

# FCC RF Test Report

APPLICANT	: Meta Platforms Technologies, LLC.
EQUIPMENT	: VR Headset
BRAND NAME	: META PLATFORMS TECHNOLOGIES, LLC
MODEL NAME	: DK94EC
FCC ID	: 2AGOZ-L31W
STANDARD	: FCC Part 15 Subpart C §15.247
CLASSIFICATION	: (DSS) Spread Spectrum Transmitter
TEST DATE(S)	: May 31, 2022 ~ Jun. 17, 2022

We, Sporton International Inc. (Kunshan), 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 of Sporton International Inc. (Kunshan), the test report shall not be reproduced except in full.

JasonJia

Approved by: Jason Jia



**Sporton International Inc. (Kunshan)** No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China



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# **REVISION HISTORY**

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR222304-01A	Rev. 01	Initial issue of report	Jul. 09, 2022



SUMMARY OF	TEST RESULT
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Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(1)	Number of Channels	≥ 15Chs	Pass	-
3.2	15.247(a)(1)	Hopping Channel Separation	≥ 2/3 of 20dB BW	Pass	-
3.3	15.247(a)(1)	Dwell Time of Each Channel	≤ 0.4sec in 31.6sec period	Pass	-
3.4	15.247(a)(1)	20dB Bandwidth	-	Report only	-
3.4	-	99% Bandwidth	-	Report only	-
3.5	15.247(b)(1)	Peak Output Power	≤ 125 mW	Pass	-
3.6	15.247(d)	Conducted Band Edges	≤ 20dBc	Pass	-
3.7	15.247(d) Conducted Spurious Emission		≤ 20dBc	Pass	-
3.8	Radiated Band Edges15.247(d)and Radiated SpuriousEmission		15.209(a) & 15.247(d)	Pass	Under limit 3.47 dB at 37.760 MHz
3.9	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 19.11 dB at 0.150 MHz
3.10	15.203 & 15.247(b)	Antenna Requirement	15.203 & 15.247(b) 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:**

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.



# **1** General Description

# 1.1 Applicant

### Meta Platforms Technologies, LLC.

1 Hacker Way, Menlo Park, CA 94025, USA

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

Product Feature				
Equipment	VR Headset			
Brand Name	META PLATFORMS TECHNOLOGIES, LLC			
Model Name DK94EC				
FCC ID	2AGOZ-L31W			
SW Version	28151810289300000			
EUT Stage	Identical Prototype			

**Remark:** The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

# **1.3 Product Specification of Equipment Under Test**

Standards-related Product Specification			
Tx/Rx Frequency Range	2402 MHz ~ 2480 MHz		
Number of Channels	79		
Carrier Frequency of Each Channel	2402+n*1 MHz; n=0~78		
Maximum Output Power to Antenna	Bluetooth BR(1Mbps) : 5.91 dBm (0.0039 W) Bluetooth EDR (2Mbps) : 6.98 dBm (0.0050 W) Bluetooth EDR (3Mbps) : 7.62 dBm (0.0058 W)		
99% Occupied Bandwidth	Bluetooth BR(1Mbps) : 0.886MHz Bluetooth EDR (2Mbps) : 1.175MHz Bluetooth EDR (3Mbps) : 1.164MHz		
Antenna Type / Gain	FPC Antenna with gain 3.70 dBi		
Type of Modulation	Bluetooth BR (1Mbps) : GFSK Bluetooth EDR (2Mbps) :π/4-DQPSK Bluetooth EDR (3Mbps) : 8-DPSK		

# **1.4 Modification of EUT**

No modifications are made to the EUT during all test items.



# 1.5 Testing Location

Sporton International Inc. (Kunshan) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Test Firm	Sporton International Inc. (Kunshan)					
	No. 1098, Pengxi North	No. 1098, Pengxi North Road, Kunshan Economic Development Zone				
Test Site Location	Jiangsu Province 2153	00 People's Republic of C	hina			
Test Sile Location	TEL : +86-512-57900158					
	FAX : +86-512-57900958					
	Sporton Sita No	FCC Designation No.	FCC Test Firm			
Test Site No.	Sporton Site No.	FCC Designation No.	Registration No.			
Test one NU.	CO01-KS 03CH06-KS TH01-KS	CN1257	314309			

# 1.6 Test Software

ltem	Site	Manufacturer	Name	Version
1.	03CH06-KS	AUDIX	E3	6.2009-8-24al
2.	CO01-KS	AUDIX	E3	6.2009-8-24

# 1.7 Applicable Standards

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

- 47 CFR Part 15 Subpart C §15.247
- FCC KDB 558074 D01 15.247 Meas Guidance v05r02
- ANSI C63.10-2013

#### Remark:

- 1. All test items were verified and recorded according to the standards and without any deviation during the test.
- 2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.



# 2 Test Configuration of Equipment Under Test

# 2.1 Carrier Frequency Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
	0	2402	27	2429	54	2456
	1	2403	28	2430	55	2457
	2	2404	29	2431	56	2458
	3	2405	30	2432	57	2459
	4	2406	31	2433	58	2460
	5	2407	32	2434	59	2461
	6	2408	33	2435	60	2462
	7	2409	34	2436	61	2463
	8	2410	35	2437	62	2464
	9	2411	36	2438	63	2465
	10	2412	37	2439	64	2466
	11	2413	38	2440	65	2467
	12	2414	39	2441	66	2468
2400-2483.5 MHz	13	2415	40	2442	67	2469
	14	2416	41	2443	68	2470
	15	2417	42	2444	69	2471
	16	2418	43	2445	70	2472
	17	2419	44	2446	71	2473
	18	2420	45	2447	72	2474
	19	2421	46	2448	73	2475
	20	2422	47	2449	74	2476
	21	2423	48	2450	75	2477
	22	2424	49	2451	76	2478
	23	2425	50	2452	77	2479
	24	2426	51	2453	78	2480
	25	2427	52	2454	-	-
	26	2428	53	2455	-	-



# 2.2 Test Mode

- a. The EUT has been associated with peripherals and configuration operated in a manner tended to 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, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (Y plane) were recorded in this report, and the worst mode of radiated spurious emissions is Bluetooth 3Mbps mode, and recorded in this report.
- b. AC power line Conducted Emission was tested under maximum output power.

