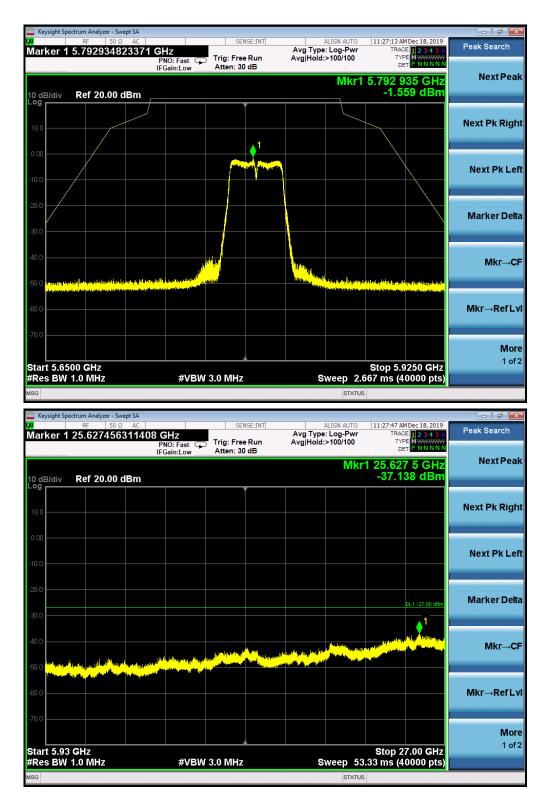
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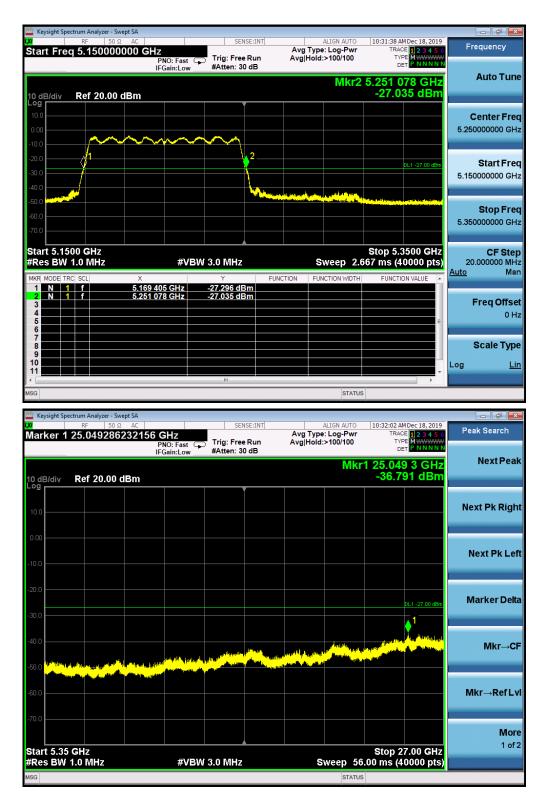
TEST PLOT OF OUT OF BAND EMISSIONS FOR MODULATION IN 5795MHz

