TX	<input type="checkbox"/>	3TX	<input type="checkbox"/>	Cyclic shift
<input checked="" type="checkbox"/>	VHT 20MHz	Operating mode	<input checked="" type="checkbox"/>	1TX	<input checked="" type="checkbox"/>	2TX	<input type="checkbox"/>	3TX	<input type="checkbox"/>	Cyclic shift
<input checked="" type="checkbox"/>	VHT 40MHz	Operating mode	<input checked="" type="checkbox"/>	1TX	<input checked="" type="checkbox"/>	2TX	<input type="checkbox"/>	3TX	<input type="checkbox"/>	Cyclic shift
<input checked="" type="checkbox"/>	802.11ax 20MHz	Operating mode	<input checked="" type="checkbox"/>	1TX	<input checked="" type="checkbox"/>	2TX	<input type="checkbox"/>	3TX	<input type="checkbox"/>	Cyclic shift
<input checked="" type="checkbox"/>	802.11ax 40MHz	Operating mode	<input checked="" type="checkbox"/>	1TX	<input checked="" type="checkbox"/>	2TX	<input type="checkbox"/>	3TX	<input type="checkbox"/>	Cyclic shift

Note:

For IEEE802.11b, 1Mbps~11Mbps: 1TX;

For IEEE802.11g, 6Mbps~54Mbps: 1TX; 2TX;

For IEEE802.11n,

MCS0~MCS7: 1 Stream 1TX, 1 Stream 2TX,

MCS8~MCS15: 2 Stream 2TX,

For IEEE802.11ac,

Nss1MCS0~Nss1MCS9: 1 Stream 1TX, 1 Stream 2TX,

Nss2MCS0~Nss2MCS9: 2 Stream 2TX,

For IEEE802.11ax,

Nss1MCS0~Nss1MCS11: 1Stream 1TX, 1Stream 2TX,

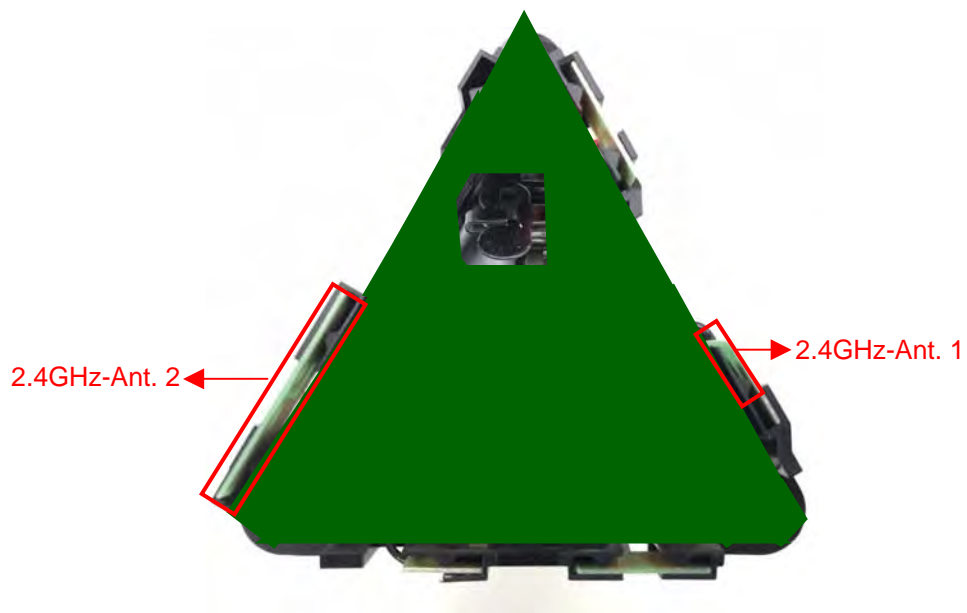
Nss2MCS0~Nss2MCS11: 2 Stream 2TX,

1.9. Antenna Requirements

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.

1.10. Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Cable Length (mm)
2.4GHz-Ant. 1	WALSIN	RFPCA291205IMLB303	PCB Antenna	I-PEX	50mm
2.4GHz-Ant. 2	WALSIN	RFPCA291203IMLB302	PCB Antenna	I-PEX	30mm





Number of Transmitter Antennas & Bandwidth

Number of Transmitter Antennas	1TX		2TX	
	20 MHz	40 MHz	20 MHz	40 MHz
802.11b	V	X	X	X
802.11g	V	X	V	X
802.11n	V	V	V	V
802.11ac	V	V	V	V
802.11ax	V	V	V	V

For 2400~2483.5MHz

Frequency	Antenna Gain (dBi)			
	Ant. 1		Ant. 2	
	20 MHz	40 MHz	20 MHz	40 MHz
2412 MHz	2.04	-	3.10	-
2422 MHz	-	2.12	-	3.48
2437 MHz	2.12	2.12	3.88	3.88
2452 MHz	-	2.52	-	3.81
2462 MHz	2.69	-	3.51	-

Frequency	Maximum Gain (dBi) for CDD mode	
	CDD mode (1 Stream 2 TX) for PSD Gain (KDB 662911 Option 2)	
	20 MHz	40 MHz
2412 MHz	5.07	-
2422 MHz	-	5.12
2437 MHz	5.01	5.01
2452 MHz	-	5.13
2462 MHz	5.19	-



Frequency	Maximum Gain (dBi) for TXBF mode	
	TXBF mode (1 Stream 2 TX) for Power & PSD Gain (KDB 662911 Option 2)	
	20 MHz	40 MHz
2412 MHz	5.07	-
2422 MHz	-	5.12
2437 MHz	5.01	5.01
2452 MHz	-	5.13
2462 MHz	5.19	-

Note:

1. Antenna Gain refer to "OWA3111_NAM_Directional_Gain_20200120" files

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

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



1.11. Table for Carrier Frequencies

11 channels are provided for 802.11b, 802.11g, 802.11n 20MHz, 802.11ac 20MHz, 802.11ax 20MHz:

Frequency Band	Channel No.	Frequency	Channel No.	Frequency
2400~2483.5MHz	1	2412 MHz	7	2442 MHz
	2	2417 MHz	8	2447 MHz
	3	2422 MHz	9	2452 MHz
	4	2427 MHz	10	2457 MHz
	5	2432 MHz	11	2462 MHz
	6	2437 MHz	-	-

7 channels are provided for 802.11n 40MHz, 802.11ac 40MHz, 802.11ax 40MHz:

Frequency Band	Channel No.	Frequency	Channel No.	Frequency
2400~2483.5MHz	3	2422 MHz	7	2442 MHz
	4	2427 MHz	8	2447 MHz
	5	2432 MHz	9	2452 MHz
	6	2437 MHz	-	-



1.12. Table for Test Modes

Preliminary tests were performed in different data rate to find the worst radiated emission. The data rate shown in the table below is the worst-case rate with respect to the specific test item. The following table is a list of the test modes shown in this test report.

Test Items	Mode	Note	Channel	Data Rate	Antenna
AC Power Line Conducted Emissions	CTX	-	-	-	-
Maximum Conducted Output Power	11b	DSSS/DBPSK	1/6/11	1S1T 1 Mbps	1
	11g	OFDM/BPSK	1/6/11	1S2T CDD 6 Mbps	1+2
	11ax 20MHz	OFDMA/BPSK	1/6/11	1S2T CDD MCS0	1+2
				1S2T TXBF MCS0	1+2
	11ax 40MHz		3/6/9	1S2T CDD MCS0	1+2
				1S2T TXBF MCS0	1+2
Power Spectral Density	11b	DSSS/DBPSK	1/6/11	1S1T 1 Mbps	1
	11g	OFDM/BPSK	1/6/11	1S2T CDD 6 Mbps	1+2
	11ax 20MHz	OFDMA/BPSK	1/6/11	1S2T CDD MCS0	1+2
				1S2T TXBF MCS0	1+2
	11ax 40MHz		3/6/9	1S2T CDD MCS0	1+2
				1S2T TXBF MCS0	1+2
6dB Spectrum and 99% Occupied Bandwidth	11b	DSSS/DBPSK	1/6/11	1S1T 1 Mbps	1
	11g	OFDM/BPSK	1/6/11	1S2T CDD 6 Mbps	1+2
	11ax 20MHz	OFDMA/BPSK	1/6/11	1S2T CDD MCS0	1+2
				1S2T TXBF MCS0	1+2
	11ax 40MHz		3/6/9	1S2T CDD MCS0	1+2
				1S2T TxBF MCS0	1+2



Radiated Emissions 9kHz~1GHz	CTX	-	-	-	-	
Radiated Emissions 1GHz~10 th Harmonic	11b	DSSS/DBPSK	1/6/11	1S1T 1 Mbps	1	
	11ax 20MHz	OFDMA/BPSK	1/6/11	1S2T CDD MCS0	1+2	
				1S2T TXBF MCS0	1+2	
	11ax 40MHz		3/6/9	1S2T CDD MCS0	1+2	
				1S2T TXBF MCS0	1+2	
	Band Edge Emissions		11b	DSSS/DBPSK	1/6/11	1S1T 1 Mbps
11ax 20MHz			OFDMA/BPSK	1/6/11	1S2T CDD MCS0	1+2
		1S2T TXBF MCS0			1+2	
11ax 40MHz		3/6/9		1S2T CDD MCS0	1+2	
				1S2T TXBF MCS0	1+2	

Note 1: The device with multiple operating mode, measurements on the middle channel were tested to determine the worst case mode. (Each modulation family were tested in band edge, spurious emission and in band PSD after investigate worst case mode).

Note 2: Base on tx core command, the 802.11g default mode is 1S2T CDD , the 802.11ax 20MHz/ 40MHz, default mode are 1S2T TxBF,1S2T CDD.

wl -i wl0 txcore

t txcore enabled bitmap (Nsts {4..1}) 0x00 0x00 0x03 0x03 txcore mask OFDM 0x03 CCK 0x01

Note 3: Base on same power setting, the 802.11g mode were only tested the “Maximum Conducted Output Power” , “Power Spectral Density” and” Bandwidth”

Note 4: The power setting for 802.11ac 20MHz and 40 MHz are same or lower than 802.11ax 20 MHz/ 40 MHz.

Note 5: The EUT can only be used at Y axis position.

Note 6: AC power line conducted emissions and radiated emissions below 1GHz only worse case is selected for photos and test system connection diagram presentaion in the report.



The following test modes were performed for all tests:

For AC Power Conducted Emission test:

Test Mode 1: CTX mode, EUT – WLAN 2.4GHz

Test Mode 2: CTX mode, EUT – WLAN 5GHz Band 1

Test Mode 3: CTX mode, EUT – WLAN 5GHz Band 4

For Radiated Emission Below 1GHz test:

Test Mode 1: CTX mode, EUT Y axis – WLAN 2.4GHz

Test Mode 2: CTX mode, EUT Y axis – WLAN 5GHz Band 1

Test Mode 3: CTX mode, EUT Y axis – WLAN 5GHz Band 4

For Radiated Emission Above 1GHz test:

Test Mode 1: CTX mode, EUT Y axis

For Co-location MPE and Radiated Emission Co-location Test:

The EUT could be applied with WLAN 2.4GHz function, WLAN 5GHz Band 1 function and WLAN 5GHz Band 4 function.

For Co-location Maximum Permissible Exposure: Co-location Maximum Permissible Exposure (Please refer to FA071024) test is added for simultaneously transmit between WLAN 2.4GHz function, WLAN 5GHz Band 1 function and WLAN 5GHz Band 4 function.

For Radiated Emission Co-location:

Both WLAN 2.4G and WLAN 5G simultaneously could be transmitted with a same antenna.

Radiated Emission Co-location (please refer to Appendix A) test is added for simultaneously transmit between WLAN 2.4GHz function and WLAN 5GHz Band 1 function.



1.13. Table for Testing Locations

Testing Location		
<input type="checkbox"/>	HWA YA	ADD : No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.) TEL : 886-3-327-3456 FAX : 886-3-327-0973
<input checked="" type="checkbox"/>	JHUBEI	ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C. TEL : 886-3-656-9065 FAX : 886-3-656-9085

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
RF Conducted	TH01-CB	Serway Li	24.7~25.9°C / 58~62%	Jul. 01, 2020 ~ Jul. 17, 2020
Radiated below 1GHz	03CH05-CB	Ron Huang	23.8~26°C / 61~63%	Jun. 08, 2020 ~ Jul. 13, 2020
Radiated Above 1GHz (Co-location)				
Radiated Above 1GHz (Other)	03CH04-CB	Ron Huang	24.8~26.8°C / 53~57%	Jun. 08, 2020 ~ Jul. 13, 2020
AC Conduction	CO02-CB	Wei Li	24~25°C / 59~62%	Jul. 10, 2020

Test site Designation No. TW0006 with FCC
Test site registered number IC 4086D with Industry Canada.

1.14. Table for Supporting Units

For AC Conduction:

No.	Support Unit	Brand	Model	FCC ID
A	LAN NB	DELL	E6430	N/A
B	Flash disk3.0	Transcend	JetFlash-700	N/A

Radiated Emissions below 1GHz:

No.	Support Unit	Brand	Model	FCC ID
A	NB	DELL	E4300	N/A

For Radiated Above 1GHz (CDD mode) and RF Conducted (CDD mode):

No.	Support Unit	Brand	Model	FCC ID
A	NB	DELL	E4300	N/A

For Radiated Above 1GHz (TXBF mode) and RF Conducted (TXBF mode):

No.	Support Unit	Brand	Model	FCC ID
A	NB	DELL	E4300	N/A
B	NB	DELL	E4300	N/A
C	WLAN AP (RX Device)	ASUS	RT-AX88U	MSQ-RTAXHP00



1.15. Table for Parameters of Test Software Setting

During testing, Channel and Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

The Power Setting Parameter					
Test Software Version	19.4.0292-4849007-20200616180558-f2534517ca3ad3f315c2e982b801eb89d87dc5a6				
Worst Modulation Mode	Number of Transmit Chains (NTX)	Frequency (MHz)	Maximum Output Power (dBm)	Power Setting	Data Rate / MCS
802.11b, Ant. 1 (SISO)	1Stream 1TX	2412	22.12	88	1Mbps
802.11b, Ant. 1 (SISO)	1Stream 1TX	2437	22.89	88	1Mbps
802.11b, Ant. 1 (SISO)	1Stream 1TX	2462	22.38	88	1Mbps
802.11g, Ant. 1+2 (CDD)	1Stream 2TX	2412	21.91	76	6Mbps
802.11g, Ant. 1+2 (CDD)	1Stream 2TX	2437	24.73	86	6Mbps
802.11g, Ant. 1+2 (CDD)	1Stream 2TX	2462	24.26	86	6Mbps
802.11ax 20MHz, Ant. 1+2 (CDD)	1Stream 2TX	2412	22.16	76	MCS0/Nss1 (8.6)
802.11ax 20MHz, Ant. 1+2 (CDD)	1Stream 2TX	2437	24.85	86	MCS0/Nss1 (8.6)
802.11ax 20MHz, Ant. 1+2 (CDD)	1Stream 2TX	2462	24.41	86	MCS0/Nss1 (8.6)
802.11ax 20MHz, Ant. 1+2 (TXBF)	1Stream 2TX	2412	22.08	76	MCS0/Nss1 (8.6)
802.11ax 20MHz, Ant. 1+2 (TXBF)	1Stream 2TX	2437	24.90	86	MCS0/Nss1 (8.6)
802.11ax 20MHz, Ant. 1+2 (TXBF)	1Stream 2TX	2462	24.36	86	MCS0/Nss1 (8.6)
802.11ax 40MHz, Ant. 1+2 (CDD)	1Stream 2TX	2422	21.79	75	MCS0/Nss1 (17.2)
802.11ax 40MHz, Ant. 1+2 (CDD)	1Stream 2TX	2437	23.77	82	MCS0/Nss1 (17.2)
802.11ax 40MHz, Ant. 1+2 (CDD)	1Stream 2TX	2452	24.30	86	MCS0/Nss1 (17.2)
802.11ax 40MHz, Ant. 1+2 (TXBF)	1Stream 2TX	2422	21.78	75	MCS0/Nss1 (17.2)
802.11ax 40MHz, Ant. 1+2 (TXBF)	1Stream 2TX	2437	23.70	82	MCS0/Nss1 (17.2)
802.11ax 40MHz, Ant. 1+2 (TXBF)	1Stream 2TX	2452	24.29	86	MCS0/Nss1 (17.2)



1.16. EUT Operation during Test

For CTX Mode:

For CDD mode:

The EUT was programmed to be in continuously transmitting mode.

For TXBF mode:

During the test, the following programs under WIN 7 were executed.

The program was executed as follows:

1. During the test, the EUT operation to normal function.
2. Execute command via SSH to fix channel under test.
3. Run "Iperf.exe" to generate traffic to max transmit duty cycle and receive by Rx device.

For Normal Link:

During the test, the EUT operation to normal function.

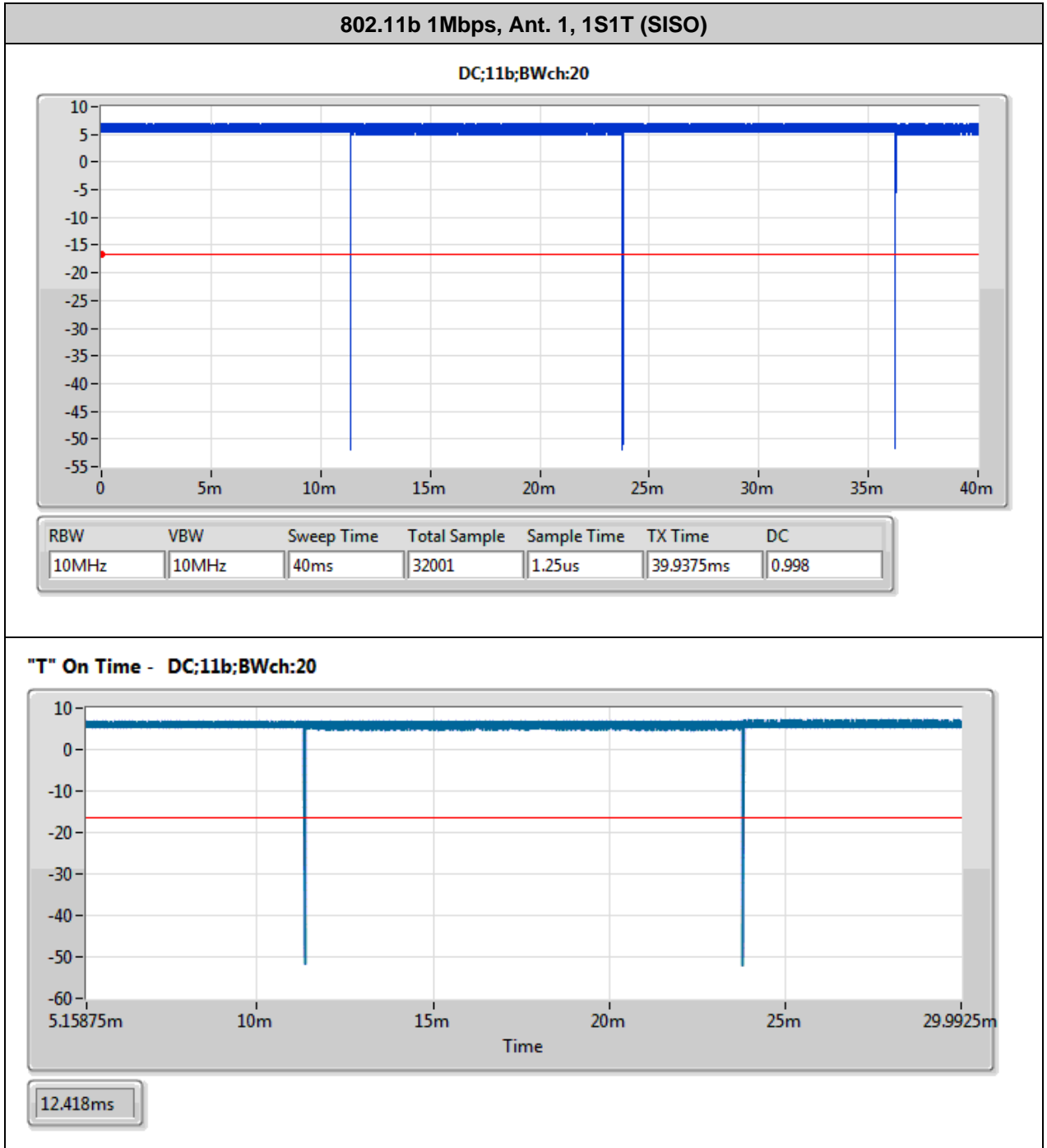
1.17. Duty Cycle

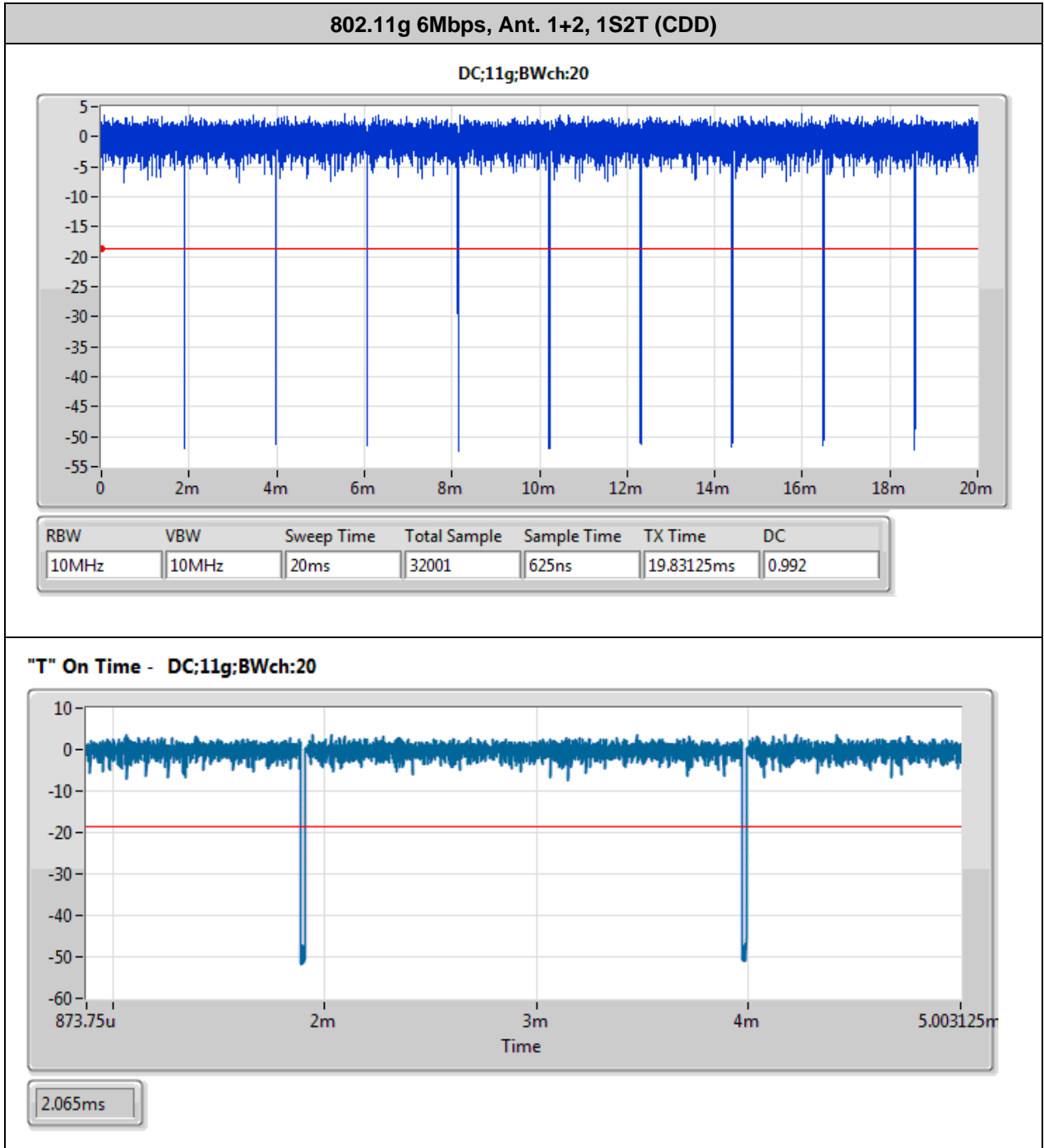
Mode	Total On Time (ms)	Period (ms)	on time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW/(kHz)
802.11b 1Mbps, Ant. 1, 1S1T (SISO)	39.938	40	12.418	99.8%	0.01	0.01
802.11g 6Mbps, Ant. 1+2 (CDD)	19.831	20	2.065	99.2%	0.04	0.01
802.11ax 20MHz MCS0 / Ant. 1+2, 1S2T (CDD)	9.879	10	1.489	98.8%	0.05	0.01
802.11ax 20MHz MCS0 / Ant. 1+2, 1S2T (TXBF)	19.048	20	2.928	95.2%	0.21	0.34
802.11ax 40MHz MCS0 / Ant. 1+2, 1S2T (CDD)	9.745	10	0.773	97.5%	0.11	1.29
802.11ax 40MHz MCS0 / Ant. 1+2, 1S2T (TXBF)	18.995	20	4.195	95.0%	0.22	0.24

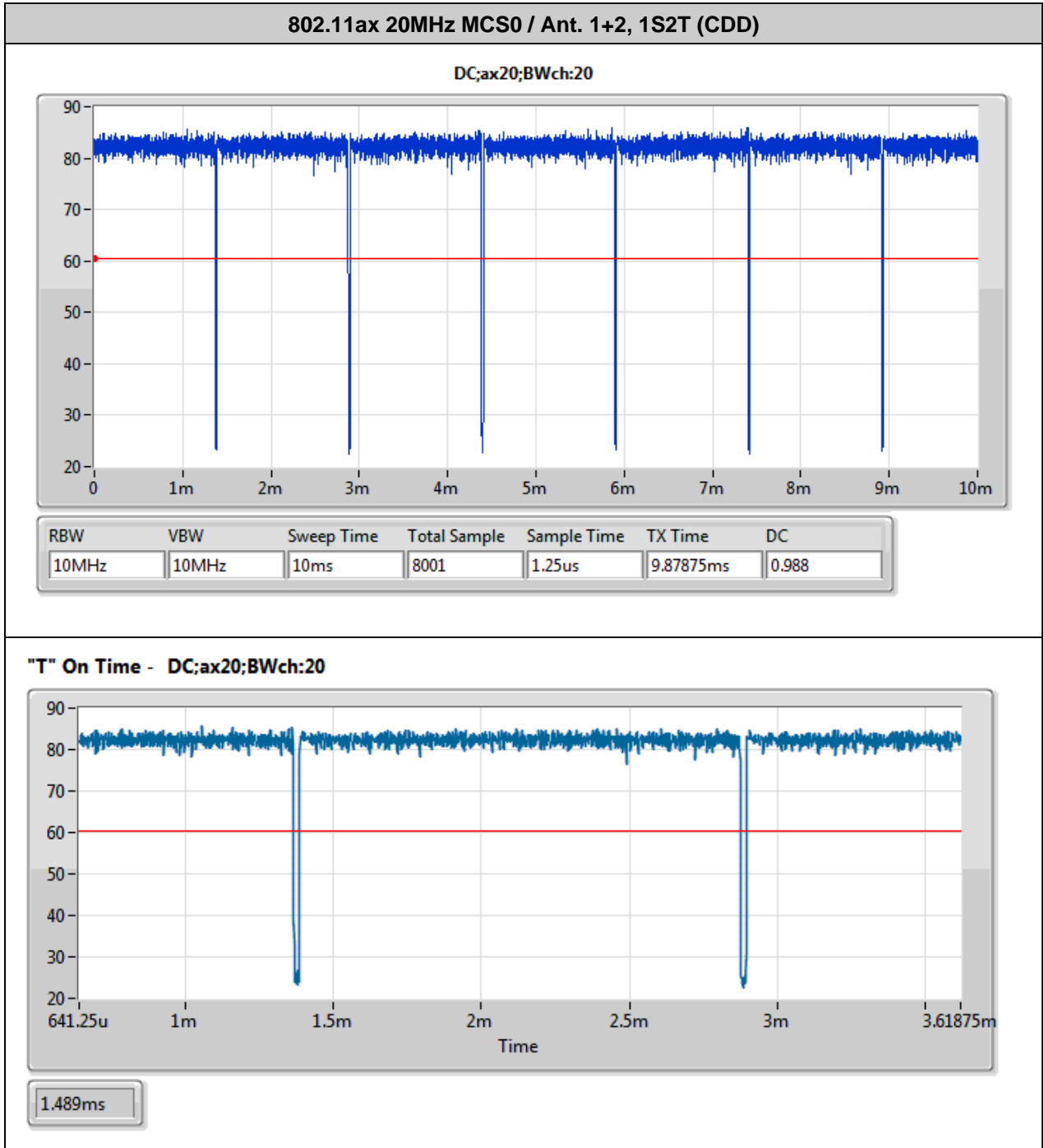
Note: Power measurement using sweep trigger and gating of the power meter, duty factor is not required.

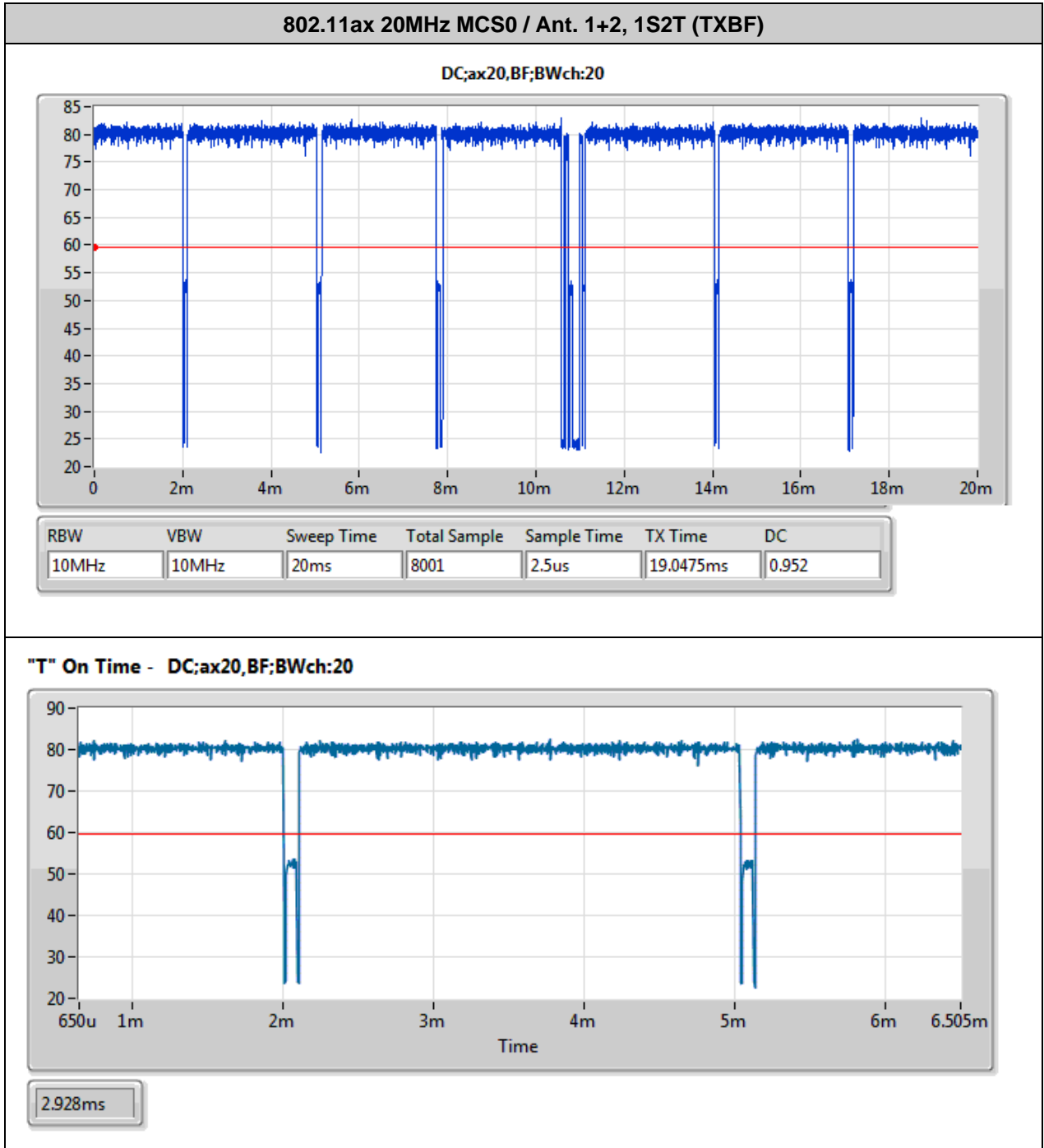


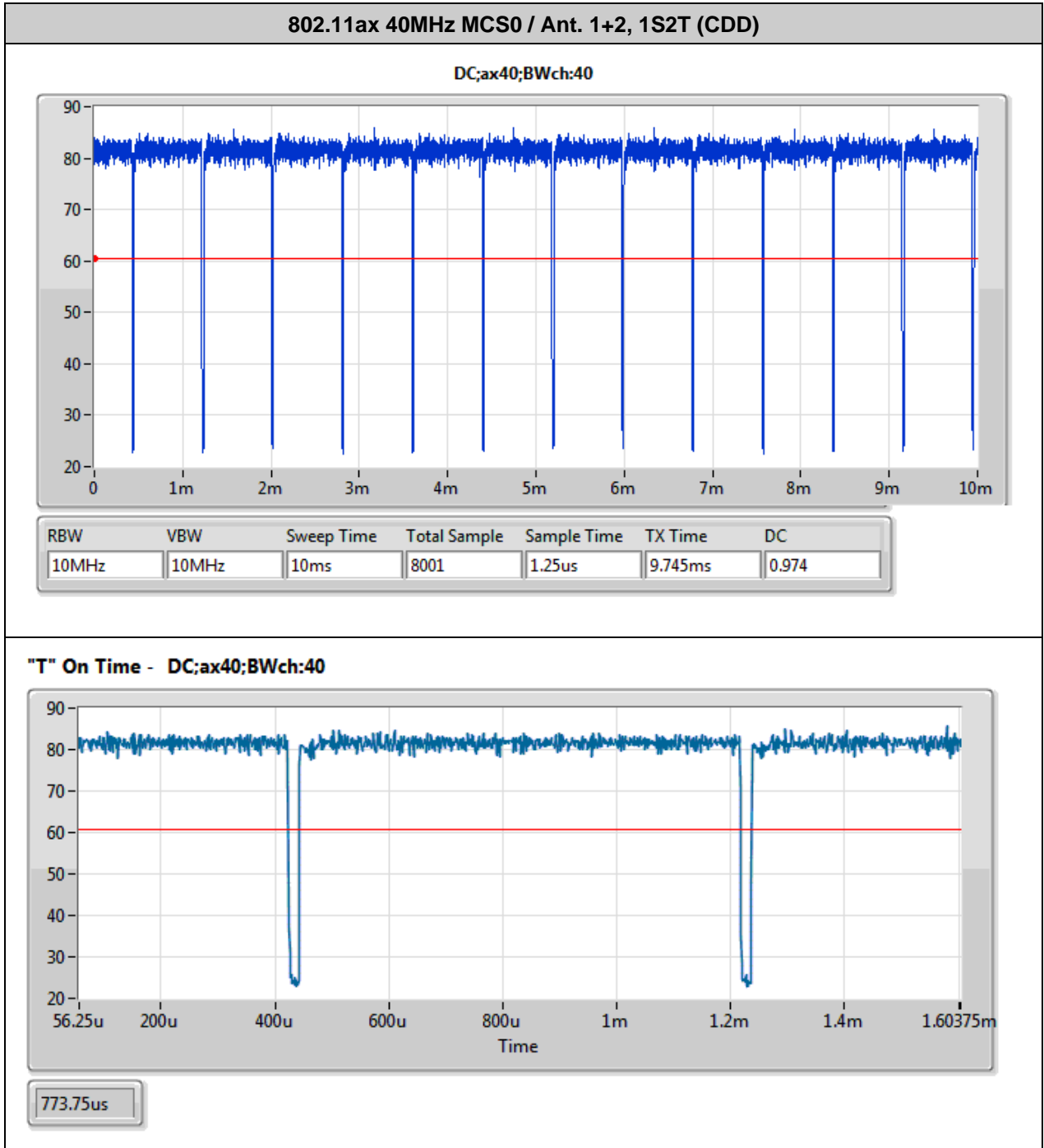
Plot:

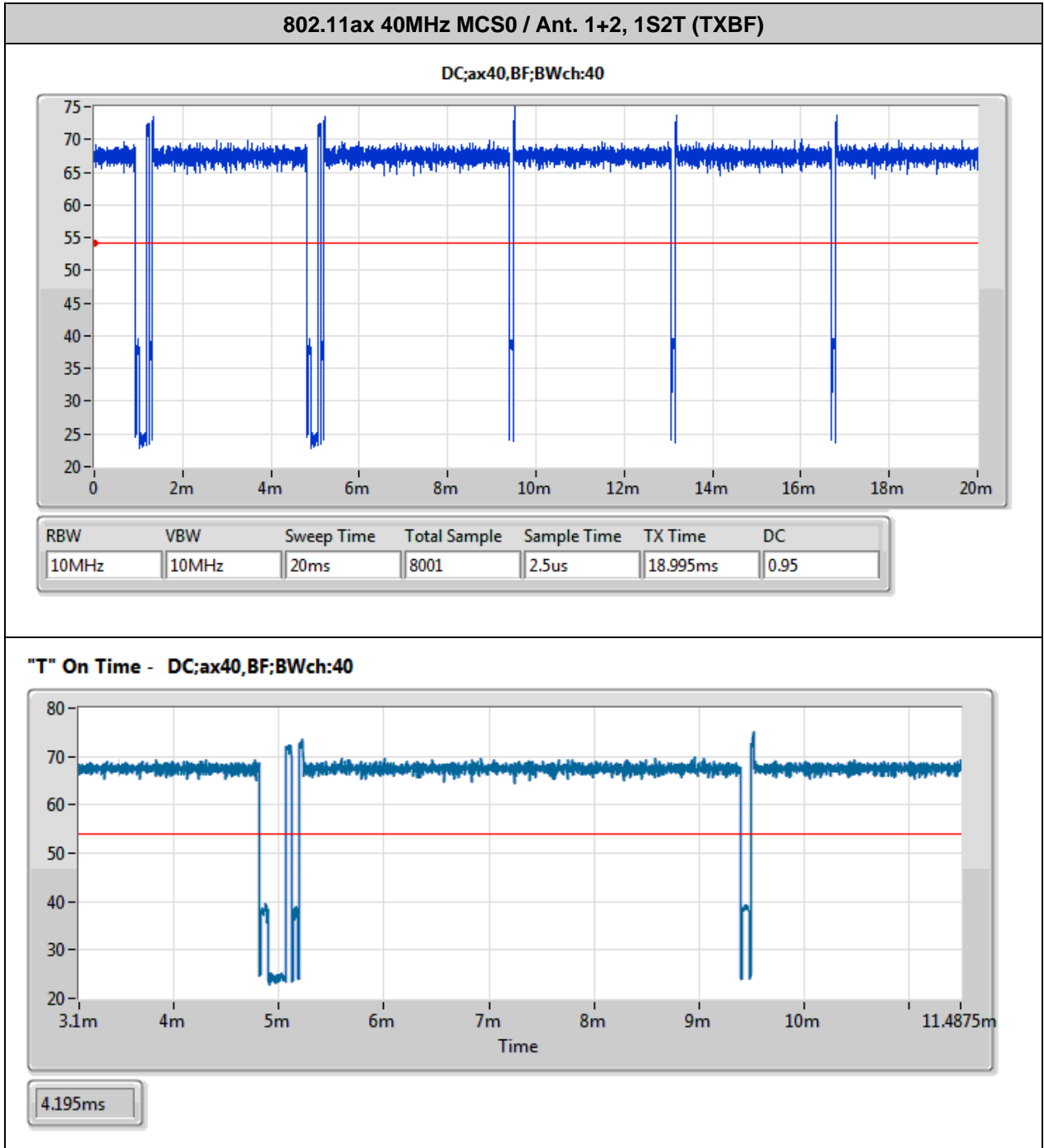






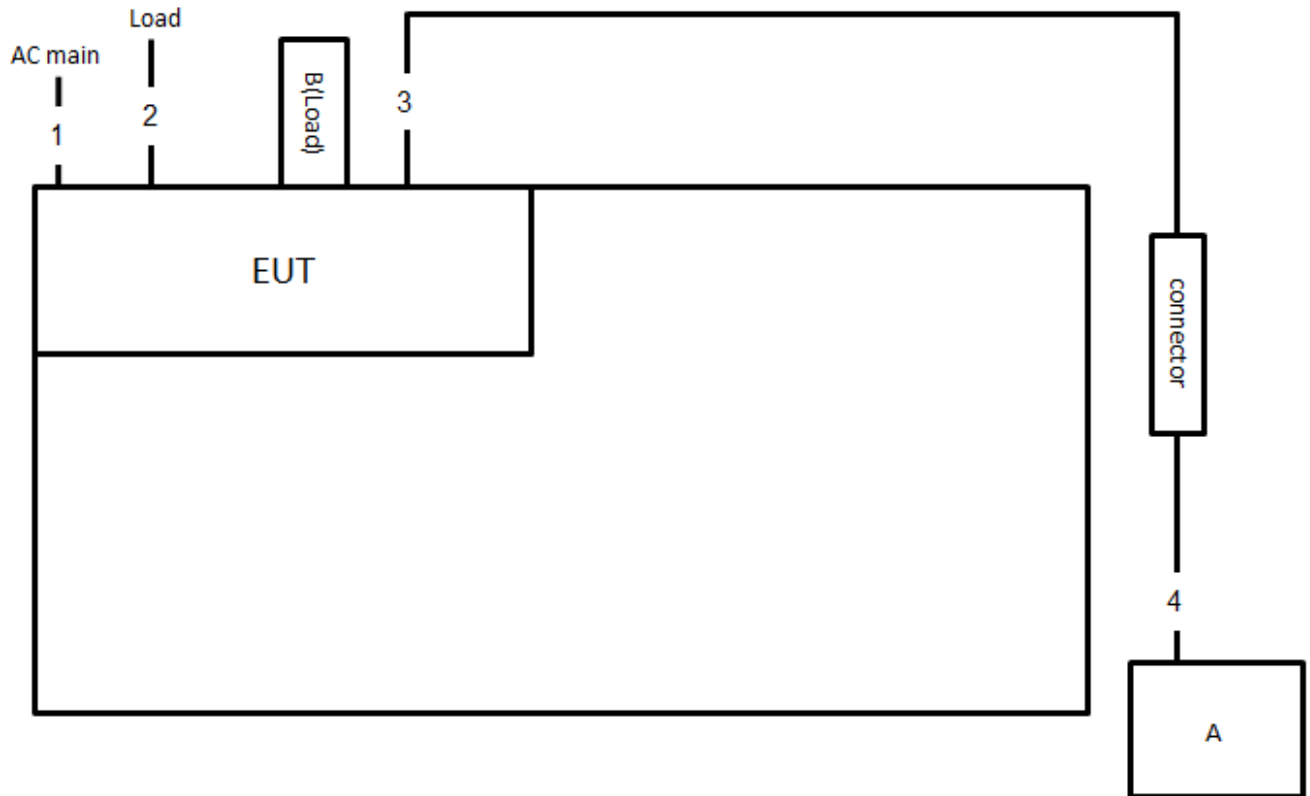






1.18. Test Configurations

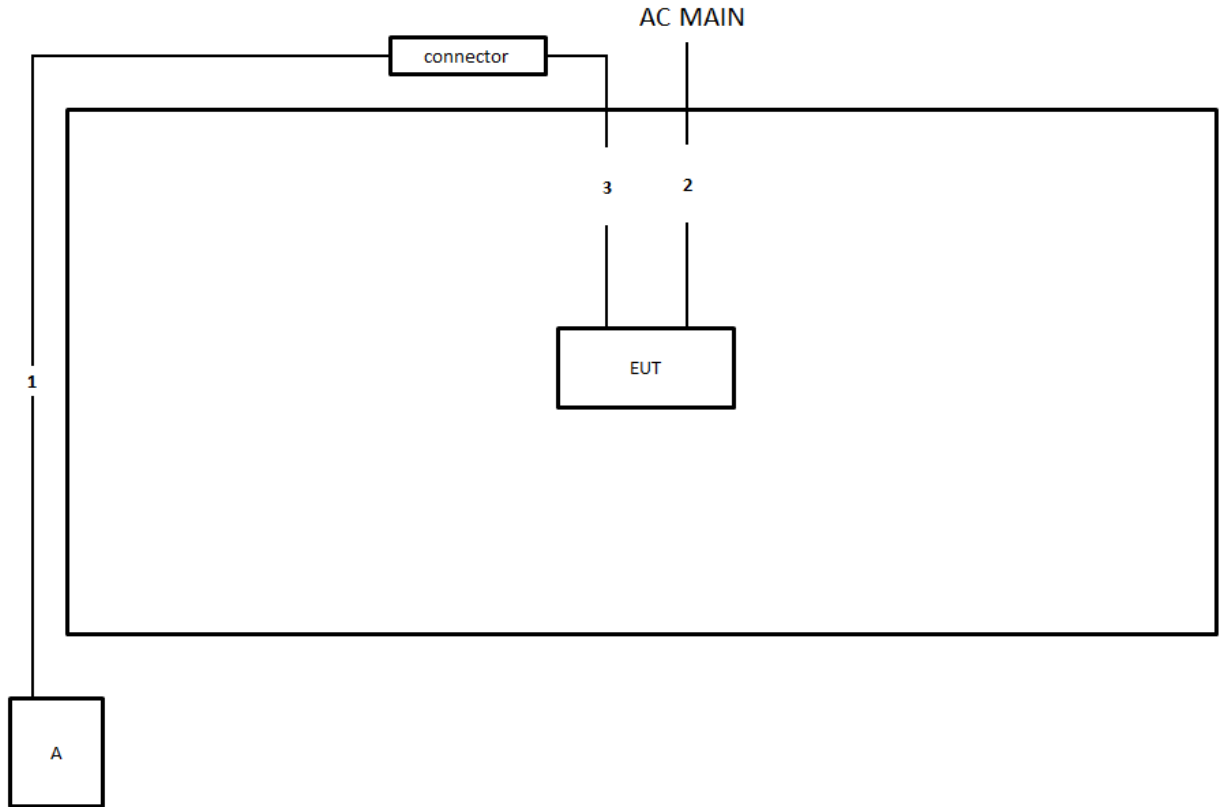
1.18.1. AC Power Line Conduction Emissions Test Configuration



Item	Connection	Shielded	Length
1	Power cable	No	1.2m
2	RJ-45 cable	No	1.5m
3	RJ-45 cable	No	1.5m
4	RJ-45 cable	No	10m

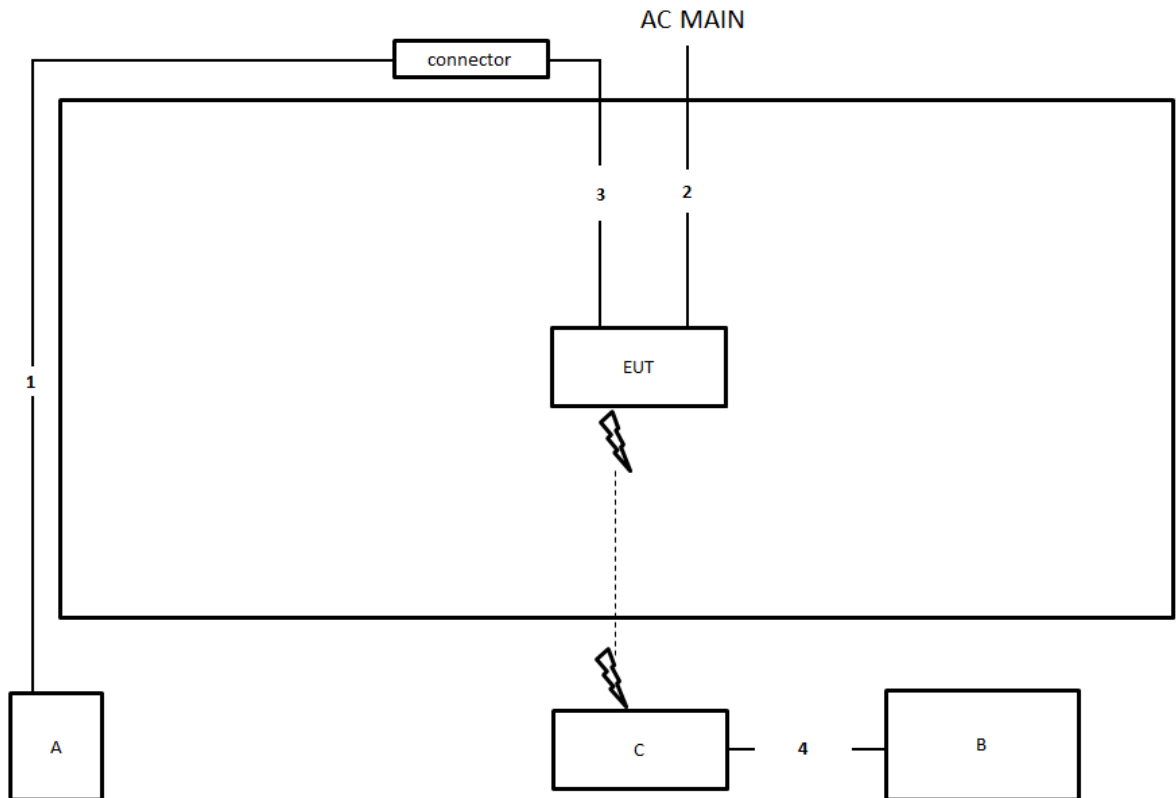
1.18.2. Radiation Emissions Test Configuration

Test Configuration: Below 1GHz and Above 1GHz (CDD mode)



Item	Connection	Shielded	Length
1	RJ-45 cable	No	10m
2	Power cable	No	1.2m
3	RJ-45 cable	No	1.5m

Test Configuration: Above 1GHz (TXBF mode)



Item	Connection	Shielded	Length
1	RJ-45 cable	No	10m
2	Power cable	No	1.2m
3	RJ-45 cable	No	1.5m
4	RJ-45 cable	No	1m



2. Test Result

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 (MHz)	QP Limit (dBuV)	AV Limit (dBuV)
0.15~0.5	66~56	56~46
0.5~5	56	46
5~30	60	50

2.1.2. Measuring Instruments and Setting

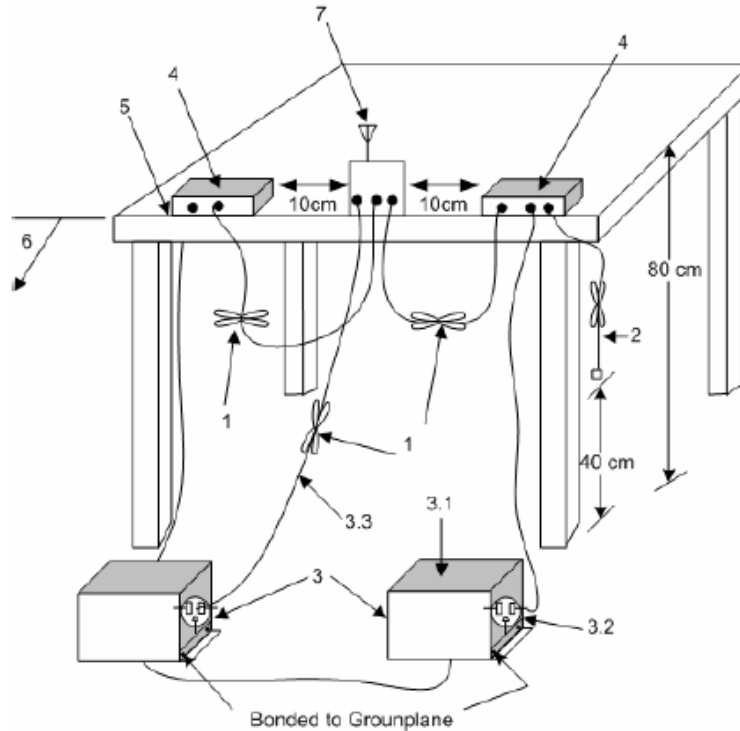
Please refer to section 3 of equipments list in this report. The following table is the setting of the receiver.

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

2.1.3. Test Procedures

1. 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.
2. Connect EUT or host of EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connected to the other LISNs. The LISN should provide 50uH/50ohms coupling impedance.
4. The frequency range from 150 kHz to 30 MHz was searched.
5. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. The measurement has to be done between each power line and ground at the power terminal.

2.1.4. Test Setup Layout



- 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 cm to 40 cm long.
- 2—The I/O cables that are not connected to an accessory 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 loads. LISN may be placed on top of, or immediately beneath, reference ground plane.
 - 3.1—All other equipment powered from additional LISN(s).
 - 3.2—A multiple-outlet strip may be used for multiple power cords of non-EUT equipment.
 - 3.3—LISN at least 80 cm from nearest part of EUT chassis.
- 4—Non-EUT components of EUT system being tested.
- 5—Rear of EUT, including peripherals, shall all be aligned and flush with edge of tabletop.
- 6—Edge of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane.
- 7—Antenna can be integral or detachable. If detachable, then the antenna shall be attached for this test.



2.1.5. Test Deviation

There is no deviation with the original standard.

