## 802.11n 速度故障排除

## 目录

<u>简介</u> <u>先决条件</u> <u>要求</u> 使用的组件 <u>规则</u> <u>背景信息</u> <u>11n 速度的控制器故障排除</u> <u>如何通过 iPerf 计算吞吐量</u> <u>在 Beacon 中宣布的功能</u> <u>相关信息</u>

## <u>简介</u>

本文档介绍在解决无线吞吐量问题时应考虑的常见问题。本文档包括用于测量无线网络的性能和吞 吐量的工具的用法,其中包括不同的供应商 802.11n 接入点 (AP) 与 Cisco 1252 AP 在类似测试条 件下的比较。

## <u>先决条件</u>

#### <u>要求</u>

Cisco 建议您具有以下要求:

- iPerf 之类的工具以及 OmniPeek 和 Cisco 频谱分析之类的网络分析器
- 802.11n 支持的 1140、1250、3500 和 1260 系列 AP

#### <u>使用的组件</u>

本文档中的信息基于以下软件和硬件版本:

- •运行软件版本 6.0.182 的 WS-SVC-WiSM 控制器
- AIR-LAP1142-A-K9 AP

#### <u>规则</u>

有关文档规则的详细信息,请参阅 <u>Cisco 技术提示规则。</u>

## <u>背景信息</u>

802.11n 因对 AP 帧聚合进行的大量更改而产生: A-MPDU 和 A-MSDU。

- 块确认大小
- MCS 和信道接合
- MIMO
- 使用 5 GHz 代替 2.4 GHz : 还提到 Wi-Fi 确认 5 GHz 上的信道接合

### 11n 速度的控制器故障排除

请完成以下步骤:

1.	验证是否在控制器上启用了 802.11n 支持。
	(WiSM-slot3-2) >show 802.11a
	802.11a Network Enabled
	11nSupport Enabled
	802.11a Low Band Enabled
	802.11a Mid Band Enabled
	802.11a High Band Enabled
	802.11a Operational Rates
	802.11a 6M Rate
	802.11a 9M Rate
	802.11a 12M Rate
	802.11a 18M Rate Supported
	802.11a 24M Rate Mandatory
	802.11a 36M Rate Supported
	802.11a 48M Rate Supported
	802.11a 54M Rate Supported
	802.11n MCS Settings:
	MCS 0 Supported
	MCS 1 Supported
	MCS 2 Supported
	MCS 3 Supported
	MCS 4 Supported
	MCS 5 Supported
2.	_以两种方式获得 N 速率。可以获得高达调制编码方案 (MCS) 7 的速度,而无需使用信道接合
	。对于高于 7 一直到 15 的 MCS 速率,需要启用信道接合。可以在控制器上使用以下 show
	命令来验证是否启用了信道接合:
	(WiSM-slot3-2) >show advanced 802.11a channel
	Automatic Channel Assignment
	Channel Assignment Mode AUTO
	Channel Update Interval
	Anchor time (Hour of the day) 0
	Channel Update Contribution SNI.
	Channel Assignment Leader
	Last Run 371 seconds ago
	DCA Sensitivity Level STARTUP (5 dB)
	DCA 802.11n Channel Width 40 MHz
	Channel Energy Levels
	Minimum unknown
	Average unknown
	Maximumunknown
	Channel Dwell Times
	Minimumunknown
	Averageunknown
	Maximumunknown
	802.11a 5 GHz Auto-RF Channel List
	Allowed Channel List
	36,40,44,48,52,56,60,64,149,

153,157,161 Unused Channel List..... 100,104,108,112,116,132,136,

#### 3. 还可以使用以下命令来配置每个 AP 的信道宽度: (WiSM-slot2-2) > config 802.11a disable AP0022.9090.8e97

(WiSM-Slot2-2) >config 802.11a disable AP0022.9090.8e97 40 (WiSM-slot2-2) >config 802.11a chan\_width AP0022.9090.8e97 40 Set 802.11a channel width to 40 on AP AP0022.9090.8e97

## 4. 防护间隔和对应的 MCS 速率可帮助确定 802.11n 客户端上的数据速率。以下是用于验证此配置的命令:

(WiSM-slot3-2) >show 802.11a
802.11a Network Enabled
11nSupport Enabled
802.11a Low Band Enabled
802.11a Mid Band Enabled
802.11a High Band Enabled
802.11a Operational Rates
802.11a 6M Rate Mandatory
802.11a 9M Rate
802.11a 12M Rate
802.11a 18M Rate
802 11a 24M Rate Mandatory
802 11a 36M Rate Supported
802 11a 48M Rate Supported
802 11a 54M Rate Supported
802 11n MCS Settings.
MCS 0 Supported
MCS 1 Supported
MCG 2 Supported
MCG 3 Supported
MCS A Supported
MCG E Gupported
MCS 6
MCS 7
MCG 9 Gurported
MCS 0 Supported
MCS 9 Supported
MCS 10 Supported
MCS 11 Supported
MCS 12 Supported
MCS 13 Supported
MCS 14 Supported
MCS 15 Supported
802.11n Status:
A-MPDU 1X:
Priority U Enabled
Priority I Disabled
Priority 2 Disabled
Priority 3 Disabled
Priority 4 Disabled
Priority 5 Disabled
Priority 6 Disabled
Priority 7 Disabled
Beacon Interval 100
CF Pollable mandatory Disabled
CF Pollable mandatory Disabled CF Poll Request mandatory Disabled
CF Pollable mandatory Disabled CF Poll Request mandatory Disabled More or (q)uit
CF Pollable mandatory Disabled CF Poll Request mandatory Disabled More or (q)uit CFP Period
CF Pollable mandatory Disabled CF Poll Request mandatory Disabled More or (q)uit CFP Period 4 CFP Maximum Duration 60
CF Pollable mandatory Disabled CF Poll Request mandatory Disabled More or (q)uit CFP Period
CF Pollable mandatory Disabled CF Poll Request mandatory Disabled More or (q)uit CFP Period
CF Pollable mandatory Disabled CF Poll Request mandatory Disabled More or (q)uit CFP Period
CF Pollable mandatory Disabled CF Poll Request mandatory Disabled More or (q)uit CFP Period
CF Pollable mandatory Disabled CF Poll Request mandatory Disabled More or (q)uit CFP Period