Summary table of Test Cases						
		Data Rate / Modulation				
Test Item	Bluetooth BR 1Mbps	Bluetooth EDR 2Mbps	Bluetooth EDR 3Mbps			
	GFSK	π/4-DQPSK	8-DPSK			
Conducted	Mode 1: CH00_2402 MHz	Mode 4: CH00_2402 MHz	Mode 7: CH00_2402 MHz			
	Mode 2: CH39_2441 MHz	Mode 5: CH39_2441 MHz	Mode 8: CH39_2441 MHz			
Test Cases	Mode 3: CH78_2480 MHz	Mode 6: CH78_2480 MHz	Mode 9: CH78_2480 MHz			
	В	luetooth EDR 3Mbps 8-DPS	К			
Radiated	Mode 1: CH00_2402 MHz					
Test Cases	Mode 2: CH39_2441 MHz					
	Mode 3: CH78_2480 MHz					
AC						
Conducted		WLAN Link(2.4G)+ nRF TX +	USB Cable (Charging from			
Emission	Adapter)					
Remark:						
1. For radiate	1. For radiated test cases, the worst mode data rate 3Mbps was reported only, because this data rate					
has the hig	has the highest RF output power at preliminary tests, and no other significantly frequencies found in					
conducted	conducted spurious emission.					

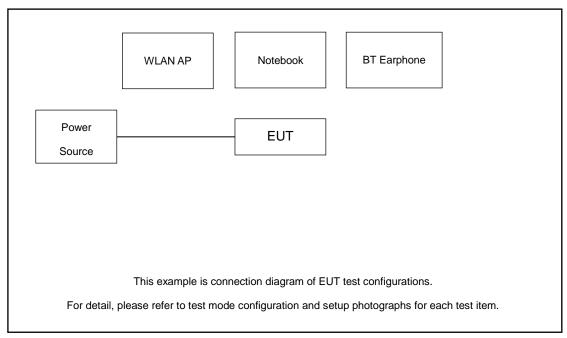
The following summary table is showing all test modes to demonstrate in compliance with the standard.

2. For Radiated Test Cases, The tests were performed with Adapter , Earphone and USB Cable .

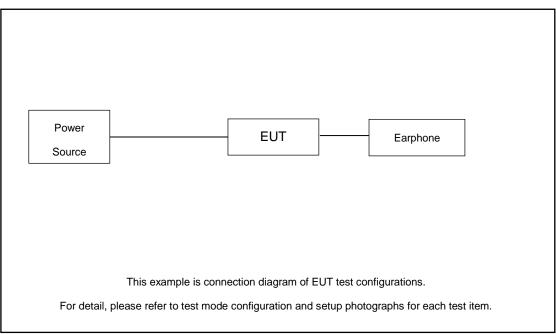


# 2.3 Connection Diagram of Test System

For AC Conducted Emission:



#### For Radiated Emission:





# 2.4 Support Unit used in test configuration and system

ltem	Equipment	Model Name	FCC ID	Data Cable	Power Cord
1.	Bluetooth	LYEJ02LM	N/A	N/A	N/A
1.	Earphone		IN/A		
2.	WLAN AP	DIR-655	KA21R655B1	N/A	Unshielded,1.8m
	Notebook		FCC DoC		AC I/P: Unshielded, 1.8 m
3.		Notebook V130-15IKB005		N/A	DC O/P: Shielded, 1.8 m
4.	Earphone	N/A	N/A	N/A	N/A

# 2.5 EUT Operation Test Setup

For Bluetooth function, the engineering test program was provided and enabled to make EUT connect with Bluetooth base station to continuous transmit.

For AC power line conducted emissions, the EUT was set to connect with the WLAN AP under large package sizes transmission.

# 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 5.6 dB.

 $Offset(dB) = RF \ cable \ loss(dB)$ . = 5.6 (dB)



# 3 Test Result

# 3.1 Number of Channel Measurement

# 3.1.1 Limits of Number of Hopping Frequency

Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels.

# **3.1.2 Measuring Instruments**

The measuring equipment is listed in the section 4 of this test report.

# 3.1.3 Test Procedure

- 1. The testing follows ANSI C63.10-2013 clause 7.8.3.
- 2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
- 3. Set to the maximum power setting and enable the EUT transmit continuously.
- 4. Enable the EUT hopping function.
- Use the following spectrum analyzer settings: Span = the frequency band of operation;
   RBW = 300kHz; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold.
- 6. The number of hopping frequency used is defined as the number of total channel.
- 7. Record the measurement data derived from spectrum analyzer.

# 3.1.4 Test Setup



Spectrum Analyzer

# 3.1.5 Test Result of Number of Hopping Frequency

Please refer to Appendix A.



Spectrum		ctrum 2	10 C - 1	pectrum 3		Spectrum 4	t X		
Ref Level 25.6 Att	0 dBm 30 dB	Offset SWT		<b>RBW</b> 300 kH <b>VBW</b> 300 kH		Auto FFT			
1Pk Max	50 GD	3111	19 μ3 🖷	1011 300 KI	2 moue	auto FFT		~~	
20 dBm-									
LO dBm									
	W	MAY	MAA	ANA	AAAA	AAAA	MA	ANA	hAAA
10 dBm									
20 dBm									
40 dBm	_								
50 dBm	_								
60 dBm	-								
70 dBm				691	ntc			Ston	2.441 GHz
				091	prs				2.441 GHZ

# Number of Hopping Channel Plot on Channel 00 - 78

Date: 1.JUN.2022 02:05:03

Att 1Pk Max	30 dB SWT	та ћа 🖷	<b>VBW</b> 300 k	ma Moue	Auto FFT		
20 dBm							
.0 dBm							
	ANAL	ANAAF	MANA	ANAP	MAAAAA	'INAAAAA	Λ
10 dBm	1 4 4 1 1		11001	ARON	101800	A 1 1 0 1 1 0	
20 dBm							+
30 dBm							+
40 dBm							+
50 dBm							h
60 dBm							
70 dBm							

Date: 1.JUN.2022 02:05:40



# 3.2 Hopping Channel Separation Measurement

# 3.2.1 Limit of Hopping Channel Separation

Frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater.