2.1.6. EUT Operation during Test

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

2.1.7. Measurement Results Calculation

The measured Level is calculated using:

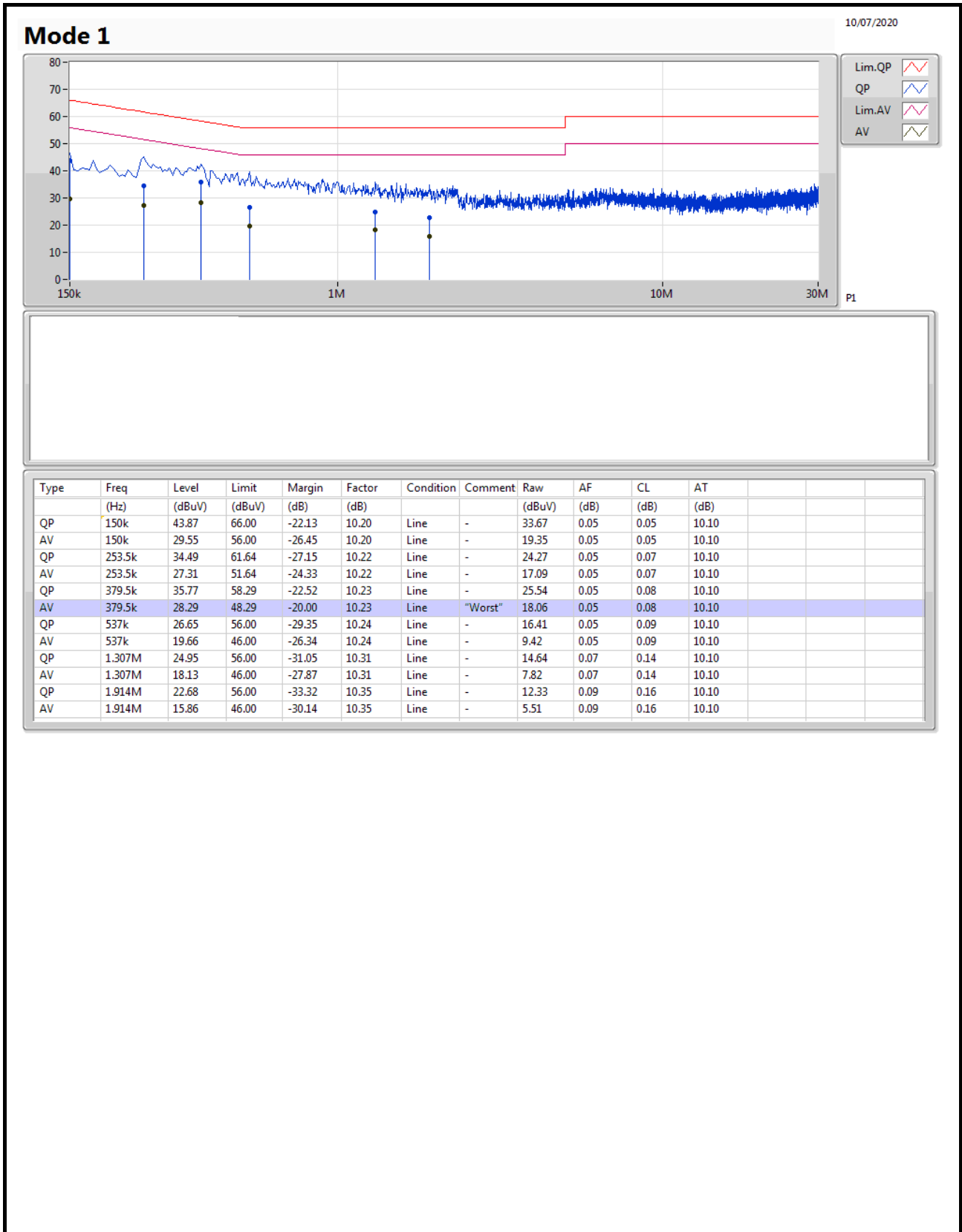
- a. Corrected Reading (dBuV) = LISN Factor + Cable Loss + Read Level = Level
- b. Margin = - Limit + (Read Level + LISN Factor + Cable Loss)

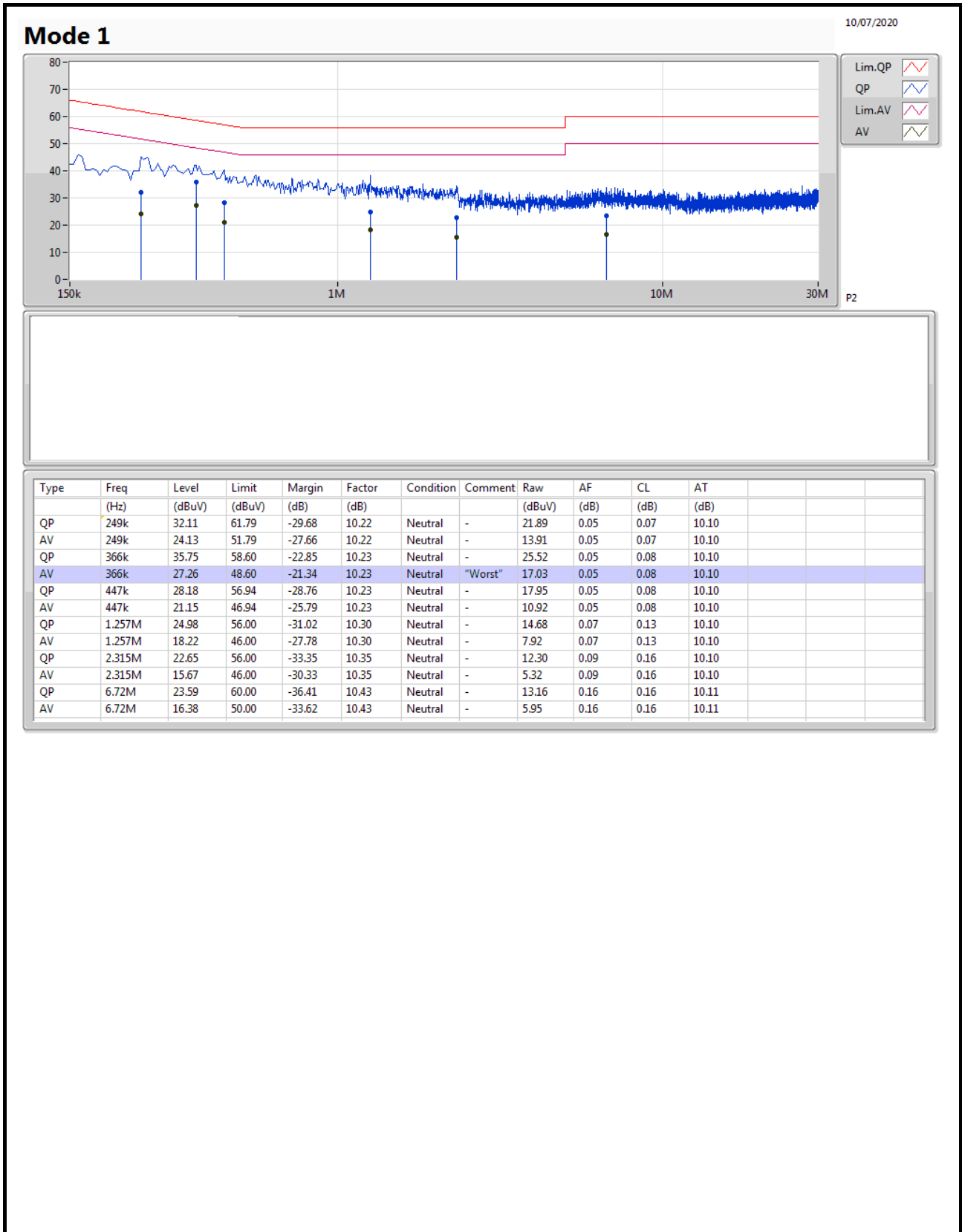


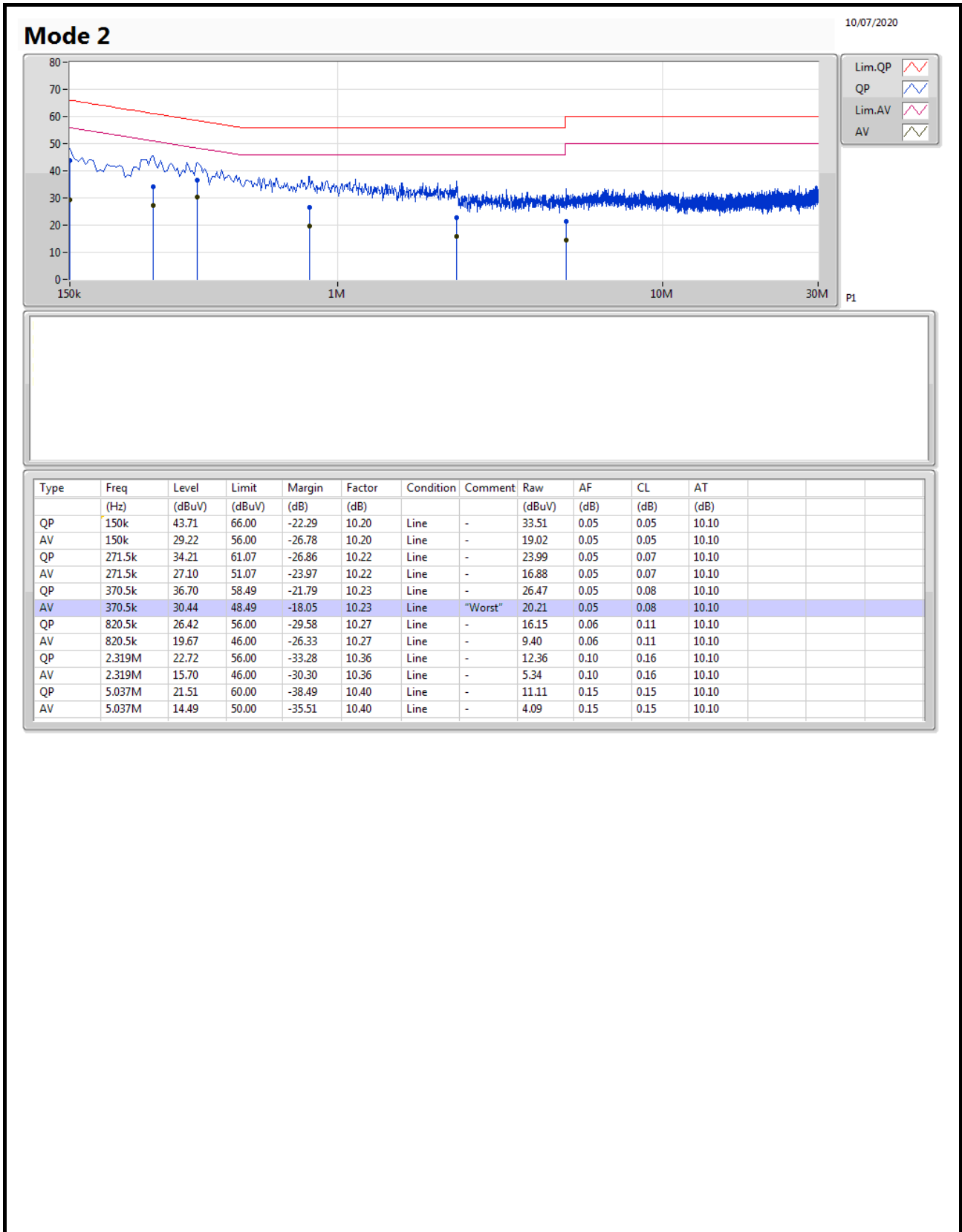
2.1.8. Results of AC Power Line Conducted Emissions Measurement

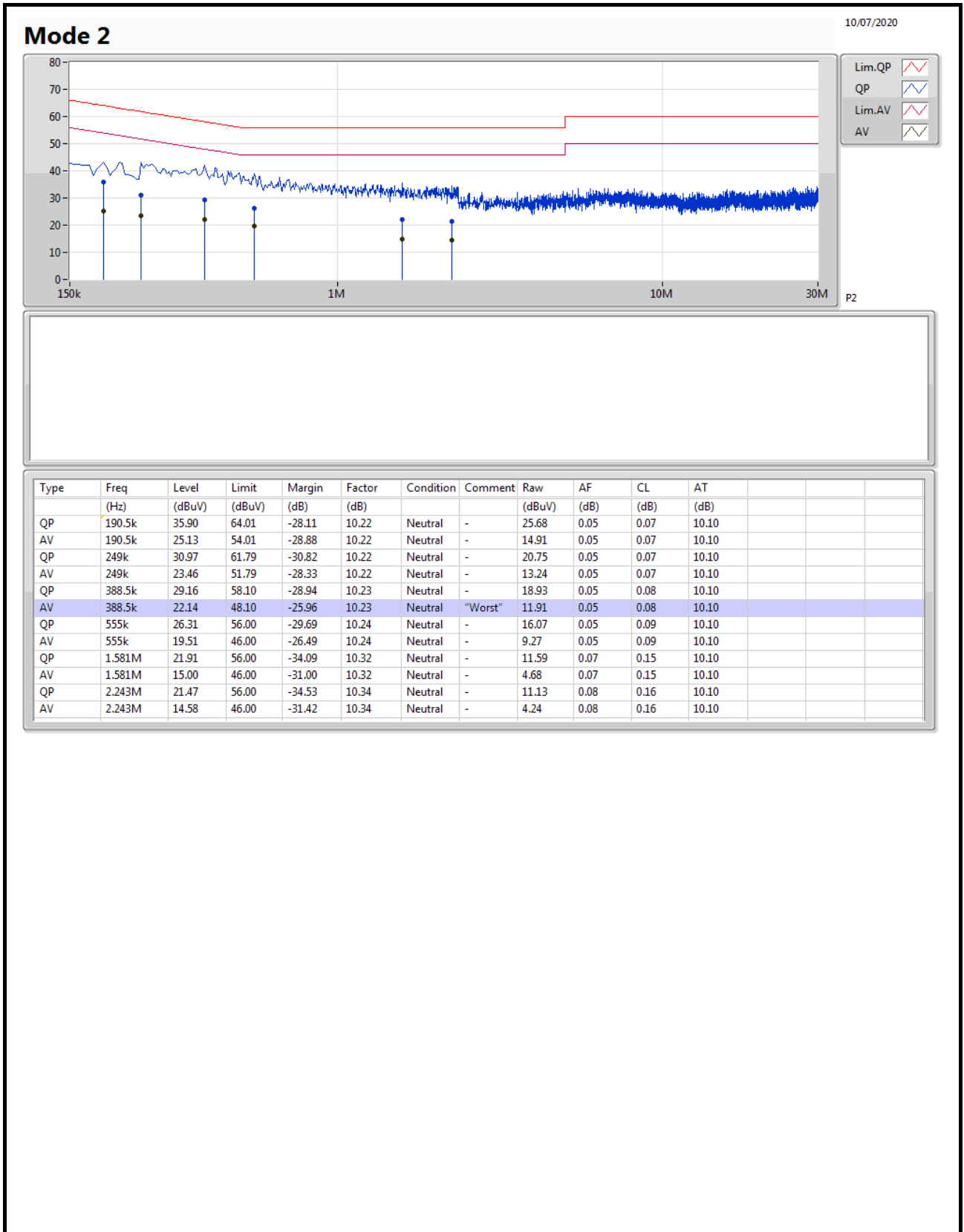
Mode Configure

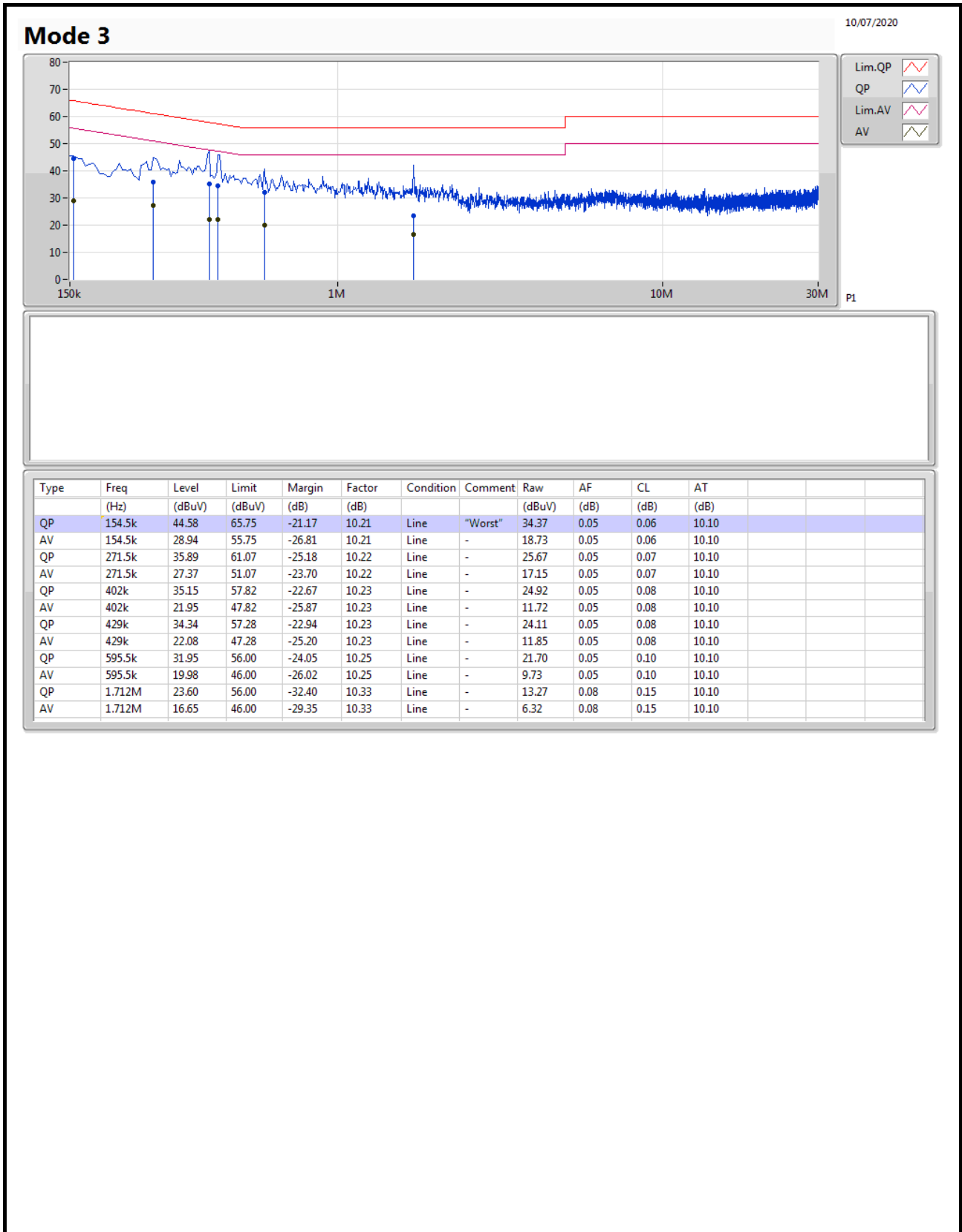
Mode	Configure
Mode 1	CTX mode, EUT – WLAN 2.4GHz
Mode 2	CTX mode, EUT – WLAN 5GHz Band 1
Mode 3	CTX mode, EUT – WLAN 5GHz Band 4

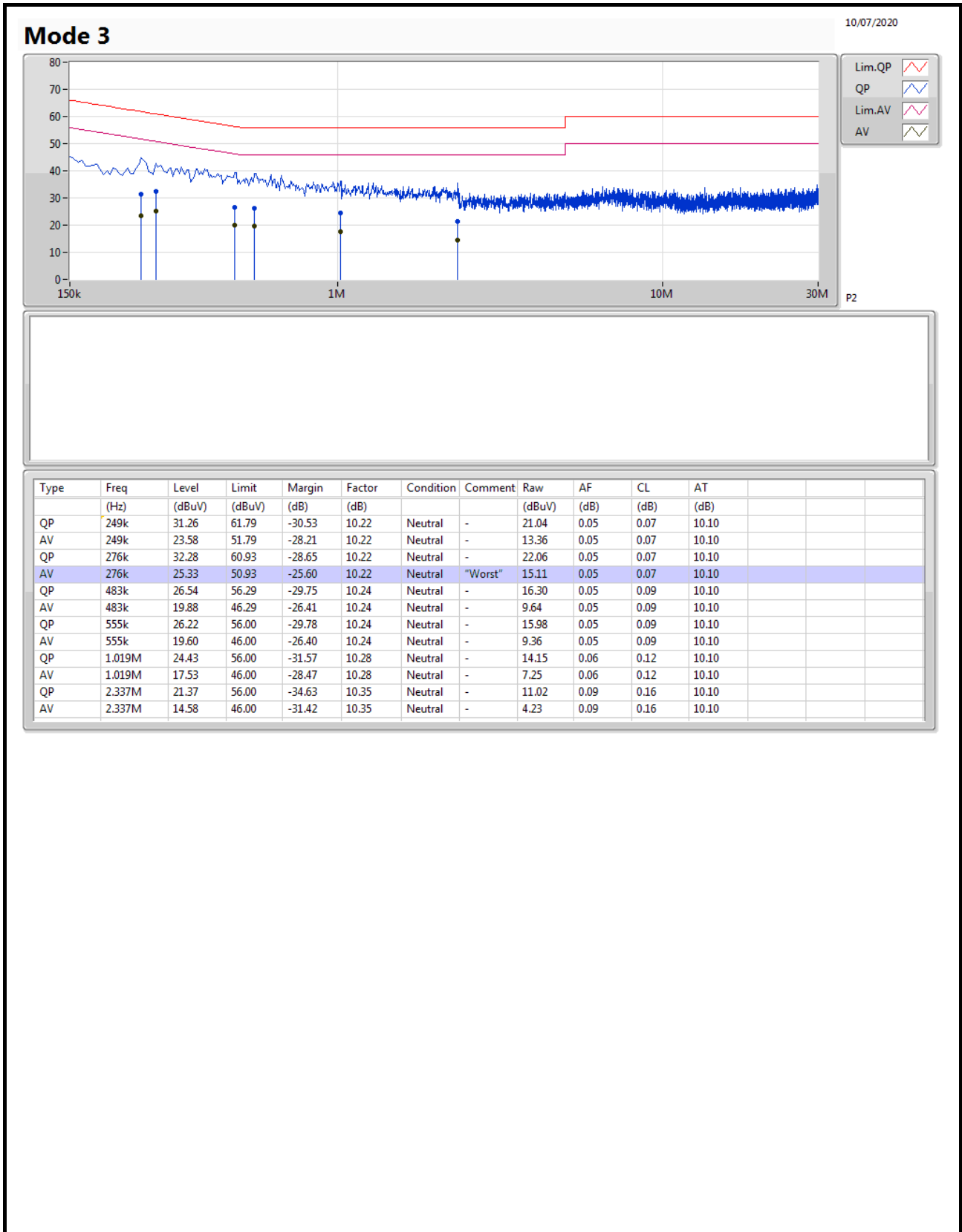












2.2. Maximum Conducted Output Power Measurement

2.2.1. Limit

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

2.2.2. Measuring Instruments and Setting

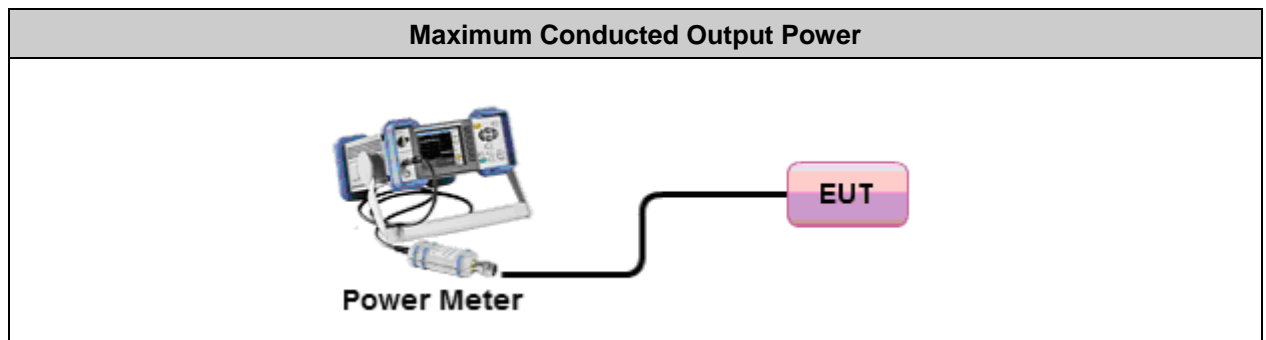
Please refer to section 3 of equipments list in this report. The following table is the setting of the power meter.

Power Meter Parameter	Setting
Filter No.	Auto
Measurement time	0.135 s ~ 26 s
Power Sensor	E9327A
Power Meter	E4416A

2.2.3. Test Procedures

1. Test was performed in accordance with Measurement of Digital Transmission Systems Operating under KDB558074 D01 v05r02, in section “Maximum conducted output power Method AVGPM-G”.
2. The average power sensor was used on the output port of the EUT. A power meter was used to read the response of the average power sensor and enable the trigger function to get the all on time transmission. Record the average power level.
3. When measuring maximum conducted output power with multiple antenna systems, add every result of the values by mathematic formula.

2.2.4. Test Setup Layout





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.



2.2.7. Test Result of Maximum Conducted Output Power

Configuration IEEE 802.11b

<1Mbps, Ant. 1, 1S1T, SISO>

Channel	Frequency	Conducted Power (dBm)	Antenna Gain (dBi)	Max. Limit (dBm)	Result
1	2412 MHz	22.12	3.10	30.00	PASS
6	2437 MHz	22.89	3.88	30.00	PASS
11	2462 MHz	22.38	3.51	30.00	PASS

Note:

2412 MHz= Antenna Gain= 3.10dBi <6dBi, so the limit doesn't reduce.

2437 MHz= Antenna Gain= 3.88dBi <6dBi, so the limit doesn't reduce.

2462 MHz= Antenna Gain= 3.51dBi <6dBi, so the limit doesn't reduce.



Configuration IEEE 802.11g

<6Mbps, Ant. 1+2, 1S2T, CDD>

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Antenna Gain (dBi)	Max. Limit (dBm)	Result
		Ant. 1	Ant. 2				
1	2412 MHz	18.98	18.82	21.91	3.10	30.00	PASS
6	2437 MHz	21.95	21.48	24.73	3.88	30.00	PASS
11	2462 MHz	21.47	21.01	24.26	3.51	30.00	PASS

Note:

2412 MHz= Antenna Gain= 3.10dBi <6dBi, so the limit doesn't reduce.

2437 MHz= Antenna Gain= 3.88dBi <6dBi, so the limit doesn't reduce.

2462 MHz= Antenna Gain= 3.51dBi <6dBi, so the limit doesn't reduce.



Configuration IEEE 802.11ax 20MHz

<MCS0, Ant. 1+2, 1S2T, CDD>

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Antenna Gain (dBi)	Max. Limit (dBm)	Result
		Ant. 1	Ant. 2				
1	2412 MHz	19.16	19.13	22.16	3.10	30.00	PASS
6	2437 MHz	22.14	21.51	24.85	3.88	30.00	PASS
11	2462 MHz	21.67	21.11	24.41	3.51	30.00	PASS

Note:

2412 MHz= Antenna Gain= 3.10dBi <6dBi, so the limit doesn't reduce.

2437 MHz= Antenna Gain= 3.88dBi <6dBi, so the limit doesn't reduce.

2462 MHz= Antenna Gain= 3.51dBi <6dBi, so the limit doesn't reduce.



<MCS0, Ant. 1+2, 1S2T, TXBF>

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Directional Gain (dBi)	Max. Limit (dBm)	Result
		Ant. 1	Ant. 2				
1	2412 MHz	19.05	19.08	22.08	5.07	30.00	PASS
6	2437 MHz	22.13	21.64	24.90	5.01	30.00	PASS
11	2462 MHz	21.65	21.03	24.36	5.19	30.00	PASS

Note:

$$\begin{aligned}
 2412 \text{ MHz} &= \text{Directional Gain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 5.07\text{dBi} < 6\text{dBi}, \text{ so the limit doesn't reduce.} \\
 2437 \text{ MHz} &= \text{Directional Gain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 5.01\text{dBi} < 6\text{dBi}, \text{ so the limit doesn't reduce.} \\
 2462 \text{ MHz} &= \text{Directional Gain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 5.19\text{dBi} < 6\text{dBi}, \text{ so the limit doesn't reduce.}
 \end{aligned}$$



Configuration IEEE 802.11ax 40MHz

<MCS0, Ant. 1+2, 1S2T, CDD>

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Directional Gain (dBi)	Max. Limit (dBm)	Result
		Ant. 1	Ant. 2				
3	2422 MHz	18.76	18.79	21.79	3.48	30.00	PASS
6	2437 MHz	20.91	20.61	23.77	3.88	30.00	PASS
9	2452 MHz	21.50	21.07	24.30	3.81	30.00	PASS

Note:

2422 MHz= Antenna Gain= 3.48dBi <6dBi, so the limit doesn't reduce.

2437 MHz= Antenna Gain= 3.88dBi <6dBi, so the limit doesn't reduce.

2452 MHz= Antenna Gain= 3.81dBi <6dBi, so the limit doesn't reduce.



<MCS0, Ant. 1+2, 1S2T, TXBF>

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Directional Gain (dBi)	Max. Limit (dBm)	Result
		Ant. 1	Ant. 2				
3	2422 MHz	18.76	18.78	21.78	5.12	30.00	PASS
6	2437 MHz	20.90	20.47	23.70	5.01	30.00	PASS
9	2452 MHz	21.48	21.06	24.29	5.13	30.00	PASS

Note:

$$\begin{aligned}
 2422 \text{ MHz} &= \text{Directional Gain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 5.12\text{dBi} < 6\text{dBi}, \text{ so the limit doesn't reduce.} \\
 2437 \text{ MHz} &= \text{Directional Gain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 5.01\text{dBi} < 6\text{dBi}, \text{ so the limit doesn't reduce.} \\
 2452 \text{ MHz} &= \text{Directional Gain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 5.13\text{dBi} < 6\text{dBi}, \text{ so the limit doesn't reduce.}
 \end{aligned}$$



2.3. Power Spectral Density Measurement

2.3.1. Limit

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

2.3.2. Measuring Instruments and Setting

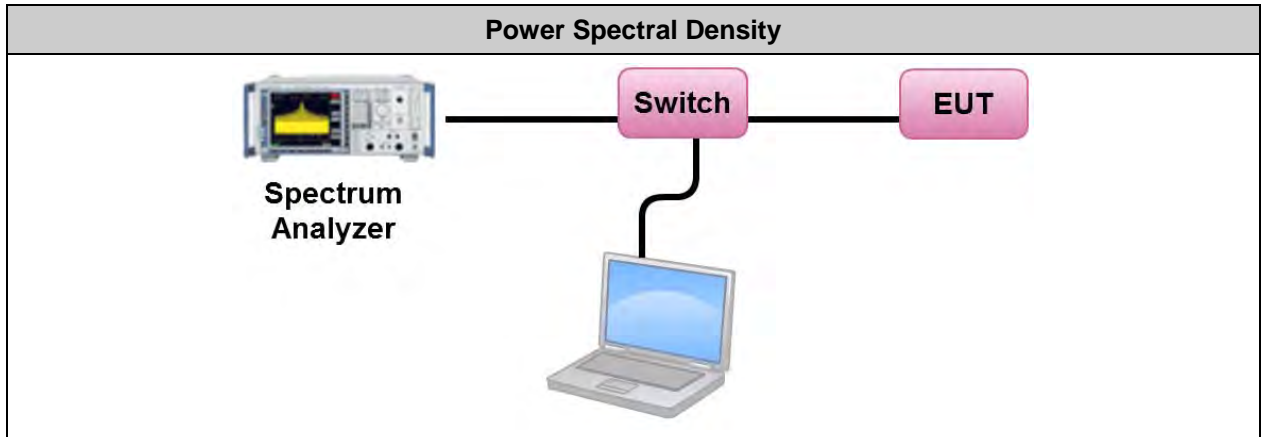
Please refer to section 3 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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

2.3.3. Test Procedures

1. The transmitter output (antenna port) was connected RF switch to the spectrum analyzer.
2. Test was performed in accordance with Measurement of Digital Transmission Systems Operating under KDB558074 D01 v05r02, in section "Maximum power spectral density level in the fundamental emission Method AVGPS-1".
3. Multiple antenna systems was performed in accordance KDB 662911 D01 v02r01 in-Band Power Spectral Density (PSD) Measurements (a) Measure and sum the spectra across the outputs (bin-by-bin summing).
4. This procedure may be used when the maximum (average) conducted output power was used to demonstrate compliance to the output power limit. The EUT must be configured to transmit continuously (duty cycle \geq 98%) to ensure that measurements are made only when the EUT is transmitting at its maximum power control level (no transmitter off time is to be considered).
5. Ensure that the number of measurement points in the sweep \geq 2 x span/RBW (use of a greater number of measurement points than this minimum requirement is recommended).
When measuring first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and so on up to the Nth output to obtain the value for the first frequency bin of the summed spectrum. The summed spectrum value for each of the other frequency bins is computed in the same way.

2.3.4. Test Setup Layout



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.



2.3.7. Test Result of Power Spectral Density

Configuration IEEE 802.11b

<1Mbps, Ant. 1, 1S1T, SISO>

Channel	Frequency	Power Density (dBm/3kHz)	Antenna Gain (dBi)	Limit (dBm/3kHz)	Result
1	2412 MHz	0.05	3.10	8	PASS
6	2437 MHz	0.31	3.88	8	PASS
11	2462 MHz	0.65	3.51	8	PASS

Note 1:

Method 1 of power density measurement of KDB 662911 is using for calculation total power density.

Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

Note 2:

Refer to section 1.16 for duty cycle spectrum plot.

Note 3:

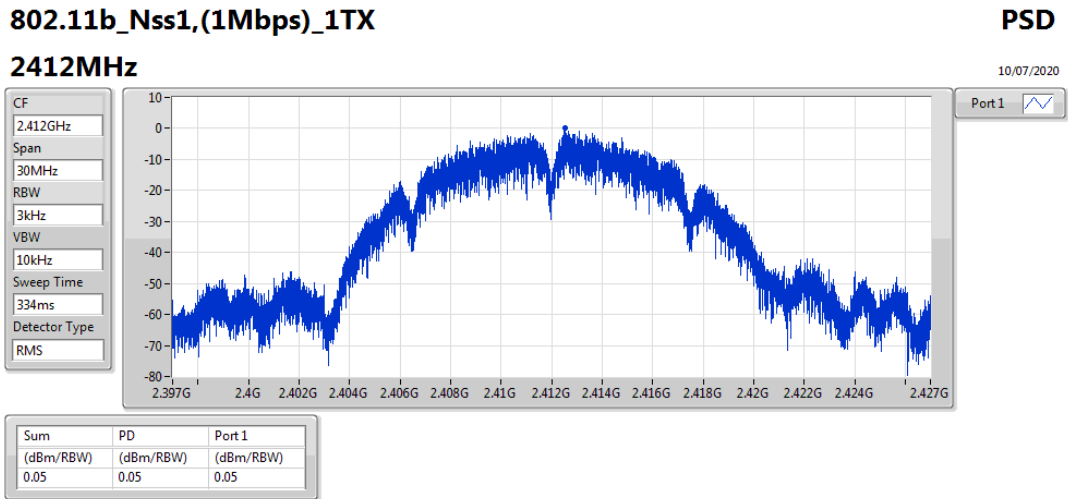
2412 MHz= Antenna Gain= 3.10dBi <6dBi, so the limit doesn't reduce.

2437 MHz= Antenna Gain= 3.88dBi <6dBi, so the limit doesn't reduce.

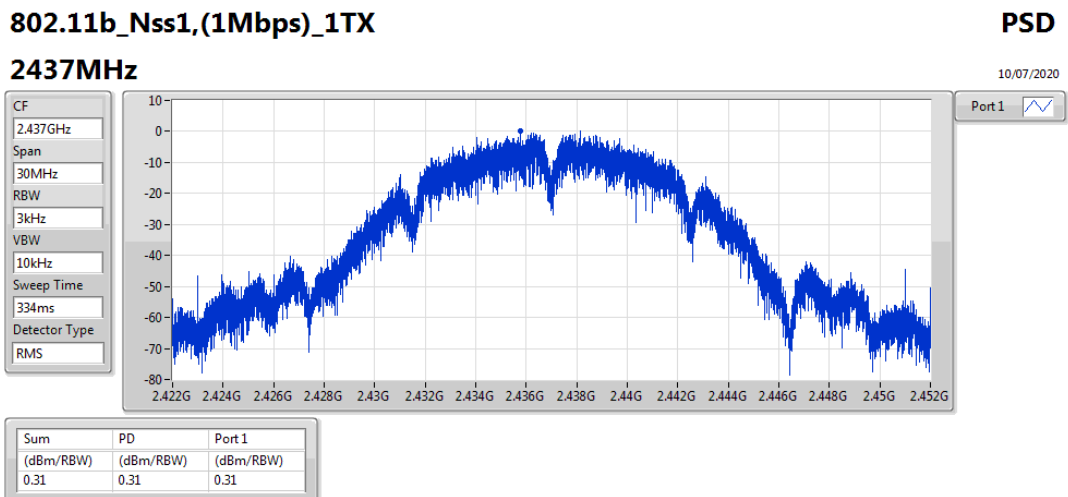
2462 MHz= Antenna Gain= 3.51dBi <6dBi, so the limit doesn't reduce.

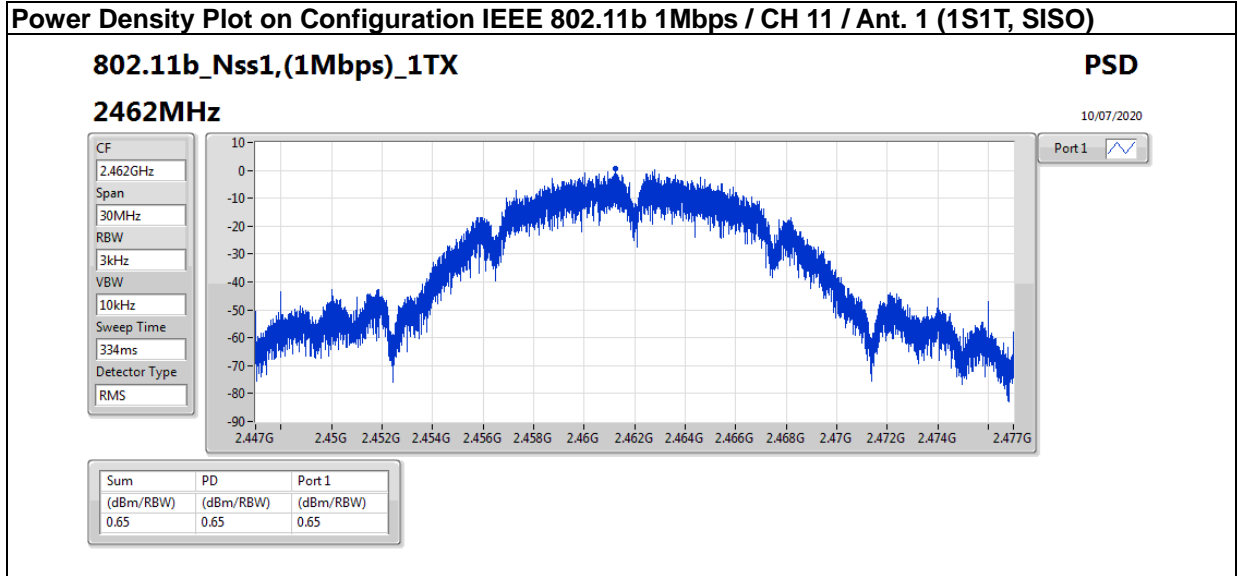


Power Density Plot on Configuration IEEE 802.11b 1Mbps / CH 1 / Ant. 1 (1S1T, SISO)



Power Density Plot on Configuration IEEE 802.11b 1Mbps / CH 6 / Ant. 1 (1S1T, SISO)







Configuration IEEE 802.11g

<6Mbps, Ant. 1+2, 1S2T, CDD>

Channel	Frequency	Power Density (dBm/3kHz)	Directional Gain (dBi)	Limit (dBm/3kHz)	Result
1	2412 MHz	-3.66	5.07	8	PASS
6	2437 MHz	-1.65	5.01	8	PASS
11	2462 MHz	-2.17	5.19	8	PASS

Note 1:

Method 1 of powr density measurement of KDB 662911 is using for calculation totol power density.

Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

Note 2:

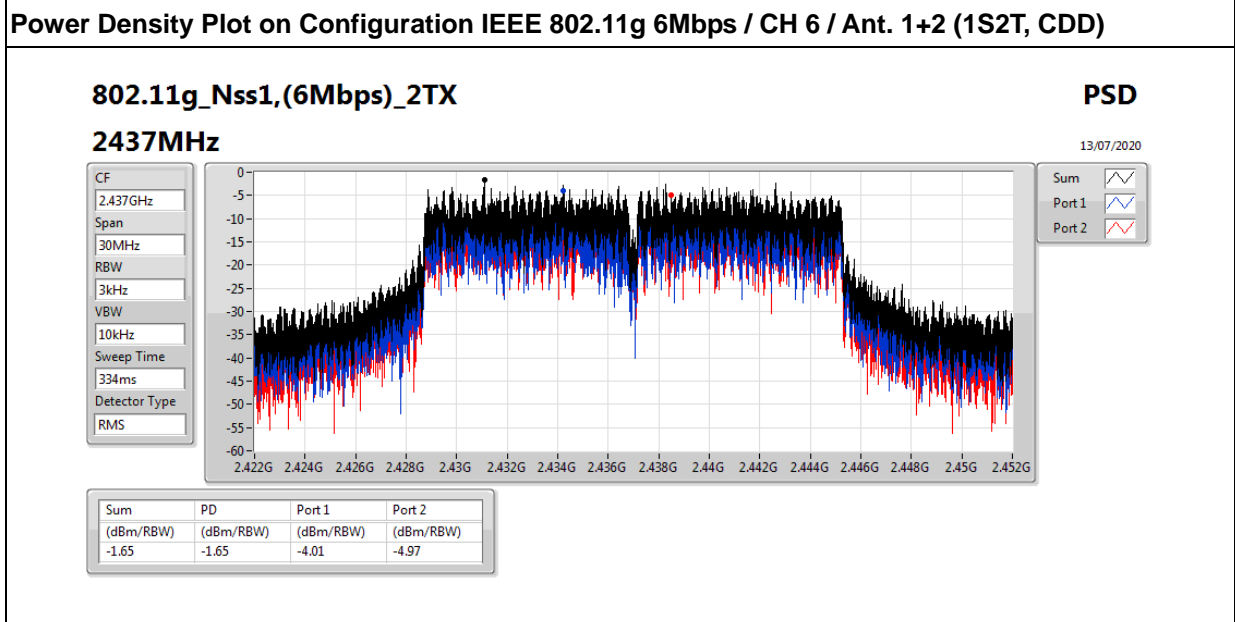
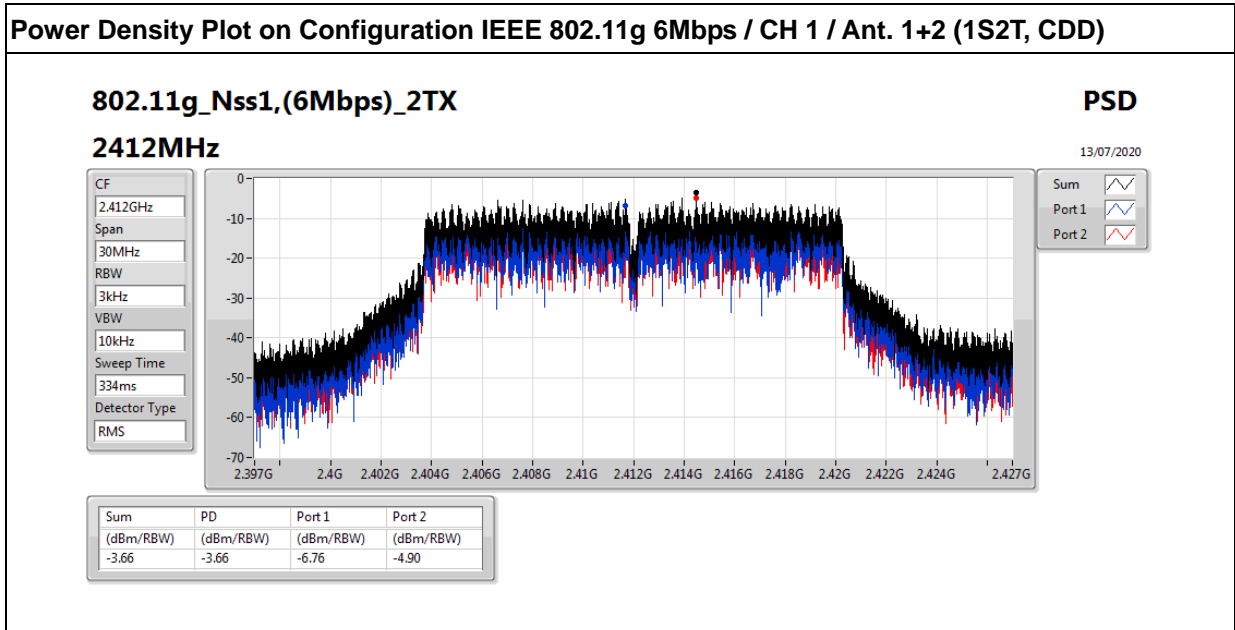
Refer to section 1.16 for duty cycle spectrum plot.

Note 3:

$$2412 \text{ MHz} = \text{Directional Gain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 5.07\text{dBi} <6\text{dBi}, \text{ so the limit doesn't reduce.}$$

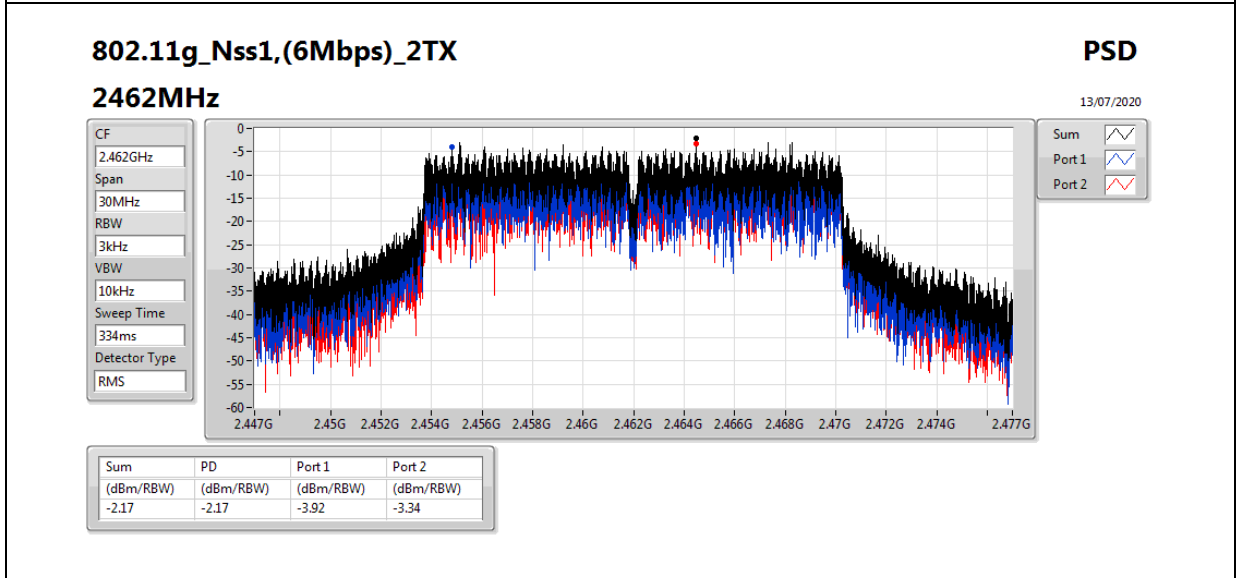
$$2437 \text{ MHz} = \text{Directional Gain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 5.01\text{dBi} <6\text{dBi}, \text{ so the limit doesn't reduce.}$$

$$2462 \text{ MHz} = \text{Directional Gain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 5.19\text{dBi} <6\text{dBi}, \text{ so the limit doesn't reduce.}$$





Power Density Plot on Configuration IEEE 802.11g 6Mbps / CH 11 / Ant. 1+2 (1S2T, CDD)





Configuration IEEE 802.11ax 20MHz

<MCS0, Ant. 1+2, 1S2T, CDD>

Channel	Frequency	Power Density (dBm/3kHz)	Directional Gain (dBi)	Limit (dBm/3kHz)	Result
1	2412 MHz	-3.75	5.07	8	PASS
6	2437 MHz	-2.61	5.01	8	PASS
11	2462 MHz	-2.35	5.19	8	PASS

Note 1:

Method 1 of powr density measurement of KDB 662911 is using for calculation totol power density.

Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

Note 2:

Refer to section 1.16 for duty cycle spectrum plot.

Note 3:

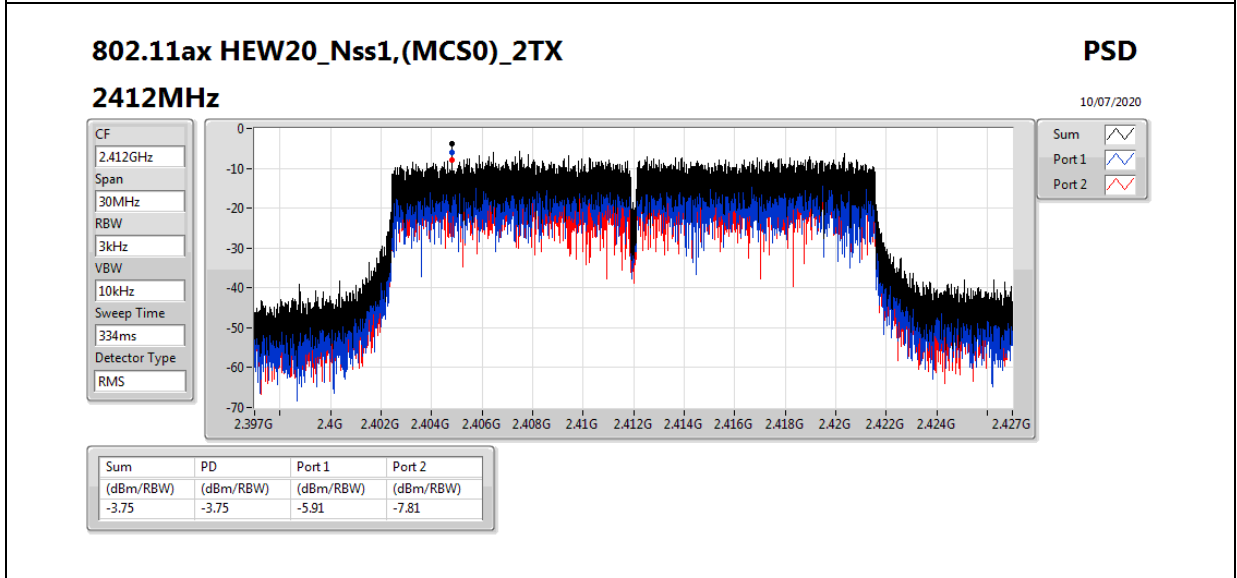
$$2412 \text{ MHz} = \text{Directional Gain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 5.07\text{dBi} <6\text{dBi}, \text{ so the limit doesn't reduce.}$$

$$2437 \text{ MHz} = \text{Directional Gain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 5.01\text{dBi} <6\text{dBi}, \text{ so the limit doesn't reduce.}$$

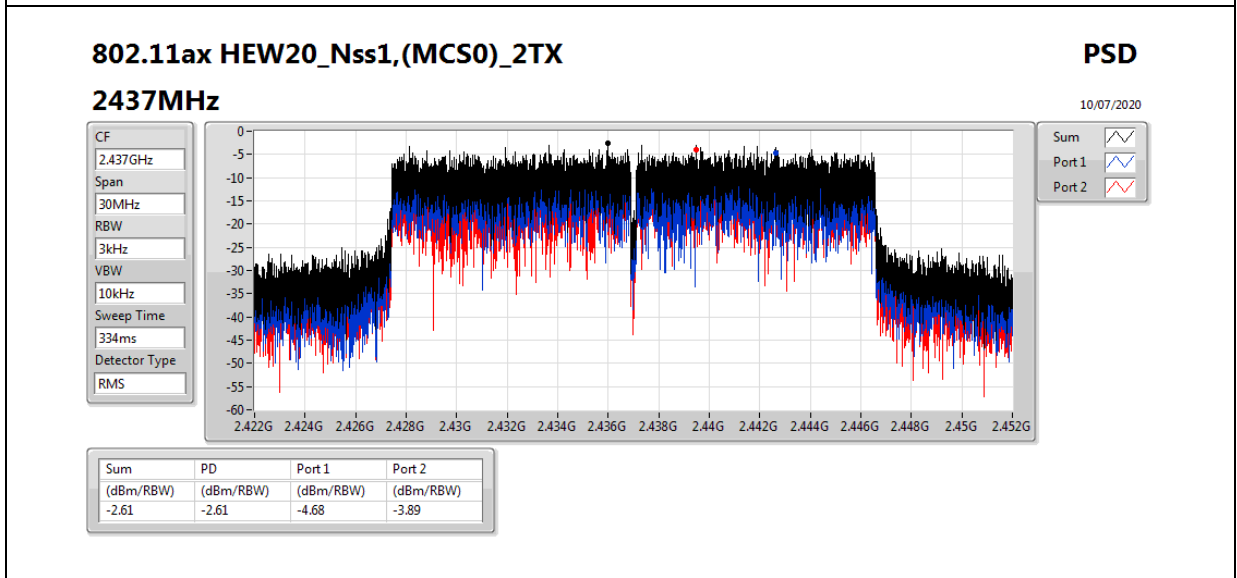
$$2462 \text{ MHz} = \text{Directional Gain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 5.19\text{dBi} <6\text{dBi}, \text{ so the limit doesn't reduce.}$$



Power Density Plot on Configuration IEEE 802.11ax 20MHz MCS0 / CH 1 / Ant. 1+2 (1S2T, CDD)

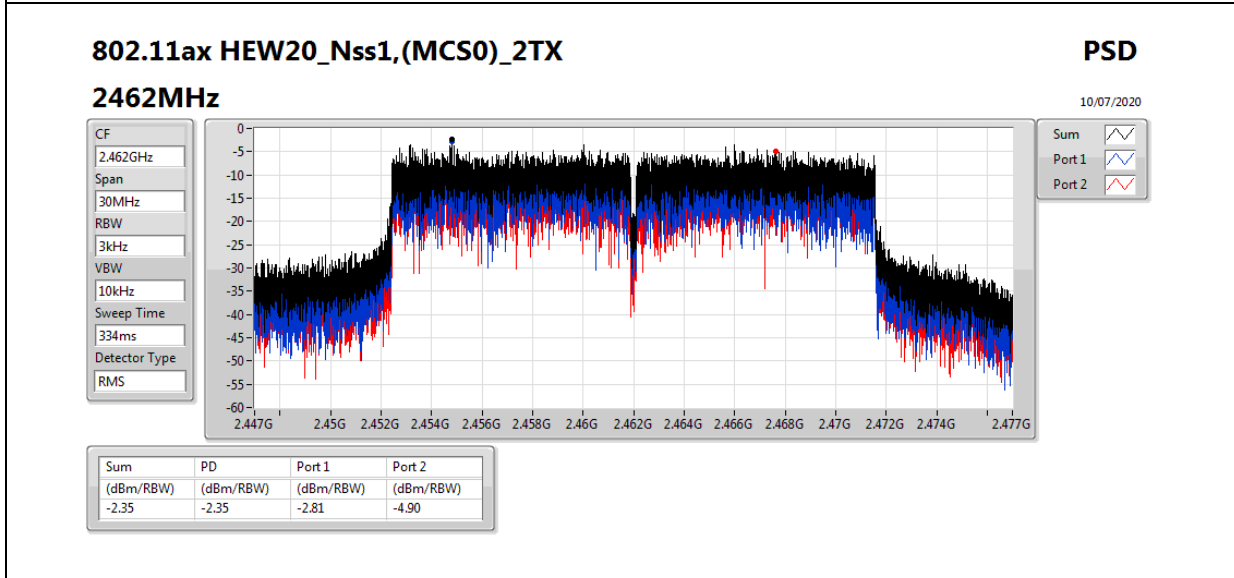


Power Density Plot on Configuration IEEE 802.11ax 20MHz MCS0 / CH 6 / Ant. 1+2 (1S2T, CDD)





Power Density Plot on Configuration IEEE 802.11ax 20MHz MCS0 / CH 11 / Ant. 1+2 (1S2T, CDD)





<MCS0, Ant. 1+2, 1S2T, TXBF>

Channel	Frequency	Power Density (dBm/3kHz)	Directional Gain (dBi)	Limit (dBm/3kHz)	Result
1	2412 MHz	-4.92	5.07	8	PASS
6	2437 MHz	-2.80	5.01	8	PASS
11	2462 MHz	-1.76	5.19	8	PASS

Note 1:

Method 1 of powr density measurement of KDB 662911 is using for calculation totol power density.

Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

Note 2:

Refer to section 1.16 for duty cycle spectrum plot.

Note 3:

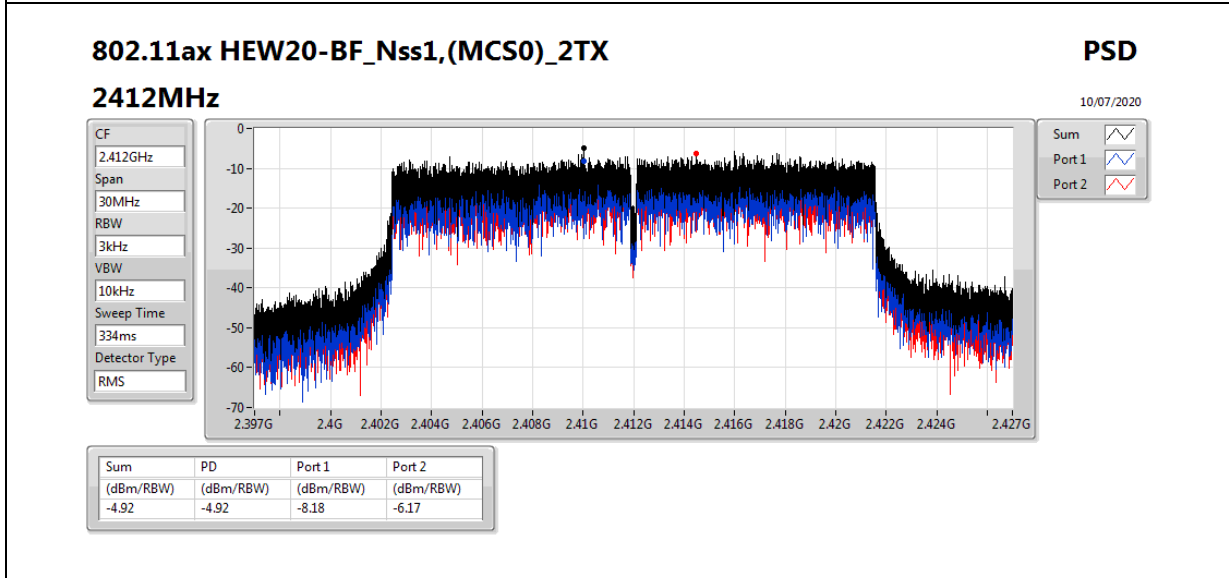
$$2412 \text{ MHz} = \text{Directional Gain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 5.07\text{dBi} <6\text{dBi}, \text{ so the limit doesn't reduce.}$$

$$2437 \text{ MHz} = \text{Directional Gain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 5.01\text{dBi} <6\text{dBi}, \text{ so the limit doesn't reduce.}$$

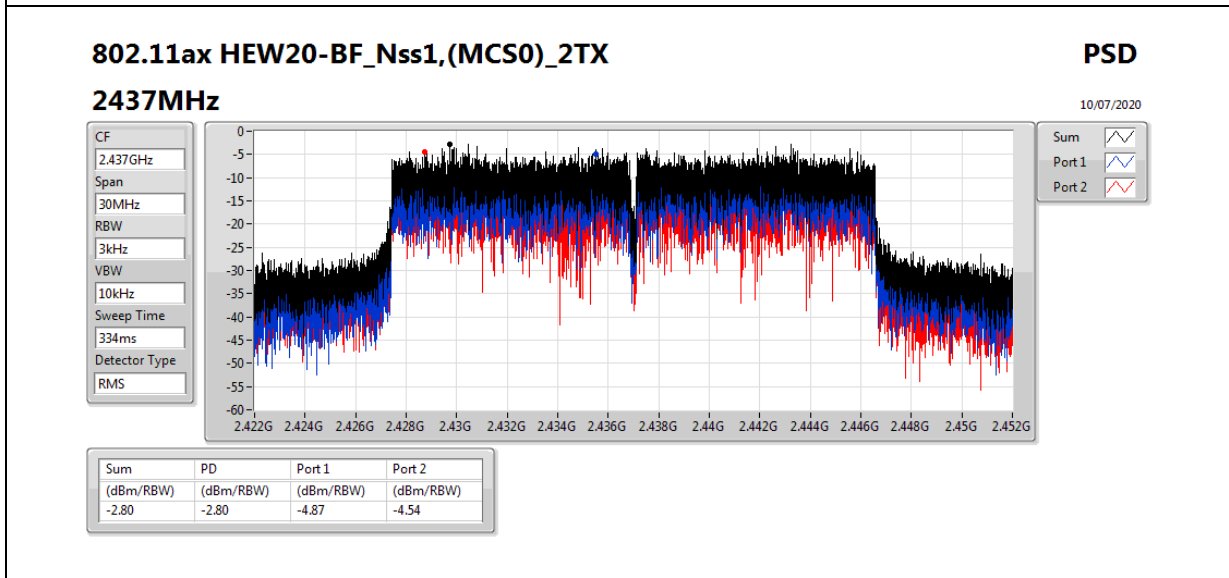
$$2462 \text{ MHz} = \text{Directional Gain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 5.19\text{dBi} <6\text{dBi}, \text{ so the limit doesn't reduce.}$$



Power Density Plot on Configuration IEEE 802.11ax 20MHz MCS0 / CH 1 / Ant. 1+2 (1S2T, TXBF)

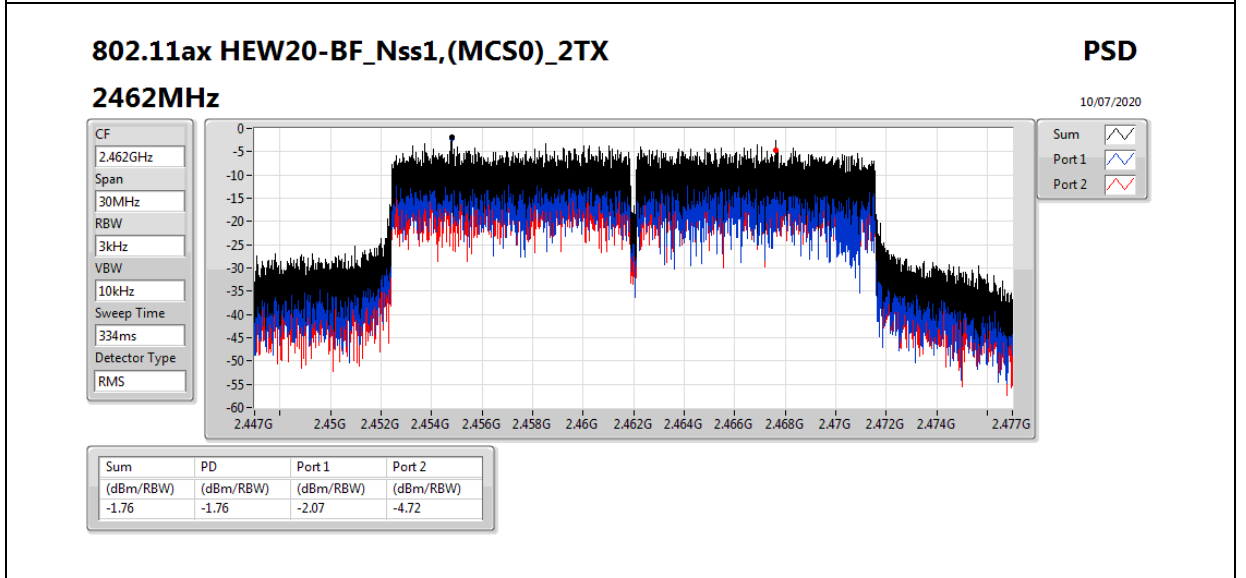


Power Density Plot on Configuration IEEE 802.11ax 20MHz MCS0 / CH 6 / Ant. 1+2 (1S2T, TXBF)





Power Density Plot on Configuration IEEE 802.11ax 20MHz MCS0 / CH 11 / Ant. 1+2 (1S2T, TXBF)





Configuration IEEE 802.11ax 40MHz

<MCS0, Ant. 1+2, 1S2T, CDD>

Channel	Frequency	Power Density (dBm/3kHz)	Directional Gain (dBi)	Limit (dBm/3kHz)	Result
3	2422 MHz	-7.58	5.12	8	PASS
6	2437 MHz	-6.66	5.01	8	PASS
9	2452 MHz	-5.26	5.13	8	PASS

Note 1:

Method 1 of powr density measurement of KDB 662911 is using for calculation totol power density.

Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

Note 2:

Refer to section 1.16 for duty cycle spectrum plot.

Note 3:

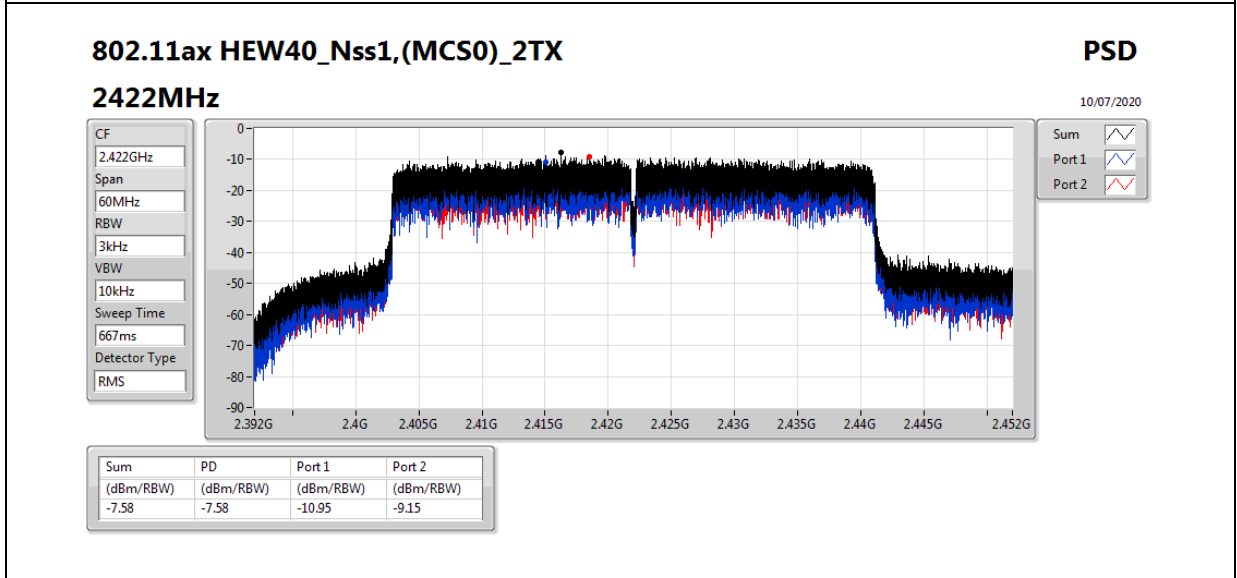
$$2422 \text{ MHz} = \text{Directional Gain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 5.12\text{dBi} <6\text{dBi}, \text{ so the limit doesn't reduce.}$$

$$2437 \text{ MHz} = \text{Directional Gain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 5.01\text{dBi} <6\text{dBi}, \text{ so the limit doesn't reduce.}$$

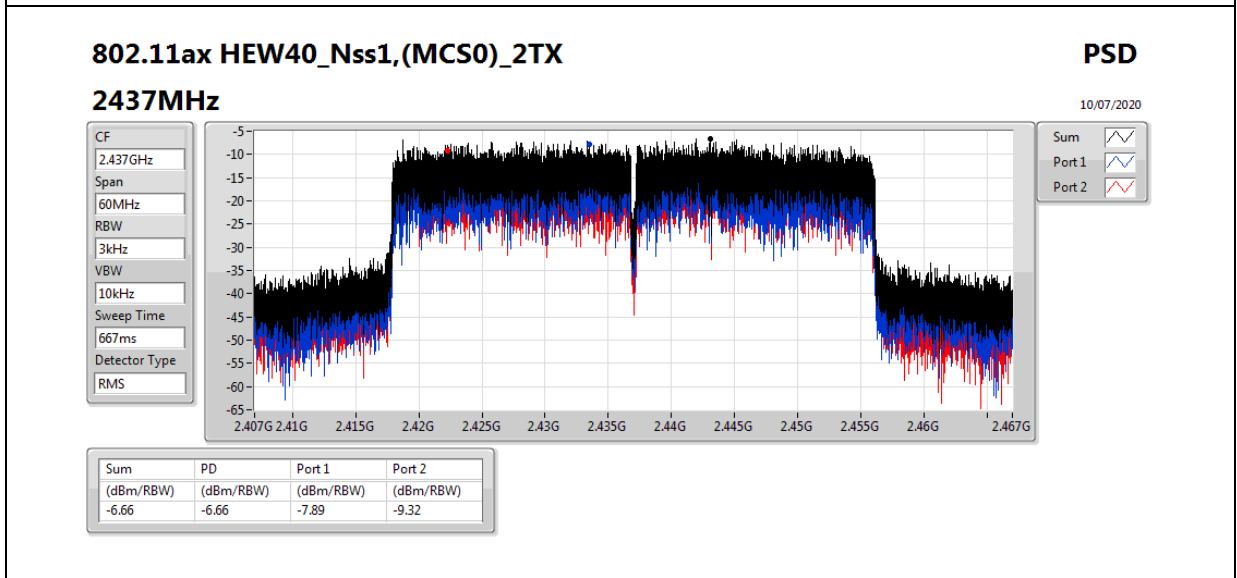
$$2452 \text{ MHz} = \text{Directional Gain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 5.13\text{dBi} <6\text{dBi}, \text{ so the limit doesn't reduce.}$$



Power Density Plot on Configuration IEEE 802.11ax 40MHz MCS0 / CH 3 / Ant. 1+2 (1S2T, CDD)

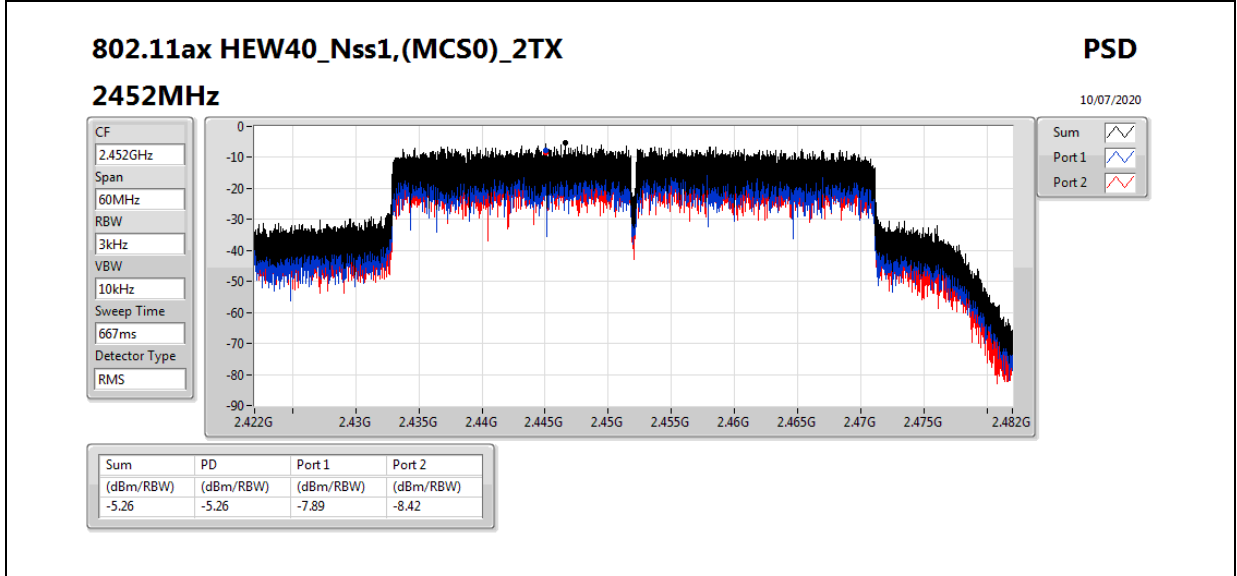


Power Density Plot on Configuration IEEE 802.11ax 40MHz MCS0 / CH 6 / Ant. 1+2 (1S2T, CDD)





Power Density Plot on Configuration IEEE 802.11ax 40MHz MCS0 / CH 9 / Ant. 1+2 (1S2T, CDD)





<MCS0, Ant. 1+2, 1S2T, TXBF>

Channel	Frequency	Power Density (dBm/3kHz)	Directional Gain (dBi)	Limit (dBm/3kHz)	Result
3	2422 MHz	-6.08	5.12	8	PASS
6	2437 MHz	-6.23	5.01	8	PASS
9	2452 MHz	-5.00	5.13	8	PASS

Note 1:

Method 1 of powr density measurement of KDB 662911 is using for calculation totol power density.

Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

Note 2:

Refer to section 1.16 for duty cycle spectrum plot.

Note 3:

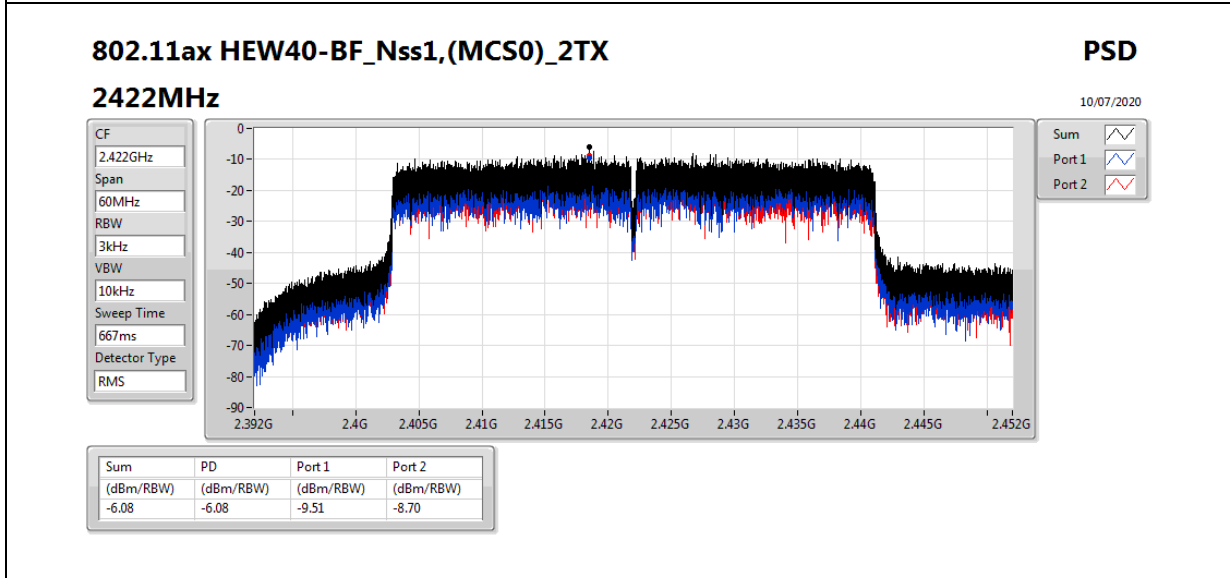
$$2422 \text{ MHz} = \text{Directional Gain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 5.12\text{dBi} < 6\text{dBi}, \text{ so the limit doesn't reduce.}$$

$$2437 \text{ MHz} = \text{Directional Gain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 5.01\text{dBi} < 6\text{dBi}, \text{ so the limit doesn't reduce.}$$

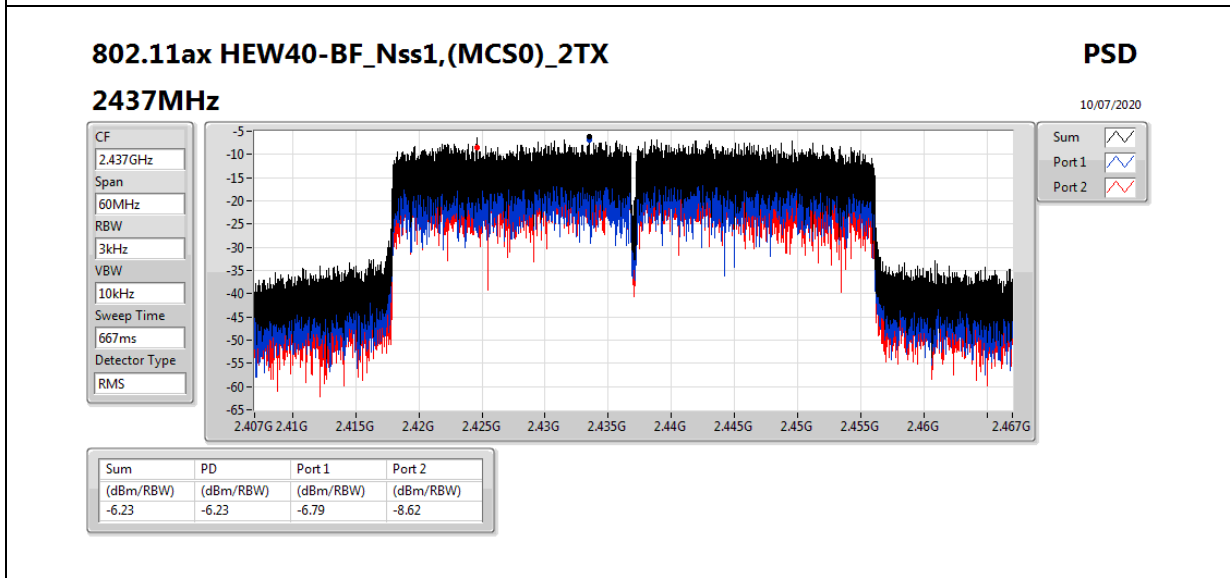
$$2452 \text{ MHz} = \text{Directional Gain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 5.13\text{dBi} < 6\text{dBi}, \text{ so the limit doesn't reduce.}$$



Power Density Plot on Configuration IEEE 802.11ax 40MHz MCS0 / CH 3 / Ant. 1+2 (1S2T, TXBF)

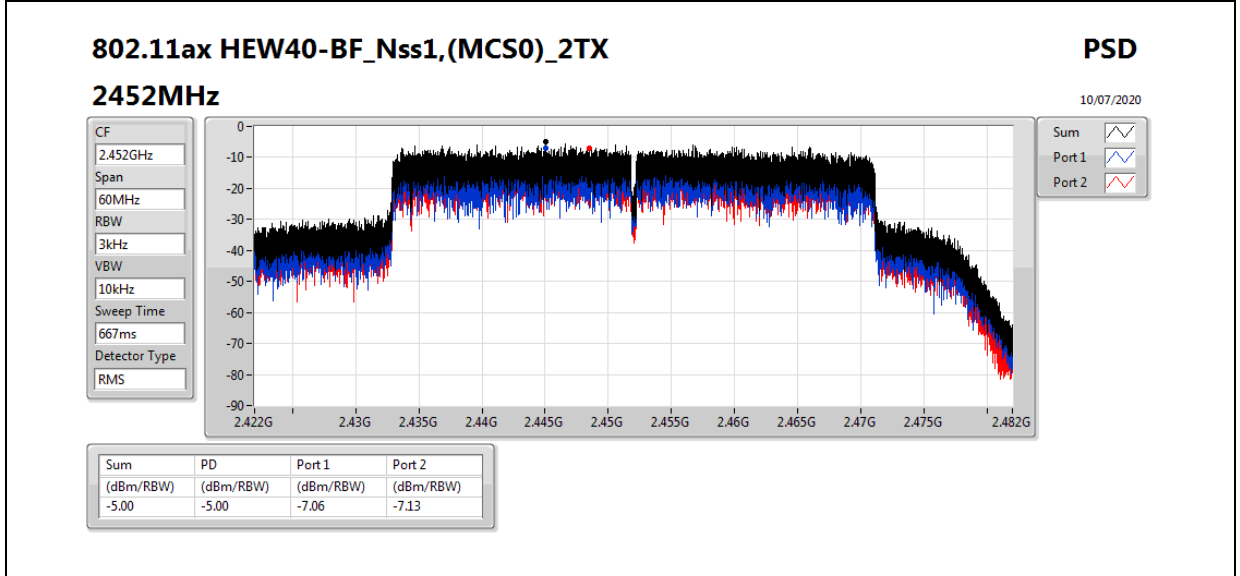


Power Density Plot on Configuration IEEE 802.11ax 40MHz MCS0 / CH 6 / Ant. 1+2 (1S2T, TXBF)





Power Density Plot on Configuration IEEE 802.11ax 40MHz MCS0 / CH 9 / Ant. 1+2 (1S2T, TXBF)





2.4. 6dB Spectrum and 99% Occupied Bandwidth Measurement

2.4.1. Limit

For digital modulation systems, the minimum 6 dB bandwidth shall be at least 500 kHz.

2.4.2. Measuring Instruments and Setting

Please refer to section 3 of equipments list in this report. The following table is the setting of the Spectrum Analyzer.

6dB Spectrum Bandwidth	
Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	> 6dB Bandwidth
RBW	100kHz
VBW	$\geq 3 \times$ RBW
Detector	Peak
Trace	Max Hold
Sweep Time	Auto
99% Occupied Bandwidth	
Spectrum Parameters	Setting
Span	1.5 times to 5.0 times the OBW
RBW	1 % to 5 % of the OBW
VBW	$\geq 3 \times$ RBW
Detector	Peak
Trace	Max Hold

2.4.3. Test Procedures

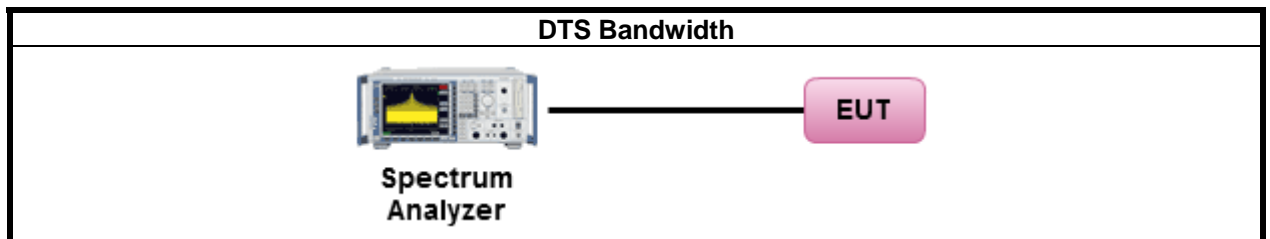
For 6dB Bandwidth Measurement:

1. The transmitter output (antenna port) was connected to the spectrum analyzer in peak hold mode.
2. 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 emissions.
3. The 6dB bandwidth is the frequency difference between the two markers.

For 99% Occupied Bandwidth Measurement:

1. The transmitter output (antenna port) was connected to the spectrum analyzer in peak, Max hold mode.
2. For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier frequency. The bandwidth of the fundamental frequency was measured by spectrum analyzer with resolution bandwidth in the range of 1% to 5% of the anticipated emission bandwidth, and a video bandwidth at least 3x the resolution bandwidth and set the detector to peak.
3. The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 %of the total mean power of a given emission.

2.4.4. Test Setup Layout



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.



2.4.7. Test Result of 6dB Spectrum Bandwidth

Configuration IEEE 802.11b

<1Mbps, Ant. 1, 1S1T, SISO>

Channel	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	7.025	500	PASS
6	2437 MHz	7.025	500	PASS
11	2462 MHz	7.000	500	PASS

Channel	Frequency	99% Occupied Bandwidth (MHz)
1	2412 MHz	10.470
6	2437 MHz	10.320
11	2462 MHz	10.295



6 dB & 99% Occupied Bandwidth Plot on Configuration IEEE 802.11b 1Mbps / CH 1 / Ant. 1

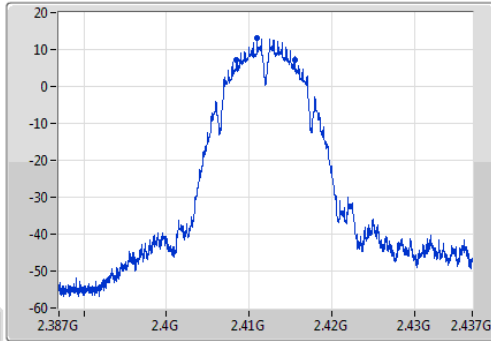
802.11b_Nss1,(1Mbps)_1TX

EBW

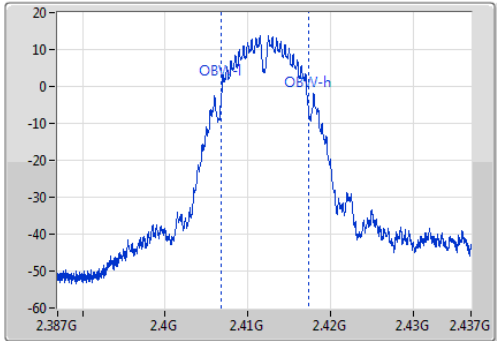
2412MHz

11/07/2020

CF
2.412GHz
Span
50MHz
RBW
100kHz
VBW
300kHz
Sweep Time
100ms
Detector Type
Peak
Port 1



CF
2.412GHz
Span
50MHz
RBW
200kHz
VBW
1MHz
Sweep Time
100ms
Detector Type
Peak



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
7.025M	2.4085G	2.415525G	10.47M	2.406828G	2.417297G	500k	1

6 dB & 99% Occupied Bandwidth Plot on Configuration IEEE 802.11b 1Mbps / CH 6 / Ant. 1

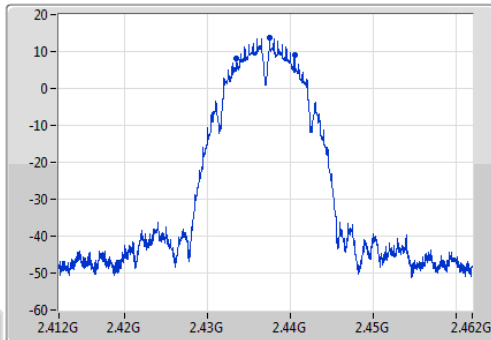
802.11b_Nss1,(1Mbps)_1TX

EBW

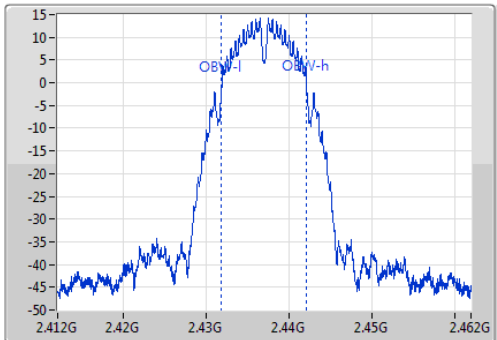
2437MHz

11/07/2020

CF
2.437GHz
Span
50MHz
RBW
100kHz
VBW
300kHz
Sweep Time
100ms
Detector Type
Peak
Port 1



CF
2.437GHz
Span
50MHz
RBW
200kHz
VBW
1MHz
Sweep Time
100ms
Detector Type
Peak



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
7.025M	2.433475G	2.4405G	10.32M	2.431828G	2.442147G	500k	1



6 dB & 99% Occupied Bandwidth Plot on Configuration IEEE 802.11b 1Mbps / CH 11 / Ant. 1

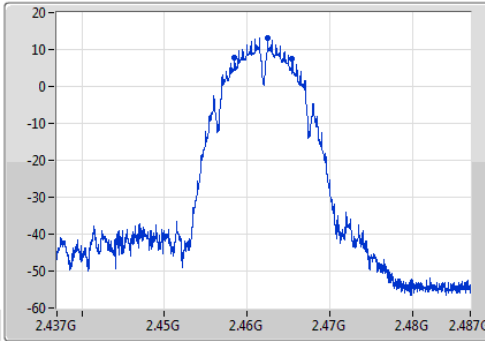
802.11b_Nss1,(1Mbps)_1TX

EBW

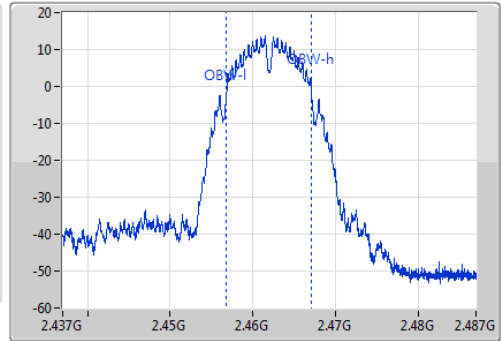
2462MHz

11/07/2020

CF
2.462GHz
Span
50MHz
RBW
100kHz
VBW
300kHz
Sweep Time
100ms
Detector Type
Peak



CF
2.462GHz
Span
50MHz
RBW
200kHz
VBW
1MHz
Sweep Time
100ms
Detector Type
Peak



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
7M	2.458475G	2.465475G	10.295M	2.456778G	2.467072G	500k	1



Configuration IEEE 802.11g

<6Mbps, Ant. 1+2, 1S2T, CDD>

Channel	Frequency	6dB Bandwidth (MHz)		Min. Limit (kHz)	Test Result
		Ant. 1	Ant. 2		
1	2412 MHz	16.325	16.350	500	PASS
6	2437 MHz	16.325	16.325	500	PASS
11	2462 MHz	16.275	16.275	500	PASS

Channel	Frequency	99% Occupied Bandwidth (MHz)	
		Ant. 1	Ant. 2
1	2412 MHz	16.842	16.742
6	2437 MHz	19.465	17.916
11	2462 MHz	18.441	18.066



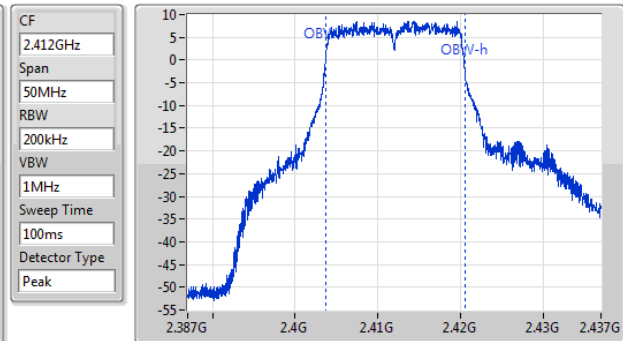
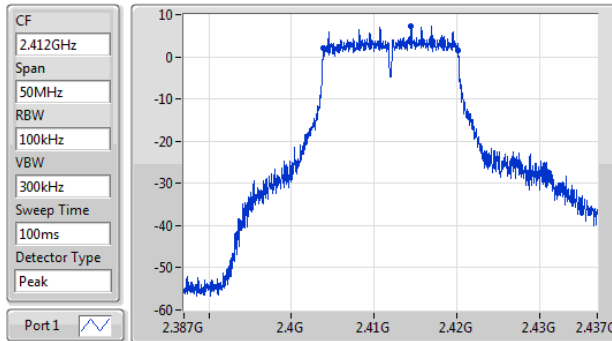
6 dB & 99% Occupied Bandwidth Plot on Configuration IEEE 802.11g 6Mbps / CH 1 / Ant. 1 (1S2T, CDD)

802.11g_Nss1,(6Mbps)_2TX

EBW

2412MHz

13/07/2020



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
16.325M	2.40385G	2.420175G	16.842M	2.403704G	2.420546G	500k	1

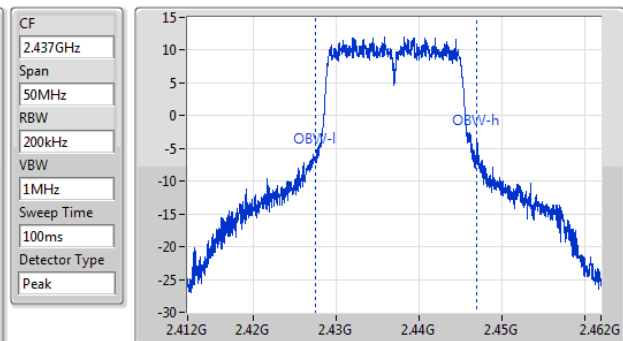
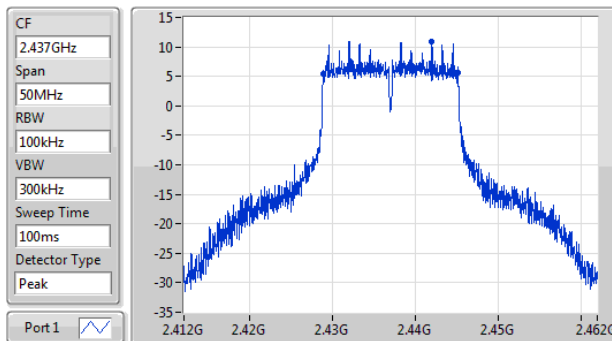
6 dB & 99% Occupied Bandwidth Plot on Configuration IEEE 802.11g 6Mbps / CH 6 / Ant. 1 (1S2T, CDD)

802.11g_Nss1,(6Mbps)_2TX

EBW

2437MHz

13/07/2020



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
16.325M	2.428825G	2.44515G	19.465M	2.427455G	2.44692G	500k	1



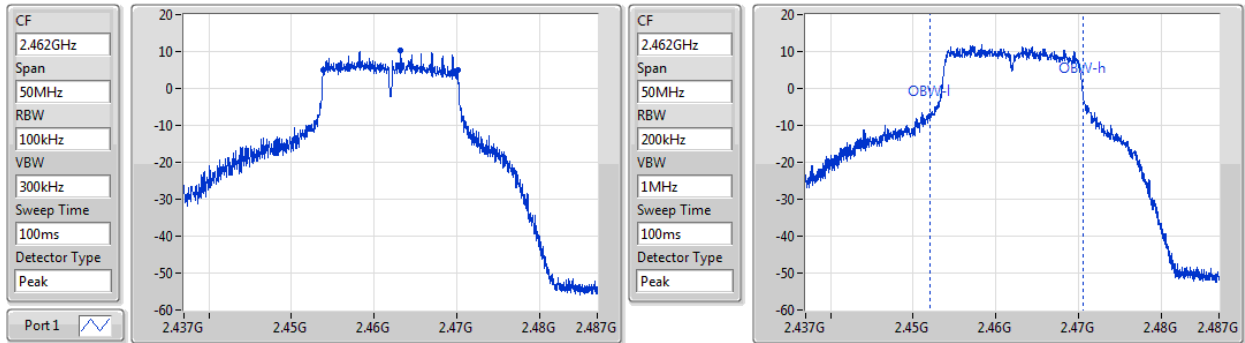
6 dB & 99% Occupied Bandwidth Plot on Configuration IEEE 802.11g 6Mbps / CH 11 / Ant. 1(1S2T, CDD)

802.11g_Nss1,(6Mbps)_2TX

EBW

2462MHz

13/07/2020



6dB(Hz)	F1-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	F1-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
16.275M	2.453825G	2.4701G	18.441M	2.45208G	2.470521G	500k	1



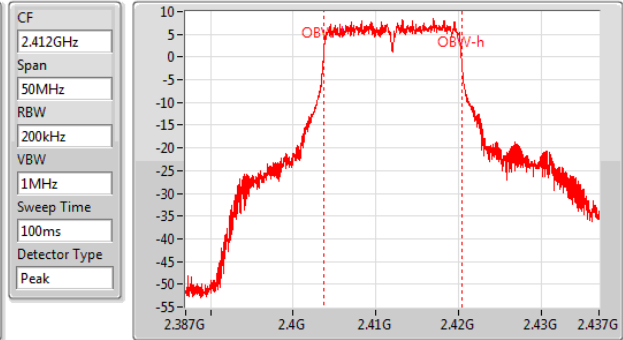
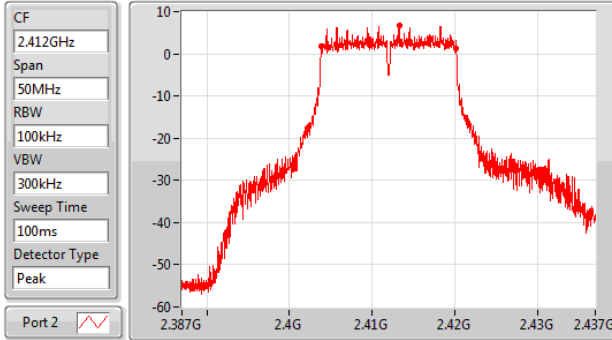
6 dB & 99% Occupied Bandwidth Plot on Configuration IEEE 802.11g 6Mbps / CH 1 / Ant. 2 (1S2T, CDD)

802.11g_Nss1,(6Mbps)_2TX

EBW

2412MHz

13/07/2020



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
16.35M	2.403825G	2.420175G	16.742M	2.403679G	2.420421G	500k	2

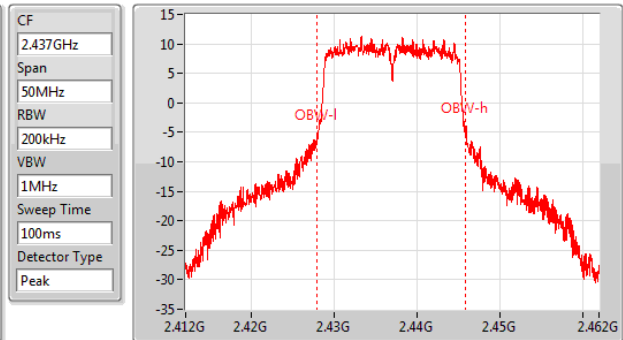
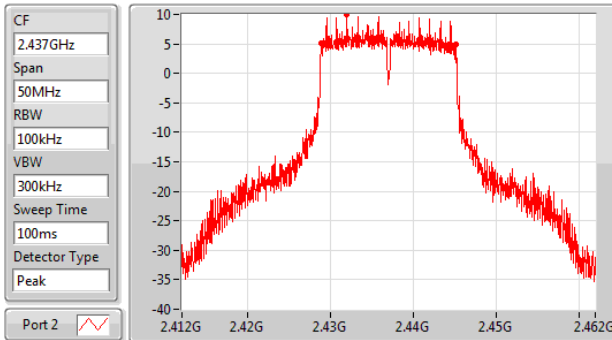
6 dB & 99% Occupied Bandwidth Plot on Configuration IEEE 802.11g 6Mbps / CH 6 / Ant. 2 (1S2T, CDD)

802.11g_Nss1,(6Mbps)_2TX

EBW

2437MHz

13/07/2020



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
16.325M	2.428825G	2.44515G	17.916M	2.42788G	2.445796G	500k	2



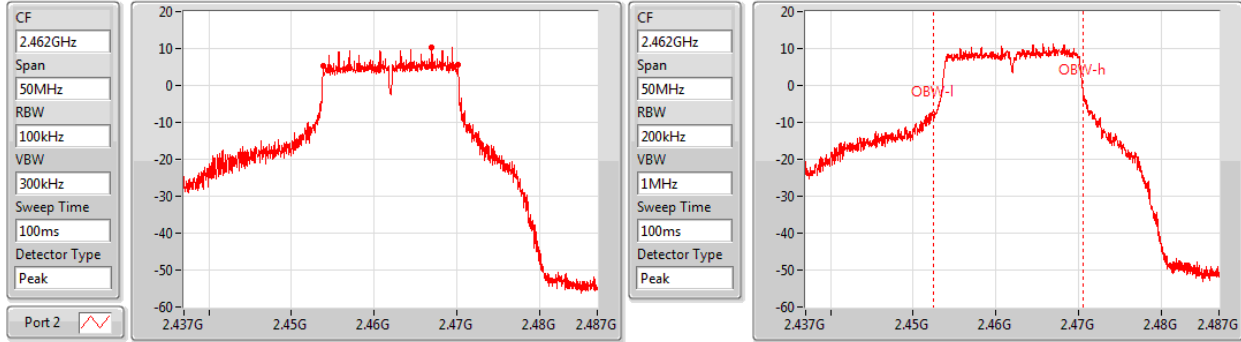
6 dB & 99% Occupied Bandwidth Plot on Configuration IEEE 802.11g 6Mbps / CH 11 / Ant. 2 (1S2T, CDD)

802.11g_Nss1,(6Mbps)_2TX

EBW

2462MHz

13/07/2020



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
16.275M	2.453875G	2.47015G	18.066M	2.45248G	2.470546G	500k	2



Configuration IEEE 802.11ax 20MHz

<MCS0, Ant. 1+2, 1S2T, CDD>

Channel	Frequency	6dB Bandwidth (MHz)		Min. Limit (kHz)	Test Result
		Ant. 1	Ant. 2		
1	2412 MHz	18.875	18.950	500	PASS
6	2437 MHz	18.975	18.925	500	PASS
11	2462 MHz	18.675	18.650	500	PASS

Channel	Frequency	99% Occupied Bandwidth (MHz)	
		Ant. 1	Ant. 2
1	2412 MHz	19.065	19.090
6	2437 MHz	19.240	19.215
11	2462 MHz	19.190	19.165



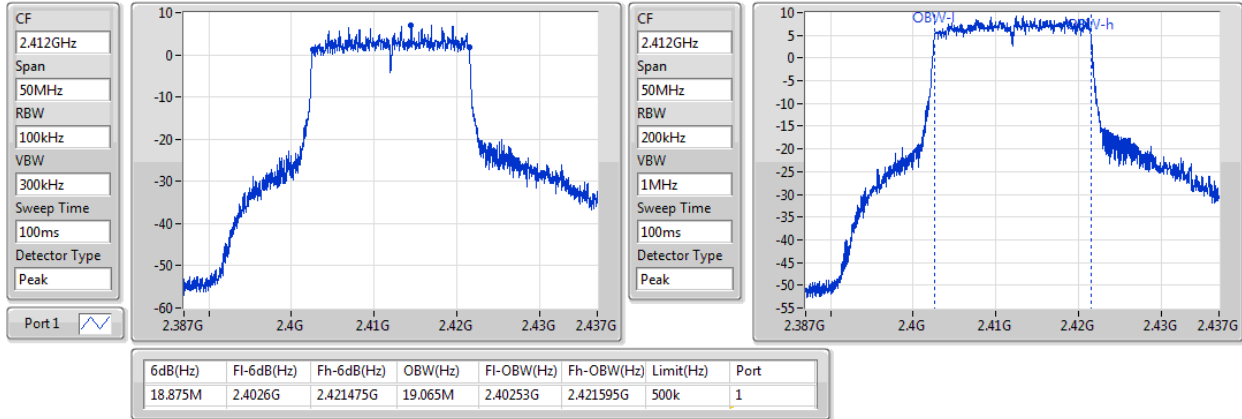
6 dB & 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz MCS0 / CH 1 / Ant. 1 (1S2T, CDD)

802.11ax HEW20_Nss1,(MCS0)_2TX

EBW

2412MHz

11/07/2020



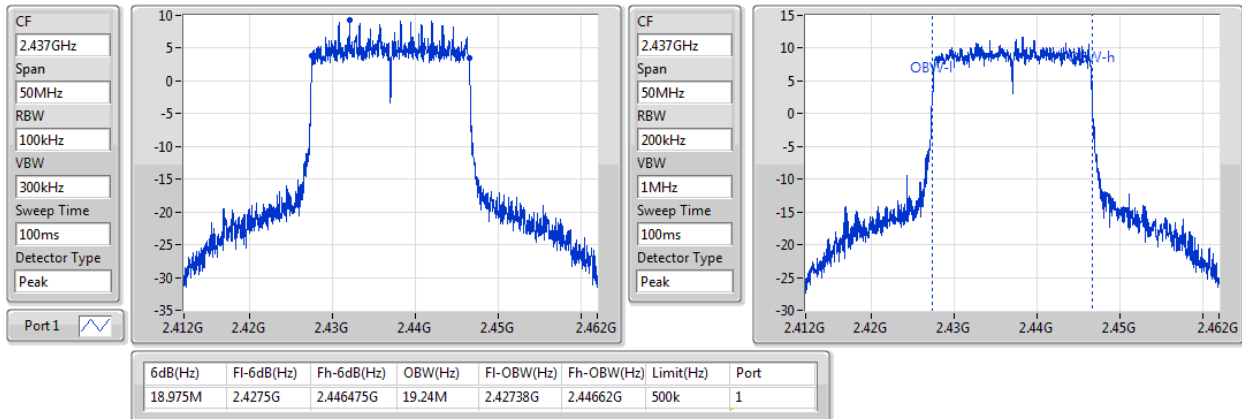
6 dB & 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz MCS0 / CH 6 / Ant. 1 (1S2T, CDD)

802.11ax HEW20_Nss1,(MCS0)_2TX

EBW

2437MHz

11/07/2020





6 dB & 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz MCS0 / CH 11 / Ant. 1 (1S2T, CDD)

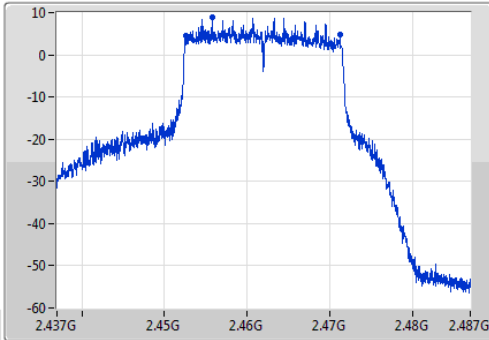
802.11ax HEW20_Nss1,(MCS0)_2TX

EBW

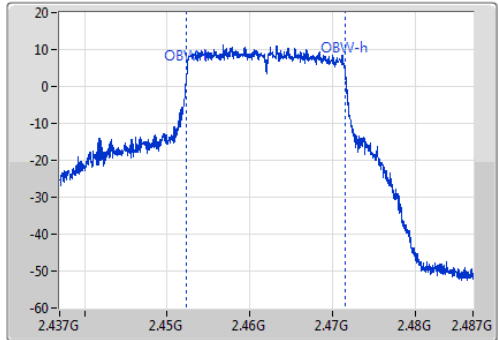
2462MHz

11/07/2020

CF
2.462GHz
Span
50MHz
RBW
100kHz
VBW
300kHz
Sweep Time
100ms
Detector Type
Peak



CF
2.462GHz
Span
50MHz
RBW
200kHz
VBW
1MHz
Sweep Time
100ms
Detector Type
Peak



6dB(Hz)	F1-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	F1-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
18.675M	2.45255G	2.471225G	19.19M	2.452305G	2.471495G	500k	1



6 dB & 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz MCS0 / CH 1 / Ant. 2 (1S2T, CDD)

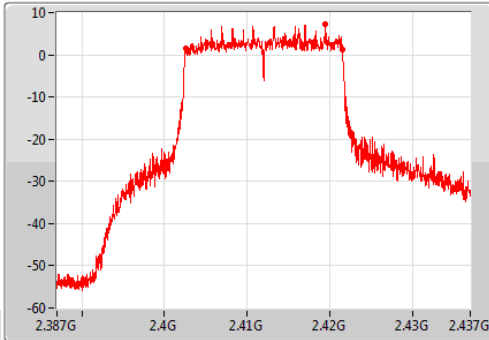
802.11ax HEW20_Nss1,(MCS0)_2TX

EBW

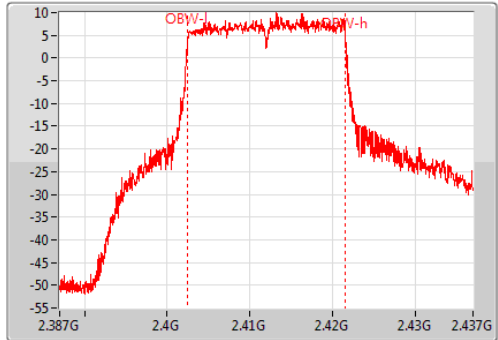
2412MHz

11/07/2020

CF
2.412GHz
Span
50MHz
RBW
100kHz
VBW
300kHz
Sweep Time
100ms
Detector Type
Peak



CF
2.412GHz
Span
50MHz
RBW
200kHz
VBW
1MHz
Sweep Time
100ms
Detector Type
Peak



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
18.95M	2.40255G	2.4215G	19.09M	2.402505G	2.421595G	500k	2

6 dB & 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz MCS0 / CH 6 / Ant. 2 (1S2T, CDD)

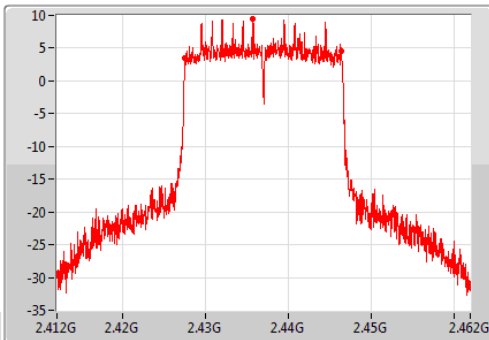
802.11ax HEW20_Nss1,(MCS0)_2TX

EBW

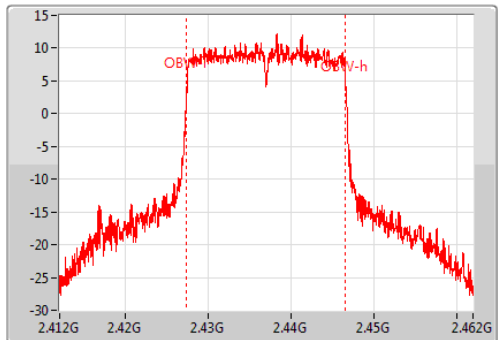
2437MHz

11/07/2020

CF
2.437GHz
Span
50MHz
RBW
100kHz
VBW
300kHz
Sweep Time
100ms
Detector Type
Peak



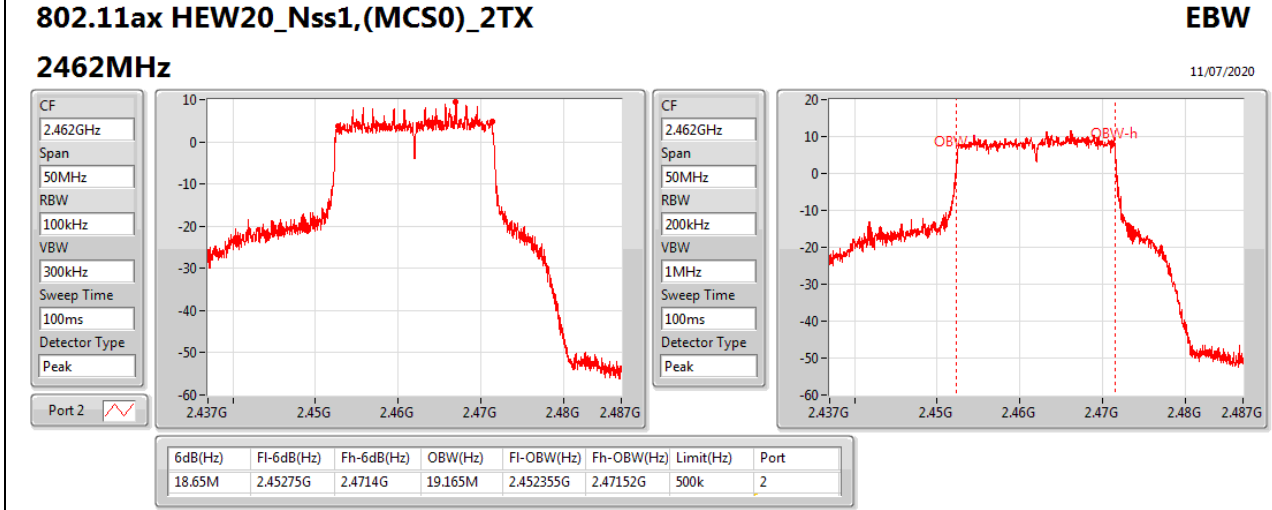
CF
2.437GHz
Span
50MHz
RBW
200kHz
VBW
1MHz
Sweep Time
100ms
Detector Type
Peak



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
18.925M	2.427525G	2.44645G	19.215M	2.42738G	2.446595G	500k	2



6 dB & 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz MCS0 / CH 11 / Ant. 2 (1S2T, CDD)





<MCS0, Ant. 1+2, 1S2T, TXBF>

Channel	Frequency	6dB Bandwidth (MHz)		Min. Limit (kHz)	Test Result
		Ant. 1	Ant. 2		
1	2412 MHz	18.875	18.950	500	PASS
6	2437 MHz	18.975	18.925	500	PASS
11	2462 MHz	18.700	18.775	500	PASS

Channel	Frequency	99% Occupied Bandwidth (MHz)	
		Ant. 1	Ant. 2
1	2412 MHz	19.065	19.140
6	2437 MHz	19.290	19.240
11	2462 MHz	19.165	19.215



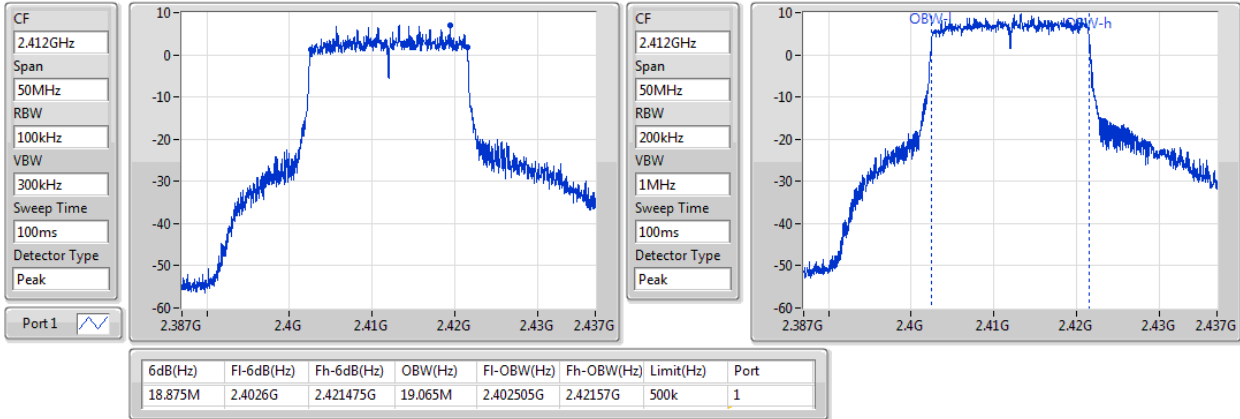
6 dB & 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz MCS0 / CH 1 / Ant. 1 (1S2T, TXBF)

802.11ax HEW20-BF_Nss1,(MCS0)_2TX

EBW

2412MHz

11/07/2020



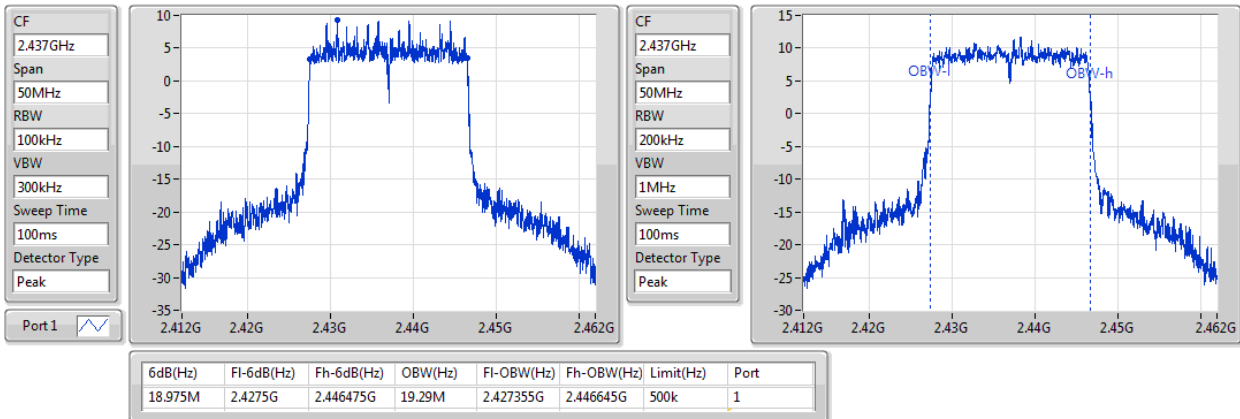
6 dB & 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz MCS0 / CH 6 / Ant. 1 (1S2T, TXBF)

802.11ax HEW20-BF_Nss1,(MCS0)_2TX

EBW

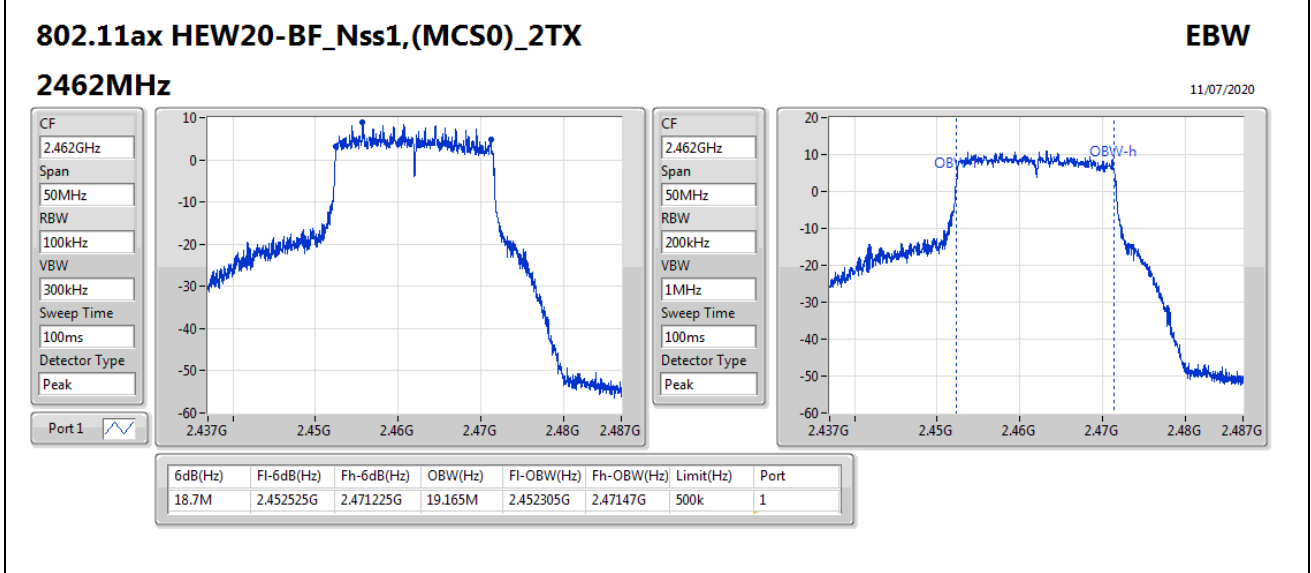
2437MHz

11/07/2020





6 dB & 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz MCS0 / CH 11 / Ant. 1 (1S2T, TXBF)





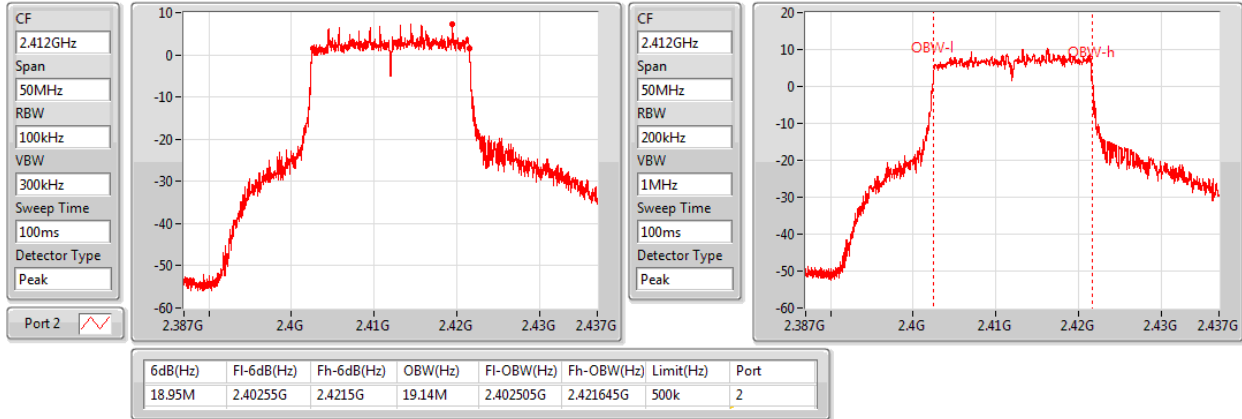
6 dB & 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz MCS0 / CH 1 / Ant. 2 (1S2T, TXBF)

802.11ax HEW20-BF_Nss1,(MCS0)_2TX

EBW

2412MHz

11/07/2020



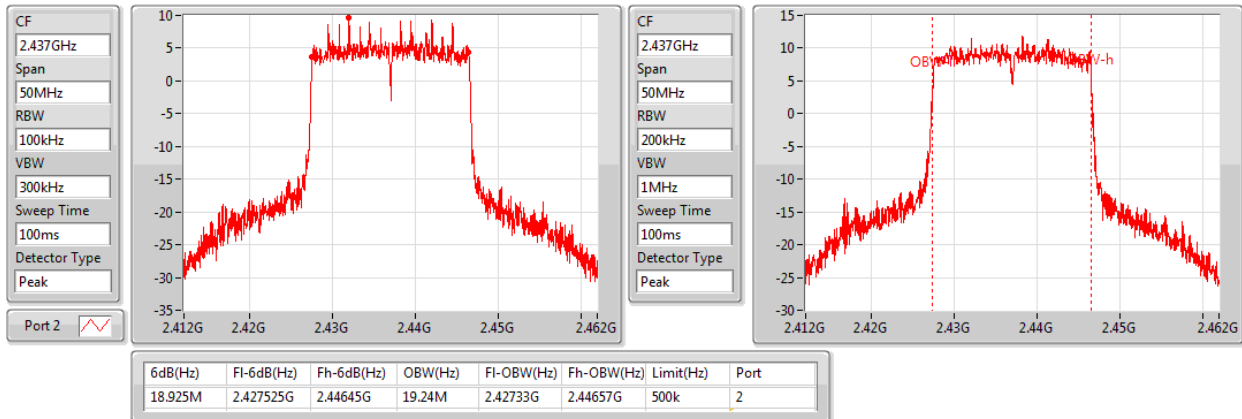
6 dB & 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz MCS0 / CH 6 / Ant. 2 (1S2T, TXBF)

802.11ax HEW20-BF_Nss1,(MCS0)_2TX

EBW

2437MHz

11/07/2020





6 dB & 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz MCS0 / CH 11 / Ant. 2 (1S2T, TXBF)

