



# FCC RADIO TEST REPORT

FCC ID	:	2AGOZ-S3A
Equipment	:	VR Headset
Brand Name	:	META PLATFORMS TECHNOLOGIES, LLC
Model Name	:	S3A
Applicant	:	Meta Platforms Technologies, LLC. 1 Hacker Way, Menlo Park, CA 94025, USA
Manufacturer	:	Meta Platforms Technologies, LLC. 1 Hacker Way, Menlo Park, CA 94025, USA
Standard	:	FCC Part 15 Subpart E §15.407

The product was received on May 02, 2023 and testing was performed from May 05, 2023 to Jun. 27, 2023. We, Sporton International Inc. Wensan Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval from Sporton International Inc. Wensan Laboratory, the test report shall not be reproduced except in full.

Louis Wu

Approved by: Louis Wu

Sporton International Inc. Wensan Laboratory

No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.)



## **Table of Contents**

His	tory o	f this test report	3
Su	mmary	y of Test Result	4
1	Gene	ral Description	5
	1.1	Product Feature of Equipment Under Test	5
	1.2	Modification of EUT	7
	1.3	Testing Location	7
	1.4	Applicable Standards	7
2	Test	Configuration of Equipment Under Test	8
	2.1	Carrier Frequency and Channel	8
	2.2	Test Mode	11
	2.3	Connection Diagram of Test System	13
	2.4	Support Unit used in test configuration and system	14
	2.5	EUT Operation Test Setup	14
	2.6	Measurement Results Explanation Example	14
3	Test	Result	15
	3.1	26dB & 99% Occupied Bandwidth Measurement	15
	3.2	Fundamental Maximum EIRP Measurement	18
	3.3	Fundamental Power Spectral Density Measurement	19
	3.4	In-Band Emissions (Channel Mask)	
	3.5	Contention Based Protocol	
	3.6	Unwanted Emissions Measurement	
	3.7	AC Conducted Emission Measurement	
	3.8	Antenna Requirements	
4	List o	of Measuring Equipment	107
5	Meas	urement Uncertainty	109
Ap	pendix	A. Conducted Test Results	
Ap	pendix	B. AC Conducted Emission Test Result	
Ap	pendix	c C. Radiated Spurious Emission	

## Appendix D. Radiated Spurious Emission Plots

## Appendix E. Duty Cycle Plots

Appendix F. Setup Photographs

: 3 of 109

: 01

: Jun. 30, 2023



## History of this test report

Report No.	Version	Description	Issue Date
FR261607-06F	01	Initial issue of report	Jun. 30, 2023



## **Summary of Test Result**

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.1	15.407(a)(10)	26dB Emission Bandwidth	Pass	-
3.1	2.1049	99% Occupied Bandwidth	Reporting only	-
3.2	15.407(a)(8)	Fundamental Maximum EIRP	Pass	-
3.3	15.407(a)(8)	Fundamental Power Spectral Density	Pass	-
3.4	15.407(b)(6)	In-Band Emissions (Channel Mask)	Pass	-
3.5	15.407(d)(6)	Contention Based Protocol	Pass	-
3.6	15.407(b)	Unwanted Emissions	Pass	3.13 dB under the limit at 38.370 MHz
3.7	15.207	AC Conducted Emission	Pass	14.92 dB under the limit at 0.164 MHz
3.8	15.203 15.407(a)	Antenna Requirement	Pass	-

## Conformity Assessment Condition:

 The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacturer who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.

The measurement uncertainty please refer to each test result in the section "Measurement Uncertainty".
 Disclaimer:

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.

## Reviewed by: Yun Huang

Report Producer: Clio Lo

## **1** General Description

## **1.1 Product Feature of Equipment Under Test**

Product Feature						
General Specs Bluetooth, Wi-Fi 2.4GHz 802.11b/g/n/ac/ax, Wi-Fi 5GH 802.11a/n/ac/ax, Wi-Fi 6GHz 802.11ax, and nRF.						
Sample 1	Main-A					
Sample 2	Main-B					
Sample 3	Main-C					
Sample 4	Main-D					
	WLAN:					
	<ant. 0="">: Dipole Antenna</ant.>					
Antenna Type	<ant. 1="">: Dipole Antenna</ant.>					
	Bluetooth: Dipole Antenna					
	nRF: Dipole Antenna					

Antenna information						
5925 MHz ~ 6425 MHz	Peak Gain (dBi)	Ant. 0: 4.6 Ant. 1: 3.9				
6425 MHz ~ 6525 MHz	Peak Gain (dBi)	Ant. 0: 4.4 Ant. 1: 3.9				
6525 MHz ~ 6875 MHz	Peak Gain (dBi)	Ant. 0: 4.7 Ant. 1: 4.5				
6875 MHz ~ 7125 MHz	Peak Gain (dBi)	Ant. 0: 5.1 Ant. 1: 3.7				

**Remark:** The EUT's information above is declared by manufacturer. Please refer to Disclaimer in report summary.

## 1.1.1 Antenna Directional Gain

## <For CDD Mode>

Follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01 F)2)f)ii)

Directional gain =  $G_{ANT}$  + Array Gain, where Array Gain is as follows:

For power measurements on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for  $N_{ANT} \le 4$ .

 $G_{\mbox{\scriptsize ANT}}$  is set equal to the gain of the antenna having the highest gain.

For PSD measurements, the directional gain calculation.

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

where

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

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

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

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

As minimum  $N_{SS}$ =1 is supported by EUT, the formula can be simplified as:

Directional gain =  $10^{10} \log[(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2 / N_{ANT}] dBi$ 

Where G1, G2....GN denote single antenna gain.

The directional gain "DG" is calculated as following table.

			DG	DG
			for	for
	Ant 0	Ant 1	Power	PSD
	(dBi)	(dBi)	(dBi)	(dBi)
5925 MHz ~ 6425 MHz	4.60	3.90	4.60	7.27
6425 MHz ~ 6525 MHz	4.40	3.90	4.40	7.16
6525 MHz ~ 6875 MHz	4.70	4.50	4.70	7.61
6875 MHz ~ 7125 MHz	5.10	3.70	5.10	7.44

Calculation example:

If a device has two antenna,  $G_{ANT1}$ = 4.60 dBi;  $G_{ANT2}$ = 3.90 dBi Directional gain of power measurement = max(4.60, 3.90) + 0 = 4.60 dBi Directional gain of PSD derived from formula which is 10 x log { { [ 10^ (4.60 dBi / 20) + 10^ (3.90 dBi / 20) ] 2 } / 2 } = 7.27 dBi



## **1.2 Modification of EUT**

No modifications made to the EUT during the testing.

## **1.3 Testing Location**

Test Site	Sporton International Inc. EMC & Wireless Communications Laboratory		
Test Site Location         No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.0           TEL: +886-3-327-3456         FAX: +886-3-328-4978			
Test Site No.	Sporton Site No.		
Test Sile No.	DF02-HY (TAF Code: 1190)		
RemarkThe Contention Based Protocol test item subcontracted to Sporton International Inc. EMC & Wireless Communications Laboratory.			
Test Site	Sporton International Inc. Wensan Laboratory		
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855		
Test Site No.	Sporton Site No. TH05-HY, 03CH11-HY, CO07-HY		

**Note:** The test site complies with ANSI C63.4 2014 requirement.

FCC designation No.: TW1190 and TW3786

## **1.4 Applicable Standards**

According to the specifications declared by the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart E
- FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
- FCC KDB 987594 D02 U-NII 6 GHz EMC Measurement v01r01
- FCC KDB 414788 D01 Radiated Test Site v01r01.
- FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
- ANSI C63.10-2013

## Remark:

- 1. All the test items were validated and recorded in accordance with the standards without any modification during the testing.
- 2. The TAF code is not including all the FCC KDB listed without accreditation.

#### **Test Configuration of Equipment Under Test**

- The EUT has been associated with peripherals and configuration operated in a manner tended to a. maximize its emission characteristics in a typical application. Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, the measured emission level of the EUT was maximized by rotating the EUT on a turntable, adjusting the orientation of the EUT (open and close) and EUT antenna in three orthogonal axis (X: flat, Y: portrait, Z: landscape), and adjusting the measurement antenna orientation, following C63.10 exploratory test procedures and only the worst case emissions were reported in this report.
- b. AC power line Conducted Emission was tested under maximum output power.