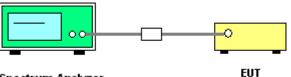
# **3.2.2 Measuring Instruments**

The measuring equipment is listed in the section 4 of this test report.

### 3.2.3 Test Procedures

- 1. The testing follows ANSI C63.10-2013 clause 7.8.2.
- 2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
- 3. Set to the maximum power setting and enable the EUT transmit continuously.
- 4. Enable the EUT hopping function.
- Use the following spectrum analyzer settings:
   Span = wide enough to capture the peaks of two adjacent channels;
   RBW = 300kHz; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold.
- 6. Measure and record the results in the test report.

# 3.2.4 Test Setup



Spectrum Analyzer

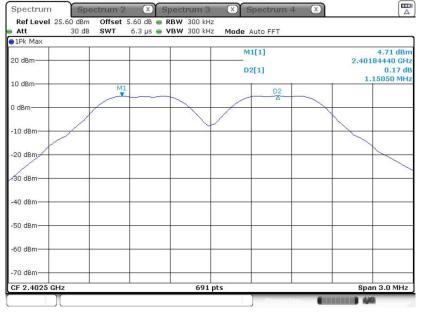
# 3.2.5 Test Result of Hopping Channel Separation

Please refer to Appendix A.



#### <1Mbps>

#### **Channel Separation Plot on Channel 00 - 01**



Date: 1.JUN.2022 01:31:03

#### **Channel Separation Plot on Channel 39 - 40**



Date: 1.JUN.2022 01:36:47



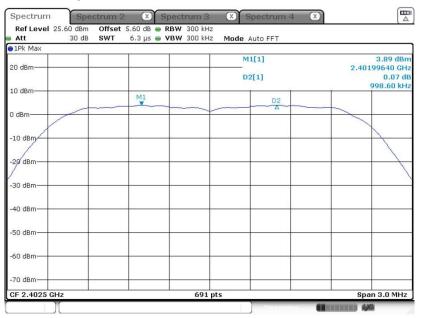


#### Channel Separation Plot on Channel 77 - 78

Date: 1.JUN.2022 01:45:00

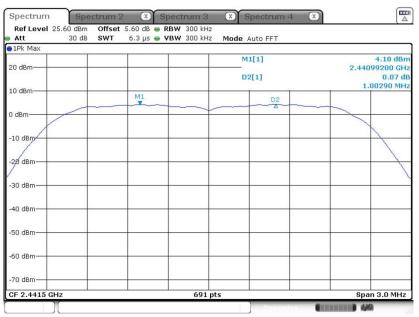
#### <2Mbps>

#### **Channel Separation Plot on Channel 00 - 01**



Date: 1.JUN.2022 02:13:52

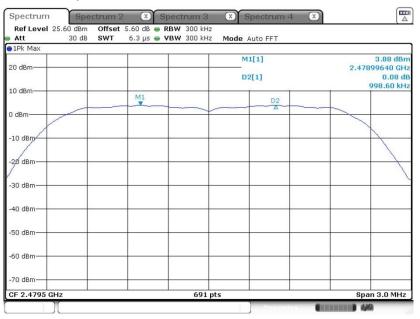




#### Channel Separation Plot on Channel 39 - 40

Date: 1.JUN.2022 02:19:47

#### **Channel Separation Plot on Channel 77 - 78**

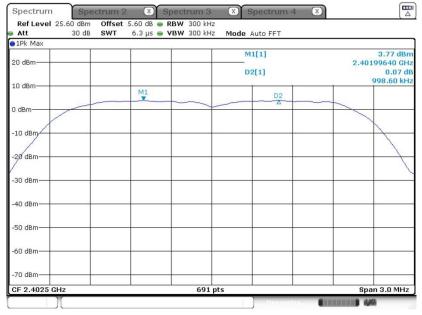


Date: 1.JUN.2022 02:26:37



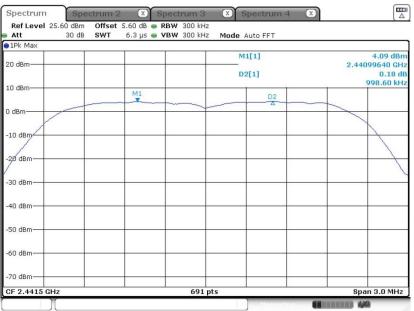
#### <3Mbps>

#### **Channel Separation Plot on Channel 00 - 01**



Date: 1.JUN.2022 02:34:45

# Channel Separation Plot on Channel 39 - 40



Date: 1.JUN.2022 02:42:31



2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		VBW 300 kHz Mode Auto FFT	
1Pk Max 0 dBm		M1[1]	3.77 dBm 2.47899200 GHz 0.05 dB 998.60 kHz
0 dBm	M1		
10 dBm			
30 dBm			
50 dBm			
50 dBm			
70 dBm			

### Channel Separation Plot on Channel 77 - 78

Date: 1.JUN.2022 02:54:30



# 3.3 Dwell Time Measurement

# 3.3.1 Limit of Dwell Time

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

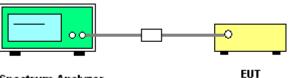
# 3.3.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

### 3.3.3 Test Procedures

- 1. The testing follows ANSI C63.10-2013 clause 7.8.4.
- The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
- 3. Set to the maximum power setting and enable the EUT transmit continuously.
- 4. Enable the EUT hopping function.
- 5. Use the following spectrum analyzer settings: Span = zero span, centered on a hopping channel; RBW = 1 MHz; VBW ≥ RBW; Sweep = as necessary to capture the entire dwell time per hopping channel; Detector function = peak; Trace = max hold.
- 6. Measure and record the results in the test report.

