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FCC Test Report

Report No.: AGC01035180503FE03

FCC ID	C Alle	SZR-NVR-2400		
APPLICATION PURPOSE	: 1	Original Equipment		
PRODUCT DESIGNATION	tobal Complian	MDVR		
BRAND NAME	20	REI		
MODEL NAME	: 4	NVR-2400		
LIENT : Radio Engineering industries,				
DATE OF ISSUE	:	Jun. 05, 2018		
STANDARD(S) FCC Part 15.407 TEST PROCEDURE(S) KDB 789033 D02 v02r01 KDB 662911 D01 v02r01				
REPORT VERSION	·	V1.0		

Attestation of Global Compliance (Shenzhen) Co., Ltd

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REPORT REVISE RECORD

Report Version	Revise Time	Issued Date	Valid Version	Notes	
V1.0		Jun. 05, 2018	Valid	Initial Release	10 ⁸





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Radio Engineering industries, Inc
6534 L Street Omaha, NE 68117, United States of America
Radio Engineering industries, Inc
6534 L Street Omaha, NE 68117, United States of America
MDVR
REF
NVR-2400
May 28, 2018 to Jun. 04, 2018
None
Normal
Pass
AGCRT-US-BGN/RF

1. VERIFICATION OF CONFORMITY

We hereby certify that:

The above equipment was tested by Attestation of Global Compliance (Shenzhen) Co., Ltd. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with requirement of FCC Part 15 Rules requirement.

Nox 2han Tested by Max Zhang(Zhang Yi) Jun. 05, 2018 BONG Sie Reviewed by Bart Xie(Xie Xiaobin) Jun. 05, 2018 Forvesto ce Approved By Forrest Lei(Lei Yonggang) Jun. 05, 2018

2. GENERAL INFORMATION

2.1. PRODUCT DESCRIPTION

It is designed by way of utilizing the OFDM technology to achieve the system operation.

Operation Frequency	5.725 GHz~5.825GHz		
Output Power	IEEE 802.11a20: 10.54 dBm IEEE 802.11n20: 12.84 dBm IEEE 802.11n(40): 10.15 dBm IEEE 802.11ac20: 12.75 dBm IEEE 802.11ac40: 9.11 dBm IEEE 802.11ac80: 6.92 dBm		
Modulation	BPSK, QPSK, 16QAM, 64QAM, 128QAM, 256QAM,OFDM		
Number of channels	8 BONNER CONTRACTOR		
Hardware Version	SVT7.820		
Software Version	V1.0		
Antenna Designation	External antenna(Use of reverse SMA connector)		
Number of transmit chain	2(802.11a used chain 0, 802.11n20/n40/ac used two chains)		
Antenna Gain	3dBi		
Power Supply	DC 12V		

A major technical description of EUT is described as following

2.2. TABLE OF CARRIER FREQUENCYS

Frequency Band	Channel Number	Frequency
	149	5745 MHz
The the constant	151	5755 MHz
	153	5765 MHz
	155	5775 MHz
5.725 GHZ~5.850GHZ	157	5785 MHz
The state of the s	159	5795 MHz
	161	5805 MHz
	165	5825MHz

Note: For 20MHZ bandwidth system use Channel149,153,157,161,165; For 40MHZ bandwidth system use Channel 151,159; For 80MHZ bandwidth system use Channel 155.

2.3. RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID:SZR-NVR-2400** filing to comply with the FCC Part 15 requirements.



2.4. TEST METHODOLOGY

Both conducted and radiated testing was performed according to the procedures in ANSI C63.10 (2013). Radiated testing was performed at an antenna to EUT distance 3 meters.

Others testing (listed at item 5.3) was performed according to the procedures in FCC Part 15.407 rules KDB 789033

2.5. SPECIAL ACCESSORIES

Refer to section 5.2.

2.6. EQUIPMENT MODIFICATIONS

Not available for this EUT intended for grant.



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3. MEASUREMENT UNCERTAINTY

The uncertainty is calculated using the methods suggested in the "Guide to the Expression of Uncertainty in

- measurement" (GUM) published by CISPR and ANSI.
- Uncertainty of Conducted Emission, $Uc = \pm 3.2 dB$
- Uncertainty of Radiated Emission below 1GHz, Uc = ± 3.9 dB
- Uncertainty of Radiated Emission above 1GHz, Uc = ±4.8 dB



4. DESCRIPTION OF TEST MODES

Mode	Available channel	Tested	Modulation	Date rate(Mbps)
		channel		
802.11a/n20/ac20	149,153,157,161,165	149,157, 165	OFDM	6/6.5
802.11n40/ac40	151,159	151,159	OFDM	13.5
802.11ac80	155	155	OFDM	27 _ C

Note:

- 1. The EUT has been set to operate continuously on tested channel individually, and the EUT is operating at its maximum duty cycle>or equal 98%
- 2. All modes under which configure applicable have been tested and the worst mode test data recording in the test report, if no other mode data.



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5. SYSTEM TEST CONFIGURATION

5.1. CONFIGURATION OF EUT SYSTEM

Configure:

FUT	,0	.
EUT		Support

5.2. EQUIPMENT USED IN EUT SYSTEM

Item	Equipment	Model No.	ID or Specification	Remark
1	MDVR	NVR-2400	SZR-NVR-2400	EUT
2	Camera	NVR05	N/A-C	Support
3	Car battery	N/A	N/A	Support

5.3. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§15.407	6dB Bandwidth	Compliant
§15.407	Maximum conducted output power	Compliant
§15.407	Conducted Spurious Emission and Band edge Emission	Compliant
§15.407	Maximum Conducted Output Power Density	Compliant
§15.209	Radiated Emission	Compliant
§15.407	Frequency Stability	Compliant
§15.207	Line Conduction Emission	N/A

Note: The device is only used in the car, so the conducted emission is not applicable.





6. TEST FACILITY

Test Site	Attestation of Global Compliance (Shenzhen) Co., Ltd
Location	1-2F., Bldg.2, No.1-4, Chaxi Sanwei Technical Industrial Park, Gushu, Xixiang, Bao'an District B112-B113, Bldg.12, Baoan Bldg Materials Center, No.1 of Xixiang Inner Ring Road, Baoan District, Shenzhen 518012
NVLAP LAB CODE	600153-0
Designation Number	CN5028
Description	Attestation of Global Compliance(Shenzhen) Co., Ltd is accredited by National Voluntary Laboratory Accreditation program, NVLAP Code 600153-0

TEST EQUIPMENT OF RADIATED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESCI	10096	Jun.20, 2017	Jun.19, 2018
EXA Signal Analyzer	Aglient	N9010A	MY53470504	Dec.08, 2017	Dec.07, 2018
Power sensor	Aglient	U2021XA	MY54110007	Sep.21, 2017	Sep.20, 2018
Horn antenna	SCHWARZBECK	BBHA 9170	#768	Sep.20, 2017	Sep.19, 2018
preamplifier	ChengYi	EMC184045SE	980508	Sep.15, 2017	Sep.14, 2018
Active loop antenna (9K-30MHz)	A.H.	SAS-562B	N/A	Mar.01, 2018	Feb.28, 2019
Double-Ridged Waveguide Horn	ETS LINDGREN	3117	00034609	May.18, 2017	May.17, 2019
Broadband Preamplifier	SCHWARZBECK	BBV 9718	9718-205	Jun.20, 2017	Jun.19, 2018
ANTENNA	SCHWARZBECK	VULB9168	D69250	Sep.28, 2017	Sep.27, 2018

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7. MAXIMUM CONDUCTED OUTPUT POWER

7.1. MEASUREMENT PROCEDURE

For average power test:

- 1. Connect EUT RF output port to power sensor through an RF attenuator.
- 2. Connect the power sensor to the PC.
- 3. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- 4. Record the maximum power from the software.