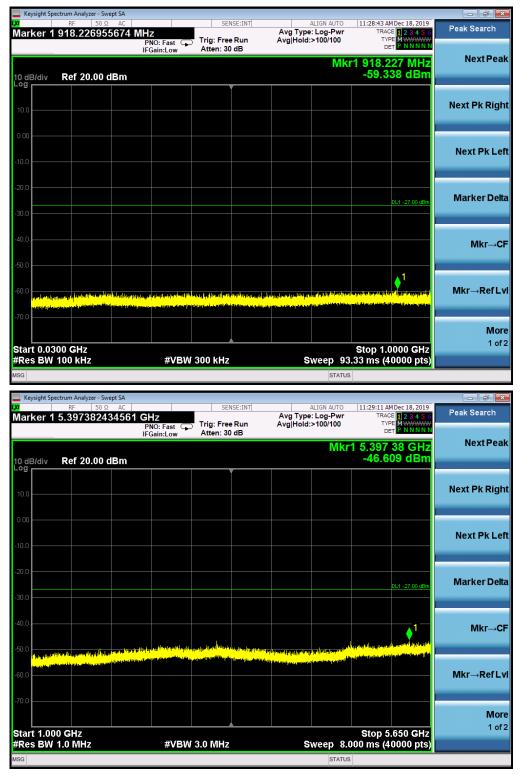


FOR 802.11AC80 MODULATION

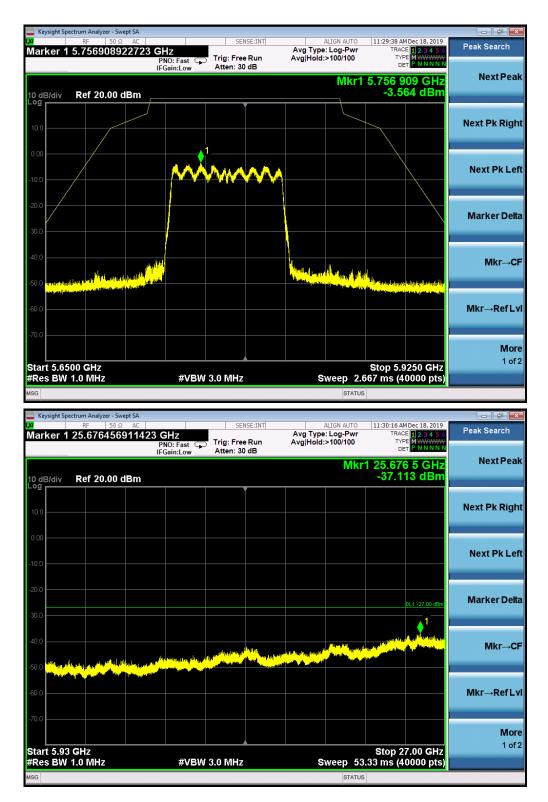
TEST PLOT OF OUT OF BAND EMISSIONS FOR MODULATION IN 5210MHz

Keysight Spectrum Analyzer - Swept SA RF 50 Ω AC		SENSE:INT	ALIGN AUTO	10:29:44 AM Dec 18, 2019	
larker 1 778.640466012	MHz PNO: Fast	Trig: Free Run	Avg Type: Log-Pwr Avg Hold:>100/100	TRACE 1 2 3 4 5 6 TYPE MWWWWW DET P N N N N N	Peak Search
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tart 0.0300 GHz				Stop 1.0000 GHz	101
	#VBW 3	00 kHz	Sweep 93	Stop 1.0000 GHz .33 ms (40000 pts)	101
start 0.0300 GHz Res BW 100 kHz	#VBW 3	00 kHz	Sweep 93	.33 ms (40000 pts)	
Res BW 100 KHz sg Keysight Spectrum Analyzer - Swept SA	#VBW 3		STATUS	.33 ms (40000 pts)	
Res BW 100 kHz GG Keysight Spectrum Analyzer - Swept SA RF 50 \Omega AC	4 GHz	SENSE:INT	ALIGN AUTO AVg Type: Log-Pwr	10:30:03 AM Dec 18, 2019	
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Res BW 100 kHz IG IG RF 50 Ω Iarker 1 5.14574614365/ Iarker 20.00 dBm Image: State Sta	4 GHz PNO: Fast IFGain:Low	SENSE:INT Trig: Free Run #Atten: 30 dB	ALIGN AUTO Avg Type: Log-Pwr Avg Hold:>100/100 Mkr	10:30:03 AM Dec 18, 2019 TRACE 12:3:4:5:0 DTP E WWWWW DET P. NN NN NN 1 5.145 75 GHz -46.378 dBm 0L1 -27.00 dBm 0L1 -27.00 dBm	Peak Search Next Peak Next Pk Rig Next Pk Le Marker Del Mkr-C
Res BW 100 kHz 3G RF 50 Ω AC Iarker 1 5.14574614365/ RF 50 Ω AC 0 dB/div Ref 20.00 dBm RF 00 Ω AC 0 dB/div Ref 20.00 dBm RF 00 Ω AC 0 0 0 Image: Comparison of the state o	4 GHz PNO: Fast IFGain:Low	SENSE:INT	ALIGN AUTO Avg Type: Log-Pwr Avg Hold:>100/100 Mkr	33 ms (40000 pts)	- P





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



Note: All the 20MHz bandwidth modulation had been tested, the 802.11a20 was the worst case and record in his test report. All the 40MHz bandwidth modulation had been tested, the 802.11N40 was the worst case and record in his test report. All the 80MHz bandwidth modulation had been tested, the 802.11ac80 was the worst case and record in his test report.

Two transmit chains had been tested, the chain 0 was the worst case and record in the test report.

The spurious emission at chain 0 is more than 6dB below the limits, so the MIMO results for the spurious emissions are comply with the requirement.

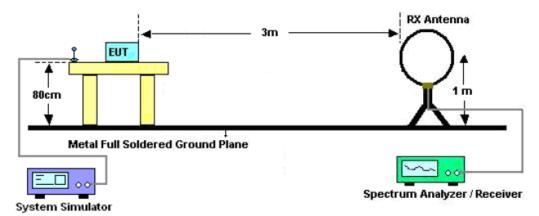
12. RADIATED EMISSION

12.1. MEASUREMENT PROCEDURE

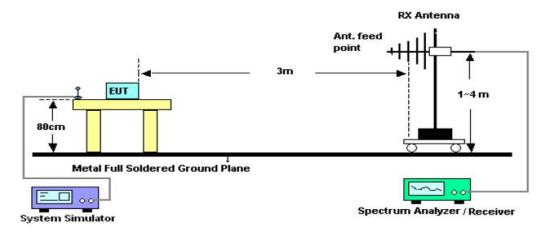
- 1. The EUT was placed on the top of the turntable 0.8 or 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
- 2. Power on the EUT and all the supporting units. The turntable was rotated 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.

12.2. TEST SETUP

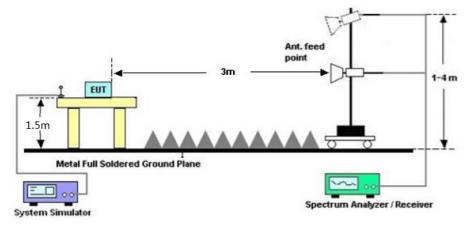
Radiated Emission Test-Setup Frequency Below 30MHz



RADIATED EMISSION TEST SETUP 30MHz-1000MHz



RADIATED EMISSION TEST SETUP ABOVE 1000MHz



12.3. 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.

