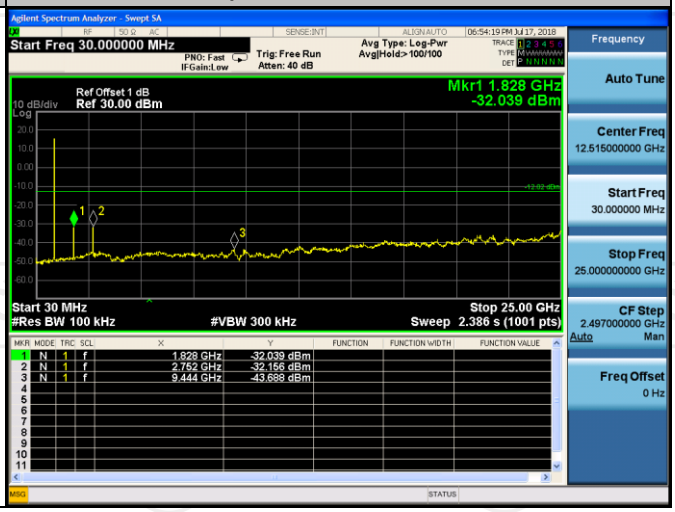
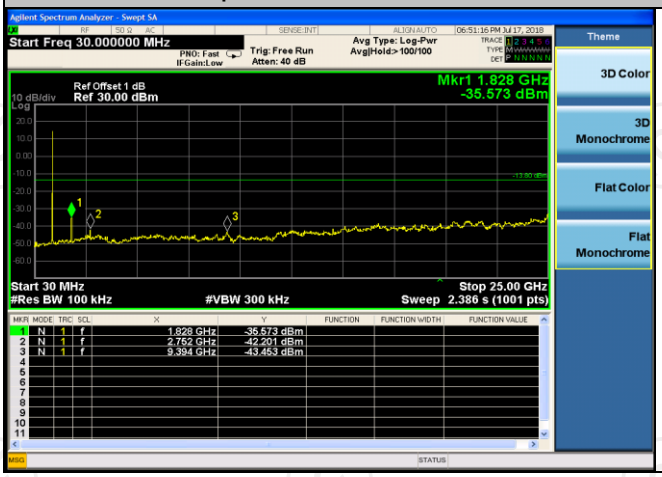
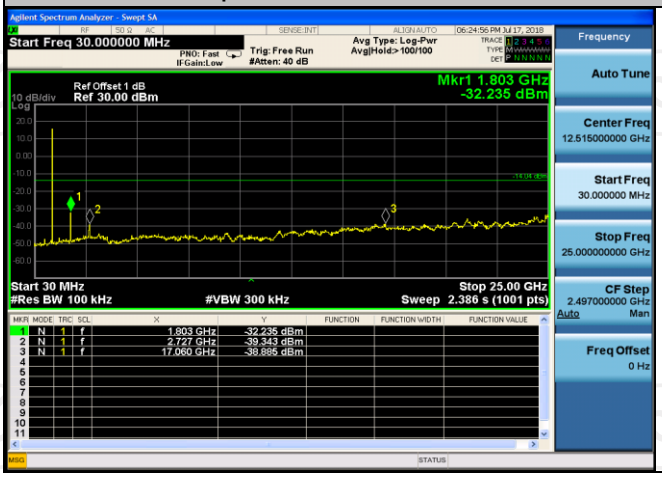
915MHz

100kHz PSD reference Level	Spurious emission
	

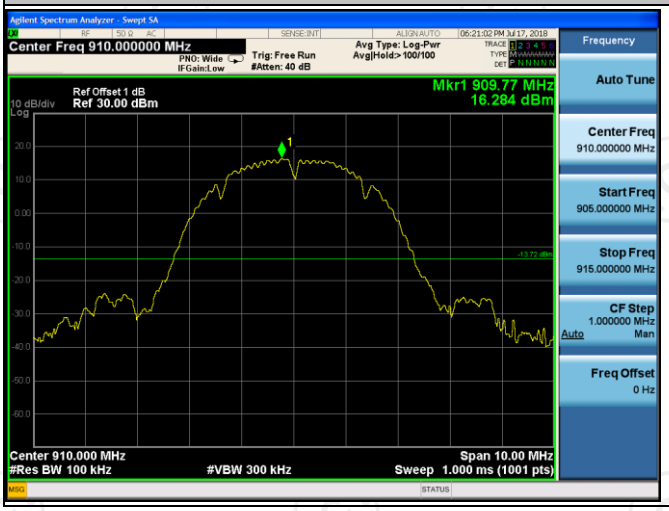
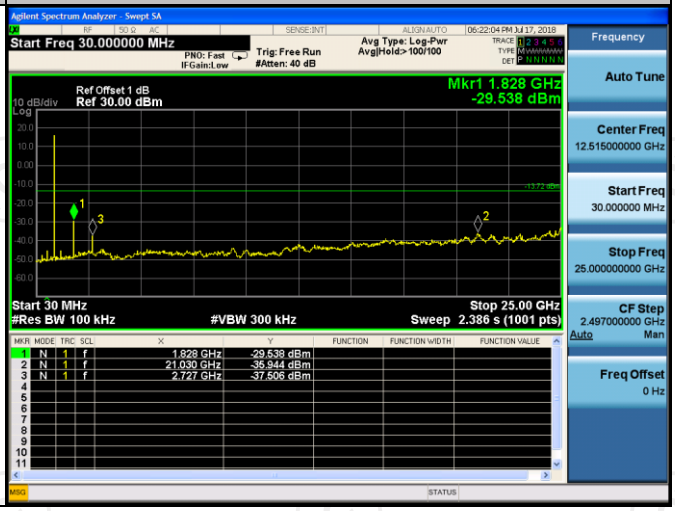
920MHz