Note : The EUT was tested according to KDB 789033 for compliance to FCC 47CFR 15.407 requirements.

7.2. TEST SET-UP

AVERAGE POWER SETUP





7.3. LIMITS AND MEASUREMENT RESULT

LIMITS AND MEASUREMENT RESULT FOR 802.11A20 MODULATION					
Frequency (MHz)	Average Power (dBm)	Applicable Limits (dBm)	Pass or Fail		
5745	10.54	30	Pass		
5785	10.38	30	Pass		
5825	10.42	30	Pass		

LIMITS AND MEASUREMENT RESULT FOR 802.11N20 MODULATION						
Frequency (MHz)	Average Power Chain 0(dBm)Average Power Chain 1(dBm)Average Power Total(dBm)Applicable Limits 					
5745	10.42	9.14	12.84	30	Pass	
5785	10.25	9.04	12.70	30	Pass	
5825	9.85	8.53	12.25	30	Pass	

S		The states	The Compliance	C The station of Globa	8 Attestation of C	
LIMITS AND MEASUREMENT RESULT FOR 802.11AC20 MODULATION						
Frequency (MHz)	Average Power Chain 0(dBm)	Average Power Chain 1(dBm)	Average Power Total(dBm)	Applicable Limits (dBm)	Pass or Fail	
5745	10.21	9.21	12.75	30	Pass	
5785	10.14	9.05	12.64	30	Pass	
5825	9.77	8.61	12.24	30	Pass	

LIMITS AND MEASUREMENT RESULT FOR 802.11N40 MODULATION						
Frequency (MHz)	cy Average Power Average Power Average Power Chain 0(dBm) Average Power Chain 1(dBm) Average Power (dBm) (dBm) Pass or Fa					
5755	7.64	6.58	10.15	30	Pass	
5795	7.04	6.02	9.57	30	Pass	

LIMITS AND MEASUREMENT RESULT FOR 802.11AC40 MODULATION					
Frequency (MHz)Average Power Chain 0(dBm)Average Power Chain 1(dBm)Average Power Total(dBm)Applicable Limits (dBm)Pass					
5755	6.85	5.18	9.11	30	Pass
5795	6.14	4.65	8.47	30	Pass

LIMITS AND MEASUREMENT RESULT FOR 802.11AC80 MODULATION					
Frequency (MHz)	Average Power Chain 0(dBm)	Average Power Chain 1(dBm)	Average Power Total(dBm)	Applicable Limits (dBm)	Pass or Fail
5775	4.25	3.54	6.92	30	Pass



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8. 6dB BANDWIDTH

8.1. MEASUREMENT PROCEDURE

- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2. Set the EUT Work on operation frequency individually.
- 3. Set RBW = 100kHz.
- 4. Set the VBW \geq 3*RBW. Detector = Peak. Trace mode = max hold.

5. Measure the maximum width of the emission that is 6 dB down from the peak of the emission.

Note: The EUT was tested according to KDB 789033 for compliance to FCC 47CFR 15.407 requirements.

8.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)





8.3. LIMITS AND MEASUREMENT RESULTS

LIMITS AI	ND MEASUREMENT RES	ULT FOR 802.11A20 MODU	JLATION	
Applicable Limits	Applicable Limits			
	Test Da	ta (MHz)	Criteria	
	5745MHz	16.37	PASS	
>500KHZ	5785MHz	16.37	PASS	
C American	5825MHz	16.33	PASS	
		Test Marine	Second and allow	

LIMITS AN	D MEASUREMENT RESU	LT FOR 802.11N20/40 MOE	DULATION
Applicable Limits		Applicable Limits	
	Test Dat	a (MHz)	Criteria
	5745MHz	17.55	PASS
The The Second	5785MHz	17.60	PASS
>500KHZ	5825MHz	17.58	PASS
NGC Fr	5755MHz	36.33	PASS
1 夜間 五花	5795MHz	36.36	PASS

LIMITS AND MEASUREMENT RESULT FOR 802.11AC20/40/80 MODULATION				
Applicable Limits		Applicable Limits		
	Test Data	(MHz)	Criteria	
CO The SO	5745MHz	17.62	PASS	
>500KHZ	5785MHz	17.67	PASS	
	5825MHz	17.64	PASS	
	5755MHz	36.34	PASS	
	5795MHz	36.39	PASS	
	5775MHz	76.38	PASS	





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802.11a20 TEST RESULT

TEST PLOT OF BANDWIDTH FOR 5745MHz



TEST PLOT OF BANDWIDTH FOR 5785MHz





TEST PLOT OF BANDWIDTH FOR 5825MHz

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802.11n20 TEST RESULT

TEST PLOT OF BANDWIDTH FOR 5745MHz





TEST PLOT OF BANDWIDTH FOR 5785MHz

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TEST PLOT OF BANDWIDTH FOR 5825MHz





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802.11n40 TEST RESULT

TEST PLOT OF BANDWIDTH FOR 5755MHz



TEST PLOT OF BANDWIDTH FOR 5795MHz





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802.11ac20 TEST RESULT TEST PLOT OF BANDWIDTH FOR 5745MHz



TEST PLOT OF BANDWIDTH FOR 5785MHz



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TEST PLOT OF BANDWIDTH FOR 5825MHz

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802.11ac40 TEST RESULT

TEST PLOT OF BANDWIDTH FOR 5755MHz





TEST PLOT OF BANDWIDTH FOR 5795MHz

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802.11ac80 TEST RESULT

TEST PLOT OF BANDWIDTH FOR 5775MHz



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9. MAXIMUM CONDUCTED OUTPUT PEAK POWER SPECTRAL DENSITY

9.1 MEASUREMENT PROCEDURE

Refer to KDB 789033 section F

9.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

Refer To Section 8.2.

9.3 MEASUREMENT EQUIPMENT USED

Refer To Section 6.