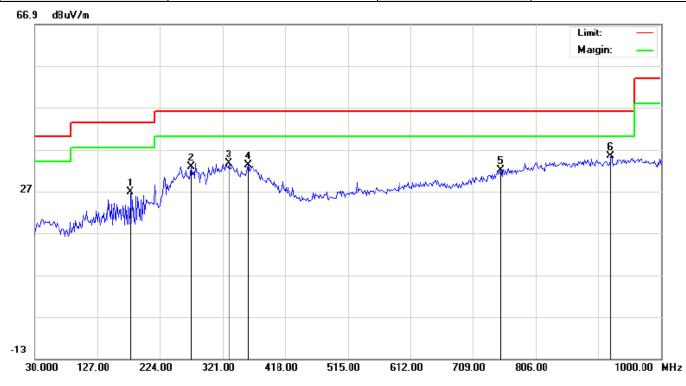
12.4. TEST RESULT

RADIATED EMISSION BELOW 30MHZ

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

RADIATED EMISSION BELOW 1GHZ

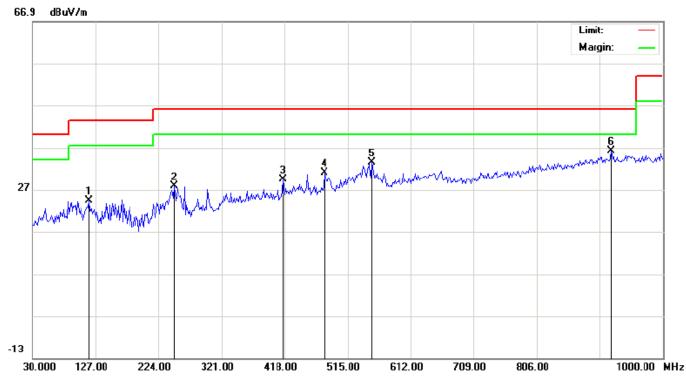
EUT	Dual Band Wireless USB Adapter	Model Name	Techkey-6B06
Temperature	25.2°C	Relative Humidity	55.6%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11a20 5180MHz	Antenna	Horizontal



No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height		Comment
	•	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		178.7332	9.57	17.26	26.83	43.50	-16.67	peak			
2		272.5000	13.44	19.33	32.77	46.00	-13.23	peak			
3		330.6999	13.12	20.55	33.67	46.00	-12.33	peak			
4		359.8000	11.68	21.57	33.25	46.00	-12.75	peak			
5		752.6499	2.65	29.34	31.99	46.00	-14.01	peak			
6	*	922.3999	3.48	31.89	35.37	46.00	-10.63	peak			

RESULT: PASS

EUT	Dual Band Wireless USB Adapter	Model Name	Techkey-6B06
Temperature	25.2°C	Relative Humidity	55.6%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11a20 5180MHz	Antenna	Vertical



No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
	-	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	cm degree	
1		117.2998	6.67	17.71	24.38	43.50	-19.12	peak			
2		248.2500	9.26	18.52	27.78	46.00	-18.22	peak			
3		416.3833	6.09	23.31	29.40	46.00	-16.60	peak			
4		479.4331	6.37	24.58	30.95	46.00	-15.05	peak			
5		552.1833	7.38	26.01	33.39	46.00	-12.61	peak			
6	*	920.7833	4.28	31.88	36.16	46.00	-9.84	peak			

RESULT: PASS

Note: All test channels had been tested. The 802.11a20 at 5180MHz 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	Dual Band Wireless USB Adapter	Model Name	Techkey-6B06
Temperature	25.2°C	Relative Humidity	55.6%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11a20 5180MHz	Antenna	Horizontal/Vertical

RADIATED EMISSION ABOVE 1GHZ-Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
10360.120	44.11	9.14	53.25	74	-20.75	peak
10360.120	32.42	9.14	41.56	54	-12.44	AVG
15540.180	41.35	10.22	51.57	74	-22.43	peak
15540.180	29.95	10.22	40.17	54	-13.83	AVG
Remark:						
Factor = Ante	enna Factor + C	able Loss – P	re-amplifier.			

RADIATED EMISSION ABOVE 1GHZ–Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type	
10360.120	44.27	9.14	53.41	74	-20.59	peak	
10360.120	32.58	9.14	41.72	54	-12.28	AVG	
15540.180	41.46	10.22	51.68	74	-22.32	peak	
15540.180	30.02	10.22	40.24	54	-13.76	AVG	
Remark:							
Factor = Ante	-actor = Antenna Factor + Cable Loss – Pre-amplifier.						

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EUT	Dual Band Wireless USB Adapter	Model Name	Techkey-6B06
Temperature	25.2°C	Relative Humidity	55.6%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11a20 5240MHz	Antenna	Horizontal/Vertical

RADIATED EMISSION ABOVE 1GHZ-Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
10480.120	41.14	9.27	50.41	74	-23.59	peak
10480.120	29.85	9.27	39.12	54	-14.88	AVG
15720.180	40.37	10.38	50.75	74	-23.25	peak
15720.180	28.54	10.38	38.92	54	-15.08	AVG
Remark:						
Factor = Ante	enna Factor + C	able Loss – P	re-amplifier.			

RADIATED EMISSION ABOVE 1GHZ-Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type			
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type			
10480.120	41.27	9.27	50.54	74	-23.46	peak			
10480.120	29.96	9.27	39.23	54	-14.77	AVG			
15720.180	40.48	10.38	50.86	74	-23.14	peak			
15720.180	28.69	10.38	39.07	54	-14.93	AVG			
Remark:									
Factor = Antenna Factor + Cable Loss – Pre-amplifier.									

