

RF TEST REPORT

FCC ID: 2ATI2-SPICA3PLUS

Test Report No.....: RF251217036-02-002

Product(s) Name.....: Portable Launch Monitor

Model(s).....: SPICA3 PLUS, SPICA3 LITE

Trade Mark.....: GolfJoy

Applicant.....: SHENZHEN GREENJOY TECHNOLOGY CO.,LTD

Address.....: Room A2604-2606, Building 11, Shenzhen Bay Science and Technology
Ecological Park, No. 16, Keji South Road, Yuehai Subdistrict, Nanshan
District, Shenzhen China

Receipt Date.....: 2025.12.18

Test Date.....: 2025.12.22 ~ 2026.01.19

Issued Date.....: 2026.01.20

Standards.....: 47 CFR FCC Part 15, Subpart E(Section 15.407);
ANSI C63.10:2020

Testing Laboratory.....: Shenzhen Haiyun Standard Technical Co., Ltd.

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History of this test report

Original Report Issue Date: 2026.01.20

- ☒ No additional attachment
- ☐ Additional attachments were issued following record

Attachment No.	Issue Date	Description

1. General Information

1.1 Applicant

SHENZHEN GREENJOY TECHNOLOGY CO.,LTD

Room A2604-2606, Building 11, Shenzhen Bay Science and Technology Ecological Park, No. 16, Keji South Road, Yuehai Subdistrict, Nanshan District, Shenzhen China

1.2 Manufacturer

SHENZHEN GREENJOY TECHNOLOGY CO.,LTD

Room A2604-2606, Building 11, Shenzhen Bay Science and Technology Ecological Park, No. 16, Keji South Road, Yuehai Subdistrict, Nanshan District, Shenzhen China

1.3 Basic Description of Equipment Under Test

Sample No.	POC251217036-S001, POC251217036-S002	
Product name	Portable Launch Monitor	
Model name	SPICA3 PLUS, SPICA3 LITE	
Model difference	SPICA3 LITE is based on SPICA3 PLUS, but it has removed the LCD screen, the related circuitry for the LCD screen and the battery.	
Trade Mark	GolfJoy	
Power supply	DC 24V from adapter or DC 7.4V from battery	
Adapter information	Model name: GM95-240375-F Input: 100-240V~, 50-60Hz, 2.5A Output: 24.0V==3.75A; 90.0W	
Operating Temperature	0℃-45℃	
EUT Stage	○ Product Unit	● Final-Sample
Operating Band & Max Conducted Output Power	5150MHz ~5250MHz	802.11ac40: 15.38dBm(0.0345W)
	5725MHz ~5850MHz	802.11ac20: 13.29dBm(0.0213W)
Product Type	IEEE 802.11a/n/ac: WLAN (SISO)	
Nominal Bandwidth	20MHz / 40MHz / 80MHz	
Modulation	OFDM	
Antenna gain	4.04dBi	
Antenna type	PCB antenna	
Data Rate (Mbps)	IEEE 802.11a mode: 6/9/12/18/24/36/48/54 IEEE 802.11n mode: up to 150 IEEE 802.11ac mode: up to 433.3	

Channel Information			
Frequency Range (MHz)	IEEE Std. 802.11	Ch. Frequency (MHz)	Channel Number
5150-5250	802.11a /n /ac (20MHz)	5180-5240	36-48
5725-5850		5745-5825	149-165
5150-5250	802.11n /ac (40MHz)	5190-5230	38-46
5725-5850		5755-5795	151-159
5150-5250	802.11ac (80MHz)	5210	42
5725-5850		5775	155

2. Summary of Test Results

2.1 Summary of Test Items

47 CFR FCC Part 15, Subpart E (Section 15.407)			
Test item	Standard	Results	Remarks
AC Power Conducted Emission	15.207 15.407(b)	Pass	Meet the requirement of the limit
Radiated Emission	15.205(a) 15.209(a) 15.407(b)	Pass	Meet the requirement of the limit
Antenna Requirements	15.203	Compliance	Note
Spectrum Bandwidth	15.407(a) 15.407(e)	Pass	Meet the requirement of the limit
Conducted Output Power	15.407(a)	Pass	Meet the requirement of the limit
Power Spectral Density	15.407(a)	Pass	Meet the requirement of the limit
Note: The EUT has one PCB antenna arrangement which was permanently attached.			

2.2 Application of Standard

47 CFR FCC Part 15, Subpart E

KDB 789033 D02 General UNII Test Procedures New Rules v02r01

ANSI C63.10:2020

2.3 Test Instruments

Radiated Emissions							
No.	Equipment	Manufacturer	Type No.	Serial No.	Inventory No.	Cal. date (yyyy/mm/dd)	Cal. Due date (yyyy/mm/dd)
1	Test receiver	Rohde&Schwarz	ESU	100184	JLE011	2025/3/1	2026/2/28
2	Log periodic antenna	Schwarzbeck	VULB 9168	1151	JLE012	2025/4/12	2026/4/11
3	Low frequency amplifier	/	LNA 0920N	2014	JLE023	2025/3/1	2026/2/28
4	High frequency amplifier	Schwarzbeck	BBV 9718	9718-284	JLE024	2025/3/1	2026/2/28
5	Horn Antenna	SCHWARZBEC K	BBHA 9120 D	02670	JLE028	2025/4/12	2026/4/11
6	Temp&Humidity Recorder	Meideshi	JR900	/	JLE021	2025/4/15	2026/4/14
7	Horn Antenna	SCHWARZBEC K	BBHA 9170	9170#685	JLE029	2024/7/15	2027/7/14
8	Loop Antenna	SCHWARZBEC K	FMZB15 19B	00029	JLE030	2024/7/15	2027/7/14
9	Broadband preamplifier	Schwarzbeck	BBV9721	9721-019	JLE025	2025/3/1	2026/2/28
10	Test software	Farad Technology Co., Ltd	EZ-EMC Ver.TW-03A2				
RF Conducted Emission							
1	MXA Signal Analyzer	Keysight	N9010A	MY51440 158	JLE087	2025/9/15	2026/9/14
2	RF Control Unit	dsusoft	JS0806-2	21G8060 449	JLE053	2025/3/1	2026/2/28
3	power supply unit	dsusoft	JS0806-4 ADC	N/A	JLE055	2025/3/1	2026/2/28
4	VXG Signal Generator	Keysight	N5182B	MY59100 855	JLE068	2025/4/15	2026/4/14
5	EXG Analog Signal Generator	Keysight	N5173B	MY59101 282	JLE052	2025/3/1	2026/2/28
6	Wideband Radio Communication Tester	Rohde&Schwarz	CMW500	1201.000 2K50-116 064-Dt	JLE054	2025/3/1	2026/2/28
7	Test software	dsusoft	JS1120-3 Ver.3.2.22.0				
Conducted Emission							
1	LISN	Rohde&Schwarz	ENV216	100075	JLE002	2025/3/1	2026/2/28
2	ISN	Schwarzbeck	CATE 5 8158	#171	JLE003	2025/2/21	2026/2/20
3	Test receiver	Rohde&Schwarz	ESCI	100718	JLE010	2025/3/1	2026/2/28
4	Pulse limiter	Rohde&Schwarz	ESH3-Z2	102299	JLE047	2025/3/1	2026/2/28
5	Temp&Humidity Recorder	Meideshi	JR900	/	JLE020	2025/4/15	2026/4/14
6	Test software	Farad Technology Co., Ltd	EZ-EMC Ver.TW-03A2				

2.4 Operation Mode

Transmit Operating Mode					Transmit Multiple Antennas					
☒	Operating mode 1 (single antenna)				☒	1TX				
☐	Operating mode 2 (multiple antenna, no beam forming)				☐	2TX	☐	3TX	☐	4TX
☐	Operating mode 3 (multiple antenna, with beam forming)				☐	2TX	☐	3TX	☐	4TX
☒	802.11a	Operating mode	☒	1TX	☐	2TX	☐	3TX	☐	4TX
☒	802.11n(20MHz)	Operating mode	☒	1TX	☐	2TX	☐	3TX	☐	4TX
☒	802.11n(40MHz)	Operating mode	☒	1TX	☐	2TX	☐	3TX	☐	4TX
☒	802.11ac(20MHz)	Operating mode	☒	1TX	☐	2TX	☐	3TX	☐	4TX
☒	802.11ac(40MHz)	Operating mode	☒	1TX	☐	2TX	☐	3TX	☐	4TX
☒	802.11ac(80MHz)	Operating mode	☒	1TX	☐	2TX	☐	3TX	☐	4TX

Note: All the bit rate of transmitter have been tested and found the lowest rate is found to be the worst case and recorded.

2.5 Test Condition

Test Item	Environmental conditions	Input Power	Tested by
AC Power Conducted Emission	23.8°C, 52% RH	AC 120V/60Hz	Keith Huang
Radiated Emission	23.9°C, 50% RH	AC 120V/60Hz	Keith Huang
Spectrum Bandwidth	23.2°C, 55% RH	DC 7.4V	Lemon He
Conducted Power	23.2°C, 55% RH	DC 7.4V	Lemon He
Power Spectral Density	23.2°C, 55% RH	DC 7.4V	Lemon He

Note: Adapter supply voltage AC 120V/60Hz.

The applicant declare the operating environment of EUT as below:

Normal conditions: 7.4V DC, 0~45°C

2.6 Duty Cycle of Test Signal

If duty cycle is $\geq 98\%$, duty factor is not required.

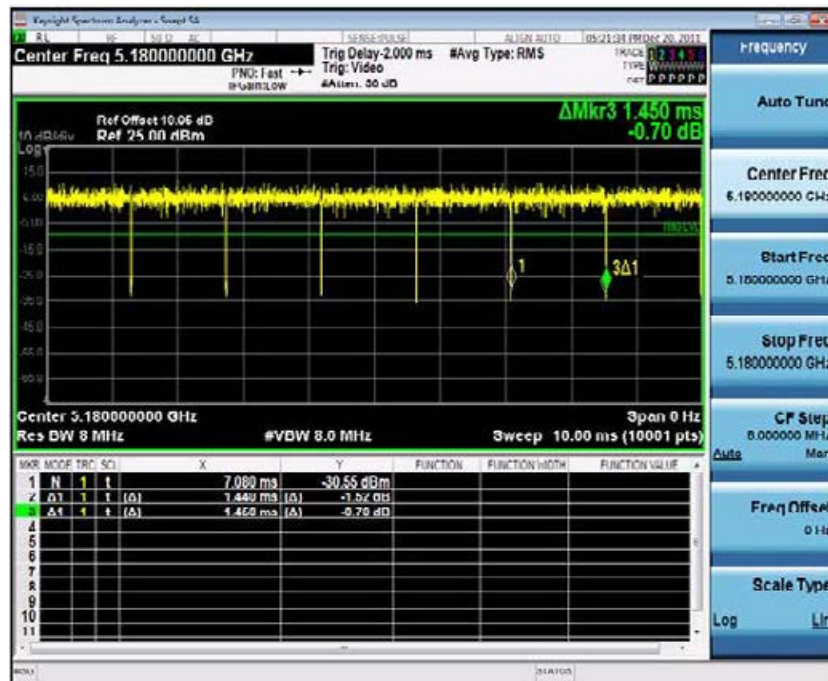
If duty cycle is $< 98\%$, duty factor shall be considered.

All the duty factor of other test mode have been considered.

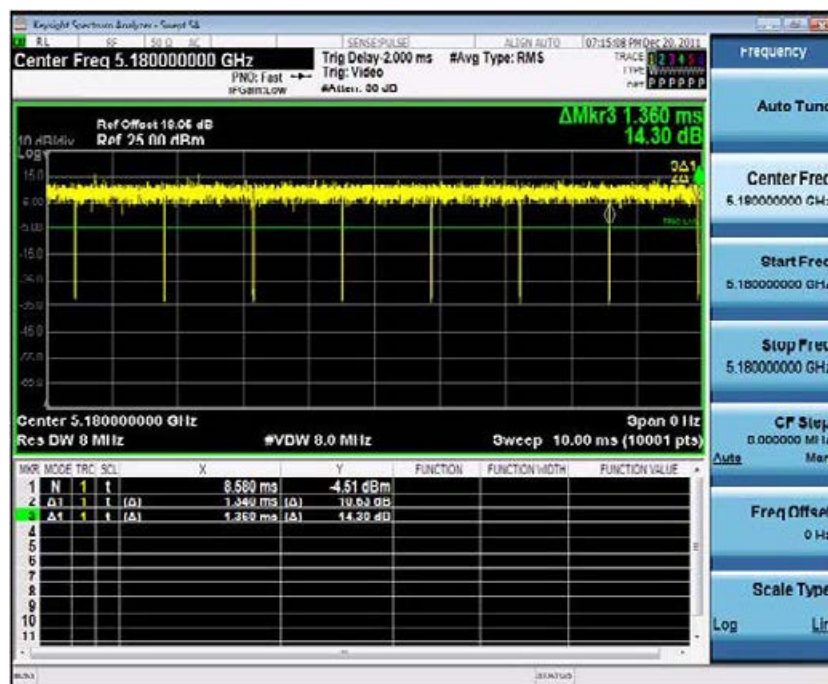
Test Mode	Freq(MHz)	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]
11A	5180	1.44	1.45	99.31
11N20	5180	1.34	1.36	98.53
11N40	5190	0.67	0.68	98.53
11AC20	5180	1.04	1.06	98.11
11AC40	5190	0.55	0.57	96.49
11AC80	5210	0.29	0.31	93.55