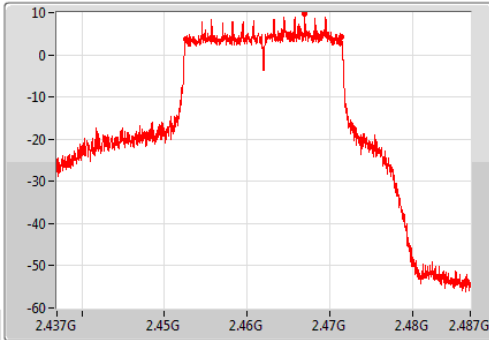
802.11ax HEW20-BF_Nss1,(MCS0)_2TX

EBW

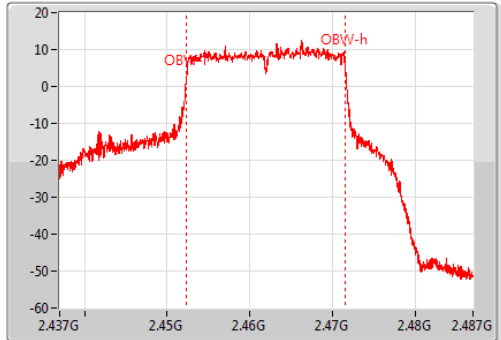
2462MHz

11/07/2020

CF
2.462GHz
Span
50MHz
RBW
100kHz
VBW
300kHz
Sweep Time
100ms
Detector Type
Peak



CF
2.462GHz
Span
50MHz
RBW
200kHz
VBW
1MHz
Sweep Time
100ms
Detector Type
Peak



6dB(Hz)	F1-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	F1-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
18.775M	2.45265G	2.471425G	19.215M	2.452305G	2.47152G	500k	2



Configuration IEEE 802.11ax 40MHz

<MCS0, Ant. 1+2, 1S2T, CDD>

Channel	Frequency	6dB Bandwidth (MHz)		Min. Limit (kHz)	Test Result
		Ant. 1	Ant. 2		
3	2422 MHz	37.550	36.350	500	PASS
6	2437 MHz	37.600	35.650	500	PASS
9	2452 MHz	36.850	37.350	500	PASS

Channel	Frequency	99% Occupied Bandwidth (MHz)	
		Ant. 1	Ant. 2
3	2422 MHz	37.631	37.631
6	2437 MHz	37.781	37.731
9	2452 MHz	37.681	37.981



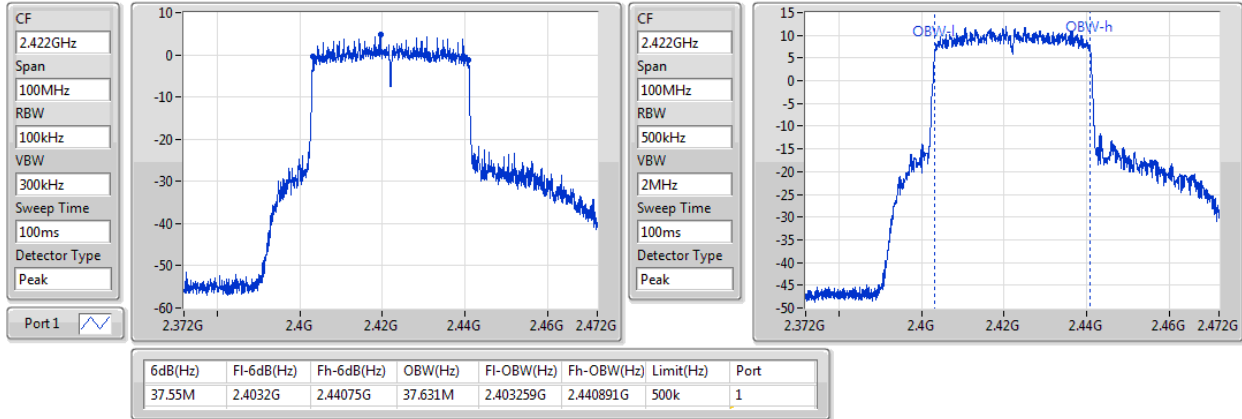
6 dB & 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz MCS0 / CH 3 / Ant. 1 (1S2T, CDD)

802.11ax HEW40_Nss1,(MCS0)_2TX

EBW

2422MHz

11/07/2020



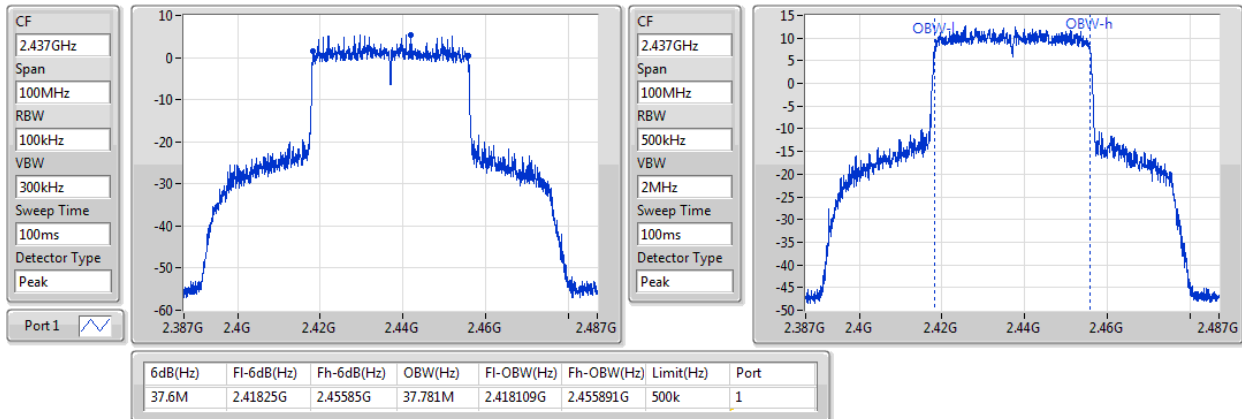
6 dB & 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz MCS0 / CH 6 / Ant. 1 (1S2T, CDD)

802.11ax HEW40_Nss1,(MCS0)_2TX

EBW

2437MHz

11/07/2020





6 dB & 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz MCS0 / CH 9 / Ant. 1 (1S2T, CDD)

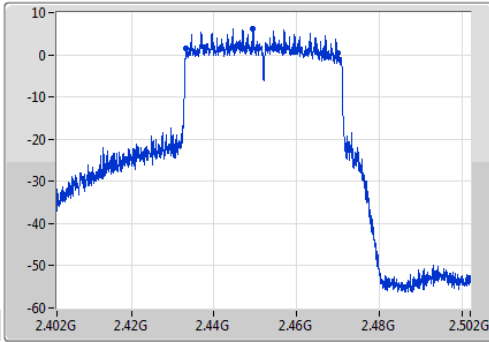
802.11ax HEW40_Nss1,(MCS0)_2TX

EBW

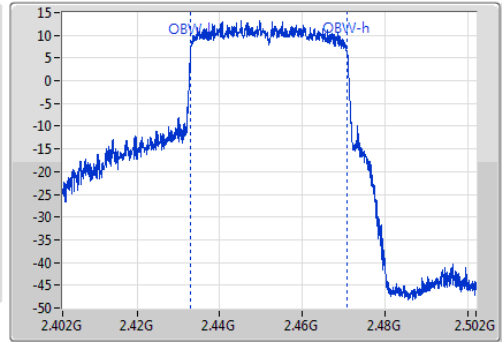
2452MHz

11/07/2020

CF
2.452GHz
Span
100MHz
RBW
100kHz
VBW
300kHz
Sweep Time
100ms
Detector Type
Peak



CF
2.452GHz
Span
100MHz
RBW
500kHz
VBW
2MHz
Sweep Time
100ms
Detector Type
Peak



6dB(Hz)	F1-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	F1-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
36.85M	2.4332G	2.47005G	37.681M	2.433009G	2.470691G	500k	1



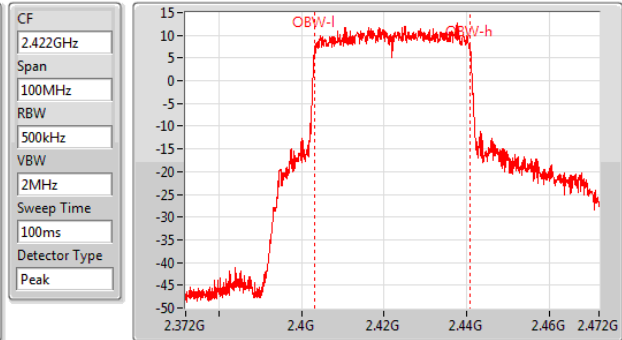
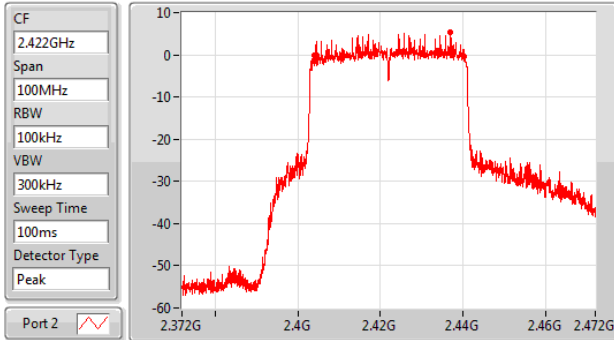
6 dB & 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz MCS0 / CH 3 / Ant. 2 (1S2T, CDD)

802.11ax HEW40_Nss1,(MCS0)_2TX

EBW

2422MHz

11/07/2020



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
36.35M	2.4039G	2.44025G	37.631M	2.403259G	2.440891G	500k	2

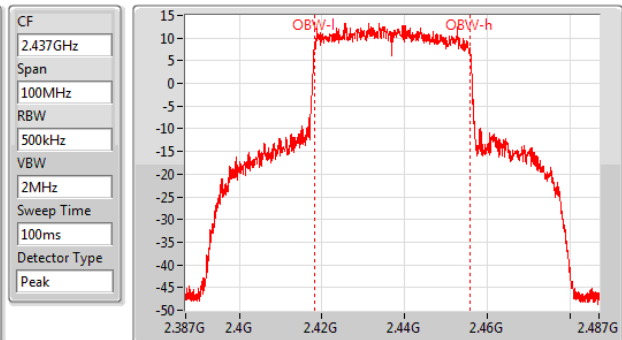
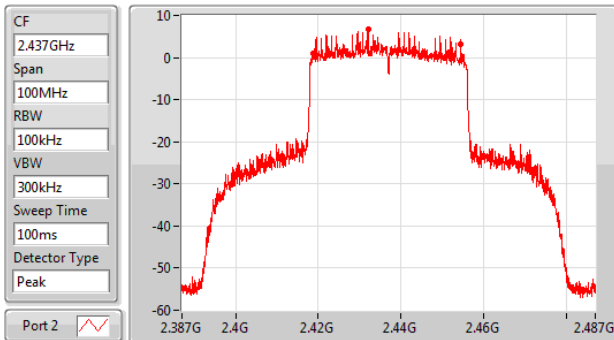
6 dB & 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz MCS0 / CH 6 / Ant. 2 (1S2T, CDD)

802.11ax HEW40_Nss1,(MCS0)_2TX

EBW

2437MHz

11/07/2020



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
35.65M	2.41885G	2.4545G	37.731M	2.418109G	2.455841G	500k	2



6 dB & 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz MCS0 / CH 9 / Ant. 2 (1S2T, CDD)

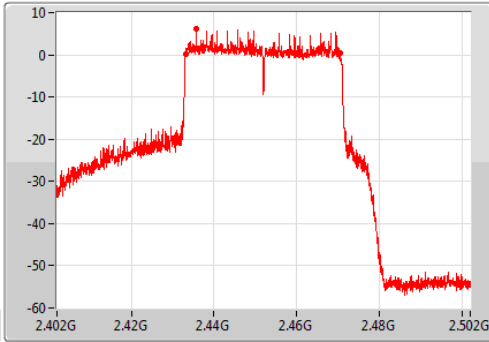
802.11ax HEW40_Nss1,(MCS0)_2TX

EBW

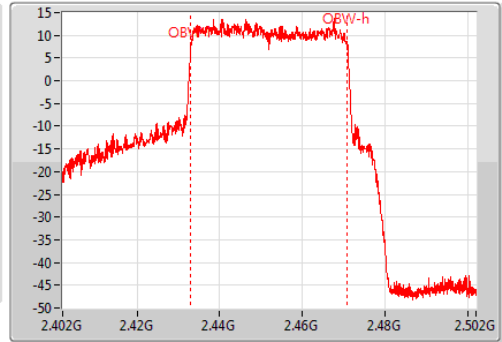
2452MHz

11/07/2020

CF
2.452GHz
Span
100MHz
RBW
100kHz
VBW
300kHz
Sweep Time
100ms
Detector Type
Peak



CF
2.452GHz
Span
100MHz
RBW
500kHz
VBW
2MHz
Sweep Time
100ms
Detector Type
Peak



6dB(Hz)	F1-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	F1-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
37.35M	2.43315G	2.4705G	37.981M	2.43286G	2.470841G	500k	2



<MCS0, Ant. 1+2, 1S2T, TXBF>

Channel	Frequency	6dB Bandwidth (MHz)		Min. Limit (kHz)	Test Result
		Ant. 1	Ant. 2		
3	2422 MHz	37.650	36.600	500	PASS
6	2437 MHz	37.700	36.600	500	PASS
9	2452 MHz	36.900	37.200	500	PASS

Channel	Frequency	99% Occupied Bandwidth (MHz)	
		Ant. 1	Ant. 2
3	2422 MHz	37.681	37.631
6	2437 MHz	37.831	37.781
9	2452 MHz	37.731	37.931



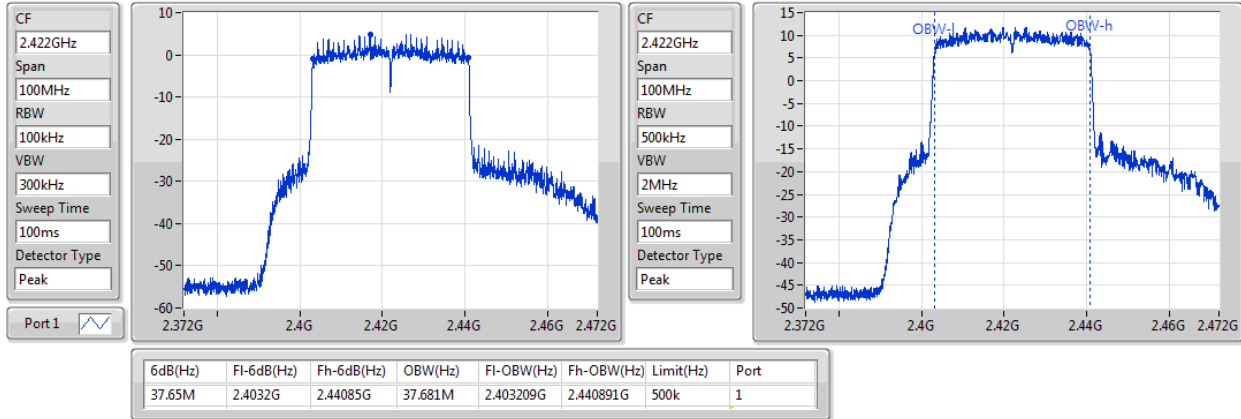
6 dB & 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz MCS0 / CH 3 / Ant. 1 (1S2T, TXBF)

802.11ax HEW40-BF_Nss1,(MCS0)_2TX

EBW

2422MHz

11/07/2020



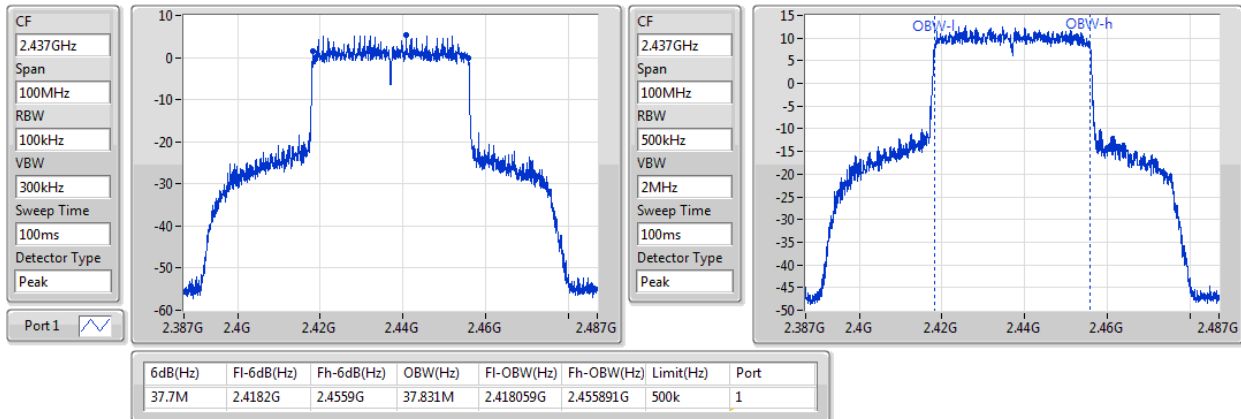
6 dB & 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz MCS0 / CH 6 / Ant. 1 (1S2T, TXBF)

802.11ax HEW40-BF_Nss1,(MCS0)_2TX

EBW

2437MHz

11/07/2020





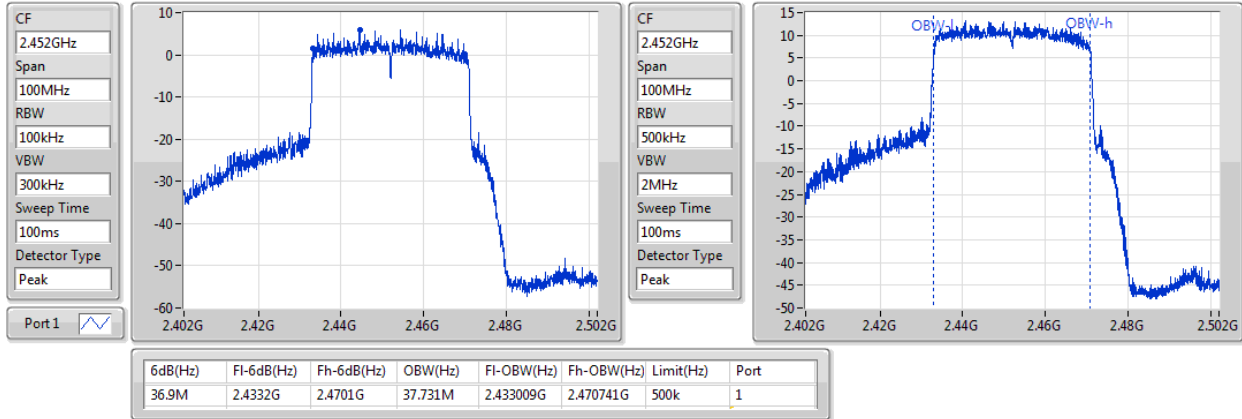
6 dB & 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz MCS0 / CH 9 / Ant. 1 (1S2T, TXBF)

802.11ax HEW40-BF_Nss1,(MCS0)_2TX

EBW

2452MHz

11/07/2020





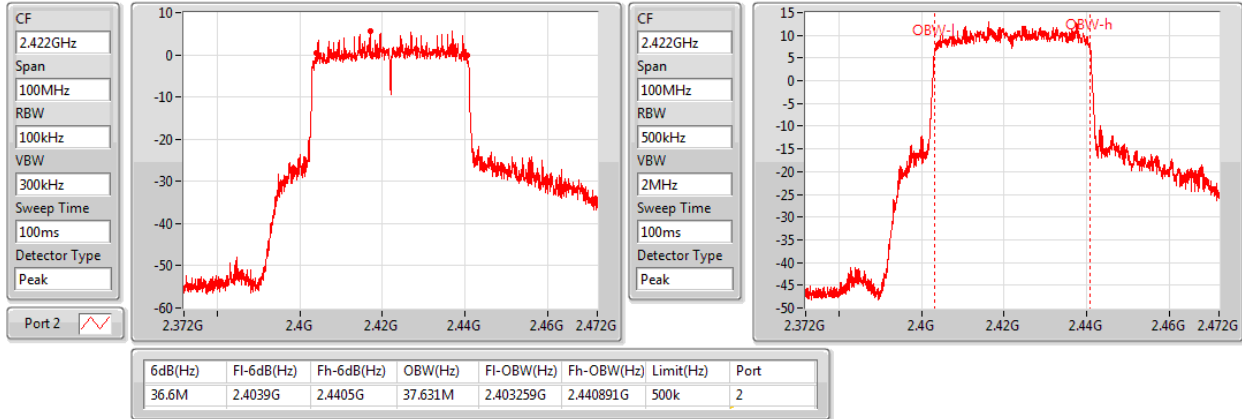
6 dB & 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz MCS0 / CH 3 / Ant. 2 (1S2T, TXBF)

802.11ax HEW40-BF_Nss1,(MCS0)_2TX

EBW

2422MHz

11/07/2020



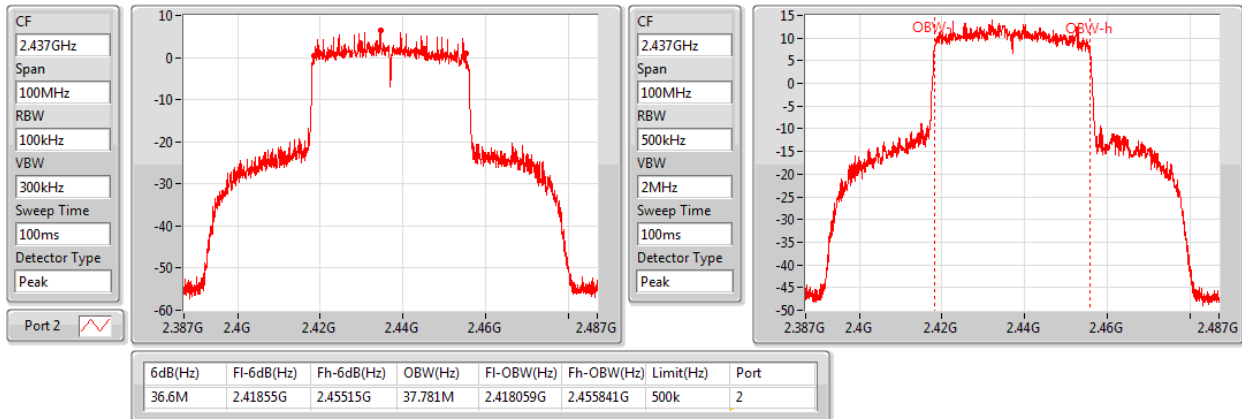
6 dB & 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz MCS0 / CH 6 / Ant. 2 (1S2T, TXBF)

802.11ax HEW40-BF_Nss1,(MCS0)_2TX

EBW

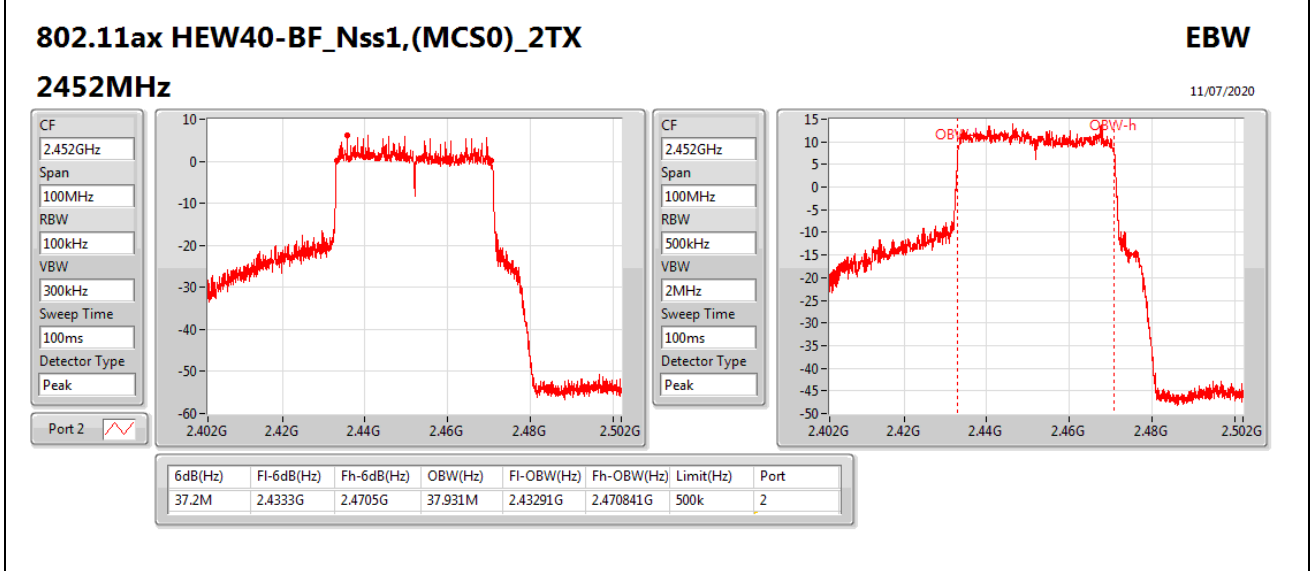
2437MHz

11/07/2020





6 dB & 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz MCS0 / CH 9 / Ant. 2 (1S2T, TXBF)





2.5. Radiated Emissions Measurement

2.5.1. Limit

30dBc in any 100 kHz bandwidth outside the operating frequency band. 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.

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(kHz)	300
0.490~1.705	24000/F(kHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

2.5.2. Measuring Instruments and Setting

Please refer to section 3 of equipments list in this report. The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
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

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

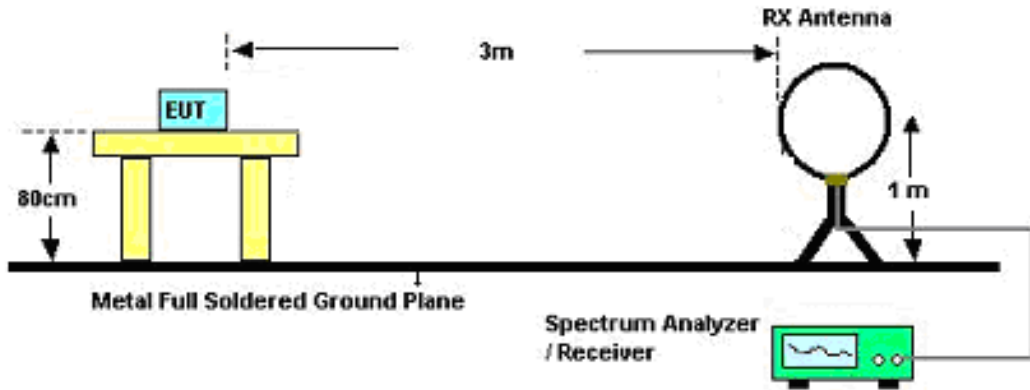


2.5.3. Test Procedures

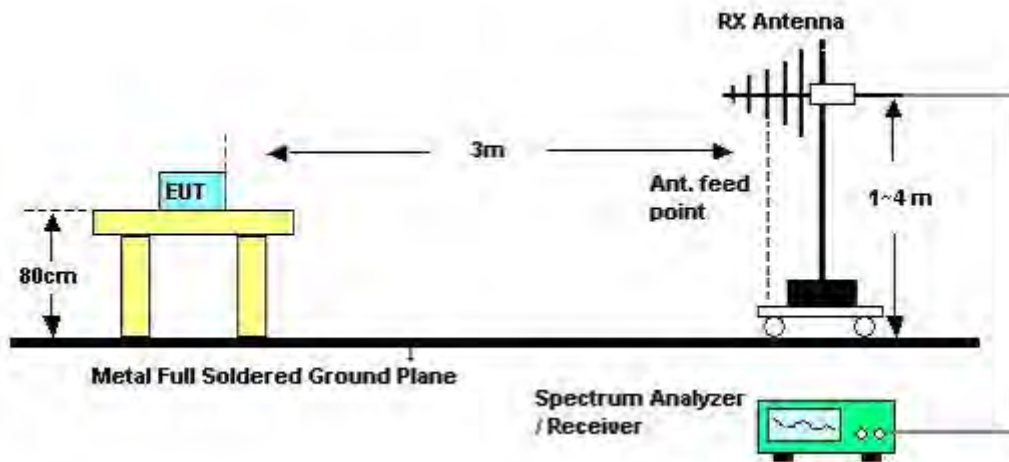
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 0.8 meter above ground for below 1G and 1.5 meter above ground for above 1G . The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from 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 the VBW is $\geq 1/T$ (Duty Cycle $< 98\%$) or 10Hz(Duty cycle $\geq 98\%$) 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 in cases 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.

2.5.4. Test Setup Layout

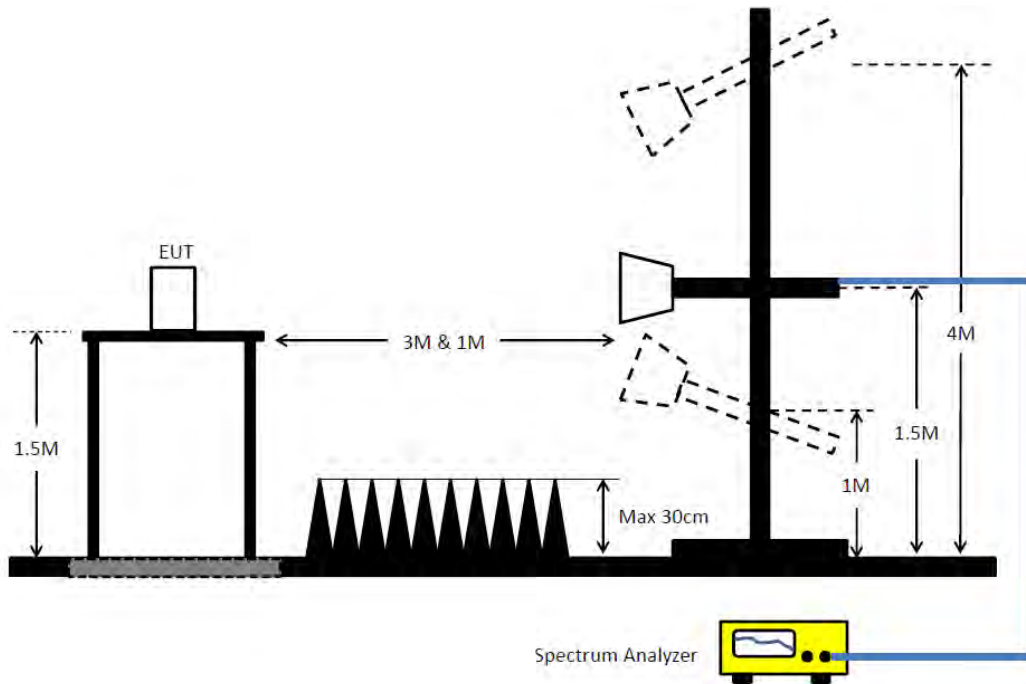
For Radiated Emissions: 9kHz ~30MHz



For Radiated Emissions: 30MHz~1GHz



For Radiated Emissions: Above 1GHz



2.5.5. Test Deviation

There is no deviation with the original standard.

2.5.6. EUT Operation during Test

For CDD mode:

The EUT was programmed to be in continuously transmitting mode.

For TXBF mode:

The EUT was programmed to be in beamforming transmitting mode.

2.5.7. Measurement Results Calculation

The measured Level is calculated using:

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor (if applicable) = Level.

2.5.8. Emissions in Restricted Frequency Bands (Below 30MHz)

There is a comparison data of both open-field test site and alternative test site - semi-Anechoic chamber according to KDB414788 Radiated Test Site, and the result came out very similar.

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

The radiated emissions were investigated from 9 kHz or the lowest frequency generated within the device, up to the 10 harmonic or 40 GHz, whichever is appropriate.



2.5.9. Results of Radiated Emissions (9kHz~30MHz)

Configurations	CTX	Test Mode	Mode 1~Mode 3
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Freq. (MHz)	Level (dBuV)	Over Limit (dB)	Limit Line (dBuV)	Remark
-	-	-	-	See Note

Note:

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

Distance extrapolation factor = $40 \log(\text{specific distance} / \text{test distance})$ (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor.



2.5.10. Results of Radiated Emissions (30MHz~1GHz)

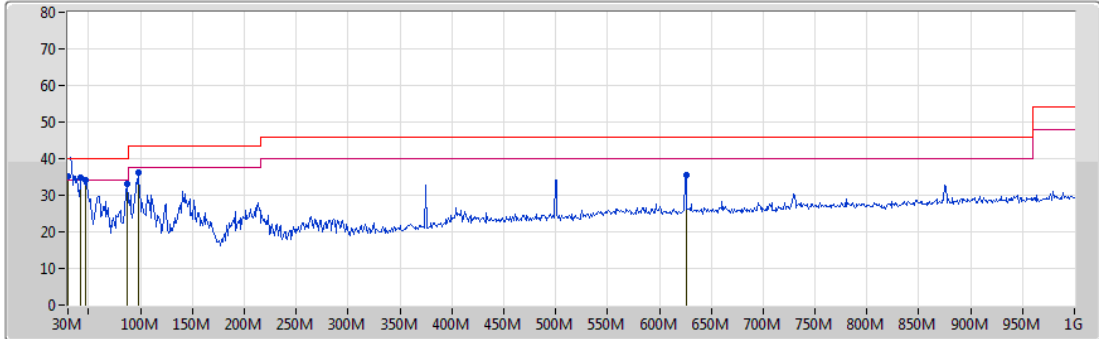
Mode Configure

Mode	Configure
Mode 1	CTX mode, EUT Y axis – WLAN 2.4GHz
Mode 2	CTX mode, EUT Y axis – WLAN 5GHz Band 1
Mode 3	CTX mode, EUT Y axis – WLAN 5GHz Band 4



Mode 1

13/07/2020

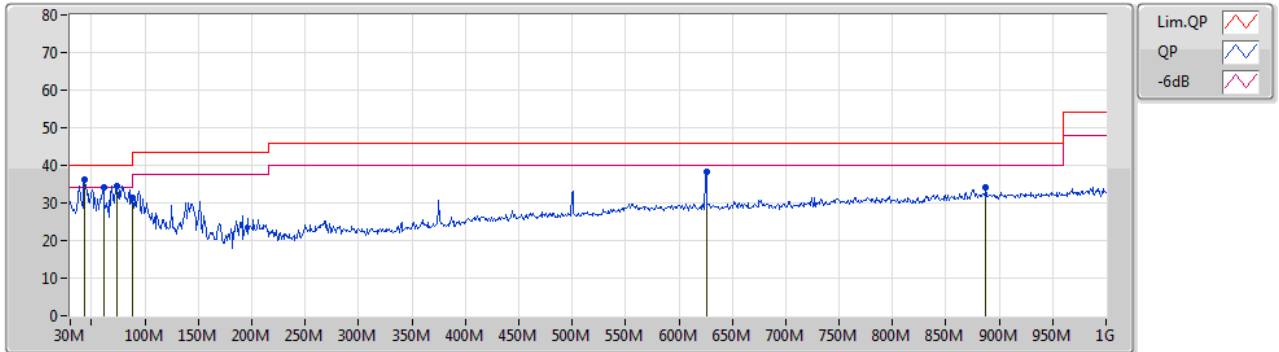


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV/m)	AF (dB/m)	CL (dB)	PA (dB)
QP	30M	35.21	40.00	-4.79	-6.17	3	Vertical	360	3.00	"Worst"	41.38	24.19	1.20	31.56
PK	42.61M	34.72	40.00	-5.28	-12.54	3	Vertical	360	2.00	-	47.26	17.61	1.30	31.45
PK	47.46M	34.21	40.00	-5.79	-14.79	3	Vertical	326	2.00	-	49.00	15.55	1.20	31.54
PK	87.23M	33.23	40.00	-6.77	-16.29	3	Vertical	282	3.00	-	49.52	14.12	1.40	31.81
PK	97.9M	36.36	43.50	-7.14	-14.00	3	Vertical	255	3.00	-	50.36	16.39	1.50	31.89
PK	625.58M	35.63	46.00	-10.37	-4.45	3	Vertical	172	1.50	-	40.08	24.41	3.55	32.41



Mode 1

12/07/2020

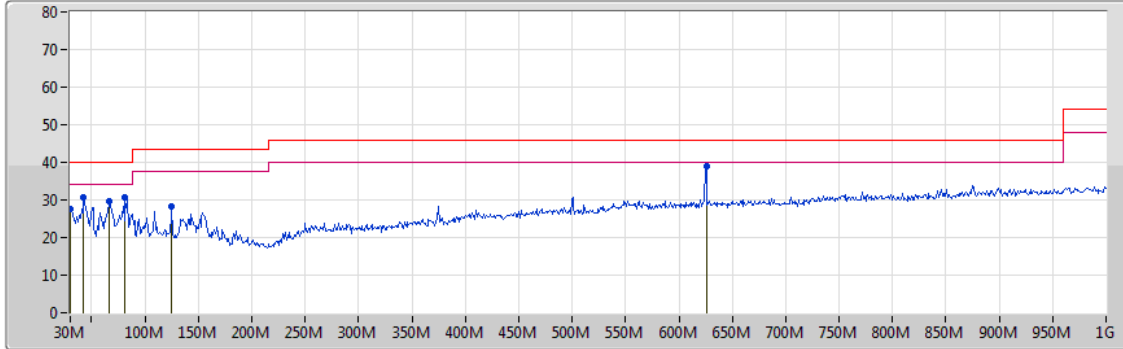


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV/m)	AF (dB/m)	CL (dB)	PA (dB)
PK	43.58M	36.23	40.00	-3.77	-13.01	3	Horizontal	360	1.00	"Worst"	49.24	17.19	1.26	31.46
PK	61.04M	34.09	40.00	-5.91	-18.01	3	Horizontal	340	1.50	-	52.10	12.60	1.20	31.81
PK	73.65M	34.52	40.00	-5.48	-17.96	3	Horizontal	183	2.00	-	52.48	12.50	1.30	31.76
PK	88M	31.48	43.50	-12.02	-16.15	3	Horizontal	111	1.25	-	47.63	14.27	1.40	31.82
PK	625.58M	38.11	46.00	-7.89	-4.45	3	Horizontal	286	1.00	-	42.56	24.41	3.55	32.41
PK	887.48M	34.19	46.00	-11.81	-1.90	3	Horizontal	59	2.00	-	36.09	25.94	4.51	32.35



Mode 2

13/07/2020

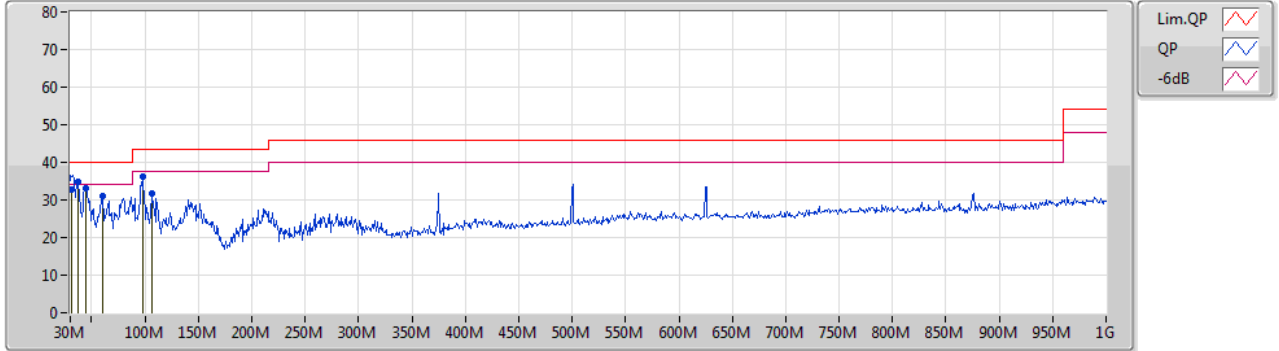


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV/m)	AF (dB/m)	CL (dB)	PA (dB)
PK	30M	27.61	40.00	-12.39	-6.17	3	Vertical	307	2.00	-	33.78	24.19	1.20	31.56
PK	42.61M	30.57	40.00	-9.43	-12.54	3	Vertical	182	1.00	-	43.11	17.61	1.30	31.45
PK	65.89M	29.76	40.00	-10.24	-18.07	3	Vertical	248	1.50	-	47.83	12.52	1.22	31.81
PK	81.41M	30.70	40.00	-9.30	-17.32	3	Vertical	359	1.25	-	48.02	13.04	1.40	31.76
PK	125.06M	28.16	43.50	-15.34	-12.07	3	Vertical	104	1.00	-	40.23	17.98	1.73	31.78
PK	625.58M	39.03	46.00	-6.97	-4.45	3	Vertical	235	1.25	"Worst"	43.48	24.41	3.55	32.41



Mode 2

13/07/2020

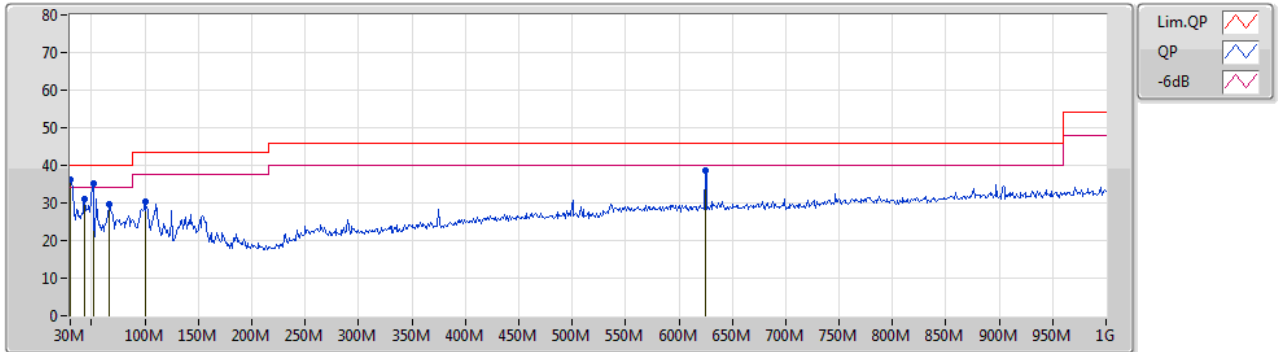


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV/m)	AF (dB/m)	CL (dB)	PA (dB)
QP	30.97M	32.60	40.00	-7.40	-6.70	3	Horizontal	123	3.00	-	39.30	23.62	1.22	31.54
PK	36.79M	34.79	40.00	-5.21	-9.31	3	Horizontal	71	3.00	"Worst"	44.10	20.81	1.34	31.46
PK	44.55M	33.18	40.00	-6.82	-13.38	3	Horizontal	360	3.00	-	46.56	16.87	1.22	31.47
PK	60.07M	30.99	40.00	-9.01	-17.92	3	Horizontal	227	3.00	-	48.91	12.69	1.20	31.81
PK	97.9M	36.07	43.50	-7.43	-14.00	3	Horizontal	184	3.00	-	50.07	16.39	1.50	31.89
PK	106.63M	31.58	43.50	-11.92	-12.78	3	Horizontal	281	3.00	-	44.36	17.47	1.57	31.82



Mode 3

13/07/2020

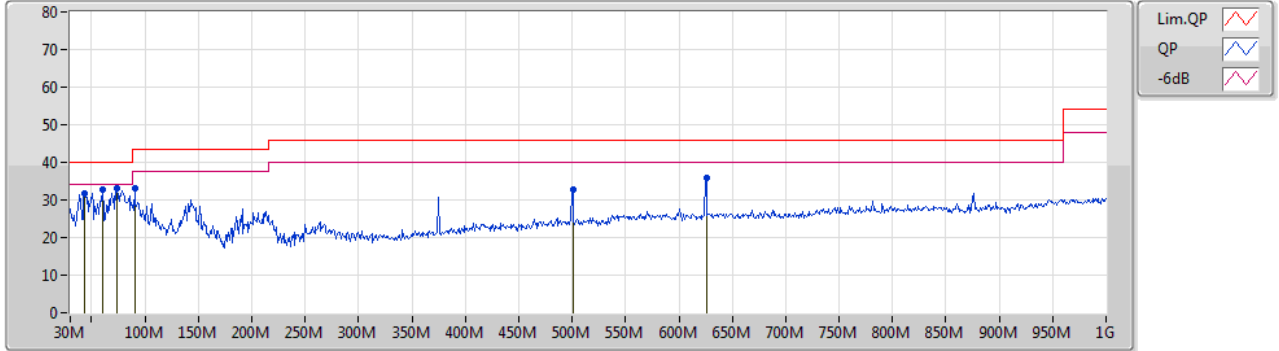


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV/m)	AF (dB/m)	CL (dB)	PA (dB)
PK	30M	36.33	40.00	-3.67	-6.17	3	Vertical	328	2.00	"Worst"	42.50	24.19	1.20	31.56
PK	43.58M	31.09	40.00	-8.91	-13.01	3	Vertical	195	1.00	-	44.10	17.19	1.26	31.46
PK	51.34M	35.13	40.00	-4.87	-16.35	3	Vertical	189	1.50	-	51.48	14.13	1.17	31.65
PK	66.86M	29.56	40.00	-10.44	-18.08	3	Vertical	235	1.00	-	47.64	12.48	1.24	31.80
PK	99.84M	30.26	43.50	-13.24	-13.77	3	Vertical	288	2.00	-	44.03	16.62	1.50	31.89
PK	624.61M	38.61	46.00	-7.39	-4.47	3	Vertical	245	1.25	-	43.08	24.39	3.55	32.41



Mode 3

13/07/2020



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV/m)	AF (dB/m)	CL (dB)	PA (dB)
PK	43.58M	31.78	40.00	-8.22	-13.01	3	Horizontal	218	1.25	-	44.79	17.19	1.26	31.46
PK	60.07M	32.60	40.00	-7.40	-17.92	3	Horizontal	0	1.00	-	50.52	12.69	1.20	31.81
PK	73.65M	33.18	40.00	-6.82	-17.96	3	Horizontal	245	1.00	"Worst"	51.14	12.50	1.30	31.76
PK	90.14M	33.03	43.50	-10.47	-15.63	3	Horizontal	325	1.00	-	48.66	14.82	1.40	31.85
PK	500.45M	32.60	46.00	-13.40	-6.32	3	Horizontal	214	1.00	-	38.92	22.95	3.10	32.37
PK	625.58M	36.03	46.00	-9.97	-4.45	3	Horizontal	285	1.00	-	40.48	24.41	3.55	32.41



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

Following channel(s) was (were) selected for the final test as listed below.

MODE	TX Chain	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	Ant. 1, 1S1T (SISO)	1, 6, 11	DSSS	DBPSK	1
802.11ax 20MHz	Ant. 1+2, 1S2T (CDD)	1, 6, 11	OFDMA	BPSK	MCS0/Nss1 (8.6)
802.11ax 20MHz	Ant. 1+2, 1S2T (TXBF)	1, 6, 11	OFDMA	BPSK	MCS0/Nss1 (8.6)
802.11ax 40MHz	Ant. 1+2, 1S2T (CDD)	3, 6, 9	OFDMA	BPSK	MCS0/Nss1 (17.2)
802.11ax 40MHz	Ant. 1+2, 1S2T (TXBF)	3, 6, 9	OFDMA	BPSK	MCS0/Nss1 (17.2)



Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	802.11b 1Mbps / CH 1 / Ant. 1, 1S1T (SISO)	Polarization	V
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802.11b_Nss1,(1Mbps)_1TX 22/06/2020

2412MHz_TX

Lim.PK

PK

Lim.AV

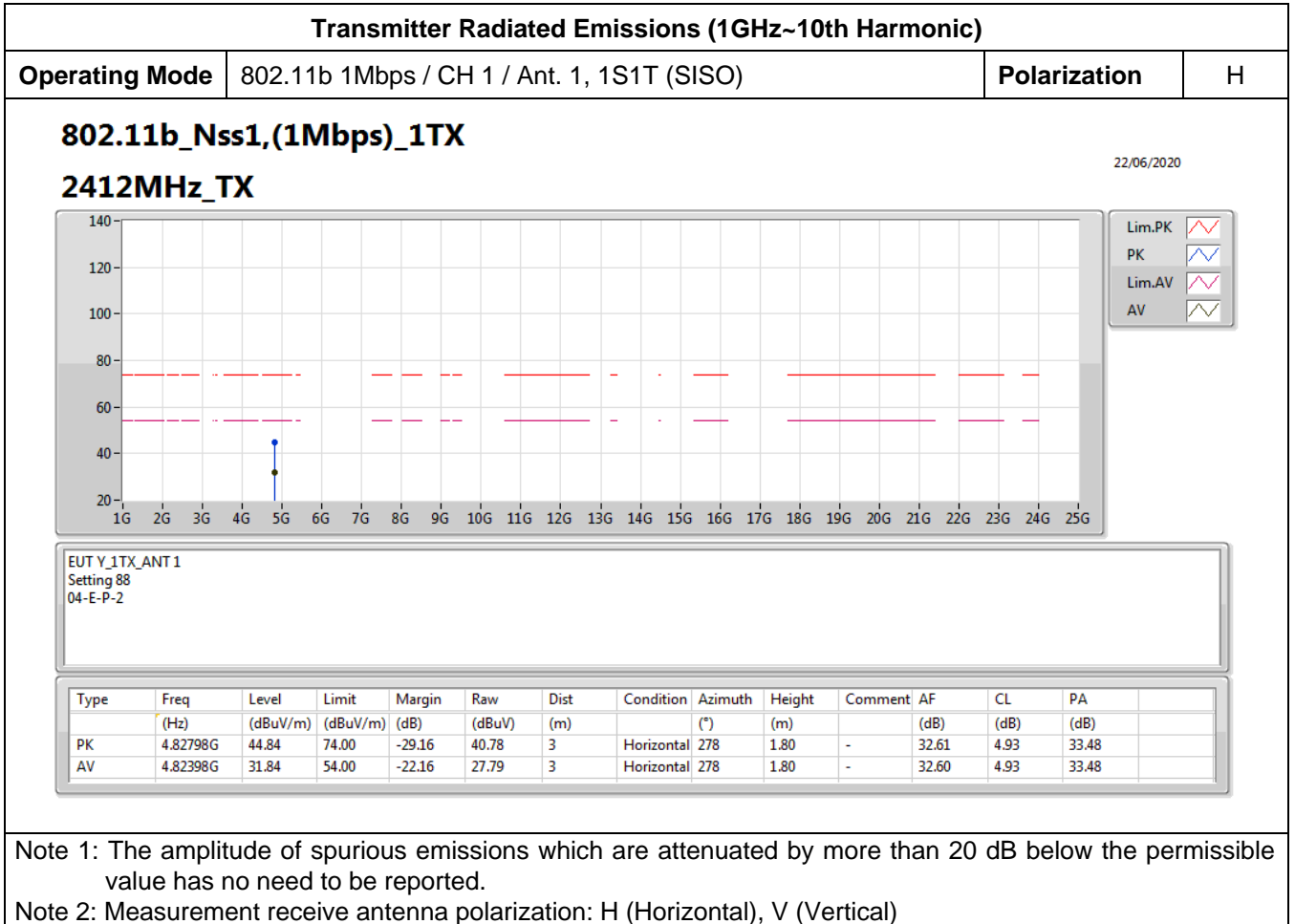
AV

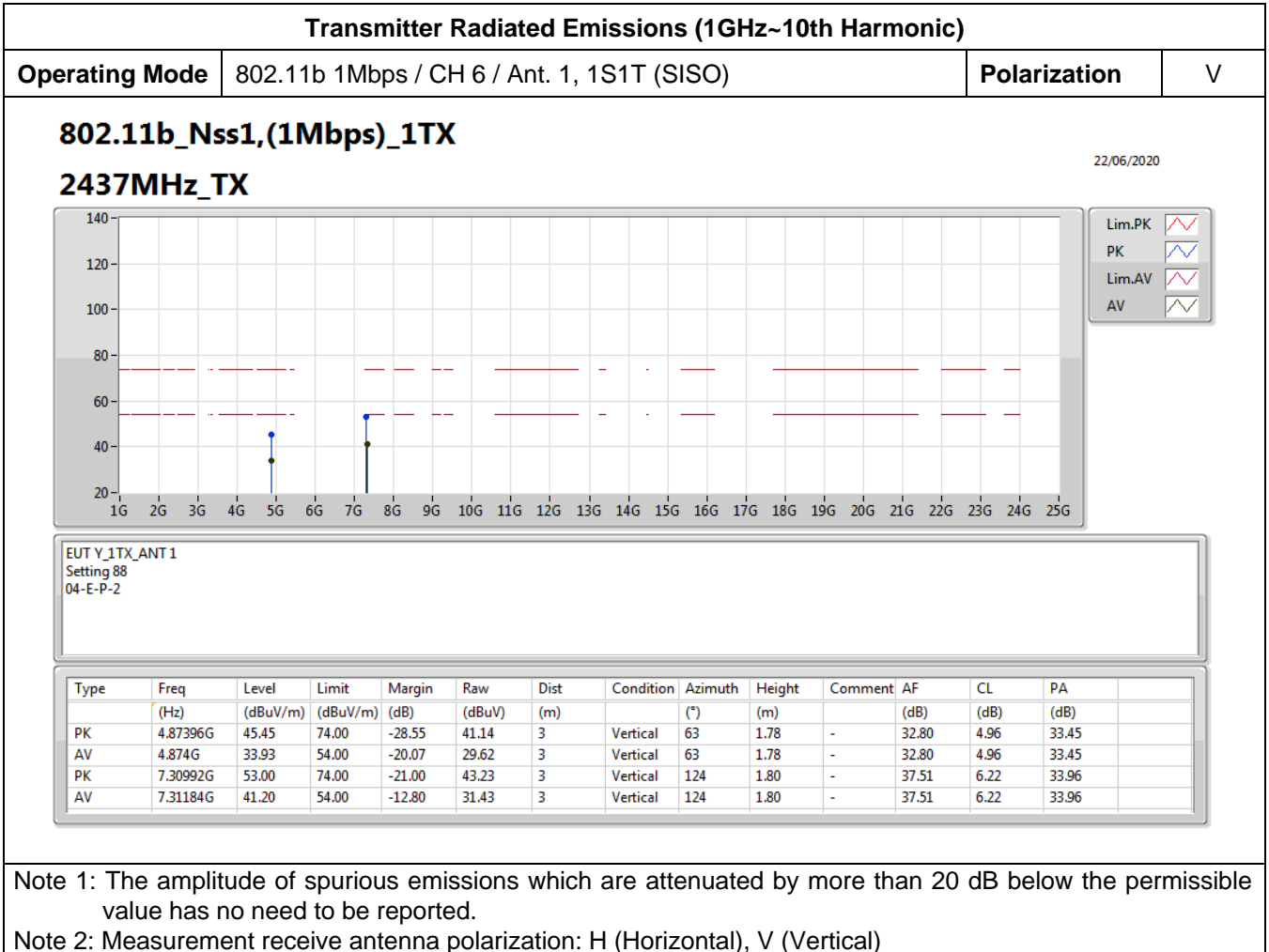
EUT Y_1TX_ANT1
Setting 88
04-E-P-2

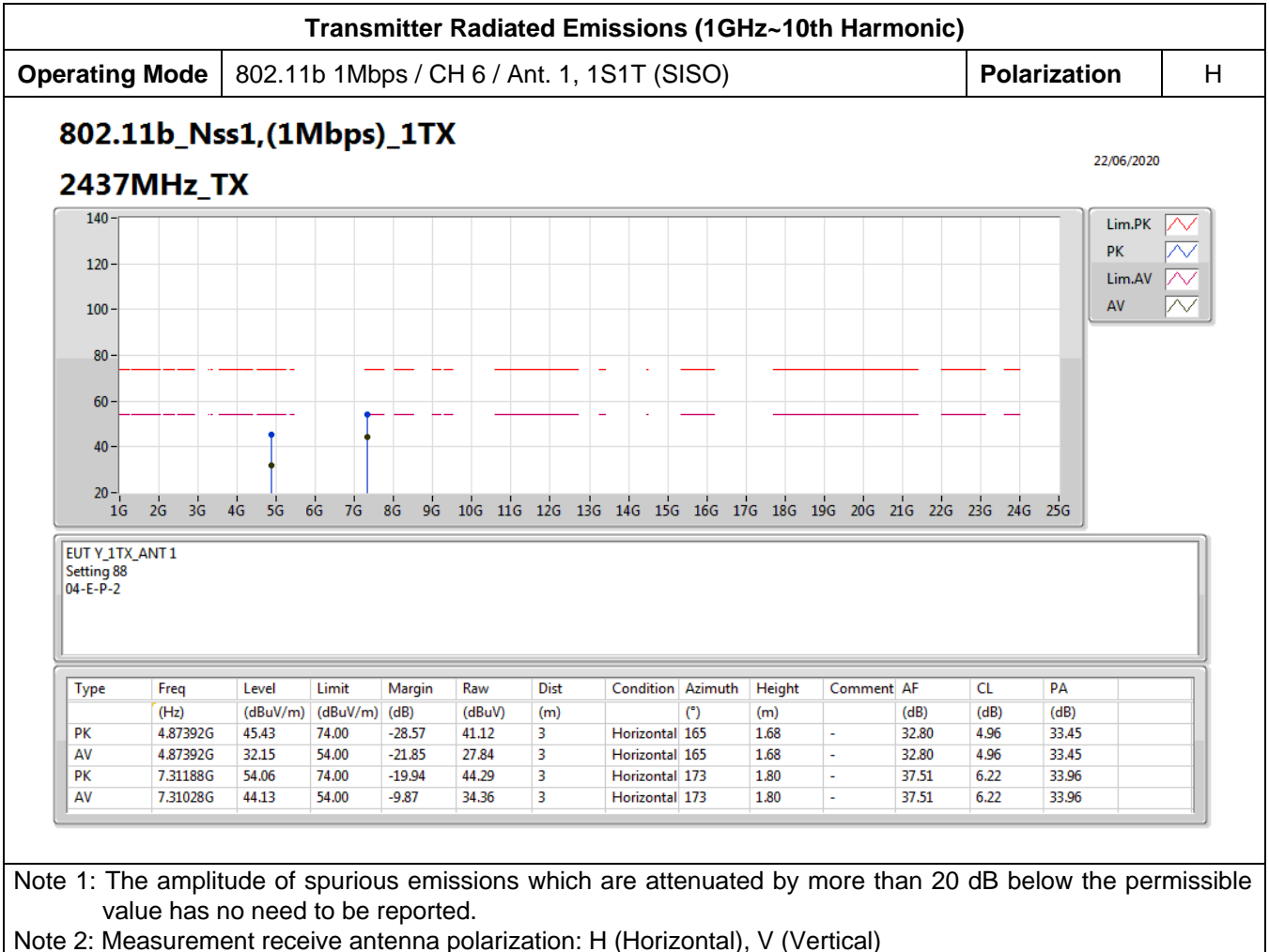
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	4.82458G	44.16	74.00	-29.84	40.11	3	Vertical	62	1.68	-	32.60	4.93	33.48
AV	4.824G	32.41	54.00	-21.59	28.36	3	Vertical	62	1.68	-	32.60	4.93	33.48