#### Channel **BW 20M** Freq. (MHz) Channel **BW 40M** Freq. (MHz) Channel **BW 80M** Freq. (MHz) Channel **BW 160M** Freq. (MHz) Channel **BW 20M** Freq. (MHz) Channel **BW 40M** Freq. (MHz)

## 2.1 Carrier Frequency and Channel

Channel

Freq. (MHz)

Channel

Freq. (MHz)

**BW 80M** 

**BW 160M** 

TEL : 886-3-327-0868	Page Number	: 8 of 109
FAX : 886-3-327-0855	Issue Date	: Jun. 30, 2023
Report Template No.: BU5-FR15EWLAC MA Version 2.4	Report Version	: 01



BW 20M	Channel	65	69	73	77	81	85	89	93		
	Freq. (MHz)	6275	6295	6315	6335	6355	6375	6395	6415		
BW 40M	Channel	6	7	75		8	3	9	1		
BIT 40III	Freq. (MHz)	62	85	6325		6365		64	05		
BW 80M	Channel		7	1			8	7			
BW 00m	Freq. (MHz)		63	05			63	85			
BW 160M	Channel				7	9					
BW TOOM	Freq. (MHz)				63	45					
DW cold	Channel	97	101	105	109	113	117	121	125		
BW 20M	Freq. (MHz)	6435	6455	6475	6495	6515	6535	6555	6575		
	Channel	9	9	1	07	1.	15	1:	23		
BW 40M	Freq. (MHz)	64	45	64	85	65	25	65	65		
BW 80M	Channel		1(	03			11	19			
	Freq. (MHz)		64	65			65	45			
BW 160M	Channel	111									
	Freq. (MHz)				65	05					
BW 20M	Channel	129	133	137	141	145	149	153	157		
BVV ZUIVI	Freq. (MHz)	6595	6615	6635	6655	6675	6695	6715	6735		
BW 40M	Channel	13	31	13	39	147 15			55		
B V 40 VI	Freq. (MHz)	66	05	6645		6685		6725			
BW 80M	Channel		13	35			15	51			
Daa oolal	Freq. (MHz)		66	25			67	05			
BW 160M	Channel				14	43					
BW TOOM	Freq. (MHz)	:) 6665									
DW/ COM	Channel	161	165	169	173	177	181	185	189		
BW 20M	Freq. (MHz)	6755	6775	6795	6815	6835	6855	6875	6895		
DW 40M	Channel	16	63	1	71	17	79	18	37		
BW 40M	Freq. (MHz)	67	65	68	05	68	45	68	85		
	Channel		10	67			18	33			
BW 80M	Freq. (MHz)		67	'85			68	65			
	Channel	175									
BW 160M	Channel		6825								



BW 20M	Channel	193	197	201	205	209	213	217	221	
	Freq. (MHz)	6915	6935	6955	6975	6995	7015	7035	7055	
BW 40M	Channel	19	95	20	)3	2′	11	219		
	Freq. (MHz)	69	25	69	65	70	05	70	45	
BW 80M	Channel		19	99	2			15		
DVV OOW	Freq. (MHz)		69	45		70		025		
BW 160M	Channel			207						
BAA LOOIAI	Freq. (MHz)	6985								
BW 20M	Channel	225 229					29			
	Freq. (MHz)		70	75	7095					
BW 40M	Channel				22	27				
D V 40 VI	Freq. (MHz)	7085								



## 2.2 Test Mode

This device support 26/52/106/242/484/996-tone RU but does not support 2x996-tone RU on 160MHz channel.

The 242-tone RU is covered by 20MHz channel, 484-tone RU is covered by 40MHz channel and 996-tone RU is covered by 80MHz channel.

The SISO mode conducted power is covered by MIMO mode per chain, so only the MIMO mode is tested.

## The final test modes include the worst data rates for each modulation shown in the table below.

## MIMO Mode

Modulation	Data Rate
802.11ax HE20	MCS0
802.11ax HE40	MCS0
802.11ax HE80	MCS0
802.11ax HE160	MCS0

**Remark:** The conducted power level of each chain in MIMO mode is equal or higher than SISO mode.

	Test Cases		
	Mode 1 : WLAN (6GHz) Link + Battery 2 + USB Cable 2 (Charging from		
	Adapter) for Sample 1		
	Mode 2 : WLAN (6GHz) Link + Battery 2 + USB Cable 2 (Charging from		
AC Conducted Adapter) for Sample 2			
Emission	Mode 3 : WLAN (6GHz) Link + Battery 2 + USB Cable 2 (Charging from		
	Adapter) for Sample 3		
	Mode 4 : WLAN (6GHz) Link + Battery 2 + USB Cable 2 (Charging from		
	Adapter) for Sample 4		
Remark:			
1. The worst case	e of Conducted Emission is mode 2; only the test data of it was reported.		
2. For Radiated Test Cases, the tests were performed with Battery 2 and USB Cable 2.			



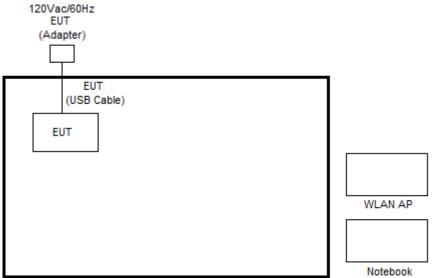
	Ch. #	UNII-5 (5925-6425 MHz)	UNII-6 (6425-6525 MHz)	UNII-7 (6525-6875 MHz)	UNII-8 (6875-7125 MHz)	
		802.11ax HE20	802.11ax HE20	802.11ax HE20	802.11ax HE20	
L	Low	001	097	117	189	
М	Middle	049	105	149	209	
н	High	093	113	181	229	
	riigii			101	-	
5	Straddle	-	185		-	
	Ch. #	UNII-5 (5925-6425 MHz)	UNII-6 (6425-6525 MHz)	UNII-7 (6525-6875 MHz)	UNII-8 (6875-7125 MHz)	
		802.11ax HE40	802.11ax HE40	802.11ax HE40	802.11ax HE40	
L	Low	003	099	123	195	
М	Middle	051	-	147	211	
н	High	091	107	179	227	
5	Straddle	-	115	187	-	
	Ch. #	UNII-5 (5925-6425 MHz)	UNII-6 (6425-6525 MHz)	UNII-7 (6525-6875 MHz)	UNII-8 (6875-7125 MHz)	
		802.11ax HE80	802.11ax HE80	802.11ax HE80	802.11ax HE80	
L	Low	<b>802.11ax HE80</b> 007	802.11ax HE80	<b>802.11ax HE80</b> 135	<b>802.11ax HE80</b> 199	
L M	Low Middle		802.11ax HE80 103			
		007		135	199	
M H	Middle	007 055		135 151	199 -	
M H	Middle High	007 055	103	135 151 167	199 -	
M H	Middle High Straddle	007 055 087 - UNII-5	103 119 <b>UNII-6</b>	135 151 167 183 UNII-7	199 - 215 - UNII-8	
M H	Middle High Straddle	007 055 087 - UNII-5 (5925-6425 MHz)	103 119 UNII-6 (6425-6525 MHz)	135 151 167 183 UNII-7 (6525-6875 MHz)	199 - 215 - UNII-8 (6875-7125 MHz)	
H S	Middle High Straddle Ch. #	007 055 087 - UNII-5 (5925-6425 MHz) 802.11ax HE160	103 119 UNII-6 (6425-6525 MHz)	135 151 167 183 UNII-7 (6525-6875 MHz)	199 - 215 - UNII-8 (6875-7125 MHz)	
M H S	Middle High Straddle Ch. # Low	007 055 087 - <b>UNII-5</b> (5925-6425 MHz) 802.11ax HE160 015	103 119 UNII-6 (6425-6525 MHz)	135 151 167 183 UNII-7 (6525-6875 MHz) 802.11ax HE160	199 - 215 - UNII-8 (6875-7125 MHz) 802.11ax HE160	

**Remark:** For radiation spurious emission, the modulation and the data rate picked for testing are determined by the Max. RF conducted power.

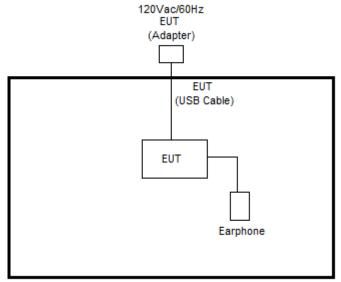


## 2.3 Connection Diagram of Test System

## <AC Conducted Emission Mode>



<WLAN Tx Mode>





## 2.4 Support Unit used in test configuration and system

ltem	Equipment	Brand Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Earphone	Sony	MH410c	N/A	Unshielded, 1.2 m	N/A
2.	WLAN AP	Neatgear	RAXE500	MSQ-RTAC4A00	N/A	Unshielded, 1.8 m
3.	Notebook	DELL	Latitude 3400	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
4.	Notebook	DELL	Latitude 3420	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m

## 2.5 EUT Operation Test Setup

The RF test items, utility "QRCT v4.0.00211.0" was installed in Notebook which was programmed in order to make the EUT get into the engineering modes to provide channel selection, power level, data rate and the application type and for continuous transmitting signals.

## 2.6 Measurement Results Explanation Example

## For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example :

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 4.2 dB and 10dB attenuator.

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).

= 4.2 + 10 = 14.2 (dB)



## 3 Test Result

## 3.1 26dB & 99% Occupied Bandwidth Measurement

## 3.1.1 Limit of 26dB & 99% Occupied Bandwidth

## <FCC 14-30 CFR 15.407>

(a)(10) The maximum transmitter channel bandwidth for U-NII devices in the 5.925-7.125 GHz band is 320 megahertz.