Test Graphs

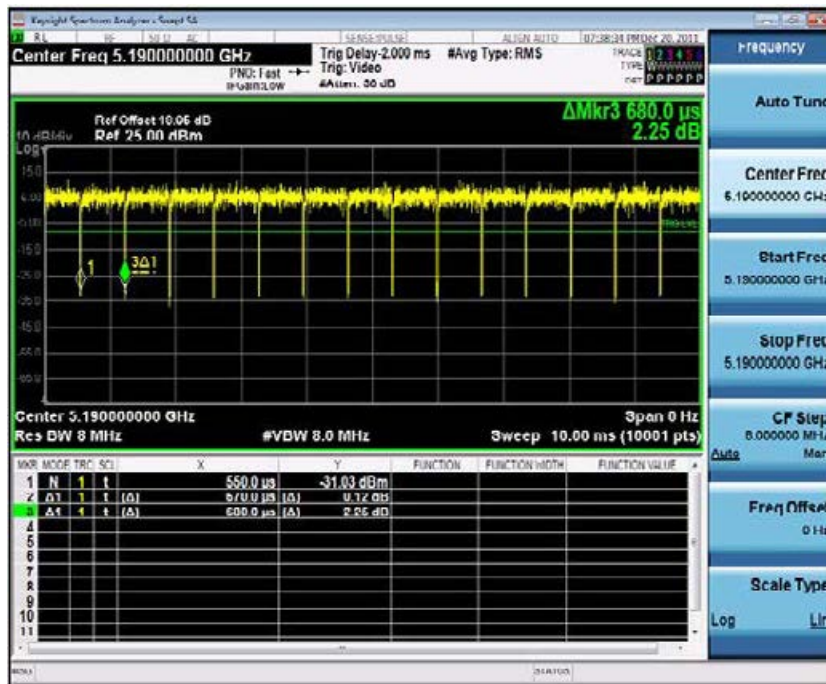
11A_Ant1_5180



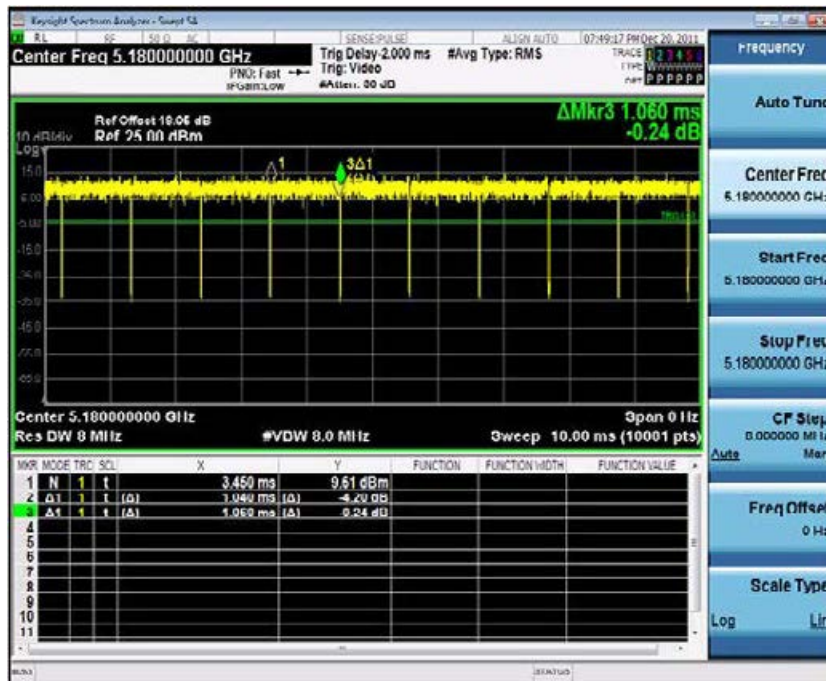
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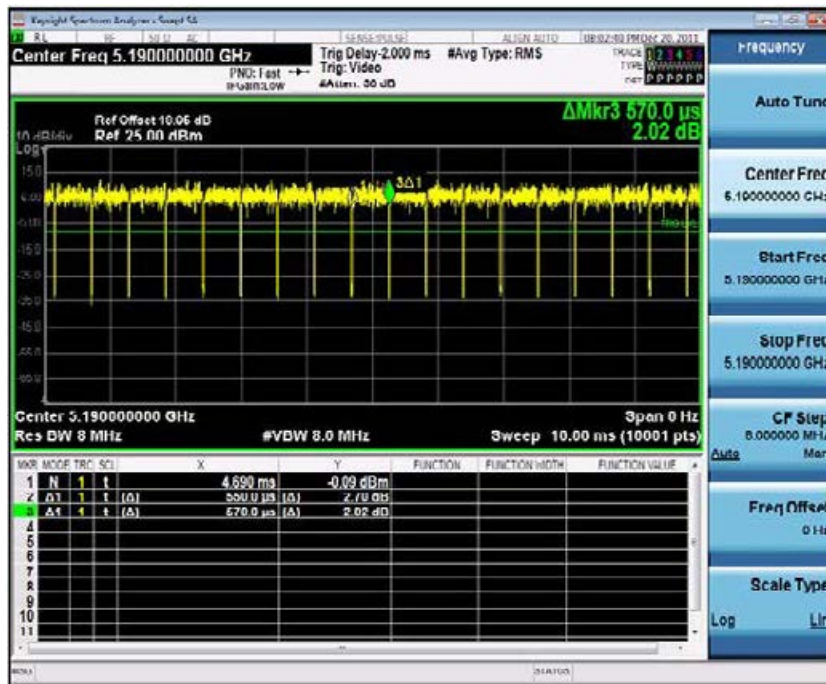
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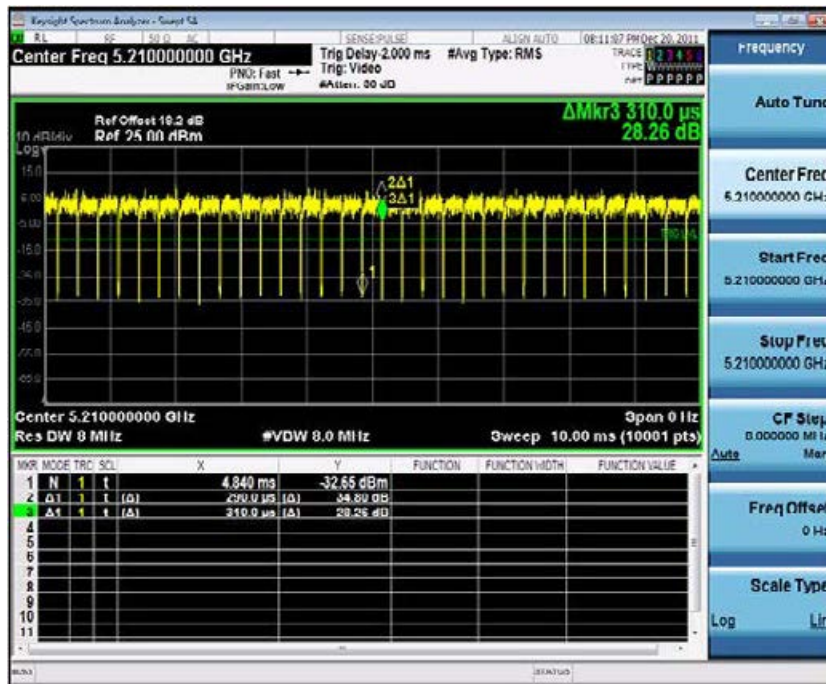
11AC20SISO_Ant1_5180



11AC40SISO_Ant1_5190



11AC80SISO_Ant1_5210



2.7 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT.

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

Uncertainty	
Parameter	Uncertainty
Occupied Channel Bandwidth	$\pm 102\text{kHz}$
RF power conducted	$\pm 0.243\text{dB}$
Power Spectral Density	$\pm 0.743\text{dB}$
Conducted Spurious Emission	$\pm 1.328\text{dB}$
Conducted emission(9kHz~30MHz) AC main	$\pm 2.68\text{dB}$
Radiated emission(9kHz~30MHz)	$\pm 3.50\text{dB}$
Radiated emission (30MHz~1GHz)	$\pm 4.20\text{dB}$
Radiated emission (1GHz~18GHz)	$\pm 5.10\text{dB}$
Radiated emission (18GHz~40GHz)	$\pm 5.26\text{dB}$

2.8 Test Location

Company:	Shenzhen Haiyun Standard Technical Co., Ltd.
Address:	No. 110-113, 115, 116, Block B, Jinyuan Business Building, Bao'an District, Shenzhen, China
CNAS Registration Number:	CNAS L18252
CAB identifier:	CN0145
A2LA Certificate Number:	6823.01
Telephone:	0755-26024411

2.9 SUPPORT UNITS

No.	Equipment	Model	Manufacturer	Series No
/	/	/	/	/

3. Test Procedure And Results

3.1 AC Power Line Conducted Emission

3.1.1 Limit

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level dB(μ V)	Average Level dB(μ V)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

Notes: 1. * Decreasing linearly with logarithm of frequency.

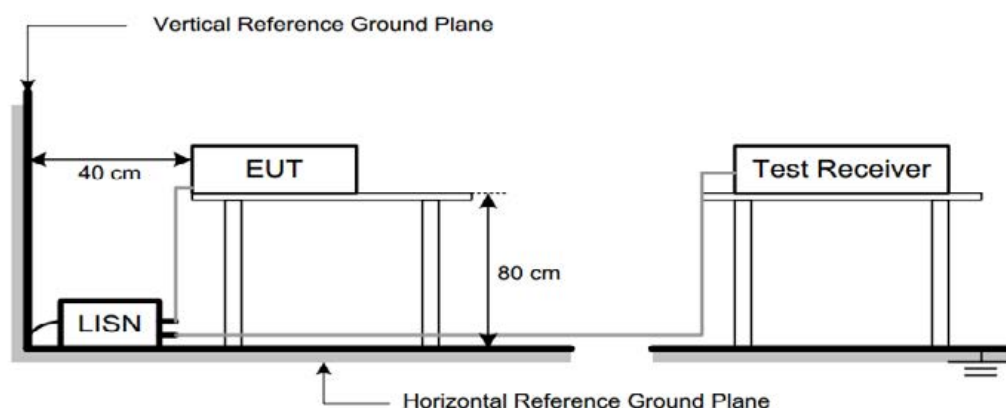
2. The lower limit shall apply at the transition frequencies.

3.1.2 Test Procedure

Test Method	
●Conducted Measurement	○Radiated Measurement
Test Channels	
○ Lowest, Middle and Highest Channel	○ Lowest and Highest Channel
Environmental conditions	
●Normal	○Normal and Extreme
Note: ●:Test ○:No Test	

- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

3.1.3 Test Setup



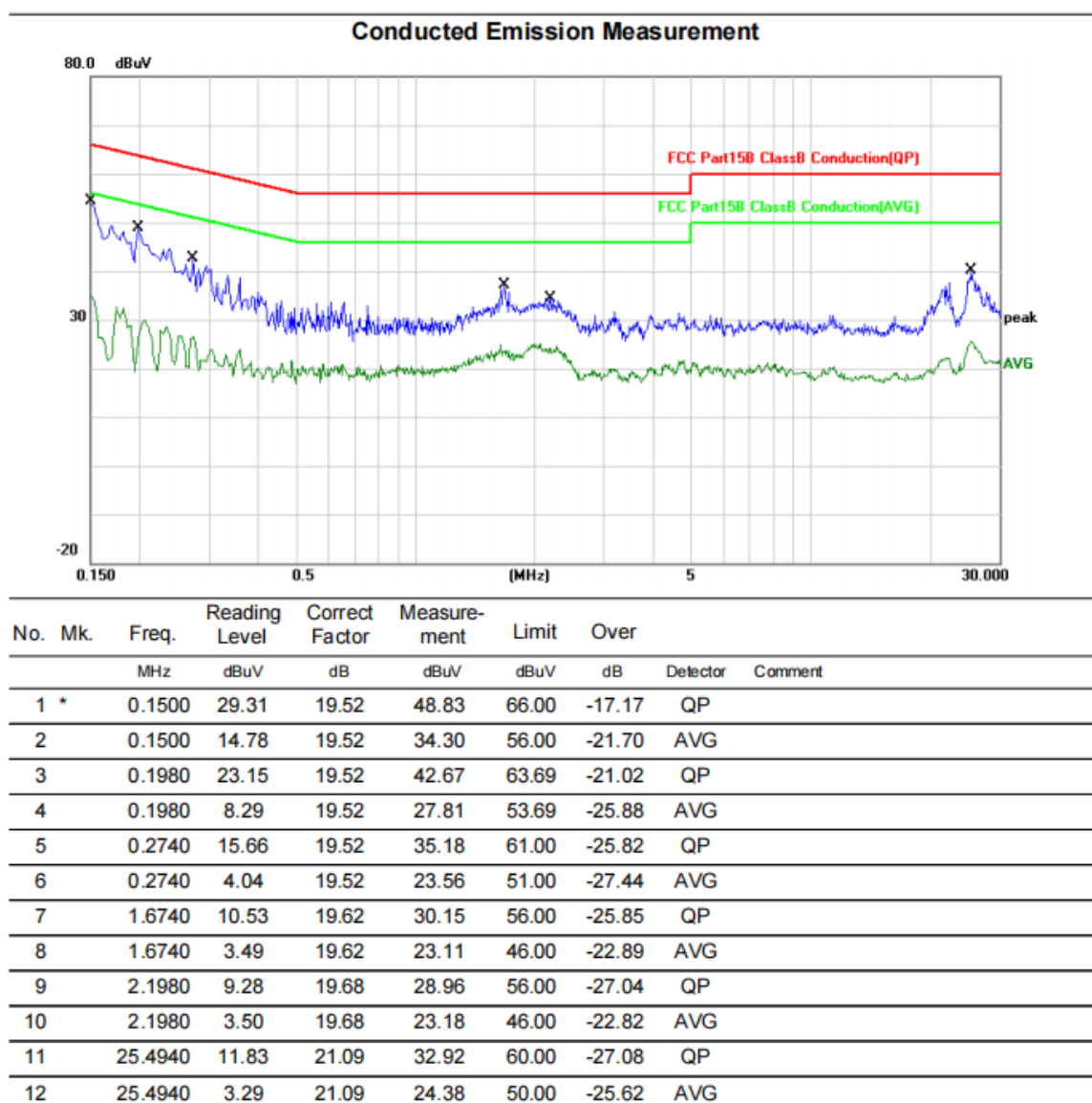
3.1.4 Test Result

Note:

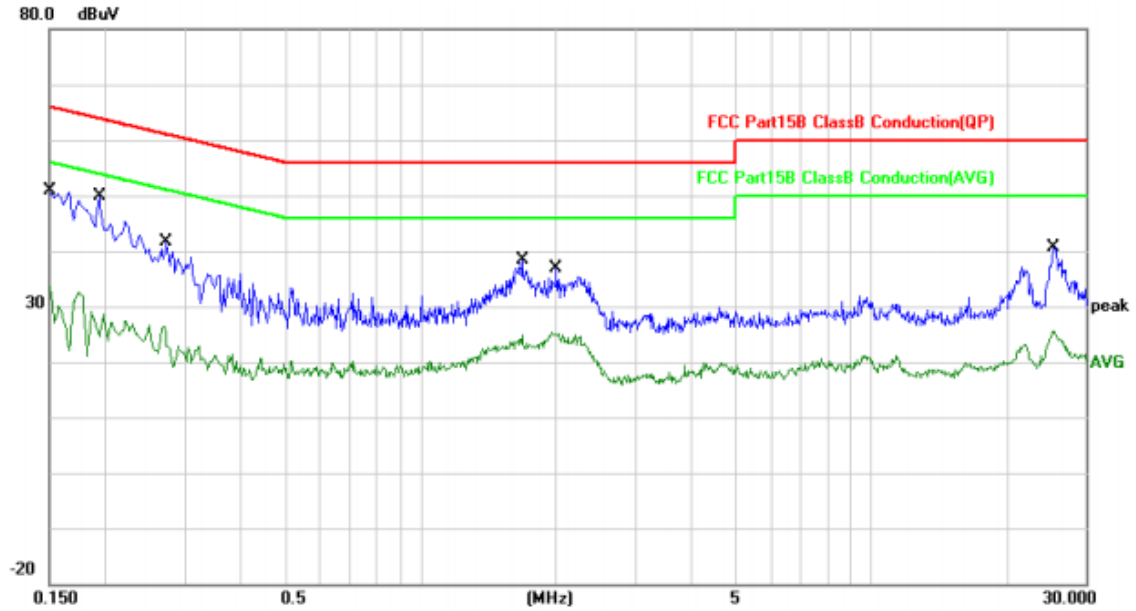
1. Correct Factor = LISN Factor + Cable Loss + Pulse Limiter Factor, the value was added to Original Receiver Reading by the software automatically.
2. Measurement = Reading + Correct Factor.
3. Over = Measurement – Limit
4. The TX 11N40 Mode Channel 46 is found to be the worst case and recorded.