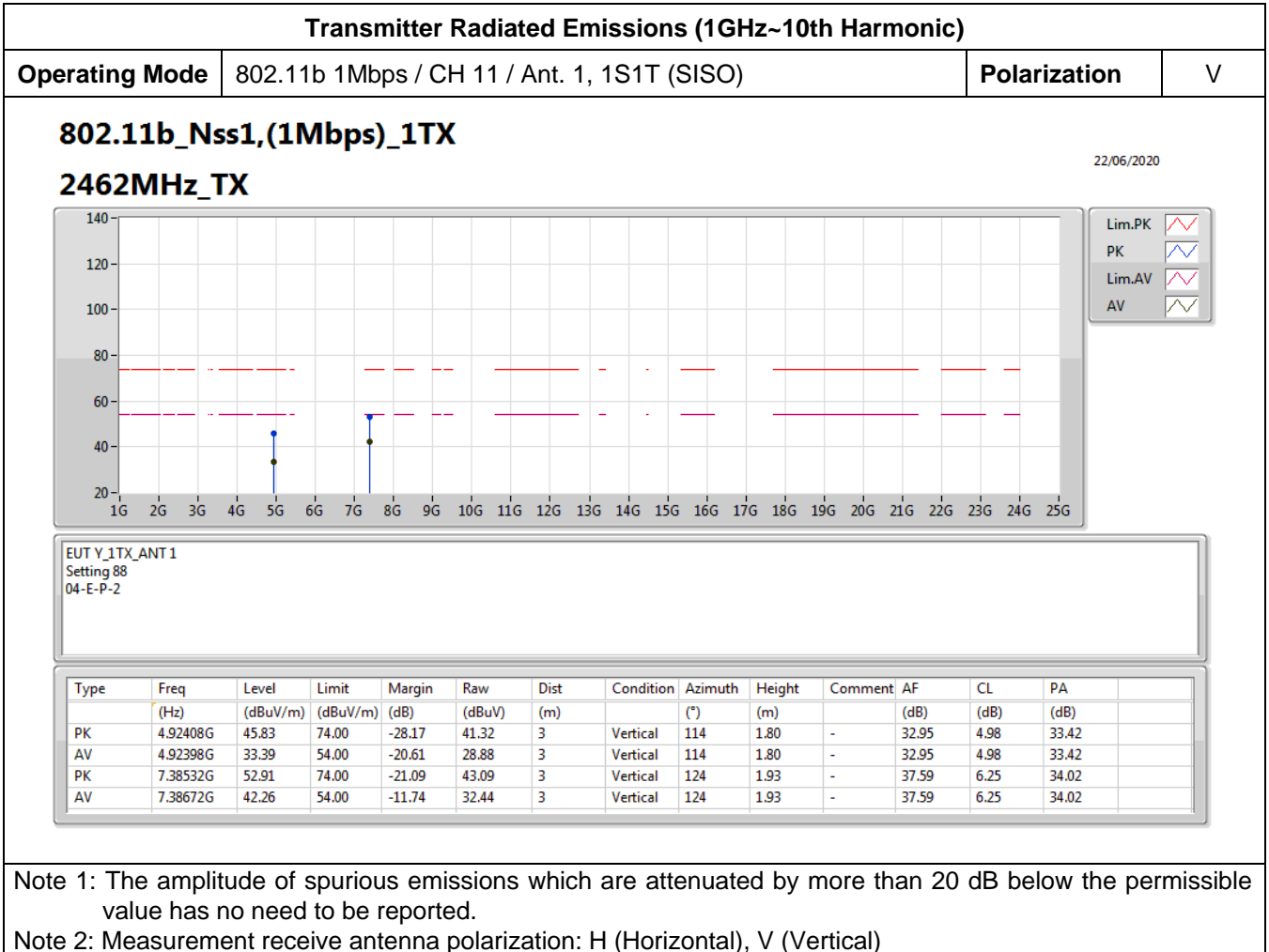
Note 1: The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

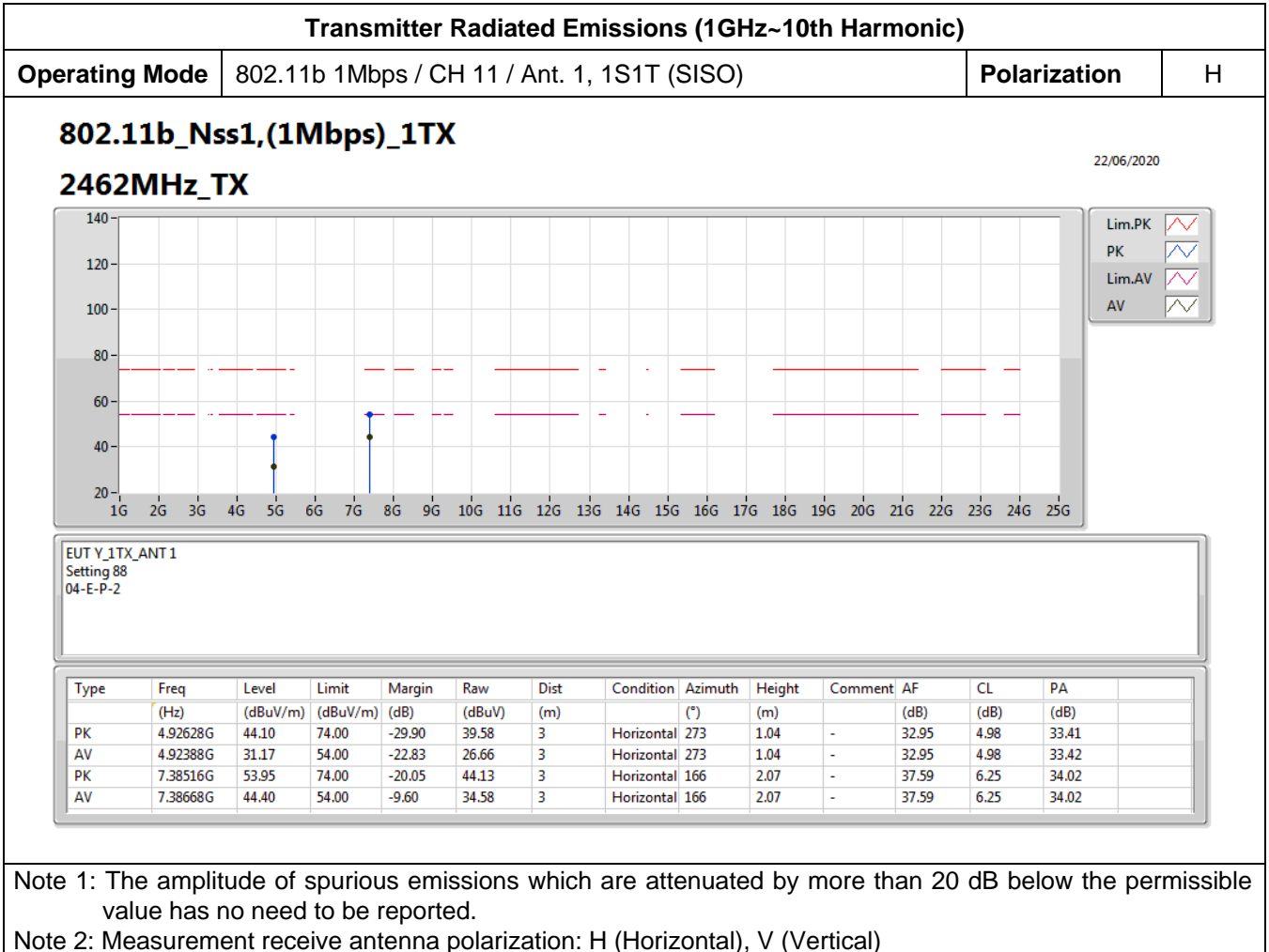
Note 2: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

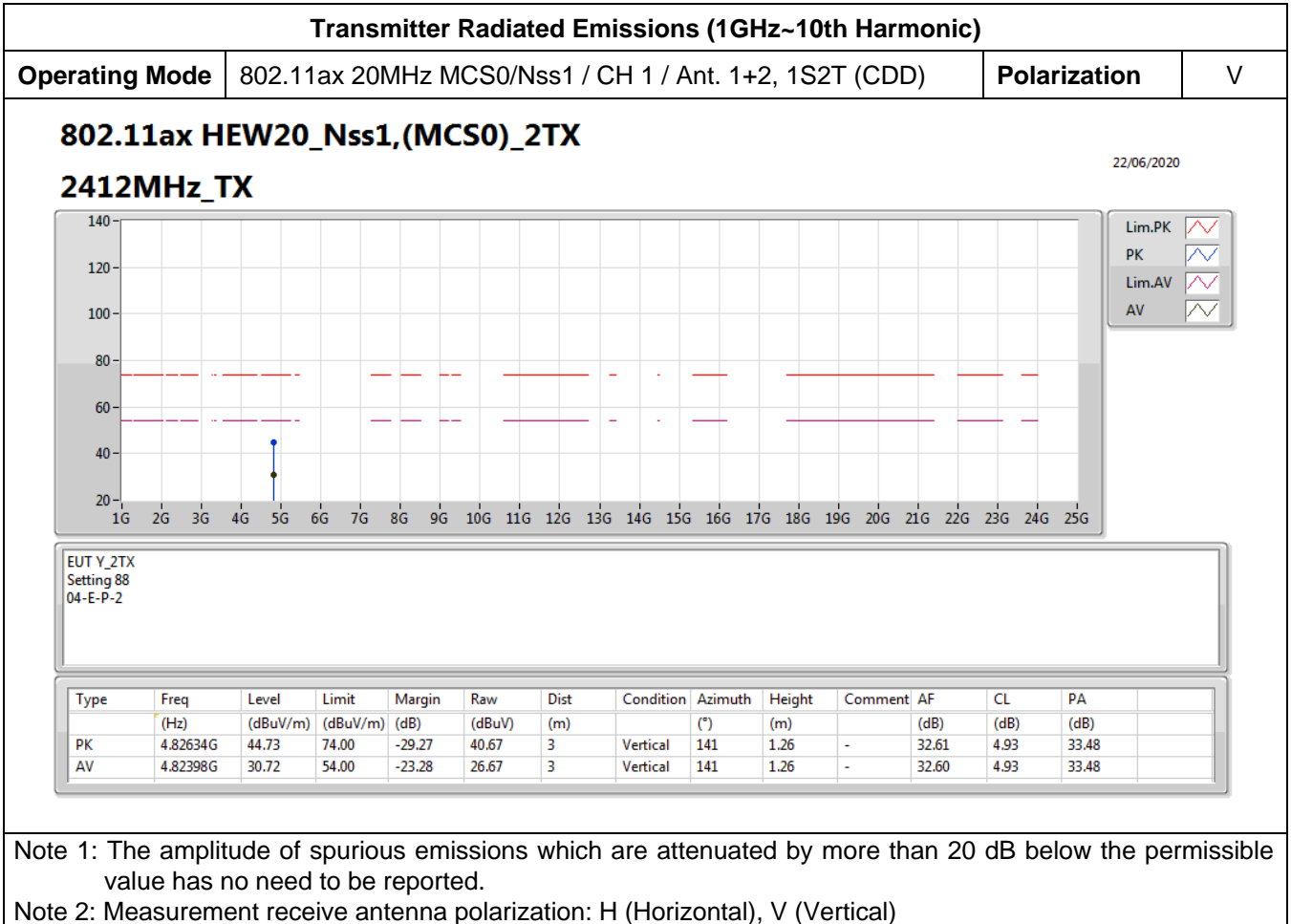


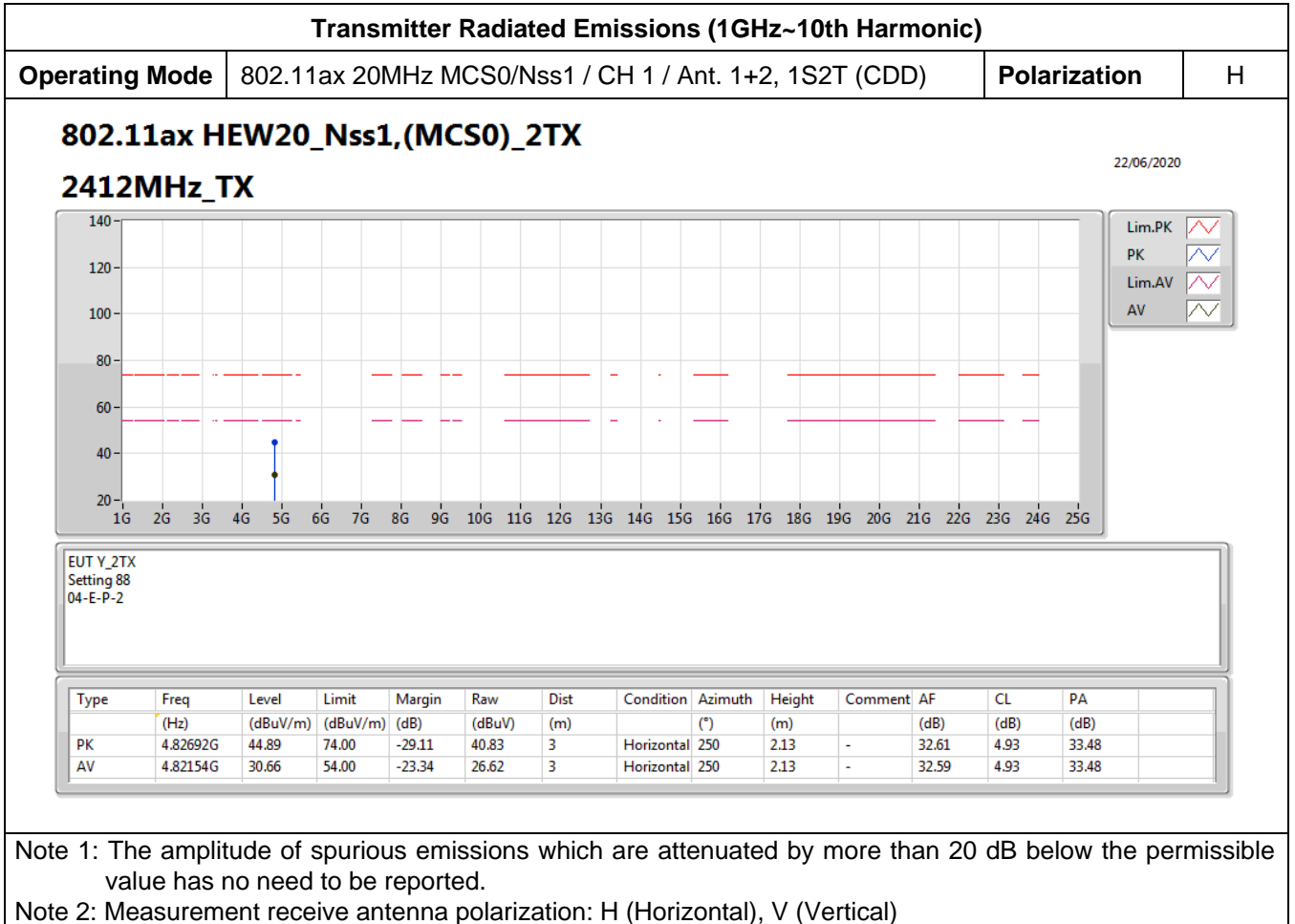










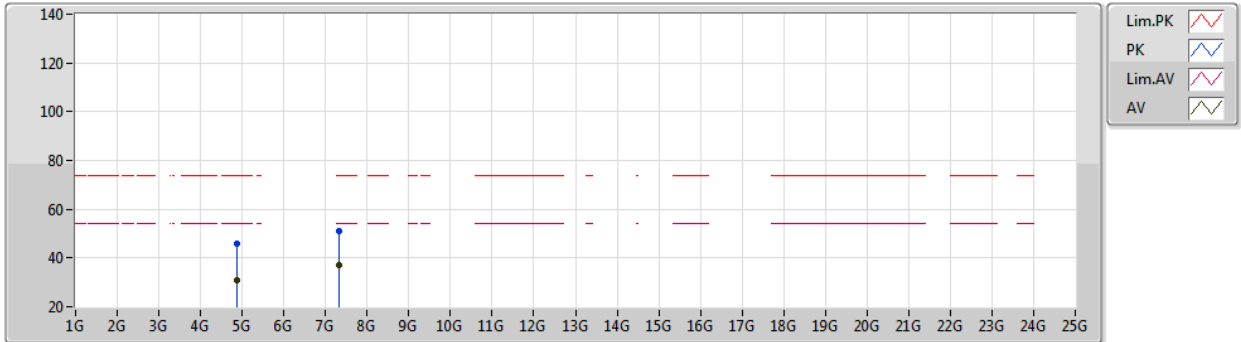




Transmitter Radiated Emissions (1GHz~10th Harmonic)			
Operating Mode	802.11ax 20MHz MCS0/Nss1 / CH 6 / Ant. 1+2, 1S2T (CDD)	Polarization	V

802.11ax HEW20_Nss1,(MCS0)_2TX
2437MHz_TX

22/06/2020



EUT Y_2TX
 Setting 88
 04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	4.87198G	45.81	74.00	-28.19	41.51	3	Vertical	308	1.53	-	32.79	4.96	33.45
AV	4.87556G	30.97	54.00	-23.03	26.66	3	Vertical	308	1.53	-	32.80	4.96	33.45
PK	7.31502G	50.89	74.00	-23.11	41.10	3	Vertical	96	1.16	-	37.52	6.23	33.96
AV	7.3153G	36.87	54.00	-17.13	27.08	3	Vertical	96	1.16	-	37.52	6.23	33.96

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.

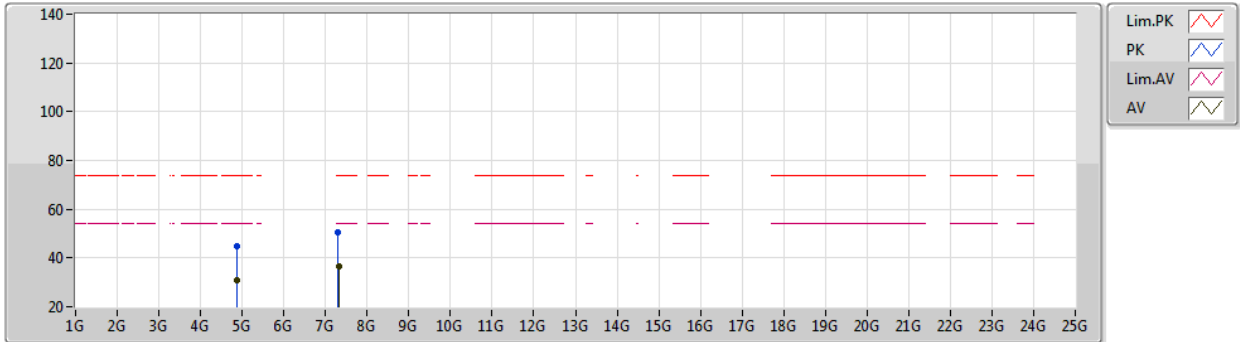
Note 2: Measurement receive antenna polarization: H (Horizontal), V (Vertical)



Transmitter Radiated Emissions (1GHz~10th Harmonic)			
Operating Mode	802.11ax 20MHz MCS0/Nss1 / CH 6 / Ant. 1+2, 1S2T (CDD)	Polarization	H

802.11ax HEW20_Nss1,(MCS0)_2TX
2437MHz_TX

22/06/2020

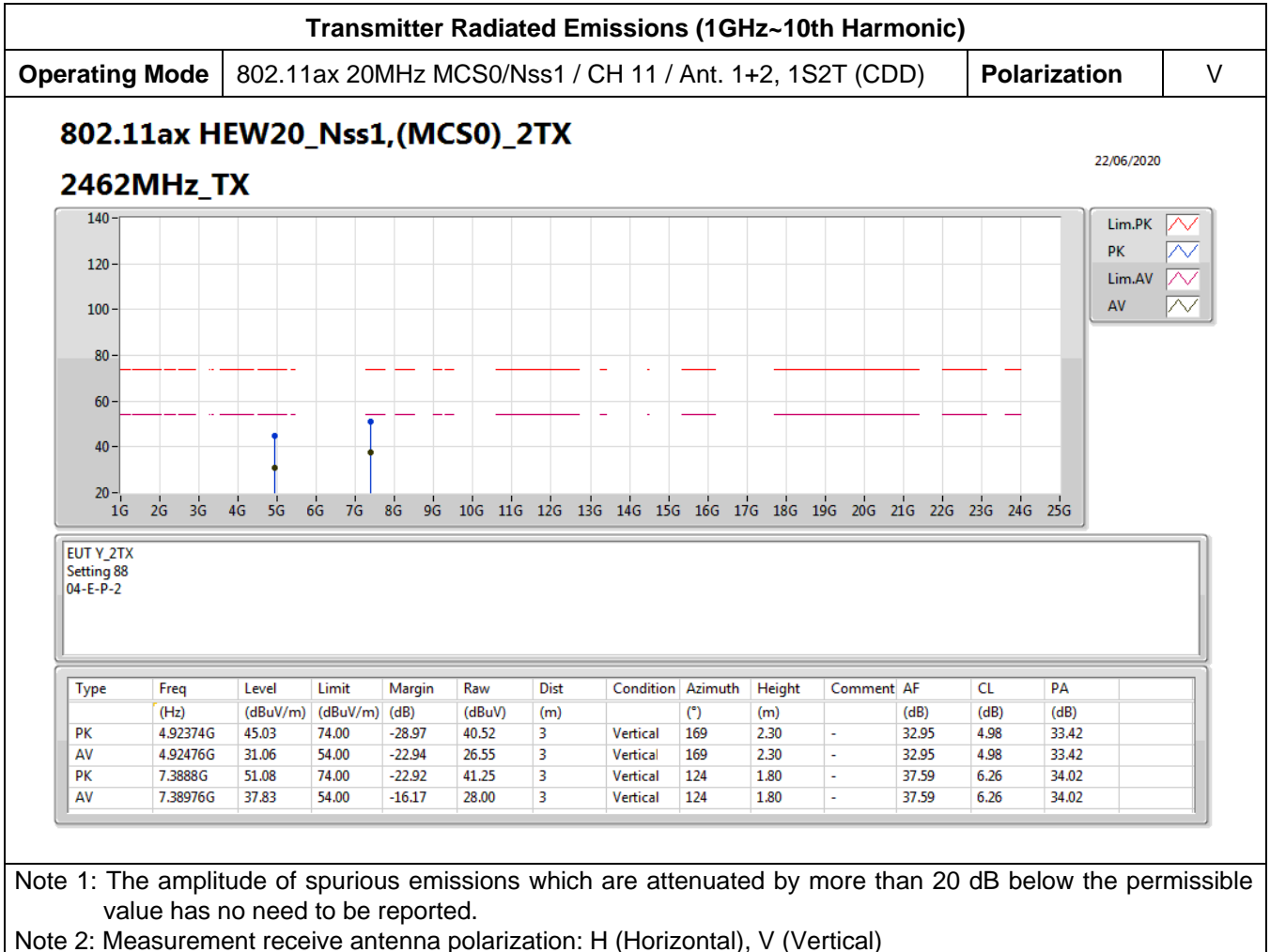


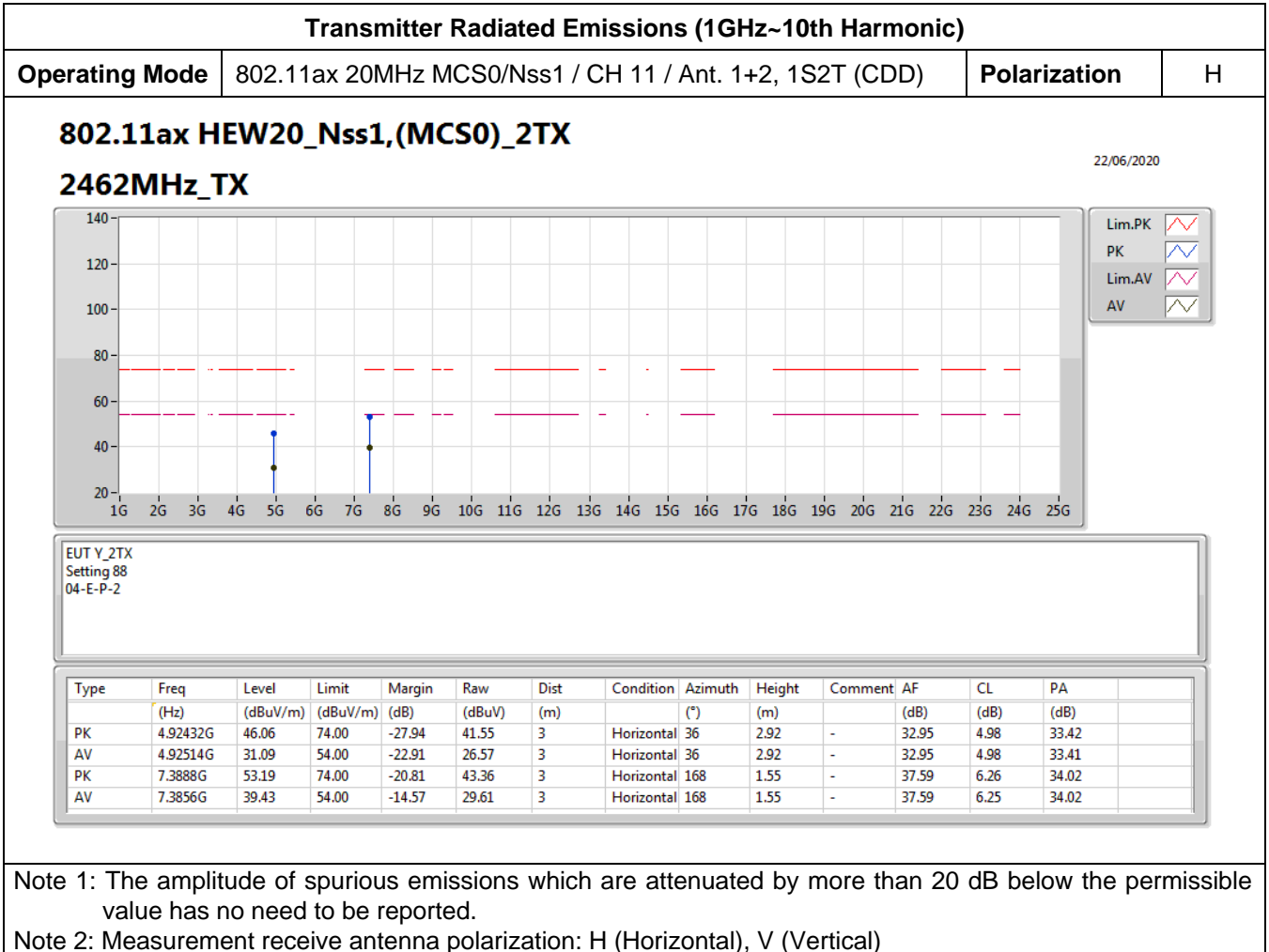
EUT_Y_2TX
 Setting 88
 04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	4.8789G	45.05	74.00	-28.95	40.71	3	Horizontal	335	1.71	-	32.82	4.96	33.44
AV	4.87496G	30.86	54.00	-23.14	26.55	3	Horizontal	335	1.71	-	32.80	4.96	33.45
PK	7.30796G	50.60	74.00	-23.40	40.83	3	Horizontal	89	1.80	-	37.51	6.22	33.96
AV	7.31546G	36.79	54.00	-17.21	27.00	3	Horizontal	89	1.80	-	37.52	6.23	33.96

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







Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	802.11ax 20MHz MCS0/Nss1 / CH 1 / Ant. 1+2, 1S2T (TXBF)	Polarization	V
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802.11ax HEW20-BF_Nss1,(MCS0)_2TX 22/06/2020

2412MHz_TX

EUT Y_2TX
Setting 88
04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	4.82238G	45.10	74.00	-28.90	41.06	3	Vertical	63	1.53	-	32.59	4.93	33.48
AV	4.82842G	31.80	54.00	-22.20	27.74	3	Vertical	63	1.53	-	32.61	4.93	33.48

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



Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode	802.11ax 20MHz MCS0/Nss1 / CH 1 / Ant. 1+2, 1S2T (TXBF)	Polarization	H
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802.11ax HEW20-BF_Nss1,(MCS0)_2TX
2412MHz_TX 22/06/2020

EUT Y_2TX
Setting 88
04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	4.81964G	45.55	74.00	-28.45	41.53	3	Horizontal	229	2.09	-	32.58	4.93	33.49
AV	4.82336G	31.80	54.00	-22.20	27.76	3	Horizontal	229	2.09	-	32.59	4.93	33.48

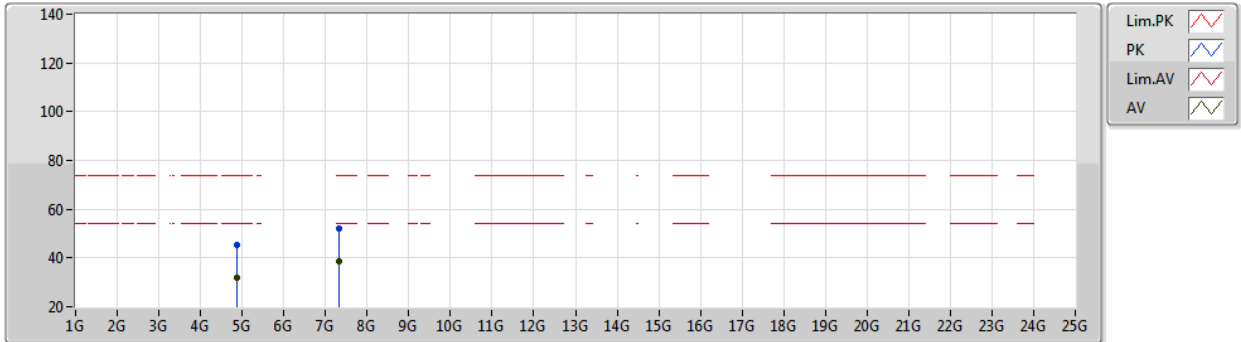
Note 1: The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.
 Note 2: Measurement receive antenna polarization: H (Horizontal), V (Vertical)



Transmitter Radiated Emissions (1GHz~10th Harmonic)			
Operating Mode	802.11ax 20MHz MCS0/Nss1 / CH 6 / Ant. 1+2, 1S2T (TXBF)	Polarization	V

**802.11ax HEW20-BF_Nss1,(MCS0)_2TX
2437MHz_TX**

22/06/2020



EUT Y_2TX
Setting 88
04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	4.87688G	45.23	74.00	-28.77	40.91	3	Vertical	209	1.88	-	32.81	4.96	33.45
AV	4.87242G	31.94	54.00	-22.06	27.64	3	Vertical	209	1.88	-	32.79	4.96	33.45
PK	7.321G	52.18	74.00	-21.82	42.40	3	Vertical	127	1.80	-	37.52	6.23	33.97
AV	7.3182G	38.64	54.00	-15.36	28.85	3	Vertical	127	1.80	-	37.52	6.23	33.96

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

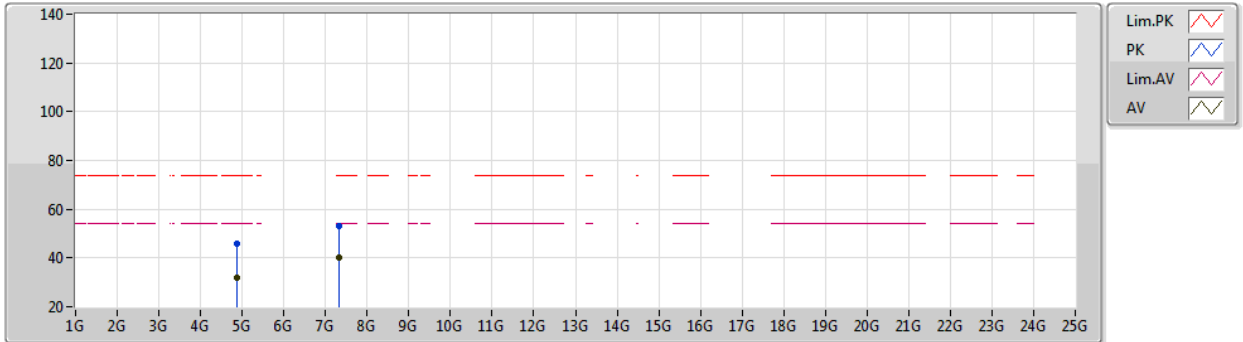


Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode | 802.11ax 20MHz MCS0/Nss1 / CH 6 / Ant. 1+2, 1S2T (TXBF) | **Polarization** | H

**802.11ax HEW20-BF_Nss1,(MCS0)_2TX
2437MHz_TX**

22/06/2020



EUT Y_2TX
Setting 88
04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	4.86962G	45.91	74.00	-28.09	41.63	3	Horizontal	241	2.44	-	32.78	4.95	33.45
AV	4.87498G	32.02	54.00	-21.98	27.71	3	Horizontal	241	2.44	-	32.80	4.96	33.45
PK	7.323G	52.98	74.00	-21.02	43.20	3	Horizontal	171	1.41	-	37.52	6.23	33.97
AV	7.3242G	39.92	54.00	-14.08	30.14	3	Horizontal	171	1.41	-	37.52	6.23	33.97

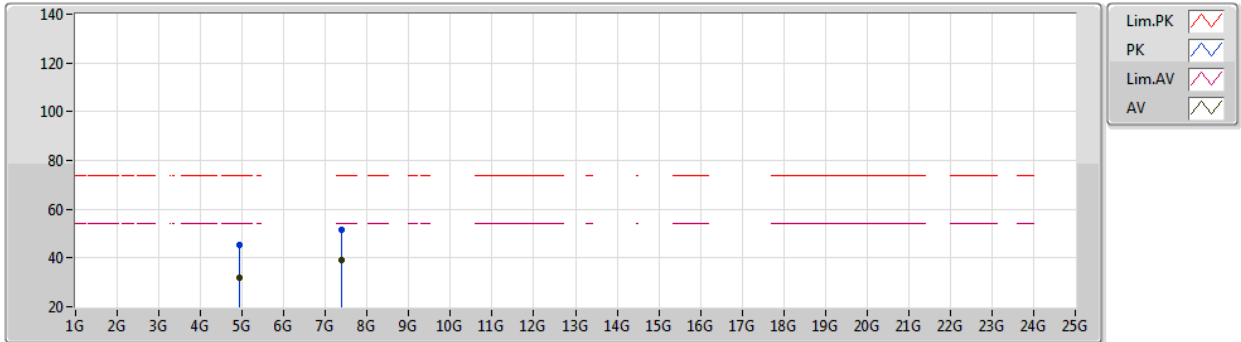
Note 1: The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.
 Note 2: Measurement receive antenna polarization: H (Horizontal), V (Vertical)



Transmitter Radiated Emissions (1GHz~10th Harmonic)			
Operating Mode	802.11ax 20MHz MCS0/Nss1 / CH 11 / Ant. 1+2, 1S2T (TXBF)	Polarization	V

**802.11ax HEW20-BF_Nss1,(MCS0)_2TX
2462MHz_TX**

22/06/2020

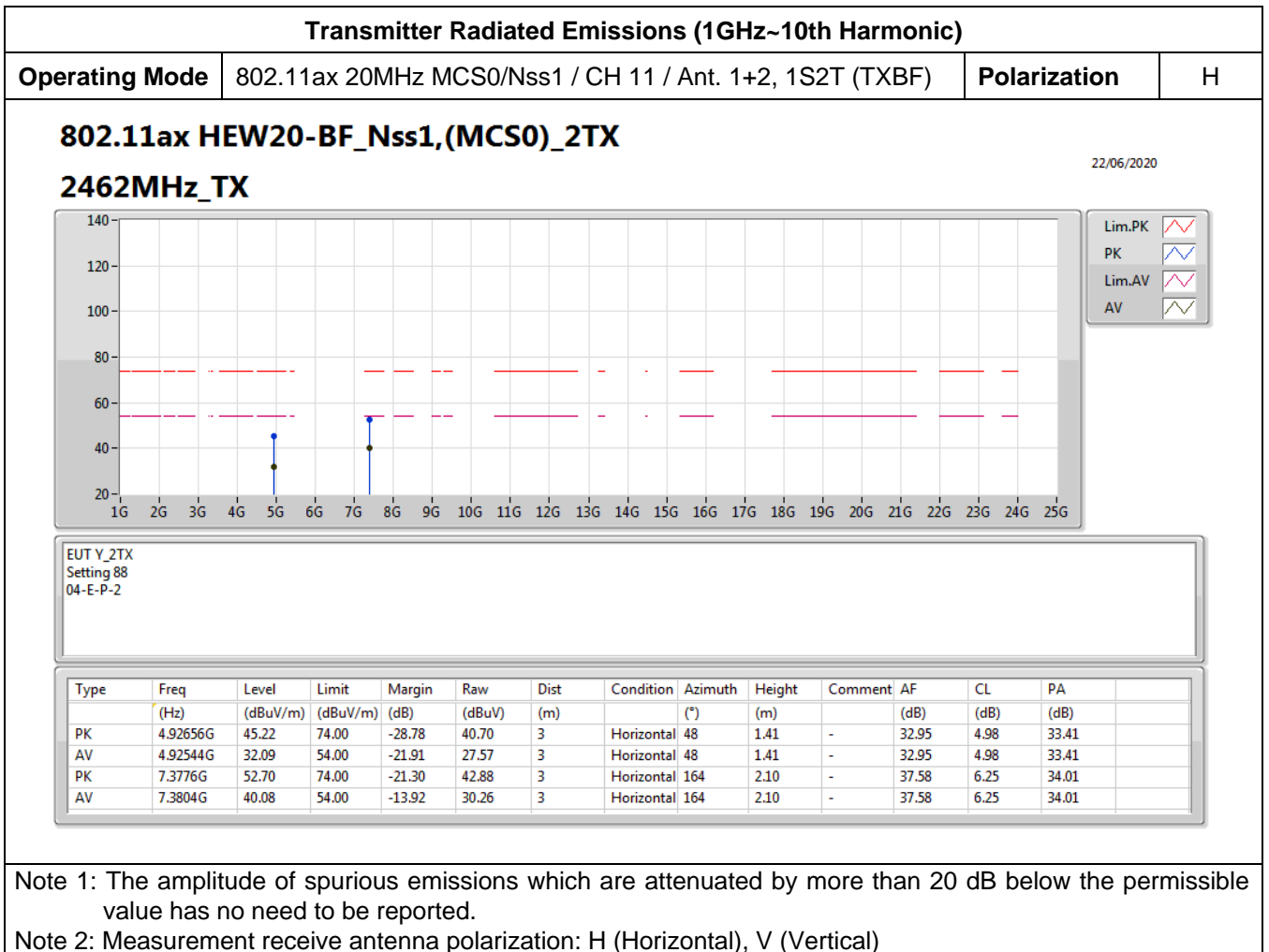


EUT Y_2TX
Setting 88
04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	4.92124G	45.50	74.00	-28.50	41.00	3	Vertical	62	1.28	-	32.94	4.98	33.42
AV	4.9268G	32.14	54.00	-21.86	27.62	3	Vertical	62	1.28	-	32.95	4.98	33.41
PK	7.3932G	51.41	74.00	-22.59	41.58	3	Vertical	98	2.81	-	37.59	6.26	34.02
AV	7.3964G	38.91	54.00	-15.09	29.08	3	Vertical	98	2.81	-	37.60	6.26	34.03

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

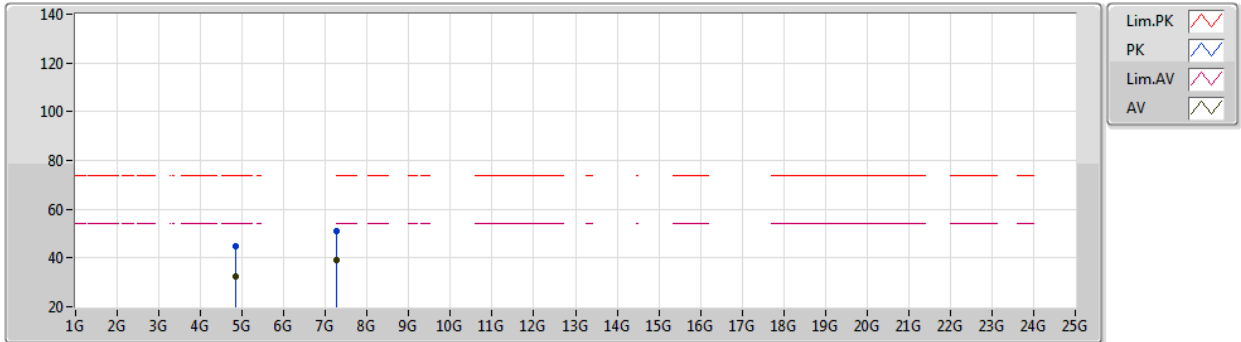




Transmitter Radiated Emissions (1GHz~10th Harmonic)			
Operating Mode	802.11ax 40MHz MCS0/Nss1 / CH 3 / Ant. 1+2, 1S2T (CDD)	Polarization	V

802.11ax HEW40_Nss1,(MCS0)_2TX
2422MHz_TX

22/06/2020



EUT Y_2TX
 Setting 88
 04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	4.84182G	44.90	74.00	-29.10	40.76	3	Vertical	225	2.34	-	32.67	4.94	33.47
AV	4.8473G	32.60	54.00	-21.40	28.44	3	Vertical	225	2.34	-	32.69	4.94	33.47
PK	7.2592G	51.28	74.00	-22.72	41.65	3	Vertical	131	1.61	-	37.34	6.20	33.91
AV	7.2596G	38.98	54.00	-15.02	29.35	3	Vertical	131	1.61	-	37.34	6.20	33.91

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.

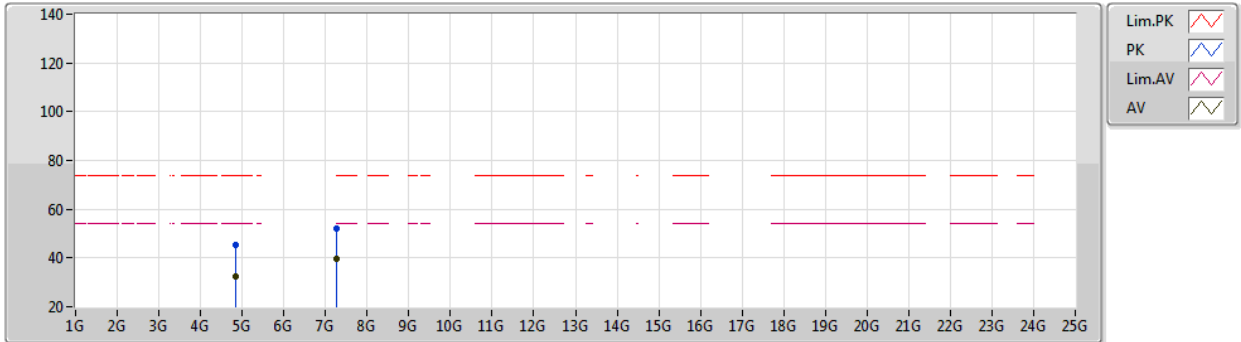
Note 2: Measurement receive antenna polarization: H (Horizontal), V (Vertical)



Transmitter Radiated Emissions (1GHz~10th Harmonic)			
Operating Mode	802.11ax 40MHz MCS0/Nss1 / CH 3 / Ant. 1+2, 1S2T (CDD)	Polarization	H

802.11ax HEW40_Nss1,(MCS0)_2TX
2422MHz_TX

22/06/2020

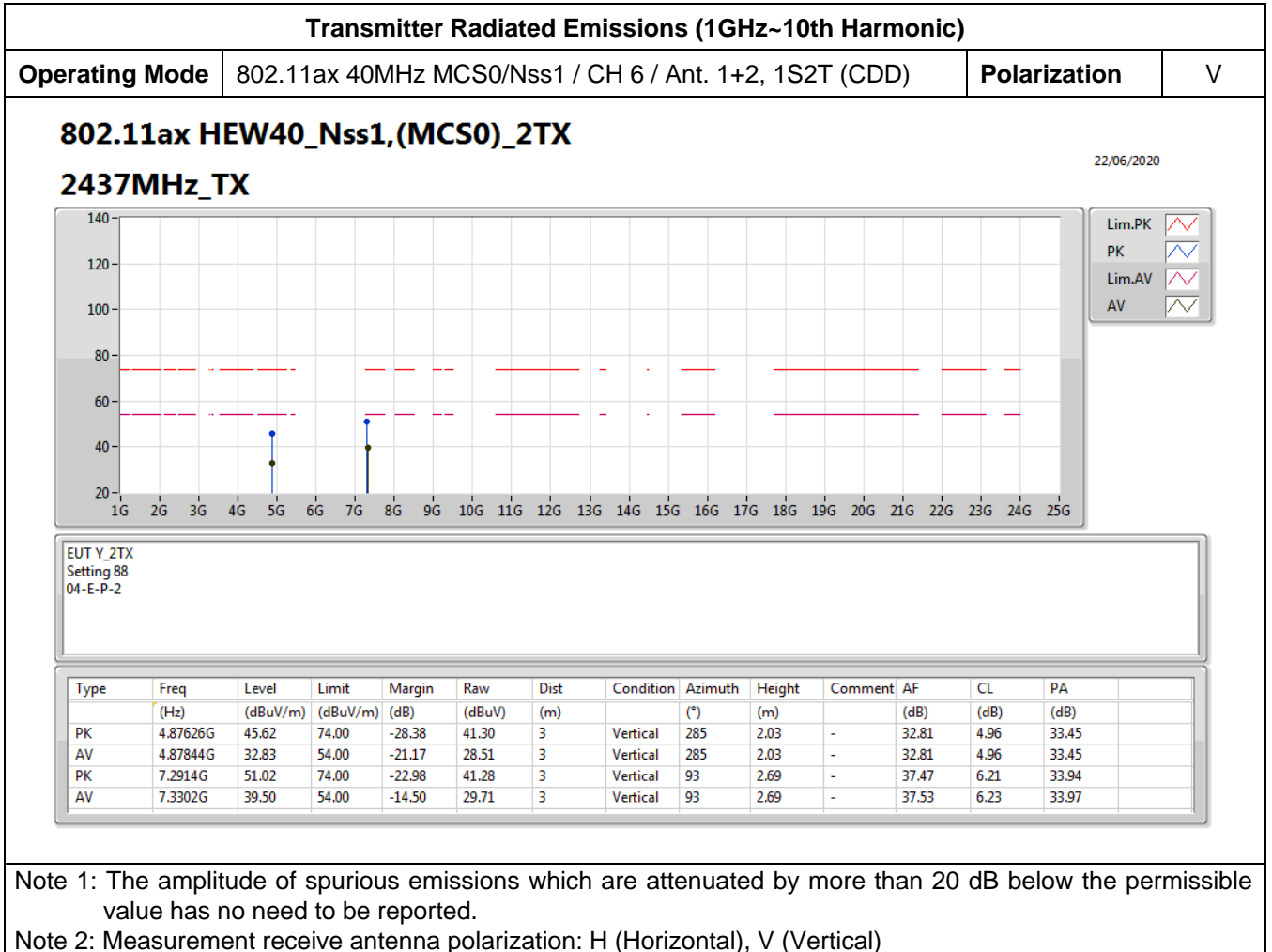


EUT Y_2TX
 Setting 88
 04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	4.84478G	45.34	74.00	-28.66	41.19	3	Horizontal	25	1.87	-	32.68	4.94	33.47
AV	4.83928G	32.66	54.00	-21.34	28.53	3	Horizontal	25	1.87	-	32.66	4.94	33.47
PK	7.2556G	51.95	74.00	-22.05	42.35	3	Horizontal	160	2.34	-	37.32	6.19	33.91
AV	7.2568G	39.54	54.00	-14.46	29.93	3	Horizontal	160	2.34	-	37.33	6.19	33.91

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

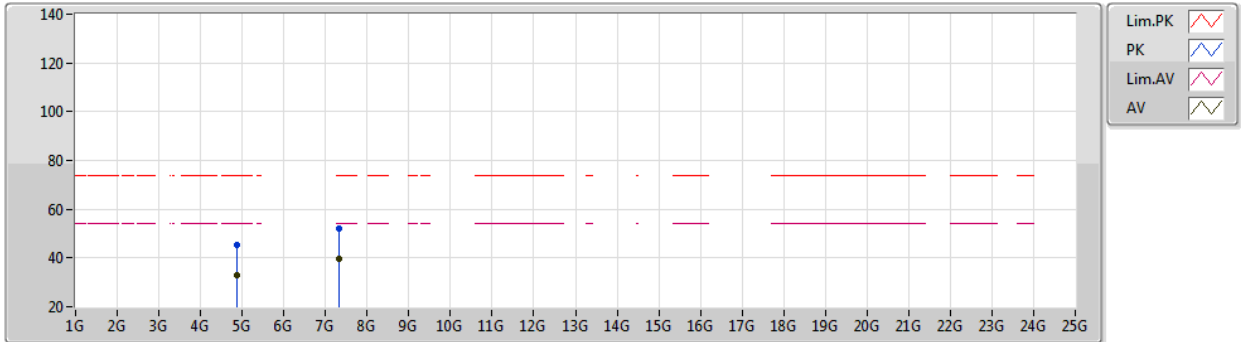




Transmitter Radiated Emissions (1GHz~10th Harmonic)			
Operating Mode	802.11ax 40MHz MCS0/Nss1 / CH 6 / Ant. 1+2, 1S2T (CDD)	Polarization	H

802.11ax HEW40_Nss1,(MCS0)_2TX
2437MHz_TX

22/06/2020



EUT Y_2TX
 Setting 88
 04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	4.87778G	45.55	74.00	-28.45	41.23	3	Horizontal	145	1.55	-	32.81	4.96	33.45
AV	4.8789G	32.89	54.00	-21.11	28.55	3	Horizontal	145	1.55	-	32.82	4.96	33.44
PK	7.321G	52.03	74.00	-21.97	42.25	3	Horizontal	173	2.13	-	37.52	6.23	33.97
AV	7.3278G	39.81	54.00	-14.19	30.02	3	Horizontal	173	2.13	-	37.53	6.23	33.97

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.

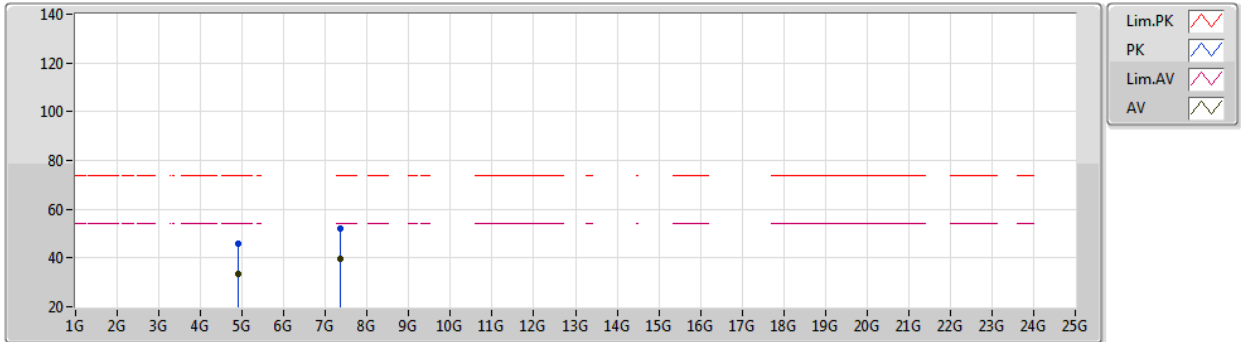
Note 2: Measurement receive antenna polarization: H (Horizontal), V (Vertical)



Transmitter Radiated Emissions (1GHz~10th Harmonic)			
Operating Mode	802.11ax 40MHz MCS0/Nss1 / CH 9 / Ant. 1+2, 1S2T (CDD)	Polarization	V

802.11ax HEW40_Nss1,(MCS0)_2TX
2452MHz_TX

22/06/2020

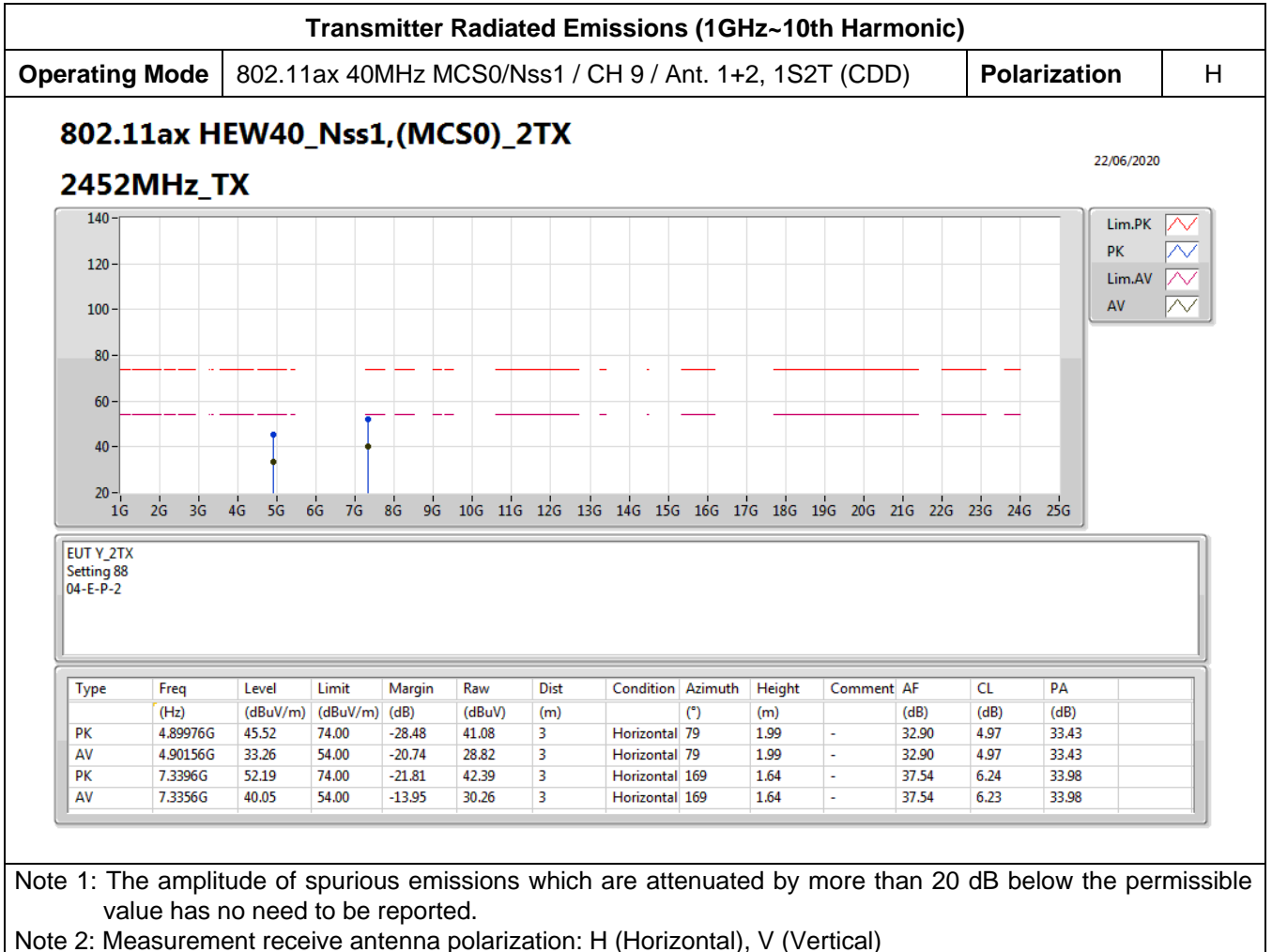


EUT Y_2TX
 Setting 88
 04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	4.908G	45.95	74.00	-28.05	41.49	3	Vertical	18	1.80	-	32.92	4.97	33.43
AV	4.90392G	33.33	54.00	-20.67	28.88	3	Vertical	18	1.80	-	32.91	4.97	33.43
PK	7.35604G	51.91	74.00	-22.09	42.10	3	Vertical	85	2.98	-	37.56	6.24	33.99
AV	7.35912G	39.54	54.00	-14.46	29.74	3	Vertical	85	2.98	-	37.56	6.24	34.00

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

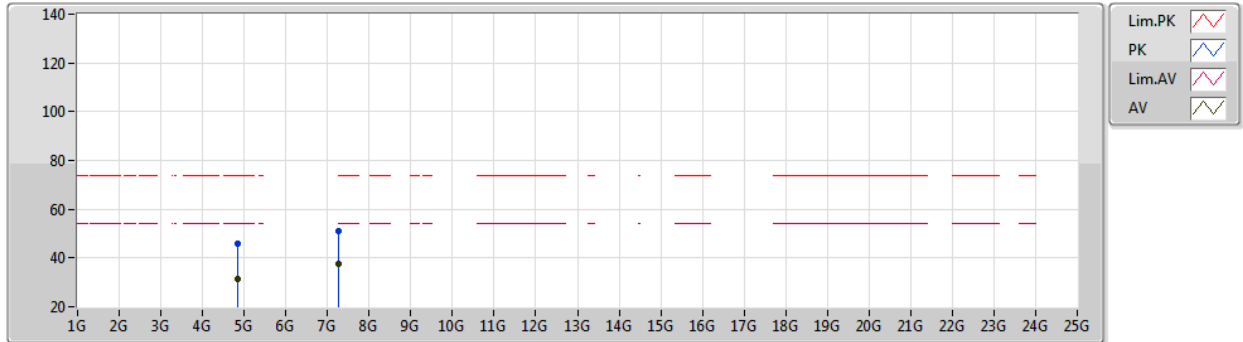




Transmitter Radiated Emissions (1GHz~10th Harmonic)			
Operating Mode	802.11ax 40MHz MCS0/Nss1 / CH 3 / Ant. 1+2, 1S2T (TXBF)	Polarization	V

**802.11ax HEW40-BF_Nss1,(MCS0)_2TX
2422MHz_TX**

22/06/2020



EUT Y_2TX
Setting 88
04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	4.84612G	45.66	74.00	-28.34	41.51	3	Vertical	328	1.34	-	32.68	4.94	33.47
AV	4.84704G	31.50	54.00	-22.50	27.34	3	Vertical	328	1.34	-	32.69	4.94	33.47
PK	7.254G	51.25	74.00	-22.75	41.65	3	Vertical	179	1.80	-	37.32	6.19	33.91
AV	7.2524G	37.41	54.00	-16.59	27.82	3	Vertical	179	1.80	-	37.31	6.19	33.91

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

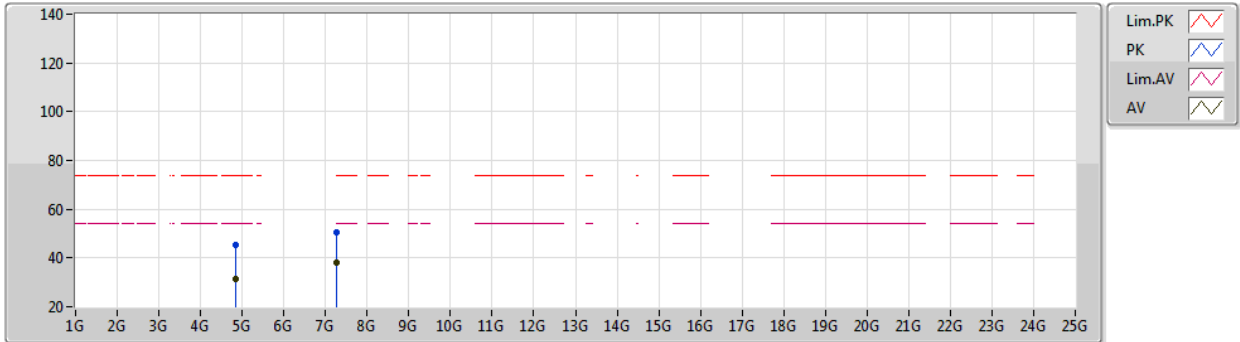


Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode | 802.11ax 40MHz MCS0/Nss1 / CH 3 / Ant. 1+2, 1S2T (TXBF) | **Polarization** | H

**802.11ax HEW40-BF_Nss1,(MCS0)_2TX
2422MHz_TX**

22/06/2020



EUT Y_2TX
Setting 88
04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	4.8391G	45.28	74.00	-28.72	41.15	3	Horizontal	246	1.65	-	32.66	4.94	33.47
AV	4.84078G	31.46	54.00	-22.54	27.33	3	Horizontal	246	1.65	-	32.66	4.94	33.47
PK	7.2712G	50.74	74.00	-23.26	41.08	3	Horizontal	162	2.28	-	37.38	6.20	33.92
AV	7.2584G	37.96	54.00	-16.04	28.34	3	Horizontal	162	2.28	-	37.33	6.20	33.91

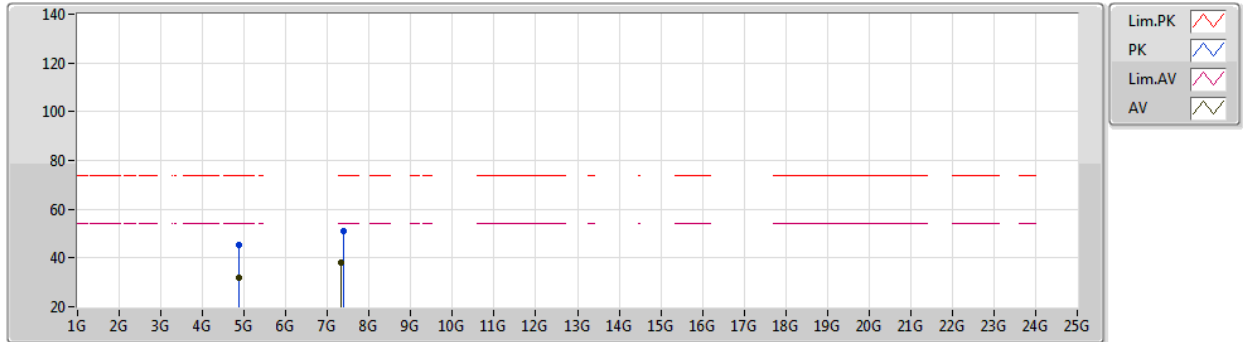
Note 1: The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.
 Note 2: Measurement receive antenna polarization: H (Horizontal), V (Vertical)



Transmitter Radiated Emissions (1GHz~10th Harmonic)			
Operating Mode	802.11ax 40MHz MCS0/Nss1 / CH 6 / Ant. 1+2, 1S2T (TXBF)	Polarization	V

**802.11ax HEW40-BF_Nss1,(MCS0)_2TX
2437MHz_TX**

22/06/2020



EUT Y_2TX
Setting 88
04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	4.87272G	45.55	74.00	-28.45	41.25	3	Vertical	295	2.30	-	32.79	4.96	33.45
AV	4.87436G	31.73	54.00	-22.27	27.42	3	Vertical	295	2.30	-	32.80	4.96	33.45
PK	7.381G	50.87	74.00	-23.13	41.05	3	Vertical	184	2.99	-	37.58	6.25	34.01
AV	7.3166G	37.92	54.00	-16.08	28.13	3	Vertical	184	2.99	-	37.52	6.23	33.96

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

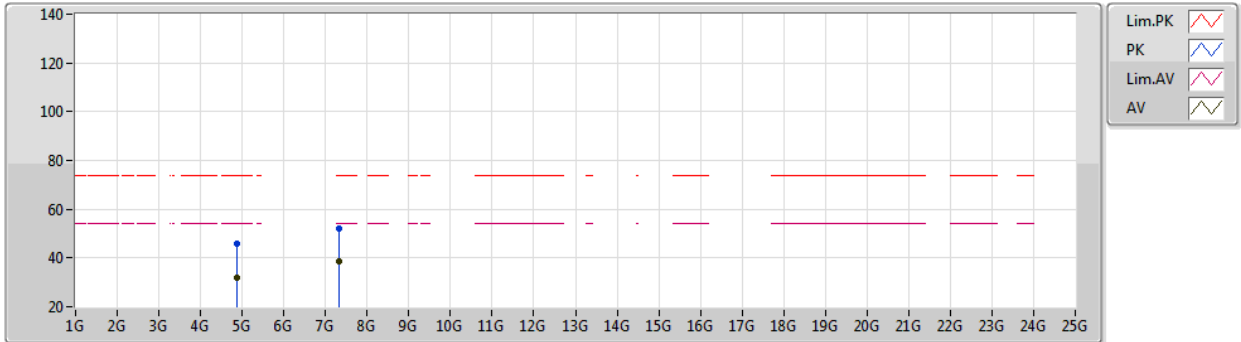


Transmitter Radiated Emissions (1GHz~10th Harmonic)

Operating Mode | 802.11ax 40MHz MCS0/Nss1 / CH 6 / Ant. 1+2, 1S2T (TXBF) | **Polarization** | H

**802.11ax HEW40-BF_Nss1,(MCS0)_2TX
2437MHz_TX**

22/06/2020



EUT Y_2TX
Setting 88
04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	4.87282G	45.77	74.00	-28.23	41.47	3	Horizontal	335	1.03	-	32.79	4.96	33.45
AV	4.87586G	31.68	54.00	-22.32	27.37	3	Horizontal	335	1.03	-	32.80	4.96	33.45
PK	7.3226G	52.23	74.00	-21.77	42.45	3	Horizontal	172	1.48	-	37.52	6.23	33.97
AV	7.3262G	38.70	54.00	-15.30	28.91	3	Horizontal	172	1.48	-	37.53	6.23	33.97

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.