### 3.3.4 Test Setup

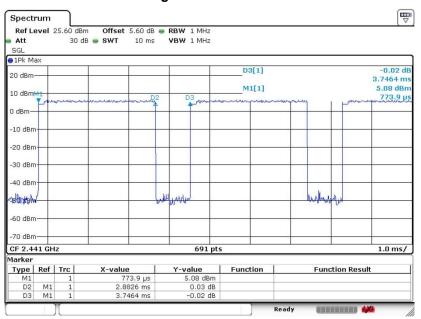


Spectrum Analyzer



# 3.3.5 Test Result of Dwell Time

Please refer to Appendix A.



#### Package Transfer Time Plot

Date: 31.MAY.2022 20:47:20

#### Remark:

 In normal mode, hopping rate is 1600 hops/s with 6 slots (5 Transmit and 1 Receive slot) in 79 hopping channels.

With channel hopping rate (1600 / 6 / 79) in Occupancy Time Limit  $(0.4 \times 79)$  (s), Hops Over Occupancy Time comes to  $(1600 / 6 / 79) \times (0.4 \times 79) = 106.67$  hops.

- In AFH mode, hopping rate is 800 hops/s with 6 slots in 20 hopping channels.
  With channel hopping rate (800 / 6 / 20) in Occupancy Time Limit (0.4 x 20) (s),
  Hops Over Occupancy Time comes to (800 / 6 / 20) x (0.4 x 20) = 53.33 hops.
- 3. Dwell Time(s) = Hops Over Occupancy Time (hops) x Package Transfer Time



# 3.4 20dB and 99% Bandwidth Measurement

# 3.4.1 Limit of 20dB and 99% Bandwidth

Reporting only

# 3.4.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

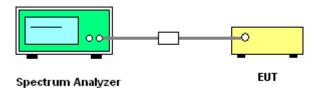
### 3.4.3 Test Procedures

- 1. The testing follows ANSI C63.10-2013 clause 6.9.2 and 6.9.3.
- 2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
- 3. Set to the maximum power setting and enable the EUT transmit continuously.
- Use the following spectrum analyzer settings for 20dB Bandwidth measurement.
  Span = approximately 2 to 5 times the 20 dB bandwidth, centered on a hopping channel; The RBW is set to 1% to 5% of the 99% OBW, the VBW is set to 3 times the RBW;
  Sweep = auto; Detector function = peak; Trace = max hold.
- 5. Use the following spectrum analyzer settings for 99 % Bandwidth measurement.
  Span = approximately 1.5 to 5 times the 99% bandwidth, centered on a hopping channel; The RBW is set to 1% to 5% of the 99% OBW, the VBW is set to 3 times the RBW; Sweep = auto; Detector function = peak;

Trace = max hold.

6. Measure and record the results in the test report.

# 3.4.4 Test Setup



# 3.4.5 Test Result of 20dB Bandwidth

Please refer to Appendix A.



#### <1Mbps>

#### 20 dB Bandwidth Plot on Channel 00



Date: 1.JUN.2022 01:28:04

#### 20 dB Bandwidth Plot on Channel 39



Date: 1.JUN.2022 01:32:49



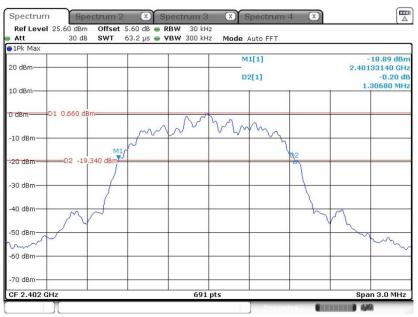
1Pk Max			BW 300 kHz	Mode Auto				
20 dBm				M1[1]			2.479	18.27 dBn 50220 GH: 0.02 dB
LO dBm						Ĩ		995.70 kH
) dBm D1 1	700 dBm		N	m				
10 dBm		~~~	[	- M	m			
20 dBm	D2 -18.300 dBm-	~			~~	_D2		
30 dBm	A					4	2	1
40, dBro							Z	
50 dBm								
60 dBm								
70 dBm								