For SPICA3 PLUS

150kHz~30MHz	TX 11AC40 Channel 46
Line	



Conducted Emission Measurement



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1	*	0.1500	28.26	19.51	47.77	66.00	-18.23	QP	
2		0.1500	12.59	19.51	32.10	56.00	-23.90	AVG	
3		0.1940	23.18	19.54	42.72	63.86	-21.14	QP	
4		0.1940	8.30	19.54	27.84	53.86	-26.02	AVG	
5		0.2740	15.28	19.55	34.83	61.00	-26.17	QP	
6		0.2740	3.03	19.55	22.58	51.00	-28.42	AVG	
7		1.6820	14.48	19.62	34.10	56.00	-21.90	QP	
8		1.6820	3.99	19.62	23.61	46.00	-22.39	AVG	
9		2.0100	9.75	19.69	29.44	56.00	-26.56	QP	
10		2.0100	5.23	19.69	24.92	46.00	-21.08	AVG	
11		25.3860	11.77	21.06	32.83	60.00	-27.17	QP	
12		25.3860	3.43	21.06	24.49	50.00	-25.51	AVG	

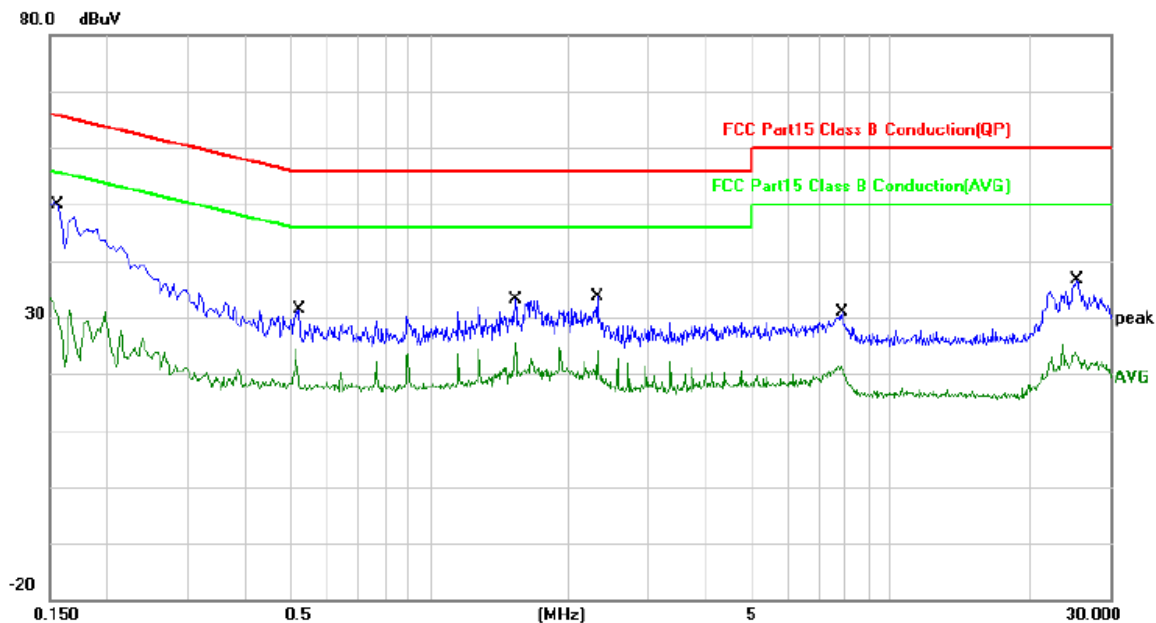
For SPICA3 LITE

150kHz~30MHz

TX 11AC40 Channel 46

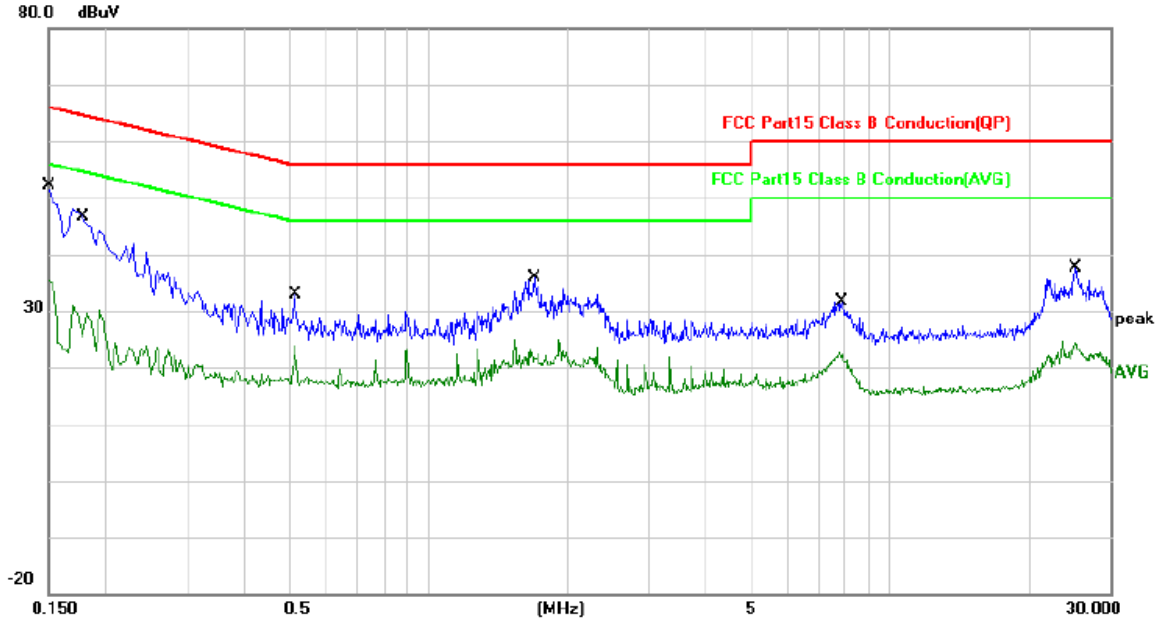
Line

Conducted Emission Measurement



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over		
		MHz	dBμV	dB	dBμV	dBμV	dB	Detector	Comment
1	*	0.1580	26.43	19.50	45.93	65.57	-19.64	QP	
2		0.1580	9.13	19.50	28.63	55.57	-26.94	AVG	
3		0.5220	2.79	19.50	22.29	56.00	-33.71	QP	
4		0.5220	-1.61	19.50	17.89	46.00	-28.11	AVG	
5		1.5420	8.63	19.61	28.24	56.00	-27.76	QP	
6		1.5420	5.24	19.61	24.85	46.00	-21.15	AVG	
7		2.3140	8.30	19.72	28.02	56.00	-27.98	QP	
8		2.3140	4.16	19.72	23.88	46.00	-22.12	AVG	
9		7.8740	4.48	20.10	24.58	60.00	-35.42	QP	
10		7.8740	-0.64	20.10	19.46	50.00	-30.54	AVG	
11		25.5740	8.48	21.06	29.54	60.00	-30.46	QP	
12		25.5740	1.55	21.06	22.61	50.00	-27.39	AVG	

Conducted Emission Measurement



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1516	27.34	19.51	46.85	65.91	-19.06	QP	
2		0.1516	10.10	19.51	29.61	55.91	-26.30	AVG	
3		0.1796	23.09	19.51	42.60	64.50	-21.90	QP	
4		0.1796	6.54	19.51	26.05	54.50	-28.45	AVG	
5		0.5140	7.38	19.55	26.93	56.00	-29.07	QP	
6		0.5140	4.25	19.55	23.80	46.00	-22.20	AVG	
7		1.7060	8.91	19.63	28.54	56.00	-27.46	QP	
8		1.7060	1.42	19.63	21.05	46.00	-24.95	AVG	
9		7.8740	5.94	20.10	26.04	60.00	-33.96	QP	
10		7.8740	1.27	20.10	21.37	50.00	-28.63	AVG	
11		25.3180	9.39	21.05	30.44	60.00	-29.56	QP	
12		25.3180	2.90	21.05	23.95	50.00	-26.05	AVG	

3.2 Radiated Emission

3.2.1 Limit

1) Limit of radiated emission measurement:

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20dB below the highest level of the desired power:

Frequency (MHz)	Distance Meters(m)	Field Strength Limit	
		$\mu\text{V/m}$	$\text{dB}(\mu\text{V})/\text{m}$
0.009 – 0.49	300	$2400/\text{F}(\text{kHz})$	-
0.490 – 1.705	30	$24000/\text{F}(\text{kHz})$	-
1.705 – 30	30	30	-
30~88	3	100	40.0
88~216	3	150	43.5
216~960	3	200	46.0
960~1000	3	500	54.0
Above 1000	3	74.0 $\text{dB}(\mu\text{V})/\text{m}$ (Peak) 54.0 $\text{dB}(\mu\text{V})/\text{m}$ (Average)	

Note: (1) Emission level $\text{dB}\mu\text{V} = 20 \log$ Emission level $\mu\text{V/m}$

(2) The smaller limit shall apply at the cross point between two frequency bands.

(3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

2) Limit of unwanted emission out of the restricted bands:

Frequency(MHz)	EIRP Limit(dBm/MHz)	Equivalent Field Strength at 3m($\text{dB}\mu\text{V/m}$)
5150-5250	-27	68.2
5250-5350	-27	68.2
5470-5725	-27	68.2
5725-5850	-27 NOTE (2)	68.2
	10 NOTE (2)	105.2
	15.6 NOTE (2)	110.8
	27 NOTE (2)	122.2

Note: (1) The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength: $E[\text{dB}\mu\text{V/m}] = \text{EIRP}[\text{dBm}] + 95.2$, for $d=3\text{m}$

(2) According to 15.407(b)(4)(i), all emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing 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 increasing linearly to a level of 27 dBm/MHz at the band edge.

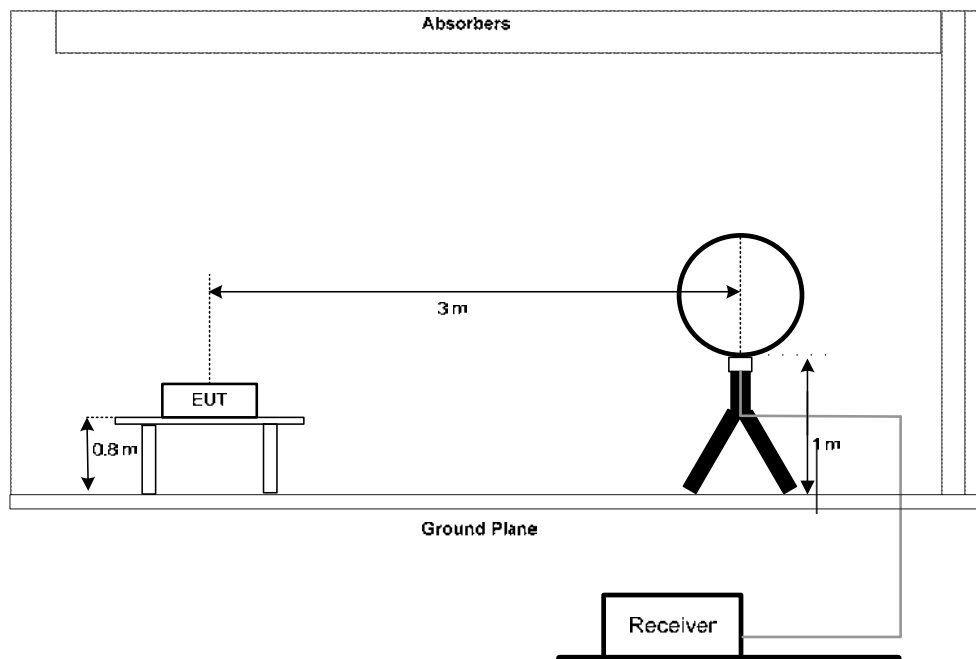
3.2.2 Test Procedure

Test Method	
○Conducted Measurement	●Radiated Measurement
Test Channels	
●Lowest, Middle and Highest Channel	○ Lowest and Highest Channel
Environmental conditions	
●Normal	○Normal and Extreme
Note:●:Test ○:No Test	

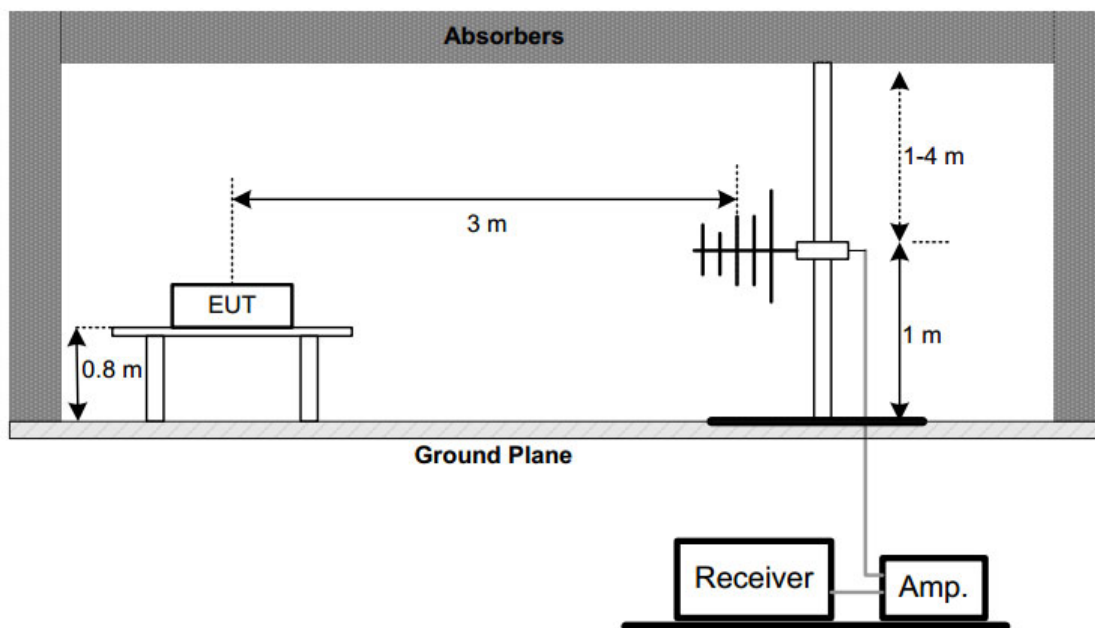
- a) The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1 GHz)
- b) The measuring distance of 3 m or 1.5m shall be used for measurements. The EUT was placed on the top of a rotating table 1.5 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(above 1GHz)
- c) The height of the equipment or of the substitution antenna shall be 0.8m or 1.5m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d) For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights find the maximum reading (used Bore sight function).
- e) The receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz.
- f) The initial step in collecting radiated emission data is a receiver peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- g) All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform. (below 1 GHz)
- h) All readings are Peak Mode value unless otherwise stated AVG in column of Note. If the Peak Mode Measured value compliance with the Peak Limits and lower than AVG Limits, the EUT shall be deemed to meet both Peak & AVG Limits and then only Peak Mode was measured, but AVG Mode didn't perform. (above 1 GHz)
- i) For the actual test configuration, please refer to the related Item -EUT Test Photos.