100kHz PSD reference Level	Band Edge
	
Spurious emission	
	

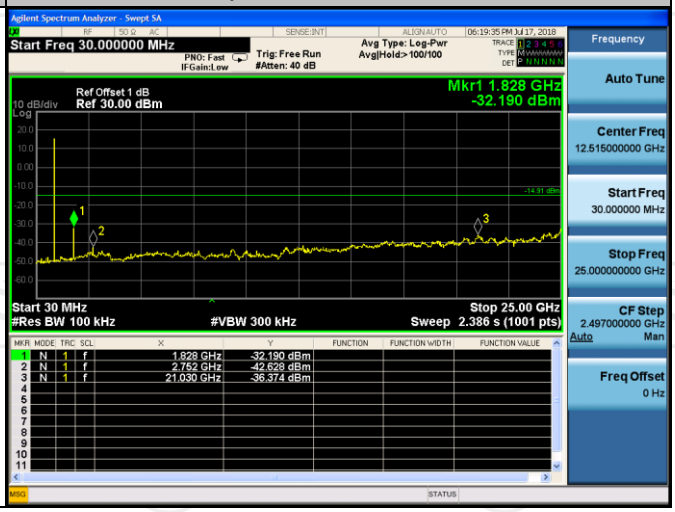
Antenna 1:
For DSSS
905MHz

100kHz PSD reference Level	Band Edge
	
Spurious emission	
	

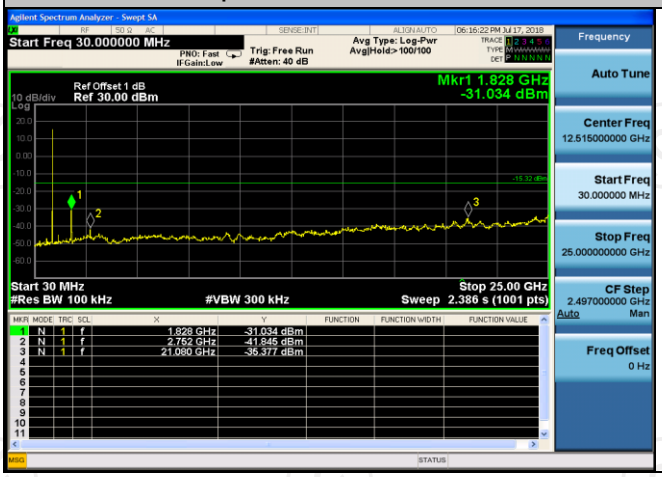
910MHz

100kHz PSD reference Level	Spurious emission
	

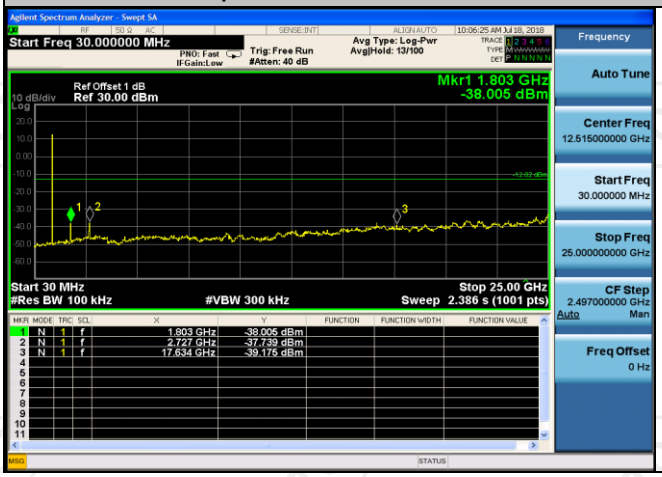
915MHz

100kHz PSD reference Level	Spurious emission
	

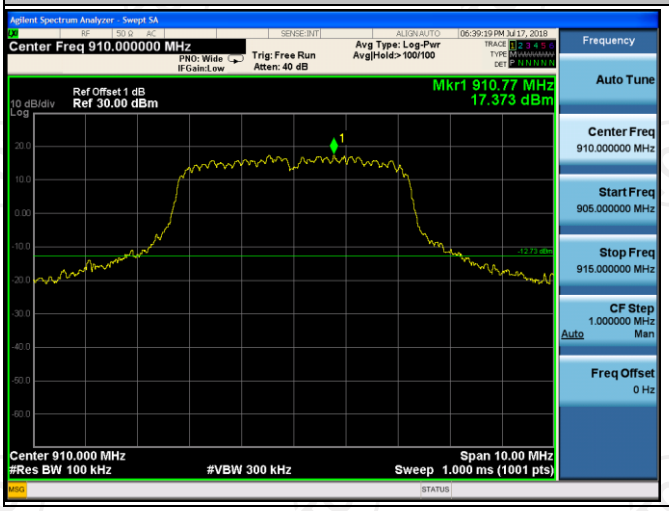
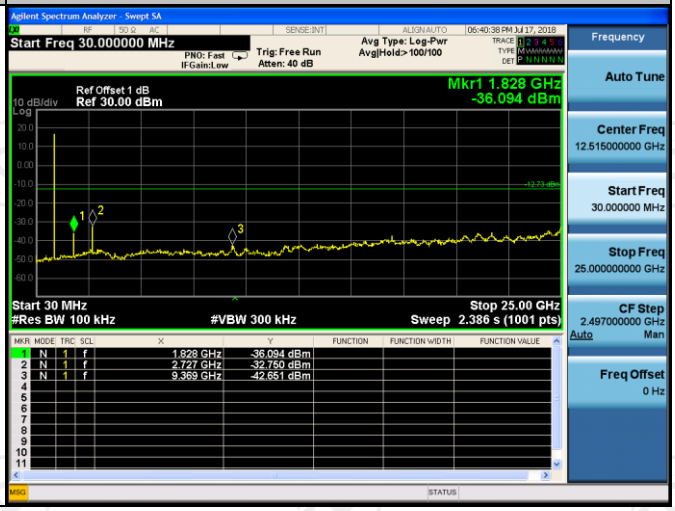
920MHz

100kHz PSD reference Level	Band Edge
	
Spurious emission	
	

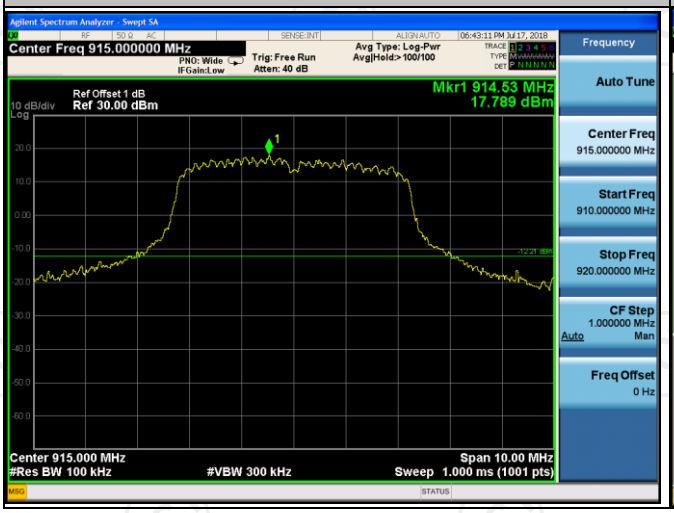
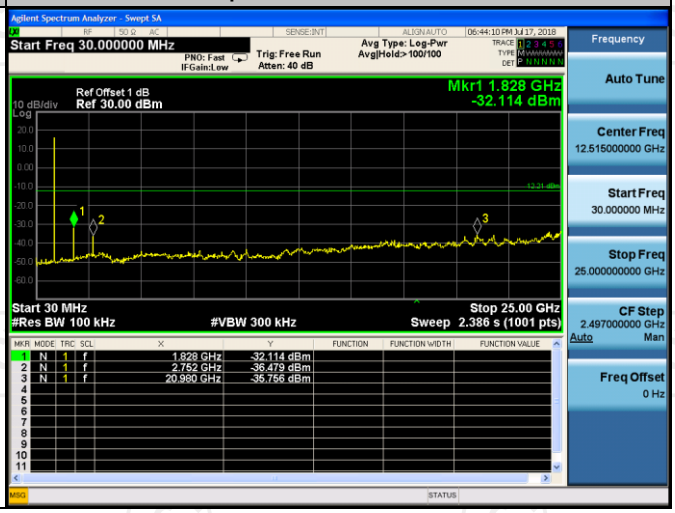
For OFDM
905MHz