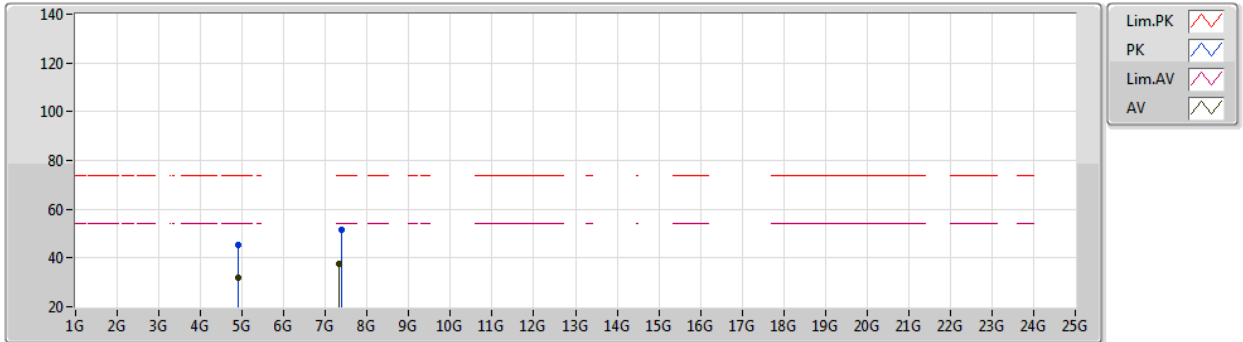
Note 2: Measurement receive antenna polarization: H (Horizontal), V (Vertical)



Transmitter Radiated Emissions (1GHz~10th Harmonic)			
Operating Mode	802.11ax 40MHz MCS0/Nss1 / CH 9 / Ant. 1+2, 1S2T (TXBF)	Polarization	V

**802.11ax HEW40-BF_Nss1,(MCS0)_2TX
2452MHz_TX**

22/06/2020

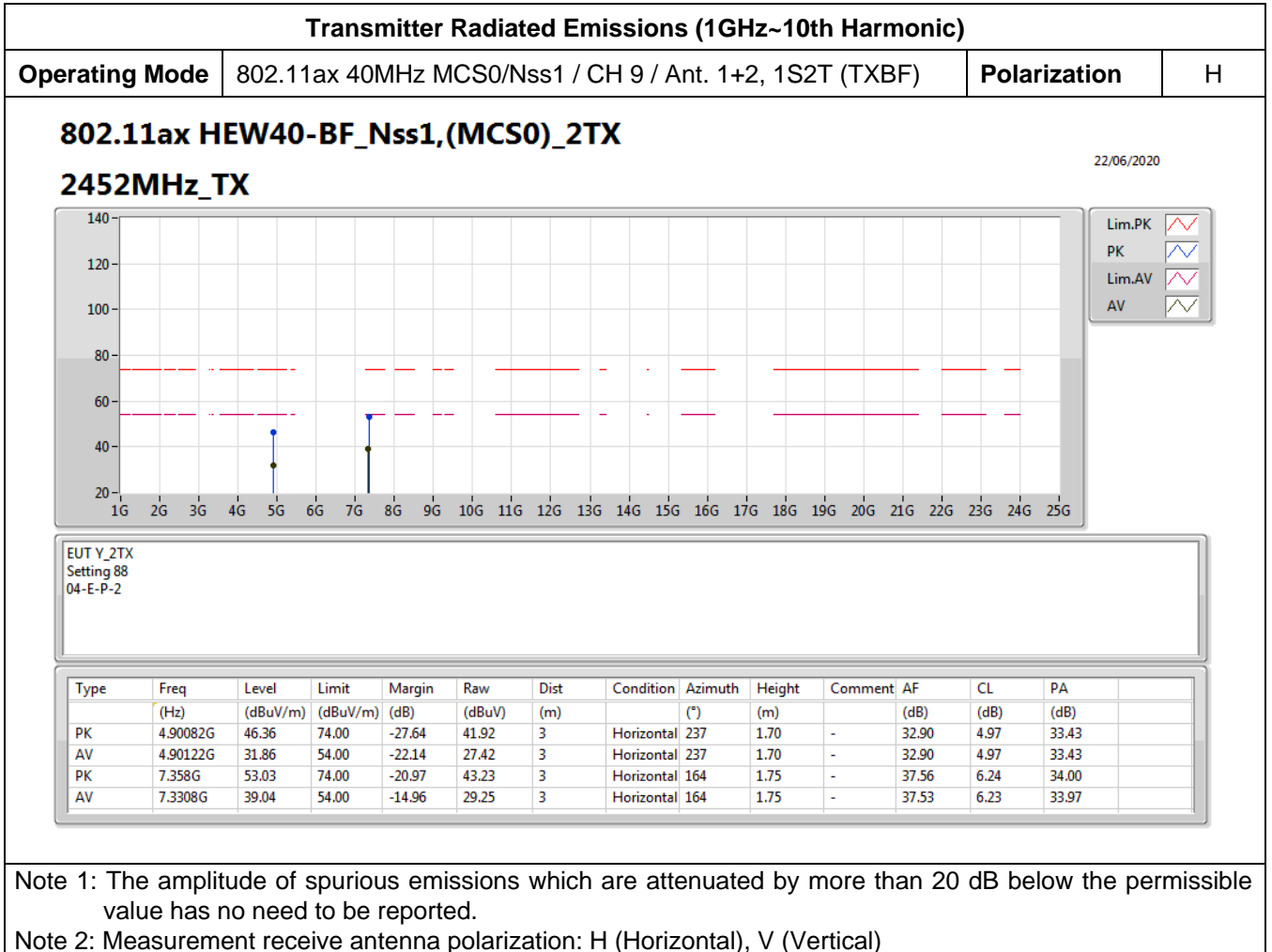


EUT Y_2TX
Setting 88
04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	4.90538G	45.55	74.00	-28.45	41.10	3	Vertical	270	1.71	-	32.91	4.97	33.43
AV	4.9011G	31.84	54.00	-22.16	27.40	3	Vertical	270	1.71	-	32.90	4.97	33.43
PK	7.39G	51.51	74.00	-22.49	41.68	3	Vertical	128	1.80	-	37.59	6.26	34.02
AV	7.3216G	37.72	54.00	-16.28	27.94	3	Vertical	128	1.80	-	37.52	6.23	33.97

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





2.6. Emissions Measurement

2.6.1. Limit

30dBc in any 100 kHz bandwidth outside the operating frequency band. 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.

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
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 and Setting

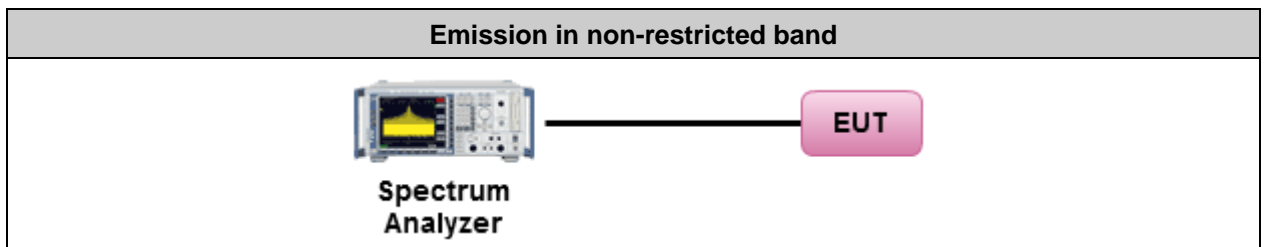
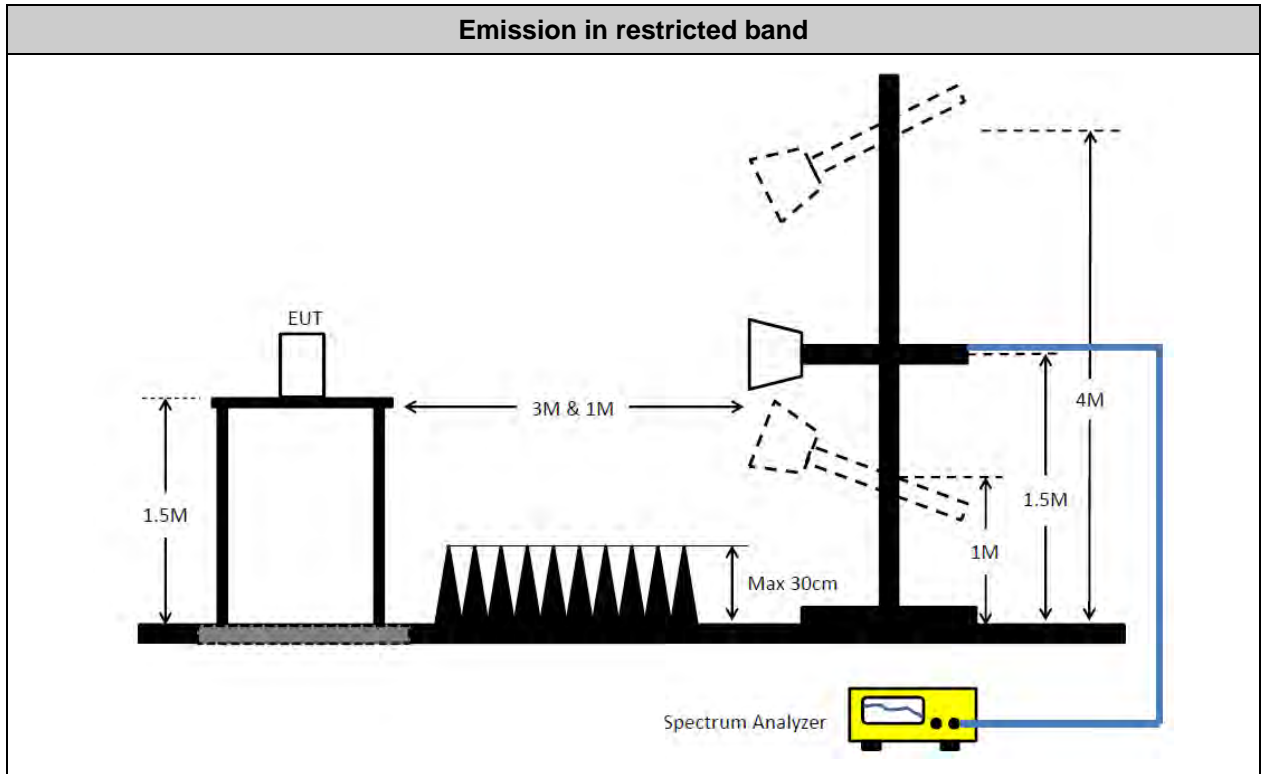
Please refer to section 3 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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 (30dBc in any 100 kHz bandwidth emission)	100 kHz / 300 kHz for Peak

2.6.3. Test Procedures

1. The test procedure for Emission in restricted band is the same as section 2.5.3, only the frequency range investigated is limited to 100MHz around band edges.
2. Test for Emission in non-restricted band was performed in accordance with KDB558074 D01 v05r02 for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247 section 11 Unwanted Emissions into Non-Restricted Frequency Bands Measurement Procedure.

2.6.4. Test Setup Layout



2.6.5. Test Deviation

There is no deviation with the original standard.

2.6.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

2.6.7. Measurement Results Calculation

The measured Level is calculated using:

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor (if applicable) = Level.



2.6.8. Test Result of Band Edge and Fundamental Emissions

Following channel(s) was (were) selected for the final test as listed below.

MODE	TX Chain	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	Ant. 3, 1S1T (SISO)	1, 6, 11	DSSS	DBPSK	1
802.11ax 20MHz	Ant. 1+2, 1S2T (CDD)	1, 6, 11	OFDMA	BPSK	MCS0/Nss1 (8.6)
802.11ax 20MHz	Ant. 1+2, 1S2T (TXBF)	1, 6, 11	OFDMA	BPSK	MCS0/Nss1 (8.6)
802.11ax 40MHz	Ant. 1+2, 1S2T (CDD)	3, 6, 9	OFDMA	BPSK	MCS0/Nss1 (17.2)
802.11ax 40MHz	Ant. 1+2, 1S2T (TXBF)	3, 6, 9	OFDMA	BPSK	MCS0/Nss1 (17.2)

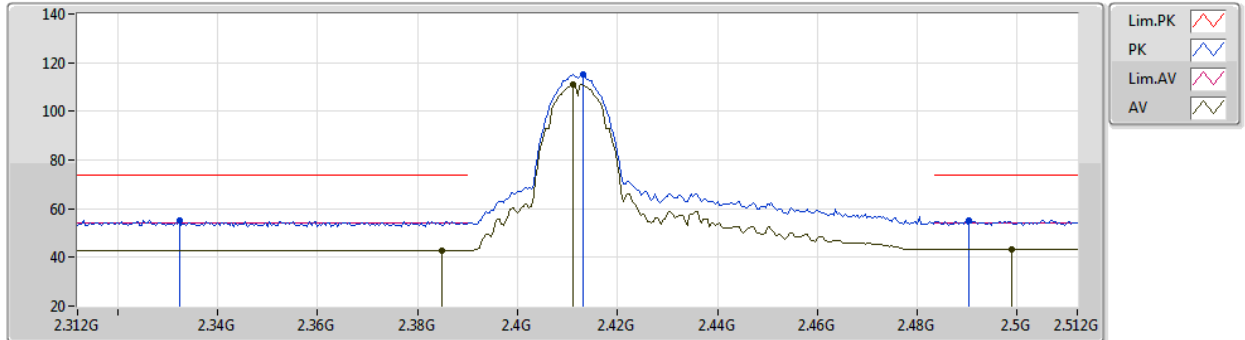


Band Edge and Fundamental Emissions

Operating Mode 802.11b 1Mbps / CH 1 / Ant. 1, 1S1T (SISO) **Polarization** V

802.11b_Nss1,(1Mbps)_1TX
2412MHz_TX

22/06/2020



EUT Y_1TX_ANT 1
Setting 88
04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.3324G	55.30	74.00	-18.70	24.91	3	Vertical	270	1.36	-	27.57	2.82	-
AV	2.3848G	42.95	54.00	-11.05	12.58	3	Vertical	270	1.36	-	27.52	2.85	-
PK	2.4132G	115.02	Inf	-Inf	84.60	3	Vertical	270	1.36	-	27.55	2.87	-
AV	2.4112G	111.09	Inf	-Inf	80.68	3	Vertical	270	1.36	-	27.54	2.87	-
PK	2.4904G	55.01	74.00	-18.99	24.24	3	Vertical	270	1.36	-	27.86	2.91	-
AV	2.4988G	43.24	54.00	-10.76	12.42	3	Vertical	270	1.36	-	27.90	2.92	-

Note 1: Frequencies within 2400~2483.5 are the fundamental frequency at 2412 MHz.

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

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

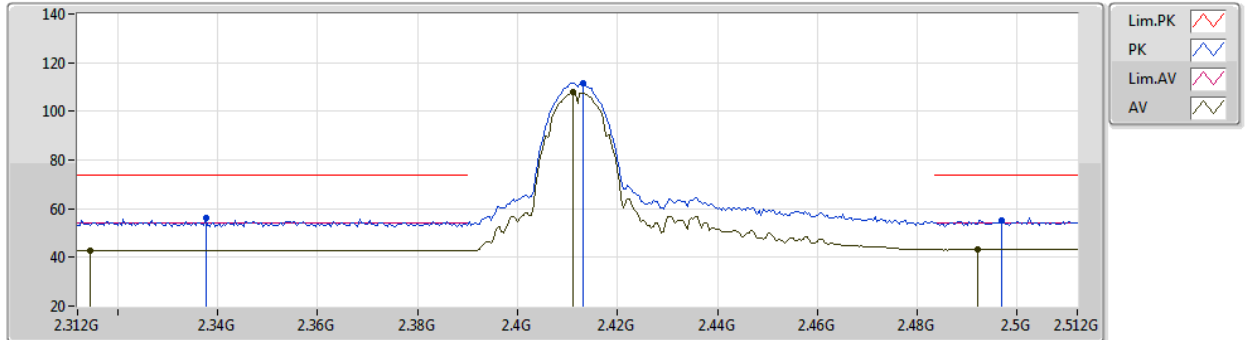


Band Edge and Fundamental Emissions

Operating Mode 802.11b 1Mbps / CH 1 / Ant. 1, 1S1T (SISO) **Polarization** H

802.11b_Nss1,(1Mbps)_1TX
2412MHz_TX

22/06/2020



EUT Y_1TX_ANT 1
Setting 88
04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.3376G	56.32	74.00	-17.68	25.94	3	Horizontal	133	1.33	-	27.56	2.82	-
AV	2.3144G	42.96	54.00	-11.04	12.56	3	Horizontal	133	1.33	-	27.59	2.81	-
PK	2.4132G	111.75	Inf	-Inf	81.33	3	Horizontal	133	1.33	-	27.55	2.87	-
AV	2.4112G	107.91	Inf	-Inf	77.50	3	Horizontal	133	1.33	-	27.54	2.87	-
PK	2.4968G	55.09	74.00	-18.91	24.28	3	Horizontal	133	1.33	-	27.89	2.92	-
AV	2.492G	43.21	54.00	-10.79	12.42	3	Horizontal	133	1.33	-	27.87	2.92	-

Note 1: Frequencies within 2400~2483.5 are the fundamental frequency at 2412 MHz.

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

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

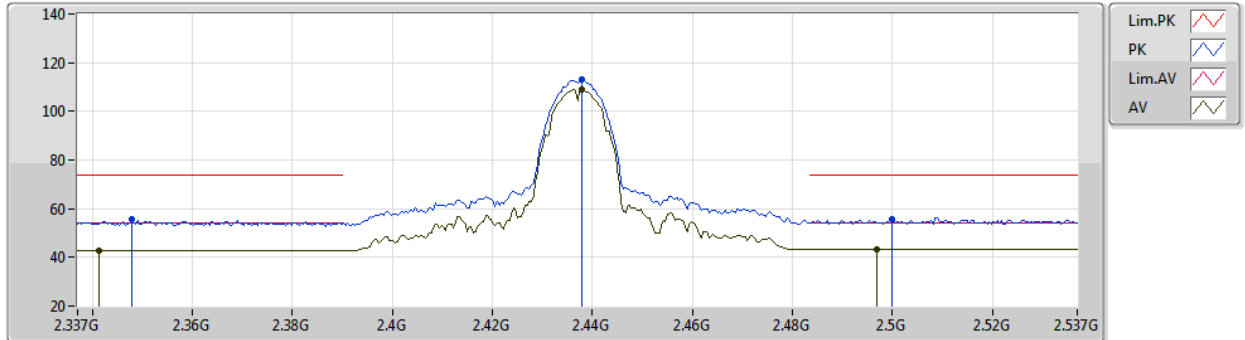


Band Edge and Fundamental Emissions

Operating Mode 802.11b 1Mbps / CH 6 / Ant. 1, 1S1T (SISO) **Polarization** V

802.11b_Nss1,(1Mbps)_1TX
2437MHz_TX

22/06/2020



EUT Y_1TX_ANT 1
Setting 88
04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.3478G	55.63	74.00	-18.37	25.25	3	Vertical	135	1.50	-	27.55	2.83	-
AV	2.3414G	42.85	54.00	-11.15	12.47	3	Vertical	135	1.50	-	27.56	2.82	-
PK	2.4378G	112.97	Inf	-Inf	82.44	3	Vertical	135	1.50	-	27.65	2.88	-
AV	2.4378G	108.92	Inf	-Inf	78.39	3	Vertical	135	1.50	-	27.65	2.88	-
PK	2.4998G	55.48	74.00	-18.52	24.66	3	Vertical	135	1.50	-	27.90	2.92	-
AV	2.497G	43.31	54.00	-10.69	12.50	3	Vertical	135	1.50	-	27.89	2.92	-

Note 1: Frequencies within 2400~2483.5 are the fundamental frequency at 2437 MHz.

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

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

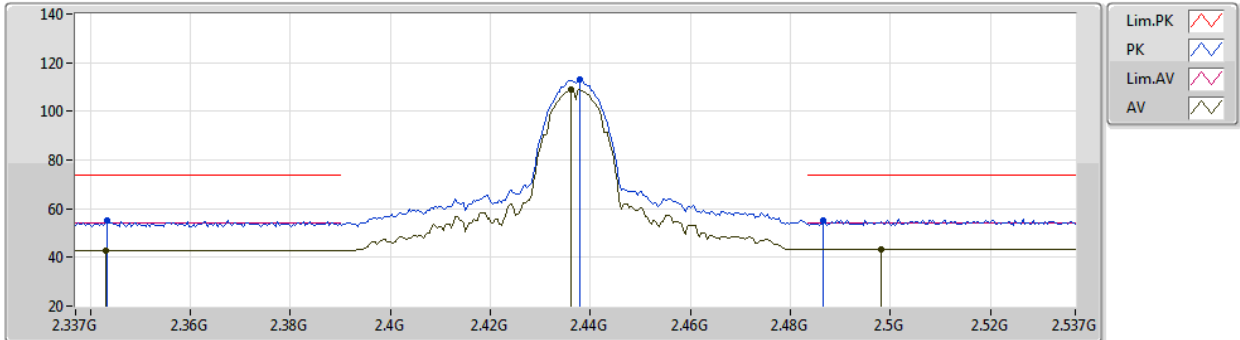


Band Edge and Fundamental Emissions

Operating Mode | 802.11b 1Mbps / CH 6 / Ant. 1, 1S1T (SISO) | **Polarization** | H

802.11b_Nss1,(1Mbps)_1TX
2437MHz_TX

22/06/2020



EUT Y_1TX_ANT 1
Setting 88
04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.3434G	55.02	74.00	-18.98	24.63	3	Horizontal	153	2.34	-	27.56	2.83	-
AV	2.343G	42.86	54.00	-11.14	12.47	3	Horizontal	153	2.34	-	27.56	2.83	-
PK	2.4378G	112.90	Inf	-Inf	82.37	3	Horizontal	153	2.34	-	27.65	2.88	-
AV	2.4362G	108.75	Inf	-Inf	78.23	3	Horizontal	153	2.34	-	27.64	2.88	-
PK	2.4866G	55.40	74.00	-18.60	24.64	3	Horizontal	153	2.34	-	27.85	2.91	-
AV	2.4982G	43.31	54.00	-10.69	12.50	3	Horizontal	153	2.34	-	27.89	2.92	-

- Note 1: Frequencies within 2400~2483.5 are the fundamental frequency at 2437 MHz.
- Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).
- Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

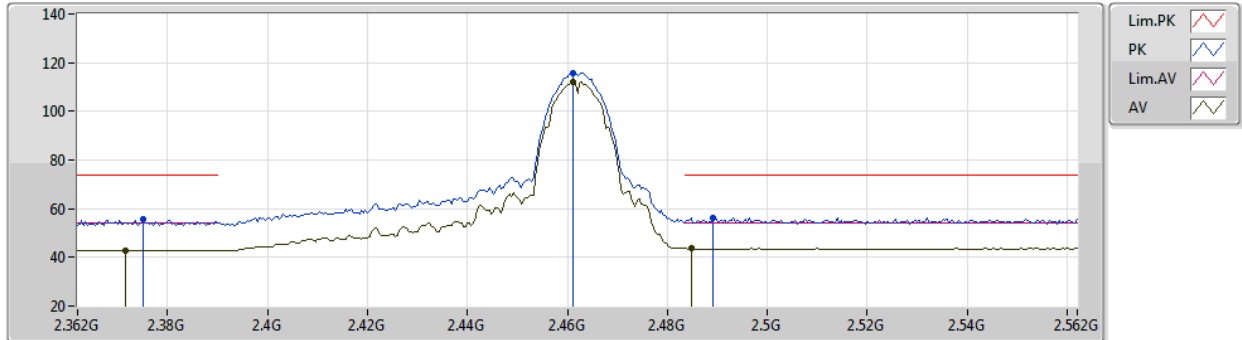


Band Edge and Fundamental Emissions

Operating Mode 802.11b 1Mbps / CH 11 / Ant. 1, 1S1T (SISO) **Polarization** V

802.11b_Nss1,(1Mbps)_1TX
2462MHz_TX

22/06/2020



EUT Y_1TX_ANT 1
Setting 88
04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.3752G	55.79	74.00	-18.21	25.42	3	Vertical	270	1.91	-	27.52	2.85	-
AV	2.3716G	42.88	54.00	-11.12	12.51	3	Vertical	270	1.91	-	27.53	2.84	-
PK	2.4612G	115.91	Inf	-Inf	85.27	3	Vertical	270	1.91	-	27.74	2.90	-
AV	2.4612G	112.14	Inf	-Inf	81.50	3	Vertical	270	1.91	-	27.74	2.90	-
PK	2.4892G	56.45	74.00	-17.55	25.68	3	Vertical	270	1.91	-	27.86	2.91	-
AV	2.4848G	43.59	54.00	-10.41	12.84	3	Vertical	270	1.91	-	27.84	2.91	-

Note 1: Frequencies within 2400~2483.5 are the fundamental frequency at 2462 MHz.

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

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

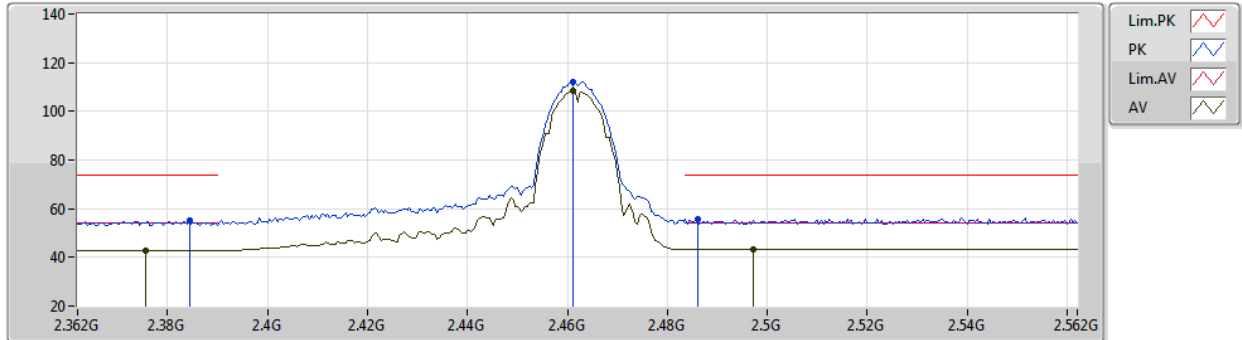


Band Edge and Fundamental Emissions

Operating Mode 802.11b 1Mbps / CH 11 / Ant. 1, 1S1T (SISO) **Polarization** H

802.11b_Nss1,(1Mbps)_1TX
2462MHz_TX

22/06/2020



EUT Y_1TX_ANT 1
Setting 88
04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.3844G	55.16	74.00	-18.84	24.79	3	Horizontal	136	1.73	-	27.52	2.85	-
AV	2.3756G	42.83	54.00	-11.17	12.46	3	Horizontal	136	1.73	-	27.52	2.85	-
PK	2.4612G	112.30	Inf	-Inf	81.66	3	Horizontal	136	1.73	-	27.74	2.90	-
AV	2.4612G	108.55	Inf	-Inf	77.91	3	Horizontal	136	1.73	-	27.74	2.90	-
PK	2.486G	55.58	74.00	-18.42	24.83	3	Horizontal	136	1.73	-	27.84	2.91	-
AV	2.4972G	43.41	54.00	-10.59	12.60	3	Horizontal	136	1.73	-	27.89	2.92	-

Note 1: Frequencies within 2400~2483.5 are the fundamental frequency at 2462 MHz.

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

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

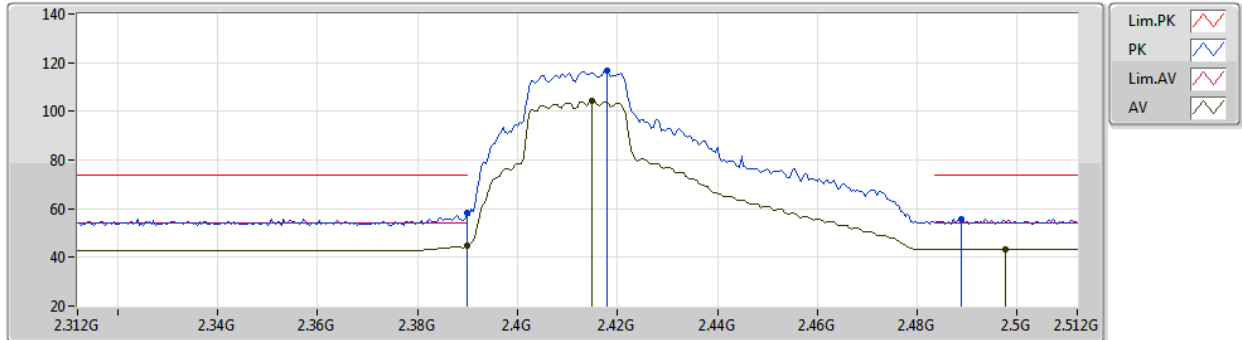


Band Edge and Fundamental Emissions

Operating Mode | 802.11ax 20MHz MCS0/Nss1 / CH 1 / Ant. 1+2, 1S2T (CDD) | **Polarization** | V

**802.11ax HEW20_Nss1,(MCS0)_2TX
2412MHz_TX**

22/06/2020



EUT Y_2TX
Setting 88
04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.39G	58.46	74.00	-15.54	28.10	3	Vertical	251	1.79	-	27.51	2.85	-
AV	2.39G	44.90	54.00	-9.10	14.54	3	Vertical	251	1.79	-	27.51	2.85	-
PK	2.418G	116.61	Inf	-Inf	86.17	3	Vertical	251	1.79	-	27.57	2.87	-
AV	2.4148G	104.37	Inf	-Inf	73.94	3	Vertical	251	1.79	-	27.56	2.87	-
PK	2.4888G	55.78	74.00	-18.22	25.01	3	Vertical	251	1.79	-	27.86	2.91	-
AV	2.4976G	43.33	54.00	-10.67	12.52	3	Vertical	251	1.79	-	27.89	2.92	-

Note 1: Frequencies within 2400~2483.5 are the fundamental frequency at 2412 MHz.

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

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

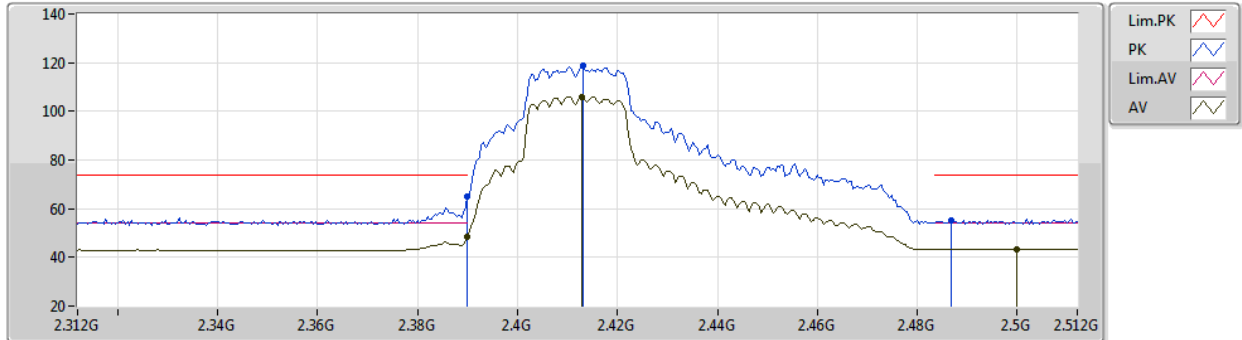


Band Edge and Fundamental Emissions

Operating Mode | 802.11ax 20MHz MCS0/Nss1 / CH 1 / Ant. 1+2, 1S2T (CDD) | **Polarization** | H

**802.11ax HEW20_Nss1,(MCS0)_2TX
2412MHz_TX**

22/06/2020



EUT_Y_2TX
Setting 88
04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.39G	65.01	74.00	-8.99	34.65	3	Horizontal	57	2.81	-	27.51	2.85	-
AV	2.39G	48.48	54.00	-5.52	18.12	3	Horizontal	57	2.81	-	27.51	2.85	-
PK	2.4132G	118.93	Inf	-Inf	88.51	3	Horizontal	57	2.81	-	27.55	2.87	-
AV	2.4128G	105.98	Inf	-Inf	75.56	3	Horizontal	57	2.81	-	27.55	2.87	-
PK	2.4868G	55.01	74.00	-18.99	24.25	3	Horizontal	57	2.81	-	27.85	2.91	-
AV	2.5G	43.37	54.00	-10.63	12.55	3	Horizontal	57	2.81	-	27.90	2.92	-

Note 1: Frequencies within 2400~2483.5 are the fundamental frequency at 2412 MHz.

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

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

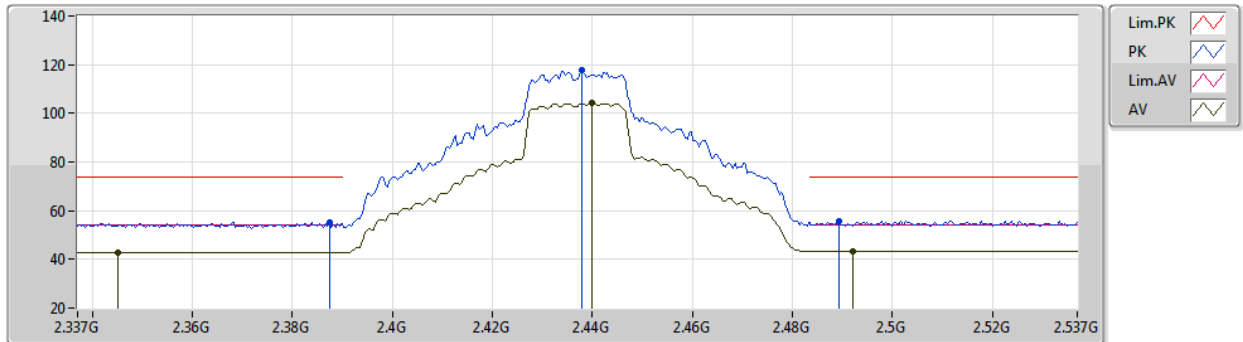


Band Edge and Fundamental Emissions

Operating Mode | 802.11ax 20MHz MCS0/Nss1 / CH 6 / Ant. 1+2, 1S2T (CDD) | **Polarization** | V

**802.11ax HEW20_Nss1,(MCS0)_2TX
2437MHz_TX**

22/06/2020



EUT Y_2TX
Setting 88
04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.3874G	55.24	74.00	-18.76	24.88	3	Vertical	265	1.76	-	27.51	2.85	-
AV	2.345G	42.92	54.00	-11.08	12.54	3	Vertical	265	1.76	-	27.55	2.83	-
PK	2.4378G	117.70	Inf	-Inf	87.17	3	Vertical	265	1.76	-	27.65	2.88	-
AV	2.4398G	104.38	Inf	-Inf	73.84	3	Vertical	265	1.76	-	27.66	2.88	-
PK	2.4894G	55.92	74.00	-18.08	25.15	3	Vertical	265	1.76	-	27.86	2.91	-
AV	2.4922G	43.38	54.00	-10.62	12.59	3	Vertical	265	1.76	-	27.87	2.92	-

Note 1: Frequencies within 2400~2483.5 are the fundamental frequency at 2437 MHz.

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

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

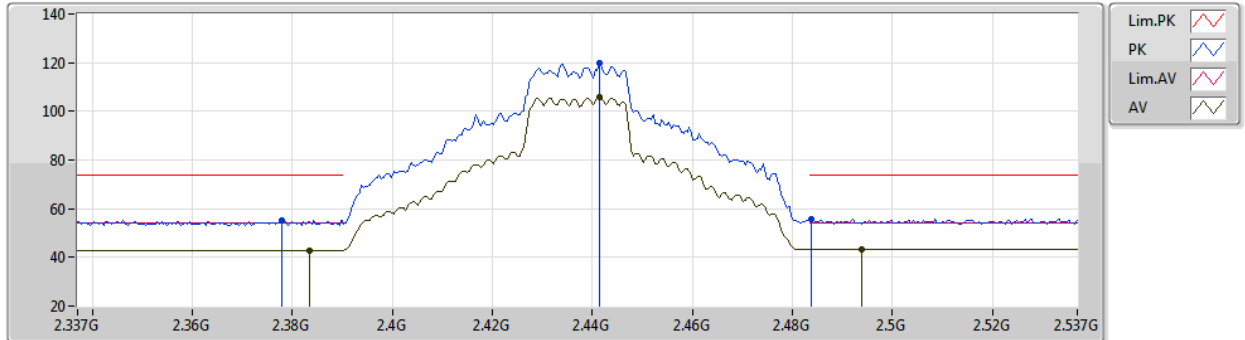


Band Edge and Fundamental Emissions

Operating Mode | 802.11ax 20MHz MCS0/Nss1 / CH 6 / Ant. 1+2, 1S2T (CDD) | **Polarization** | H

**802.11ax HEW20_Nss1,(MCS0)_2TX
2437MHz_TX**

22/06/2020



EUT Y_2TX
Setting 88
04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.3778G	55.26	74.00	-18.74	24.89	3	Horizontal	56	2.51	-	27.52	2.85	-
AV	2.3834G	42.97	54.00	-11.03	12.60	3	Horizontal	56	2.51	-	27.52	2.85	-
PK	2.4414G	119.87	Inf	-Inf	89.32	3	Horizontal	56	2.51	-	27.67	2.88	-
AV	2.4414G	105.74	Inf	-Inf	75.19	3	Horizontal	56	2.51	-	27.67	2.88	-
PK	2.4838G	55.73	74.00	-18.27	24.98	3	Horizontal	56	2.51	-	27.84	2.91	-
AV	2.4938G	43.34	54.00	-10.66	12.54	3	Horizontal	56	2.51	-	27.88	2.92	-

Note 1: Frequencies within 2400~2483.5 are the fundamental frequency at 2437 MHz.

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

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

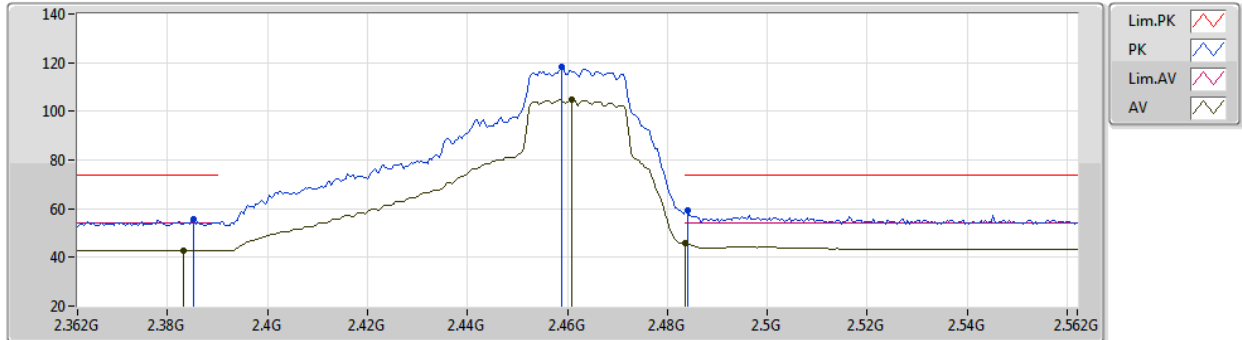


Band Edge and Fundamental Emissions

Operating Mode | 802.11ax 20MHz MCS0/Nss1 / CH 11 / Ant. 1+2, 1S2T (CDD) | **Polarization** | V

**802.11ax HEW20_Nss1,(MCS0)_2TX
2462MHz_TX**

22/06/2020



EUT Y_2TX
Setting 88
04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.3852G	55.70	74.00	-18.30	25.34	3	Vertical	268	2.13	-	27.51	2.85	-
AV	2.3832G	42.77	54.00	-11.23	12.40	3	Vertical	268	2.13	-	27.52	2.85	-
PK	2.4588G	118.52	Inf	-Inf	87.88	3	Vertical	268	2.13	-	27.74	2.90	-
AV	2.4608G	104.75	Inf	-Inf	74.11	3	Vertical	268	2.13	-	27.74	2.90	-
PK	2.484G	59.25	74.00	-14.75	28.50	3	Vertical	268	2.13	-	27.84	2.91	-
AV	2.4835G	45.87	54.00	-8.13	15.13	3	Vertical	268	2.13	-	27.83	2.91	-

Note 1: Frequencies within 2400~2483.5 are the fundamental frequency at 2452 MHz.

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

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

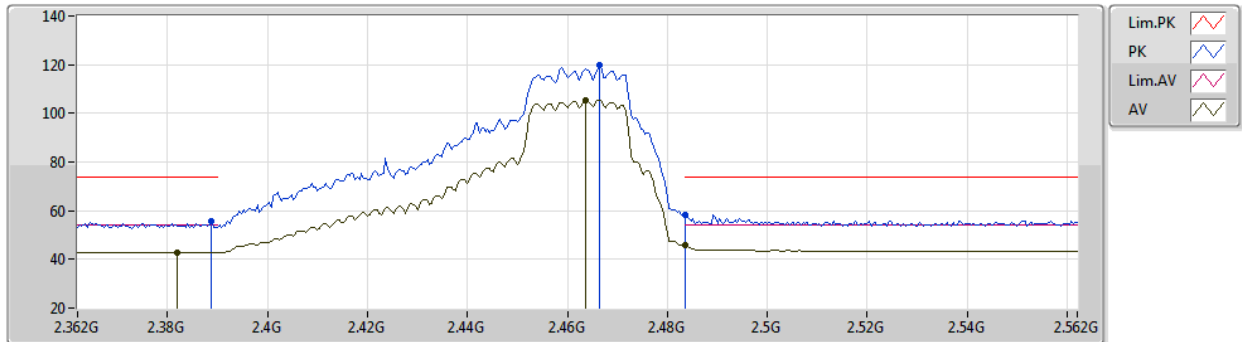


Band Edge and Fundamental Emissions

Operating Mode 802.11ax 20MHz MCS0/Nss1 / CH 11 / Ant. 1+2, 1S2T (CDD) **Polarization** H

**802.11ax HEW20_Nss1,(MCS0)_2TX
2462MHz_TX**

22/06/2020



EUT Y_2TX
Setting 88
04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.3888G	55.50	74.00	-18.50	25.14	3	Horizontal	61	1.99	-	27.51	2.85	-
AV	2.382G	42.73	54.00	-11.27	12.36	3	Horizontal	61	1.99	-	27.52	2.85	-
PK	2.4664G	119.57	Inf	-Inf	88.90	3	Horizontal	61	1.99	-	27.77	2.90	-
AV	2.4636G	105.41	Inf	-Inf	74.76	3	Horizontal	61	1.99	-	27.75	2.90	-
PK	2.4835G	58.41	74.00	-15.59	27.67	3	Horizontal	61	1.99	-	27.83	2.91	-
AV	2.4835G	45.83	54.00	-8.17	15.09	3	Horizontal	61	1.99	-	27.83	2.91	-

Note 1: Frequencies within 2400~2483.5 are the fundamental frequency at 2452 MHz.

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

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

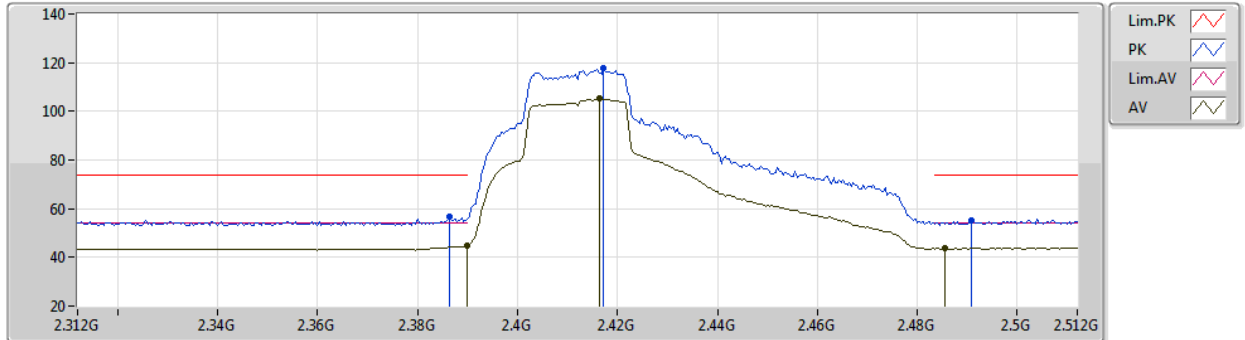


Band Edge and Fundamental Emissions

Operating Mode 802.11ax 20MHz MCS0/Nss1 / CH 1 / Ant. 1+2, 1S2T (TXBF) **Polarization** V

**802.11ax HEW20-BF_Nss1,(MCS0)_2TX
2412MHz_TX**

22/06/2020



EUT Y_2TX
Setting 88
04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.3864G	56.83	74.00	-17.17	26.47	3	Vertical	279	2.11	-	27.51	2.85	-
AV	2.39G	44.83	54.00	-9.17	14.47	3	Vertical	279	2.11	-	27.51	2.85	-
PK	2.4172G	117.68	Inf	-Inf	87.24	3	Vertical	279	2.11	-	27.57	2.87	-
AV	2.4164G	105.30	Inf	-Inf	74.86	3	Vertical	279	2.11	-	27.57	2.87	-
PK	2.4908G	55.18	74.00	-18.82	24.41	3	Vertical	279	2.11	-	27.86	2.91	-
AV	2.4856G	43.88	54.00	-10.12	13.13	3	Vertical	279	2.11	-	27.84	2.91	-

Note 1: Frequencies within 2400~2483.5 are the fundamental frequency at 2412 MHz.

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

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

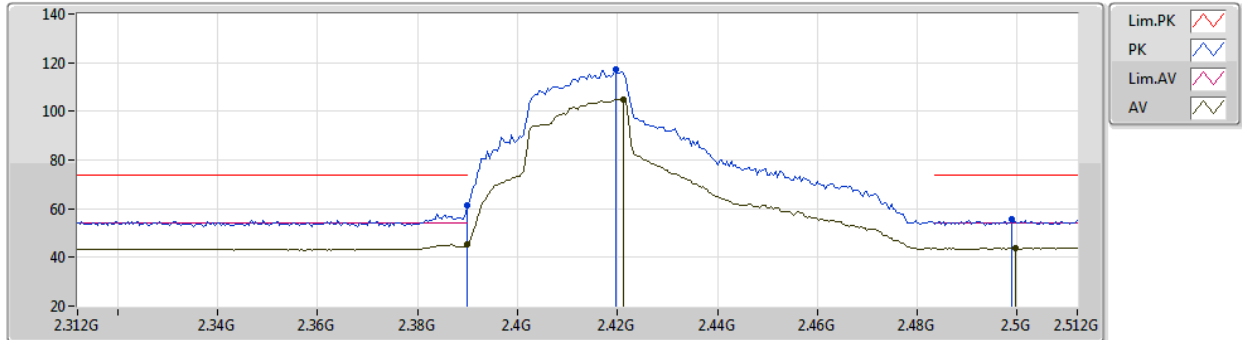


Band Edge and Fundamental Emissions

Operating Mode | 802.11ax 20MHz MCS0/Nss1 / CH 1 / Ant. 1+2, 1S2T (TXBF) | **Polarization** | H

**802.11ax HEW20-BF_Nss1,(MCS0)_2TX
2412MHz_TX**

22/06/2020



EUT_Y_2TX
Setting 88
04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.39G	61.23	74.00	-12.77	30.87	3	Horizontal	253	2.27	-	27.51	2.85	-
AV	2.39G	45.23	54.00	-8.77	14.87	3	Horizontal	253	2.27	-	27.51	2.85	-
PK	2.4196G	117.47	Inf	-Inf	87.02	3	Horizontal	253	2.27	-	27.58	2.87	-
AV	2.4212G	104.88	Inf	-Inf	74.43	3	Horizontal	253	2.27	-	27.58	2.87	-
PK	2.4988G	55.75	74.00	-18.25	24.93	3	Horizontal	253	2.27	-	27.90	2.92	-
AV	2.4996G	43.63	54.00	-10.37	12.81	3	Horizontal	253	2.27	-	27.90	2.92	-

Note 1: Frequencies within 2400~2483.5 are the fundamental frequency at 2412 MHz.

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

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

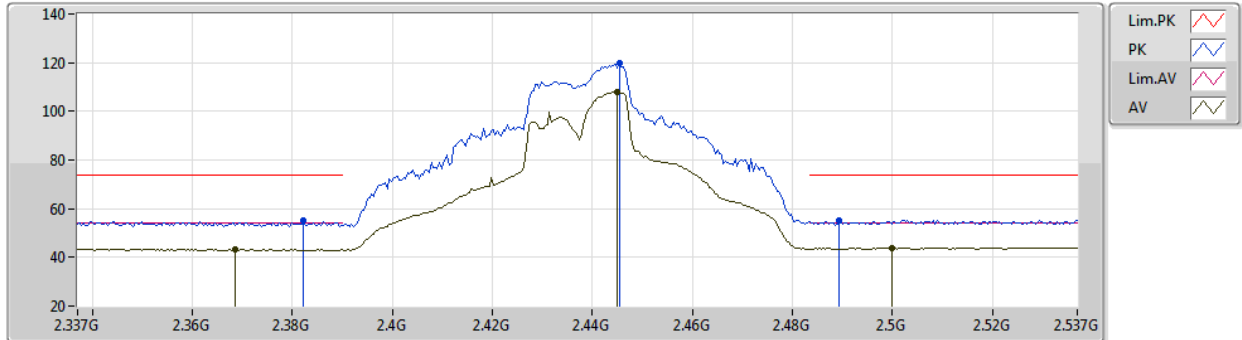


Band Edge and Fundamental Emissions

Operating Mode | 802.11ax 20MHz MCS0/Nss1 / CH 6 / Ant. 1+2, 1S2T (TXBF) | **Polarization** | V

**802.11ax HEW20-BF_Nss1,(MCS0)_2TX
2437MHz_TX**

22/06/2020



EUT_Y_2TX
Setting 88
04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.3822G	55.05	74.00	-18.95	24.68	3	Vertical	278	1.09	-	27.52	2.85	-
AV	2.3686G	43.26	54.00	-10.74	12.89	3	Vertical	278	1.09	-	27.53	2.84	-
PK	2.4454G	119.81	Inf	-Inf	89.24	3	Vertical	278	1.09	-	27.68	2.89	-
AV	2.445G	107.91	Inf	-Inf	77.34	3	Vertical	278	1.09	-	27.68	2.89	-
PK	2.4894G	55.11	74.00	-18.89	24.34	3	Vertical	278	1.09	-	27.86	2.91	-
AV	2.4998G	43.77	54.00	-10.23	12.95	3	Vertical	278	1.09	-	27.90	2.92	-

Note 1: Frequencies within 2400~2483.5 are the fundamental frequency at 2437 MHz.

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

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

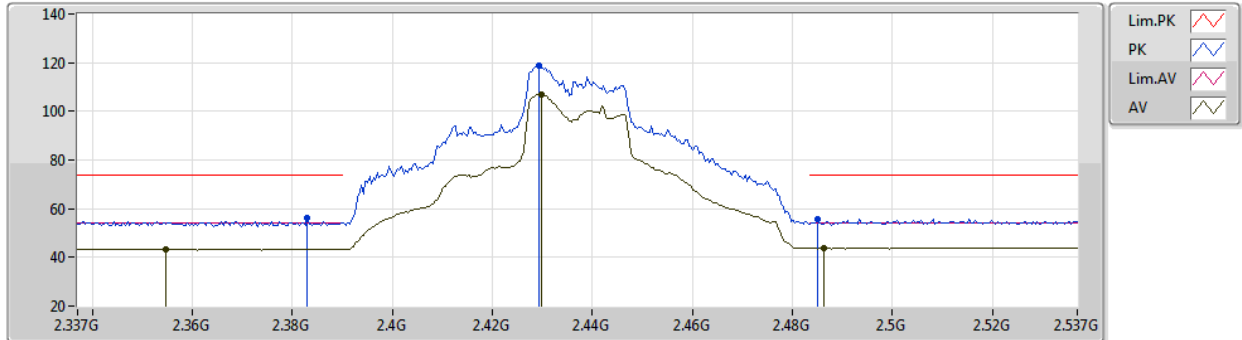


Band Edge and Fundamental Emissions

Operating Mode | 802.11ax 20MHz MCS0/Nss1 / CH 6 / Ant. 1+2, 1S2T (TXBF) | **Polarization** | H

**802.11ax HEW20-BF_Nss1,(MCS0)_2TX
2437MHz_TX**

22/06/2020



EUT_Y_2TX
Setting 88
04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.383G	56.22	74.00	-17.78	25.85	3	Horizontal	120	2.09	-	27.52	2.85	-
AV	2.3546G	43.48	54.00	-10.52	13.10	3	Horizontal	120	2.09	-	27.55	2.83	-
PK	2.4294G	119.04	Inf	-Inf	88.54	3	Horizontal	120	2.09	-	27.62	2.88	-
AV	2.4298G	106.87	Inf	-Inf	76.37	3	Horizontal	120	2.09	-	27.62	2.88	-
PK	2.485G	55.91	74.00	-18.09	25.16	3	Horizontal	120	2.09	-	27.84	2.91	-
AV	2.4862G	43.86	54.00	-10.14	13.11	3	Horizontal	120	2.09	-	27.84	2.91	-

Note 1: Frequencies within 2400~2483.5 are the fundamental frequency at 2437 MHz.