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EUT	Dual Band Wireless USB Adapter	Model Name	Techkey-6B06
Temperature	25.2°C	Relative Humidity	55.6%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11a20 5745MHz	Antenna	Horizontal/Vertical

RADIATED EMISSION ABOVE 1GHZ-Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type				
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type				
11490.120	40.35	9.42	49.77	74	-24.23	peak				
11490.120	29.54	9.42	38.96	54	-15.04	AVG				
17235.180	39.67	10.51	50.18	74	-23.82	peak				
17235.180 29.55 10.51 40.06 54 -13.94 AVG										
Remark:										
Factor = Ante	Factor = Antenna Factor + Cable Loss – Pre-amplifier.									

RADIATED EMISSION ABOVE 1GHZ-Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type				
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type				
11490.120	40.49	9.42	49.91	74	-24.09	peak				
11490.120	29.72	9.42	39.14	54	-14.86	AVG				
17235.180	39.83	10.51	50.34	74	-23.66	peak				
17235.180	29.74	10.51	40.25	54	-13.75	AVG				
Remark:	Remark:									
Factor = Antenna Factor + Cable Loss – Pre-amplifier.										

EUT	Dual Band Wireless USB Adapter	Model Name	Techkey-6B06
Temperature	25.2°C	Relative Humidity	55.6%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11a20 5825MHz	Antenna	Horizontal/Vertical

RADIATED EMISSION ABOVE 1GHZ-Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type			
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type			
11650.120	41.56	9.62	51.18	74	-22.82	peak			
11650.120	39.67	9.62	49.29	54	-4.71	AVG			
17475.180	17475.180 42.06 10.75 52.81 74 -21.19 pe								
17475.180 30.27 10.75 41.02 54 -12.98 AVG									
Remark:									
Factor = Antenna Factor + Cable Loss – Pre-amplifier.									

RADIATED EMISSION ABOVE 1GHZ–Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type			
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type			
11650.120	41.64	9.62	51.26	74	-22.74	peak			
11650.120	39.77	9.62	49.39	54	-4.61	AVG			
17475.180	42.17	10.75	52.92	74	-21.08	peak			
17475.180	30.43	10.75	41.18	54	-12.82	AVG			
Remark:									
Factor = Antenna Factor + Cable Loss – Pre-amplifier.									

Note: All the case had been tested. The 802.11a 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.

13. BAND EDGE EMISSION

13.1. MEASUREMENT PROCEDURE

1. The EUT operates at transmitting mode. The operate channel is tested to verify the largest transmission and spurious emissions power at the continuous transmission mode.

2. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission: (a) PEAK: RBW=1MHz, VBW=3MHz / Sweep=AUTO

(b) AVERAGE: RBW=1MHz ; VBW=1/on time(1KHz) / Sweep=AUTO

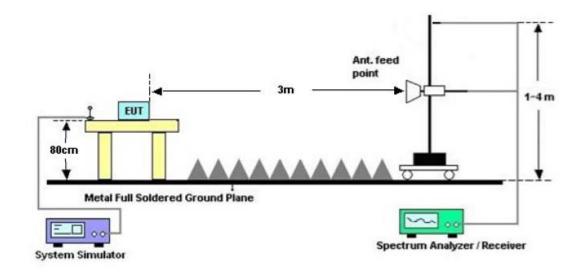
3. Other procedures refer to clause 11.2.

Note:

1. Factor=Antenna Factor + Cable loss - Amplifier gain. Field Strength=Factor + Reading level

2. The factor had been edited in the "Input Correction" of the Spectrum Analyzer. So the Amplitude of test plots is equal to Reading level plus the Factor in dB. Use the A dB(μ V) to represent the Amplitude. Use the F dB(μ V/m) to represent the Field Strength. So A=F.

3. Only the data of band edge emission at the restricted band 4.5GHz-5.15GHz record in the report. Other restricted band 5.35GHz-5.46GHz and 7.25GHz-7.77GHz were considered as ambient noise. No recording in the test report.



13.2. TEST SET-UP

13.3. TEST RESULT

EUT	Dual Band Wireless USB Adapter	Model Name	Techkey-6B06
Temperature	25.2°C	Relative Humidity	55.6%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11a20 5180MHz	Antenna	Horizontal

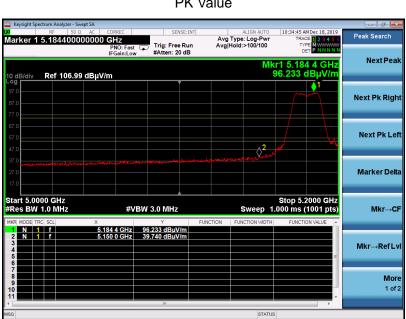




Keysight Sp												_	
Marker 1	^{RF}	50 Ω 50000		GHz			SE:INT		ALIGN AUTO	TRA	AM Dec 18, 201	6 Pe	eak Search
				PNO: Fast IFGain:Lot		Trig: Free #Atten: 20		Avg H	old:>100/100			Ň	
10 dB/div	Ref	106.99	dBµV	/m					MI	kr1 5.18 89.272	850GH dBµV/m		NextPeak
97.0 97.0 87.0												N	ext Pk Right
67.0 57.0 47.0													Next Pk Lef
37.0 27.0 17.0									2 2^2				Marker Delta
Start 5.00 Res BW	1.0 ₪			#\	/BW 3	3.0 MHz*				.000 ms	2000 GHz (1001 pts		Mkr→Cl
MKR MODE T 1 N 2 N 3	RC SCL 1 f 1 f		× 5.1 5.1	185 0 GHz 150 0 GHz	<u>89.</u> 31.	Y 272 dBµV/ 362 dBµV/	m	CTION	FUNCTION WIDTH	FUNCT	TION VALUE		∕lkr→RefLv
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8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9													Mor 1 of
•						III					F		
SG									STATU	s			