100kHz PSD reference Level	Band Edge
	
Spurious emission	
	

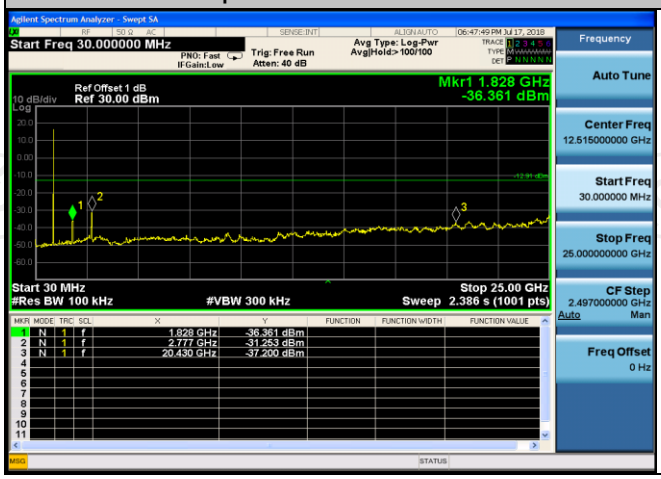
910MHz

100kHz PSD reference Level	Spurious emission
	

915MHz

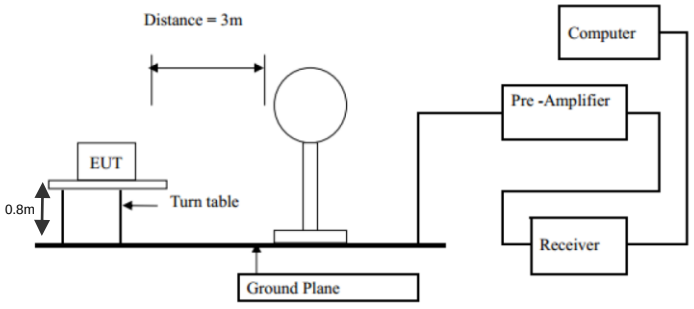
100kHz PSD reference Level	Spurious emission
	

920MHz

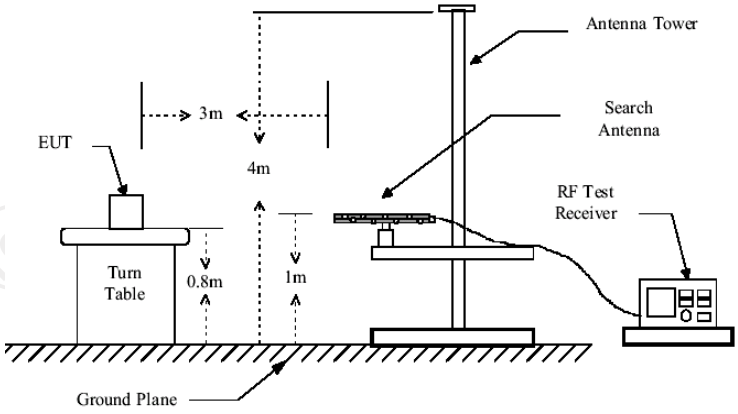
100kHz PSD reference Level	Band Edge
	
Spurious emission	
	

6.7. Radiated Spurious Emission Measurement

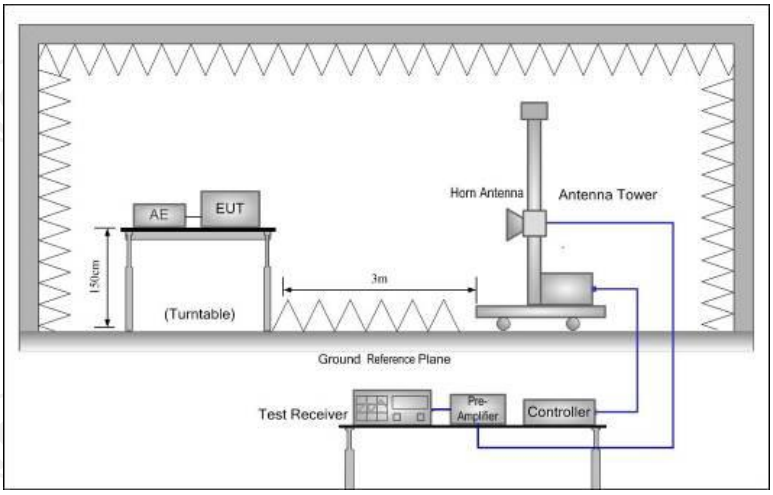
6.7.1. Test Specification

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 C Section 15.209</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10: 2013</td></tr>
<tr><td>Frequency Range:</td><td>9 kHz to 25 GHz</td></tr>
<tr><td>Measurement Distance:</td><td>3 m</td></tr>
<tr><td>Antenna Polarization:</td><td>Horizontal & Vertical</td></tr>
<tr><td>Operation mode:</td><td>Transmitting mode with modulation</td></tr>
<tr><td>Receiver Setup:</td><td>
<table>
<tr><td>Frequency</td><td>Detector</td><td>RBW</td><td>VBW</td><td>Remark</td></tr>
<tr><td>9kHz- 150kHz</td><td>Quasi-peak</td><td>200Hz</td><td>1kHz</td><td>Quasi-peak Value</td></tr>
<tr><td>150kHz-30MHz</td><td>Quasi-peak</td><td>9kHz</td><td>30kHz</td><td>Quasi-peak Value</td></tr>
<tr><td>30MHz-1GHz</td><td>Quasi-peak</td><td>100KHz</td><td>300KHz</td><td>Quasi-peak Value</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak Value</td></tr>
<tr><td>Peak</td><td>1MHz</td><td>10Hz</td><td>Average Value</td></tr>
</table>
</td></tr>
<tr><td>Limit:</td><td>
<table>
<tr><td>Frequency</td><td>Field Strength (microvolts/meter)</td><td>Measurement Distance (meters)</td></tr>
<tr><td>0.009-0.490</td><td>2400/F(KHz)</td><td>300</td></tr>
<tr><td>0.490-1.705</td><td>24000/F(KHz)</td><td>30</td></tr>
<tr><td>1.705-30</td><td>30</td><td>30</td></tr>
<tr><td>30-88</td><td>100</td><td>3</td></tr>
<tr><td>88-216</td><td>150</td><td>3</td></tr>
<tr><td>216-960</td><td>200</td><td>3</td></tr>
<tr><td>Above 960</td><td>500</td><td>3</td></tr>
</table>
<table>
<tr><td>Frequency</td><td>Field Strength (microvolts/meter)</td><td>Measurement Distance (meters)</td><td>Detector</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>500</td><td>3</td><td>Average</td></tr>
<tr><td>5000</td><td>3</td><td>Peak</td></tr>
</table>
</td></tr>
<tr><td>Test setup:</td><td>For radiated emissions below 30MHz
 

30MHz to 1GHz</td></tr>
</table>



Above 1GHz



Test Procedure:

1. For the radiated emission test below 1GHz:
The EUT was placed on a turntable with 0.8 meter above ground. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high PASS filter are used for the test in order to get better signal level.
For the radiated emission test above 1GHz:
Place the measurement antenna on a turntable with 1.5 meter above ground, which is 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. 3. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level 4. For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported. 5. Use the following spectrum analyzer settings: (1) Span shall wide enough to fully capture the emission being measured; (2) Set RBW=100 kHz for f < 1 GHz; VBW ≥RBW; Sweep = auto; Detector function = peak; Trace = max hold; (3) Set RBW = 1 MHz, VBW= 3MHz for f □ 1 GHz for peak measurement. For average measurement: VBW = 10 Hz, when duty cycle is no less than 98 percent. VBW ≥1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.
Test results:	PASS

Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

6.7.2. Test Instruments

Radiated Emission Test Site (966)				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Test Receiver	ROHDE&SCHWARZ	ESVD	100008	Sep. 27, 2018
Spectrum Analyzer	ROHDE&SCHWARZ	FSQ	200061	Sep. 27, 2018
Pre-amplifier	EM Electronics Corporation CO.,LTD	EM30265	07032613	Sep. 27, 2018
Pre-amplifier	HP	8447D	2727A05017	Sep. 27, 2018
Loop antenna	ZHINAN	ZN30900A	12024	Sep. 27, 2018
Broadband Antenna	Schwarzbeck	VULB9163	340	Sep. 27, 2018
Horn Antenna	Schwarzbeck	BBHA 9120D	631	Sep. 27, 2018
Horn Antenna	Schwarzbeck	BBH 9170	582	Sep. 27, 2018
Antenna Mast	Keleto	CC-A-4M	N/A	N/A
Coax cable (9KHz-1GHz)	TCT	RE-low-01	N/A	Sep. 27, 2018
Coax cable (9KHz-40GHz)	TCT	RE-high-02	N/A	Sep. 27, 2018
Coax cable (9KHz-1GHz)	TCT	RE-low-03	N/A	Sep. 27, 2018
Coax cable (9KHz-40GHz)	TCT	RE-high-04	N/A	Sep. 27, 2018
EMI Test Software	Shurple Technology	EZ-EMC	N/A	N/A

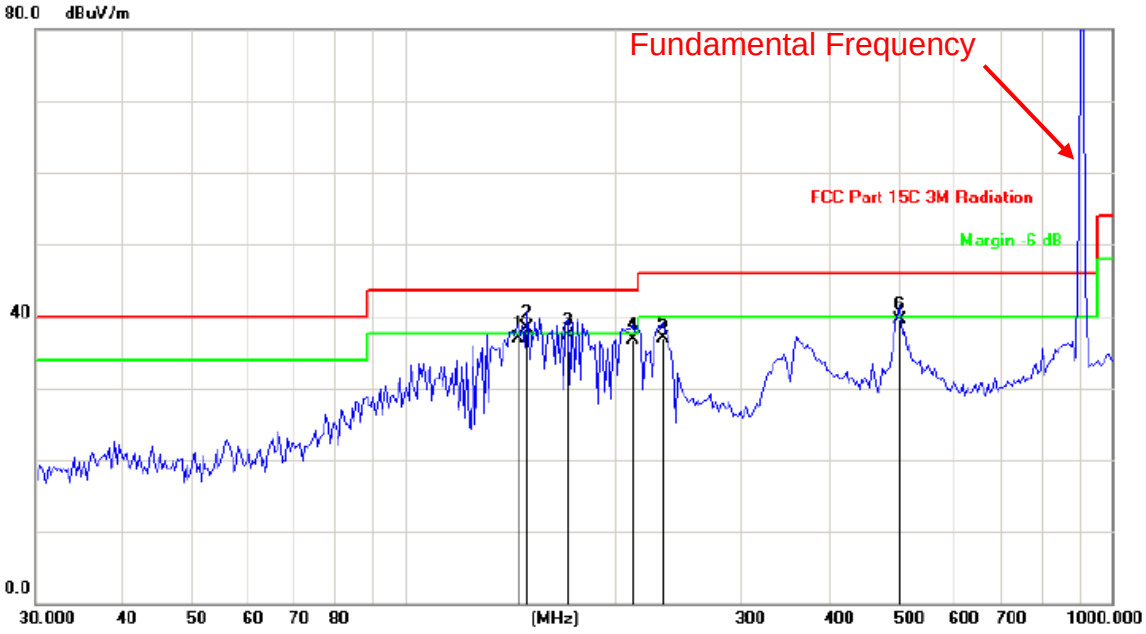
Note: *The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).*

6.7.3. Test Data

Please refer to following diagram for individual

Below 1GHz

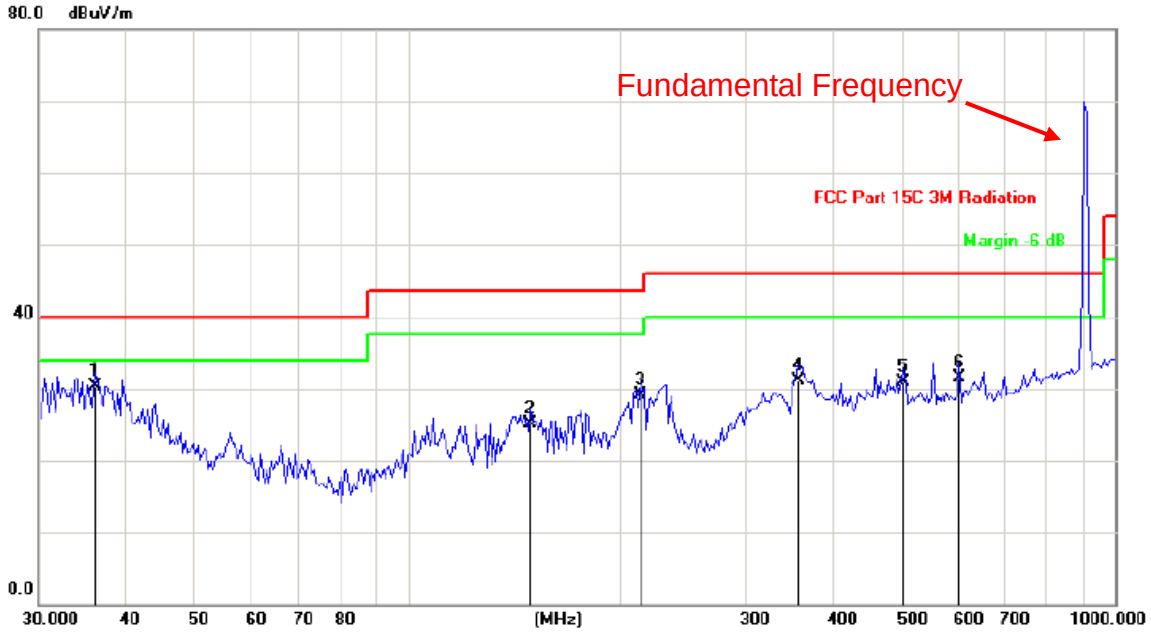
Horizontal:



Site	Polarization: *Horizontal*	Temperature: 25
Limit: FCC Part 15C 3M Radiation	Power: AC 120V/60Hz	Humidity: 55 %
EUT: Smart Radio	Distance: 3m	
M/N: RM-915-2H		
Mode: Transmitting		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		144.7899	52.81	-15.91	36.90	43.50	-6.60	QP	2000	183	
2	*	148.9175	54.23	-15.83	38.40	43.50	-5.10	QP	2000	183	
3		170.1888	51.97	-14.57	37.40	43.50	-6.10	QP	2000	183	
4		210.1294	49.15	-12.35	36.80	43.50	-6.70	QP	2000	183	
5		231.8531	48.51	-11.51	37.00	46.00	-9.00	QP	2000	183	
6		502.2473	42.54	-3.04	39.50	46.00	-6.50	QP	2000	183	

Vertical:



Site	Polarization: *Vertical*	Temperature: 25
Limit: FCC Part 15C 3M Radiation	Power: AC 120V/60Hz	Humidity: 55 %
EUT: Smart Radio	Distance: 3m	
M/N: RM-915-2H		
Mode: Transmitting		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1	*	36.0139	43.51	-13.21	30.30	40.00	-9.70	QP	1000	215	
2		148.9175	40.93	-15.83	25.10	43.50	-18.40	QP	1000	215	
3		213.1035	41.33	-12.23	29.10	43.50	-14.40	QP	1000	215	
4		355.9397	38.27	-7.07	31.20	46.00	-14.80	QP	1000	215	
5		502.2473	33.94	-3.04	30.90	46.00	-15.10	QP	1000	215	
6		602.9287	32.35	-0.75	31.60	46.00	-14.40	QP	1000	215	