TI Threshold......-50 Traffic Stream Metrics Status..... Disabled Expedited BW Request Status..... Disabled World Mode..... Enabled EDCA profile type..... default-wmm Voice MAC optimization status..... Disabled Call Admission Control (CAC) configuration Voice AC - Admission control (ACM)..... Enabled Voice max RF bandwidth..... 75 Voice reserved roaming bandwidth..... 6 Voice load-based CAC mode..... Enabled Voice tspec inactivity timeout..... Disabled Video AC - Admission control (ACM)..... Disabled Voice Stream-Size..... 84000 Voice Max-Streams..... 2 Video max RF bandwidth..... Infinite Video reserved roaming bandwidth..... 0

确保 A-MPDU 数据包聚合。为尽力工作,通过以下命令启用 QoS 级别:config 802.11a 11nSupport a-mpdu tx priority 0 enableconfig 802.11b 11nSupport a-mpdu tx priority 0 enable

- 5. 必须使用 A 无线电上的所有三个天线。确保天线是同一个型号。
- 6. 在为客户端连接配置的 WLAN 上,应该允许或需要 WMM,并且必须只使用 AES 或开放加密。这可以使用以下命令输出进行验证:

802.1X.....Disabled Wi-Fi Protected Access (WPA/WPA2)..... Enabled WPA (SSN IE)..... Disabled WPA2 (RSN IE)..... Enabled TKIP Cipher..... Disabled AES Cipher..... Enabled Auth Key Management 802.1x.... Enabled PSK Disabled CCKM..... Disabled FT(802.11r)..... Disabled FT-PSK(802.11r).... Disabled FT Reassociation Timeout..... 20 FT Over-The-Air mode..... Enabled FT Over-The-Ds mode..... Enabled CKIP ..... Disabled IP Security..... Disabled IP Security Passthru..... Disabled Web Based Authentication..... Disabled Web-Passthrough..... Disabled Conditional Web Redirect..... Disabled Splash-Page Web Redirect..... Disabled Auto Anchor..... Disabled H-REAP Local Switching..... Enabled H-REAP Learn IP Address..... Enabled Infrastructure MFP protection..... Enabled (Global Infrastructure MFP Disabled) Client MFP..... Optional Tkip MIC Countermeasure Hold-down Timer..... 60 Call Snooping..... Disabled Band Select..... Enabled Load Balancing..... Enabled

 7. 天线多样性:如果因任何原因只使用两个天线,则您需要对发射器/接收器端口使用天线 A 和 B。

#### 在客户端上:

- 1. 用于控制无线卡的请求方,最好使请求方的供应商与无线卡相匹配。
- 2. 客户端驱动程序:您需要确保无线卡上运行了最新的客户端驱动程序。
- 3. 联系您的无线适配器供应商。
- 4. 确保您使用 11n 认证适配器来实现 11n 数据速率。

#### Wi-Fi 认证产品:

http://www.wi-fi.org/certified\_products.php

#### 如何提高性能:

- 信道利用率 网络分析器以发射和接收帧所花的时间百分比形式来报告信道利用率。这帮助 测量因与接入点的距离而可能发生的速度变化。这将帮助监控并了解(例如)如果信道被完全 占用,则在理想条件下以 1Mbps 进行的传输将在 100% 利用率下以 0.94Mbps 执行。
- 无线中使用的物理媒介也指示性能。使用 802.11g 或 802.11a 代替 802.11b 可提供更高吞吐 量,通常比 802.11b 高 30 mbps,其中 6mpbs 无线电容量分配在所有相关工作站之间。
- 信元大小 建议缩小信元大小以让客户端尽可能接近 AP。这将有益于客户端连接到 AP 的数据速率。可通过将 AP 上的功率电平降低到最低来实现此目的。
- 缩小信元大小还会降低同信道干扰。如果使用 RRM,则 AP 应该动态地为每个部署选取信道 。不过,如果实现动态信道分配,请确保同一信道上没有相互靠近的两个高功率电平的 AP。

5. 保护也会影响吞吐量。

#### 如何通过 iPerf 计算吞吐量

<u>Iperf 设置提示</u>

对于未拥有 Chariot 的那些客户或测试人员,可以改用 lperf。可从 <u>http://www.macalester.edu/crash/software/pc/iperf/kperf\_setup.exe</u> 获取它。

#### <u>测量 TCP 吞吐量</u>

在服务器端上运行以下命令:

Iperf -s -w 256k 在客户端上运行以下命令:

-P 6 -w 256k Iperf -0 -+ 60 Server listening on TCP port 5001 TCP window size: 256 KByte Client connecting to 10.10.10.10, TCP port 5001 TCP window size: 256 KBute [1788] local 10.10.10.20 port 1155 connected with 10.10.10.10 port 5001 [1820] local 10.10.10.20 port 1153 connected with 10.10.10.10 port 5001 [1868] local 10.10.10.20 port 1150 connected with 10.10.10.10 port 5001 [1836] local 10.10.10.20 port 1152 connected with 10.10.10.10 port 5001 [1804] local 10.10.10.20 port 1154 connected with 10.10.10.10 port 5001 [1852] local 10.10.10.20 port 1151 connected with 10.10.10.10 port 5001 [1852] local 10.10.10.20 port 1151 connected with 10.10.10.10 port 5001 Transfer 124 MBytes ID] Interval Bandwidth 7881 17.3 Mbits/sec Γ1 0.0-60.1 sec 17.1 123 MBytes [1868] 0.0-60.1 sec Mbits/sec 15.4 [1820] 0.0-60.2 sec 110 MBytes Mbits/sec 0.0-60.1 sec [1804] 84.6 MBytes 11.8 Mbits/sec Mbits/sec [1852] 0.0 - 60.189.2 MBytes 12.4sec 0.0-60.2 sec 3 MRutes 12.0 Mhits/sec [1836] 86 0.0-60.2 sec 617 MBytes 86.0 Mbits/sec ESUMI [1952] local 10.10.10.20 port 5001 connected with 10.10.10.10 port 2663 [1832] local 10.10.10.20 port 5001 connected with 10.10.10.10 port 2664 2664 [1748] local 10.10.10.20 port 5001 connected with 10.10.10.10 port 2665 [1732] local 10.10.10.20 port 5001 connected with 10.10.10.10 port 2666 [1800] local 10.10.10.20 port 5001 connected with 10.10.10.10 port 2667 [1812] local 10.10.10.20 port 5001 connected with 10.10.10.10 port 2668 Bandwidth ID] Interval Transfer 15.9 16.3 12.5 114 117 1800] 0.0-60.0 sec MBytes Mbits/sec 1812] 0.0-60.0 MBytes Mbits/sec sec [1952 89.6 ] 0.0-60.1 sec MBytes Mbits/sec [1748]129 0.0 - 60.1MBytes 18.1 Mbits/sec sec [1732] 111 15.5 0.0 - 60.1MBytes Mbits/sec sec 112 MBytes [1832] 0.0-60.1 15.6 Mbits/sec sec [SUM] 0.0-60.1 sec 672 MBytes 93.8 Mbits/sec