9.4 LIMITS AND MEASUREMENT RESULT

LIMITS AND MEASUREMENT RESULT FOR 802.11A20 MODULATION					
Frequency (MHz)	Power density (dBm/500kHz)	Applicable Limits (dBm)	Pass or Fail		
5745	1.633	30	Pass		
5785	-0.018	30	Pass		
5825	1.068	30	Pass		

LIMITS AND MEASUREMENT RESULT FOR 802.11N20/40 MODULATION						
Frequency (MHz)	Power density Chain 0 (dBm/500kHz)	Power density Chain 1 (dBm/500kHz)	Power density Total (dBm/500kHz)	Applicable Limits (dBm)	Pass or Fail	
5745	1.866	-0.982	3.682	30	Pass	
5785	0.495	-3.772	1.876	30	Pass	
5825	0.792	-3.964	2.045	30	Pass	
5755	-2.866	-5.383	-0.934	30	Pass	
5795	-4.554	-8.477	-3.077	30	Pass	
the prove	The Kel compliance	C The sales of Glow	C Alestador out			

	LIMITS AND MEASUREMENT RESULT FOR 802.11AC20/40/80 MODULATION										
Frequency (MHz)	Power density Chain 0 (dBm/500kHz)	Power density Chain 1 (dBm/500kHz)	Power density Total (dBm/500kHz)	Applicable Limits (dBm)	Pass or Fail						
5745	1.943	-0.446	3.921	30	Pass						
5785	1.039	-2.340	2.680	30	Pass						
5825	0.825	-2.457	2.497	30 60	Pass						
5755	-1.651	-5.249	-0.077	30	Pass						
5795	-3.494	-7.578	-2.062	30	Pass						
5775	-8.330	-10.471	-6.260	30	Pass						



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Marker 1 5.747100000000 GHz PNO: Fast IFGain:Low Peak Search Avg Type: Log-Pwi Avg|Hold:>100/100 234 Trig: Free Run Atten: 30 dB DE Next Peal 5.747 10 GHz 1.633 dBm Mkr1 10 dB/div Ref 20.00 dBm Next Pk Right ▲1 Next Pk Left Marker Delt Mkr→CF Way light Mkr→RefLvl More 1 of 2 Center 5.74500 GHz #Res BW 510 kHz Span 30.00 MHz Sweep 1.000 ms (1001 pts) #VBW 1.5 MHz STATUS

802.11a20 TEST RESULT:

TEST PLOT FOR 5745MHz

TEST PLOT FOR 5785MHz



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TEST PLOT FOR 5825MHz

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802.11n20 TEST RESULT-ant0

TEST PLOT FOR 5745MHz



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TEST PLOT FOR 5785MHz

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TEST PLOT FOR 5825MHz





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802.11n20 TEST RESULT-ant1:

TEST PLOT FOR 5745MHz

TEST PLOT FOR 5785MHz



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TEST PLOT FOR 5825MHz

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802.11n40 TEST RESULT-ant0:

TEST PLOT FOR 5755MHz









TEST PLOT FOR 5795MHz

802.11n40 TEST RESULT-ant1:

TEST PLOT FOR 5755MHz



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TEST PLOT FOR 5795MHz

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802.11ac20 TEST RESULT-ant0

TEST PLOT FOR 5745MHz



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TEST PLOT FOR 5785MHz

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TEST PLOT FOR 5825MHz



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802.11ac20 TEST RESULT-ant1: TEST PLOT FOR 5745MHz

TEST PLOT FOR 5785MHz







TEST PLOT FOR 5825MHz

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802.11ac40 TEST RESULT-ant0

TEST PLOT FOR 5755MHz









TEST PLOT FOR 5795MHz

802.11ac40 TEST RESULT-ant1:

TEST PLOT FOR 5755MHz







TEST PLOT FOR 5795MHz

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802.11ac80 TEST RESULT-ant0:

TEST PLOT FOR 5775MHz





02 L № 302 AC Marker 1 5.764009009009 GHz PN0: Fast C IFGain:Low Peak Search Avg Type: Log-Pwi Avg|Hold:>100/100 Trig: Free Run #Atten: 30 dB Next Peal 5.764 01 GHz -10.471 dBm Mkr1 10 dB/div Log Ref 20.00 dBm Next Pk Right 1 Next Pk Left mutuhetherethere white word where where Maryurla Marker Delt Mkr→CF Mkr→RefLvi More 1 of 2 Center 5.77500 GHz #Res BW 510 kHz Span 120.0 MHz Sweep 1.066 ms (1000 pts) #VBW 1.5 MHz STATUS

802.11ac80 TEST RESULT-ant1: TEST PLOT FOR 5775MHz



AGC a 字 环 检 测 Attestation of Global Compliance

10. CONDUCTED SPURIOUS EMISSION AND BAND EDGE EMISSION

10.1. MEASUREMENT PROCEDURE

- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2, Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- 3. Set SPA Trace 1 Max hold, then View.

Note: The EUT was tested according to KDB 789033 for compliance to FCC 47CFR 15.407 requirements.

10.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

The same as described in section 8.2.

10.3. MEASUREMENT EQUIPMENT USED

The same as described in section 6.

10.4. LIMITS AND MEASUREMENT RESULT

LIMITS AND MEASUREMENT RESULT									
	Measurement R	esult							
	Test channel	Criteria							
All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edgeincreasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge, and from 5 MHz above or below the band edge.	5725MHz-5850MHz	PASS							

Note:

Two transmit chains had been tested, the chain 0 was the worst case and record in the test report. The spuriou s emission at chain 0 is more than 3dB below the limits, so the MIMO results for the spurious emissions are co mply with the requirement.