#### 20 dB Bandwidth Plot on Channel 78

Date: 1.JUN.2022 01:38:07

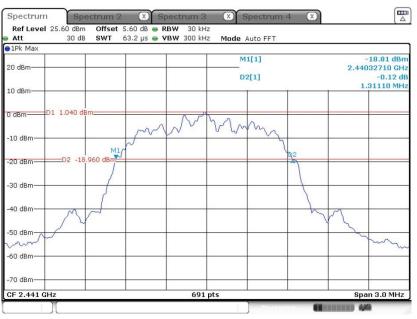
#### <2Mbps>

#### 20 dB Bandwidth Plot on Channel 00



Date: 1.JUN.2022 02:08:38

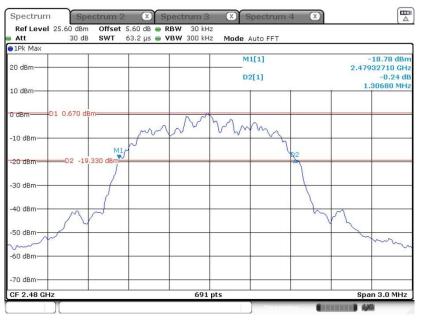




#### 20 dB Bandwidth Plot on Channel 39

Date: 1.JUN.2022 02:15:18

#### 20 dB Bandwidth Plot on Channel 78

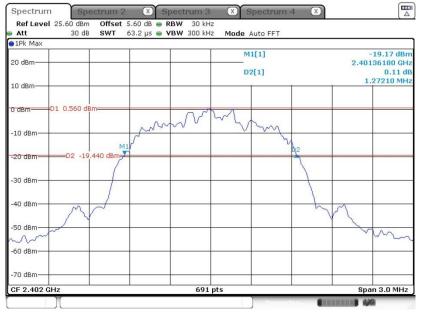


Date: 1.JUN.2022 02:20:57



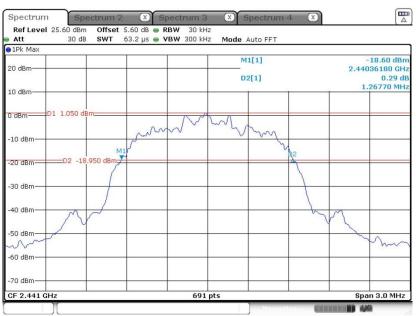
#### <3Mbps>

#### 20 dB Bandwidth Plot on Channel 00



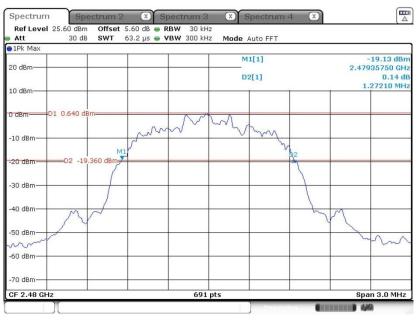
Date: 1.JUN.2022 02:28:21

#### 20 dB Bandwidth Plot on Channel 39



Date: 1.JUN.2022 02:38:10





#### 20 dB Bandwidth Plot on Channel 78

Date: 1.JUN.2022 02:46:00

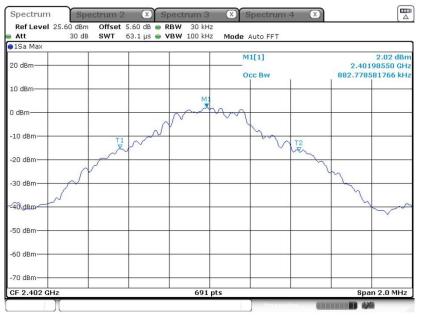


# 3.4.6 Test Result of 99% Occupied Bandwidth

Please refer to Appendix A.

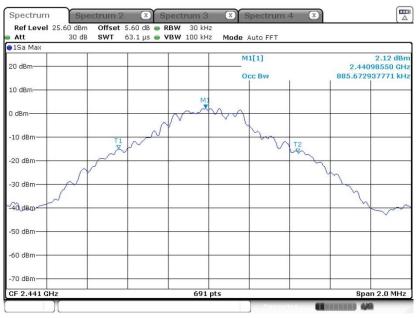
#### <1Mbps>

#### 99% Occupied Bandwidth Plot on Channel 00



Date: 1.JUN.2022 01:28:52

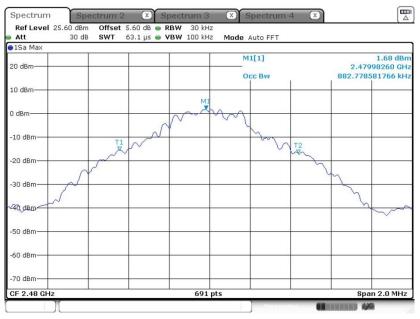




#### 99% Occupied Bandwidth Plot on Channel 39

Date: 1.JUN.2022 01:33:58

#### 99% Occupied Bandwidth Plot on Channel 78

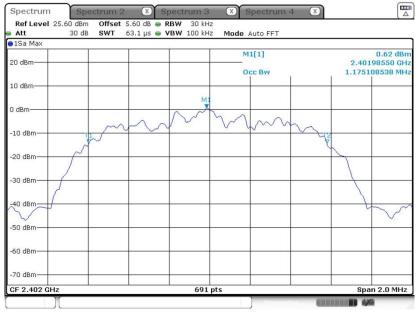


Date: 1.JUN.2022 01:39:41



#### <2Mbps>

#### 99% Occupied Bandwidth Plot on Channel 00



Date: 1.JUN.2022 02:09:53

#### Spectrum X Sp $(\mathbf{X})$ X trum trum Offset 5.60 dB ● RBW 30 kHz SWT 63.1 µs ● VBW 100 kHz Ref Level 25.60 dBm Mode Auto FFT Att 30 dB ●1Sa Max 1.04 dBm 2.44098550 GHz M1[1] 20 dBn Occ Bw 1.175108538 MH 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm 10 dBm -50 dBm -60 dBm 70 dBm Span 2.0 MHz 691 pts CF 2.441 GH 1 64

#### 99% Occupied Bandwidth Plot on Channel 39

Date: 1.JUN.2022 02:15:56



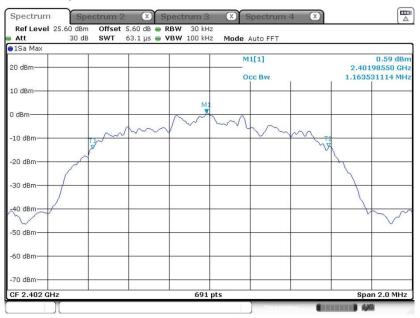


#### 99% Occupied Bandwidth Plot on Channel 78

Date: 1.JUN.2022 02:23:24

#### <3Mbps>

#### 99% Occupied Bandwidth Plot on Channel 00



Date: 1.JUN.2022 02:30:45

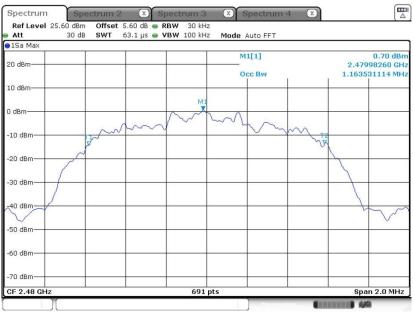




#### 99% Occupied Bandwidth Plot on Channel 39

Date: 1.JUN.2022 02:39:29

#### 99% Occupied Bandwidth Plot on Channel 78



Date: 1.JUN.2022 02:49:21

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



# 3.5 Output Power Measurement

# 3.5.1 Limit of Output Power

The maximum peak conducted output power of the intentional radiator shall not exceed the following: (1) For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band 0.125 watts. The power limit for 1Mbps, 2Mbps, 3Mbps and AFH modes are 0.125 watts.

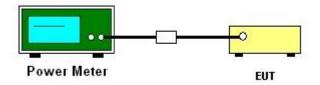
### 3.5.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

### 3.5.3 Test Procedures

- 1. The testing follows ANSI C63.10-2013 clause 7.8.5.
- 2. The RF output of EUT was connected to the power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement.
- 3. Set to the maximum power setting and enable the EUT transmit continuously.
- 4. Measure the conducted output power with cable loss and record the results in the test report.
- 5. Measure and record the results in the test report.