Note: *1.The low frequency, which started from 9KHz~30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported*

2. Measurements were conducted in all four channels (905MHz, 910MHz, 915MHz, 920MHz and two modulations (DSSS, OFDM), and the worst case Mode (905MHz and DSSS) was submitted only

Test Result of Radiated Spurious at Band edges

OFDM											
905MHz											
Frequency (MHz)	Ant. Pol. H/V	Ant. Height (cm)	Table Degree	Peak reading (dBμV)	AV reading (dBuV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
							Peak (dBμV/m)	AV (dBμV/m)			
902	H	1500	236	61.86	---	-4.2	57.66	---	74.00	---	-16.34
902	H	1500	236	---	47.99	-4.2	---	43.79	---	54.00	-10.21
---	---			---	---	---	---	---	---	---	---
902	V	1500	236	47.17	---	-4.2	42.97	---	74.00	---	-31.03
902	V	1500	236	---	42.67	-4.2	---	38.47	---	54.00	-15.53
---	---			---	---	---	---	---	---	---	---
920MHz											
Frequency (MHz)	Ant. Pol. H/V	Ant. Height (cm)	Table Degree	Peak reading (dBμV)	AV reading (dBuV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
							Peak (dBμV/m)	AV (dBμV/m)			
928	H	1500	240	58.63	---	-4.2	54.43	---	74.00	---	-19.57
928	H	1500	240	---	46.51	-4.2	---	42.31	---	54.00	-11.69
---	---			---	---	---	---	---	---	---	

928	V	1500	240	42.09	---	-4.2	37.89	---	74.00	---	-36.11
928	V	1500	240	---	36.07	-4.2	---	31.87	---	54.00	-22.13
---	---			---	---	---	---	---	---	---	---

Note:

1. *Peak Final Emission Level=Peak Reading + Correction Factor;*
2. *Correction Factor= Antenna Factor + Cable loss – Pre-amplifier*
3. *Measurements were conducted in two modulations (DSSS, OFDM), and the worst case Mode (OFDM) was submitted only*

Above 1GHz

905MHz											
Frequency (MHz)	Ant. Pol. H/V	Ant. Height (cm)	Table Degree	Peak reading (dBμV)	AV reading (dBuV)	Correction Factor (dB/m)	Emission Level Peak (dBμV/m)	Emission Level AV (dBμV/m)	Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
1810	H	1500	240	53.70	---	-3.94	49.76	---	74.00	54.00	-4.24
2706	H	1500	240	40.45	---	0.52	40.97	---	74.00	54.00	-13.03
---	---	---	---	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---	---	---	---
1810	V	1500	240	49.28	---	-3.94	45.34	---	74.00	54.00	-8.66
2706	V	1500	240	37.95	---	0.52	38.47	---	74.00	54.00	-15.53
---	---	---	---	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---	---	---	---

910MHz											
Frequency (MHz)	Ant. Pol. H/V	Ant. Height (cm)	Table Degree	Peak reading (dBμV)	AV reading (dBμV)	Correction Factor (dB/m)	Emission Level Peak (dBμV/m)	Emission Level AV (dBμV/m)	Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
1820	H	1500	274	51.85	---	-3.94	47.91	---	74.00	54.00	-6.09
2730	H	1500	274	42.31	---	0.52	42.83	---	74.00	54.00	-11.17
---	---	---	---	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---	---	---	---
1820	V	1500	274	51.06	---	-3.94	47.12	---	74.00	54.00	-6.88
2730	V	1500	274	42.37	---	0.52	42.89	---	74.00	54.00	-11.11
---	---			---	---	---	---	---	---	---	---
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---	---			---	---	---	---	----	---	---	---

915MHz											
Frequency (MHz)	Ant. Pol. H/V	Ant. Height (cm)	Table Degree	Peak reading (dBμV)	AV reading (dBμV)	Correction Factor (dB/m)	Emission Level Peak (dBμV/m)	Emission Level AV (dBμV/m)	Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
1830	H	1500	189	48.96	---	-3.98	44.98	---	74.00	54.00	-9.02
2745	H	1500	189	39.26	---	0.57	39.78	---	74.00	54.00	-14.22
---	---	---	---	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---	---	---	---
1830	V	1500	189	47.55		-3.98	43.57		74.00	54.00	-10.43
2745	V	1500	189	40.36		0.57	40.93		74.00	54.00	-13.07
---	---			---	---	---	---	---	---	---	---
---	---			---	---	---	---	---	---	---	---
---	---			---	---	---	---	----	---	---	---

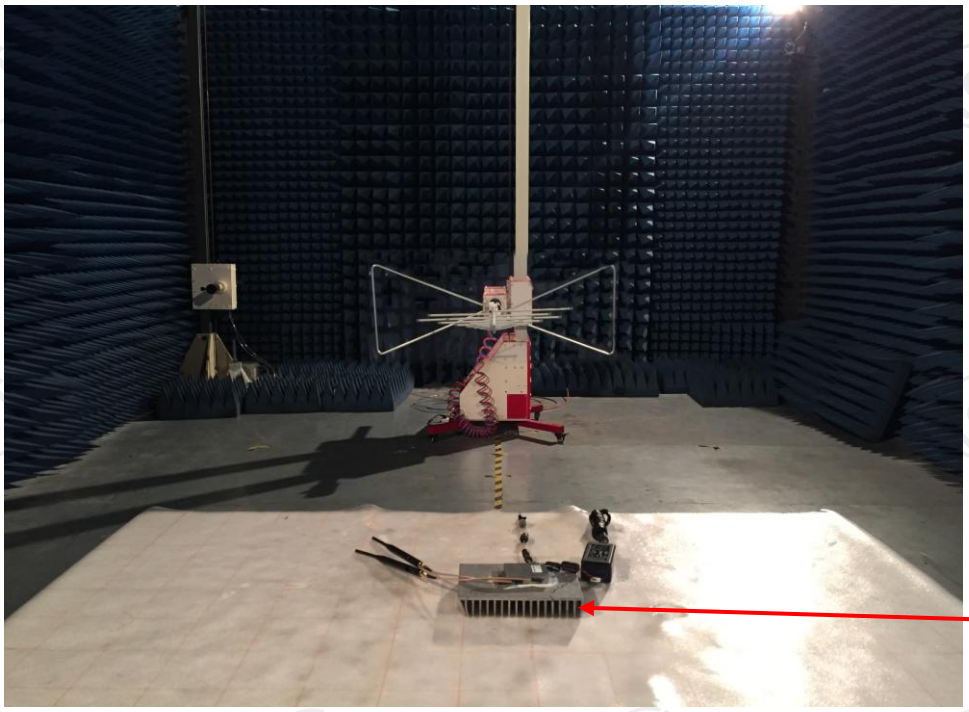
920MHz											
Frequency (MHz)	Ant. Pol. H/V	Ant. Height (cm)	Table Degree	Peak reading (dBμV)	AV reading (dBμV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
							Peak (dBμV/m)	AV (dBμV/m)			
1840	H	1500	203	49.54	---	-3.98	45.56	---	74.00	54.00	-8.44
2760	H	1500	203	40.33	---	0.57	40.9	---	74.00	54.00	-13.1
---	---	---	---	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---	---	---	---
1840	V	1500	203	50.24	---	-3.98	46.26	---	74.00	54.00	-7.74
2760	V	1500	203	38.54	---	0.57	39.11	---	74.00	54.00	-14.89
---	---			---	---	---	---	---	---	---	---
---	---			---	---	---	---	---	---	---	---
---	---			---	---	---	---	---	---	---	---