3.2.3 Test Setup

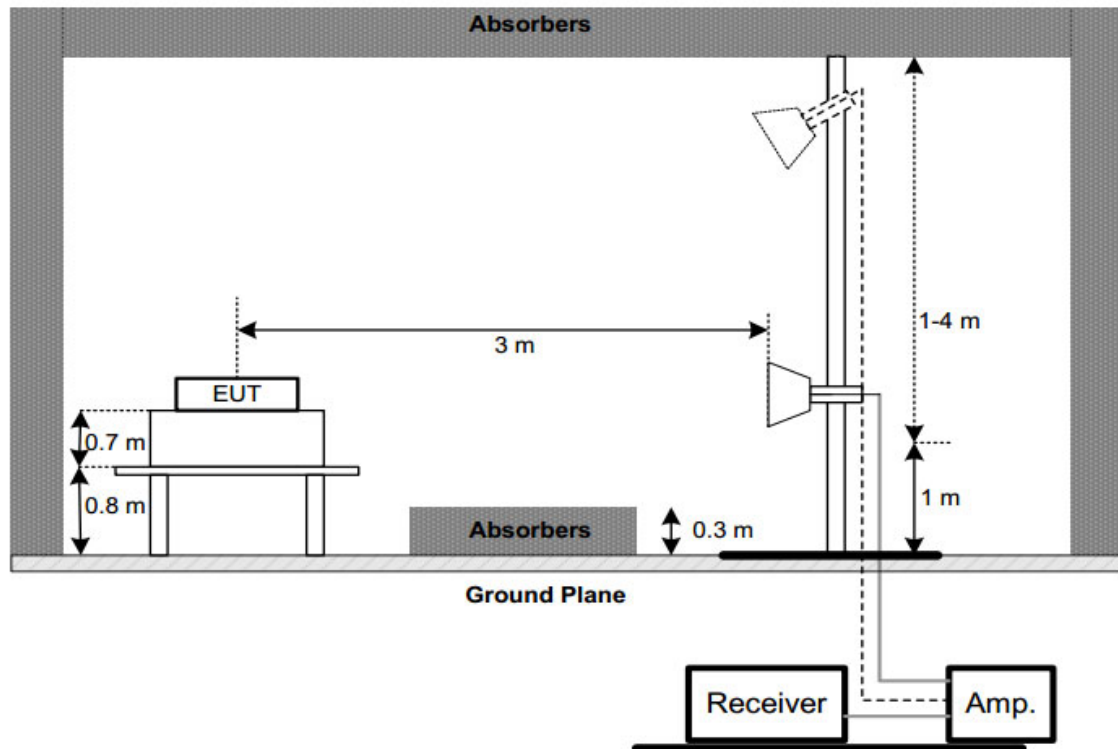
(A) Radiated Emission Test Set-Up Frequency Below 30 MHz



(B) Radiated Emission Test Set-Up Frequency 30 MHz-1000 MHz



(C) Radiated Emission Test Set-Up Frequency Above 1 GHz



3.2.4 Test Result

1) Radiated emission: 9kHz-30MHz

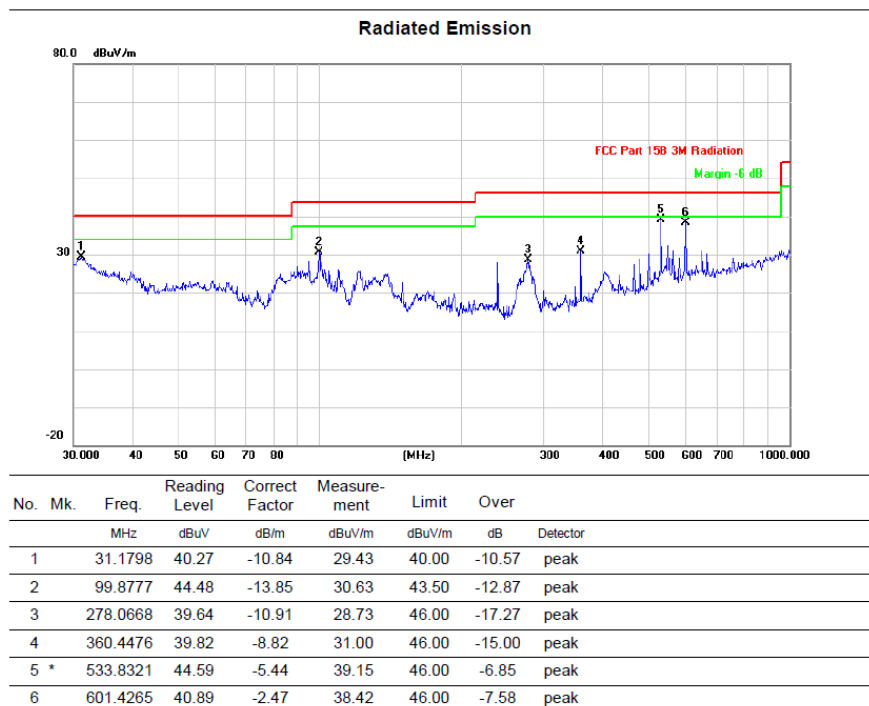
The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not recorded in this report.

2) Radiated emission: 30MHz-1GHz

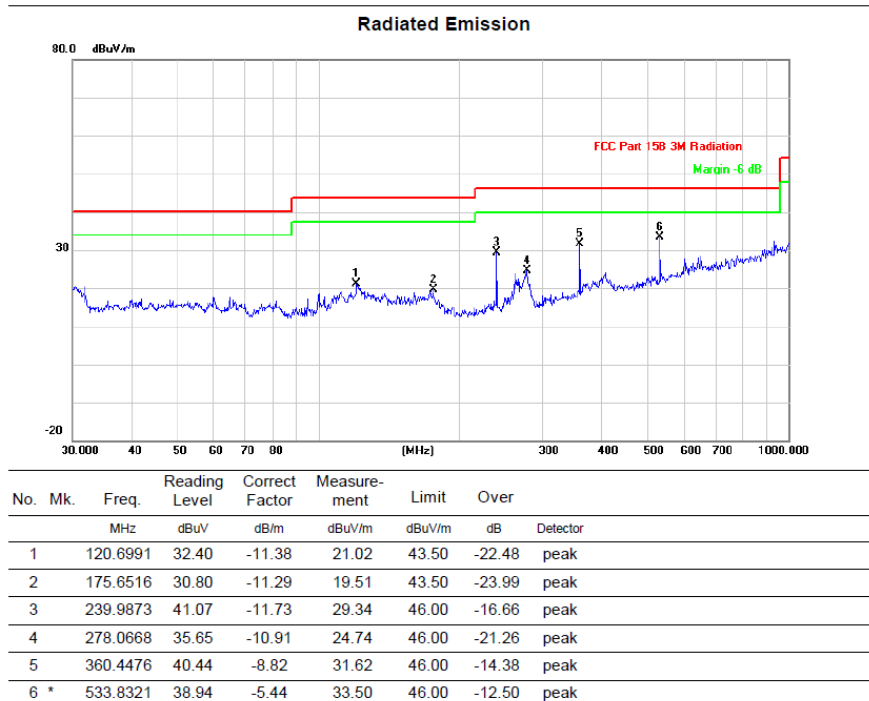
Note:

1. Measurement = Reading + Correct Factor.
2. Over = Measurement – Limit
3. The TX 11AC40 Channel 46 is found to be the worst case and recorded.

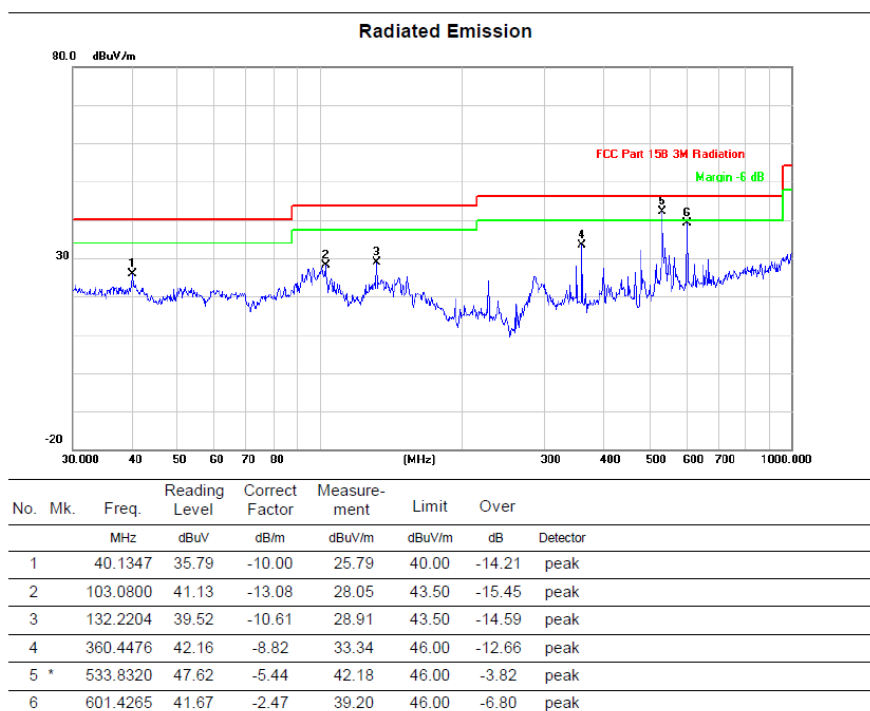
VERTICAL



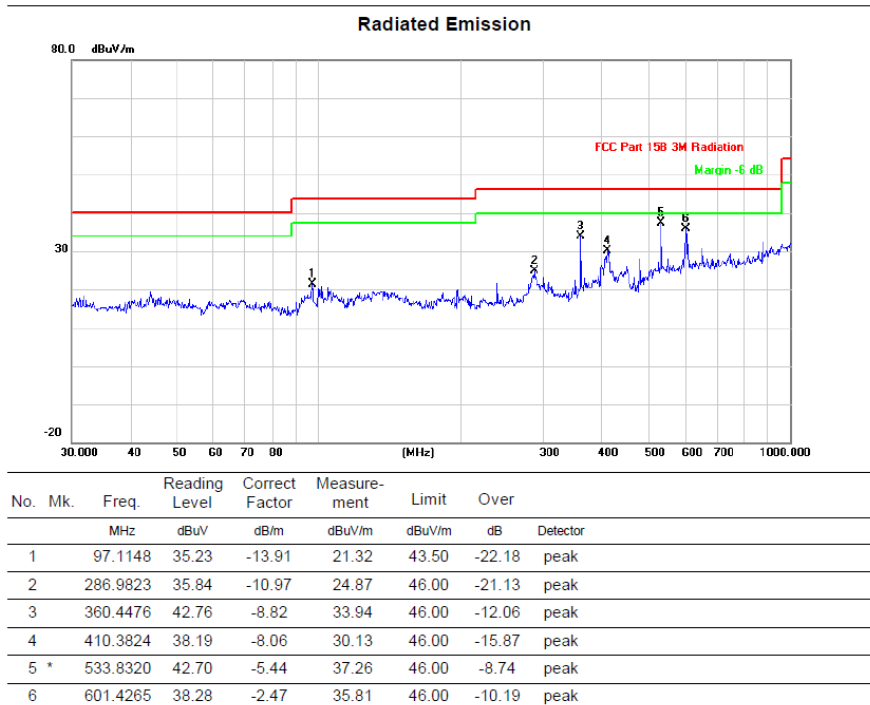
HORIZONTAL



VERTICAL



HORIZONTAL



3) Radiated emission: Above 1GHz

Frequency (MHz)	Read Level (dBμV)	Polarization	Factor (dB/m)	Measurement (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
11A TX CH36							
4500.00	40.14	H	4.90	45.04	74.00	28.96	peak
5150.00	38.91	H	6.54	45.45	74.00	28.55	peak
10360.00	40.64	H	7.53	48.17	68.20	20.03	peak
4500.00	40.65	V	4.90	45.55	74.00	28.45	peak
5150.00	39.25	V	6.54	45.79	74.00	28.21	peak
10360.00	41.10	V	7.53	48.63	68.20	19.57	peak
11A TX CH40							
10400.00	40.33	H	7.69	48.02	68.20	20.18	peak
10400.00	40.89	V	7.69	48.58	68.20	19.62	peak
11A TX CH48							
10480.00	39.93	H	7.94	47.87	68.20	20.33	peak
10480.00	40.41	V	7.94	48.35	68.20	19.85	peak
11A TX CH149							
5650.00	42.23	H	6.22	48.45	68.20	19.75	peak
5700.00	48.46	H	6.50	54.96	105.20	50.24	peak
5720.00	60.21	H	6.32	66.53	110.80	44.27	peak
5725.00	76.21	H	6.28	82.49	122.20	39.71	peak
11490.00	38.98	H	8.26	47.24	74.00	26.76	peak
5650.00	42.30	V	6.22	48.52	68.20	19.68	peak
5700.00	49.33	V	6.50	55.83	105.20	49.37	peak
5720.00	60.90	V	6.32	67.22	110.80	43.58	peak
5725.00	76.81	V	6.28	83.09	122.20	39.11	peak
11490.00	39.90	V	8.26	48.16	74.00	25.84	peak
11A TX CH157							
11570.00	39.10	H	8.09	47.19	74.00	26.81	peak
11570.00	39.78	V	8.09	47.87	74.00	26.13	peak
11A TX CH165							
5850.00	76.64	H	7.29	83.93	122.20	38.27	peak
5855.00	57.43	H	7.22	64.65	110.80	46.15	peak
5875.00	46.90	H	6.96	53.86	105.20	51.34	peak
5925.00	41.08	H	6.96	48.04	68.20	20.16	peak
11650.00	39.59	H	7.92	47.51	74.00	26.49	peak
5850.00	76.79	V	7.29	84.08	122.20	38.12	peak
5855.00	57.85	V	7.22	65.07	110.80	45.73	peak
5875.00	47.98	V	6.96	54.94	105.20	50.26	peak
5925.00	41.27	V	6.96	48.23	68.20	19.97	peak
11650.00	40.20	V	7.92	48.12	74.00	25.88	peak