FOR 802.11A20 MODULATION, ant0

TEST PLOT OF OUT OF BAND EMISSIONS FOR MODULATION IN 5745MHz

Image: Second State Sta
Minimum Processor Trig: Free Run Action 30 dB Avg(Hold:>100/100 Trig: Free Run Action 30 dB Avg(Hold:>100/100 Trig: Free Run Action 30 dB Next Peak 10 dB/div Ref 20.00 dBm -59.226 dBm Next Pk Right 10 dB/div Ref 20.00 dBm -59.226 dBm Next Pk Right 10 dB/div Ref 20.00 dBm -59.226 dBm Next Pk Right 10 dB/div Ref 20.00 dBm -59.226 dBm Next Pk Right 20 dB/div Ref 20.00 dBm -59.226 dBm Next Pk Right 20 dB/div Ref 20.00 dBm -59.226 dBm Next Pk Right 20 dB/div Ref 20.00 dBm -59.226 dBm Next Pk Right 20 dB/div Ref 20.00 dBm -59.233 ms (40000 pts) Mkr=Ref Lvi 20 dB/div Ref 20.00 dBm -59.233 ms (40000 pts) Mkr=Ref Lvi 20 dB/div Ref 20.00 dBm -59.261 minimum Avg Up - 5.387 158 928973 GHz Next Pk Right 20 dB/div Ref 20.00 dBm -59.261 minimum Avg Up - 5.387 158 GHz Next Peak 20 dB/div Ref 20.00 dBm -46.049 dBm Next Pk Right 20 dB/div Ref 20.00 dBm -46.049 dBm Next Pk Right
Income Column Mkr1 931.541 MHz -59.226 dBm Next Peak 100 dB/div Ref 20.00 dBm Start Peak Next Pk Right 100 dB/div Ref 20.00 dBm Next Pk Right Next Pk Right 100 dB/div Ref 20.00 dBm Next Pk Right Next Pk Right 100 dB/div Ref 20.00 dBm Ref 20.00 dBm Next Pk Right 100 dB/div Ref 20.00 dBm Ref 20.00 dBm Next Pk Right 100 dB/div Ref 20.00 dBm Ref 20.00 dBm Next Pk Right 200 dB/div Ref 20.00 dBm Ref 20.00 dBm Next Pk Right 201 dB/div Ref 20.00 dBm Ref 20.00 dBm Ref 20.00 dBm 100 dB/div Ref 20.00 dBm Store Infinition of the Ref 20.00 dBm Next Pk Right 100 dB/div Ref 20.00 dBm Store Infinition of the Ref 20.00 dBm Next Pk Right 100 dB/div Ref 20.00 dBm Store Infinition of the Ref 20.00 dBm Next Pk Right 100 dB/div Ref 20.00 dBm Ref 20.00 dBm Next Pk Right 100 dB/div Ref 20.00 dBm Ref 20.00 dBm Next Pk Right 100 dB/div Ref 20.00 dBm Ref 20.00 dBm Next Pk Right
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30.0 0.1 57 00 49 Minter P Extern 40.0 1 1 1 40.0 1 1 1 40.0 1 1 1 40.0 1 1 1 40.0 1 1 1 40.0 1 1 1 40.0 1 1 1 40.0 1 1 1 40.0 1 1 1 40.0 1 1 1 40.0 1 1 1 40.0 1 1 1 40.0 1 1 1 40.0 1 1 1 40.0 1 1 1 1 40.0 1 1 1 1 1 40.0 10.0 1 1 1 1 1 40.0 10.0 10.0 1 1 1 1
40.0 1 Mkr→CF 50.0 1 Mkr→CF 60.0 1 Mkr→RefLvi 70.0 1 More 85art 0.0300 GHz #VBW 300 kHz Stop 1.0000 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 93.33 ms (40000 pts) MsG Starus Peak Search MsG Starus Peak Search Marker 1 5.357158928973 GHz Frig: Free Run #Atten: 30 dB Avg]Hold>100/100 Trace 10 dB/div Ref 20.00 dBm 46.049 dBm Next Pk Right 10.0 10.0 Next Pk Right Next Pk Right
-400 Mkr→CF -600 1 -600 1 -600 1 -700 1 Start 0.0300 GHz #VBW 300 kHz Stop 1.0000 GHz 1 #Res BW 100 kHz #VBW 300 kHz Start 0.337 16 GHz 1 PR0: Fast Trig: Free Run PR0: Fast -710 PR0: Fast -710 -710 -710 <
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50.0 1 1 1 Mkr.→RefLvi 60.0 Mkr.→RefLvi Mkr.→RefLvi Mkr.→RefLvi 70.0 Mkr.→RefLvi Mkr.→RefLvi Mkr.→RefLvi 70.0 Mkr.→RefLvi Mkr.→RefLvi Mkr.→RefLvi 8 Start 0.0300 GHz #VBW 300 kHz Stop 1.0000 GHz More 8 10 dB/div Res BW 100 kHz #VBW 300 kHz Stop 93.33 ms (40000 pts) Peak Search Msc Start 0.557158928973 GHz Sense:INT ALIGN AUTO Aug Type: Log-Pwr Trace Peak Search Marker 1 5.357158928973 GHz Pro: Fast Trig: Free Run Avg Type: Log-Pwr Trace Peak Search 10 dB/div Ref 20.00 dBm Mkr1 5.357 16 GHz Next Peak 10 dB/div Ref 20.00 dBm Next Pk Right Next Pk Right
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2000 Interesting of the start of th
700 More Start 0.0300 GHz #VBW 300 kHz Stop 1.0000 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 93.33 ms (40000 pts) Msc start 0.0300 GHz #VBW 300 kHz Msc start 0.020 GHz #VBW 300 kHz Marker 1 5.357158928973 GHz Frig: Free Run Hatten: 30 dB Avg Type: Log-Pwr Avg Type: Log-P
Start 0.0300 GHz Stop 1.0000 GHz More 1 of 2 #Res BW 100 kHz #VBW 300 kHz Sweep 93.33 ms (40000 pts) 1 of 2 Msg
Start 0.0300 GHz Stop 1.0000 GHz 1 of 2 #Res BW 100 kHz #VBW 300 kHz Sweep 93.33 ms (40000 pts) 1 Msg starus Msg starus Marker 1 5.357158928973 GHz Aug Type: Log-Pwr HGain:Low Aug Type: Log-Pwr Avg Type: Log-Pwr Av
Steps 10000 Ghi2 With Spectrum Analyzer - Swept SA Steps 10000 Ghi2 Msc Status Msc Status Msc Status Msc Status Msc Status Msc Status Marker 1 5.357158928973 GHz Trig: Free Run IFGain:Low Avg Type: Log-Pwr Avg Hold:>100/100 Trig: Status Mkr1 5.357 16 GHz cog Next Peak Search 10 dB/div Ref 20.00 dBm -46.049 dBm Next Pk Right 10.0 Out Bm
MSG STATUS Keysight Spectrum Analyzer - Swept SA W L RF 50 Q AC SENSE:INT ALIGN AUTO Marker 1 5.357158928973 GHz PNO: Fast PNO: Free Run IFGain:Low #Atten: 30 dB Mkr1 5.357 16 GHz -46.049 dBm Next Pk Right Next Pk Right
Keysight Spectrum Analyzer - Swept SA RF 50 Ω AC SENSE:INT ALIGN AUTO Processor Processor Processor Avg Type: Log-Pwr Avg Hold:>100/100 Trace 12.34.50 Tree PNNNNN Det PNNNNN Peak Search Marker 1 5.357158928973 GHz IFGain:Low Trig: Free Run #Atten: 30 dB Avg Type: Log-Pwr Avg Hold:>100/100 TRACE 12.34.50 Tree PNNNNN Det PNNNNN Det PNNNNN Next Peak Peak Search 10 dB/div Ref 20.00 dBm -46.049 dBm Next Pk Right 100 0.00 0.00 -46.049 dBm Next Pk Right
Write Revisite Sense:Int ALIGN AUTO Marker 1 5.357158928973 GHz Trig: Free Run Avg Type: Log-Pwr Avg/Hold:>100/100 Trace 1 2 3 4.5 or Det Peak Search Marker 1 5.357158928973 GHz Trig: Free Run Avg Type: Log-Pwr Avg/Hold:>100/100 Trace 1 2 3 4.5 or Det Peak Search 10 dB/div Ref 20.00 dBm
Marker 1 5.357158928973 GHz Trig: Free Run Avg Type: Log-Pwr Trace [] 2.3 4 5 6 Peak Search PN0: Fast Ifgain:Low Trig: Free Run Avg/Hold:>100/100 Trig: Free Run Next Peak Search 10 dB/div Ref 20.00 dBm -46.049 dBm Next Peak Right 10 0 0.00 0.00 Next Pk Right
Indext Past #Atten: 30 dB Indext Past Indext Past Indext
Mkr1 5.357 16 GHz Next Peak 10 dB/div Ref 20.00 dBm -46.049 dBm 10 no -46.049 dBm Next Pk Right
10 dB/div Ref 20.00 dBm -40.049 dBm Next Pk Right
100 Next Pk Right
-10.0
-20.0
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-40.0
MRT→CF
-50.0 Language for the state of the s
-50.0 Language is the state of the transmission of the trans
-50.0 -50.0 -60.0 -7