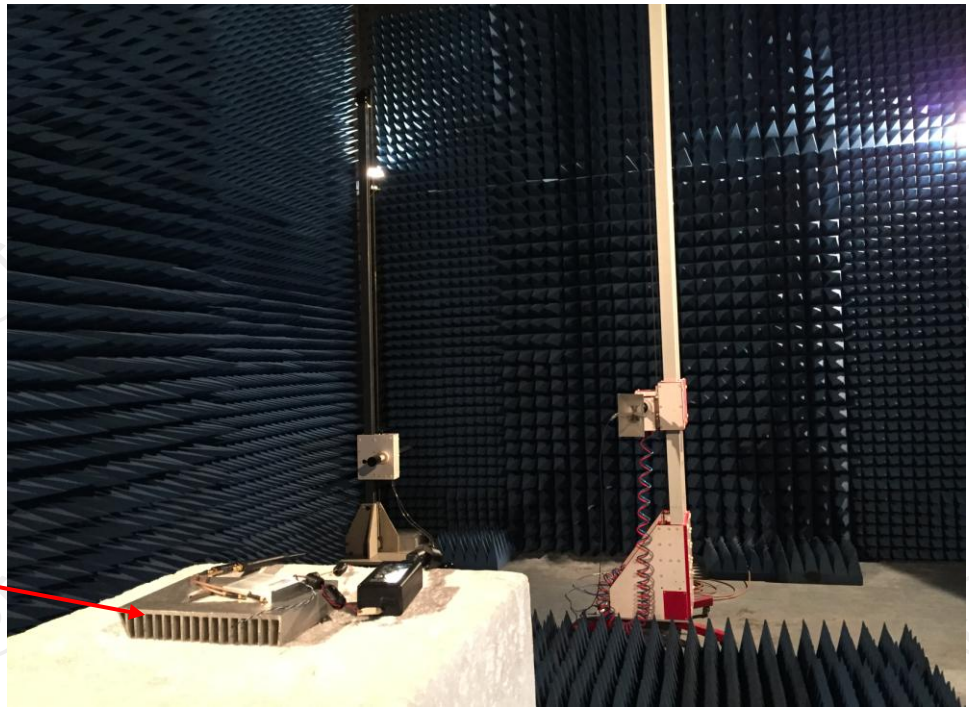
Note:

1. *Emission Level=Peak Reading + Correction Factor; Correction Factor= Antenna Factor + Cable loss – Pre-amplifier*
2. *Margin (dB) = Emission Level (Peak) (dBμV/m)-Average limit (dBμV/m)*
3. *The emission levels of other frequencies are very lower than the limit and not show in test report.*
4. *Measurements were conducted from 1 GHz to the 10th harmonic of highest fundamental frequency. The highest test frequency is 25GHz.*
5. *Data of measurement shown "---"in the above table mean that the reading of emissions is attenuated more than 20 dB below the limits or the field strength is too small to be measured.*