上图中第一个圈出的数字表示上游吞吐量,第二个圈出的数字表示下游(AP 到客户端)吞吐量。

关闭服务器和客户端上以前的 Iperf 应用程序。二者都需要再次设置,但这次用于 UDP 性能测试。

在服务器端上运行以下命令:

Iperf -s -u -1 56k **在客户端上运行以下命令**:

Iperf -c -u -b 50M -1 56k -P 以下是用于分析**聚合 MAC 服务数据单元**的 Omnipeek 捕获示例:

#### A-MSDU 跟踪显示一个数据包

🙀 OaniPeek - [A	MSDUPack	et apo]											
🚨 Ele - Err. Me	w <u>С</u> арже	Sengl ⊻onios ∐aak <u>W</u> ikdow .	Hela										고 문 프
🗋 + 😂 + 🖬 🛛	- 19 - 長久 国産産産産物の当てえる可用(× 世界の日												
<b>Y</b>													1
E Captore	• 🕞 🛶	🛅 🖹 📓 🔛 👒 🍞 -	18 3 18 × A 2										
100,000	Reno	et Source	Destination	0000	Rep	Chancel	Egnal	Deta Pate	276	Pelatika Tina	Protocol	Simpley	
E Papert		1 00:14:5E:07:7E:AL	P00:12:25:36:19:37	00:16:01:6F:01:5Z	A	1	1008	144.5	4350	0.001001	102.11 A-3500	FT=. F	
-letercha		2 🔲 00728720782715777	01916001968003958			1	100%	24.0	14	0.000005	502.11 Ach	PD=	
	<u> </u>				20.4	<b>91.49</b>		100.00		LAND ON	AND AND		
											Packet/ 2	Diretion: [I	HITHIT
Done												#9 hors	1.

- 仅显示第一个子帧。
- •需要检查十六进制转储来查看其他子帧。

#### 显示附加了 A-MSDU 下一个子帧

(Å OuniPeek - [AMSDUPastet.apo - Pastet #1]	
🙍 He Er: Yew Series Send Zonka Talk Window Hea	_ # ×
■ • 60 • 月本 回答回答回 40 月 計下注意用用下ぐ 12 回答	
→ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■	
Packet 1 (x) dir - 7	
Le Xo TTP Options	2
H T Application Layer	
- Bata Inves: (1000 hypes)	
Zitra Zytes (Zething):(2003 bytes)     Heat Subframe Header	
B-T PCS - Prane Check Sequence	
	1
1410: DO DO DO DO DO DO DA DE LET 75 DO DO DE 14 40 0000 DE LA 10 DO DA 10 DE DE 144 0000 DE DA DO DE DE 144 0000 DE 144 0000 DE DE 144 00000 DE 144 0000 DE 144 00000 DE 144 000000 DE 144 000000D	.8.2
1435: WE 39 25 30 15 1F 35 05 05 65 AE 50 20 PD 34 72 40 37 24 72 41 01 61 75 55 3E 60 34 4E 0B 10 76 47 10 59 24 03 59 24 03 59 25 00 07 50	
1500 K 48 48 49 32 84 15 88 48 04 48 98 88 22 89 10 20 47 99 88 89 88 10 55 55 86 97 28 20 27 88 50 18 14 46 88 97 89 54 10 84 10 90 38 2.0.*	0
1545: 30 47 67 68 44 00 15 25 35 10 77 00 14 55 67 76 41 04 24 44 44 05 00 00 00 00 00 00 04 00 45 00 14 20 40 00 80 05 79 48 00 46 40 45 10 45 44 65 0.0. *. *. *. *. *. *.	CBzb
1591: #A 70 11 6A 0A 0F 7F 66 DD 67 F4 50 DD 54 50 18 F7 A6 7D 96 00 00 KA 15 57 25 D4 CE DE 50 76 24 27 63 55 01 30 CB 30 72 DF A5 97 30 DD 1, p. j	v"/.0.0.<
For Hole, since P1	ag Nora

- A-MPDU 是包含多个 MPDU 的结构,PHY 将其作为单个 PSDU 进行传输。
- •指示数据包是物理层收敛过程 (PLCP) 中的数据 A-MPDU。



Originator

Recipient

以下是用于分析**聚合 MAC 协议数据单元**的 Omnipeek 捕获示例:

/	۹-	M	IP	D	U	设	置	
								_

🔅 OuriPe	ek - (AMP	DUSetup.a	00]										
🔮 Ele - El	Ele Est New Sector Send Months Holy Window Hold												
🗋 - 👹 -													
7													
L Laptor	u A	<ul> <li>⇒  ]</li> </ul>	🗄 🖹 📓 🔛 🔌 😵 🕯	16 3 16 1× 10 12 1									
1 100	•• ]	Rendet	Source	Destination	10010	Tage	Charrel	E gruei	Data Rate	226	Relative Time	Protocol	Success
E Fourt		1	93 10:17:17:A6:4C:90	FP 00:12:28:10:F0:55	FP 00: 17: DF: A6: 40: 91	7à	:	1008	130.0	71	0.000000	502.11 Action	PT=
-40	ecte 👘	2	<b>10</b> 00128129126185168	0.11100 Pract 40:00		1 C	÷.,	100%	36.0	19	0.000004	500, 11 A08	PD=constraints
1.16		3	📑 10: 10: TO: 10: FO: 55	B)01:13:0F:A6:40:30	📑 00: 17: DF: A6: 40: 91		ę	1004	26.0	.17	0.000003	308, 11 Action	FC,28026
400	patient will	4	₩ 05:17:DF:A6:40:99	B00:12:20:10:F0:55		1	s .	1008	36.0	14	0.000013	502.11 Adk	FC
1		4				120	120.12			10	120.120.1		ALCOLUMN ADDRESS
												Packets 4	Duration: [HIPD]
Done													109 Nora