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

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

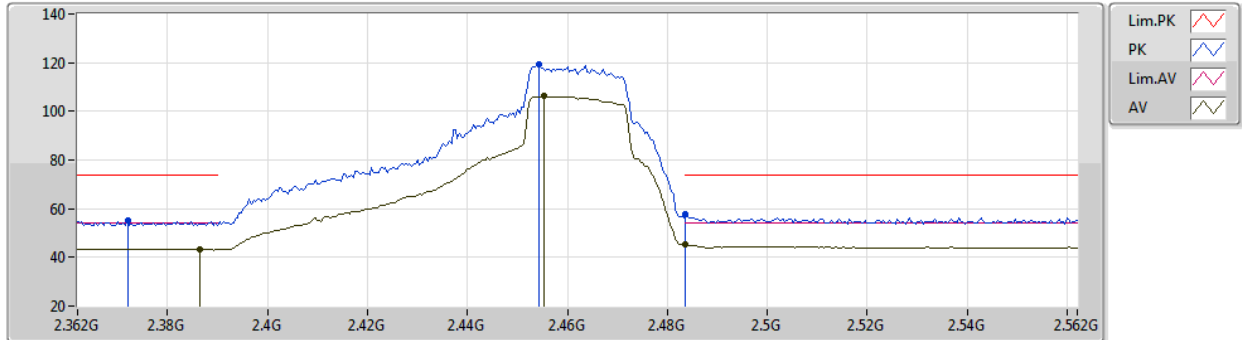


Band Edge and Fundamental Emissions

Operating Mode | 802.11ax 20MHz MCS0/Nss1 / CH 11 / Ant. 1+2, 1S2T (TXBF) | **Polarization** | V

**802.11ax HEW20-BF_Nss1,(MCS0)_2TX
2462MHz_TX**

22/06/2020



EUT Y_2TX
Setting 88
04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.372G	54.92	74.00	-19.08	24.55	3	Vertical	290	2.15	-	27.53	2.84	-
AV	2.3864G	43.40	54.00	-10.60	13.04	3	Vertical	290	2.15	-	27.51	2.85	-
PK	2.4544G	119.27	Inf	-Inf	88.66	3	Vertical	290	2.15	-	27.72	2.89	-
AV	2.4552G	106.21	Inf	-Inf	75.60	3	Vertical	290	2.15	-	27.72	2.89	-
PK	2.4835G	57.63	74.00	-16.37	26.89	3	Vertical	290	2.15	-	27.83	2.91	-
AV	2.4835G	45.21	54.00	-8.79	14.47	3	Vertical	290	2.15	-	27.83	2.91	-

Note 1: Frequencies within 2400~2483.5 are the fundamental frequency at 2462 MHz.

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

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

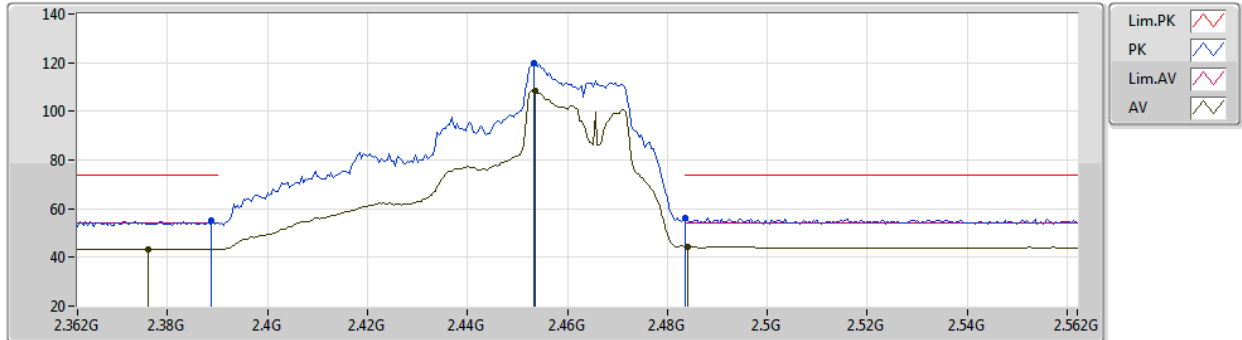


Band Edge and Fundamental Emissions

Operating Mode 802.11ax 20MHz MCS0/Nss1 / CH 11 / Ant. 1+2, 1S2T (TXBF) **Polarization** H

**802.11ax HEW20-BF_Nss1,(MCS0)_2TX
2462MHz_TX**

22/06/2020



EUT Y_2TX
Setting 88
04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.3888G	55.09	74.00	-18.91	24.73	3	Horizontal	16	2.00	-	27.51	2.85	-
AV	2.376G	43.43	54.00	-10.57	13.06	3	Horizontal	16	2.00	-	27.52	2.85	-
PK	2.4532G	119.80	Inf	-Inf	89.20	3	Horizontal	16	2.00	-	27.71	2.89	-
AV	2.4536G	108.48	Inf	-Inf	77.88	3	Horizontal	16	2.00	-	27.71	2.89	-
PK	2.4835G	56.34	74.00	-17.66	25.60	3	Horizontal	16	2.00	-	27.83	2.91	-
AV	2.484G	44.47	54.00	-9.53	13.72	3	Horizontal	16	2.00	-	27.84	2.91	-

Note 1: Frequencies within 2400~2483.5 are the fundamental frequency at 2462 MHz.

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

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

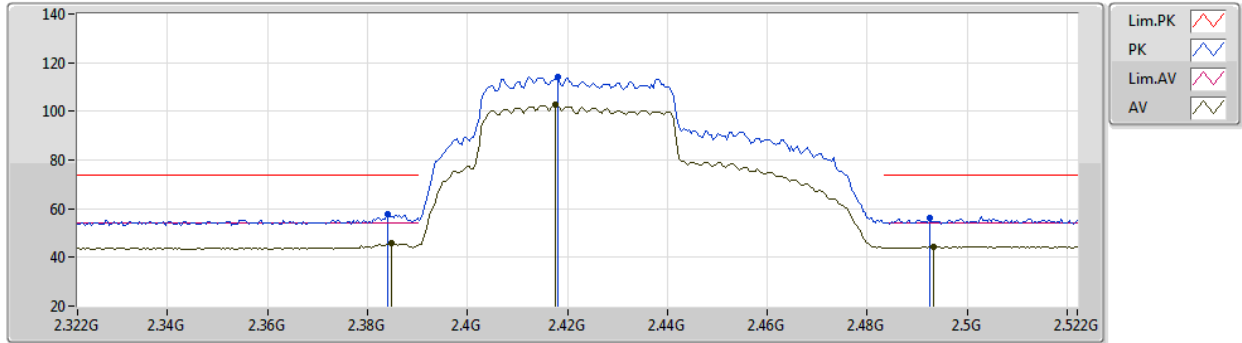


Band Edge and Fundamental Emissions

Operating Mode | 802.11ax 40MHz MCS0/Nss1 / CH 3 / Ant. 1+2, 1S2T (CDD) | **Polarization** | V

**802.11ax HEW40_Nss1,(MCS0)_2TX
2422MHz_TX**

22/06/2020



EUT Y_2TX
Setting 88
04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.384G	57.57	74.00	-16.43	27.20	3	Vertical	250	1.78	-	27.52	2.85	-
AV	2.3848G	45.83	54.00	-8.17	15.46	3	Vertical	250	1.78	-	27.52	2.85	-
PK	2.418G	113.99	Inf	-Inf	83.55	3	Vertical	250	1.78	-	27.57	2.87	-
AV	2.4176G	102.58	Inf	-Inf	72.14	3	Vertical	250	1.78	-	27.57	2.87	-
PK	2.4924G	56.18	74.00	-17.82	25.39	3	Vertical	250	1.78	-	27.87	2.92	-
AV	2.4932G	44.34	54.00	-9.66	13.55	3	Vertical	250	1.78	-	27.87	2.92	-

Note 1: Frequencies within 2400~2483.5 are the fundamental frequency at 2422 MHz.

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

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

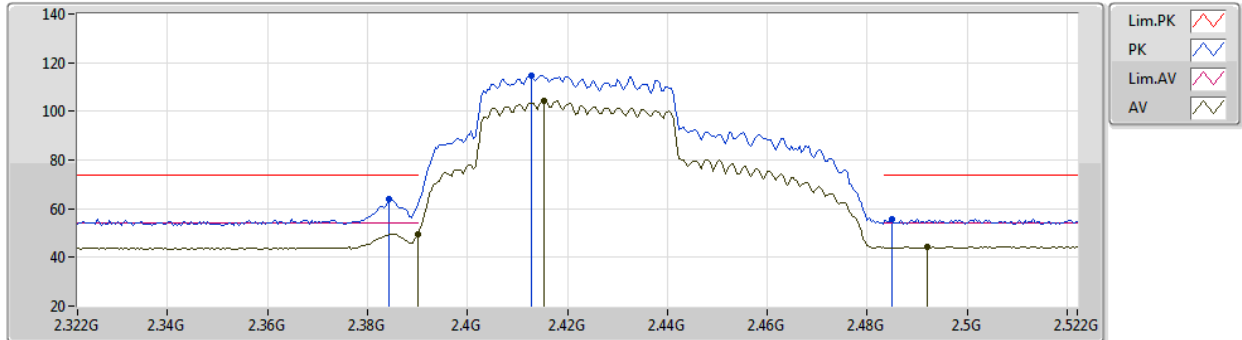


Band Edge and Fundamental Emissions

Operating Mode | 802.11ax 40MHz MCS0/Nss1 / CH 3 / Ant. 1+2, 1S2T (CDD) | **Polarization** | H

**802.11ax HEW40_Nss1,(MCS0)_2TX
2422MHz_TX**

22/06/2020



EUT Y_2TX
Setting 88
04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.3844G	64.14	74.00	-9.86	33.77	3	Horizontal	52	2.13	-	27.52	2.85	-
AV	2.39G	49.41	54.00	-4.59	19.05	3	Horizontal	52	2.13	-	27.51	2.85	-
PK	2.4128G	114.76	Inf	-Inf	84.34	3	Horizontal	52	2.13	-	27.55	2.87	-
AV	2.4152G	104.19	Inf	-Inf	73.76	3	Horizontal	52	2.13	-	27.56	2.87	-
PK	2.4848G	55.55	74.00	-18.45	24.80	3	Horizontal	52	2.13	-	27.84	2.91	-
AV	2.492G	44.39	54.00	-9.61	13.60	3	Horizontal	52	2.13	-	27.87	2.92	-

Note 1: Frequencies within 2400~2483.5 are the fundamental frequency at 2422 MHz.

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

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

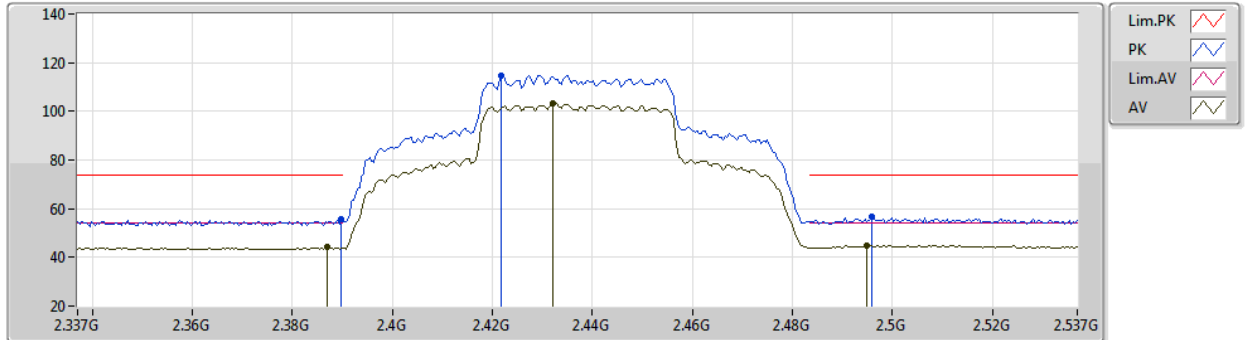


Band Edge and Fundamental Emissions

Operating Mode | 802.11ax 40MHz MCS0/Nss1 / CH 6 / Ant. 1+2, 1S2T (CDD) | **Polarization** | V

**802.11ax HEW40_Nss1,(MCS0)_2TX
2437MHz_TX**

22/06/2020



EUT_Y_2TX
Setting 88
04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.3898G	55.91	74.00	-18.09	25.55	3	Vertical	273	1.97	-	27.51	2.85	-
AV	2.387G	44.31	54.00	-9.69	13.95	3	Vertical	273	1.97	-	27.51	2.85	-
PK	2.4218G	114.77	Inf	-Inf	84.31	3	Vertical	273	1.97	-	27.59	2.87	-
AV	2.4322G	103.10	Inf	-Inf	72.59	3	Vertical	273	1.97	-	27.63	2.88	-
PK	2.4958G	56.96	74.00	-17.04	26.16	3	Vertical	273	1.97	-	27.88	2.92	-
AV	2.495G	44.71	54.00	-9.29	13.91	3	Vertical	273	1.97	-	27.88	2.92	-

Note 1: Frequencies within 2400~2483.5 are the fundamental frequency at 2437 MHz.

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

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

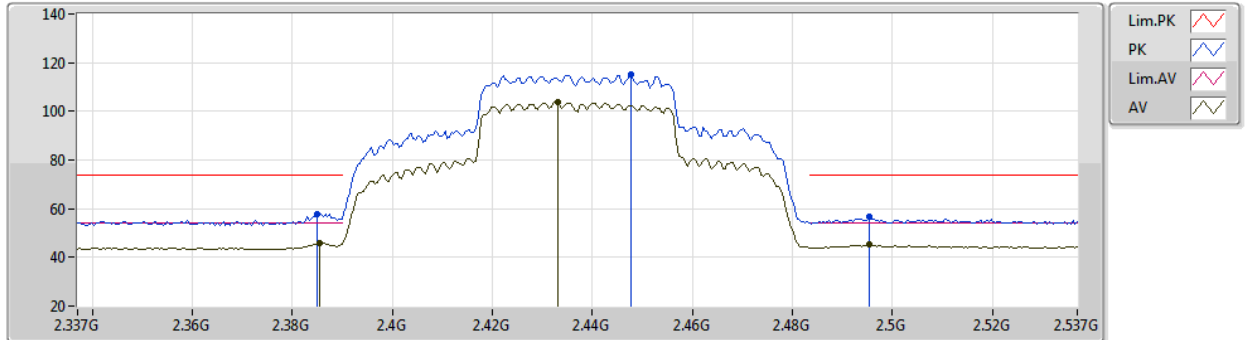


Band Edge and Fundamental Emissions

Operating Mode | 802.11ax 40MHz MCS0/Nss1 / CH 6 / Ant. 1+2, 1S2T (CDD) | **Polarization** | H

**802.11ax HEW40_Nss1,(MCS0)_2TX
2437MHz_TX**

22/06/2020



EUT Y_2TX
Setting 88
04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.385G	57.92	74.00	-16.08	27.55	3	Horizontal	58	2.41	-	27.52	2.85	-
AV	2.3854G	45.93	54.00	-8.07	15.57	3	Horizontal	58	2.41	-	27.51	2.85	-
PK	2.4478G	115.41	Inf	-Inf	84.83	3	Horizontal	58	2.41	-	27.69	2.89	-
AV	2.433G	103.63	Inf	-Inf	73.12	3	Horizontal	58	2.41	-	27.63	2.88	-
PK	2.4954G	56.48	74.00	-17.52	25.68	3	Horizontal	58	2.41	-	27.88	2.92	-
AV	2.4954G	45.09	54.00	-8.91	14.29	3	Horizontal	58	2.41	-	27.88	2.92	-

Note 1: Frequencies within 2400~2483.5 are the fundamental frequency at 2437 MHz.

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

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

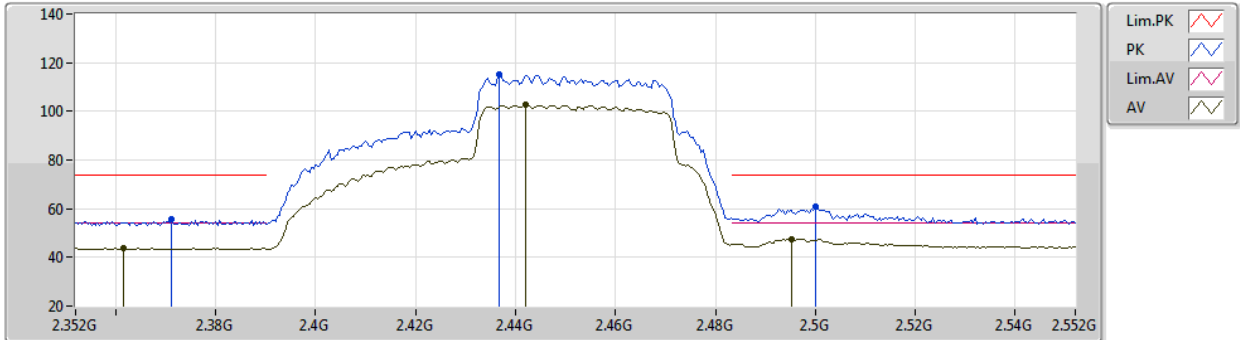


Band Edge and Fundamental Emissions

Operating Mode | 802.11ax 40MHz MCS0/Nss1 / CH 9 / Ant. 1+2, 1S2T (CDD) | **Polarization** | V

**802.11ax HEW40_Nss1,(MCS0)_2TX
2452MHz_TX**

22/06/2020



EUT Y_2TX
Setting 88
04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.3712G	55.58	74.00	-18.42	25.21	3	Vertical	269	1.78	-	27.53	2.84	-
AV	2.3616G	43.90	54.00	-10.10	13.52	3	Vertical	269	1.78	-	27.54	2.84	-
PK	2.4368G	115.21	Inf	-Inf	84.68	3	Vertical	269	1.78	-	27.65	2.88	-
AV	2.442G	102.54	Inf	-Inf	71.98	3	Vertical	269	1.78	-	27.67	2.89	-
PK	2.5G	60.90	74.00	-13.10	30.08	3	Vertical	269	1.78	-	27.90	2.92	-
AV	2.4952G	47.46	54.00	-6.54	16.66	3	Vertical	269	1.78	-	27.88	2.92	-

Note 1: Frequencies within 2400~2483.5 are the fundamental frequency at 2452 MHz.

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

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

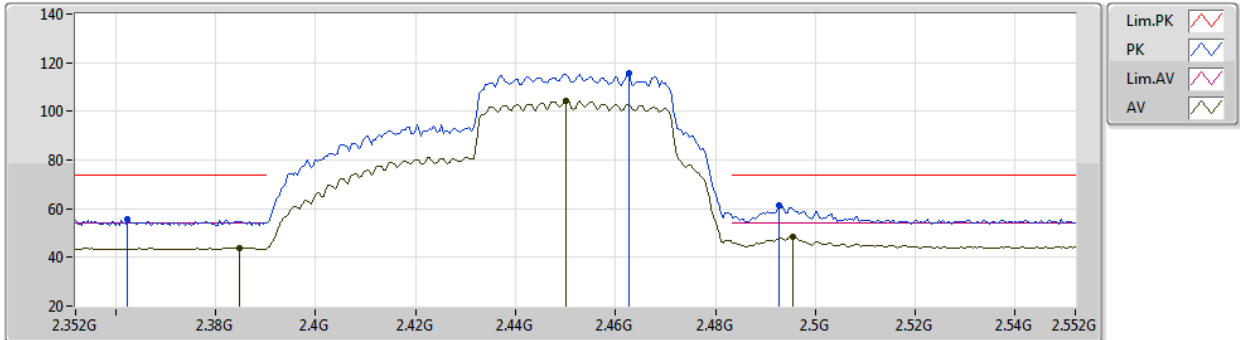


Band Edge and Fundamental Emissions

Operating Mode | 802.11ax 40MHz MCS0/Nss1 / CH 9 / Ant. 1+2, 1S2T (CDD) | **Polarization** | H

**802.11ax HEW40_Nss1,(MCS0)_2TX
2452MHz_TX**

22/06/2020



EUT Y_2TX
Setting 88
04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.3624G	55.49	74.00	-18.51	25.11	3	Horizontal	56	2.21	-	27.54	2.84	-
AV	2.3848G	43.97	54.00	-10.03	13.60	3	Horizontal	56	2.21	-	27.52	2.85	-
PK	2.4628G	115.44	Inf	-Inf	84.79	3	Horizontal	56	2.21	-	27.75	2.90	-
AV	2.45G	104.11	Inf	-Inf	73.52	3	Horizontal	56	2.21	-	27.70	2.89	-
PK	2.4928G	61.36	74.00	-12.64	30.57	3	Horizontal	56	2.21	-	27.87	2.92	-
AV	2.4956G	48.51	54.00	-5.49	17.71	3	Horizontal	56	2.21	-	27.88	2.92	-

Note 1: Frequencies within 2400~2483.5 are the fundamental frequency at 2452 MHz.

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

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

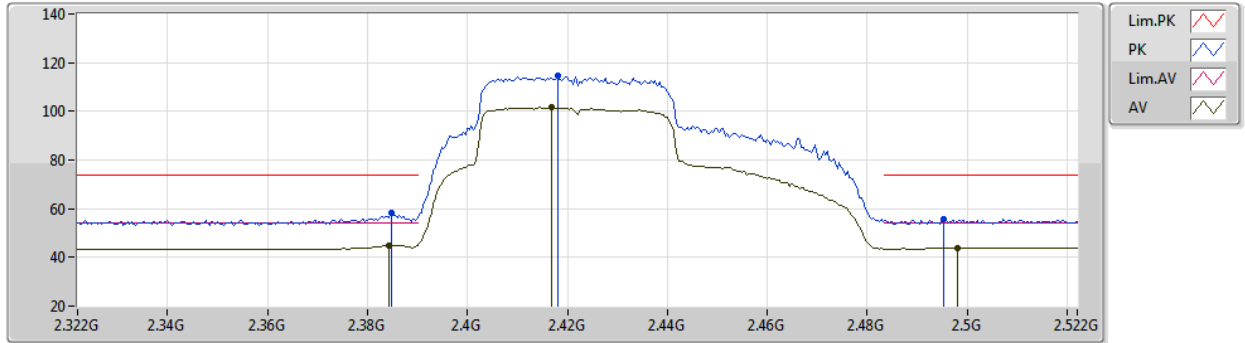


Band Edge and Fundamental Emissions

Operating Mode | 802.11ax 40MHz MCS0/Nss1 / CH 3 / Ant. 1+2, 1S2T (TXBF) | **Polarization** | V

**802.11ax HEW40-BF_Nss1,(MCS0)_2TX
2422MHz_TX**

22/06/2020



EUT Y_2TX
Setting 88
04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.3848G	58.23	74.00	-15.77	27.86	3	Vertical	268	1.99	-	27.52	2.85	-
AV	2.3844G	45.00	54.00	-9.00	14.63	3	Vertical	268	1.99	-	27.52	2.85	-
PK	2.418G	114.47	Inf	-Inf	84.03	3	Vertical	268	1.99	-	27.57	2.87	-
AV	2.4168G	101.72	Inf	-Inf	71.28	3	Vertical	268	1.99	-	27.57	2.87	-
PK	2.4952G	55.70	74.00	-18.30	24.90	3	Vertical	268	1.99	-	27.88	2.92	-
AV	2.498G	43.83	54.00	-10.17	13.02	3	Vertical	268	1.99	-	27.89	2.92	-

Note 1: Frequencies within 2400~2483.5 are the fundamental frequency at 2422 MHz.

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

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

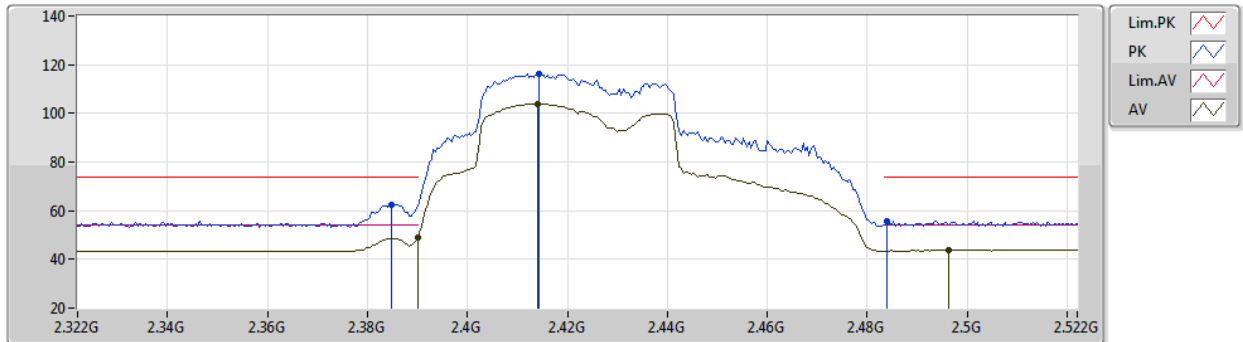


Band Edge and Fundamental Emissions

Operating Mode | 802.11ax 40MHz MCS0/Nss1 / CH 3 / Ant. 1+2, 1S2T (TXBF) | **Polarization** | H

**802.11ax HEW40-BF_Nss1,(MCS0)_2TX
2422MHz_TX**

22/06/2020



EUT Y_2TX
Setting 88
04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.3848G	62.60	74.00	-11.40	32.23	3	Horizontal	58	2.79	-	27.52	2.85	-
AV	2.39G	49.14	54.00	-4.86	18.78	3	Horizontal	58	2.79	-	27.51	2.85	-
PK	2.4144G	116.39	Inf	-Inf	85.96	3	Horizontal	58	2.79	-	27.56	2.87	-
AV	2.414G	103.91	Inf	-Inf	73.48	3	Horizontal	58	2.79	-	27.56	2.87	-
PK	2.484G	55.73	74.00	-18.27	24.98	3	Horizontal	58	2.79	-	27.84	2.91	-
AV	2.4964G	43.73	54.00	-10.27	12.92	3	Horizontal	58	2.79	-	27.89	2.92	-

Note 1: Frequencies within 2400~2483.5 are the fundamental frequency at 2422 MHz.

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

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

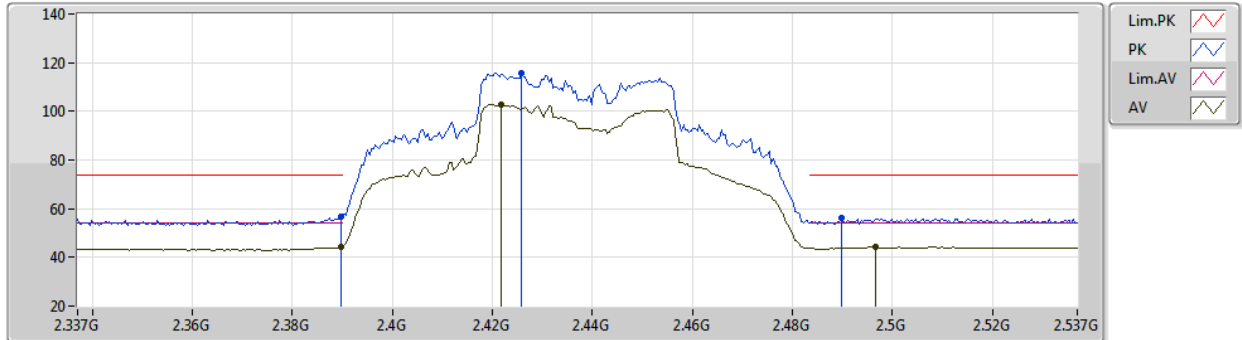


Band Edge and Fundamental Emissions

Operating Mode | 802.11ax 40MHz MCS0/Nss1 / CH 6 / Ant. 1+2, 1S2T (TXBF) | **Polarization** | V

**802.11ax HEW40-BF_Nss1,(MCS0)_2TX
2437MHz_TX**

22/06/2020



EUT_Y_2TX
Setting 88
04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.3898G	56.77	74.00	-17.23	26.41	3	Vertical	322	2.44	-	27.51	2.85	-
AV	2.3898G	44.22	54.00	-9.78	13.86	3	Vertical	322	2.44	-	27.51	2.85	-
PK	2.4258G	115.80	Inf	-Inf	85.32	3	Vertical	322	2.44	-	27.60	2.88	-
AV	2.4218G	102.65	Inf	-Inf	72.19	3	Vertical	322	2.44	-	27.59	2.87	-
PK	2.4898G	56.44	74.00	-17.56	25.67	3	Vertical	322	2.44	-	27.86	2.91	-
AV	2.4966G	44.17	54.00	-9.83	13.36	3	Vertical	322	2.44	-	27.89	2.92	-

Note 1: Frequencies within 2400~2483.5 are the fundamental frequency at 2437 MHz.

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

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

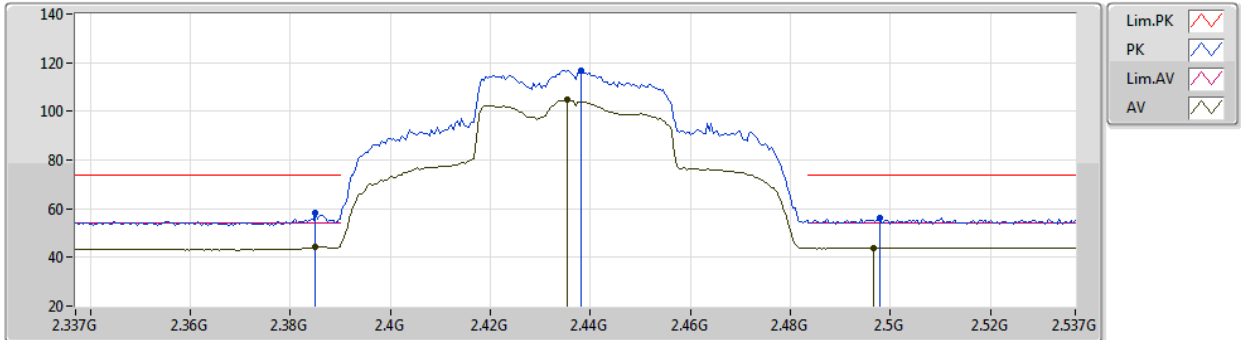


Band Edge and Fundamental Emissions

Operating Mode | 802.11ax 40MHz MCS0/Nss1 / CH 6 / Ant. 1+2, 1S2T (TXBF) | **Polarization** | H

**802.11ax HEW40-BF_Nss1,(MCS0)_2TX
2437MHz_TX**

22/06/2020



EUT Y_2TX
Setting 88
04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.385G	58.31	74.00	-15.69	27.94	3	Horizontal	60	2.01	-	27.52	2.85	-
AV	2.385G	44.32	54.00	-9.68	13.95	3	Horizontal	60	2.01	-	27.52	2.85	-
PK	2.4382G	116.84	Inf	-Inf	86.31	3	Horizontal	60	2.01	-	27.65	2.88	-
AV	2.4354G	104.65	Inf	-Inf	74.13	3	Horizontal	60	2.01	-	27.64	2.88	-
PK	2.4978G	56.15	74.00	-17.85	25.34	3	Horizontal	60	2.01	-	27.89	2.92	-
AV	2.4966G	44.01	54.00	-9.99	13.20	3	Horizontal	60	2.01	-	27.89	2.92	-

Note 1: Frequencies within 2400~2483.5 are the fundamental frequency at 2437 MHz.

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

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

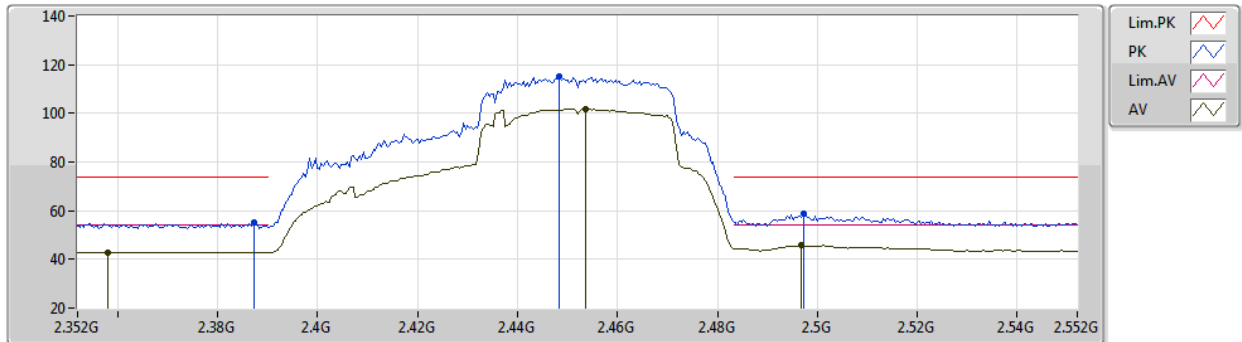


Band Edge and Fundamental Emissions

Operating Mode | 802.11ax 40MHz MCS0/Nss1 / CH 9 / Ant. 1+2, 1S2T (TXBF) | **Polarization** | V

**802.11ax HEW40-BF_Nss1,(MCS0)_2TX
2452MHz_TX**

22/06/2020



EUT Y_2TX
Setting 88
04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.3872G	55.03	74.00	-18.97	24.67	3	Vertical	269	1.80	-	27.51	2.85	-
AV	2.358G	42.99	54.00	-11.01	12.62	3	Vertical	269	1.80	-	27.54	2.83	-
PK	2.4484G	115.03	Inf	-Inf	84.45	3	Vertical	269	1.80	-	27.69	2.89	-
AV	2.4536G	101.80	Inf	-Inf	71.20	3	Vertical	269	1.80	-	27.71	2.89	-
PK	2.4972G	58.72	74.00	-15.28	27.91	3	Vertical	269	1.80	-	27.89	2.92	-
AV	2.4968G	45.68	54.00	-8.32	14.87	3	Vertical	269	1.80	-	27.89	2.92	-

Note 1: Frequencies within 2400~2483.5 are the fundamental frequency at 2452 MHz.

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

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

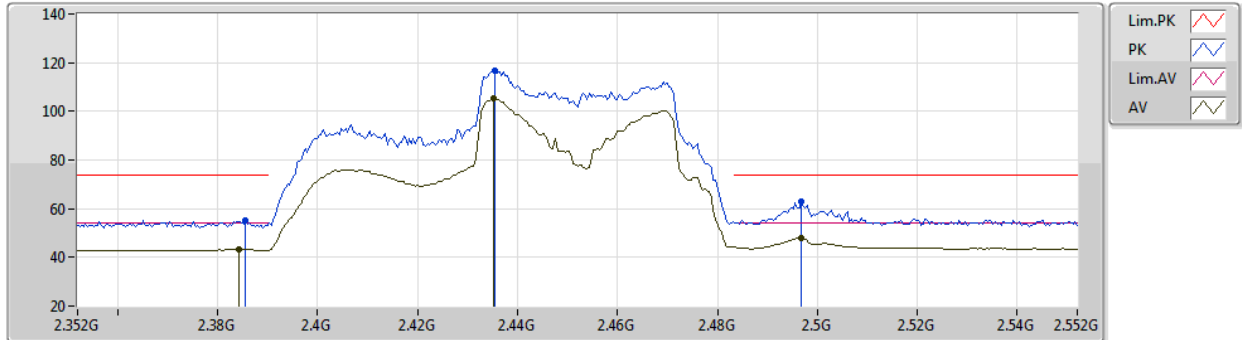


Band Edge and Fundamental Emissions

Operating Mode | 802.11ax 40MHz MCS0/Nss1 / CH 9 / Ant. 1+2, 1S2T (TXBF) | **Polarization** | H

**802.11ax HEW40-BF_Nss1,(MCS0)_2TX
2452MHz_TX**

22/06/2020



EUT_Y_2TX
Setting 88
04-E-P-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.3856G	55.13	74.00	-18.87	24.77	3	Horizontal	254	2.78	-	27.51	2.85	-
AV	2.3844G	43.28	54.00	-10.72	12.91	3	Horizontal	254	2.78	-	27.52	2.85	-
PK	2.4356G	116.56	Inf	-Inf	86.04	3	Horizontal	254	2.78	-	27.64	2.88	-
AV	2.4352G	105.16	Inf	-Inf	74.64	3	Horizontal	254	2.78	-	27.64	2.88	-
PK	2.4968G	62.94	74.00	-11.06	32.13	3	Horizontal	254	2.78	-	27.89	2.92	-
AV	2.4968G	48.01	54.00	-5.99	17.20	3	Horizontal	254	2.78	-	27.89	2.92	-

Note 1: Frequencies within 2400~2483.5 are the fundamental frequency at 2452 MHz.

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

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)



2.6.9. Test Results of Emission not in Restricted Band

Following channel(s) was (were) selected for the final test as listed below.

MODE	TX Chain	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	Ant. 1, 1S1T (SISO)	1, 6, 11	DSSS	DBPSK	1
802.11ax 20MHz	Ant. 1+2, 1S2T (CDD)	1, 6, 11	OFDMA	BPSK	MCS0/Nss1 (8.6)
802.11ax 20MHz	Ant. 1+2, 1S2T (TXBF)	1, 6, 11	OFDMA	BPSK	MCS0/Nss1 (8.6)
802.11ax 40MHz	Ant. 1+2, 1S2T (CDD)	3, 6, 9	OFDMA	BPSK	MCS0/Nss1 (17.2)
802.11ax 40MHz	Ant. 1+2, 1S2T (TXBF)	3, 6, 9	OFDMA	BPSK	MCS0/Nss1 (17.2)



Configuration IEEE 802.11b

<1Mbps, Ant. 1, 1S1T, SISO>

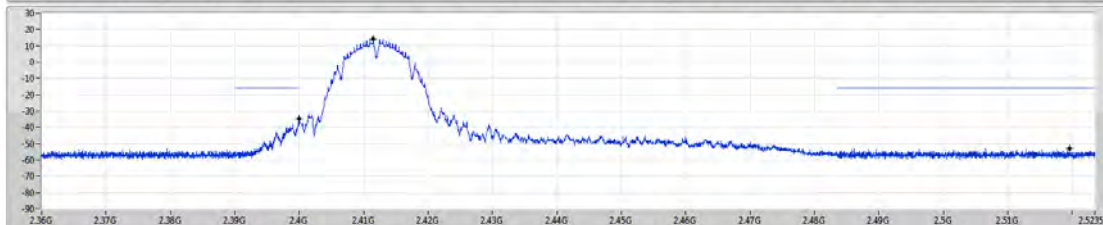
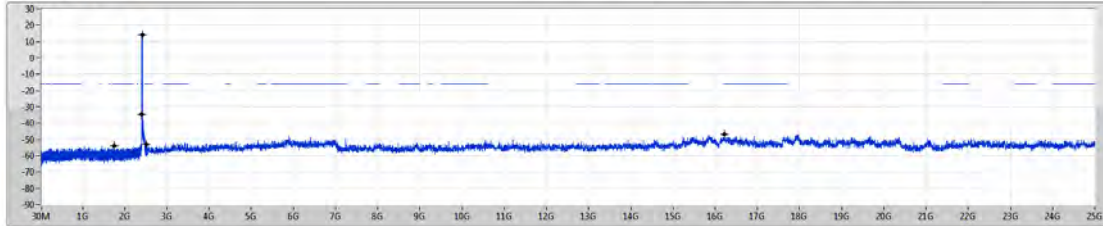
Plot on Configuration IEEE 802.11b 1Mbps / CH 1 / Ant. 1 / Reference Level

Plot on Configuration IEEE 802.11b 1Mbps / CH 1 / Ant. 1 / 30MHz~10th Harmonic (down 30dBc)

802.11b_Nss1,(1Mbps)_1TX

CSE NdB

2412MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2411480	13.85	-16.15	1.75362G	-53.74	2.4G	-34.58	2.4G	-34.55	2.51963G	-52.92	16.21169G	-46.76	1

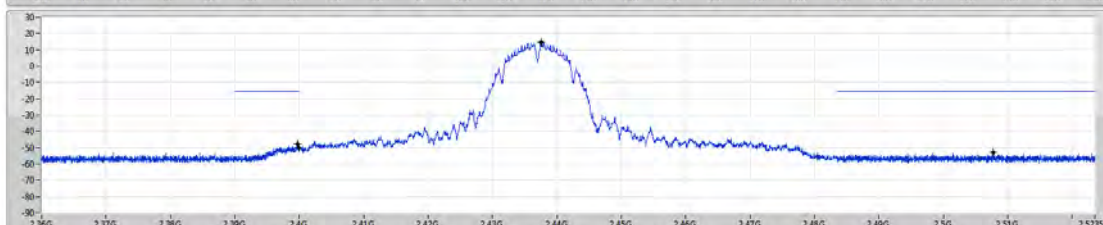
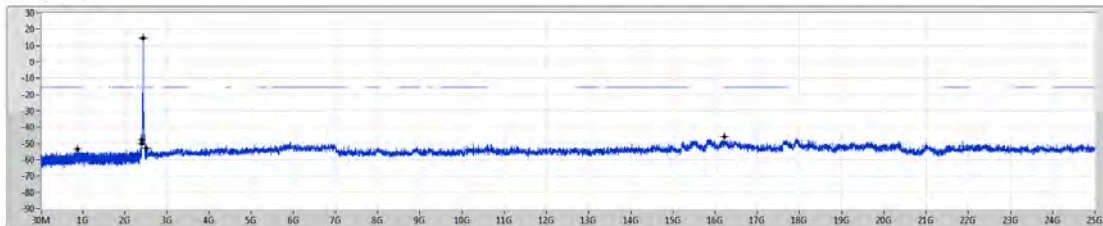
Plot on Configuration IEEE 802.11b 1Mbps / CH 6 / Ant. 1 / Reference Level

Plot on Configuration IEEE 802.11b 1Mbps / CH 6 / Ant. 1 / 30MHz~10th Harmonic (down 30dBc)

802.11b_Nss1,(1Mbps)_1TX

CSE NdB

2437MHz

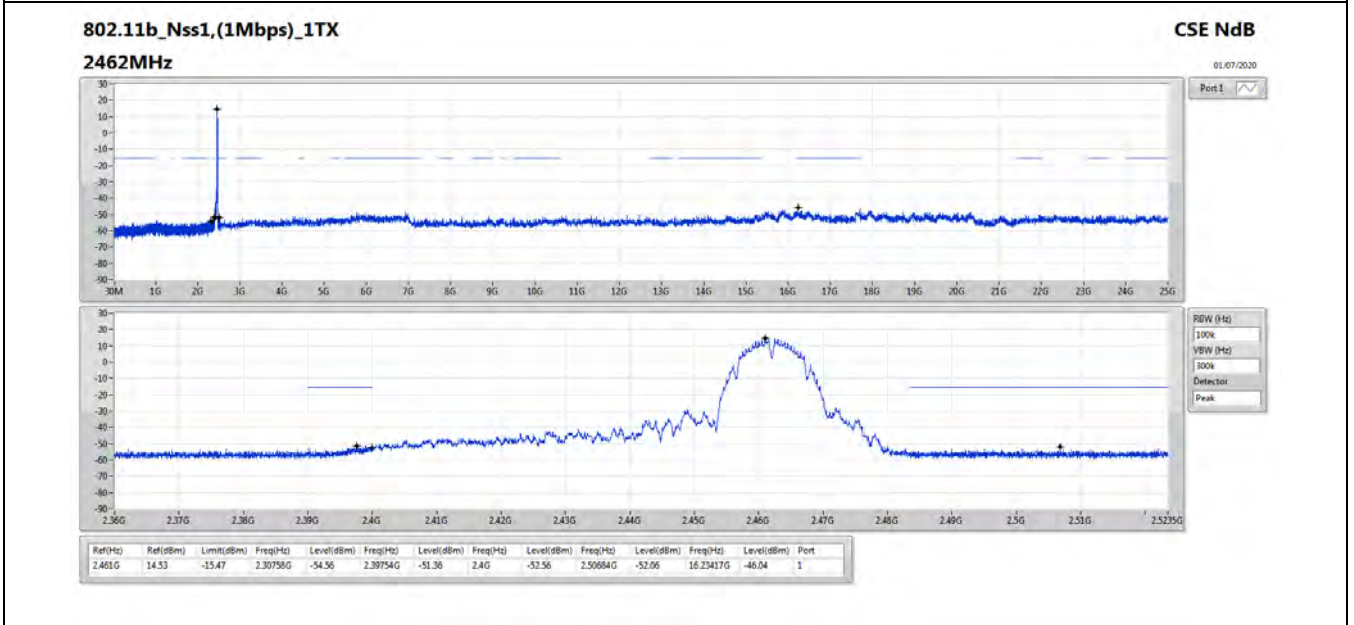


Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2437490	14.51	-15.49	678.41M	-53.62	2.39974G	-47.85	2.4G	-50.35	2.50776G	-52.96	16.22012G	-45.90	1



Plot on Configuration IEEE 802.11b 1Mbps / CH 11 / Ant. 1 / Reference Level

Plot on Configuration IEEE 802.11b 1Mbps / CH 11 / Ant. 1 / 30MHz~10th Harmonic (down 30dBc)



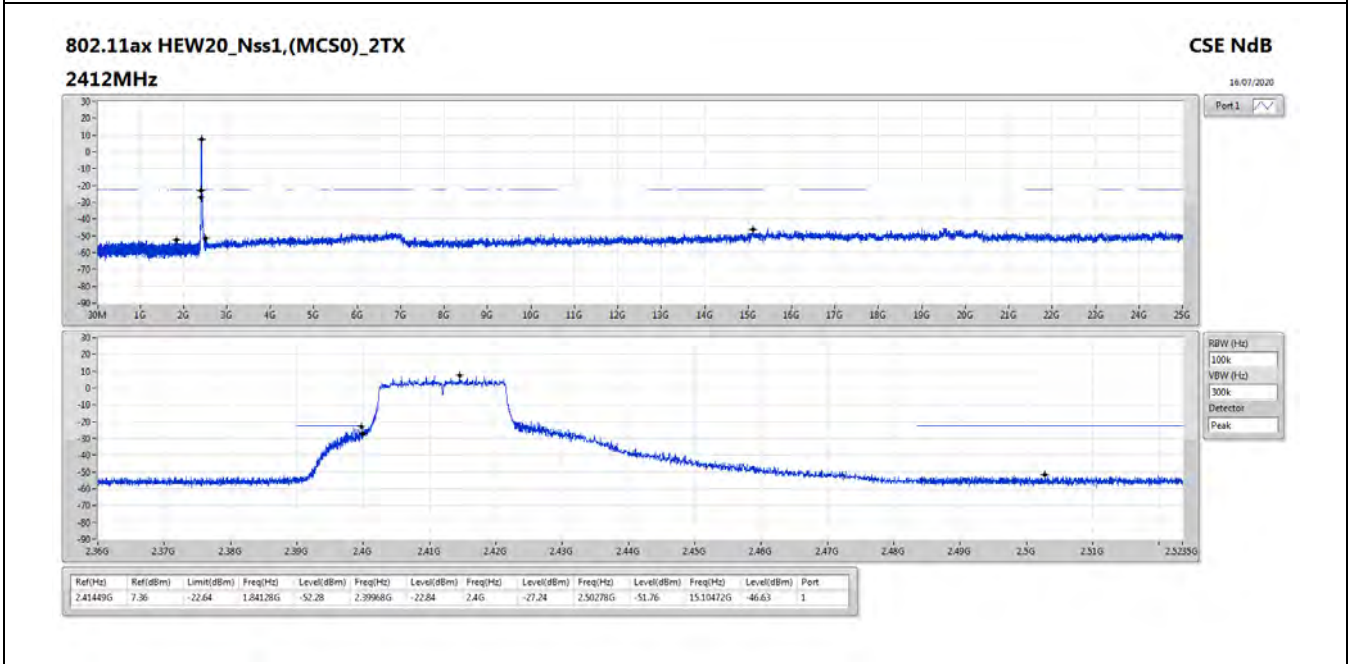


Configuration IEEE 802.11ax 20MHz

<MCS0, Ant. 1+2, 1S2T, CDD>

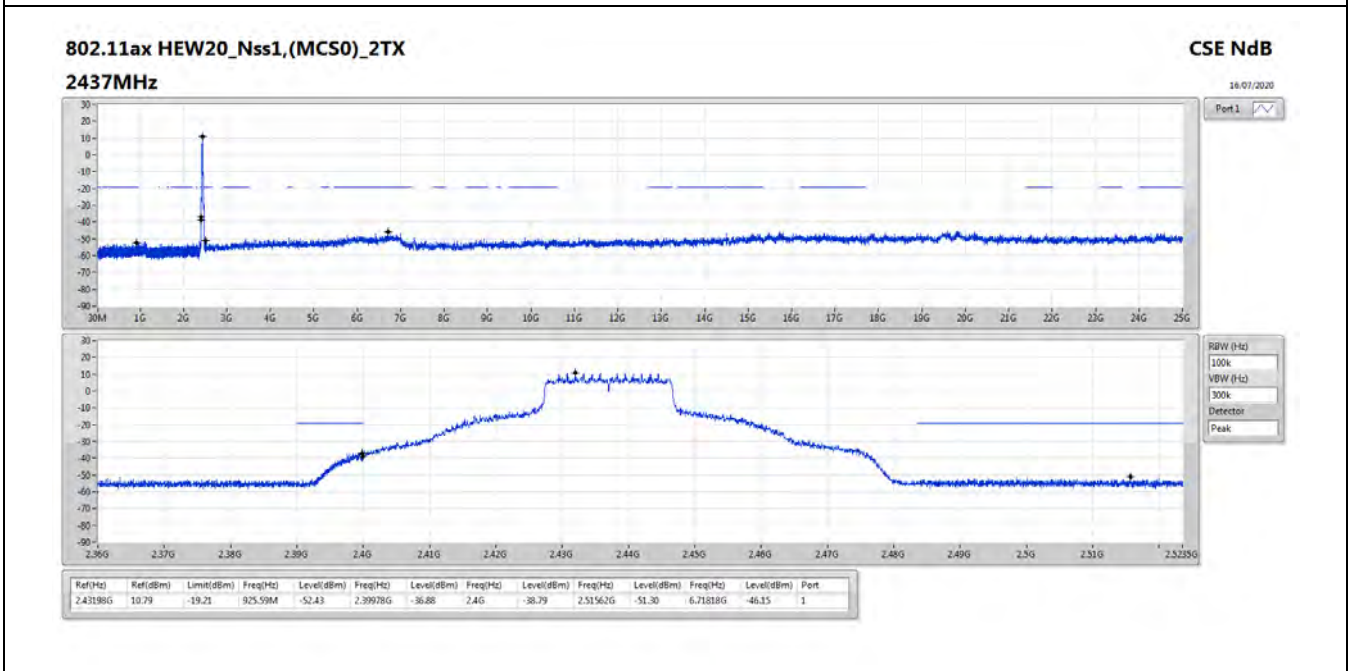
IEEE 802.11ax 20MHz MCS0/Nss1 / CH 1 / Ant. 1 / Reference Level

IEEE 802.11ax 20MHz MCS0/Nss1 / CH 1 / Ant. 1 / 30MHz~10th Harmonic (down 30dBc)



IEEE 802.11ax 20MHz MCS0/Nss1 / CH 6 / Ant. 1 / Reference Level

IEEE 802.11ax 20MHz MCS0/Nss1 / CH 6 / Ant. 1 / 30MHz~10th Harmonic (down 30dBc)





IEEE 802.11ax 20MHz MCS0/Nss1 / CH 11 / Ant. 1 / Reference Level

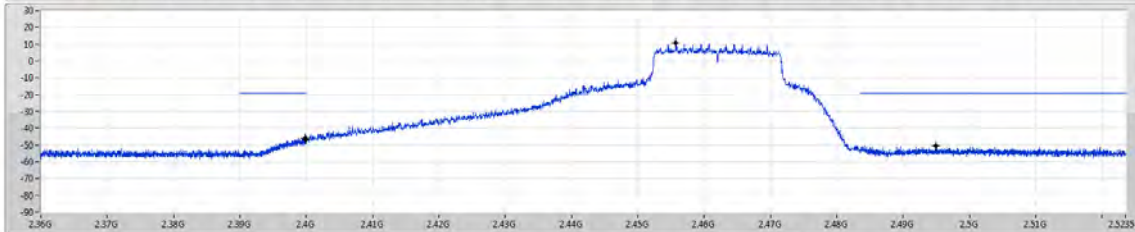
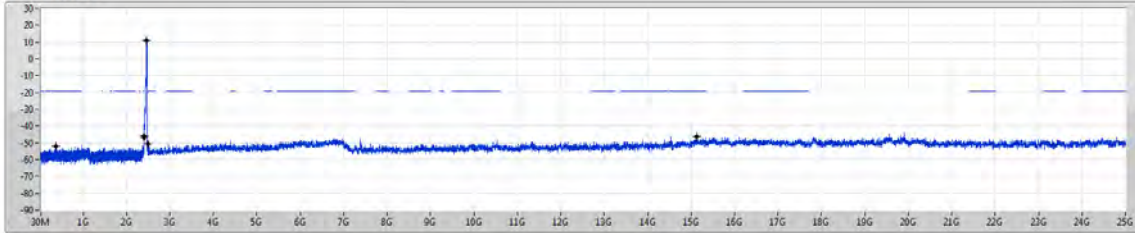
IEEE 802.11ax 20MHz MCS0/Nss1 / CH 11 / Ant. 1 / 30MHz~10th Harmonic (down 30dBc)

802.11ax HEW20_Nss1,(MCS0)_2TX

CSE NdB

2462MHz

18/07/2020



Ref(Frq)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Part
245574G	10.83	-19.17	373.05M	-51.88	2.39922G	-45.75	2.4G	-47.04	2.4949G	-50.44	15.13844G	-46.42	1



IEEE 802.11ax 20MHz MCS0/Nss1 / CH 1 / Ant. 2 / Reference Level

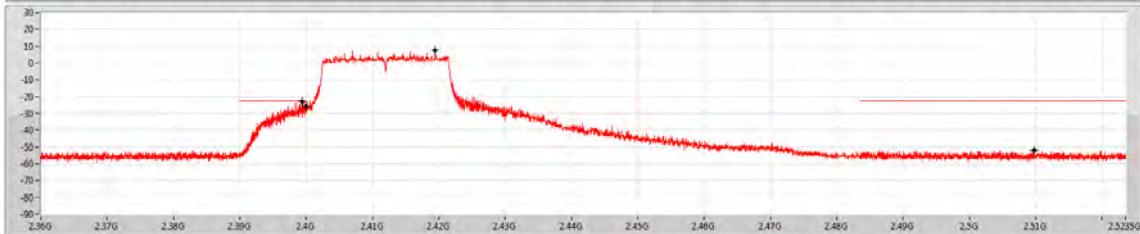
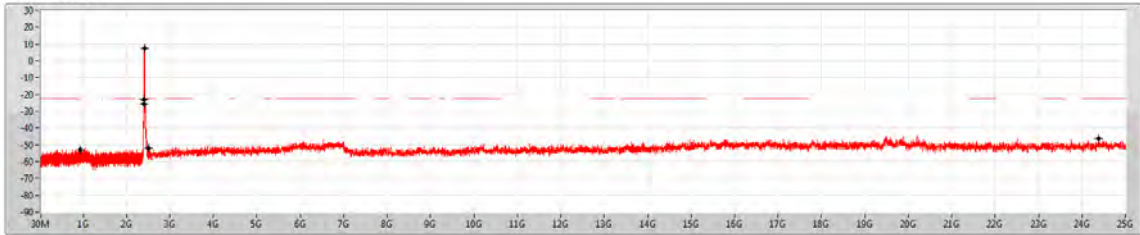
IEEE 802.11ax 20MHz MCS0/Nss1 / CH 1 / Ant. 2 / 30MHz~10th Harmonic (down 30dBc)

802.11ax HEW20_Nss1,(MCS0)_2TX

CSE NdB

2412MHz

18/07/2020



Ref(FHz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
241946G	7.31	-22.69	926.47M	-52.99	2.39942G	-22.83	2.4G	-25.69	2.50978G	-51.91	24.3819G	-46.54	2

IEEE 802.11ax 20MHz MCS0/Nss1 / CH 6 / Ant. 2 / Reference Level

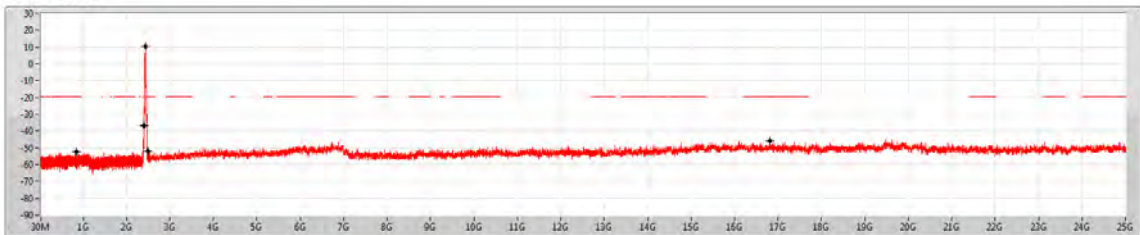
IEEE 802.11ax 20MHz MCS0/Nss1 / CH 6 / Ant. 2 / 30MHz~10th Harmonic (down 30dBc)

802.11ax HEW20_Nss1,(MCS0)_2TX

CSE NdB

2437MHz

18/07/2020

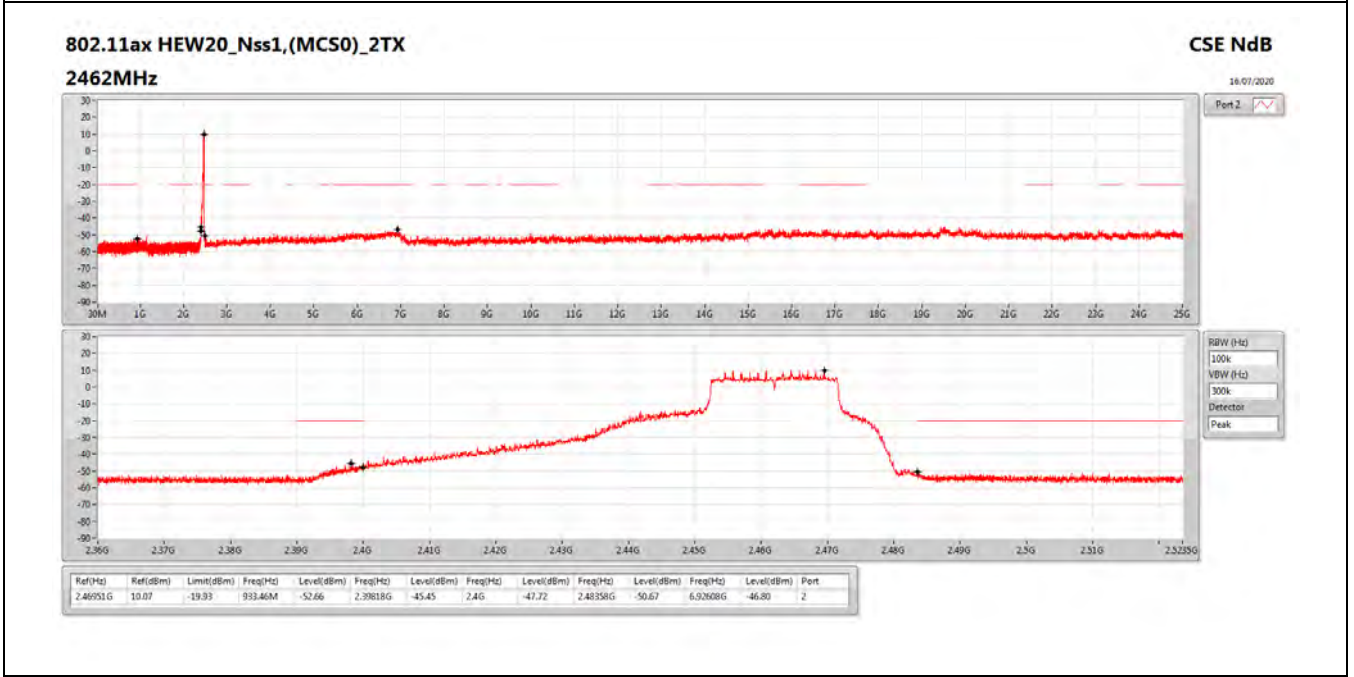


Ref(FHz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2442G	10.45	-19.55	845.5M	-52.45	2.39886G	-36.96	2.4G	-36.34	2.48886G	-51.99	16.81855G	-45.98	2