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🇾 Ag	ilent Spec	trum Analyze	er - Swept SA									
<mark>LXI</mark>		RF	50 Ω DC	CORREC		SENSE:I	NT		ALIGN AUT	0		Peak Search
Mar	ker 1	39.166	8454211	PNO: Fas	st 💭 Trig	: Free Rui	n	Avg Hold:	>100/100)		
				IFGain:Lo	w #At	ten: 30 dB					DET PNNNNN	New Deels
									Μ	kr1 39.1	66 8 GHz	NextPeak
10 di	3/div	Ref 20	.00 dBm							-38	.518 dBm	
LUg												
40.0												Next Pk Right
10.0												Ŭ
0.00												
0.00												
10.0												Next Pk Left
-10.0												
3 20.0												
-20.0												Marker Delta
20.0											-27.00 dBm	
-30.0											_1	
40.0												
-40.0						يرقل .		المراجع المراجع	J #	dillation front	فلسق بعريهم فرقي وهال	Mkr→CF
50.0	ر. الأراكي وي	المراجع والمراجع	المراجع ومقروبا	New York, Jugar	u an dhudha ann	Na deve de la composition de la composi	nan in the	na an tar	and the second secon	orthe Pillips	A LAN CALL COLOR OF CALL	
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-00.0												WIKI → KCI L VI
70.0												
-70.0												Moro
												1 of 2
Star	t 5.93	GHz								Stop	40.00 GHz	1012
#Re	s BW	1.0 MH;	2	#	VBW 3.0	MHz		S	weep	58.67 ms	(40000 pts)	
MSG									STA	TUS		

TEST PLOT OF BAND EDGE EMISSION



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TEST PLOT OF OUT OF BAND EMISSIONS FOR MODULATION IN 5825MHz

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Magilent Sp	ectrum Analyzer - S	Swept SA								
LXI	RF 5	0Ω DC	CORREC	SEI	NSE:INT		ALIGN AUTO			Peak Search
Marker	1 38.77241	17435436	6 GHZ	Tria: Fre	e Run	Avg Type AvalHold:	: Log-PW >100/100	r 1RA TY	PE MWWWW	
	_		IFGain:Low	#Atten: 3	0 dB			D	ET P NNNNN	
							M	(r1 38 77	2 4 GHz	NextPeak
	P of 20.0	0 dBm						-38.6	73 dBm	
	Rei 20.0	o abiii								
10.0										Next Pk Right
0.00										
0.00										
										Next Pk Left
-10.0										
-20.0										
									-27.00 dBm	Marker Delta
-30.0										
									<u>_</u> 1	
-40.0									handle and the set	
40.0						والديرية أليتمني والا	واللارية والمراجع	والأمر فتأج ويواطعه والمتحا		Mkr→CF
ro o t u ditu	ويعط وتعاصيك ويقلي	م الألكان	and the deal property light	A DESCRIPTION OF THE OWNER OF THE		in the second	aller an aller	all a film the state of the state		
-30.0 1 #	a distriction and a state	and the second	and the second	Contraction of the local distance						
-60.0										Mkr→RefLv
-70.0									I	
										More
										1 of 2
Start 5.9	3 GHz							Stop 4	0.00 GHz	
#Res BW	1.0 MHz		#VBV	73.0 MHz		S	weep :	58.67 ms (4	10000 pts)	
MSG							STAT	rus		

TEST PLOT OF BAND EDGE EMISSION



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FOR 802.11N40 MODULATION, ant0

TEST PLOT OF OUT OF BAND EMISSIONS FOR MODULATION IN 5755MHz

Peak Search 1 720.220755519 MHz PNO: Fast IFGain:Low #Atten: 40 dB Avg Type: Log-Pwi Avg|Hold:>100/100 2345 Marker Next Peal Mkr1 720.221 MHz -48.596 dBm 10 dB/div Ref 30.00 dBm Next Pk Right Next Pk Left Marker Delt Mkr→CF 1 Mkr→RefLvl More 1 of 2 Start 0.0300 GHz #Res BW 100 kHz Stop 1.0000 GHz Sweep 93.33 ms (40000 pts) #VBW 300 kHz STATUS sight Spectrum Analyzer - Swept SA Marker 1 3.019777994450 GHz **Peak Search** Avg Type: Log-Pwi Avg|Hold:>100/100 Trig: Free Run #Atten: 40 dB PNO: Fast 😱 IFGain:Low Mkr1 3.019 78 GHz -37.024 dBm Next Peak Ref 30.00 dBm 10 dB/div Next Pk Right Next Pk Left Marker Delta ø Mkr→CF Mkr→RefLv More 1 of 2 Start 1.000 GHz #Res BW 1.0 MHz Stop 5.650 GHz Sweep 8.000 ms (40000 pts) #VBW 3.0 MHz

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🇾 Agilent Sp	ectrum Analyzer - S	wept SA								
LXI	RF 50		CORREC	SEN	ISE:INT		ALIGN AUTO	TRAC		Peak Search
Marker	1 36.76449	/86244/	PNO: Fast	Trig: Free	Run		:>100/100	TYP	E MWWWW	
			IFGain:Low	#Atten: 3	0 dB			Di	PNNNNN	
							Mkr	1 36.76	4 5 GHz	NextPeak
10 dB/div	Ref 20.00	0 dBm						-38.6	65 dBm	
										Next Pk Pigh
10.0										NEALEKKIGH
0.00										
										Next Pk Lef
-10.0										
-20.0										
									-27.00 dBm	Marker Delta
-30.0										
									↓ 1	
-40.0								later and the second second	ant the design	Mkr. CF
		11.0.0		and the state	a little and phile	Contraction of the second	and the state of the		and a strength of the second	
-50.0	<mark>h Karish kati kati ka</mark> ti ka	h dhi ya di shin		أفظله وألمانا والأر	an an <mark>tan kana</mark> kana kana kana kana kana kana k	and the second secon	أكاكا وبالمتحد والمتحد	Mandh.		
A AN	a desident and the second s	A MARINA PARTY								
-60.0										Mkr→RefLv
-70.0										
										More
								-		1 of 2
Start 5.9			#\/P\A	20 MH-			woon 50	Stop 4	0.00 GHz	
#Res DV			#VDV	JUNIMI		3	weep 58.	07 MIS (4	oooo pisj	
MSG		_					STATUS			