- ADDBA 添加块确认
- ADDBA 请求 包含标识符、块确认策略、缓冲区大小等
- ADDBA 答复 可以更改策略和缓冲区大小。

• ADDBA 请求

• AP1250 使用超时零来指示没有超时。

🞾 OmniPeek - [AMPDUSetup.apc -	Packet #1]	- D ×
Eile Edit View Capture Send I	<u>M</u> onitor <u>T</u> ools <u>W</u> indow <u>H</u> elp	_ 8 ×
🕗 • 📁 • 🗦 😓 📓 🖬 🗷	0 🏟 🎄 🕃 T 🕈 😂 🖬 🖬 🕴 🔗 👪 📀 🔂	
(	😼  🔊 🔊	
Packet: 1 🚺 🔊 -		
BO2.11 MAC Header		
Version:	0	
g Type:	\$00 Management	
Subtype:	%1101 Management Action	
Frame Control Flags:	\$0000000	
<b>a b b b b b b b b b b</b>	0 Non-strict order	
	.0 Non-Protected Frame	
	0 No More Data	
	0 Power Management - active mode	
🞯	0 This is not a Re-Transmission	
🞯	0 Last or Unfragmented Frame	
🞯	0. Not an Exit from the Distribution System	
	0 Not to the Distribution System	
	40 Microseconds	
Destination:	00:13:E8:1D:F0:55	
Source:	00:17:DF:A6:4C:90	
BSSID:	00:17:DF:A6:4C:90	
😪 🎯 Seg Number:	964	
🕤 Frag Number:	0	
BO2.11 Management - Act	ion	
Gategory Code:	3 Block Ack	
Action Code:	0 ADDBA Request	
🕤 Dialog Token:	1	
BlockAck Param Set:	\$000100000000000	
	Buffer Size:64	
	1. BlockAck Policy: Immediate Block Ac	:k
BLOCKACK TIMeOUT VAL		
BA Starting Sequence	Control: #00000010100000	
	Starting Seq Number: Si	
Ers - Frame Chack Serve		
PCS - Franc Check Seque	0v36F63FB9	
0021: 90 40 3C 03 00 01 02 1	) FU 55 UU 17 DF A6 4C 90 UU 17 DF A6 4C(UL. ) 00 00 50 02 36 F6 3F B9	· · · · b
5047 50 40 50 05 00 01 02 1		
For Help, press F1	III) None	

A-MPDU 设置

• ADDBA 答复

#### • 接收方需要指示已成功制定块确认协议。



#### A-MPDU 数据传输

- 块确认包含压缩的位图以指示已接收 MPDU。
- 有关发送块确认的信息,请参阅 IEEE 802.11n 节 9.10.7"HT 即时块确认扩展"。

👯 OmniPask - (AMI	PDUD.etsAndBlockAck.epc										- 0 ×		
😩 Eile Edit Mew	$\underline{\underline{C}} aptuse  \underline{S} and  \underline{\underline{M}} anitor  \underline{\underline{L}} aok  \underline{\underline{M}} indow$	Hep									린×		
🔄 - 🐸 - 🖬 🌫	□ - U - H > ■ N = A A A = T > O = H + C < B												
÷**	9 <b>*</b>												
🗉 Capture 🔺	··· · 표정 ··· · · · · · · · · · · · · · ·	898 28 2											
Padkets	Padat Source	Deeb nation	85510	Heat	Channel	Signal	Data Rate	Siz e	Relative Time	Protocol			
C Entert	1 00:13:E8:36:19:77	00:14:5E:67:7E:A1	FP 00: 16: 01: 67: 03: 52		1	100%	130.0	78	0.000000	TCP			
Hearth	2 📳 00:13:K6:36:19:77	100:14:5K:57:7E:A1	100:16:01:5F:03:5E	*	1	100%	130.0	75	0.000003	TEP			
Ba	8 <b>BD</b> 00:13:E8:36:19:77	■\$00:14:5E:67:7E:A1	00:16:01:6F:03:5E	A.	1	100%	130.0	78	0.000008	TCP			
Application	4 📰 00:13:K0:36:19:72	₩900:14:5K:67:7K:A1	P00:16:01:5F:03:5E	. A.	1	100%	130.0	75	0.000011	TOP			
I-I Visuals	5 <b>BU</b> 00:13:E8:36:19:77	B) 00:14:5E:67:7E:A1	B) 00:16:01:6F:03:5E	à -	1	100%	130.0	78	0.000014	TCP			
Beer Map	6 B00:13:80:36:19:72	₩900:14:5K:07:7E:A1	<b>#\$00:16:01:0F:00:5E</b>	A	1	1008	130.0	70	0.000017	TOP			
Graphs	7 BD0:13:E8:36:19:77	<b>B</b> 00:14:5E:87:7E:A1	B) 00:16:01:6F:03:5E	à.	1	100%	130.0	78	0.000020	TCP			
Statistics	0 <b>10</b> 00:15:01:07:03:5E	B00:13:E0:36:19:77		1 C	1	100%	20.0	32	0.000023	002.11 88			
Alabar J													
	4								A. A. A.	R. R. R. R.			
									Packetz 8	Duration 0.00	100		
Done										📑 None	1		

### 在 Beacon 中宣布的功能

- The Capability Info	
- 😌 Element ID:	45 HT Capability Info
	26
🖃 🍞 HT Capability Info:	\$0001100001101110
🜍	0 L-SIG TXOP Protection Support: Not Supported
🗊	.0 AP allows use of 40MHz Transmissions In Neighboring BSSs
🕎	0 Device/BSS does Not Support use of PSMP
🞯	1 BSS does Allow use of DSSS/CCK Rates 040MHz
🞯	1 Maximal A-MSDU size: 7935 bytes
· 🕅	0 Does Not Support HT-Delayed BlockAck Operation
🞯	00 No Rx STBC Support
🞯	0 Transmitter does Not Support Tx STBC
5 <b>(9</b>	
🗊	1 Short GI for 20 MHz: Supported
🞯	
A-RPDU Parameters:	subulicit
	110 Minimum MDDI Start Spacing: Suses
	11 Mayimum Dr 2-MDDU Size: 64K
Supported MCS Set	Hestade ha A-HIDO 5155. OH
in One Spatial Stream	* *1111111
MCS Index 0 Sup	ported - BPSK. Coding Rate: 1/2
	ported - QPSK. Coding Rate: 1/2
	ported - QPSK. Coding Rate: 3/4
	ported - 16 QAM. Coding Rate: 1/2
	ported - 16 QAM. Coding Rate: 3/4
	ported - 64 QAM. Coding Rate: 2/3
🍘 MCS Index 6 Sup	ported - 64 QAM. Coding Rate: 3/4
🔐 🍘 MCS Index 7 Sup	ported - 64 QAM. Coding Rate: 5/6
🖃 🦵 Two Spatial Stream	s: \$0111111
MCS Index 8 Sup	ported - BPSK. Coding Rate: 1/2
🗑 MCS Index 9 Sup	ported - QPSK. Coding Rate: 1/2
	pported - QPSK. Coding Rate: 3/4
MCS Index 11 Su	pported - 16 QAM. Coding Rate: 1/2
MCS Index 12 Su	pported - 16 QAM. Coding Rate: 3/4
MCS Index 13 Su	pported - 64 QAM. Coding Rate: 2/3
MCS Index 14 Su	pported - 64 QAM. Coding Rate: 3/4
MCS Index 15 No	t Supported - 64 QAM. Coding Rate: 5/6
RX BITMASK B16-D23	: *0000000
By Pitmack b24-b31	
By Bitmack hd0-hd7	* \$0000000
Dy Ritmar hdg-b55	>00000000
W DA DIGEDA MIG-DJJ	