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EUT	Dual Band Wireless USB Adapter	Model Name	Techkey-6B06
Temperature	25.2°C	Relative Humidity	55.6%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11a20 5180MHz	Antenna	Vertical



PK Value

🚾 Keysight S		alyzer - Swep											×
<mark>x</mark> Marker ′	RF 1 5.174	50 Ω 20000				SENS			ALIGN AUTO Type: RMS	TRA	AM Dec 18, 2019		1
indiritor		20000		PNO: Fas FGain:Lo		Trig: Free #Atten: 20		Avg	Hold:>100/100	T			
				T Guillieu					M	(r1 5.17	4 2 GHz	NextPe	eal
10 dB/div	Ref	106.99	dBµV/n	n						87.595	dBµV/m		
Log 97.0													
87.0										•		Next Pk Ri	gh
77.0													
67.0													
57.0												Next Pk L	Lei
47.0													
37.0									^ 2				
27.0									Varant			Marker D	elt
17.0													
Start 5.0	000 CH									Stan 5	.2000 GHz		
Res BW				#\	/BW 3	.0 MHz*			Sweep 1	1.000 ms	(1001 pts)	Mkr	→Cl
MKR MODE 1	FRC SCL		х			Y	FUI	NCTION	FUNCTION WIDTH	FUNCT	TION VALUE		
	1 f			4 2 GHz 0 0 GHz		95 dBµV/i 86 dBµV/i							
3	<u> </u>		0.10	000112	20.0		-					Mkr→Ref	Lv
5											=		
6													
8												М	lor
10												1	of
						III					+		
SG									STATU	s			

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EUT	Dual Band Wireless USB Adapter	Model Name	Techkey-6B06
Temperature	25.2°C	Relative Humidity	55.6%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n40 5190MHz	Antenna	Horizontal



PK Value

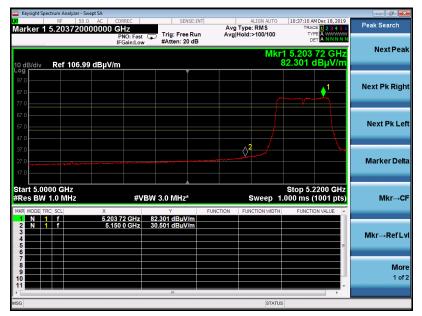
😐 Keysight S		yzer - Swept SA							- 0 ×
<mark>X</mark> Markor '	RF	50 Ω AC		SENSE:	NT Avg Typ	ALIGN AUTO e: RMS	10:35:46 AM Dec TRACE		Peak Search
Marker	5.205	0400000	PNO: Fast IFGain:Low		n Avg Hold	: 93/100	TYPE	NNNNN	
10 dB/div	Ref 1	06.99 dB	μV/m			Mkr	1 5.205 04 84.573 dBj	GHz uV/m	NextPeak
97.0 97.0 87.0									Next Pk Right
67.0 57.0 47.0									Next Pk Lef
37.0 27.0 17.0	ا موجعه وموجو ور موجو					2 			Marker Delta
#Res BV	000 GH2 / 1.0 MH	z		BW 3.0 MHz*			Stop 5.220 .000 ms (100	1 pts)	Mkr→Cl
	TRC SCL 1 f 1 f		× 5.205 04 GHz 5.150 0 GHz	Y 84.573 dBµV/m 33.017 dBµV/m	FUNCTION FU	NCTION WIDTH	FUNCTION VA	E	Mkr→RefLv
7 8 9 10 11				11					Mor 1 of 2
• U									

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EUT	Dual Band Wireless USB Adapter	Model Name	Techkey-6B06
Temperature	25.2°C	Relative Humidity	55.6%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n40 5190MHz	Antenna	Vertical



PK Value



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EUT	Dual Band Wireless USB Adapter	Model Name	Techkey-6B06
Temperature	25.2°C	Relative Humidity	55.6%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11ac80 5210MHz	Antenna	Horizontal



PK Value



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EUT	Dual Band Wireless USB Adapter	Model Name	Techkey-6B06
Temperature	25.2°C	Relative Humidity	55.6%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11ac80 5210MHz	Antenna	Vertical



PK Value

AV Value



RESULT: PASS

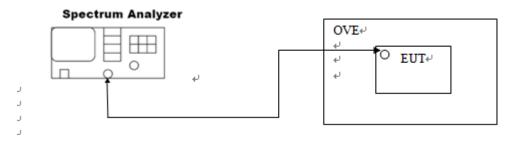
Note: All the 20MHz bandwidth modulation had been tested, the 802.11a20 was the worst case and record in his test report. All the 40MHz bandwidth modulation had been tested, the 802.11N40 was the worst case and record in his test report.

14. FREQUENCY STABILITY

14.1. 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 -10°C~60°C.