TEST PLOT OF BAND EDGE EMISSION



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TEST PLOT OF OUT OF BAND EMISSIONS FOR MODULATION IN 5795MHz

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PF S0 Q DC CORREC SENSE MT Aug Type: Log-Pwr Avg Type: Log-Pwr AvgIHold:>100/Pwr Peak Search Marker 1 36.690382884572 CHz IFGaint.low Trig: Free Run #Atten: 30 dB Avg Type: Log-Pwr AvgIHold:>100/Pwr Trace 12.34.57 Peak Search 100 Image: Sense Run IFGaint.low Mikr 1 36.690 4 GHz -39.398 dBm Next Pe Run -39.398 dBm Next Pe Run Run -39.398 dBm 100 Image: Sense Run IFGaint.low Image: Sense Run Aug Image: Sense Run Aug Image: Sense Run Aug Image: Sense Run Aug Image: Sense Run Run - 39.398 dBm Next Pe Run Run - 39.398 dBm Next Pe Run Image: Sense Run Run - 39.398 dBm 100 Image: Sense Run Image: Sense Run Run - 39.398 dBm Image: Sense Run Run - 39.398 dBm Next Pk Right 100 Image: Sense Run Run - 39.398 dBm Image: Sense Run Run - 39.398 dBm Image: Sense Run Run - 39.398 dBm Next Pk Right 100 Image: Sense Run - 30.0 mm Image: Senserun - 30.0 mm	鱦 Agilent Sp	ectrum Analyzer - Sw	/ept SA								- 7 ×
Marker 1 36.6903828845/2 GH2 Production Production Avg Type: Log Production Marker 2000 Next Peak 100 Image: Start 5.93 GHz	X	RF 50	Ω DC C	CORREC	SEN	ISE:INT	A	ALIGN AUTO	TRA		Peak Search
If Galin.Low #Atten: 30 dB Image: Comparison of the second s	Marker	1 36.690382	2884572	GHZ	Trig: Free	Run	Avg Type Avg Hold:	:: Log-Pwr :>100/100	TY	PE MWWWW	
Mkr1 36.690 4 GHz Next Peak 10 dB/div Ref 20.00 dBm -39.393 dBm Next Peak 10 dB/div Ref 20.00 dBm Next Pk Right Next Pk Right 10 dB/div Ref 20.00 dBm Next Pk Right Next Pk Right 10 dB/div Ref 20.00 dBm Next Pk Right Next Pk Right 10 dB/div Ref 20.00 dBm Ref 20.00 dBm Next Pk Right 10 dB/div Ref 20.00 dBm Ref 20.00 dBm Next Pk Right 10 dB/div Ref 20.00 dBm Ref 20.00 dBm Next Pk Right 10 dB/div Ref 20.00 dBm Ref 20.00 dBm Next Pk Right 10 dB/div Ref 20.00 dBm Ref 20.00 dBm Next Pk Right 200 dB/div Ref 20.00 dBm Ref 20.00 dBm Mkr-Aff 400 dB/div Ref 20.00 dBm Ref 20.00 dBm Mkr-Aff 400 dB/div Ref 20.00 dBm Ref 20.00 dBm Ref 20.00 dBm 400 dB/div Ref 20.00 dBm Ref 20.00 dBm Ref 20.00 dBm 400 dB/div Ref 20.00 dBm Ref 20.00 dBm Ref 20.00 dBm 400 dB/di				IFGain:Low	#Atten: 3	0 dB			D	T P NNNNN	
100								Mk	r1 36.69	0 4 GHz	NextPeak
Log 100 100 100 100 100 100 100 10	10 dB/div	Ref 20.00	dBm						-39.3	98 dBm	
100 Image: Constraint of the second of t											
100 Next Pk Rgn 000 Next Pk Rgn 000 Next Pk Left 100 Next Pk Left 101 Next Pk Left											Next Dk Disk
0.00	10.0										Next PK Righ
0.00 Image: Construction of the construc											
1000 Image: Construction of the construc	0.00										
-10.0 -10.0 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>Next Pk Lef</td></td<>											Next Pk Lef
-20.0 -2	-10.0										
-20.0											
30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 1 1 Marker Delta 40.0 40.0 40.0 40.0 40.0 40.0 1 1 MkrCF 50.0 50	-20.0										
-30.0 -30.0 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>-27.00 dBm</td><td>Marker Delta</td></td<>										-27.00 dBm	Marker Delta
-40.0 1 1 Mkr->CF -50.0 -50.0 -50.0 -50.0 Mkr->CF Mkr->CF -60.0 -50.0 -50.0 -50.0 Mkr->CF Mkr->CF -60.0 -50.0 -50.0 -50.0 Mkr->CF Mkr->CF -60.0 -50.0 -	-30.0										
-40.0 -5										1	
Store distribution of the second s	-40 0										
-50.0 -5						البلاد بيرانيني	المريب المتقاد الأربية	المعادر ومطالب	in the second second	nte dita dinana	Mkr→CF
Start 5.93 GHz Stop 40.00 GHz Mkr→Ref Lv #Res BW 1.0 MHz #VBW 3.0 MHz Start 5.87 ms (40000 pts) More	-so o <mark>thatki</mark>	lifter Hills of the second	A second second second	abela paliter all a	dina the dependence.	الديعتين وريته بتأملني ور	والاردى أور ألار بالأسرا	(Maria and a state	and the second		
-60.0 Mkr→RefLv -70.0 Mkr→RefLv -70.0 Mkr→RefLv -70.0 Stop 40.00 GHz Start 5.93 GHz Stop 40.00 GHz #Res BW 1.0 MHz #VBW 3.0 MHz Startus Startus	ALC: No. O		all and the second second	AND DESCRIPTION OF THE OWNER	م الله بالتي وزيار حالقتي الله بالتي وزيار حالقتي						
Start 5.93 GHz Stop 40.00 GHz Mini - Xel Lv #Res BW 1.0 MHz #VBW 3.0 MHz Sweep 58.67 ms (40000 pts) 1 of 2	60.0										Mkr Dofl v
-70.0 More Stop 40.00 GHz Stop 40.00 GHz 1 of 2 more stop 58.67 ms (40000 pts) msg	-00.0										MIKI - Kel LV
Stop 40.00 GHz Start 5.93 GHz #Res BW 1.0 MHz #VBW 3.0 MHz Sweep 58.67 ms (40000 pts)	70.0										
Start 5.93 GHz #Res BW 1.0 MHz #VBW 3.0 MHz Sweep 58.67 ms (40000 pts)	-70.0										
Start 5.93 GHz Stop 40.00 GHz 1 of 2 #Res BW 1.0 MHz #VBW 3.0 MHz Sweep 58.67 ms (40000 pts) 1											More
#Res BW 1.0 MHz #VBW 3.0 MHz Sweep 58.67 ms (40000 pts)	Start 5.9	3 GHz							Stop 4	0.00 GHz	1 of 2
MSG STATUS	#Res BW	1.0 MHz		#VBW	3.0 MHz		S	weep 5	i8.67 ms (4	0000 pts)	
	MSG							STAT	US		

TEST PLOT OF BAND EDGE EMISSION



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FOR 802.11AC80 MODULATION, ant0