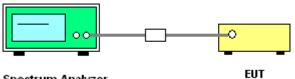
## 3.1.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

## 3.1.3 Test Procedures

- The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01. Section C) Emission bandwidth
- 2. Set RBW = approximately 1% of the emission bandwidth.
- 3. Set the VBW > RBW.
- 4. Detector = Peak.
- 5. Trace mode = max hold
- Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.
- For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) is set 1-5% of the emission bandwidth and set the Video bandwidth (VBW) ≥ 3 \* RBW.
- 8. Measure and record the results in the test report.

## 3.1.4 Test Setup



Spectrum Analyzer

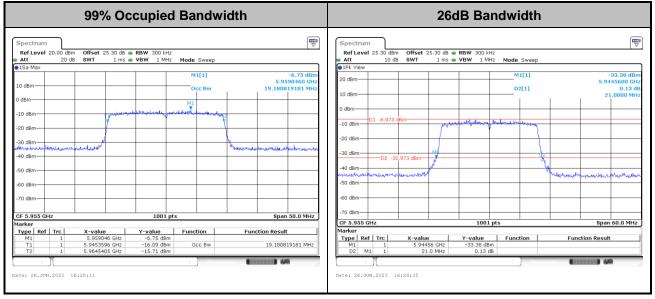
## 3.1.5 Test Result of 26dB & 99% Occupied Bandwidth

Please refer to Appendix A.

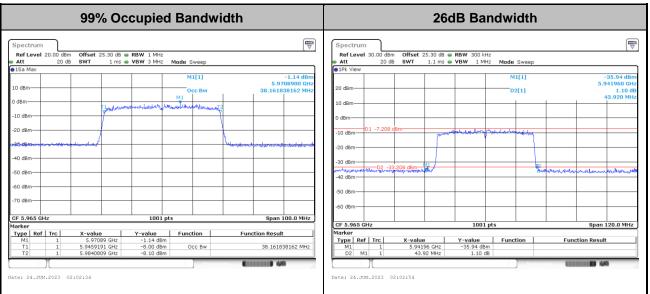


#### MIMO <Ant. 0+1>

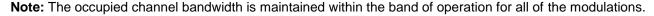
## <802.11ax HE20>



Note: The occupied channel bandwidth is maintained within the band of operation for all of the modulations.

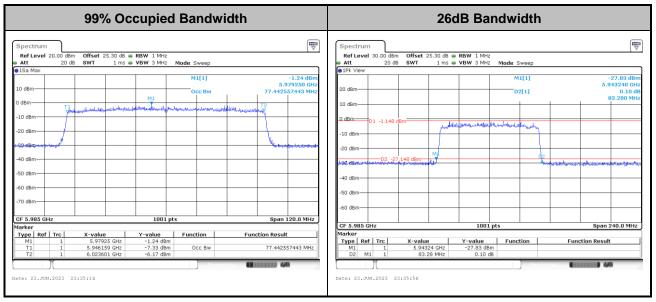


#### <802.11ax HE40>

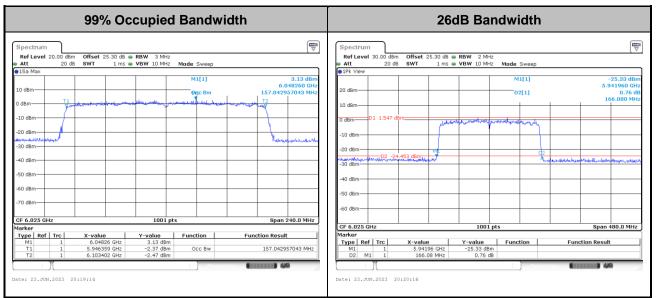




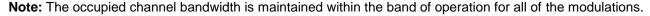
#### <802.11ax HE80>



Note: The occupied channel bandwidth is maintained within the band of operation for all of the modulations.



#### <802.11ax HE160>



## 3.2 Fundamental Maximum EIRP Measurement

## 3.2.1 Limit of Fundamental Maximum EIRP

## <FCC 14-30 CFR 15.407>

(a)(8) For client devices operating under the control of an indoor access point in the 5.925-7.125 GHz bands, the maximum e.i.r.p. over the frequency band of operation must not exceed 24 dBm.

## **3.2.2 Measuring Instruments**

Please refer to the measuring equipment list in this test report.

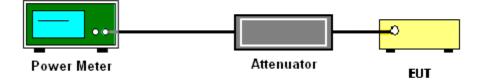
## 3.2.3 Test Procedures

The testing follows Method PM-G of FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

Method PM-G (Measurement using a gated RF average power meter):

- 1. Measurement is performed using a wideband RF power meter.
- 2. The EUT is configured to transmit at its maximum power control level.
- 3. Measure the average power of the transmitter.
- 4. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.
- 5. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

## 3.2.4 Test Setup



## 3.2.5 Test Result of Fundamental Maximum EIRP

Please refer to Appendix A.



## 3.3 Fundamental Power Spectral Density Measurement

## 3.3.1 Limit of Fundamental Power Spectral Density

## <FCC 14-30 CFR 15.407>

(a)(8) For client devices operating under the control of an indoor access point in the 5.925-7.125 GHz bands, the maximum power spectral density must not exceed -1 dBm e.i.r.p. in any 1-megahertz band.

## **3.3.2 Measuring Instruments**

Please refer to the measuring equipment list in this test report.

## 3.3.3 Test Procedures

The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01. Section F) Maximum power spectral density.

## # Method SA-1 #

(trace averaging with the EUT transmitting at full power throughout each sweep).

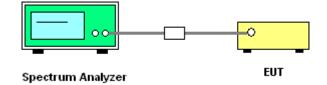
- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 1 MHz.
- Set VBW ≥ 3 MHz.
- Number of points in sweep  $\geq$  2 Span / RBW.
- Sweep time = auto.
- Detector = RMS
- Trace average at least 100 traces in power averaging mode.
- 1. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
- 2. Each plot has already offset with cable loss, and attenuator loss. Measure the PPSD and record it.
- For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

Method (a): Measure and sum the spectra across the outputs.

The total final Power Spectral Density is from a device with 2 transmitter outputs. The spectrum measurements of the individual outputs are all performed with the same span and number of points; the spectrum value in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 to obtain the value for the first frequency bin of the summed spectrum.