### 在 Beacon 中宣布的功能:

	0	Rx Bitnask b64-b76:	\$00000000000
	0	Reserved:	\$000
	0	Highest Supported Rate	9:0 Maps
		Reserved:	*00000
	à	Tx Supported MCS Set:	30 Not Defined
	ā	Tx and Rx ECS Set:	40 Zona1
	ě	Tx Naximum Number Spat	tal Streams Summerted: 800 / Spatial Stream
	ě	Tx Unequal Modulation	30 Not Supported
	ě	Reserved:	\$0000000000000000000000000000000000000
10	ш	Extended Canabilities	
1		incomen caparities	Tree Beerved
	ž		Bass Beverse Direction Responder: Supported
	ž		0 +HTC Sumart: Sumart:
	ž		00 M°C Factoria To Dee Not Destride M°S Faceback
	2		with the reserved
-	2		An Transition Time No Transition
	2		A Transmitter Summer Det Connected
		Bern Forming Countrili	
1		beam rorning capabili	
-			A A A A A A A A A A A A A A A A A A A
			The View Stream of Second Seco
			Oapressea Br reedwark watrik: 1 IA Antenna Sounding
-			
	0		CSI Number of BF Antennas: 1 TX Antenna Sounding
	9		
	9		0 0 Compressed BF Feedback Katrix: Not Supported
	9		Uncompressed BF Feedback Matrix: Not Supported
	0		IXBF CSI Feedback: Not Supported
	۲		
	۹		Uncompressed BF Feedback Matrix: Not Supported
	۲		Explicit CSI TxBF Capable: Not Supported
	0		Mot Supported
	۹		Implicit TxBF Capable: Not Supported
	0		Tx NDP Capable: Not Supported
	۲		Not Supported
	۲		
	۲		
÷	۲		O Implicit TxBF Receiving Capable: Not Supported
T	7m	tenna Selection Capabi	lity (ASEL): \$00000000
	۲		x Reserved
	0		.0 Tx Sounding PEDUs Capable: Not Supported
	۲		Rx ASEL Capable: Not Supported
	0		0 Antenna Indices Feedback Capable: Not Supported
	۲		0 Explicit CSI Feedback: Tx AS Capable: Not Supported
	۲		0 Antenna Indices Feedback Based Tx ASEL Capable: Not Supported
	0		0. Re-Explicit CSI Feedback Tx ASEL Capable: Not Supported
	~		a maximum destruction denotes and demonstration

在 Beacon 中宣布的功能:

```
Blenent ID:
                    61 Additional HT Information
 🕤 Length:
                    22
 Primary Channel:
                   6
😗 PSNP STAs Only:
                  30 Association Requests are Accepted Regardless of PSMP Capability
 . 🗑 RIFS Mode:
                    31 Use of RIFS Permitted
 🗑 STA Channel Width:
                   %1 Use Any Channel Width Enabled Under Supported Channel Width Set
 2nd Channel Offset: 401 Above the Primary Channel
. 🗑
                      XXXXXXXX XXX.... Reserved
   - 🙃
                      .
                      .....0... Transmit Burst Limit: No Limit
  -- 🕲
                      .....1.. Mon-Greenfield STAs: One or more HT STAs are Not Greenfield Capable
   . 🐨
                      HT Info Element 3:
                    ... 📦
                      xxxx.... Reserved
                      ....0.... PCO Phase: Switch To/Continue Use 200Hz Phase
  --- 🗑
                      .....0.. ....... PCO Active: Not Active in the BSS
   - 🗑
  --- 🗑
                      .....0. ...... L-SIG THOP Protection: Not Full Support
  -- 😥
                      .....0 ...... Secondary Beacon: Primary Beacon
                      ..... 0..... Duel CTS Protection: Not Required
   . 🕤
                      0
   . 📦
                      - Basic MCS Set
 🗄 🍞 One Spatial Stream: 🛛 30000000
    ... 🜒 MCS Index 0 Not Supported - BPSK. Coding Rate: 1/2
    -- 😙 MCS Index 1 Not Supported - QPSK. Coding Rate: 1/2
    ... 📵 MCS Index 2 Not Supported - QPSK. Coding Rate: 3/4
    ... 🕲 MCS Index 3 Not Supported - 16 QAM. Coding Rate: 1/2
     📵 MCS Index 4 Not Supported - 16 QAM. Coding Rate: 3/4
     🌒 MCS Index 5 Not Supported - 64 QAM. Coding Rate: 2/3
     MCS Index 6 Not Supported - 64 QAM. Coding Rate: 3/4
    -- 🕲 MCS Index 7 Not Supported - 64 QAM. Coding Rate: 5/6
 📩 🍞 Two Spatial Streams: 300000000
    -- 🎯 MCS Index 8 Not Supported - BPSK. Coding Rate: 1/2
    ... MCS Index 10 Not Supported - QPSK. Coding Rate: 3/4
    ... 🕲 MCS Index 11 Not Supported - 16 QAM. Coding Rate: 1/2
    - 😚 MCS Index 13 Not Supported - 64 QAM. Coding Rate: 2/3
    ... 📵 MCS Index 14 Not Supported - 64 QAM. Coding Rate: 3/4
    -- 🕲 MCS Index 15 Not Supported - 64 GAM. Coding Rate: 5/6
   🞯 Rx Bitnask b16-b23: 🛛 %00000000
   🕲 Rx Bitnask b24-b31: 👘 \00000000
   🝘 Rx Bitnask b32-b39:
                      $00000000
   Rx Bitnask b40-b47: %00000000
```

与 A-MPDU 的块确认设置的添加类似的关联:

194	🕎 00:13:E8:1D:F0:55	BO:17:DF:A6:4C:90	802.11 Ack			100%	6.0	14
195	EE 00:17:DF:A6:4C:90	FgEthernet Broadcast	802.11 Beacon	m 00:17:DF:A6:4C:90	*	100%	6.0	204
196	E 00:13:28:1D:F0:55	FP Ethernet Broadcast	802.11 Probe Reg	Ethernet Broadcast	*	100%	1.0	81
197	FE 00:17:DF:A6:4C:90	P2 00:13:E8:1D:F0:55	802.11 Probe Rsp	FP 00:17:DF:A6:4C:90	*+	100%	6.0	204
198	📰 00:13:E8:1D:F0:55	00:17:DF:A6:4C:90	802.11 Ack		¥	100%	6.0	14
199	00:13:CE:89:DC:A2	Ethernet Broadcast	802.11 Probe Req	Ethernet Broadcast		100%	1.0	87
200	N:13:E8:36:19:77	Ethernet Broadcast	802.11 Probe Req	Ethernet Broadcast	*	100%	1.0	81
201	00:17:DF:A6:4C:90	00:13:E8:36:19:77	802.11 Probe Rsp	B) 00:17:DF:A6:4C:90	*+	100%	6.0	204
202	Image: 00:13:E8:36:19:77	00:17:DF:A6:4C:90	802.11 Ack		¥	100%	6.0	14
203	BO:13:E8:36:19:77	Ethernet Broadcast	802.11 Probe Req	Ethernet Broadcast	*	100%	1.0	74
204	00:13:E8:36:19:77	Ethernet Broadcast	802.11 Probe Req	Ethernet Broadcast	*	100%	1.0	81
205	BO:17:DF:A6:4C:90	00:13:E8:36:19:77	802.11 Probe Rsp	B00:17:DF:A6:4C:90	*+	100%	6.0	204
206	00:13:E8:36:19:77	B) 00:17:DF: A6:4C:90	802.11 Ack		#	100%	6.0	14
207	00:13:CE:89:DC:A2	Ethernet Broadcast	802.11 Probe Req	Ethernet Broadcast	*	52%	1.0	55
208	00:13:CE:89:DC:A2	Ethernet Broadcast	802.11 Probe Req	Ethernet Broadcast	*	97\$	1.0	55
209	B) 00:13:CE:89:DC:A2	Ethernet Broadcast	802.11 Probe Req	Ethernet Broadcast	*	100%	1.0	87
210	D0:13:CE:89:DC:A2	Ethernet Broadcast	802.11 Probe Req	Ethernet Broadcast		100%	1.0	55
211	00:17:DF:A6:4C:90	Ethernet Broadcast	802.11 Beacon	00:17:DF:A6:4C:90	*	100%	6.0	204
212	00:13:CE:89:DC:A2	Ethernet Broadcast	802.11 Probe Req	Ethernet Broadcast	*	95%	1.0	55
213	00:13:CE:89:DC:A2	Ethernet Broadcast	802.11 Probe Req	Ethernet Broadcast	*	100%	1.0	87
214	00:13:CE:89:DC:A2	Ethernet Broadcast	802.11 Probe Reg	Ethernet Broadcast	*	100%	1.0	55
215	E 00:13:E8:1D:F0:55	F 00:17:DF:A6:4C:90	802.11 Auth	FE 00:17:DF:A6:4C:90	*	100%	36.0	34
216	E2 00:17:DF:A6:4C:90	F 00:13:E8:1D:F0:55	802.11 Ack		<i>i</i> i	100%	36.0	14
217	E 00:17:DF:A6:4C:90	FQ 00:13:E8:1D:F0:55	802.11 Auth	E 00:17:DF:A6:4C:90	×	100%	36.0	34
218	🕎 00:13:E8:1D:F0:55	F2 00:17:DF:A6:4C:90	802.11 Ack		ÿ	100%	36.0	14
219	FE 00:13:E8:1D:F0:55	FE 00:17:DF:A6:4C:90	802.11 Assoc Req	FE 00:17:DF:A6:4C:90	*	100\$	36.0	134
220	E 00:17:DF:A6:4C:90	E 00:13:E8:1D:F0:55	802.11 Ack		ÿ	100%	36.0	14
221	FE 00:17:DF:A6:4C:90	FP 00:13:E8:1D:F0:55	802.11 Assoc Rsp	FP 00:17:DF:A6:4C:90		100%	130.0	180
222	📰 00:13:E8:1D:F0:55	B 00:17:DF:A6:4C:90	802.11 Ack		¥.	100%	36.0	14
223	3 192.168.170.89	3224.0.0.1	IGNP	B00:17:DF:A6:4C:90		100%	130.0	84
224	🕎 00:13:E8:1D:F0:55	00:17:DF:A6:4C:90	802.11 Ack		#	100%	36.0	14
225	2 192.168.170.89	3224.0.0.1	IGMP	B) 00:17:DF:A6:4C:90	+	100%	130.0	84
226	00:13:E8:1D:F0:55	00:17:DF:A6:4C:90	802.11 Ack		9	100%	36.0	14
227	00:17:DF:A6:4C:90	00:13:E8:1D:F0:55	WLCCP	E) 00:17:DF:A6:4C:90		100\$	130.0	92
228	00:13:E8:1D:F0:55	00:17:DF:A6:4C:90	802.11 Ack		¥.	100%	36.0	14
229	E 00:17:DF:A6:40:90	F 00:13:E8:1D:F0:55	802.11 Action	Per 00:17:DF:A6:40:90		100%	130.0	37
230	00:13:E8:1D:F0:55	B 00:17:DF:16:4C:90	802.11 Ack		¥	100%	36.0	14
231	EE 00:13:28:1D:F0:55	00:17:DF:A6:4C:90	802.11 Action	00:17:DF:A6:4C:90	×	100%	36.0	37
232	00:17:DF: 16:4C:90	B00:13:E8:1D:F0:55	802.11 Ack		ý.	100%	36.0	14

## Verifying A-MPDU is enabled on the controller

A MARK CONTRACTOR OF A		
a distributing two	All all an original had been	
Element ID	45 BT Capability Date [01]	
- Unigth:	26 [04]	
T HT Capability Info:	<pre>w0001100001101110 (05-06)</pre>	
	0 E-SIG TADP Protection Support: Not Supported	
	.0 30 allows use of 4000s Transmissions In Meighboring Blds	
-•	Derice/BSS does Not Support use of 2592	
	0 Transmitter does Not Support Ty STBC	
	A 150° online cambilities for formertad	
The second burners and	And the second s	<ul> <li>A-MPDU enabled and seen in the</li> </ul>
a a ware reservers	November (07)	+ baacon
	ART Meeting [07 max bits]	Deacon
T Supported BCS Set		