11N20 TX CH36							
4500.00	40.31	H	4.90	45.21	74.00	28.79	peak
5150.00	39.04	H	6.54	45.58	74.00	28.42	peak
10360.00	40.55	H	7.53	48.08	68.20	20.12	peak
4500.00	40.07	V	4.90	44.97	74.00	29.03	peak
5150.00	39.01	V	6.54	45.55	74.00	28.45	peak
10360.00	41.04	V	7.53	48.57	68.20	19.63	peak
11N20 TX CH40							
10400.00	40.27	H	7.69	47.96	68.20	20.24	peak
10400.00	40.73	V	7.69	48.42	68.20	19.78	peak
11N20 TX CH48							
10480.00	39.90	H	7.94	47.84	68.20	20.36	peak
10480.00	40.53	V	7.94	48.47	68.20	19.73	peak
11N20 TX CH149							
5650.00	42.16	H	6.22	48.38	68.20	19.82	peak
5700.00	48.24	H	6.50	54.74	105.20	50.46	peak
5720.00	59.76	H	6.32	66.08	110.80	44.72	peak
5725.00	79.34	H	6.28	85.62	122.20	36.58	peak
11490.00	39.23	H	8.26	47.49	74.00	26.51	peak
5650.00	42.44	V	6.22	48.66	68.20	19.54	peak
5700.00	49.07	V	6.50	55.57	105.20	49.63	peak
5720.00	60.76	V	6.32	67.08	110.80	43.72	peak
5725.00	76.98	V	6.28	83.26	122.20	38.94	peak
11490.00	40.01	V	8.26	48.27	74.00	25.73	peak
11N20 TX CH157							
11570.00	39.27	H	8.09	47.36	74.00	26.64	peak
11570.00	39.89	V	8.09	47.98	74.00	26.02	peak
11N20 TX CH165							
5850.00	77.22	H	7.29	84.51	122.20	37.69	peak
5855.00	57.06	H	7.22	64.28	110.80	46.52	peak
5875.00	47.00	H	6.96	53.96	105.20	51.24	peak
5925.00	40.93	H	6.96	47.89	68.20	20.31	peak
11650.00	39.73	H	7.92	47.65	74.00	26.35	peak
5850.00	76.92	V	7.29	84.21	122.20	37.99	peak
5855.00	57.96	V	7.22	65.18	110.80	45.62	peak
5875.00	47.76	V	6.96	54.72	105.20	50.48	peak
5925.00	41.39	V	6.96	48.35	68.20	19.85	peak
11650.00	40.35	V	7.92	48.27	74.00	25.73	peak

11N40 TX CH38							
4500.00	40.25	H	4.90	45.15	74.00	28.85	peak
5150.00	39.03	H	6.54	45.57	74.00	28.43	peak
10380.00	40.51	H	7.61	48.12	68.20	20.08	peak
4500.00	40.33	V	4.90	45.23	74.00	28.77	peak
5150.00	39.11	V	6.54	45.65	74.00	28.35	peak
10380.00	40.93	V	7.61	48.54	68.20	19.66	peak
11N40 TX CH46							
10460.00	40.10	H	7.88	47.98	68.20	20.22	peak
10460.00	40.89	V	7.88	48.77	68.20	19.43	peak
11N40 TX CH151							
5650.00	42.00	H	6.22	48.22	68.20	19.98	peak
5700.00	48.07	H	6.50	54.57	105.20	50.63	peak
5720.00	59.92	H	6.32	66.24	110.80	44.56	peak
5725.00	76.14	H	6.28	82.42	122.20	39.78	peak
11510.00	39.21	H	8.26	47.47	74.00	26.53	peak
5650.00	42.44	V	6.22	48.66	68.20	19.54	peak
5700.00	49.29	V	6.50	55.79	105.20	49.41	peak
5720.00	60.77	V	6.32	67.09	110.80	43.71	peak
5725.00	77.16	V	6.28	83.44	122.20	38.76	peak
11510.00	40.35	V	8.26	48.61	74.00	25.39	peak
11N40 TX CH159							
5850.00	77.06	H	7.29	84.35	122.20	37.85	peak
5855.00	57.27	H	7.22	64.49	110.80	46.31	peak
5875.00	46.76	H	6.96	53.72	105.20	51.48	peak
5925.00	40.99	H	6.96	47.95	68.20	20.25	peak
11590.00	39.63	H	8.04	47.67	74.00	26.33	peak
5850.00	76.45	V	7.29	83.74	122.20	38.46	peak
5855.00	57.67	V	7.22	64.89	110.80	45.91	peak
5875.00	47.69	V	6.96	54.65	105.20	50.55	peak
5925.00	41.40	V	6.96	48.36	68.20	19.84	peak
11590.00	40.25	V	8.04	48.29	74.00	25.71	peak
11AC20 TX CH36							
4500.00	40.31	H	4.90	45.21	74.00	28.79	peak
5150.00	39.04	H	6.54	45.58	74.00	28.42	peak
10360.00	40.55	H	7.53	48.08	68.20	20.12	peak
4500.00	40.07	V	4.90	44.97	74.00	29.03	peak
5150.00	39.01	V	6.54	45.55	74.00	28.45	peak
10360.00	41.04	V	7.53	48.57	68.20	19.63	peak
11AC20 TX CH40							
10400.00	40.27	H	7.69	47.96	68.20	20.24	peak
10400.00	40.73	V	7.69	48.42	68.20	19.78	peak
11AC20 TX CH48							
10480.00	39.90	H	7.94	47.84	68.20	20.36	peak

10480.00	40.53	V	7.94	48.47	68.20	19.73	peak
11AC20 TX CH149							
5650.00	43.22	H	6.22	49.44	68.20	18.76	peak
5700.00	49.12	H	6.50	55.62	105.20	49.58	peak
5720.00	60.97	H	6.32	67.29	110.80	43.51	peak
5725.00	80.30	H	6.28	86.58	122.20	35.62	peak
11490.00	40.31	H	8.26	48.57	74.00	25.43	peak
5650.00	43.66	V	6.22	49.88	68.20	18.32	peak
5700.00	50.24	V	6.50	56.74	105.20	48.46	peak
5720.00	61.83	V	6.32	68.15	110.80	42.65	peak
5725.00	78.18	V	6.28	84.46	122.20	37.74	peak
11490.00	41.07	V	8.26	49.33	74.00	24.67	peak
11AC20 TX CH157							
11570.00	40.34	H	8.09	48.43	74.00	25.57	peak
11570.00	40.98	V	8.09	49.07	74.00	24.93	peak
11AC20 TX CH165							
5850.00	78.37	H	7.29	85.66	122.20	36.54	peak
5855.00	58.21	H	7.22	65.43	110.80	45.37	peak
5875.00	48.21	H	6.96	55.17	105.20	50.03	peak
5925.00	42.06	H	6.96	49.02	68.20	19.18	peak
11650.00	40.84	H	7.92	48.76	74.00	25.24	peak
5850.00	78.18	V	7.29	85.47	122.20	36.73	peak
5855.00	59.07	V	7.22	66.29	110.80	44.51	peak
5875.00	48.92	V	6.96	55.88	105.20	49.32	peak
5925.00	42.57	V	6.96	49.53	68.20	18.67	peak
11650.00	41.73	V	7.92	49.65	74.00	24.35	peak
11AC40 TX CH38							
4500.00	40.76	H	4.90	45.66	74.00	28.34	peak
5150.00	39.30	H	6.54	45.84	74.00	28.16	peak
10380.00	40.86	H	7.61	48.47	68.20	19.73	peak
4500.00	40.59	V	4.90	45.49	74.00	28.51	peak
5150.00	39.36	V	6.54	45.90	74.00	28.10	peak
10380.00	41.67	V	7.61	49.28	68.20	18.92	peak
11AC40 TX CH46							
10460.00	40.89	H	7.88	48.77	68.20	19.43	peak
10460.00	41.81	V	7.88	49.69	68.20	18.51	peak
11AC40 TX CH151							
5650.00	42.92	H	6.22	49.14	68.20	19.06	peak
5700.00	49.18	H	6.50	55.68	105.20	49.52	peak
5720.00	61.31	H	6.32	67.63	110.80	43.17	peak
5725.00	77.40	H	6.28	83.68	122.20	38.52	peak
11510.00	39.97	H	8.26	48.23	74.00	25.77	peak
5650.00	43.15	V	6.22	49.37	68.20	18.83	peak
5700.00	50.44	V	6.50	56.94	105.20	48.26	peak

5720.00	61.69	V	6.32	68.01	110.80	42.79	peak
5725.00	78.36	V	6.28	84.64	122.20	37.56	peak
11510.00	40.98	V	8.26	49.24	74.00	24.76	peak
11AC40 TX CH159							
5850.00	78.36	H	7.29	85.65	122.20	36.55	peak
5855.00	58.09	H	7.22	65.31	110.80	45.49	peak
5875.00	47.52	H	6.96	54.48	105.20	50.72	peak
5925.00	41.37	H	6.96	48.33	68.20	19.87	peak
11590.00	40.02	H	8.04	48.06	74.00	25.94	peak
5850.00	77.35	V	7.29	84.64	122.20	37.56	peak
5855.00	58.80	V	7.22	66.02	110.80	44.78	peak
5875.00	48.92	V	6.96	55.88	105.20	49.32	peak
5925.00	42.25	V	6.96	49.21	68.20	18.99	peak
11590.00	41.00	V	8.04	49.04	74.00	24.96	peak
11AC80 TX CH42							
5350.00	38.19	H	5.75	43.94	74.00	30.06	peak
5460.00	38.86	H	5.53	44.39	74.00	29.61	peak
10420.00	40.19	H	7.76	47.95	68.20	20.25	peak
5350.00	38.81	V	5.75	44.56	74.00	29.44	peak
5460.00	39.79	V	5.53	45.32	74.00	28.68	peak
10420.00	40.93	V	7.76	48.69	68.20	19.51	peak
11AC80 TX CH155							
5650.00	41.72	H	6.22	47.94	68.20	20.26	peak
5700.00	48.16	H	6.50	54.66	105.20	50.54	peak
5720.00	59.75	H	6.32	66.07	110.80	44.73	peak
5725.00	75.76	H	6.28	82.04	122.20	40.16	peak
5850.00	76.36	H	7.29	83.65	122.20	38.55	peak
5855.00	56.23	H	7.22	63.45	110.80	47.35	peak
5875.00	46.92	H	6.96	53.88	105.20	51.32	peak
5925.00	40.75	H	6.96	47.71	68.20	20.49	peak
11510.00	39.03	H	8.26	47.29	74.00	26.71	peak
5650.00	42.12	V	6.22	48.34	68.20	19.86	peak
5700.00	48.97	V	6.50	55.47	105.20	49.73	peak
5720.00	59.62	V	6.32	65.94	110.80	44.86	peak
5725.00	76.71	V	6.28	82.99	122.20	39.21	peak
5850.00	75.64	V	7.29	82.93	122.20	39.27	peak
5855.00	57.30	V	7.22	64.52	110.80	46.28	peak
5875.00	47.43	V	6.96	54.39	105.20	50.81	peak
5925.00	41.51	V	6.96	48.47	68.20	19.73	peak
11510.00	40.26	V	8.26	48.52	74.00	25.48	peak

Note: 1. The other emission levels were very low against the limit.
2. Measurement = Reading Level+ Correct Factor, Margin = Limit- Measurement

3.3 Spectrum Bandwidth

3.3.1 Limit

FCC Part15, Subpart E (15.407)			
Section	Test Item	Limit	Frequency Range (MHz)
15.407(a)	26 dB Bandwidth	-	5150-5250
	26 dB Bandwidth	-	5250-5350
15.407(e)	26 dB Bandwidth	-	5470-5725
	26 dB Bandwidth	-	5725-5850
	6 dB Bandwidth	Minimum 500 kHz	5725-5850

3.3.2 Test Procedure

Test Method	
●Conducted Measurement	○Radiated Measurement
Test Channels	
●Lowest, Middle and Highest Channel	○ Lowest and Highest Channel
Environmental conditions	
●Normal	○Normal and Extreme
Note:●:Test ○:No Test	

a) The EUT was directly connected to the tonscond test system and antenna output port as show in the block diagram below.

b) the spectrum analyser is set as follow:

For 26 dB Bandwidth

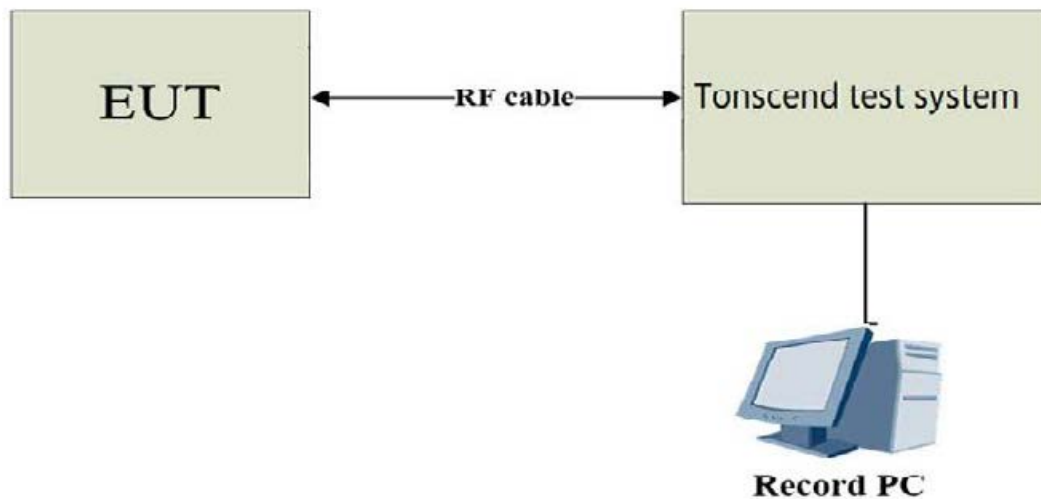
Centre Frequency	The centre frequency of the channel under test
RBW	$\geq 1\% \times \text{Nominal Channel Bandwidth}$
VBW	$\geq 3 \times \text{RBW}$
Frequency span	$2 \times \text{Nominal Channel Bandwidth}$
Detector Mode	Peak
Trace Mode	Max Hold
Sweep Time	Auto Couple

For 6 dB Bandwidth

Centre Frequency	The centre frequency of the channel under test
RBW	100 kHz
VBW	300 kHz
Frequency span	$2 \times \text{Nominal Channel Bandwidth}$
Detector Mode	Peak
Trace Mode	Max Hold
Sweep Time	Auto Couple

- c) Wait for the trace to stabilize then find the peak value of the trace and place the analyser marker on this peak.
- d) Use the -26/-6dB bandwidth function of the spectrum analyser to measure the -26/-6dB Bandwidth of the EUT. This value shall be recorded.
- e) Make sure that the power envelope is sufficiently above the noise floor of the analyser to avoid the noise signals left and right from the power envelope being taken into account by this measurement.