## 3.3.4 Test Setup

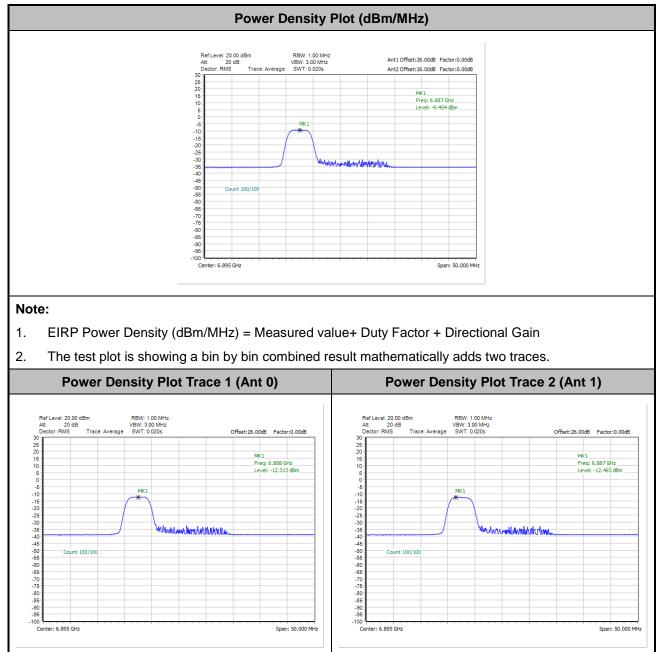


## 3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.

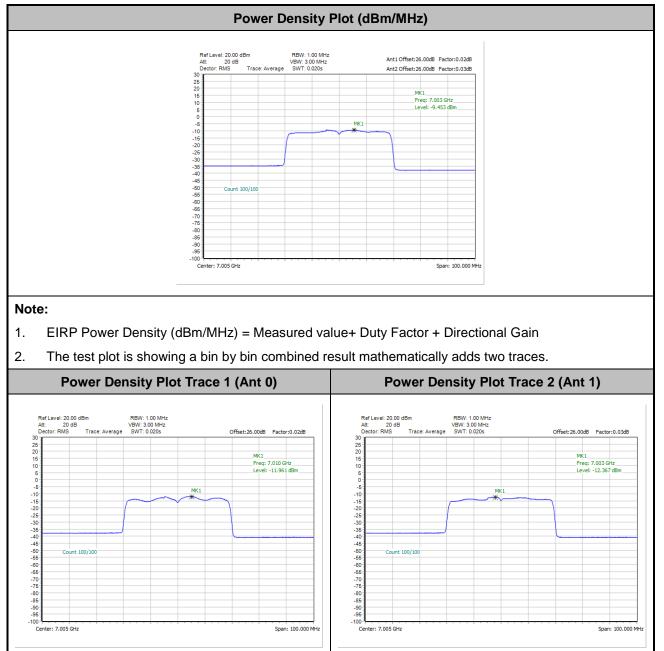


## <802.11ax HE20 52RU>



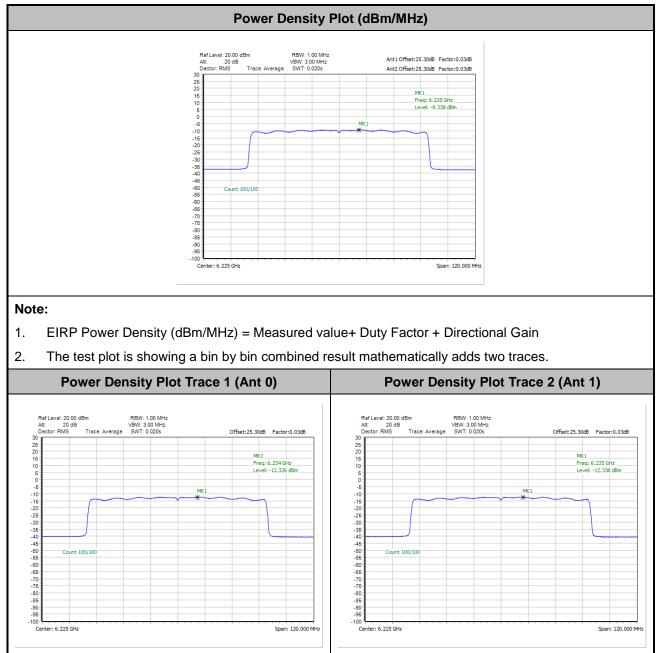


## <802.11ax HE40 Full RU>





## <802.11ax HE80 Full RU>



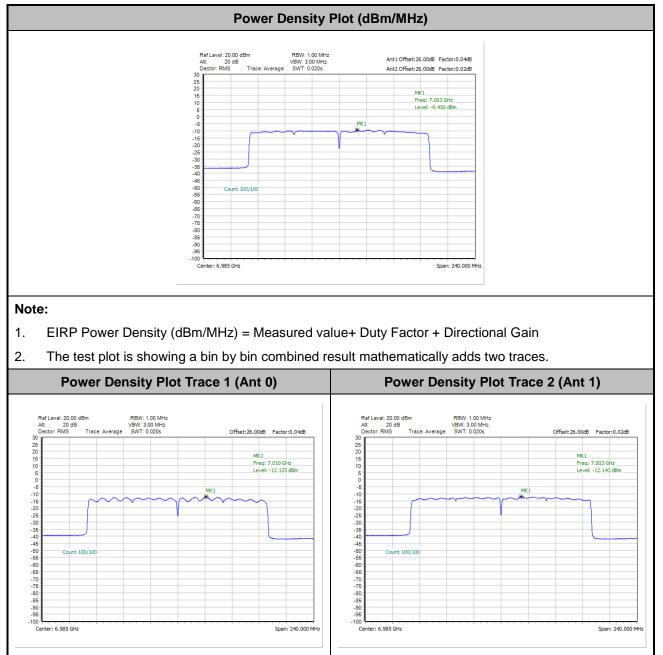
 Jumber
 : 23 of 109

 Date
 : Jun. 30, 2023

 Version
 : 01



## <802.11ax HE160 Full RU >



Page Number	: 24 of 109
Issue Date	: Jun. 30, 2023
Report Version	: 01



## 3.4 In-Band Emissions (Channel Mask)

## 3.4.1 Limit of Unwanted Emissions

## <FCC 14-30 CFR 15.407>

(a)(6) For transmitters operating within the 5.925-7.125 GHz bands: Power spectral density must be suppressed by 20 dB at 1 MHz outside of channel edge, by 28 dB at one channel bandwidth from the channel center, and by 40 dB at one- and one-half times the channel bandwidth away from channel center. At frequencies between one megahertz outside an unlicensed device's channel edge and one channel bandwidth from the center of the channel, the limits must be linearly interpolated between 20 dB and 28 dB suppression, and at frequencies between one and one- and one-half times an unlicensed device's channel bandwidth, the limits must be linearly interpolated between 28 dB and 40 dB suppression. Emissions removed from the channel center by more than one- and one-half times the channel bandwidth must be suppressed by at least 40 dB.

## **3.4.2 Measuring Instruments**

Please refer to the measuring equipment list in this test report.



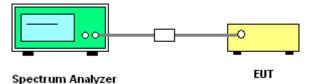
## 3.4.3 Test Procedures

The testing follows FCC KDB 987594 D02 U-NII 6GHz EMC Measurement v01.

Section J) In-Band Emissions.

- 1. Take nominal bandwidth as reference channel bandwidth provided that 26 dB emission bandwidth is always larger than nominal bandwidth
- 2. Measure the power spectral density (which will be used for emissions mask reference) using the following procedure:
  - a) Set the span to encompass the entire 26 dB EBW of the signal.
  - b) Set RBW = same RBW used for 26 dB EBW measurement.
  - c) Set VBW ≥ 3 X RBW
  - d) Number of points in sweep  $\geq$  [2 X span / RBW].
  - e) Sweep time = auto.
  - f) Detector = RMS (i.e., power averaging)
  - g) Trace average at least 100 traces in power averaging (rms) mode.
  - h) Use the peak search function on the instrument to find the peak of the spectrum.
- 3. Using the measuring equipment limit line function, develop the emissions mask based on the following requirements. The emissions power spectral density must be reduced below the peak power spectral density (in dB) as follows:
  - a. Suppressed by 20 dB at 1 MHz outside of the channel edge.
  - b. Suppressed by 28 dB at one channel bandwidth from the channel center.
  - c. Suppressed by 40 dB at one- and one-half times the channel bandwidth from the channel center.
- 4. Adjust the span to encompass the entire mask as necessary.
- 5. Clear trace.
- 6. Trace average at least 100 traces in power averaging (rms) mode.
- 7. Adjust the reference level as necessary so that the crest of the channel touches the top of the emission mask.

## 3.4.4 Test Setup

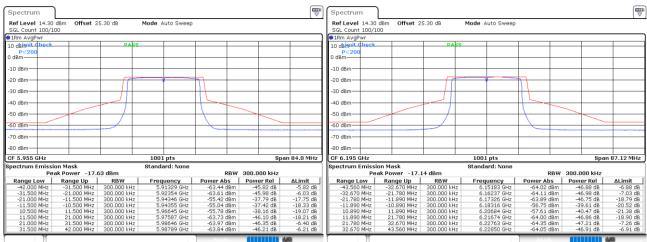




## 3.4.5 Test Result

### MIMO <Ant. 0+1(0)>





Date: 26.JUN.2023 16:29:28

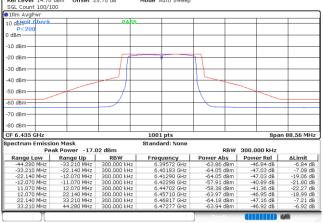
#### Plot on Channel 6415MHz

#### ₽ Spectrum Ref Level 14.40 dBm SGL Count 100/100 1Rm AvgPwr 10 dbimit check. Offset 25.40 dB Mode Auto Sweep PARS ) dBm--10 dBm--20 dBm -30 dBm -40 dBm -50 dBm -60 dBm--70 dBm--80 dBm CF 6.415 GHz Span 85.44 MHz 1001 pts ectrum Emission Mask rd: No -17.95 dE 300.000 kHz RBW Peak Power -1.7.9 Range Low Range Up -42.720 MHz -32.040 MHz -32.040 MHz -32.040 MHz -32.040 MHz -11.680 MHz -11.680 MHz -11.680 MHz 11.680 MHz 11.680 MHz 11.680 MHz 10.680 MHz 11.680 MHz 32.040 MHz 21.360 MHz 32.040 MHz RBW 300.000 kHz Power Abs Power Rel -64.27 dBm -46.33 dB -64.33 dBm -46.39 dB -64.29 dBm -46.34 dB -56.22 dBm -38.28 dB -57.16 dBm -39.21 dB -64.43 dBm -46.19 dB -64.13 dBm -46.19 dB -64.13 dBm -46.20 dB ∆Limit Frequency Limit -6.33 dB -6.43 dB -18.38 dB -19.19 dB -20.12 dB -18.22 dB -6.53 dB -6.20 dB -64.27 dBm -64.33 dBm -64.29 dBm -56.22 dBm -57.16 dBm -64.13 dBm -64.43 dBm -64.15 dBm 6.37591 GHz 6.38300 GHz 6.39368 GHz 6.40337 GHz 6.42663 GHz 6.43632 GHz 6.44700 GHz 6.45366 GHz 1.360 MH: 2.040 MH:

#### Date: 26.JUN.2023 16:54:42

#### Spectrum Ref Level 14.70 dBm SGL Count 100/100 1Rm AvgPwr Offset 25.70 dB Mode Auto Sweep tm AvgF PARS

Plot on Channel 6435MHz



Date: 26.JUN.2023 17:01:11

Date: 26.JUN.2023 16:38:31

Span 84.96 MH

-6.57 dB -6.89 dB -18.66 dB -19.23 dB -19.84 dB -18.74 dB -7.01 dB -6.73 dB

RBW 300.000 kHz

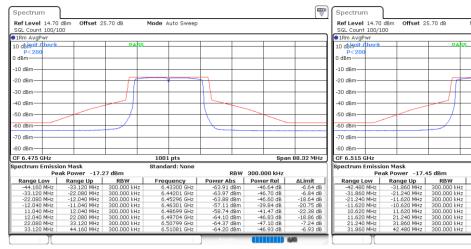
-46.57 dB -46.84 dB -46.62 dB -38.32 dB -38.94 dB -46.63 dB -46.96 dB -46.73 dB

-64.02 dBm -46.57 dB

-64.02 dBm -64.30 dBm -64.08 dBm -55.78 dBm -56.39 dBm -64.09 dBm -64.41 dBm -64.18 dBm



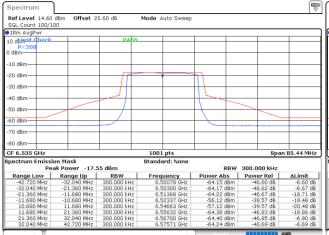
#### Plot on Channel 6475MHz



#### Date: 26.JUN.2023 17:07:58

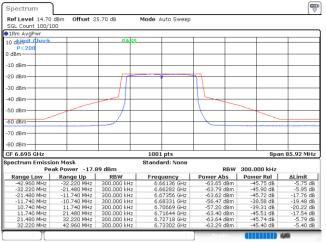
Date: 26.JUN.2023 17:16:33

#### Plot on Channel 6535MHz



## Plot on Channel 6695MHz

Plot on Channel 6515MHz



Mode Auto Swee

1001 pts

Frequency

6.47596 GHz 6.48318 GHz 6.49380 GHz 6.50343 GHz 6.52657 GHz 6.53611 GHz 6.54682 GHz 6.55744 GHz

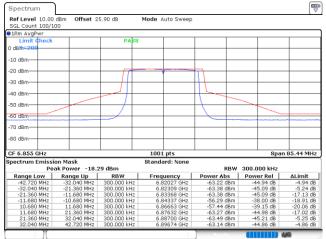
PARS

Date: 26.JUN.2023 17:23:14

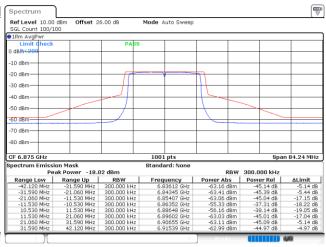
Date: 26.JUN.2023 17:30:58



#### Plot on Channel 6855MHz



#### Plot on Channel 6875MHz



#### Date: 26.JUN.2023 17:38:51

Date: 26.JUN.2023 17:45:23

Plot on Channel 6995MHz

#### Plot on Channel 6895MHz

Ref Level 10.00	dBm Offset 2	6.00 dB	Mode Auto Sweep			
SGL Count 100/1		0.00 00				
1Rm AvaPwr						
Limit Check		PASS				
) dBM<200						
UDII COO						
10 dBm						_
20 dBm						-
30 dBm						
30 ubiii						
40 dBm						
io abiii					~	
50 dBm						_
60 dBm						
70 dBm						
o abiti						
80 dBm						
		· · · · ·	1001 pts		Spa	n 86.64 MHz
CF 6.895 GHz			Standard: None			
CF 6.895 GHz pectrum Emissi	on Mask		atanuaru, sone			
pectrum Emissi	on Mask ak Power –17.9	95 dBm	stanuaru, sone	RBW	300.000 kHz	
pectrum Emissi		95 dBm RBW	Frequency	RBW Power Abs	300.000 kHz Power Rel	∆Limit
Pectrum Emissi Pe Range Low -43.320 MHz	ak Power -17.9 Range Up -32.490 MHz	RBW 300.000 kHz	Frequency 6.85805 GHz	-63.13 dBm	-45.18 dB	-5.18 dB
pectrum Emissi Pe Range Low	ak Power -17.9 Range Up	RBW	Frequency	Power Abs	Power Rel	-5.18 dB -5.38 dB
Pe Range Low -43.320 MHz -32.490 MHz -21.660 MHz	ak Power -17.9 Range Up -32.490 MHz -21.660 MHz -11.830 MHz	RBW 300.000 kHz 300.000 kHz 300.000 kHz	Frequency 6.85805 GHz 6.86255 GHz 6.87347 GHz	-63.13 dBm -63.29 dBm -63.01 dBm	Power Rel -45.18 dB -45.34 dB -45.06 dB	-5.18 dB -5.38 dB -17.17 dB
Pectrum Emissi Pe -43.320 MHz -32.490 MHz -21.660 MHz -11.830 MHz	ak Power -17.9 Range Up -32.490 MHz -21.660 MHz -11.830 MHz -10.830 MHz	RBW 300.000 kHz 300.000 kHz 300.000 kHz 300.000 kHz	Frequency 6.85805 GHz 6.86255 GHz 6.87347 GHz 6.88322 GHz	Power Abs -63.13 dBm -63.29 dBm -63.01 dBm -56.76 dBm	Power Rel -45.18 dB -45.34 dB -45.06 dB -38.81 dB	-5.18 dB -5.38 dB -17.17 dB -19.72 dB
Pectrum Emissi Pe Range Low -43.320 MHz -32.490 MHz -21.660 MHz -11.830 MHz 10.830 MHz	ak Power -17.9 Range Up -32.490 MHz -21.660 MHz -11.830 MHz -10.830 MHz 11.830 MHz	RBW 300.000 kHz 300.000 kHz 300.000 kHz 300.000 kHz 300.000 kHz	Frequency 6.85805 GHz 6.86255 GHz 6.87347 GHz 6.88322 GHz 6.90678 GHz	Power Abs -63.13 dBm -63.29 dBm -63.01 dBm -56.76 dBm -57.69 dBm	Power Rel -45.18 dB -45.34 dB -45.06 dB -38.81 dB -39.74 dB	-5.18 dB -5.38 dB -17.17 dB -19.72 dB -20.65 dB
Pectrum Emissi Pe -43.320 MHz -32.490 MHz -21.660 MHz -11.830 MHz	ak Power -17.9 Range Up -32.490 MHz -21.660 MHz -11.830 MHz -10.830 MHz	RBW 300.000 kHz 300.000 kHz 300.000 kHz 300.000 kHz	Frequency 6.85805 GHz 6.86255 GHz 6.87347 GHz 6.88322 GHz	Power Abs -63.13 dBm -63.29 dBm -63.01 dBm -56.76 dBm	Power Rel -45.18 dB -45.34 dB -45.06 dB -38.81 dB	-5.18 dB -5.38 dB -17.17 dB -19.72 dB

#### pectrum Ref Level 10.00 dBm SGL Count 100/100 11Rm AvgPwr Limit ¢heck Offset 26.00 dB Mode Auto Sweep PAS dBm<2 LO dBm-20 dBm 30 dBm-40 dBm 50 dBm 50 dBm-70 dBm 30 dBm-F 6.995 GHz 1001 pts Spar 2F 6.995 GH2 Deck Power 18.98 dBm peckrum Emission Mask peckrum Emission Mask Peck Power 18.98 dBm Range Low Range Uow 43.200 MH2 32.400 MH2 300.000 kH2 32.400 MH2 23.00 00 kH2 300.000 kH2 11.800 MH2 21.600 MH2 300.000 kH2 11.800 MH2 300.000 kH2 300.000 kH2 11.600 MH2 300.000 kH2 <t Standard: None RBW\_ 300.000 kHz Frequency 6.96238 GHz 6.96264 GHz 6.97344 GHz 6.98325 GHz 7.00675 GHz 7.01656 GHz 7.02736 GHz 7.03496 GHz Power Abs Power Rel -62.73 dBm -43.75 dB .73 dBm .72 dBm .57 dBm .26 dBm .36 dBm .27 dBm .40 dBm .22 dBm -43.75 dB -43.74 dB -43.59 dB -38.28 dB -40.38 dB -47.29 dB -47.42 dB -47.24 dB .79 dB .62 dB .19 dB .29 dB .33 dB .47 dB .24 dB -62 -57 -59 -66 -66

Date: 26.JUN.2023 19:00:13

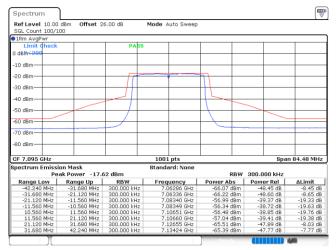
Date: 26.JUN.2023 19:15:49

TEL : 886-3-327-0868
FAX : 886-3-327-0855
Report Template No.: BU5-FR15EWL AC MA Version 2.4