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



14.3. MEASUREMENT RESULTS

Test Mode	Temperature	Measurement Frequency (MHz)	Result	Conclusion
	- 10 ℃	5180	within the band	PASS
	0 °C	5180	within the band	PASS
	10 °C	5180	within the band	PASS
	20 °C	5180	within the band	PASS
	30 °C	5180	within the band	PASS
	40 °C	5180	within the band	PASS
	50 °C	5180	within the band	PASS
	60 °C	5180	within the band	PASS
	- 10 ℃	5240	within the band	PASS
	0 °C	5240	within the band	PASS
	10 °C	5240	within the band	PASS
	20 °C	5240	within the band	PASS
	30 °C	5240	within the band	PASS
	40 °C	5240	within the band	PASS
	50 ℃	5240	within the band	PASS
802.11a	60 °C	5240	within the band	PASS
002.11a	- 10 ℃	5745	within the band	PASS
	0 °C	5745	within the band	PASS
	10 °C	5745	within the band	PASS
	20 °C	5745	within the band	PASS
	30 °C	5745	within the band	PASS
	40 °C	5745	within the band	PASS
	50 °C	5745	within the band	PASS
	60 °C	5240	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 °C	5825	within the band	PASS
	40 °C	5825	within the band	PASS
	50 ℃	5825	within the band	PASS
	60 °C	5825	within the band	PASS

Test Mode	Temperature	Measurement Frequency (MHz)	Result	Conclusion
	- 10℃	5180	within the band	PASS
	0 °C	5180	within the band	PASS
	10 ℃	5180	within the band	PASS
	20 °C	5180	within the band	PASS
	30 °C	5180	within the band	PASS
	40 °C	5180	within the band	PASS
	50 ℃	5180	within the band	PASS
	60 °C	5180	within the band	PASS
-	- 10℃	5240	within the band	PASS
-	0 °C	5240	within the band	PASS
-	10 ℃	5240	within the band	PASS
-	20 °C	5240	within the band	PASS
	30 °C	5240	within the band	PASS
-	40 °C	5240	within the band	PASS
-	50 ℃	5240	within the band	PASS
802.11n20	60 °C	5240	within the band	PASS
802.TTN20	- 10℃	5745	within the band	PASS
	0 °C	5745	within the band	PASS
-	10 ℃	5745	within the band	PASS
-	20 °C	5745	within the band	PASS
-	30 ℃	5745	within the band	PASS
-	40 °C	5745	within the band	PASS
-	50 ℃	5745	within the band	PASS
-	60 °C	5240	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 °C	5825	within the band	PASS
	40 °C	5825	within the band	PASS
	50 ℃	5825	within the band	PASS
	60 °C	5825	within the band	PASS

Test Mode	Temperature	Measurement Frequency (MHz)	Result	Conclusion
	- 10℃	5180	within the band	PASS
	0 °C	5180	within the band	PASS
	10 ℃	5180	within the band	PASS
	20 ℃	5180	within the band	PASS
	30 ℃	5180	within the band	PASS
	40 ℃	5180	within the band	PASS
	50 ℃	5180	within the band	PASS
	60 ℃	5180	within the band	PASS
	- 10℃	5240	within the band	PASS
	0 °C	5240	within the band	PASS
	10 ℃	5240	within the band	PASS
	20 °C	5240	within the band	PASS
	30 °C	5240	within the band	PASS
	40 ℃	5240	within the band	PASS
	50 ℃	5240	within the band	PASS
802.11ac20	60 ℃	5240	within the band	PASS
802.11ac20	- 10℃	5745	within the band	PASS
	0 °C	5745	within the band	PASS
	10 ℃	5745	within the band	PASS
	20 ℃	5745	within the band	PASS
	30 ℃	5745	within the band	PASS
	40 ℃	5745	within the band	PASS
	50 ℃	5745	within the band	PASS
	60 °C	5240	within the band	PASS
	- 10℃	5825	within the band	PASS
	0 °C	5825	within the band	PASS
Ī	10 ℃	5825	within the band	PASS
Ē	20 °C	5825	within the band	PASS
	30 ℃	5825	within the band	PASS
Ī	40 °C	5825	within the band	PASS
Ē	50 ℃	5825	within the band	PASS
	60 ℃	5825	within the band	PASS

Test Mode	Temperature	Measurement Frequency (MHz)	Result	Conclusion
	- 10℃	5190	within the band	PASS
	0 °C	5190	within the band	PASS
	10 ℃	5190	within the band	PASS
-	20 °C	5190	within the band	PASS
-	30 ℃	5190	within the band	PASS
	40 °C	5190	within the band	PASS
-	50 ℃	5190	within the band	PASS
-	60 °C	5190	within the band	PASS
-	- 10℃	5230	within the band	PASS
-	0 °C	5230	within the band	PASS
-	10 ℃	5230	within the band	PASS
-	20 °C	5230	within the band	PASS
	30 °C	5230	within the band	PASS
-	40 °C	5230	within the band	PASS
-	50 ℃	5230	within the band	PASS
802.11n40	60 °C	5230	within the band	PASS
802.11140	- 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
-	60 °C	5755	within the band	PASS
-	- 10℃	5795	within the band	PASS
	0 °C	5795	within the band	PASS
	10 ℃	5795	within the band	PASS
	20 °C	5795	within the band	PASS
	30 ℃	5795	within the band	PASS
	40 °C	5795	within the band	PASS
	50 ℃	5795	within the band	PASS
	60 °C	5795	within the band	PASS