TEST PLOT OF OUT OF BAND EMISSIONS FOR MODULATION IN 5775MHz



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🇾 Ag	jilent Spectr	rum Analyzer	- Swept SA								
L <mark>XI</mark>		RF	50 Ω DC	CORREC	S	ENSE:INT	A	ALIGN AUTO			Peak Search
Mar	ker 1	37.5124	1628115	0/0 GHz	🔿 Tria: Fr	ee Run	Avg Type Avg/Hold	: Log-Pwr :>100/100	TYP	= 1 2 3 4 5 6 E M WWWW	- our oou on
				IFGain:Low	#Atten:	30 dB			DE	PNNNN	
								Mkr'	1 37 512	2.5 GHz	Next Peak
10 di	Pldiv	Def 20	00 dBm						-38.78	35 dBm	
Log		Kei 20.									
10.0											Next Pk Right
0.00											
0.00											
40.0											Next Pk Left
-10.0											
-20.0											Maulson Dalta
										-27.00 dBm	MarkerDella
-30.0	<u> </u>										
										▲1	
-40.0	<u> </u>								LOLL HILLS	ant man habing	Mkr CE
					فيدينهم بلوابيهم الدوان	الأربق الاراد الأوسطي	فالباريل أسروا رواك	allow, etc. (Margalited	and a second	Na Andrea Maral and a	IVIKI→CF
-50.0	Autor	a dhi kilon hit	ablenel j. eff	Alfaligibit das badal	a and a state of the second state of the secon		للترصغ بالرريط مراأله	a dina se	ind a second		
	de altarati	and a property of	and the second second	and the second second second							
-eu u											Mkr⊸Refi vi
00.0											
70.0											
-70.0											_
											More
Star	t 5.93 (GHz							Stop 4	0.00 GHz	1 of 2
#Re	s BW 1	.0 MHz		#V	BW 3.0 MH	z	S	weep 58	.67 ms (4	0000 pts)	
MSG								STATUS			
Mod								514105			

TEST PLOT OF BAND EDGE EMISSION



Note: All the 20MHz, 40MHz and 80MHz bandwidth modulation had been tested, the 802.11a20/n40/ac80 ant0 was the worst case and record in his test report.



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11. RADIATED EMISSION

11.1. MEASUREMENT PROCEDURE

- 1. The EUT was placed on the top of the turntable 0.8 or 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
- 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 RBW and 3M VBW for peak reading. Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
- 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 values.
- 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.



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11.2. TEST SETUP

Radiated Emission Test-Setup Frequency Below 30MHz



Spectrum Analyzer / Re

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11.3. LIMITS AND MEASUREMENT RESULT

15.209(a) Limit in the below table 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			

Note: All modes were tested For restricted band radiated emission,

the test records reported below are the worst result compared to other modes.

11.4. TEST RESULT

RADIATED EMISSION BELOW 30MHZ

No emission found between lowest internal used/generated frequencies to 30MHz.





EUT	MDVR	Model Name	NVR-2400
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n20 5745MHz,MIMO	Antenna	Horizontal

RADIATED EMISSION BELOW 1GHZ



Frequency MHz	Polarization	Reading dB(uV)	Factor dB (1/m)	Level dB(uV/m) PK	Limit dB(uV/m) QP	Margin dB	Pass/Fail	Height cm	Angle deg
68.800	H	17.7	14.8	32.5	40.0	7.5	Pass	100.0	289.2
110.995	Н	17.5	14.6	32.1	43.5	11.4	Pass	200.0	139.7
259.890	B H Thomas	15.9	15.9	31.8	46.0	14.2	Pass	150.0	288.2
482.505	Н	14.0	22.6	36.6	46.0	9.4	Pass	200.0	104.7
519.850	н	8.4	23.2	31.6	46.0	14.4	Pass	200.0	33.3
997.090	🥬 Н	6.4	31.1	37.5	54.0	16.5	Pass	150.0	71.9

RESULT: PASS

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140 ²		CO.	
EUT	MDVR	Model Name	NVR-2400
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n20 5745MHz,MIMO	Antenna	Vertical



Frequency MHz	Polarization	Reading dB(uV)	Factor dB (1/m)	Level dB(uV/m) PK	Limit dB(uV/m) QP	Margin dB	Pass/Fail	Height cm	Angle deg
62.010		8.5	16.0	24.5	40.0	15.5	Pass	100.0	252.6
110.995	V	13.2	14.6	27.8	43.5	15.7	Pass	150.0	178.3
222.545	V	14.1	15.0	29.1	46.0	16.9	Pass	200.0	237.5
250.190	V Thomas	18.3	16.1	34.4	46.0	11.6	Pass	150.0	358.3
371.440	V	13.1	19.7	32.8	46.0	13.2	Pass	150.0	71.9
408.300	V	10.6	21.1	31.7	46.0	14.3	Pass	200.0	93.4

RESULT: PASS

- Note: All test channels had been tested. The 802.11n20 at 5745MHz is the worst case and recorded in the test report.
 - Factor = Antenna Factor + Cable loss Amplifier gain, Margin= Limit-Level.
 - The "Factor" value can be calculated automatically by software of measurement system.



RADIATED EMISSION ABOVE 1GHZ

EUT	MDVR	Model Name	NVR-2400
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n20 5745MHz,MIMO	Antenna	Horizontal/Vertical

RADIATED EMISSION ABOVE 1GHZ-Horizontal

- ACIV						1.45
Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
11490.120	42.72	9.42	52.14	74	-22.18	peak
11490.120	36.84	9.42	46.26	54	-7.9	AVG
17235.180	39.72	10.51	50.23	74	-24.65	peak
17235.180	34.54	10.51	45.05	54	-9.36	AVG
Remark:	Alleston	C Au			10-	- Till
Factor = Ante	enna Factor + Ca	ble Loss – F	Pre-amplifier.		the mance	The Talmatione

RADIATED EMISSION ABOVE 1GHZ–Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value rype
11490.120	41.77	9.42	51.19	74	-22.88	peak 🔬
11490.120	35.45	9.42	44.87	54	-9.09	AVG
17235.180	38.51	10.51	49.02	74	-24.93	peak
17235.180	33.83	10.51	44.34	54	-9.64	AVG
Remark:	F di Global Cu	Allesto				
Factor = Ante	enna Factor + C	able Loss –	Pre-amplifier.			



A HOST			
EUT	MDVR	Model Name	NVR-2400
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n20 5785MHz,MIMO	Antenna	Horizontal/Vertical

RADIATED EMISSION ABOVE 1GHZ-Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value rype
17570.120	42.75	9.42	52.17	74	-21.75	peak 🛛 🖉
17570.120	37.18	9.42	46.6	54	-7.47	AVG
26355.180	39.22	10.51	49.73	74	-24.22	peak
26355.180	34.51	10.51	45.02	54	-8.93	AVG
Remark:	Attestation	- Ca Meen				107
Factor = Ante	enna Factor + C	able Loss – F	re-amplifier.		A Stande	The the molecule

RADIATED EMISSION ABOVE 1GHZ-Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
17570.120	42.21	9.42	51.63	74	-22.45	peak 🔬
17570.120	35.84	9.42		54	-8.66	AVG
26355.180	38.91	10.51	49.42	74	-24.5	peak
26355.180	34.22	10.51	44.73	54	-9.21	AVG
Remark:	Clobal Com	Attestation	Attes			
Castar - Ant	anna Fastar I Ca		Dra analifian			In

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

The results showed this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed of this fully way and the sample confirmed of this fully way and the sample confirmed of the sample confirme



A HOST			
EUT	MDVR	Model Name	NVR-2400
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n20 5825MHz,MIMO	Antenna	Horizontal/Vertical

RADIATED EMISSION ABOVE 1GHZ-Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
11650.120	40.81	9.62	50.43	74	-24.03	peak 🔍
11650.120	35.34	9.62	44.96	54	-9.37	AVG
17475.180	38.74	10.75	49.49	74	-24.36	peak
17475.180	34.52	10.75	45.27	54	-9.13	AVG
Remark:	Allestation	Allesu	2			107
Factor = Ante	enna Factor + C	able Loss – I	Pre-amplifier.		121 -1123	The the molitance

RADIATED EMISSION ABOVE 1GHZ–Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
11650.120	40.34	9.62	49.96	74	-24.11	peak 🔬
11650.120	34.67	9.62	44.29	54	-9.63	AVG
17475.180	38.42	10.75	49.17	74	-25.24	peak
17475.180	33.39	10.75	44.14	54	-9.71	AVG
Remark:	Clobal Com	Atlestatio	A C AMON			
Factor = Ante	enna Factor + Ca	able Loss –	Pre-amplifier.			100

Note: All the case had been tested. The 802.11n modulation is the worst case and recorded in the test report. Other frequencies radiation emission from 1GHz to 40GHz at least have 20dB margin and not recorded in the test report.