Page Number: 29 of 109Issue Date: Jun. 30, 2023Report Version: 01



## Plot on Channel 7095MHz



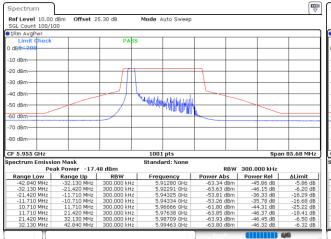
Date: 26.JUN.2023 19:25:56



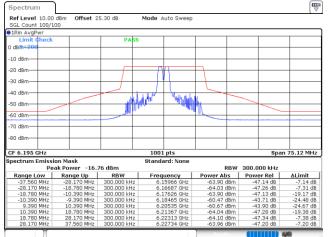
EUT Mode :

### 802.11ax HE20 26RU



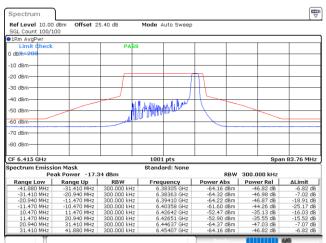


## Plot on Channel 6195MHz



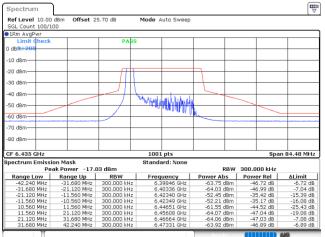
Date: 26.JUN.2023 22:20:52

## Plot on Channel 6415MHz



## Plot on Channel 6435MHz

Date: 26.JUN.2023 21:17:14

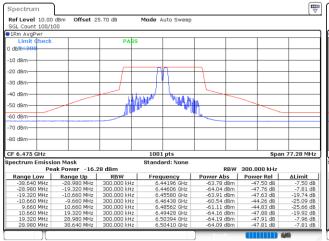


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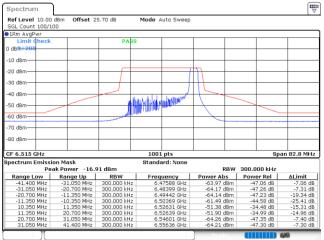
Date: 26.JUN.2023 22:36:10



### Plot on Channel 6475MHz

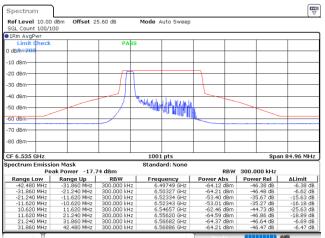


#### Plot on Channel 6515MHz



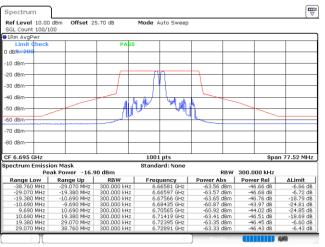
Date: 26.JUN.2023 22:53:47

## Plot on Channel 6535MHz



## Plot on Channel 6695MHz

Date: 26.JUN.2023 23:17:35

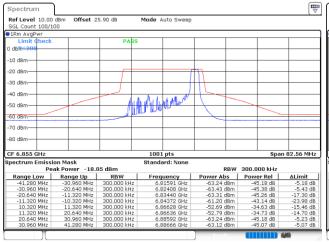


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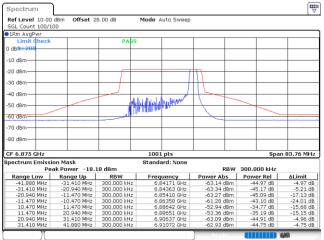
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### Plot on Channel 6855MHz



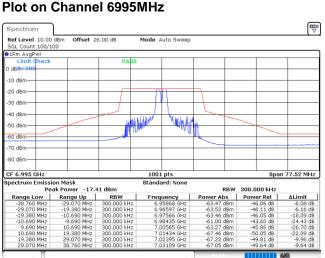
#### Plot on Channel 6875MHz



Date: 27.JUN.2023 00:44:20

## Plot on Channel 6895MHz

#### Spectrum Spectrum Ref Level 10.00 dBm Offset 26.00 dB Mode Auto Sweep SGL C. IRm AvgPw imit ¢h DASS -10 dBm 20 dBm -30 dBm 40 dBm -properties of the state of the 50 dBm -60 dBm-70 dBm 80 dBm CF 6.895 GHz 1001 pts Span pectrum Emission Mask Peak Power Standard: No -17.51 di RBW 300.000 kHz RBW 300.000 kHz Range Low -31.320 MH Frequency -63.92 dBm -46.41 dB ∆Limit -46.41 dB -46.47 dB -34.98 dB -34.52 dB -44.20 dB -46.18 dB -46.12 dB -46.10 dB -6.41 dB -6.52 dB 14.94 dB 15.43 dB 25.11 dB 18.36 dB -6.36 dB -6.10 dB -41.760 MHz -31.320 MHz -20.880 MHz -11.440 MHz 10.440 MHz 11.440 MHz 20.880 MHz 31.320 MHz .85687 .86372 .88352 .88361 .90639 .91567 5.92611 .92720 -31.320 -20.880 -11.440 -10.440 11.440 20.880 .98 dBm .49 dBm .03 dBm MHZ MHZ MHZ MHZ MHZ MHZ GHZ GHZ GHZ GHZ GHZ -61.71 dBm -63.69 dBm -63.63 dBm -63.61 dBm



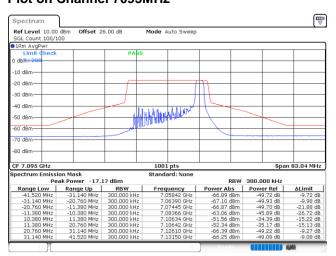
Date: 27.JUN.2023 09:30:36

Date: 27.JUN.2023 10:01:06

Date: 27.JUN.2023 01:05:40



## Plot on Channel 7095MHz



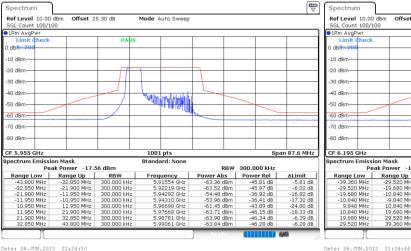
Date: 27.JUN.2023 10:35:40



EUT Mode :

802.11ax HE20 52RU

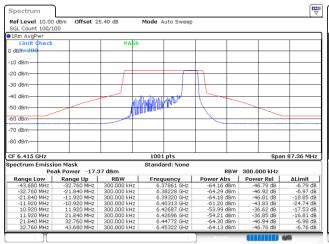
## Plot on Channel 5955MHz



#### Spectrum Ref Level 10 Offset 25.30 dB Mode Auto Sweep 0/10 1Rm AvgP DARS dB 10 dBr 20 dBm -30 dBm 40 dBm 444 -50 dBm -60 dBm 70 dBri 80 dBri CF 6.195 GH 1001 pts 8.72 MHz Spai pectrum Emission Masl BitWH Range Up RBW Range Up RBW 12 -29.520 MHz 300.000 kHz 12 -10.840 MHz 300.000 kHz 12 10.840 MHz 300.000 kHz 14 10.840 MHz 300.000 kHz 42 19.640 MHz 300.000 kHz 42 29.520 MHz 300.000 kHz 42 39.360 MHz 300.000 kHz -17.50 dB 300.000 kHz Power Abs Power Rel Range Low Frequency ∆Limit -46.44 dB -46.52 dB -40.63 dB -40.63 dB -43.38 dB -46.53 dB -46.61 dB -46.61 dB -63.94 dBm -64.02 dBm -64.17 dBm -58.13 dBm -60.88 dBm -64.03 dBm -64.03 dBm -64.11 dBm -63.96 dBm -39.360 MHz -29.520 MHz -19.680 MHz -10.840 MHz 9.840 MHz 10.840 MHz 19.680 MHz 29.520 MHz .15615 GHz .16552 GHz .17536 GHz .18420 GHz .20580 GHz .21456 GHz .22448 GHz .22661 GHz -6.57 dB dB dB dB dB dB