Test Mode	Temperature	Measurement Frequency (MHz)	Result	Conclusion
	- 10℃	5190	within the band	PASS
	0 °C	5190	within the band	PASS
	10 ℃	5190	within the band	PASS
	20 ℃	5190	within the band	PASS
	30 ℃	5190	within the band	PASS
	40 ℃	5190	within the band	PASS
	50 ℃	5190	within the band	PASS
	60 ℃	5190	within the band	PASS
	- 10℃	5230	within the band	PASS
	0 °C	5230	within the band	PASS
	10 ℃	5230	within the band	PASS
	20 ℃	5230	within the band	PASS
	30 °C	5230	within the band	PASS
	40 ℃	5230	within the band	PASS
	50 ℃	5230	within the band	PASS
802.11ac40	60 ℃	5230	within the band	PASS
802.118040	- 10℃	5755	within the band	PASS
	0 °C	5755	within the band	PASS
	10 ℃	5755	within the band	PASS
	20 ℃	5755	within the band	PASS
	30 ℃	5755	within the band	PASS
	40 ℃	5755	within the band	PASS
	50 ℃	5755	within the band	PASS
	60 ℃	5755	within the band	PASS
	- 10℃	5795	within the band	PASS
	0 °C	5795	within the band	PASS
	10 ℃	5795	within the band	PASS
Ē	20 °C	5795	within the band	PASS
Ē	30 °C	5795	within the band	PASS
Ē	40 °C	5795	within the band	PASS
	50 ℃	5795	within the band	PASS
Ē	60 °C	5795	within the band	PASS

Test Mode	Temperature	Measurement Frequency (MHz)	Result	Conclusion
	- 10℃	5210	within the band	PASS
	0 °C	5210	within the band	PASS
	10 ℃	5210	within the band	PASS
	20 ℃	5210	within the band	PASS
	30 ℃	5210	within the band	PASS
	40 ℃	5210	within the band	PASS
	50 ℃	5210	within the band	PASS
802.11ac80	60 ℃	5210	within the band	PASS
002.11800	- 10 ℃	5775	within the band	PASS
	0 °C	5775	within the band	PASS
	10 ℃	5775	within the band	PASS
	20 ℃	5775	within the band	PASS
	30 ℃	5775	within the band	PASS
	40 ℃	5775	within the band	PASS
	50 ℃	5775	within the band	PASS
	60 ℃	5775	within the band	PASS

15. FCC LINE CONDUCTED EMISSION TEST

15.1. LIMITS OF LINE CONDUCTED EMISSION TEST

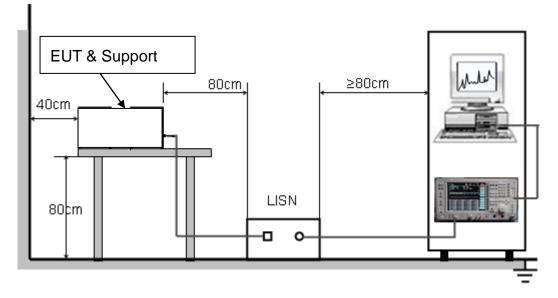
Frequency	Maximum RF Line Voltage			
Frequency	Q.P.(dBuV)	Average(dBuV)		
150kHz~500kHz	66-56	56-46		
500kHz~5MHz	56	46		
5MHz~30MHz	60	50		

Note:

1. The lower limit shall apply at the transition frequency.

2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50MHz.

15.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST



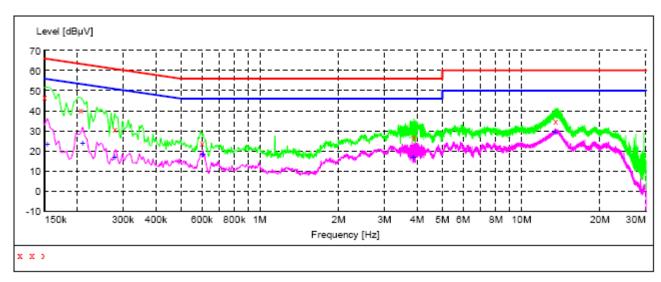
15.3. PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST

- 1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
- 2. Support equipment, if needed, was placed as per ANSI C63.10.
- 3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
- 4. All support equipments received AC120V/60Hz power from a LISN, if any.
- 5. The EUT received charging voltage by adapter which received 120V/60Hzpower by a LISN.
- 6. The test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
- 7. Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.
- 8. During the above scans, the emissions were maximized by cable manipulation.
- 9. The test mode(s) were scanned during the preliminary test.

Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

15.4. FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST

- 1. EUT and support equipment was set up on the test bench as per step 2 of the preliminary test.
- A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less –2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.
- 3. The test data of the worst case condition(s) was reported on the Summary Data page.



15.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST

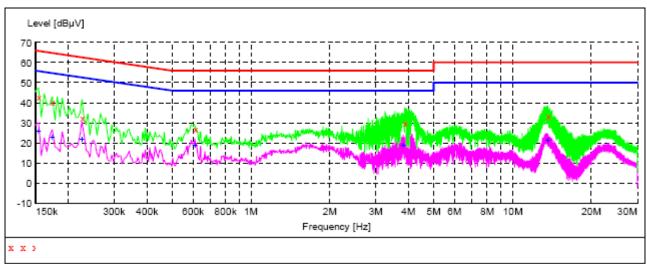
LINE CONDUCTED EMISSION TEST-L

MEASUREMENT RESULT

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.150000 0.206000 0.278000 0.598000 3.870000 13.462000	47.10 40.20 31.20 24.10 26.80 34.80	10.3 10.3 10.2 10.3 10.4 10.8	66 63 56 56 60	18.9 23.2 29.7 31.9 29.2 25.2	QP QP QP QP QP QP	L1 L1 L1 L1 L1 L1