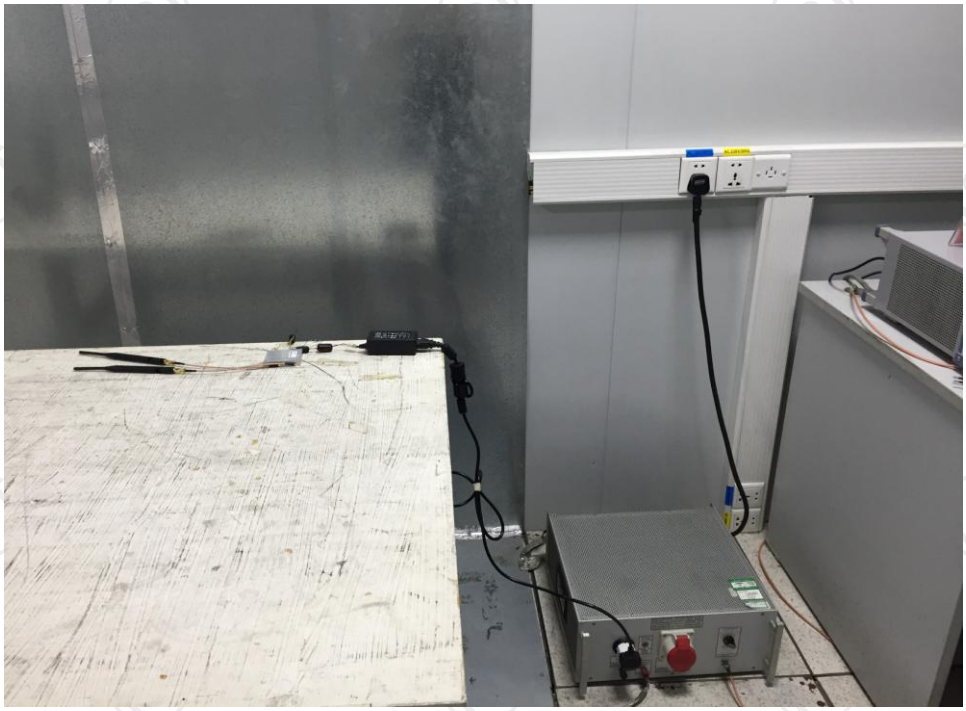
Appendix A: Photographs of Test Setup

Product: Smart Radio
Model: RM-915-2H
Radiated Emission



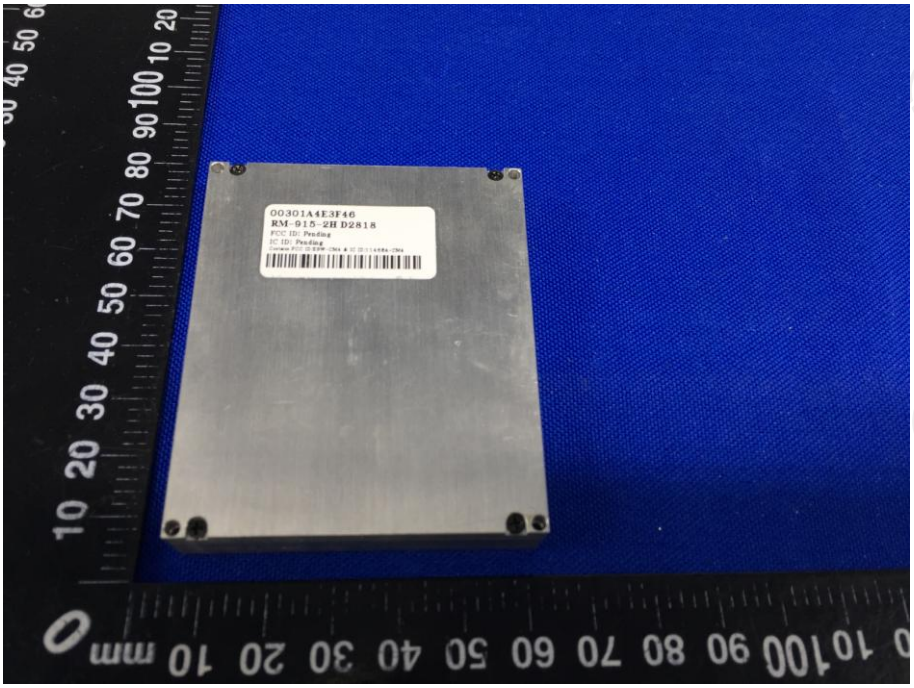


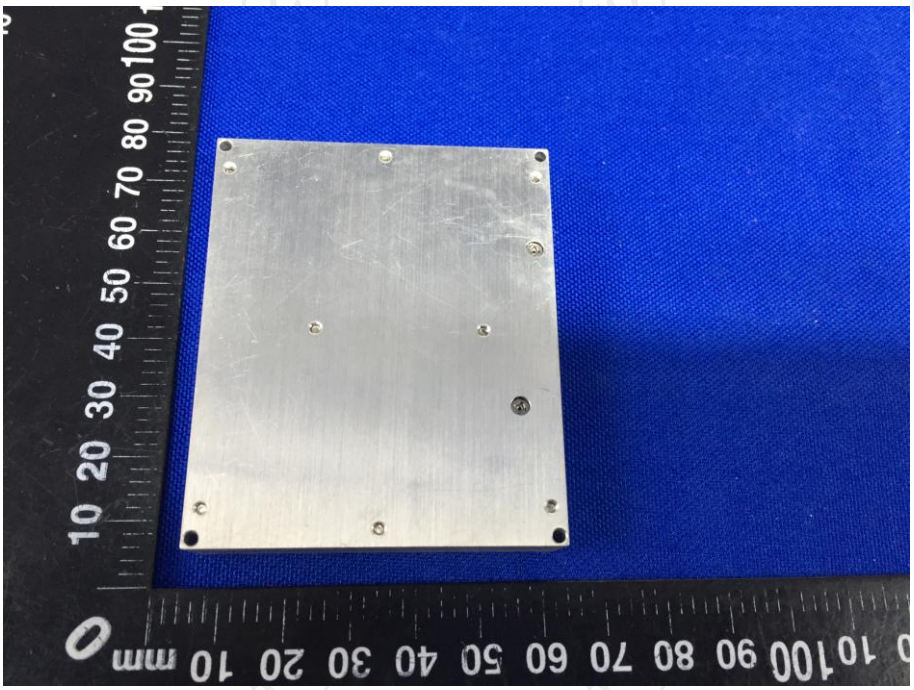
Conducted Emission

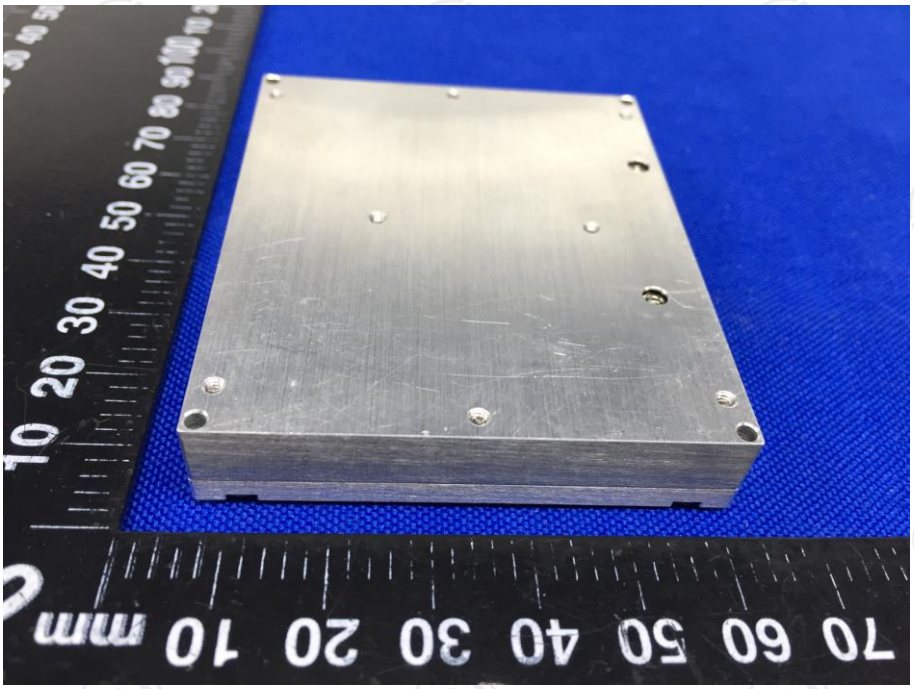