3.3.3 Test Setup



3.3.4 Test Result

26 dB Bandwidth

Test Mode	Antenna	Frequency[MHz]	26dB EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	19.600	5170.280	5189.880	---	---
11A	Ant1	5200	19.440	5190.280	5209.720	---	---
11A	Ant1	5240	19.640	5230.280	5249.920	---	---
11A	Ant1	5745	19.800	5735.080	5754.880	---	---
11A	Ant1	5785	19.480	5775.200	5794.680	---	---
11A	Ant1	5825	19.600	5815.240	5834.840	---	---
11N20SISO	Ant1	5180	20.160	5170.040	5190.200	---	---
11N20SISO	Ant1	5200	20.040	5189.920	5209.960	---	---
11N20SISO	Ant1	5240	19.960	5230.080	5250.040	---	---
11N20SISO	Ant1	5745	19.760	5735.160	5754.920	---	---
11N20SISO	Ant1	5785	19.760	5775.040	5794.800	---	---
11N20SISO	Ant1	5825	20.000	5815.040	5835.040	---	---
11N40SISO	Ant1	5190	40.480	5169.840	5210.320	---	---
11N40SISO	Ant1	5230	40.800	5209.920	5250.720	---	---
11N40SISO	Ant1	5755	39.680	5735.240	5774.920	---	---
11N40SISO	Ant1	5795	39.600	5775.240	5814.840	---	---
11AC20SISO	Ant1	5180	20.280	5169.920	5190.200	---	---
11AC20SISO	Ant1	5200	20.240	5189.960	5210.200	---	---
11AC20SISO	Ant1	5240	20.200	5229.920	5250.120	---	---
11AC20SISO	Ant1	5745	20.240	5734.840	5755.080	---	---
11AC20SISO	Ant1	5785	20.360	5774.800	5795.160	---	---
11AC20SISO	Ant1	5825	20.400	5814.880	5835.280	---	---
11AC40SISO	Ant1	5190	40.080	5170.000	5210.080	---	---
11AC40SISO	Ant1	5230	39.840	5210.080	5249.920	---	---
11AC40SISO	Ant1	5755	40.080	5734.920	5775.000	---	---
11AC40SISO	Ant1	5795	39.920	5775.000	5814.920	---	---
11AC80SISO	Ant1	5210	80.640	5169.680	5250.320	---	---
11AC80SISO	Ant1	5775	81.920	5733.880	5815.800	---	---

11A_Ant1_5180



11A_Ant1_5200



11A_Ant1_5240



11A_Ant1_5745



11A_Ant1_5785



11A_Ant1_5825



11N20SISO_Ant1_5180



11N20SISO_Ant1_5200



11N20SISO_Ant1_5240



11N20SISO_Ant1_5745



11N20SISO_Ant1_5785



11N20SISO_Ant1_5825



11N40SISO_Ant1_5190



11N40SISO_Ant1_5230



11N40SISO_Ant1_5755



11N40SISO_Ant1_5795



11AC20SISO_Ant1_5180



11AC20SISO_Ant1_5200



11AC20SISO_Ant1_5240



11AC20SISO_Ant1_5745



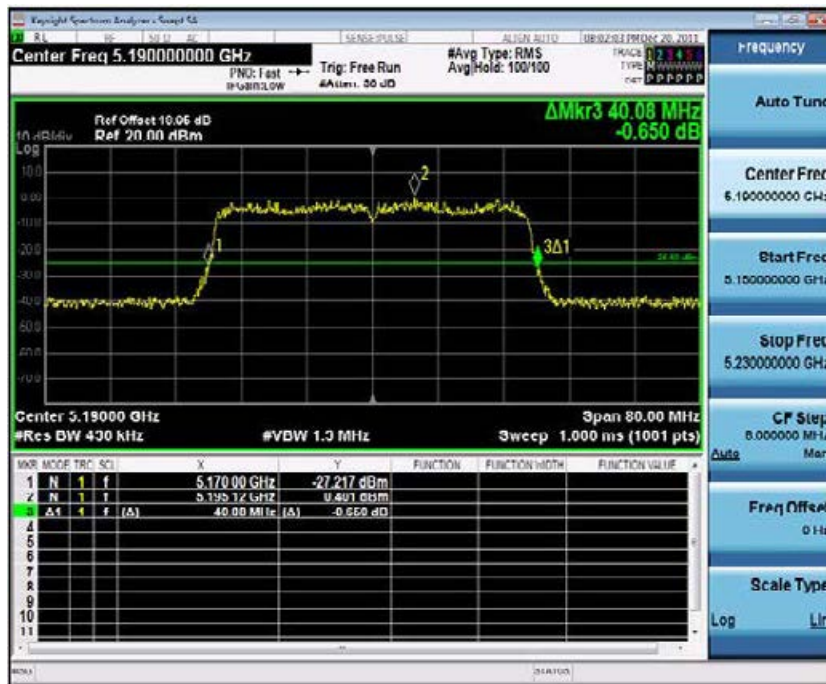
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11AC20SISO_Ant1_5825



11AC40SISO_Ant1_5190



11AC40SISO_Ant1_5230



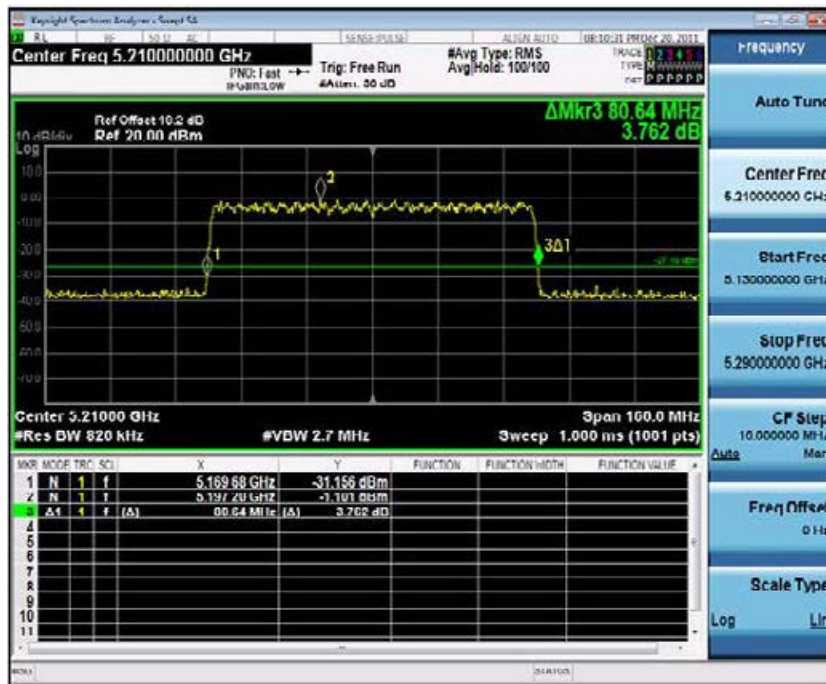
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11AC40SISO_Ant1_5795



11AC80SISO_Ant1_5210



11AC80SISO_Ant1_5775



Occupied channel bandwidth

Test Mode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	17.001	5171.5185	5188.5195	---	---
11A	Ant1	5200	17.020	5191.5114	5208.5314	---	---
11A	Ant1	5240	16.957	5231.5473	5248.5043	---	---
11A	Ant1	5745	16.943	5736.5437	5753.4867	---	---
11A	Ant1	5785	16.989	5776.5034	5793.4924	---	---
11A	Ant1	5825	16.980	5816.5380	5833.5180	---	---
11N20SISO	Ant1	5180	17.840	5171.1102	5188.9502	---	---
11N20SISO	Ant1	5200	17.814	5191.1096	5208.9236	---	---
11N20SISO	Ant1	5240	17.850	5231.1196	5248.9696	---	---
11N20SISO	Ant1	5745	17.856	5736.0818	5753.9378	---	---
11N20SISO	Ant1	5785	17.856	5776.0831	5793.9391	---	---
11N20SISO	Ant1	5825	17.852	5816.0854	5833.9374	---	---
11N40SISO	Ant1	5190	36.436	5171.8135	5208.2495	---	---
11N40SISO	Ant1	5230	36.381	5211.8446	5248.2256	---	---
11N40SISO	Ant1	5755	36.401	5736.7516	5773.1526	---	---
11N40SISO	Ant1	5795	36.410	5776.7615	5813.1715	---	---
11AC20SISO	Ant1	5180	18.842	5170.5850	5189.4270	---	---
11AC20SISO	Ant1	5200	18.849	5190.5981	5209.4471	---	---
11AC20SISO	Ant1	5240	18.839	5230.5977	5249.4367	---	---
11AC20SISO	Ant1	5745	18.840	5735.5695	5754.4095	---	---
11AC20SISO	Ant1	5785	18.848	5775.5763	5794.4243	---	---
11AC20SISO	Ant1	5825	18.859	5815.5675	5834.4265	---	---
11AC40SISO	Ant1	5190	37.622	5171.2469	5208.8689	---	---
11AC40SISO	Ant1	5230	37.723	5211.1424	5248.8654	---	---
11AC40SISO	Ant1	5755	37.689	5736.1152	5773.8042	---	---
11AC40SISO	Ant1	5795	37.671	5776.1591	5813.8301	---	---
11AC80SISO	Ant1	5210	77.778	5171.2200	5248.9980	---	---
11AC80SISO	Ant1	5775	77.071	5736.4036	5813.4746	---	---

11A_Ant1_5180



11A_Ant1_5200



11A_Ant1_5240



11A_Ant1_5745



11A_Ant1_5785



11A_Ant1_5825



11N20SISO_Ant1_5180



11N20SISO_Ant1_5200



11N20SISO_Ant1_5240



11N20SISO_Ant1_5745



11N20SISO_Ant1_5785



11N20SISO_Ant1_5825



11N40SISO_Ant1_5190



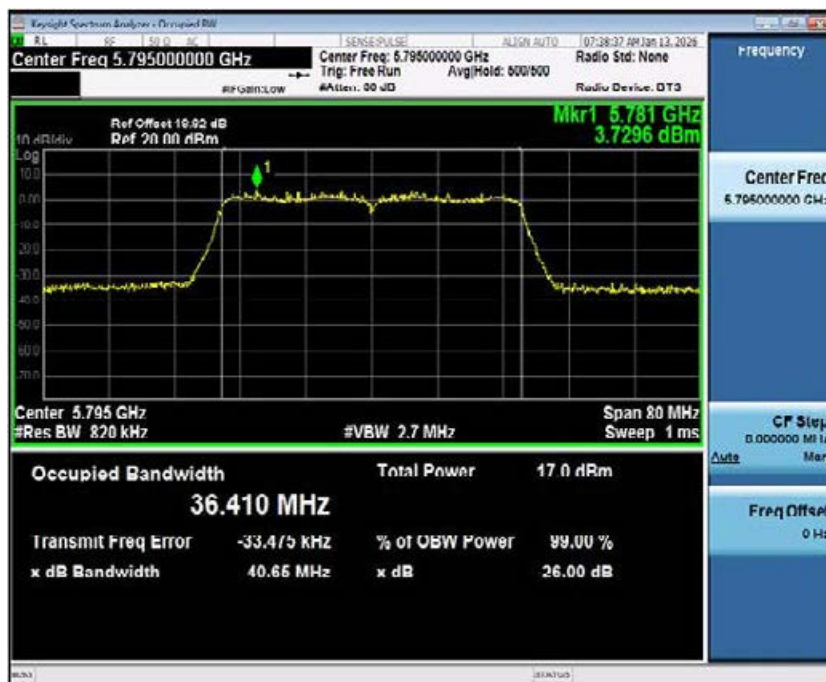
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11N40SISO_Ant1_5755



11N40SISO_Ant1_5795



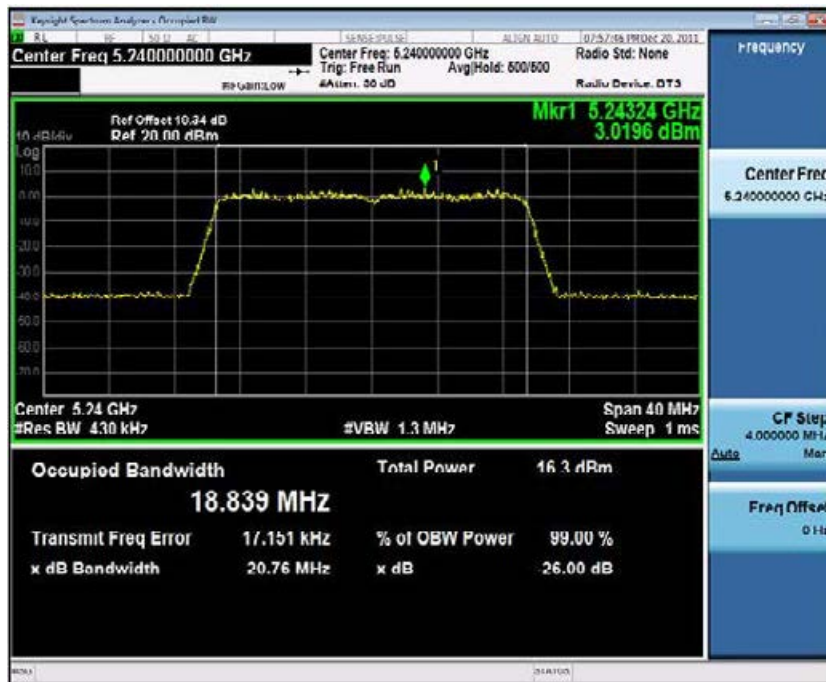
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11AC20SISO_Ant1_5200