### 3.5.4 Test Setup



# 3.5.5 Test Result of Peak Output Power

Please refer to Appendix A.

# 3.5.6 Test Result of Average Output Power (Reporting Only)

Please refer to Appendix A.



# 3.6 Conducted Band Edges Measurement

# 3.6.1 Limit of Band Edges

In any 100 kHz bandwidth outside the intentional radiation frequency band, the radio frequency power shall be at least 20 dB below the highest level of the radiated power. In addition, radiated emissions which fall in the restricted bands must also comply with the radiated emission limits.

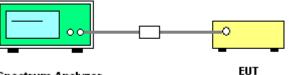
# 3.6.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

### 3.6.3 Test Procedures

- 1. The testing follows ANSI C63.10-2013 clause 7.8.6.
- 2. Set to the maximum power setting and enable the EUT transmit continuously.
- 3. Set RBW = 100kHz, VBW = 300kHz. Band edge emissions must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100kHz RBW. The attenuation shall be 30 dB instead of 20 dB when RMS conducted output power procedure is used.
- 4. Enable hopping function of the EUT and then repeat step 2. and 3.
- 5. Measure and record the results in the test report.

# 3.6.4 Test Setup



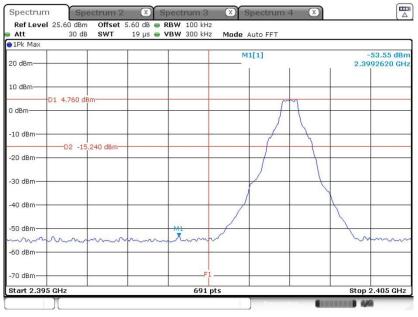
Spectrum Analyzer



# 3.6.5 Test Result of Conducted Band Edges

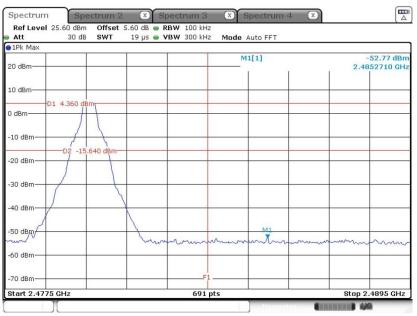
#### <1Mbps>

#### Low Band Edge Plot on Channel 00



Date: 1.JUN.2022 01:26:00

#### High Band Edge Plot on Channel 78

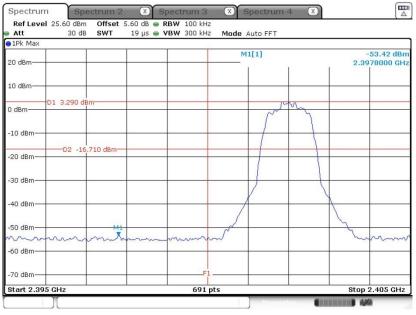


Date: 1.JUN.2022 01:38:34



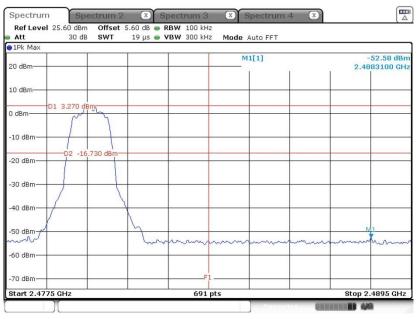
#### <2Mbps>

#### Low Band Edge Plot on Channel 00



Date: 1.JUN.2022 02:09:08

#### High Band Edge Plot on Channel 78

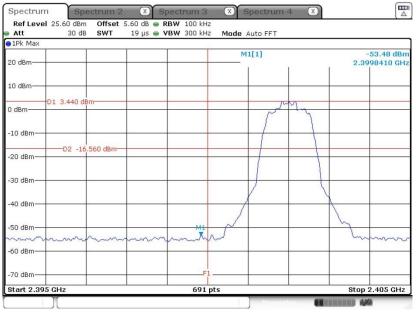


Date: 1.JUN.2022 02:21:23



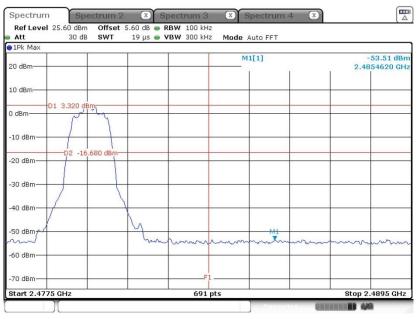
#### <3Mbps>

#### Low Band Edge Plot on Channel 00



Date: 1.JUN.2022 02:28:52

#### High Band Edge Plot on Channel 78



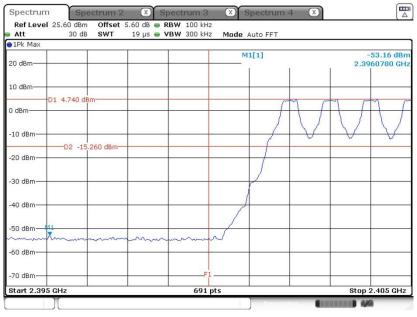
Date: 1.JUN.2022 02:46:22



# 3.6.6 Test Result of Conducted Hopping Mode Band Edges

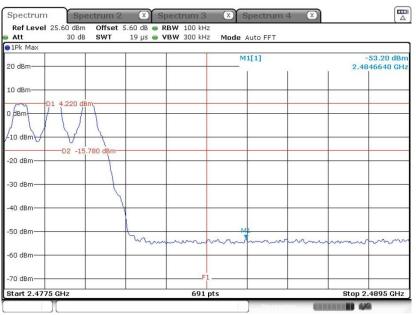
#### <1Mbps>

#### Hopping Mode Low Band Edge Plot



Date: 1.JUN.2022 01:25:30

#### Hopping Mode High Band Edge Plot

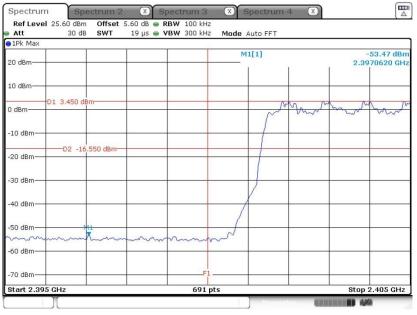


Date: 1.JUN.2022 01:42:43



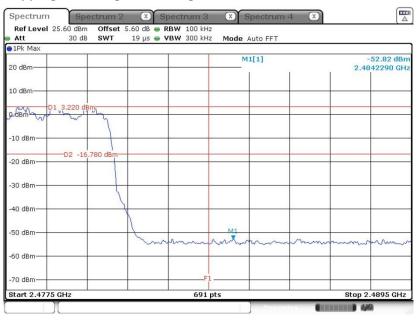
#### <2Mbps>

#### Hopping Mode Low Band Edge Plot



Date: 1.JUN.2022 02:12:44

#### Hopping Mode High Band Edge Plot



Date: 1.JUN.2022 02:22:39



#### <3Mbps>

#### Hopping Mode Low Band Edge Plot

∋1Pk Max			r	1				
20 dBm—				M	11[1]	T		53.09 dBn 50360 GH:
10 dBm—								
0 dBm	D1 3.500 dB	m			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	north	2 mart	March
-10 dBm—								
-20 dBm—	D2 -16.	500 dBm						
-30 dBm—								
-40 dBm—								
50 dBm-		0.00 (	 00	N				
-60 dBm—			 					
-70 dBm—			F	1				

Date: 1.JUN.2022 02:29:53

#### Hopping Mode High Band Edge Plot

Att 30 dB SWT	19 µs 👄 <b>VBW</b> 300 kHz	Mode Auto FFT	
1Pk Max			
20 dBm		M1[1]	-52.56 dBn 2.4852370 GH
10 dBm			
ABM D1_3.450 dBm			
-10 dBm			