Date: 26.JUN.2023 22:24:50

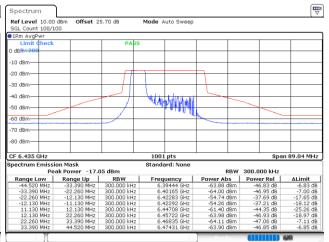
## Plot on Channel 6415MHz



Date: 26.JUN.2023 22:14:07

#### Plot on Channel 6435MHz

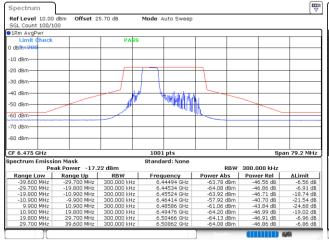
Plot on Channel 6195MHz



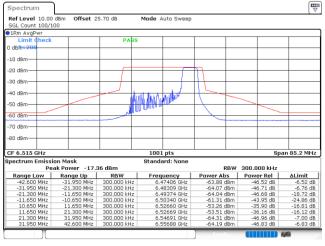
Date: 26.JUN.2023 22:39:36



### Plot on Channel 6475MHz

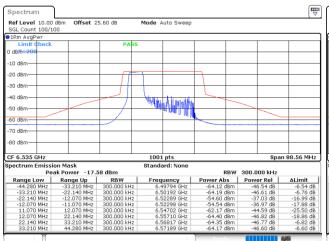


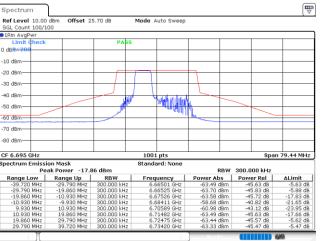
#### Plot on Channel 6515MHz



Date: 26.JUN.2023 23:01:58

## Plot on Channel 6535MHz





Date: 27.JUN.2023 00:07:16

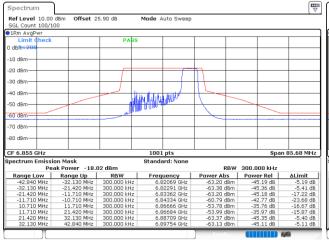
Date: 27.JUN.2023 00:25:36

Date: 26.JUN.2023 23:50:58

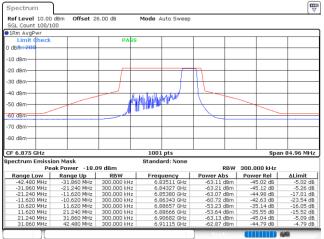
Plot on Channel 6695MHz



#### Plot on Channel 6855MHz



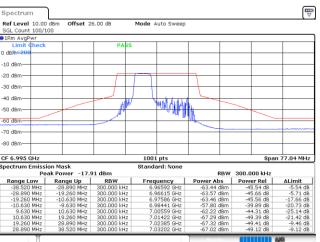
#### Plot on Channel 6875MHz



Date: 27.JUN.2023 00:50:50

#### Plot on Channel 6895MHz

#### Spectrum Spectrum Ref Level 10.00 dBm Offset 26.00 dB Mode Auto Sweep DASS -10 dBm 20 dBm -30 dBm 40 dBm 첷 50 dBm -60 dBm-70 dBm 80 dBm CF 6.895 GHz 1001 pts Span pectrum Emission Mask Peak Powe Standard: No -17.51 di RBW 300.000 kHz RBW 300.000 kHz ΔLimit -6.39 dB -6.46 dB -16.69 dB -17.40 dB -24.98 dB -18.14 dB -6.34 dB -6.11 dB Range Low -33.120 MH Freque ncy -63.90 dBm -46.39 dB -46.39 dB -46.41 dB -36.72 dB -36.49 dB -44.07 dB -46.11 dB -46.29 dB -46.11 dB -44.160 MHz -33.120 MHz -22.080 MHz -12.040 MHz 11.040 MHz 12.040 MHz 22.080 MHz 33.120 MHz 5.86175 GHz 5.86192 GHz 5.88292 GHz 5.88301 GHz 5.90699 GHz 5.91704 GHz 5.92808 GHz 5.93594 GHz -63.90 dBm -63.92 dBm -54.23 dBm -54.00 dBm -61.58 dBm -63.62 dBm -63.80 dBm -63.62 dBm .080 .040 .040 .040 MHZ MHZ MHZ MHZ MHZ MHZ 33



Date: 27.JUN.2023 09:48:45

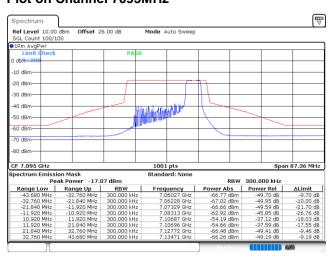
Date: 27.JUN.2023 10:09:00

Date: 27.JUN.2023 01:09:33

Plot on Channel 6995MHz



#### Plot on Channel 7095MHz



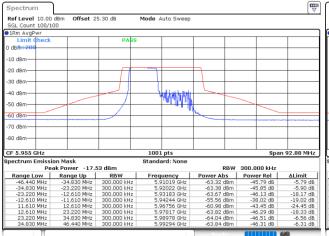
Date: 27.JUN.2023 10:39:29



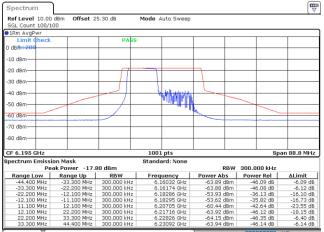
EUT Mode :

802.11ax HE20 106RU

#### Plot on Channel 5955MHz



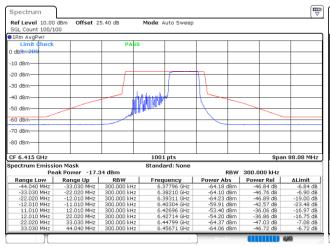
## Plot on Channel 6195MHz



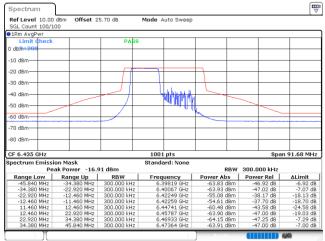
Date: 26.JUN.2023 22:29:46

Date: 26.JUN.2023 21:33:51

#### Plot on Channel 6415MHz



Plot on Channel 6435MHz

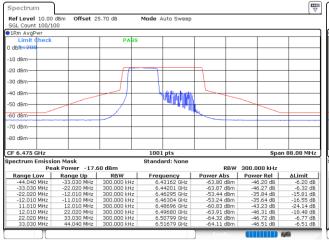


Date: 26.JUN.2023 22:04:40

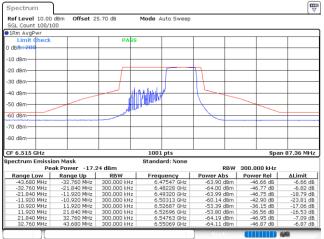
Date: 26.JUN.2023 22:48:04



#### Plot on Channel 6475MHz

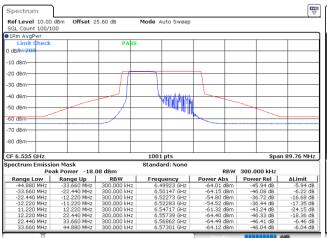


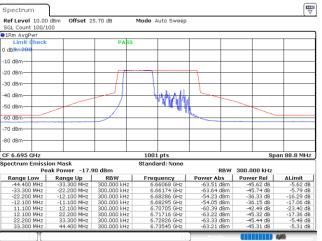
#### Plot on Channel 6515MHz



Date: 26.JUN.2023 23:09:30

#### Plot on Channel 6535MHz





Date: 27.JUN.2023 00:14:18

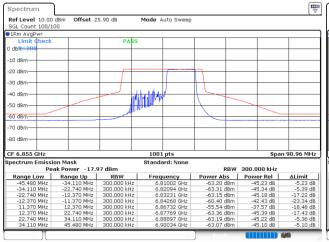
Date: 27.JUN.2023 00:29:34

Date: 27.JUN.2023 01:12:40

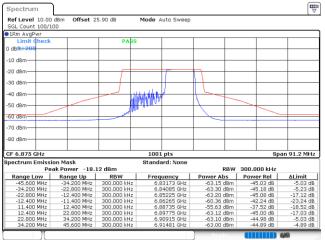
Plot on Channel 6695MHz



#### Plot on Channel 6855MHz

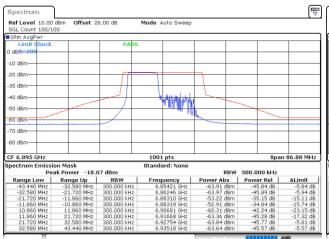


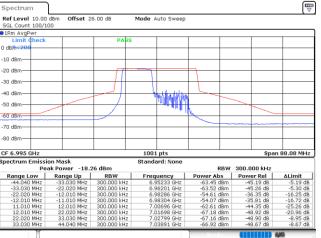
#### Plot on Channel 6875MHz



Date: 27.JUN.2023 00:56:06

#### Plot on Channel 6895MHz





Date: 27.JUN.2023 09:53:55

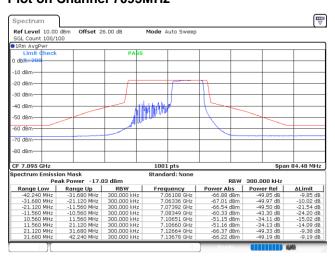
Date: 27.JUN.2023 10:30:34

Date: 27.JUN.2023 01:16:25

Plot on Channel 6995MHz



#### Plot on Channel 7095MHz



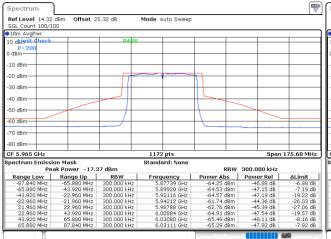
Date: 27.JUN.2023 10:44:11



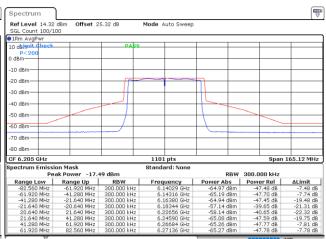
EUT Mode :