11AC20SISO_Ant1_5240



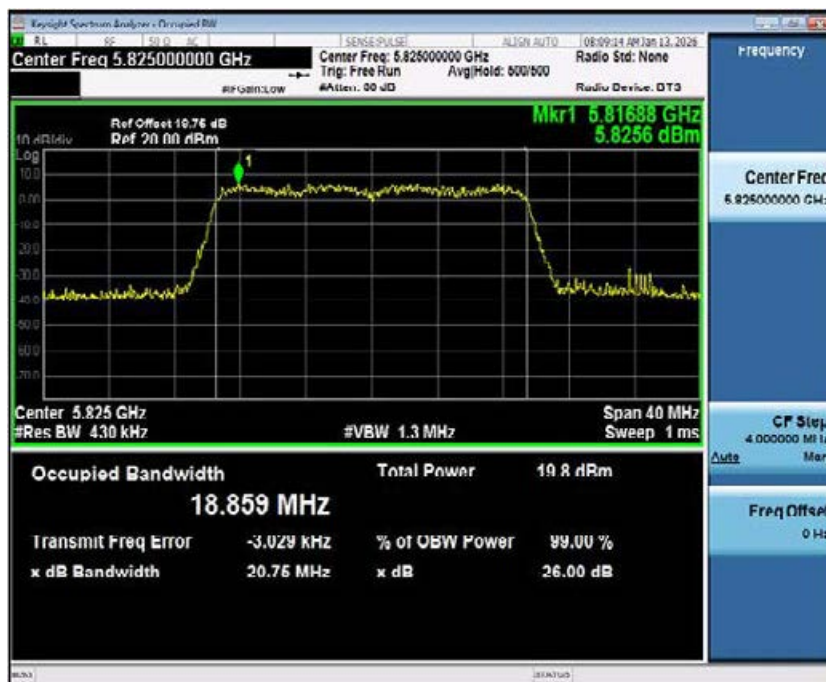
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11AC20SISO_Ant1_5785



11AC20SISO_Ant1_5825



11AC40SISO_Ant1_5190



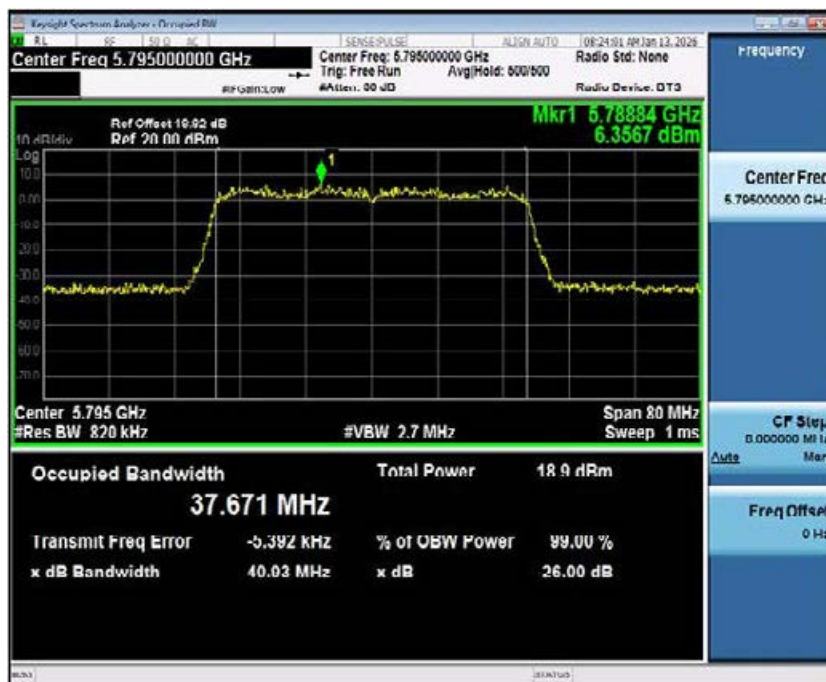
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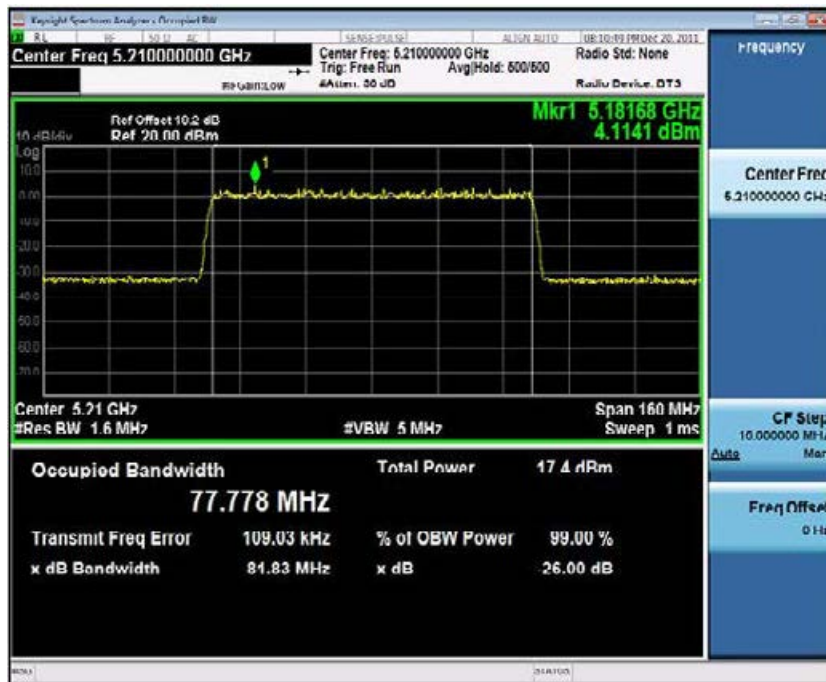
11AC40SISO_Ant1_5755



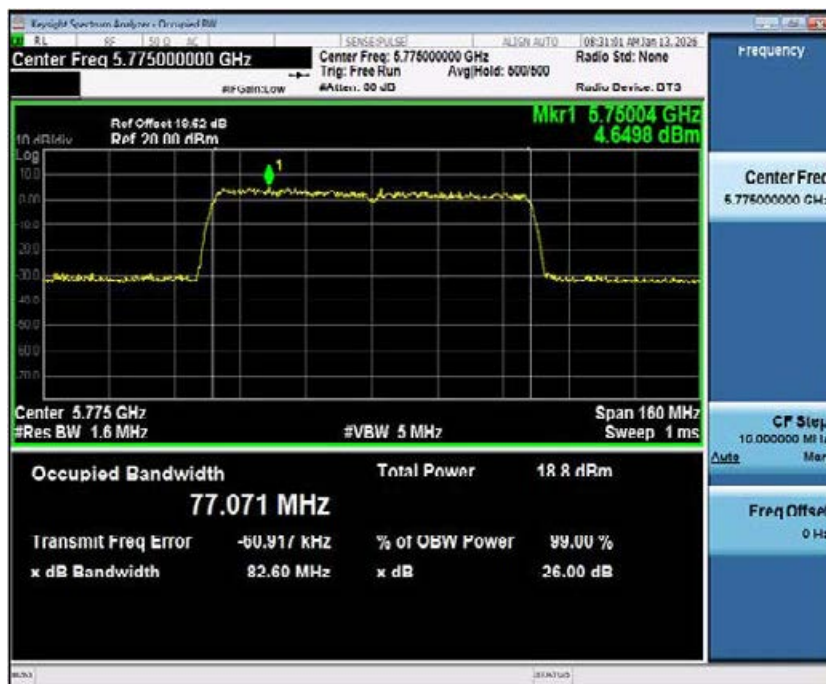
11AC40SISO_Ant1_5795



11AC80SISO_Ant1_5210



11AC80SISO_Ant1_5775



Min emission bandwidth

Test Mode	Antenna	Frequency[MHz]	6dB EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5745	16.360	5736.840	5753.200	0.5	PASS
11A	Ant1	5785	16.360	5776.840	5793.200	0.5	PASS
11A	Ant1	5825	16.360	5816.840	5833.200	0.5	PASS
11N20SISO	Ant1	5745	17.640	5736.200	5753.840	0.5	PASS
11N20SISO	Ant1	5785	17.600	5776.240	5793.840	0.5	PASS
11N20SISO	Ant1	5825	17.640	5816.200	5833.840	0.5	PASS
11N40SISO	Ant1	5755	35.760	5736.840	5772.600	0.5	PASS
11N40SISO	Ant1	5795	36.320	5776.840	5813.160	0.5	PASS
11AC20SISO	Ant1	5745	17.880	5736.040	5753.920	0.5	PASS
11AC20SISO	Ant1	5785	17.960	5775.800	5793.760	0.5	PASS
11AC20SISO	Ant1	5825	18.120	5815.920	5834.040	0.5	PASS
11AC40SISO	Ant1	5755	35.920	5736.840	5772.760	0.5	PASS
11AC40SISO	Ant1	5795	35.680	5776.840	5812.520	0.5	PASS
11AC80SISO	Ant1	5775	75.840	5736.760	5812.600	0.5	PASS

11A_Ant1_5745



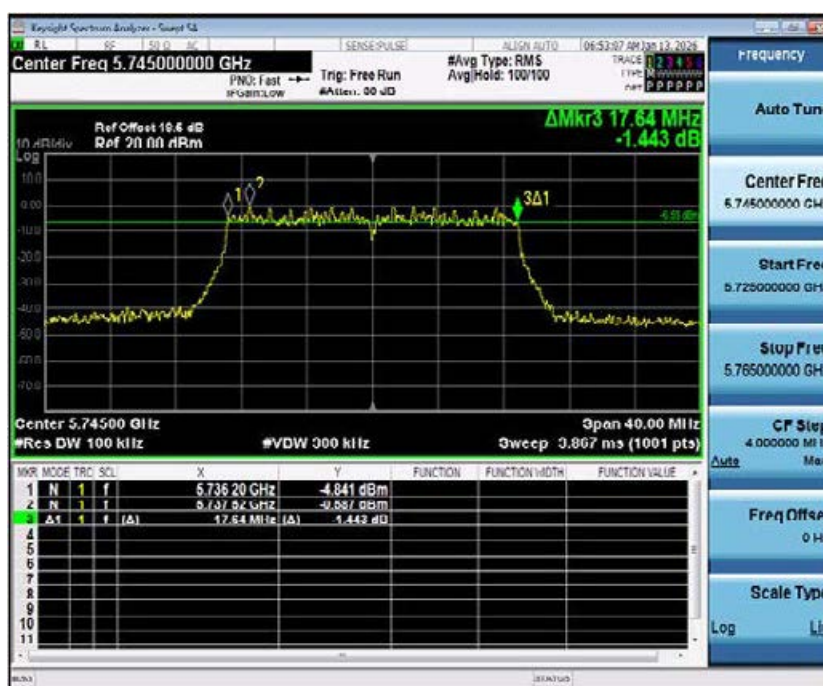
11A_Ant1_5785



11A_Ant1_5825



11N20SISO_Ant1_5745



11N20SISO_Ant1_5785



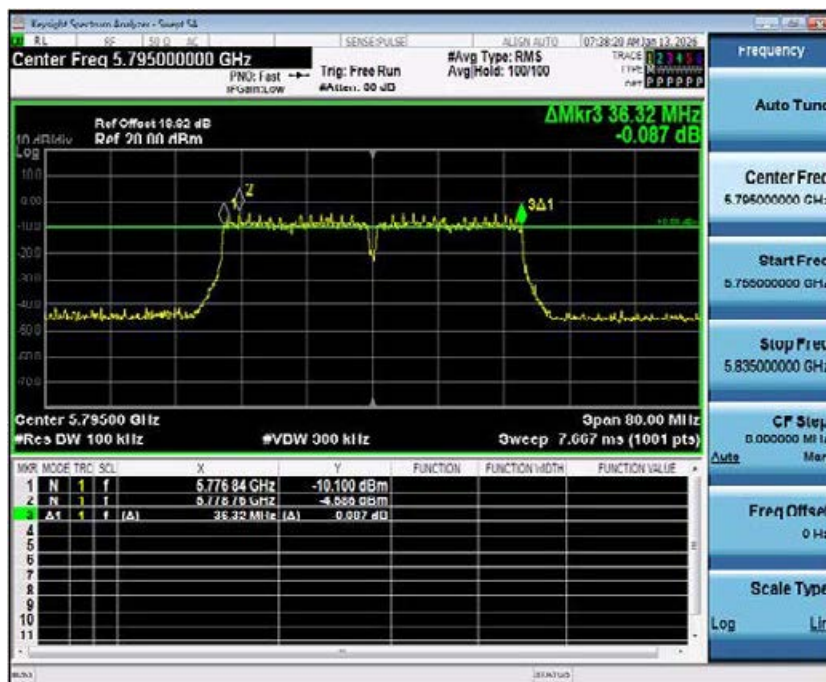
11N20SISO_Ant1_5825



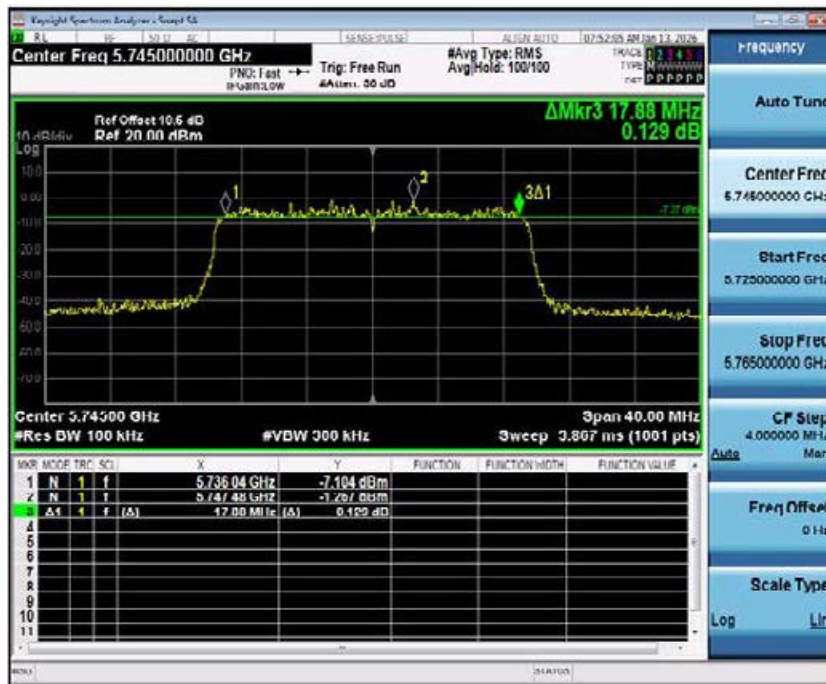
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11N40SISO_Ant1_5795