MEASUREMENT RESULT

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.154000	23.50	10.3	56	32.3	AV	L1
0.210000	24.10	10.3	53	29.1	AV	L1
0.278000	17.10	10.2	51	33.8	AV	L1
0.606000	18.60	10.3	46	27.4	AV	L1
3.874000	17.10	10.4	46	28.9	AV	L1
13.462000	29.20	10.8	50	20.8	AV	L1



LINE CONDUCTED EMISSION TEST-N

MEASUREMENT RESULT

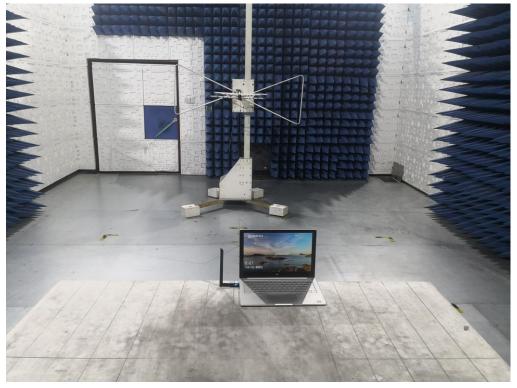
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.154000 0.174000 0.226000 0.610000 3.878000 13.686000	42.80 40.40 32.70 27.10 29.90 33.50	10.3 10.3 10.3 10.3 10.4 10.8	66 65 56 56 60	23.0 24.4 29.9 28.9 26.1 26.5	QP QP QP QP QP	N N N N N

MEASUREMENT RESULT

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.154000	25.80	10.3	56	30.0	AV	N
0.174000	23.10	10.3	55	31.7	AV	N
0.226000	21.80	10.3	53	30.8	AV	N
0.610000	18.70	10.3	46	27.3	AV	N
3.822000	18.90	10.4	46	27.1	AV	N
13.686000	21.40	10.8	50	28.6	AV	N

RESULT: PASS

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



FCC RADIATED EMISSION TEST SETUP ABOVE 1GHZ





FCC LINE CONDUCTED EMISSION TEST SETUP



APPENDIX B: PHOTOGRAPHS OF EUT

ALL VIEW OF EUT

TOP VIEW OF EUT





BOTTOM VIEW OF EUT

FRONT VIEW OF EUT





BACK VIEW OF EUT

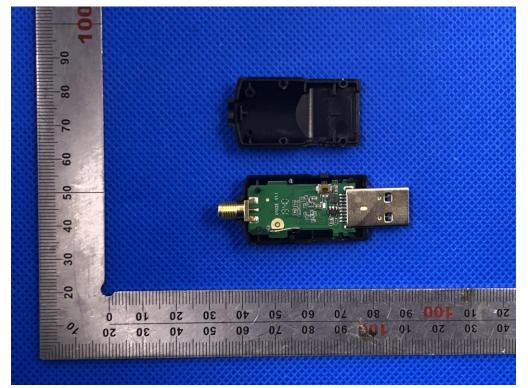
LEFT VIEW OF EUT

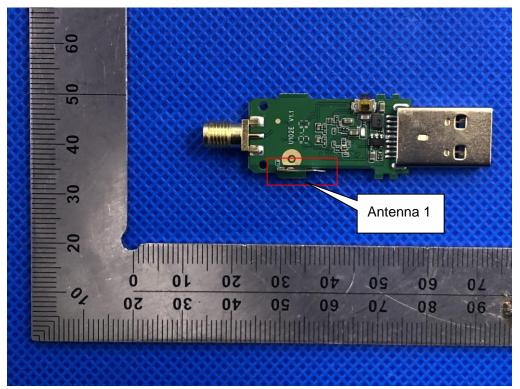




RIGHT VIEW OF EUT

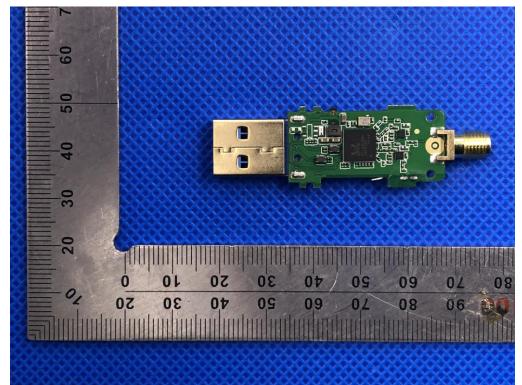
OPEN VIEW OF EUT



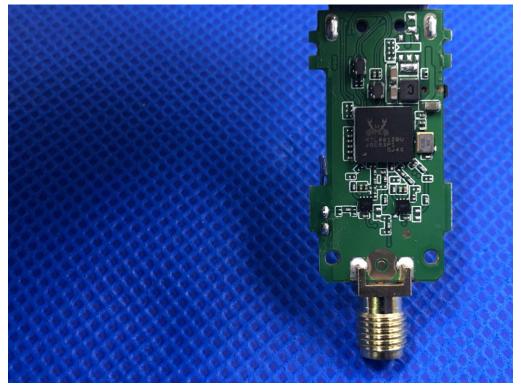


INTERNAL VIEW OF EUT-1

INTERNAL VIEW OF EUT-2



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INTERNAL VIEW OF EUT-3

----END OF REPORT----