Above is a beacon frame from an SSID enabled for n rates

#### 

- interface Dot11Radio1
- Radio AIR-RM1252A, Base Address 00119ea6.8520, BBlock version 0.00, Software version 2.10.20
- Serial number: FOC1212405A
- Number of supported simultaneous BSSID on Dot11Radio1: 16
- Carrier Set: Americas (OFDM) (US) (-A)
- Uniform Spreading Required: Yes
- Configured Frequency: 5180 MHz Channel 36 40MHz, extended above
- Compared Prequency: 5159 MHz Channel 36 40MHz, extended above Allowed Frequencies: 5180(36) 5200(40) 5220(44) 5240(48) \*5260(52) \*5280(56) \*5300(60) \*5320(64) \*5500(100) \*5520(104) \*5540(108) \*5560(112) \*5590(116) \*5660(132) \*5680(136) \*5700(140) 5745(148) 5765(153) 5785(157) 5805(161) 5825(165) \* = May only be selected by Dynamic Frequency Selection (DFS) Listen Frequencies: 5180(36) 5200(40) 5220(44) 5240(48) 5260(52) 5280(56) 5300(60) 5320(64) 5500(100) 5520(104) 5540(108) 5560 (112) 5580(116) 5660(132) 5680(136) 5700(140) 5745(149) 5765(153) 5785(157) 5805(161) 5825(165) Beacon Flags: 0, Interface Flags 20105; Beacons are enabled; Probes are enabled Compared Brance Methods Methods and the second Brance Methods and Brance Methods Methods

- Configured Power: 14 dBm (level 1)
- Active power levels by rate
- 6.0 to 54.0 , 14 dBm
- 6.0-bf to 54.0-b, 8 dBm, changed due to regulatory maximum m0. to m15.-4, 11 dBm, changed due to regulatory maximum
- OffChnl Power: 14, Rate 6.0
- Allowed Power Levels: -1 2 5 8 11 14 --More--
- --More--Allowed Client Power Levels: 2 5 8 11 14
- Receive Antennas : right-a left-b middle-c
- Transmit Antennas : right-a left-b, ofdm single
- Antenna: external, Gain: Allowed 11, Reported 0, Configured 0, In Use 11
- Active Rates: basic-6.0 9.0 basic-12.0 18.0 basic-24.0 36.0 48.0 54.0
- Current Rates: basic-6.0 9.0 basic-12.0 18.0 basic-24.0 36.0 48.0 54.0
- Allowed Rates: 6.0 9.0 12.0 18.0 24.0 36.0 48.0 54.0
- All Rates: 6.0 9.0 12.0 18.0 24.0 36.0 48.0 54.0 m0. m1. m2. m3. m4. m5. m6. m7. m8. m9. m10. m11. m12. m13. m14. m15.
- Default Rates: basic-6.0 9.0 basic-12.0 18.0 basic-24.0 36.0 48.0 54.0 m0. m1. m2. m3. m4. m5. m6. m7. m8. m9. m10. m11. m12. m13. m14. m15.
- Best Range Rates: basic-6.0 9.0 12.0 18.0 24.0 36.0 48.0 54.0 m0. m1. m2. m3. m4. m5. m6. m7. m8. m9. m10. m11. m12. m13. m14. m15.
- Best Throughput Rates: basic-6.0 basic-9.0 basic-12.0 basic-18.0 basic-24.0 basic-36.0 basic-48.0 basic-54.0 m0. m1. m2. m3. m4. m5. m6. m7. m8. m9. m10. m11. m12. m13. m14. m15.

# MCS Rates on 802.11n beacon

In a state for each other and the state of t
a T Capacitod MIX Set.
(a) T the Spectral Property Sections (10)
- With Dames & Damparted - ANDL, Contag Bater 1/3
- · · · · · · · · · · · · · · · · · · ·
- BIT Dates ( Deposited - USE, Colleg Beter Ave
- 🖷 MCI Dathe J Bagestint - 14 200. Colling Bains 1/2
Wit index a furgerand - as just coming factor dive
- But Dates i Dagestied - of UBR, Colling Relet 2/7
. · With Dasher & Degenerated - of GBK, Conting Rates 2.14
BCS (balas 7 Suggesting - of UBE, Colong Balas 1/4
The lastic Barrier Allinger Allinger
- Bill Bader & Segmented - 3858. Contag Bater 3/0
- WH Dates > Departed - QUIL, Colling Beter 2/0
. S With Dasher 24 Regenerations - GARL Continue Refers Arts
- The second second and the second se
- The second sec
- · · · · · · · · · · · · · · · · · · ·
- · · · · · · · · · · · · · · · · · · ·
Self Dates 10 Supervised - 68 100. College Select 1/6
- * Ba Stimus \$15.671 \$0000000 [70]
• The Billington BOR-1012: 400000000 [11]
Be Bulland Std of 1 Stormond (11)
Be Bullegash 242-675- 400000000 [14]
- * He Street 255-621: 10000000 [11]
Bu Bu Bu hand bee to be Bootstooooss (100-17) Back (0.0779)
- Budent Supported Balant Rev (10-51 Bark deffering
<ul> <li>Beautient: +000000 (20 Nucl. In/P)</li> </ul>
- · · · · · · · · · · · · · · · · · · ·
The and the MCD Bally WD Rayed [100 Back doub]
. In Francisco Particle Design Descent Section 1997 A Social Diverse 1997 Bull Avenue

# Supported MCS rates

_		
	OmniPeek _ =	ж
6 B	Idt Verw Capture Send Monitor Tools Window Help Wild Packada Capture Send Monitor Tools Window Help	ek.
-	Rat Page 002.11a.pkt 000.130,4094.pkt 000.11a.pkt - Packet #57 000.11m_40994.pkt - Packet #100 ×	х.
-		
8.7	SSD Bird Afen State SSD-Vi	-
* 7	andrean 19-1: Satasa Lemand Rate-5.0 Maps Rate-5.0 Maps Rate-52.0 Maps Rate-54.0 Maps Rate-54.0 Maps Rate-54.0 Maps Rate-56.0 Maps	г
* T	The DeS Tit: Least FTH Counted FTH Fertude; Sting Control+1000000 Part Virt Bog-000	
13	Constry Dev Country Level & Country Country Country Country (Developed and Real Provided and Real Provided and Country	٩.
14	With Brill (Diff Level Muttin Grant & Changel Millington (0) 1 Prola Manager (9) 3007	h
11	Clowest Die 40 27 Canability 2nds 1821	
	• Length: 26 (04)	
1.4		
	- 1 * 1. 8000 Parameters-10011001	
	T Supported MS Set	
	G The Spatial Stream + 1111111 (***)	
	We same a support of the second secon	
	Ref Dates 2 Supporter - 0027, Colling Barty 3/4	
	Will Index 3 Supported - 16 GMM, Coding Rate: 1/1	
	- Will Index 4 Supported - 14 GMK, Coding Reter 1/4	
	- 🗣 MCF Index 6 Supported - 66 QBM. Coding Ante: 2/9	
	- • MCF Index 6 Supported - 46 QMK, Coding Actor 3/4	
	La ACE Jonda 7 Supported - 42 QMA, Coding Arter 5/4	
	We special intervent transmission (17)	
	REL Dates 9 Supported - OVE. Collar lates 1/2	
	WET Index 10 Supported - OFER, Colling Rate: 3/4	
	- 🖉 MCF Index 12 Supported - 14 GAM. Collar Aste: 1/2	
	With Index 12 Supported - 14 GAM. Coding Bates 3/4	
	- REF Index 13 Deported - 64 UAR. Colling Jates 2/7	
	<ul> <li>We assure as appointed = or gave concept parts of a</li></ul>	
	Bit Bitmark bit should be separate to be a second bit	۳
	- R Bitmack b19-0101 V00000000 [11]	
	- Bx Eltrank b17-b19 40000000 2103	
	- 9 Rx 811yuark 548 5431 90000000 (103	
	- Sx Eltman b48 0151 V000000 (14)	
	- The Billmank bill bill 19 00000000 (2013)	
	- • • • • • • • • • • • • • • • • • • •	
	• Nuclear Transition Robert Rose (201701)	
	9 Reserved) 940000 (17 Ball 0217)	
	The Supported MCS Set: VB. Dot Decision 2100 Basis (2001)	*