20 dBm D2 -16.550 dBm			
-30 dBm			
40 dBm			
50 dBm	Marian	M1	~
60 dBm		· ·····	
70 dBm	F1-		
Start 2.4775 GHz	691 pt	s	Stop 2.4895 GHz

Date: 1.JUN.2022 02:48:35



# 3.7 Conducted Spurious Emission Measurement

# 3.7.1 Limit of Spurious Emission Measurement

In any 100 kHz bandwidth outside the intentional radiation frequency band, the radio frequency power shall be at least 20 dB below the highest level of the radiated power. In addition, radiated emissions which fall in the restricted bands must also comply with the radiated emission limits.

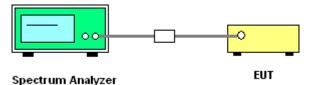
# 3.7.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

### 3.7.3 Test Procedure

- 1. The testing follows ANSI C63.10-2013 clause 7.8.8.
- 2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
- 3. Set to the maximum power setting and enable the EUT transmit continuously.
- Set RBW = 100 kHz, VBW = 300kHz, scan up through 10th harmonic. All harmonics / spurs must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW.
- 5. Measure and record the results in the test report.
- 6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

# 3.7.4 Test Setup



**Sporton International Inc. (Kunshan)** TEL : +86-512-57900158 FAX : +86-512-57900958 FCC ID: 2AGOZ-L31W



# 3.7.5 Test Result of Conducted Spurious Emission

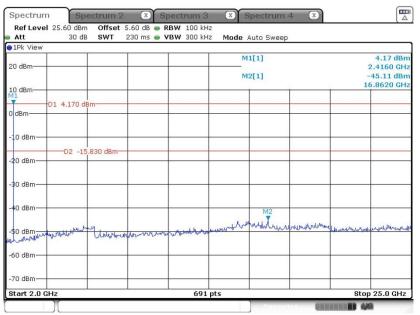
#### <1Mbps>

#### CSE Plot on Ch 00 between 30MHz ~ 3 GHz

Att 30 (	dB <b>SWT</b> 29.7 ms	🛯 👄 🛛 🖼 👄 🖉 🖉	Mode Auto Sweep	)	
1Pk View					
20 dBm			M1[1]		4.50 dBn 2.40040 GH
			M2[1]		-52.05 dBn
10 dBm					2.96780 GH
				MI	
D1 4.500	dBm				
J UBIN					
-10 dBm-					
A CONTRACT OF	15.500 dBm				
-20 dBm					
-30 dBm					
-40 dBm					_
					M
-50 dBm	the second shares	in a second second		and the second second	an in the state strategy
	- addition and a second	and the appresent a service of the s	a which any the second	John Martin Martin Mader	Marken and a second
-60 dBm-					
-70 dBm	1				

Date: 1.JUN.2022 01:29:36

#### CSE Plot on Ch 00 between 2 GHz ~ 25 GHz



Date: 1.JUN.2022 01:30:06



Ref Level	25.60 dBm 30 dB	SWT	5.60 dB 👄 H 29.7 ms 👄 V	RBW 100 kH		Auto Curon			
1Pk View	30 UB	5W1	29.7 ms 🖷 1	<b>IBW</b> 300 KH	2 Mode	Auto Sweep			
20 dBm						1[1] 2[1]			4.44 dBm 2.43910 GHz -51.02 dBm
10 dBm								M1	2.89900 GHz
) dBm	)1 4.440 dB	m							
10 dBm		560 dBm-							
20 dBm		560 dBm-							
30 dBm									
40 dBm									
	representation	unidugar brook	manual	ngheadalaire	literature	Longental and a	wantenny	multilion	M2
60 dBm									
Start 30.0 M	411-			691	nte				top 3.0 GHz

### CSE Plot on Ch 39 between 30MHz ~ 3 GHz

Date: 1.JUN.2022 01:35:01

#### CSE Plot on Ch 39 between 2 GHz ~ 25 GHz

1Pk View									
20 dBm					<u> </u>	1[1] 2[1]			4.48 dBn 2.4490 GH 44.71 dBn
LO dBm-								1;	5.7300 GH
dBm	D1 4.480 (	3Bm							
10 dBm—									
20 dBm—	D2 -1	5.520 dBm-							
30 dBm—									
40 dBm—					M	2			
50 dBm	Landor or and	hurr	mount	- Hundred	manufarmed	hammulalist	uniporte	mar all participation of the second s	whender
60 dBm—									
70 dBm—									