802.11ax HE40 Full RU

#### Plot on Channel 5965MHz



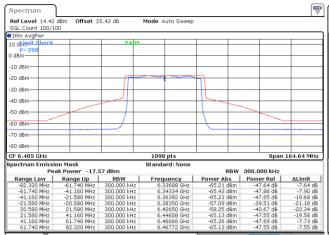
### Plot on Channel 6205MHz



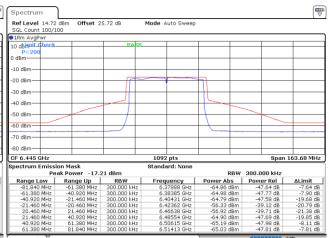
Date: 24.JUN.2023 02:04:13

Date: 24.JUN.2023 02:12:38

#### Plot on Channel 6405MHz



### Plot on Channel 6445MHz



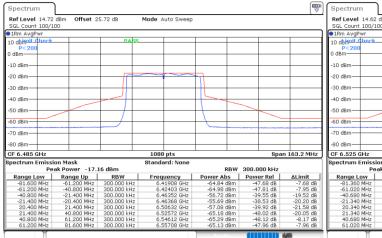
Date: 24.JUN.2023 02:19:16

Date: 24.JUN.2023 03:12:29

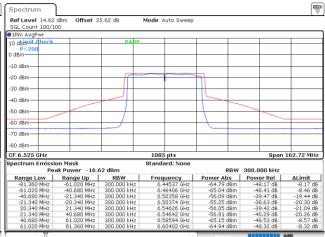
Page Number: 43 of 109Issue Date: Jun. 30, 2023Report Version: 01



#### Plot on Channel 6485MHz

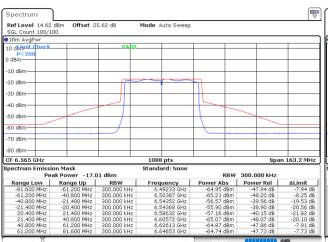


#### Plot on Channel 6525MHz



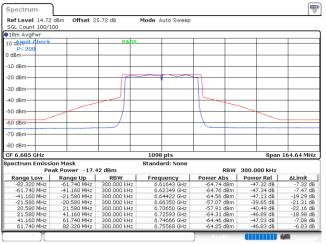
#### Date: 24.JUN.2023 03:19:10

# Plot on Channel 6565MHz



#### Plot on Channel 6685MHz

Date: 24.JUN.2023 03:28:58

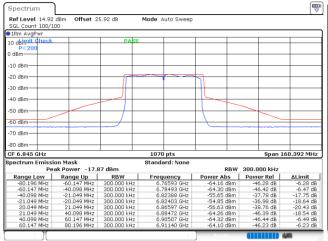


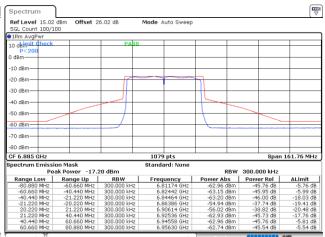
Date: 24.JUN.2023 03:39:28

Date: 24.JUN.2023 03:47:30



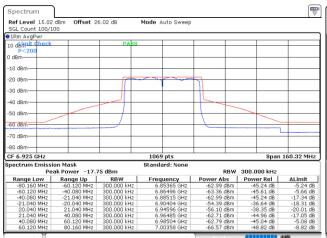
#### Plot on Channel 6845MHz





#### Plot on Channel 6925MHz

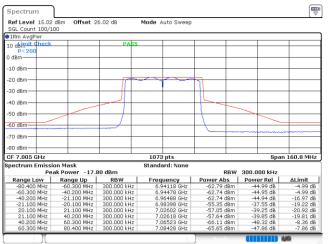
Date: 24.JUN.2023 04:09:28



#### Plot on Channel 7005MHz

Date: 26.JUN.2023 15:29:08

Plot on Channel 6885MHz



Date: 26.JUN.2023 15:59:45

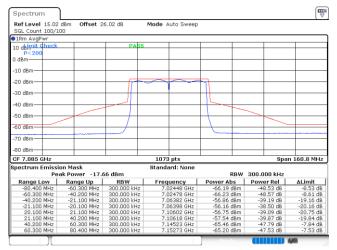
Date: 26.JUN.2023 16:05:34

TEL : 886-3-327-0868	
FAX : 886-3-327-0855	
Report Template No.: BU5-FR15EWLAC MA	Version 2.4

Page Number: 45 of 109Issue Date: Jun. 30, 2023Report Version: 01



#### Plot on Channel 7085MHz



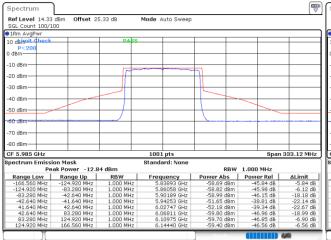
Date: 26.JUN.2023 16:20:08



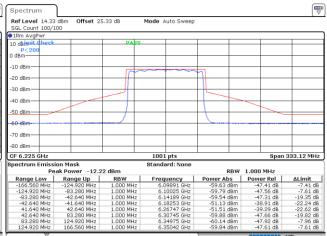
EUT Mode :

802.11ax HE80 Full RU

#### Plot on Channel 5985MHz



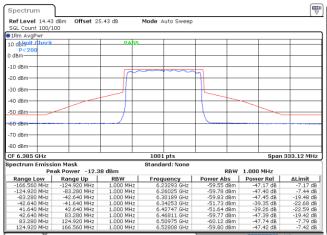
#### Plot on Channel 6225MHz



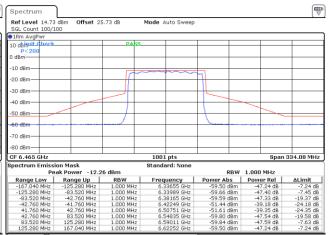
Date: 23.JUN.2023 23:37:17

Date: 23.JUN.2023 23:53:29

#### Plot on Channel 6385MHz



### Plot on Channel 6465MHz

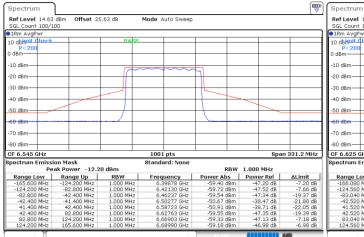


Date: 24.JUN.2023 00:00:05

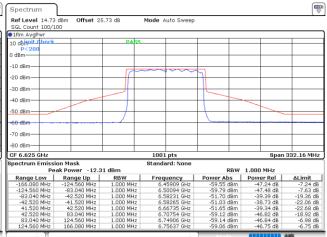
Date: 24.JUN.2023 00:05:50



#### Plot on Channel 6545MHz



#### Plot on Channel 6625MHz

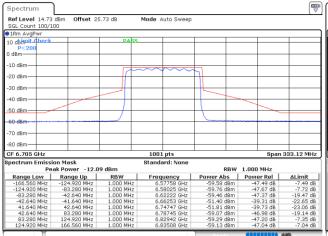


#### Date: 24.JUN.2023 00:13:12

Date: 24.JUN.2023 00:19:57

Plot on Channel 6785MHz

#### Plot on Channel 6705MHz



#### Spectrum Ref Level 14.93 dBm SGL Count 100/100 1Rm AvgPwr 10 dbimit Check P<200 Offset 25.93 dB Mode Auto Sweer PASS dBm -10 dBm -20 dBm -30 dBm 40 dBm -50 dBm-Span 333.12 MHz 1001 pts -12.13 dBm RBW 1.000 MHz RBW 1.000 MHz -59.09 dBm -46.97 dB Frequency 6.65258 GH ∆Limit -6.97 dB -7.31 dB -18.41 dB -22.13 dB -23.34 dB -18.85 dB -6.99 dB -6.61 dB 5.65258 GHz 5.66058 GHz 5.70189 GHz 5.74253 GHz 5.82747 GHz 5.86811 GHz 5.90942 GHz 5.94540 GHz -59.09 dBm -59.29 dBm -58.51 dBm -50.93 dBm -52.13 dBm -58.94 dBm -58.97 dBm -58.74 dBm -46.97 dB -47.16 dB -46.38 dB -38.80 dB -40.00 dB -46.82 dB -46.85 dB -46.61 dB

Date: 24.JUN.2023 00:29:10

Date: 24.JUN.2023 00:37:20

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Report Template No.: BU5-FR15EWLAC MA Version 2.4