# 802.11a with N rates Enabled

p OmniPeek	. * ×			
F His Edit. View Cupture Send Monitor Tools Hindow Help	WildPachels OmniPeek			
· 24 · 14 · 14 · 14 · 14 · 14 · 14 · 14				
File Fige 002.11a.jkt 002.124_00444.jkt. 002.11a.jktPatiet #17 002.11a.jkt-Patiet #110 ×				
** N N N N N N N N N N N N N N N N N N				
Fachet Inde Fachet Raderräll Fingerörkönnnen (1997)	6 -7 Align Chairelds \$210 Mile			
T (2-1) 48.11 KK: Node: Textion-0 Type-500 Anappend Subtype-51000 Joscon Parallan-0 Kicknessonic Parallan-FFIFFIFFIFFIFFIFFIFFIFFIFFIFFIFFIFFIFFI	E-ROARD BE WANTE-OOU LTINE ROAD			
In a second seco				
- Brauss Internal ( MA (N-10)				
* T Capability Tain-1000000000000000000000000000000000000				
* T SID Det 1120 Land SID-N				
T Sales Del Inter Level Raised, 0 Kpc Ralest, 0 Kpc Rales21, 0 Kpc Rales24, 0 Kpc Rales24, 0 Kpc Rales34, 0 Kpc Rales34, 0 Kpc Rales34, 0 Kpc				
a T the B-3 DM Loss-4 BTH Forst-0 BTH Forst-0 Bitter Control - Control For York Rep-Child South Control - Control	and these lines in the second s			
2 Control with the stand of	The first the proper considering a proper-			
T II Canadiaty Info	earon frame including			
Compatible 45 AT Capability Date [80]	MODUL and MCS rates			
- • Length: 86 (14)	WP DU and MGa rales			
a T M (apphiling Tabe-600110000131100	pported			
a T & STOR Terrent Converting - VOCUMENT The The State of the State	A DATE AND ADDRESS OF A DATE OF			
THE Except Control of the State Stat				
The Beam Forming Capability (TallF)				
* T Astemas Selection Capability (BEE)-40000000				
- T his of Index Book Add of Index General Primary Channel-40				
T B-10 Let March 000000000				
a T we de-cal with takened with the for an With Takened With Samity and Takened Strategy and Samity and Sa				
The Western Specific Booth Wester Descript Land BB-00-40-40 Western-1 (CR Western-1)				
a T Vender Specific IB-221 Vender Specific Leard 600-00-00 Balan(2 bytes)				
w W wenter spectate ID-011 Ventor System (D-00-40-66 Deta-(1 bytes)				
T FIS - Frame Check Segment				
- CEI CEIDERE CLIMETER				

# 802.11A Beacon frame

Ø OmniPeek	0. X			
He Edt New Capture Send Monitor Tools Window Help	WildPackels OmniPeek			
2-0-HA REERS 44 ST20001* 2003				
1 Start Foge 802.11a.plit 802.11a.plit 802.11a.plit - Padiet #57 x 802.11a.plit - Padiet #10	- P.			
## 14 14 19 18 3 18 1 <b>7 5</b>				
🗑 🍸 🛛 Packet Data – Packet Balacz-57 Flags-Bed000000 Flatus-Bed000000 Fucket Length-150 Tlacetag-17:29:22.55559900 82/23/2010 Fata Fate-1	2 6 .0 Hope Data-36 5110 Hits 1			
#Y (9-33) H2.11 XX: Realer Ventue-0 Tpe+V0 Katepast: Subge+U00 Journ Dustine-0 Kinnetonic Destination-07:07:07:07:07:07:07:07:07:07:07:07:07:0	: F1:BA: H4: HE <b>H530-</b> 00: 34: F1:BA:			
■ ##2.11 Kunaperent Beacon				
Timestage: 3754066 Accessed [26-11]				
P Decon Instrum: 200 [20-53]				
T 530 D-1 533 (an-2 530-7)				
T Inter D-1 Jates Level Inter-0.0 Mpc Rate-0.0 Mpc Rate-12.0 Mpc Rate-13.0 Mpc Rate-34.0 Mpc Rate-36.0 Mpc Rate-36.0 Mpc				
TID: 10-5 Til: Les-4 DID Count-0 FIDE Period-1 Bitsap Control-40000000 Part Virt Bag-2x00				
# T Country D=7 Country Lew-18 Country Code=55 Starting Channel-55 Budler of Channels-4 Ran Tx Power (BDQ-55 Starting Channel-52 Budler of Channel	is-4 Nax Tx Power (dbq-20 Start			
🛊 🍸 👷 🚰 🐘 🕄 (1957): Lew-S Station Count-O Channel Willingting-Oct2 + Janii Mahimine Capacity-20407				
T ID-100 Level Tales-broadstorm				
a) The Device of Device				
a) The second				
<ul> <li>T Vester Specific ID-221 Vester Specific Leard 000-00-40-66 Outa-(2 System)</li> </ul>				
a T Trader Specific ID-021 Vender Specific Gen-5 000-00-40-94 Outo-(2 System)				
in Y <sup>a</sup> <u>103 - Trane Carok Separace</u>				
- • PS: 0x5140002 Calculated				

## 相关信息

• <u>技术支持和文档 - Cisco Systems</u>