IEEE 802.11ax 20MHz MCS0/Nss1 / CH 11 / Ant. 2 / Reference Level

IEEE 802.11ax 20MHz MCS0/Nss1 / CH 11 / Ant. 2 / 30MHz~10th Harmonic (down 30dBc)





<MCS0, Ant. 1+2, 1S2T, TXBF>

IEEE 802.11ax 20MHz MCS0/Nss1 / CH 1 / Ant. 1 / Reference Level

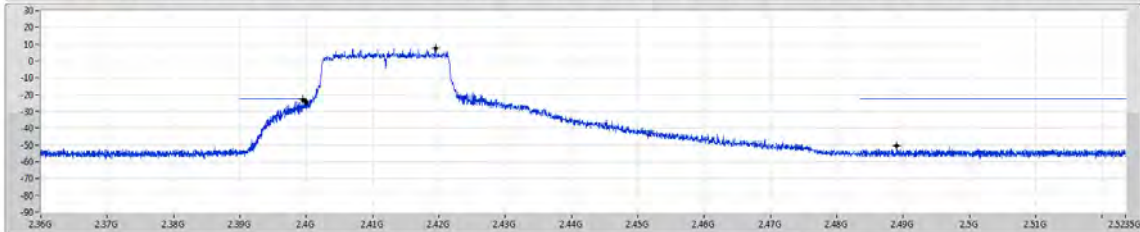
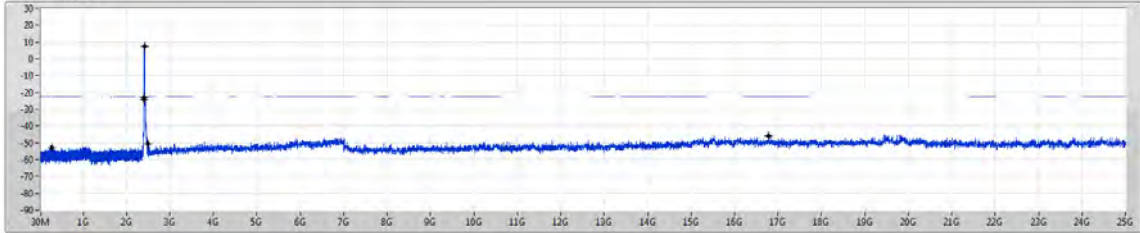
IEEE 802.11ax 20MHz MCS0/Nss1 / CH 1 / Ant. 1 / 30MHz~10th Harmonic (down 30dBc)

802.11ax HEW20-BF_Nss1,(MCS0)_2TX

CSE NdB

2412MHz

18/07/2020



Ref(FHz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
24195G	7.36	-22.64	287.76M	-53.01	2.39944G	-22.77	2.4G	-24.34	2.48904G	-50.81	16.78484G	-46.04	1

IEEE 802.11ax 20MHz MCS0/Nss1 / CH 6 / Ant. 1 / Reference Level

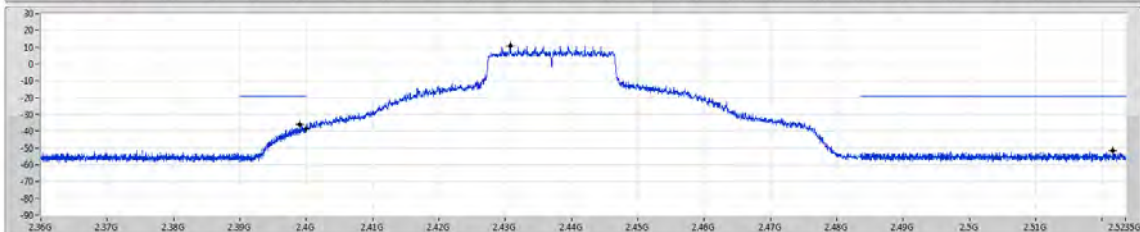
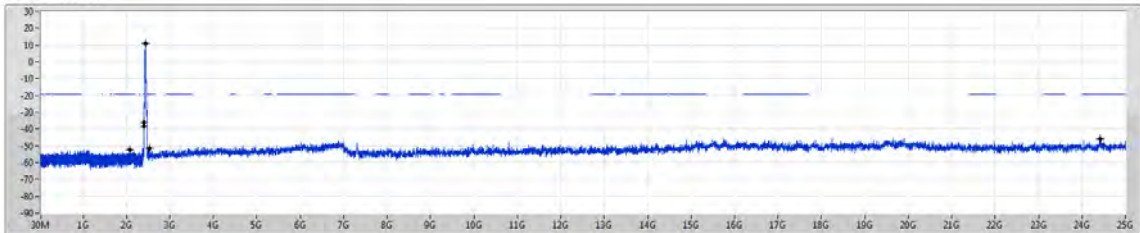
IEEE 802.11ax 20MHz MCS0/Nss1 / CH 6 / Ant. 1 / 30MHz~10th Harmonic (down 30dBc)

802.11ax HEW20-BF_Nss1,(MCS0)_2TX

CSE NdB

2437MHz

18/07/2020



Ref(FHz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
243073G	10.85	-19.15	2.07341G	-52.67	2.39902G	-36.10	2.4G	-38.47	2.52158G	-51.61	24.4128G	-45.99	1



IEEE 802.11ax 20MHz MCS0/Nss1 / CH 11 / Ant. 1 / Reference Level

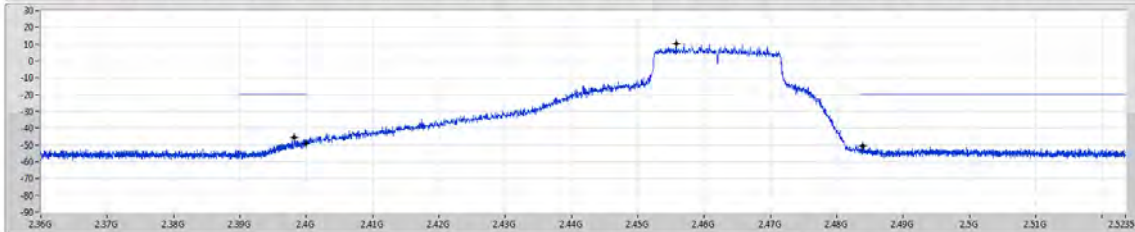
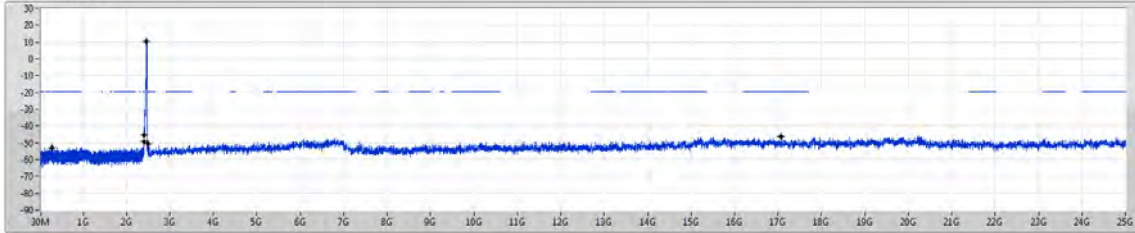
IEEE 802.11ax 20MHz MCS0/Nss1 / CH 11 / Ant. 1 / 30MHz~10th Harmonic (down 30dBc)

802.11ax HEW20-BF_Nss1,(MCS0)_2TX

CSE NdB

2462MHz

18/07/2020



Ref(Frq)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Part
245578G	10.53	-19.47	287.17M	-52.74	2.39622G	-45.50	2.4G	-49.26	2.48388G	-50.44	17.0658G	-46.35	1



IEEE 802.11ax 20MHz MCS0/Nss1 / CH 1 / Ant. 2 / Reference Level

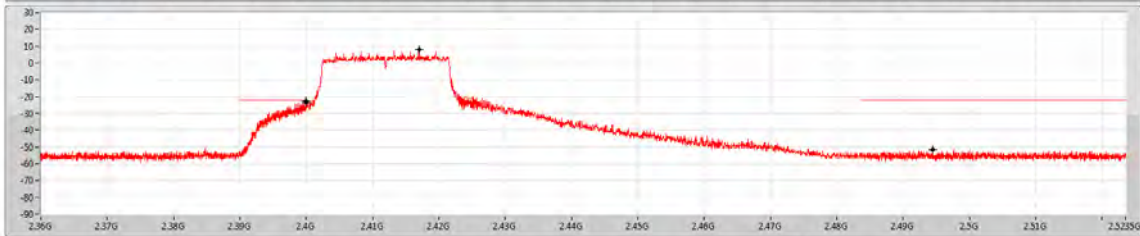
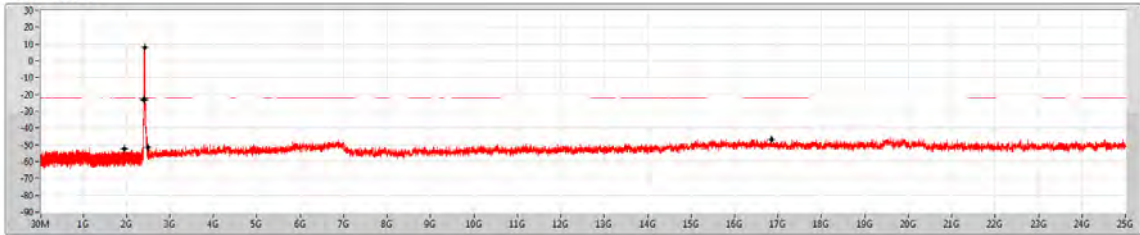
IEEE 802.11ax 20MHz MCS0/Nss1 / CH 1 / Ant. 2 / 30MHz~10th Harmonic (down 30dBc)

802.11ax HEW20-BF_Nss1,(MCS0)_2TX

CSE NdB

2412MHz

18/07/2020



Ref(Freq)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2416990	7.79	-22.21	1.95167G	-52.31	2.39994G	-22.42	2.4G	-23.30	2.49444G	-51.55	16.85508G	-46.65	2

IEEE 802.11ax 20MHz MCS0/Nss1 / CH 6 / Ant. 2 / Reference Level

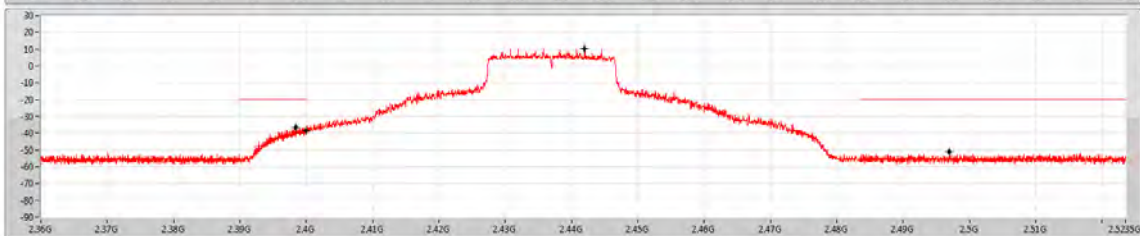
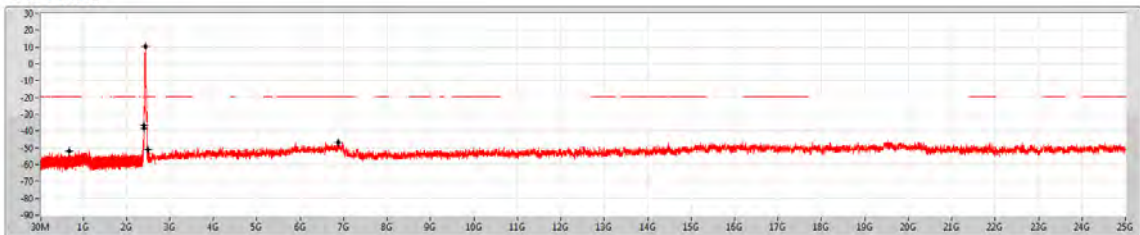
IEEE 802.11ax 20MHz MCS0/Nss1 / CH 6 / Ant. 2 / 30MHz~10th Harmonic (down 30dBc)

802.11ax HEW20-BF_Nss1,(MCS0)_2TX

CSE NdB

2437MHz

18/07/2020

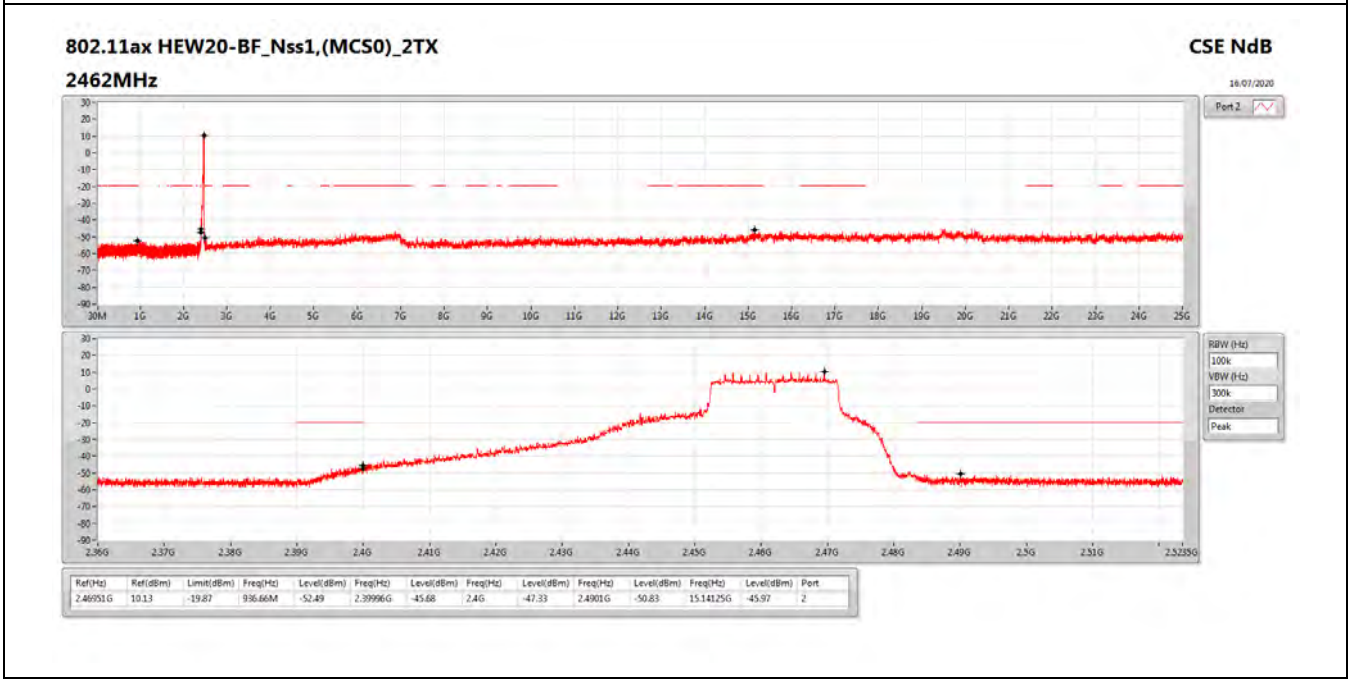


Ref(Freq)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2441960	10.42	-19.58	699.85M	-51.88	2.3984G	-36.63	2.4G	-38.47	2.497G	-51.26	6.87551G	-46.81	2



IEEE 802.11ax 20MHz MCS0/Nss1 / CH 11 / Ant. 2 / Reference Level

IEEE 802.11ax 20MHz MCS0/Nss1 / CH 11 / Ant. 2 / 30MHz~10th Harmonic (down 30dBc)





Configuration IEEE 802.11ax 40MHz

<MCS0, Ant. 1+2, 1S2T, CDD>

IEEE 802.11ax 40MHz MCS0/Nss1 / CH 3 / Ant. 1 / Reference Level

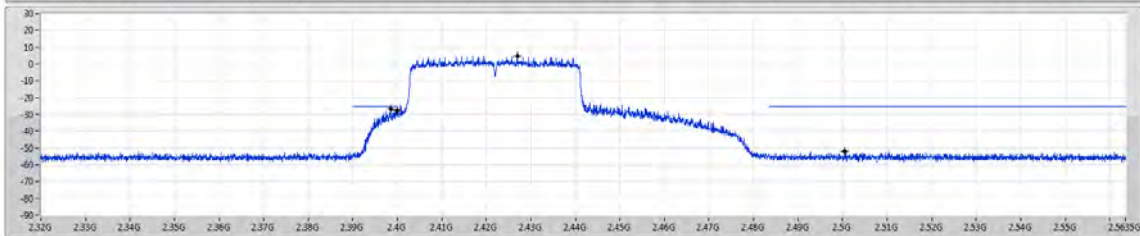
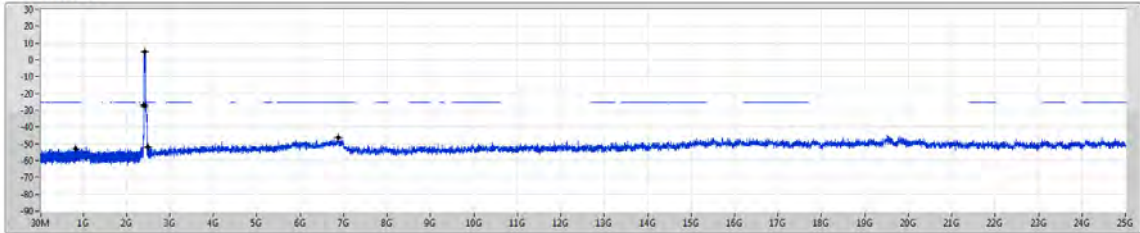
IEEE 802.11ax 40MHz MCS0/Nss1 / CH 3 / Ant. 1 / 30MHz~10th Harmonic (down 30dBc)

802.11ax HEW40_Nss1,(MCS0)_2TX

CSE NdB

2422MHz

18/07/2020



Ref(Fd)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
242697G	4.72	-25.28	834.944M	-52.87	2.39856G	-26.30	2.4G	-27.51	2.5005G	-52.00	6.67411G	-46.35	1

IEEE 802.11ax 40MHz MCS0/Nss1 / CH 6 / Ant. 1 / Reference Level

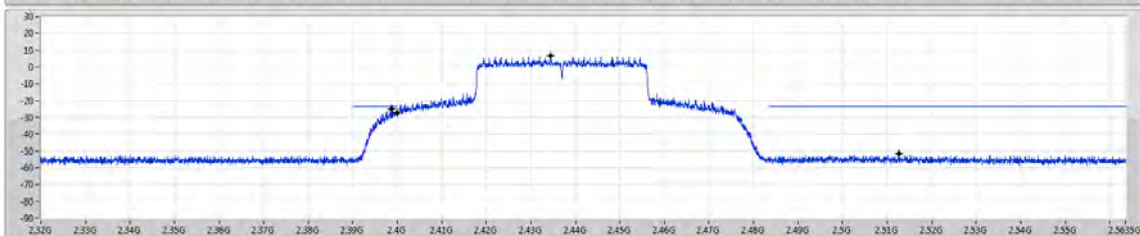
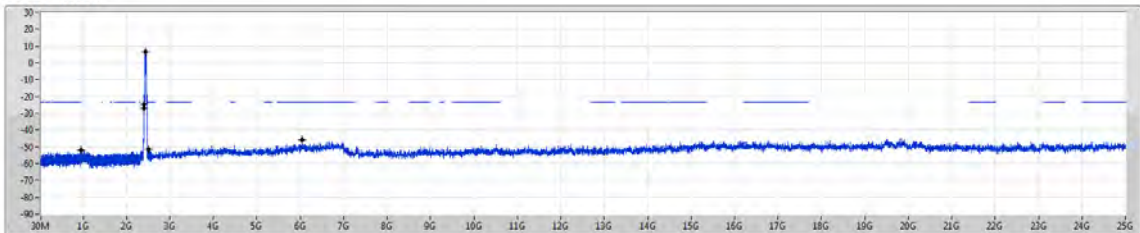
IEEE 802.11ax 40MHz MCS0/Nss1 / CH 6 / Ant. 1 / 30MHz~10th Harmonic (down 30dBc)

802.11ax HEW40_Nss1,(MCS0)_2TX

CSE NdB

2437MHz

18/07/2020



Ref(Fd)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
243449G	6.37	-23.63	958.61M	-51.90	2.39884G	-24.68	2.4G	-27.21	2.51258G	-51.43	6.64677G	-45.85	1



IEEE 802.11ax 40MHz MCS0/Nss1 / CH 9 / Ant. 1 / Reference Level

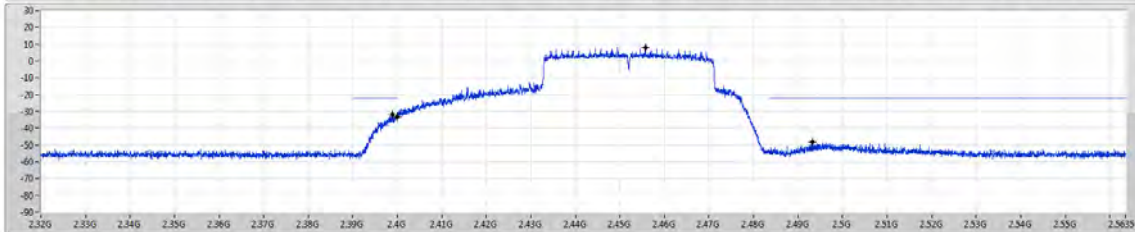
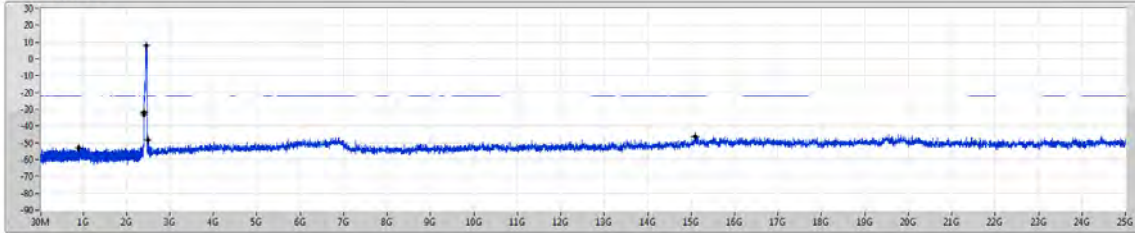
IEEE 802.11ax 40MHz MCS0/Nss1 / CH 9 / Ant. 1 / 30MHz~10th Harmonic (down 30dBc)

802.11ax HEW40_Nss1,(MCS0)_2TX

CSE NdB

2452MHz

18/07/2020



Ref(Frq)	Ref(dBm)	Limit(dBm)	Freq(Mz)	Level(dBm)	Freq(Mz)	Level(dBm)	Freq(Mz)	Level(dBm)	Freq(Mz)	Level(dBm)	Freq(Mz)	Level(dBm)	Part
245274G	7.96	-22.04	905.93M	-52.80	2.399G	-32.63	2.4G	-33.24	2.4933G	-46.32	15.1027G	-46.25	1



IEEE 802.11ax 40MHz MCS0/Nss1 / CH 3 / Ant. 2 / Reference Level

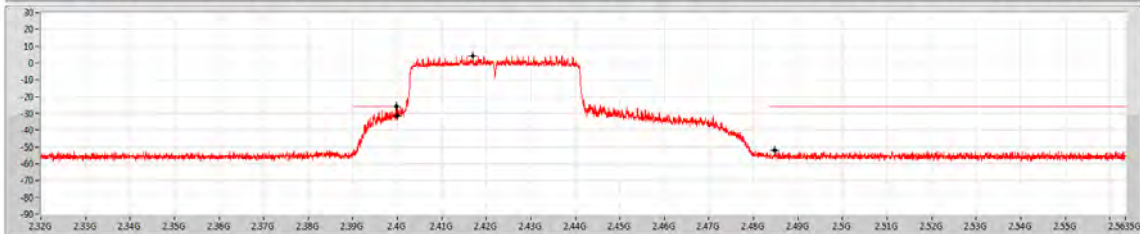
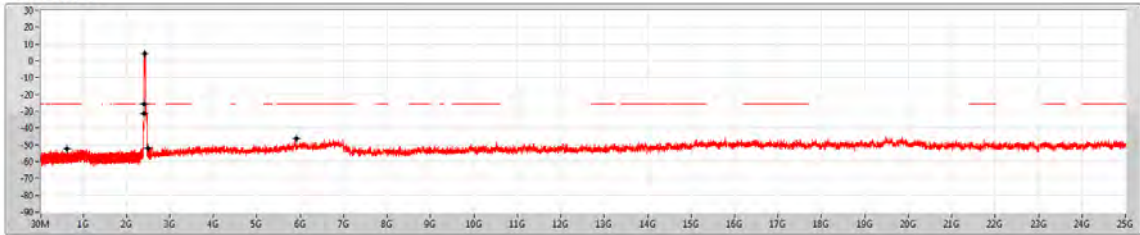
IEEE 802.11ax 40MHz MCS0/Nss1 / CH 3 / Ant. 2 / 30MHz~10th Harmonic (down 30dBc)

802.11ax HEW40_Nss1,(MCS0)_2TX

CSE NdB

2422MHz

18/07/2020



Ref1(Hz)	Ref1(dBm)	Limit1(dBm)	Freq1(Hz)	Level1(dBm)	Freq2(Hz)	Level2(dBm)	Freq3(Hz)	Level3(dBm)	Freq4(Hz)	Level4(dBm)	Freq5(Hz)	Level5(dBm)	Port
2416990	4.43	-25.57	605.42M	-52.34	2.39908G	-25.81	2.4G	-31.50	2.48478G	-52.88	5.91495G	-46.24	2

IEEE 802.11ax 40MHz MCS0/Nss1 / CH 6 / Ant. 2 / Reference Level

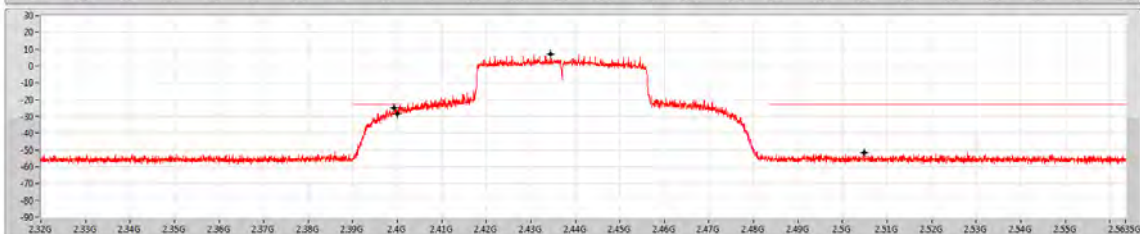
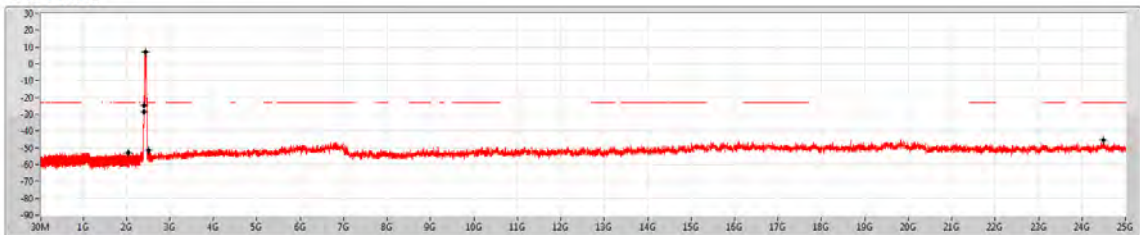
IEEE 802.11ax 40MHz MCS0/Nss1 / CH 6 / Ant. 2 / 30MHz~10th Harmonic (down 30dBc)

802.11ax HEW40_Nss1,(MCS0)_2TX

CSE NdB

2437MHz

18/07/2020

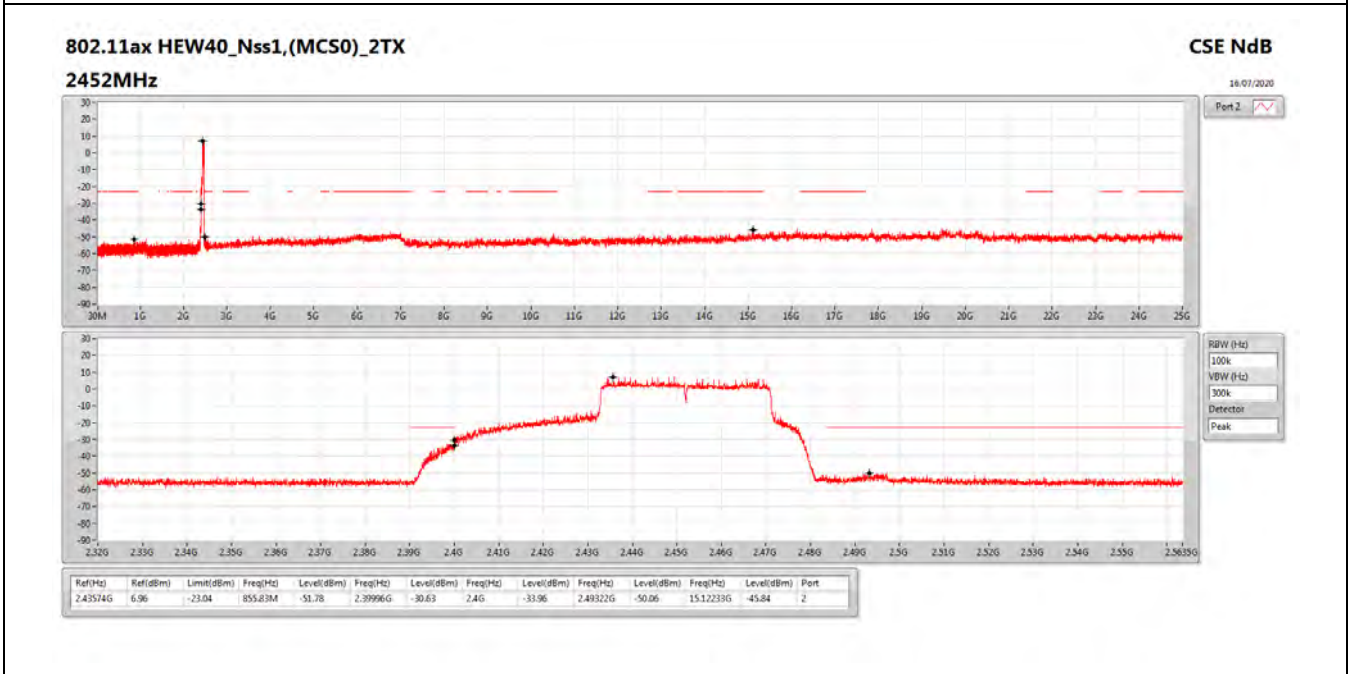


Ref1(Hz)	Ref1(dBm)	Limit1(dBm)	Freq1(Hz)	Level1(dBm)	Freq2(Hz)	Level2(dBm)	Freq3(Hz)	Level3(dBm)	Freq4(Hz)	Level4(dBm)	Freq5(Hz)	Level5(dBm)	Port
2434490	7.20	-22.80	2.03346G	-52.83	2.39932G	-24.97	2.4G	-28.43	2.50482G	-51.61	24.50079G	-45.64	2



IEEE 802.11ax 40MHz MCS0/Nss1 / CH 9 / Ant. 2 / Reference Level

IEEE 802.11ax 40MHz MCS0/Nss1 / CH 9 / Ant. 2 / 30MHz~10th Harmonic (down 30dBc)





<MCS0, Ant. 1+2, 1S2T, TXBF>

IEEE 802.11ax 40MHz MCS0/Nss1 / CH 3 / Ant. 1 / Reference Level

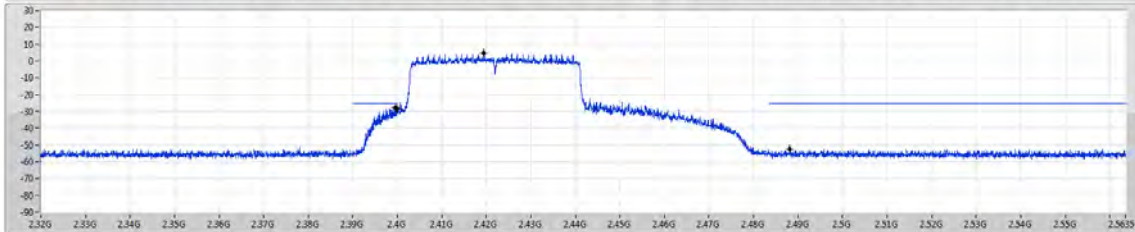
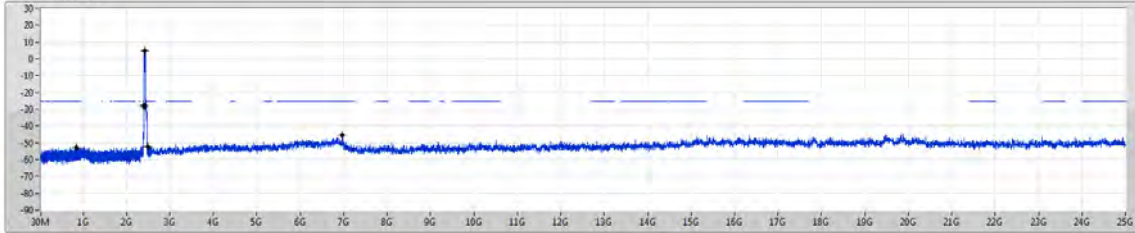
IEEE 802.11ax 40MHz MCS0/Nss1 / CH 3 / Ant. 1 / 30MHz~10th Harmonic (down 30dBc)

802.11ax HEW40-BF_Nss1,(MCS0)_2TX

CSE NdB

2422MHz

18/07/2020



Ref(FHz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
241946G	4.62	-25.38	806.944M	-52.82	2.39972G	-27.59	2.4G	-28.53	2.48818G	-52.37	6.97227G	-45.59	1

IEEE 802.11ax 40MHz MCS0/Nss1 / CH 6 / Ant. 1 / Reference Level

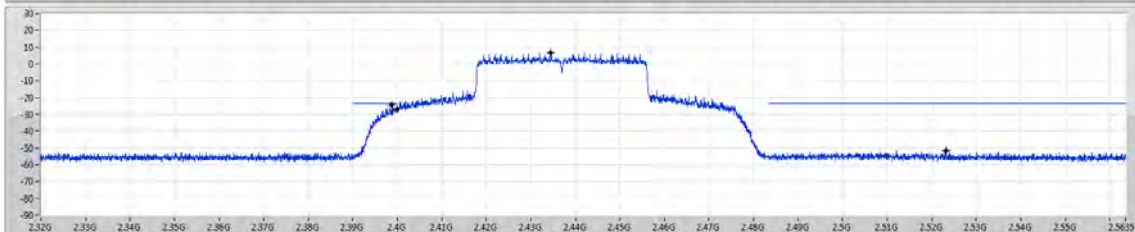
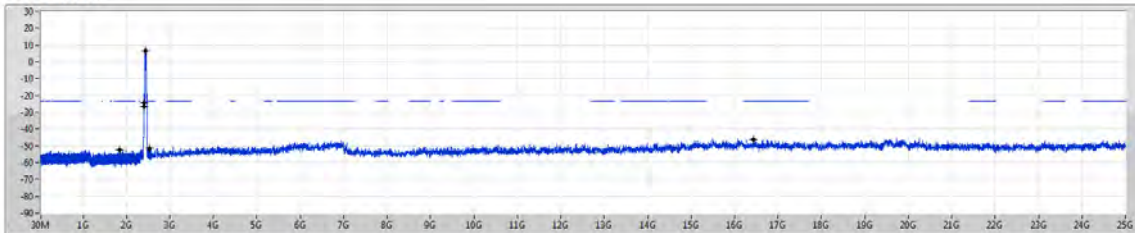
IEEE 802.11ax 40MHz MCS0/Nss1 / CH 6 / Ant. 1 / 30MHz~10th Harmonic (down 30dBc)

802.11ax HEW40-BF_Nss1,(MCS0)_2TX

CSE NdB

2437MHz

18/07/2020

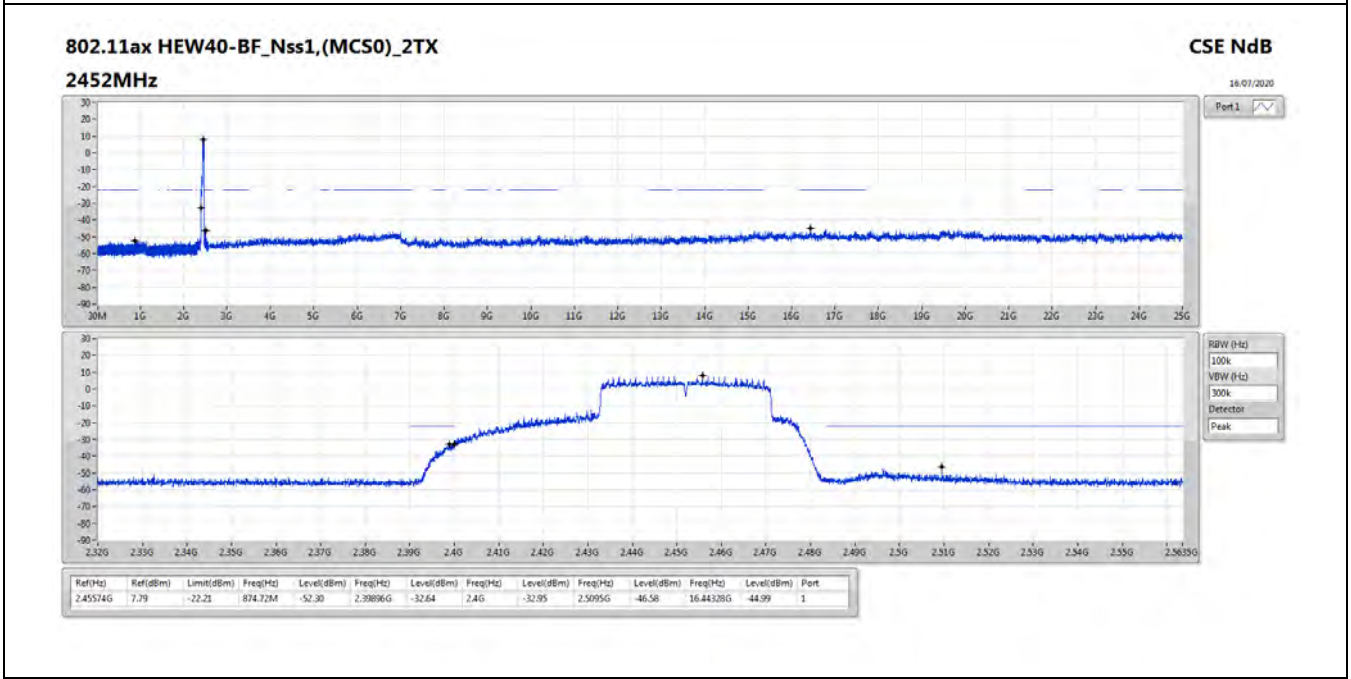


Ref(FHz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
243449G	6.39	-23.61	1.83681G	-52.49	2.39884G	-24.38	2.4G	-26.68	2.52318G	-51.63	16.43206G	-46.30	1



IEEE 802.11ax 40MHz MCS0/Nss1 / CH 9 / Ant. 1 / Reference Level

IEEE 802.11ax 40MHz MCS0/Nss1 / CH 9 / Ant. 1 / 30MHz~10th Harmonic (down 30dBc)





IEEE 802.11ax 40MHz MCS0/Nss1 / CH 3 / Ant. 2 / Reference Level

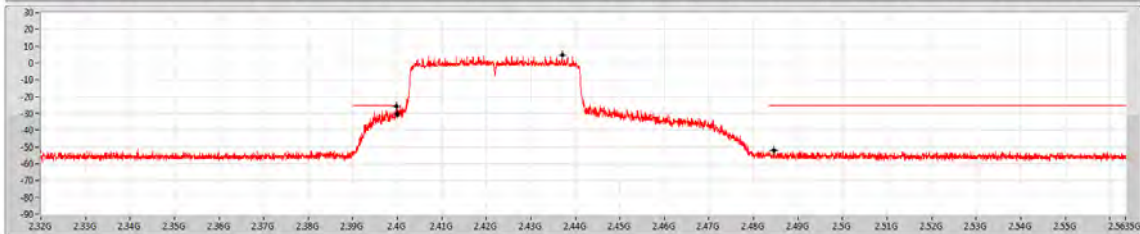
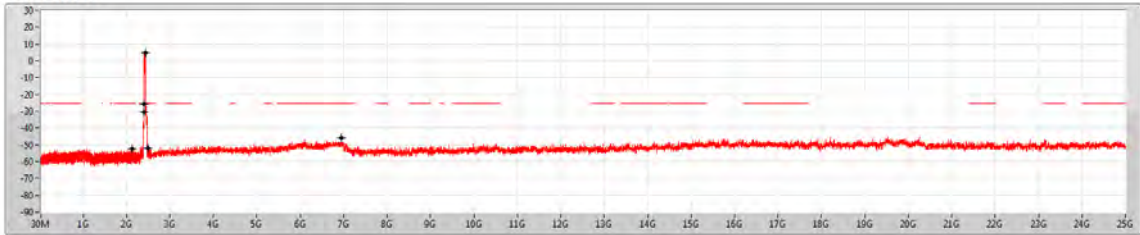
IEEE 802.11ax 40MHz MCS0/Nss1 / CH 3 / Ant. 2 / 30MHz~10th Harmonic (down 30dBc)

802.11ax HEW40-BF_Nss1,(MCS0)_2TX

CSE NdB

2422MHz

18/07/2020



Ref(Fd)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
243699G	4.58	-25.42	213938G	-52.34	23998G	-25.83	24G	-30.36	248462G	-51.96	694984G	-45.71	2

IEEE 802.11ax 40MHz MCS0/Nss1 / CH 6 / Ant. 2 / Reference Level

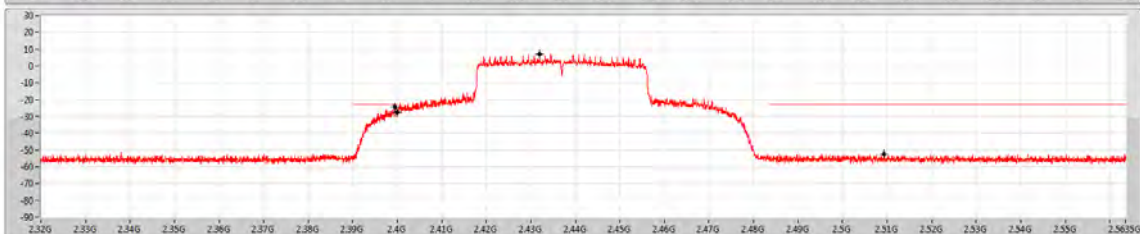
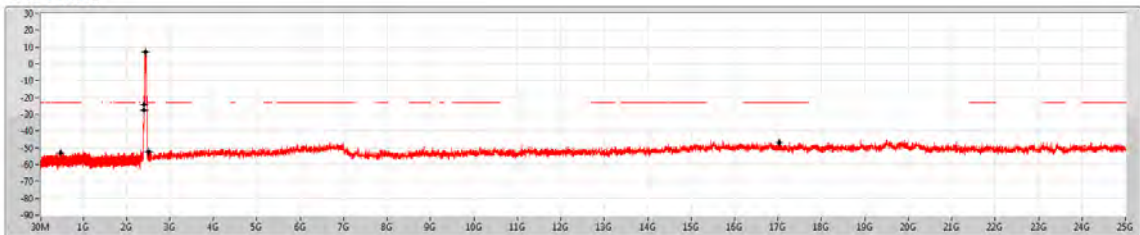
IEEE 802.11ax 40MHz MCS0/Nss1 / CH 6 / Ant. 2 / 30MHz~10th Harmonic (down 30dBc)

802.11ax HEW40-BF_Nss1,(MCS0)_2TX

CSE NdB

2437MHz

18/07/2020

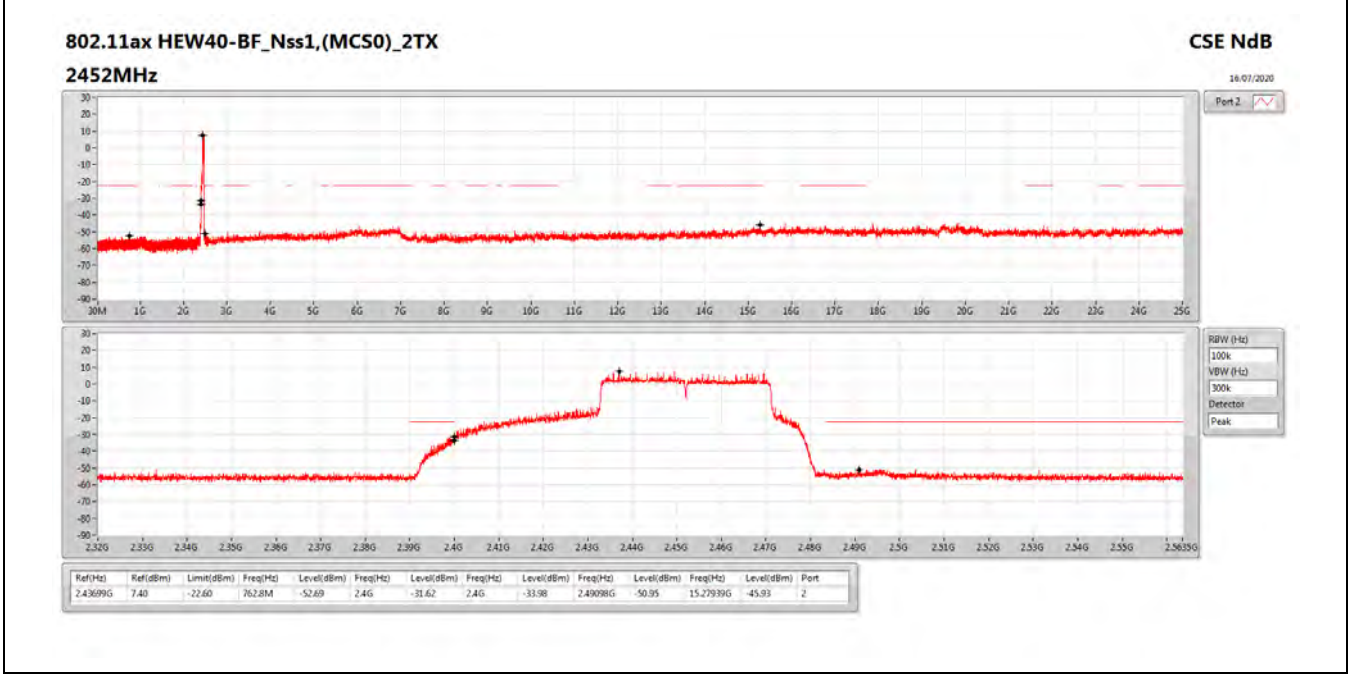


Ref(Fd)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
243198G	7.21	-22.79	489844M	-52.99	239948G	-24.33	24G	-27.78	25093G	-52.34	1703224G	-46.66	2



IEEE 802.11ax 40MHz MCS0/Nss1 / CH 9 / Ant. 2 / Reference Level

IEEE 802.11ax 40MHz MCS0/Nss1 / CH 9 / Ant. 2 / 30MHz~10th Harmonic (down 30dBc)





2.7. Antenna Requirements

2.7.1. Limit

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

2.7.2. Antenna Connector Construction

The antenna connector complied with the requirements.



3. List of Measuring Equipments

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
LISN	Schwarzbeck	NSLK 8127	8127650	9kHz ~ 30MHz	Nov. 21, 2019	Nov. 20, 2020	Conduction (CO02-CB)
LISN	Schwarzbeck	NSLK 8127	8127478	9kHz ~ 30MHz	Oct. 30, 2019	Oct. 29, 2020	Conduction (CO02-CB)
EMI Receiver	Agilent	N9038A	MY52260140	9kHz ~ 8.4GHz	Mar. 10, 2020	Mar. 09, 2021	Conduction (CO02-CB)
COND Cable	Woken	Cable	2	0.15MHz~30MHz	Oct. 21, 2019	Oct. 20, 2020	Conduction (CO02-CB)
Software	Audix	E3	6.120210n	-	N.C.R.	N.C.R.	Conduction (CO02-CB)
Pulse Limiter	Schwarzbeck	VTSD 9561F-N	00378	9kHz ~ 30MHz	Mar. 19, 2020	Mar. 18, 2021	Conduction (CO02-CB)
Bilog Antenna with 6dB Attenuator	TESEQ & EMCI	CBL 6112D & N-6-06	35236 & AT-N0610	30MHz ~ 2GHz	Mar. 27, 2020	Mar. 26, 2021	Radiation (03CH05-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Apr. 13, 2020	Apr. 12, 2021	Radiation (03CH05-CB)
Horn Antenna	SCHWARZBECK	BBHA9120D	BBHA 9120D-1291	1GHz~18GHz	Oct. 05, 2019	Oct. 04, 2020	Radiation (03CH05-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jun. 27, 2019	Jun. 26, 2020	Radiation (03CH05-CB)
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170507	15GHz ~ 40GHz	Jun. 11, 2020	Jun. 10, 2021	Radiation (03CH05-CB)
Pre-Amplifier	EMCI	EMC330N	980331	20MHz ~ 3GHz	Apr. 28, 2020	Apr. 27, 2021	Radiation (03CH05-CB)
Pre-Amplifier	EMCI	EMC12630SE	980287	1GHz ~ 26.5GHz	Apr. 15, 2020	Apr. 14, 2021	Radiation (03CH05-CB)
Pre-Amplifier	EMCI	EMC12630SE	980287	1GHz ~ 26.5GHz	Jul. 03, 2020	Jul. 02, 2021	Radiation (03CH05-CB)
Pre-Amplifier	MITEQ	TTA1840-35-HG	1864479	18GHz ~ 40GHz	Jul. 03, 2019	Jul. 02, 2020	Radiation (03CH05-CB)
Amplifier	-	-	TF-130N-R1	18GHz ~ 40GHz	Jun. 19, 2020	Jun. 18, 2021	Radiation (03CH05-CB)
Spectrum Analyzer	R&S	FSP40	100304	9kHz ~ 40GHz	Aug. 15, 2019	Aug. 14, 2020	Radiation (03CH05-CB)
EMI Test Receiver	R&S	ESCS	826547/017	9kHz ~ 2.75GHz	May 13, 2020	May 12, 2021	Radiation (03CH05-CB)
RF Cable-low	Woken	RG402	LOW Cable-04+23	30MHz~1GHz	Oct. 07, 2019	Oct. 06, 2020	Radiation (03CH05-CB)
RF Cable-high	Woken	RG402	High Cable-28	1GHz~18GHz	Oct. 07, 2019	Oct. 06, 2020	Radiation (03CH05-CB)
RF Cable-high	Woken	RG402	High Cable-04+28	1GHz~18GHz	Feb. 01, 2020	Jan. 31, 2021	Radiation (03CH05-CB)
RF Cable-high	Woken	RG402	High Cable-40G#1	18GHz ~ 40 GHz	Jul. 24, 2019	Jul. 23, 2020	Radiation (03CH05-CB)
RF Cable-high	Woken	RG402	High Cable-40G#2	18GHz ~ 40 GHz	Jul. 24, 2019	Jul. 23, 2020	Radiation (03CH05-CB)



Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
Horn Antenna	ETS · Lindgren	3115	00143147	750MHz~18GHz	Oct. 22, 2019	Oct. 21, 2020	Radiation (03CH04-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jun. 27, 2019	Jun. 26, 2020	Radiation (03CH04-CB)
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170507	15GHz ~ 40GHz	Jun. 11, 2020	Jun. 10, 2021	Radiation (03CH04-CB)
Pre-Amplifier	Agilent	83017A	MY53270063	0.5GHz~26.5GHz	Mar. 11, 2020	Mar. 10, 2021	Radiation (03CH04-CB)
Pre-Amplifier	MITEQ	TTA1840-35-HG	1864479	18GHz ~ 40GHz	Jul. 03, 2019	Jul. 02, 2020	Radiation (03CH04-CB)
Amplifier	-	-	TF-130N-R1	18GHz ~ 40GHz	Jun. 19, 2020	Jun. 18, 2021	Radiation (03CH04-CB)
Spectrum Analyzer	R&S	FSP40	100142	9kHz~40GHz	Dec. 18, 2019	Dec. 17, 2020	Radiation (03CH04-CB)
RF Cable-high	Woken	RG402	High Cable-21	1GHz - 18GHz	Feb. 01, 2020	Jan. 31, 2021	Radiation (03CH04-CB)
RF Cable-high	Woken	RG402	High Cable-21	1GHz - 18GHz	Jul. 07, 2020	Jul. 06, 2021	Radiation (03CH04-CB)
RF Cable-high	Woken	RG402	High Cable-21+22	1GHz - 18GHz	Feb. 01, 2020	Jan. 31, 2021	Radiation (03CH04-CB)
RF Cable-high	Woken	RG402	High Cable-40G#1	18GHz ~ 40 GHz	Jul. 24, 2019	Jul. 23, 2020	Radiation (03CH04-CB)
RF Cable-high	Woken	RG402	High Cable-40G#2	18GHz ~ 40 GHz	Jul. 24, 2019	Jul. 23, 2020	Radiation (03CH04-CB)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	May 05, 2020	May 04, 2021	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-06	1 GHz – 26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-07	1 GHz –26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-08	1 GHz –26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-09	1 GHz –26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-10	1 GHz –26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-28	1 GHz –26.5 GHz	Nov. 18, 2019	Nov. 17, 2020	Conducted (TH01-CB)
Power Sensor	Agilent	E9327A	US40442088	50MHz~18GHz	Feb. 07, 2020	Feb. 06, 2021	Conducted (TH01-CB)
Power Meter	Agilent	E4416A	GB41291199	50MHz~18GHz	Feb. 07, 2020	Feb. 06, 2021	Conducted (TH01-CB)

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

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



4. Measurement Uncertainty

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	2.0 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	5.6 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	4.9 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	4.6 dB	Confidence levels of 95%
Conducted Emission	2.4 dB	Confidence levels of 95%
Output Power Measurement	1.5 dB	Confidence levels of 95%
Power Density Measurement	2.4 dB	Confidence levels of 95%
Bandwidth Measurement	2%	Confidence levels of 95%

Appendix A. Radiated Emission Co-location Report

1. Results of Radiated Emissions for Co-located

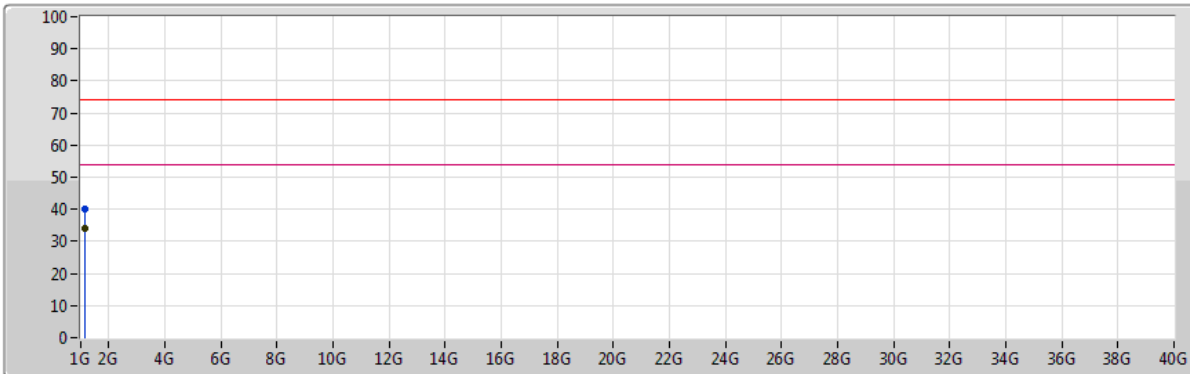
Mode Configure





Mode	Configure
Mode 1	2.4G+5G band 1

Note: Both WLAN 2.4G and WLAN 5G simultaneously could be transmitted with a same antenna.

13/07/2020

Mode 1

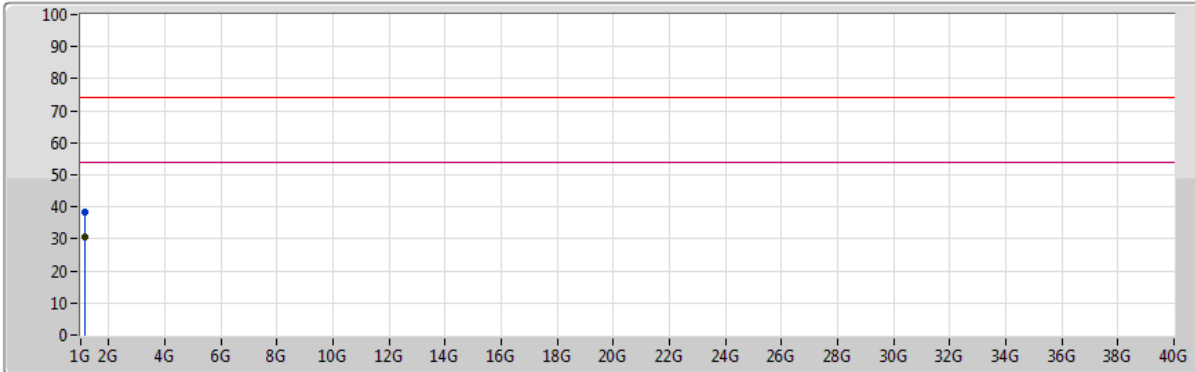





Lim.PK 
 PK 
 Lim.AV 
 AV 

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	1.12483G	39.96	74.00	-34.04	-8.99	3	Vertical	37	1.15	-	48.95	24.72	2.84	36.55
AV	1.12489G	34.15	54.00	-19.85	-8.99	3	Vertical	37	1.15	"Worst"	43.14	24.72	2.84	36.55

13/07/2020

Mode 1



Lim.PK 
 PK 
 Lim.AV 
 AV 

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	1.12532G	38.50	74.00	-35.50	-8.99	3	Horizontal	155	1.47	-	47.49	24.73	2.84	36.56
AV	1.12509G	30.75	54.00	-23.25	-8.99	3	Horizontal	155	1.47	"Worst"	39.74	24.73	2.84	36.56