Date: 1.JUN.2022 01:35:41



Att	30 dB SWT	29.7 ms 🖷 🖌	' <b>BW</b> 300 kHz	Mode Auto Swee	эр		
1Pk View 20 dBm				M1[1] M2[1]		-	3.93 dBn 48210 GH: 51.44 dBn
10 dBm				1	1	1. M1	.05940 GH:
D1 3.	930 dBm					Ť	
10 dBm							
20 dBm	02 -16.070 dBm						
30 dBm							1.
40 dBm							
50 dBm	, hand all all and a	M2		multhly and a should be	بالمالية	phillip under	your
60 dBm		141	Herbert . Are and the				
70 dBm							

### CSE Plot on Ch 78 between 30MHz ~ 3 GHz

Date: 1.JUN.2022 01:40:56

#### CSE Plot on Ch 78 between 2 GHz ~ 25 GHz

Att				RBW 100 kH VBW 300 kH		Auto Sweep			
1Pk View	10.20			77					
20 dBm						1[1]			3.78 dBn 2.4830 GH 44.78 dBn
					IVE	2[1]			5.6640 GH
10 dBm M1 V 01	3,780 dBm-								
dBm									
10 dBm									
20 dBm	-D2 -16.22	0 dBm—							
30 dBm									
40 dBm					Ma	0			
50 dBm	to a manufacture of the	uluita	www.hund	Altrapation	alunation	monumber	nermanne	M. and such	mutrulan
60 dBm									
70 dBm									
Start 2.0 GHz					pts				25.0 GH

Date: 1.JUN.2022 01:42:01



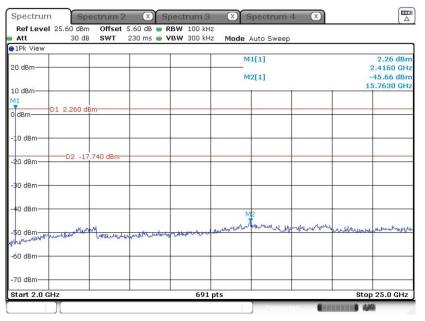
#### <2Mbps>

#### CSE Plot on Ch 00 between 30MHz ~ 3 GHz

1Pk View		~	~						
20 dBm					<u> </u>	1[1] 2[1]			2.80 dBn 40040 GH: 51.89 dBn
10 dBm								1.	09810 GH
0 dBm	D1 2.800 d	 Bm					M	1	
-10 dBm									
20 dBm	D2 -17	7.200 dBm—							
-30 dBm				-					1.
-40 dBm									
-50 dBm-	unudown	an an an and	M2	العسبيل معالم	and the second stands	ubsechanterseen	dorranderske	malerectory	ullonman
-60 dBm									

Date: 1.JUN.2022 02:11:35

#### CSE Plot on Ch 00 between 2 GHz ~ 25 GHz



Date: 1.JUN.2022 02:12:02



Att 1Pk View	30 dB SWT	29.7 IIIS 🖷	<b>VBW</b> 300 kHz	Mode Auto Sw	eeh		
20 dBm				M1[1] M2[1]			3.43 dBm 2.43910 GHz -51.89 dBm
10 dBm						M1	2.20270 GH
D1 3	.430 dBm					1	
-10 dBm							
20 dBm-	D2 -16.570 dBm						
30 dBm							
40 dBm							
50 dBm		and a large state			M2		L diate a
60 dBm	manufantinenter	and a second a	merelitetalli	harmshereduktionen	arragenter	all a show and preserves	- Contraction
-70 dBm							

### CSE Plot on Ch 39 between 30MHz ~ 3 GHz

Date: 1.JUN.2022 02:18:07

#### CSE Plot on Ch 39 between 2 GHz ~ 25 GHz

Att 1Pk View	30 dB S1	<b>∦T</b> 230 m	s 👄 VBW 300	induo i	Auto Sweep			
20 dBm					1[1] 2[1]			3.60 dBr 2.4490 GH 45.60 dBr
				M	2[1]			45.60 aBr 5.6970 GH
10 dBm 11 VD1	3.600 dBm-							
) dBm								
10 dBm								
20 dBm	-D2 -16.400	dBm						
30 dBm								
40 dBm				M	2			
50 dBm	whole the true	when when the particular	and the part	a weld have been	nonwood	Mongradanta	huruman	phonoriperraph
60 dBm								

Date: 1.JUN.2022 02:18:41



Ref Level Att	30 dB	SWT		RBW 100 kHz VBW 300 kHz	Mode Au	ito Sweep			
1Pk View	10.5			72 - 12					
20 dBm					M1[				3.02 dBn .48210 GH: -51.03 dBn
10 dBm								0.777.75	.97640 GH
0 dBm	)1 3.020 dB	m						M1	
-10 dBm									
-20 dBm	D2 -16.	980 dBm-						-	
-30 dBm									-
-40 dBm		-							
-50 dBm									N
munum	Manmalerall	double	www.www.bla	Unstate Mathematic	Mourison	un fronter	human	ulunanda	markhall
60 dBm									
70 dBm									
Start 30.0 M	4Hz			691 p	ts	6		Str	p 3.0 GHz

### CSE Plot on Ch 78 between 30MHz ~ 3 GHz

Date: 1.JUN.2022 02:24:16

#### CSE Plot on Ch 78 between 2 GHz ~ 25 GHz

Ref Level Att	30 dB	SWT		RBW 100 kH VBW 300 kH		uto Sweep			
1Pk View					- mode r	ate encep			
20 dBm						1[1] 2[1]			3.10 dBn 2.4830 GH 45.50 dBn
LO dBm								13	5.6970 GH
M1	1 3.100 de	im							
10 dBm									
20 dBm	—D2 -16	.900 dBm—							
30 dBm									
40 dBm					M				
50 dBm	-byhandback	un hallow way way	yuungung	and a stranger of the state	- www.www.upt	www.hallalaran	rnanhymithia	menning	hubbleman
60 dBm									
70 dBm									
Start 2.0 GH				691	nta			01	25.0 GH

Date: 1.JUN.2022 02:24:51