11AC20SISO_Ant1_5745



11AC20SISO_Ant1_5785



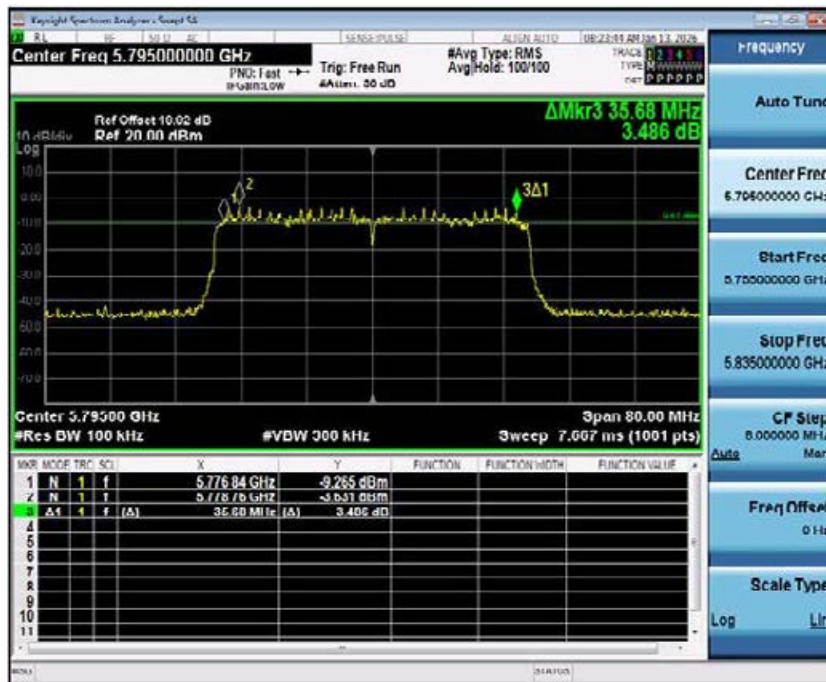
11AC20SISO_Ant1_5825



11AC40SISO_Ant1_5755



11AC40SISO_Ant1_5795



11AC80SISO_Ant1_5775



3.4 Conducted Output Power

3.4.1 Limit

FCC Part15, Subpart E (15.407)			
Section	Test Item	Limit	Frequency Range (MHz)
15.407(a)	Conducted Output Power	Master device: 1 Watt (30 dBm) Client device: 250 mW (23.98 dBm)	5150-5250
		250 mW (23.98 dBm)	5250-5350
		250 mW (23.98 dBm)	5470-5725
		1 Watt (30dBm)	5725-5850

Note:

- For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
- For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10log B, where B is the 26dB Bandwidth in megahertz.

3.4.2 Test Procedure

Test Method	
●Conducted Measurement	○Radiated Measurement
Test Channels	
●Lowest, Middle and Highest Channel	○ Lowest and Highest Channel
Environmental conditions	
●Normal	○Normal and Extreme
Note:●:Test ○:No Test	

- The EUT was directly connected to the power meter and antenna output port as show in the block diagram below.
- Test was performed in accordance with method of FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

3.4.3 Test Setup



3.4.4 Table of Parameters of Text Software Setting

UNII-1			
Test Software Version	adb.exe		
Frequency (MHz)	5180	5200	5240
IEEE 802.11a	14	14	14
IEEE 802.11n20	14	14	14
IEEE 802.11ac20	14	14	14
Frequency (MHz)	5190	5230	
IEEE 802.11n40	14	14	
IEEE 802.11ac40	14	14	
Frequency (MHz)	5210		
IEEE 802.11ac80	14		

UNII-3			
Test Software Version	adb.exe		
Frequency (MHz)	5745	5785	5825
IEEE 802.11a	11	11	11
IEEE 802.11n20	11	11	11
IEEE 802.11ac20	11	11	11
Frequency (MHz)	5755	5795	
IEEE 802.11n40	11	11	
IEEE 802.11ac40	11	11	
Frequency (MHz)	5775		
IEEE 802.11ac80	11		

3.4.5 The Result

Test Mode	Antenna	Frequency[MHz]	Result [dBm]	Limit [dBm]	Verdict
11A	Ant1	5180	14.21	≤23.98	PASS
11A	Ant1	5200	14.34	≤23.98	PASS
11A	Ant1	5240	14.25	≤23.98	PASS
11A	Ant1	5745	11.08	≤30.00	PASS
11A	Ant1	5785	11.87	≤30.00	PASS
11A	Ant1	5825	12.07	≤30.00	PASS
11N20SISO	Ant1	5180	14.18	≤23.98	PASS
11N20SISO	Ant1	5200	13.93	≤23.98	PASS
11N20SISO	Ant1	5240	14.08	≤23.98	PASS
11N20SISO	Ant1	5745	12.11	≤30.00	PASS
11N20SISO	Ant1	5785	12.10	≤30.00	PASS
11N20SISO	Ant1	5825	12.89	≤30.00	PASS
11N40SISO	Ant1	5190	14.04	≤23.98	PASS
11N40SISO	Ant1	5230	14.69	≤23.98	PASS
11N40SISO	Ant1	5755	12.81	≤30.00	PASS
11N40SISO	Ant1	5795	12.12	≤30.00	PASS
11AC20SISO	Ant1	5180	14.31	≤23.98	PASS
11AC20SISO	Ant1	5200	14.39	≤23.98	PASS
11AC20SISO	Ant1	5240	14.32	≤23.98	PASS
11AC20SISO	Ant1	5745	12.10	≤30.00	PASS
11AC20SISO	Ant1	5785	13.03	≤30.00	PASS
11AC20SISO	Ant1	5825	13.29	≤30.00	PASS
11AC40SISO	Ant1	5190	14.46	≤23.98	PASS
11AC40SISO	Ant1	5230	15.38	≤23.98	PASS
11AC40SISO	Ant1	5755	12.00	≤30.00	PASS
11AC40SISO	Ant1	5795	11.31	≤30.00	PASS
11AC80SISO	Ant1	5210	14.83	≤23.98	PASS
11AC80SISO	Ant1	5775	11.15	≤30.00	PASS

Note: The duty cycle factor and line loss are compensated in the average conducted output power.

3.5 Power Spectral Density

3.5.1 Limit

FCC Part15, Subpart E (15.407)			
Section	Test Item	Limit	Frequency Range (MHz)
15.407(a)	Power Spectral Density	Master device: 17 dBm/MHz Client device: 11 dBm/MHz	5150-5250
		11 dBm/MHz	5250-5350
		11 dBm/MHz	5470-5725
		30 dBm/500 kHz	5725-5850

Note:

- For UNII-3, according to KDB publication 789033 D02 General UNII Test Procedures New Rules v02r01, section II.F.5., it is acceptable to set RBW at 300kHz and VBW at 1500kHz if the spectrum analyzer does not have 500 kHz RBW. Then, add $10 \log (500 \text{ kHz}/300 \text{ kHz})$ to the measured result, i.e. 2.22 dB.
- During the test of U-NII 3 PSD, the measurement result with RBW=300kHz has been added 2.22 dB by compensating offset, $\text{offset} = \text{cable loss} + \text{duty factor} + 10 \log(500 \text{ kHz}/300 \text{ kHz})$.

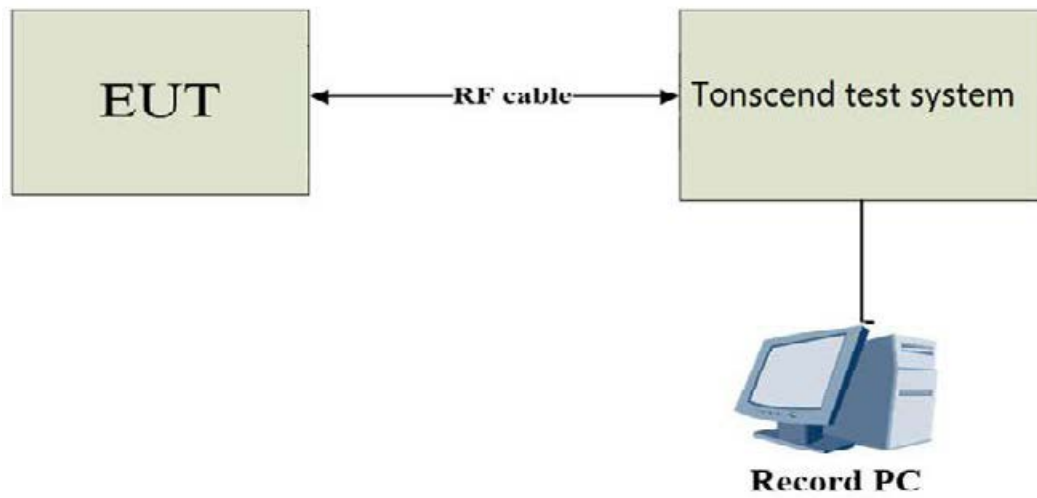
3.5.2 Test Procedure

Test Method	
☒ Conducted Measurement	☐ Radiated Measurement
Test Channels	
☒ Lowest, Middle and Highest Channel	☐ Lowest and Highest Channel
Environmental conditions	
☒ Normal	☐ Normal and Extreme
Note: ☒ :Test ☐ :No Test	

a) The EUT was directly connected to the tonscond test system and antenna output port as show in the block diagram below. Spectrum analyser settings as following:

Centre Frequency	The centre frequency of the channel under test
RBW	= 1 MHz (Band1/2/3); = 300kHz (Band4)
VBW	$\geq 3 \times \text{RBW}$
Frequency span	2 x Nominal Channel Bandwidth
Detector Mode	RMS
Trace Mode	Max Hold
Sweep Time	Auto Couple

3.5.3 Test Setup



3.5.4 The Result

Test Mode	Antenna	Frequency[MHz]	Result [dBm/MHz]	Limit[dBm/MHz]	Verdict
11A	Ant1	5180	3.55	≤11.00	PASS
11A	Ant1	5200	3.70	≤11.00	PASS
11A	Ant1	5240	3.52	≤11.00	PASS
11N20SISO	Ant1	5180	3.19	≤11.00	PASS
11N20SISO	Ant1	5200	3.26	≤11.00	PASS
11N20SISO	Ant1	5240	3.09	≤11.00	PASS
11N40SISO	Ant1	5190	0.20	≤11.00	PASS
11N40SISO	Ant1	5230	0.73	≤11.00	PASS
11AC20SISO	Ant1	5180	3.37	≤11.00	PASS
11AC20SISO	Ant1	5200	3.33	≤11.00	PASS
11AC20SISO	Ant1	5240	3.16	≤11.00	PASS
11AC40SISO	Ant1	5190	0.44	≤11.00	PASS
11AC40SISO	Ant1	5230	1.39	≤11.00	PASS
11AC80SISO	Ant1	5210	-2.45	≤11.00	PASS

Test Mode	Antenna	Frequency[MHz]	Result [dBm/MHz]	Limit[dBm/500kHz]	Verdict
11A	Ant1	5745	-2.42	≤30.00	PASS
11A	Ant1	5785	-3.86	≤30.00	PASS
11A	Ant1	5825	-0.48	≤30.00	PASS
11N20SISO	Ant1	5745	-3.04	≤30.00	PASS
11N20SISO	Ant1	5785	-4.27	≤30.00	PASS
11N20SISO	Ant1	5825	-0.35	≤30.00	PASS
11N40SISO	Ant1	5755	-4.42	≤30.00	PASS
11N40SISO	Ant1	5795	-6.44	≤30.00	PASS
11AC20SISO	Ant1	5745	-3.54	≤30.00	PASS
11AC20SISO	Ant1	5785	-3.88	≤30.00	PASS
11AC20SISO	Ant1	5825	-2.40	≤30.00	PASS
11AC40SISO	Ant1	5755	-5.61	≤30.00	PASS
11AC40SISO	Ant1	5795	-6.59	≤30.00	PASS
11AC80SISO	Ant1	5775	-8.32	≤30.00	PASS

Note: The Duty Cycle Factor and line loss are compensated in the test system

For UNII-3, according to KDB publication 789033 D02 General UNII Test Procedures New Rules v02r01, section II.F.5., it is acceptable to set RBW at 300kHz and VBW at 1500kHz if the spectrum analyzer does not have 500 kHz RBW. Then, add $10 \log (500 \text{ kHz}/300 \text{ kHz})$ to the measured result, i.e. 2.22 dB.

During the test of U-NII 3 PSD, the measurement result with RBW=300kHz has been added 2.22 dB by compensating offset, $\text{offset} = \text{cable loss} + \text{duty cycle factor} + 10\log(500\text{kHz}/300\text{kHz})$.

11A_Ant1_5180



11A_Ant1_5200



11A_Ant1_5240



11A_Ant1_5745



11A_Ant1_5785



11A_Ant1_5825



11N20SISO_Ant1_5180



11N20SISO_Ant1_5200



11N20SISO_Ant1_5240



11N20SISO_Ant1_5745



11N20SISO_Ant1_5785



11N20SISO_Ant1_5825



11N40SISO_Ant1_5190



11N40SISO_Ant1_5230



11N40SISO_Ant1_5755



11N40SISO_Ant1_5795



11AC20SISO_Ant1_5180



11AC20SISO_Ant1_5200



11AC20SISO_Ant1_5240



11AC20SISO_Ant1_5745



11AC20SISO_Ant1_5785



11AC20SISO_Ant1_5825



11AC40SISO_Ant1_5190



11AC40SISO_Ant1_5230



11AC40SISO_Ant1_5755



11AC40SISO_Ant1_5795



11AC80SISO_Ant1_5210



11AC80SISO_Ant1_5775



Statement

1. The report is invalid without the official seal or special seal of Shenzhen Haiyun Standard Technical Co., Ltd. (hereinafter referred to as the unit).
2. The report is invalid without the signature of the approver.
3. The report is invalid if altered arbitrarily.
4. The report shall not be partially copied without the written approval of the unit.
5. The reported test results are only valid for the tested samples.
6. If there is any objection to the test report, it shall be submitted to the test unit within 15 days from the date of receiving the report, and the overdue shall not be accepted.

Shenzhen Haiyun Standard Technical Co., Ltd.

Address: Room 110, 111, 112, 113, 115, 116, Block B, Jinyuan Business Building, No. 302, Xixiang Avenue, Labor Community, Xixiang Street, Baoan District, Shenzhen, China

(END OF REPORT)