Factor = Antenna Factor + Cable loss - Amplifier gain, Margin= Limit-Level.

The "Factor" value can be calculated automatically by software of measurement system.



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12. FREQUENCY STABILITY

12.1. MEASUREMENT PROCEDURE

- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2. Set the EUT Work on the operation frequency.
- 3. Set SPA Centre Frequency = Operation Frequency. SPAN=enough to measure the emission is maintained within the band
- 4. Set SPA Trace 1 Max hold, then View.
- 5. Extreme temperature rule is -20°C~60°C.

12.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)





12.3. MEASUREMENT RESULTS

Test Mode	Temperature	Measurement Frequency (MHz)	Result	Conclusion
plance	- 10℃	5745	within the band	PASS
Con Folgobal Con	0°C	5745	within the band	PASS
Allestation	10 °C	5745	within the band	PASS
	20 ℃	5745	within the band	PASS
	30 °C	5745	within the band	PASS
The Thomas Compilian	40 ℃	5745	within the band	PASS
tation of G	50 ℃	5745	within the band	PASS
C Mar	- 10℃	5785	within the band	PASS
	0° C	5785	within the band	PASS
The the second	10 ℃	5785	within the band	PASS
802.11a	20 ℃	5785	within the band	PASS
Allestalle	30 ℃	5785	within the band	PASS
	40 ℃	5785	within the band	PASS
	50 ℃	5785	within the band	PASS
	- 10°C	5825	within the band	PASS
ance The Complete	0°C	5825	within the band	PASS
C The store of Globa	10 °C	5825	within the band	PASS
C Allest	20 °C	5825	within the band	PASS
2	30 ℃	5825	within the band	PASS
ALL THE	40 ℃	5825	within the band	PASS
The Compliance	50 ℃	5825	within the band	PASS



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Test Mode	Temperature	Measurement Frequency (MHz)	Result	Conclusion
allance 193	- 10℃	5745	within the band	PASS
F Goba Comp	O°C	5745	within the band	PASS
C Attestation o	10 °C	5745	within the band	PASS
	20 ℃	5745	within the band	PASS
in the second se	30 ℃	5745	within the band	PASS
The Compliance	40 ℃	5745	within the band	PASS
Hallon of Clour	50 ℃	5745	within the band	PASS
C Printer	- 10℃	5785	within the band	PASS
NO I	0° C	5785	within the band	PASS
	10 ℃	5785	within the band	PASS
802.11n20	20 ℃	5785	within the band	PASS
Allestation	30 ℃	5785	within the band	PASS
	40 ℃	5785	within the band	PASS
	50 ℃	5785	within the band	PASS
	- 10℃	5825	within the band	PASS
THE THE	0°C	5825	within the band	PASS
(R) F OD GODALCC	10 ℃	5825	within the band	PASS
Autosauto	20 ℃	5825	within the band	PASS
30	30 ℃	5825	within the band	PASS
	40 ℃	5825	within the band	PASS
The Compliance	50 °C	5825	within the band	PASS

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Test Mode	Temperature	Measurement Frequency (MHz)	Result	Conclusion
802.11n40	− 10 °C	5755	within the band	PASS
	0°C	5755	within the band	PASS
	10 ℃	5755	within the band	PASS
	20 °C	5755	within the band	PASS
	30 ℃	5755	within the band	PASS
	40 °C	5755	within the band	PASS
	50 ℃	5755	within the band	PASS
	- 10℃	5795	within the band	PASS
	0°C	5795	within the band	PASS
A The Market Bark	10 ℃	5795	within the band	PASS
	20 °C	5795	within the band	PASS
	30 °C	5795	within the band	PASS
	40 °C	5795	within the band	PASS
	50 ℃	5795	within the band	PASS

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Test Mode	Temperature	Measurement Frequency (MHz)	Result	Conclusion
olance 15 mine	- 10 ℃	5745	within the band	PASS
Global Compart	O°C	5745	within the band	PASS
C Attestation o	10 °C	5745	within the band	PASS
0	20 ℃	5745	within the band	PASS
in the	30 ℃	5745	within the band	PASS
The Compliance	40 ℃	5745	within the band	PASS
Hallon of Clour	50 ℃	5745	within the band	PASS
GC	- 10℃	5785	within the band	PASS
	0 °C	5785	within the band	PASS
	10 ℃	5785	within the band	PASS
802.11ac20	20 °C	5785	within the band	PASS
	30 °C	5785	within the band	PASS
	40 ℃	5785	within the band	PASS
SC The state of th	50 ℃	5785	within the band	PASS
	- 10℃	5825	within the band	PASS
	0°C	5825	within the band	PASS
	10 ℃	5825	within the band	PASS
	20 °C	5825	within the band	PASS
	30 ℃	5825	within the band	PASS
	40 ℃	5825	within the band	PASS
The compliance	50 ℃	5825	within the band	PASS

鑫 宇 环 检 测 Attestation of Global Compliance

Test Mode	Temperature	Measurement Frequency (MHz)	Result	Conclusion
802.11ac40	° - 10℃	5755	within the band	PASS
	0 °C	5755	within the band	PASS
	10 ℃	5755	within the band	PASS
	20 °C	5755	within the band	PASS
	30 ℃	5755	within the band	PASS
	40 °C	5755	within the band	PASS
	50 ℃	5755	within the band	PASS
	- 10℃	5795	within the band	PASS
	0 °C	5795	within the band	PASS
A CC	10 ℃	5795	within the band	PASS
	20 ℃	5795	within the band	PASS
	30 ℃	5795	within the band	PASS
	40 °C	5795	within the band	PASS
	50 ℃	5795	within the band	PASS





Test Mode	Temperature	Measurement Frequency (MHz)	Result	Conclusion
plance Marce	- 10℃	5775	within the band	PASS
F Goba Com	0 °C	5775	within the band	PASS
C Attestation o	10 ℃	5775	within the band	PASS
802.11ac80	20 ℃	5775	within the band	PASS
in the	30 ℃	5775	within the band	PASS
- The Relations	40 ℃	5775	within the band	PASS
Hatton of Glow C A store	50 ℃	5775	within the band	PASS





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APPENDIX A: PHOTOGRAPHS OF TEST SETUP FCC RADIATED EMISSION TEST SETUP BELOW 1GHZ

FCC RADIATED EMISSION TEST SETUP ABOVE 1GHZ



----END OF REPORT----