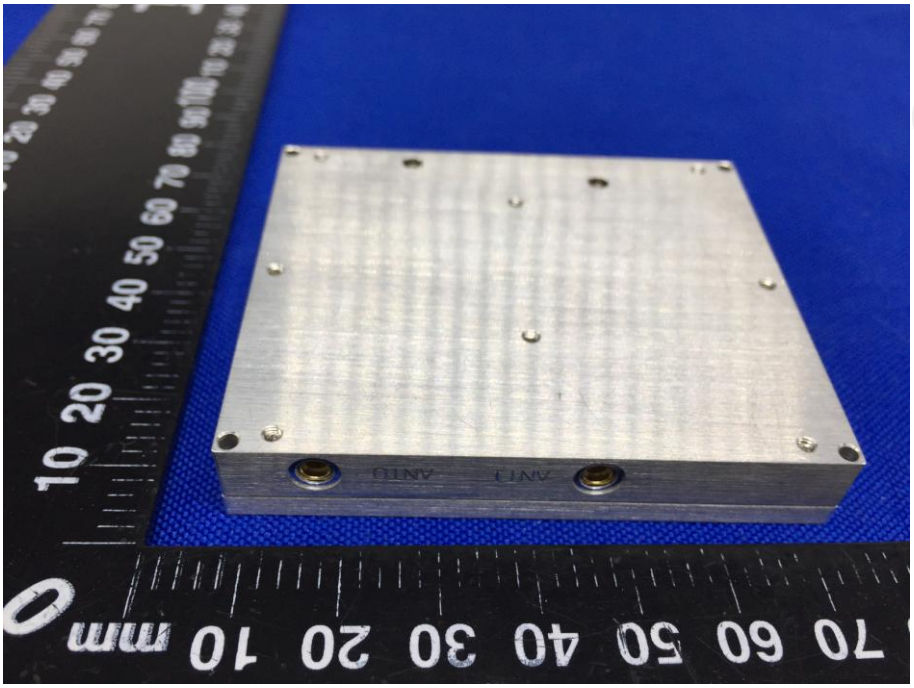
Appendix B: Photographs of EUT

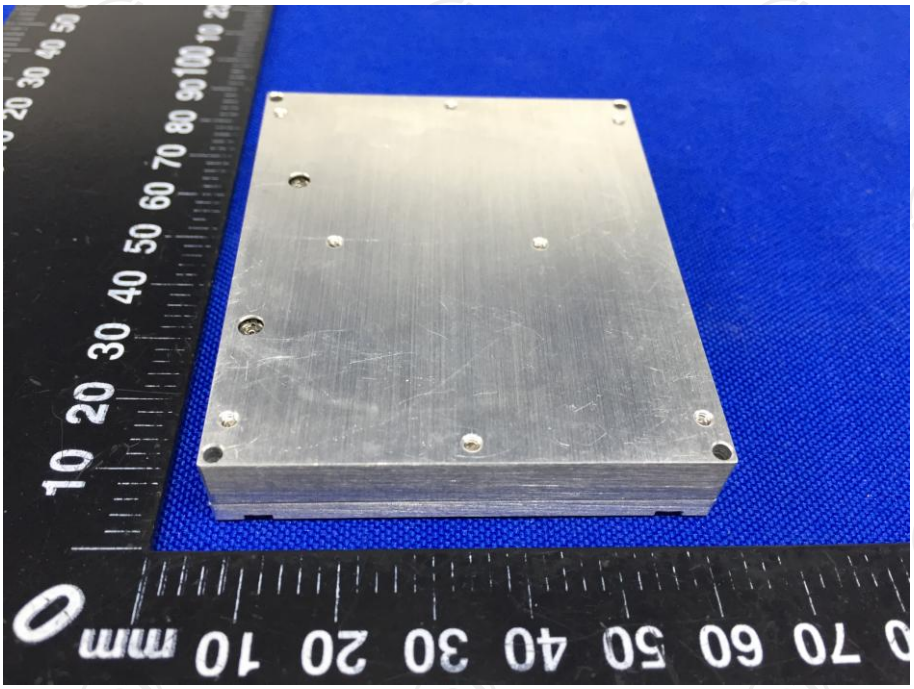
Product: Smart Radio
Model: RM-915-2H
External Photos

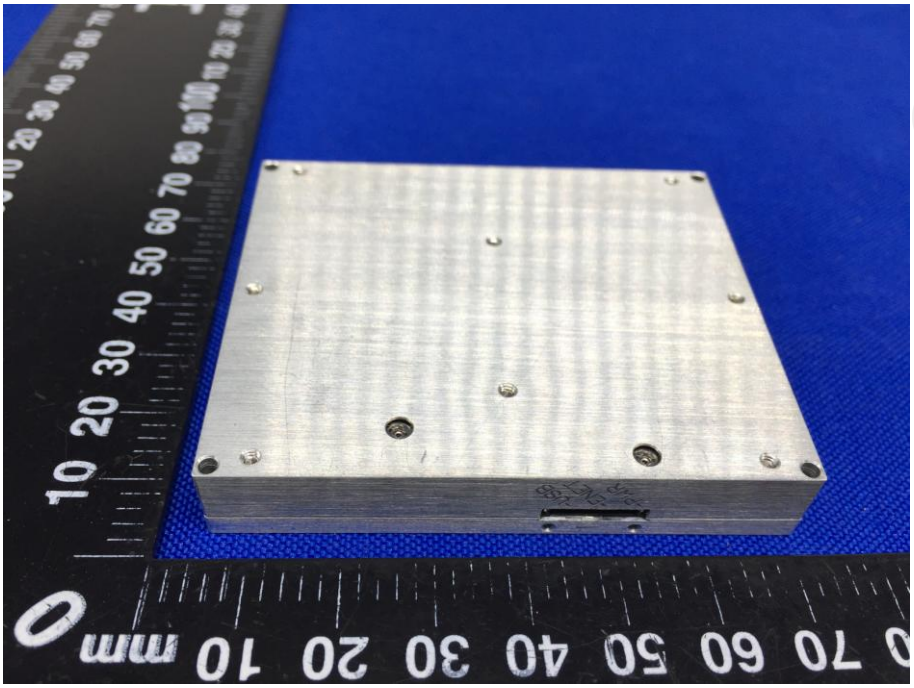




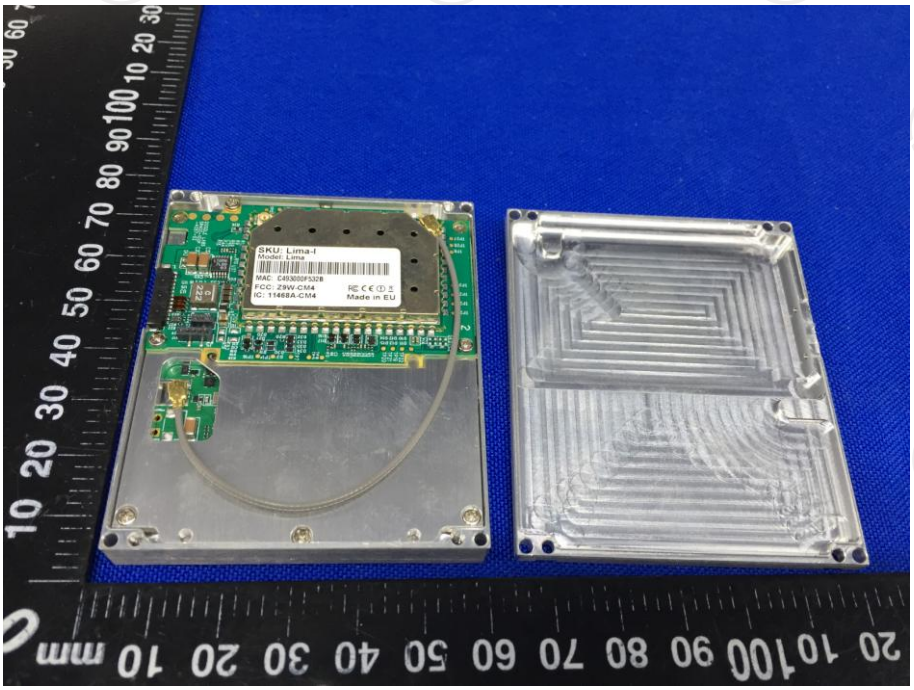


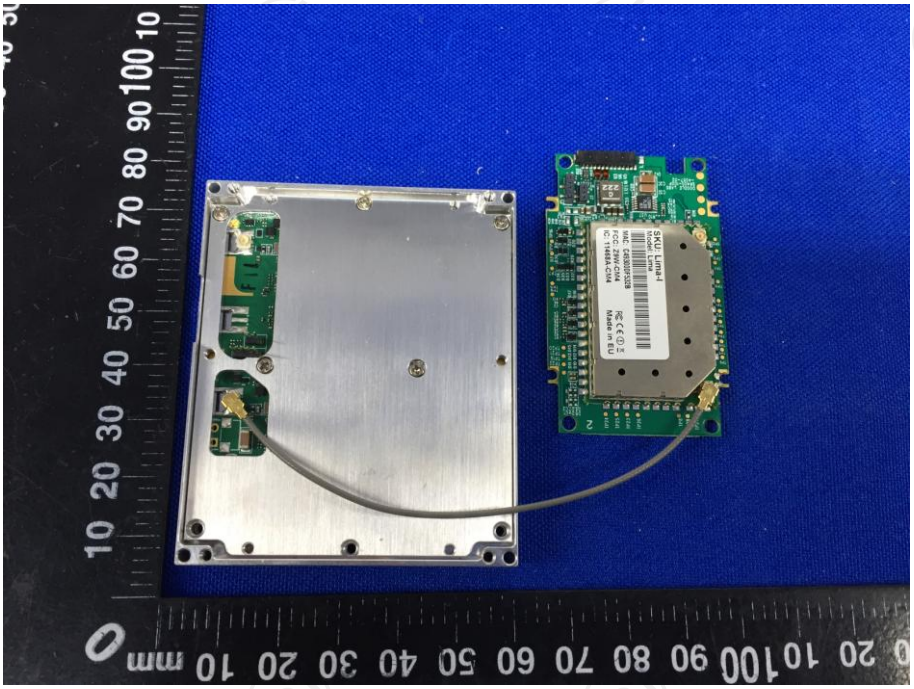


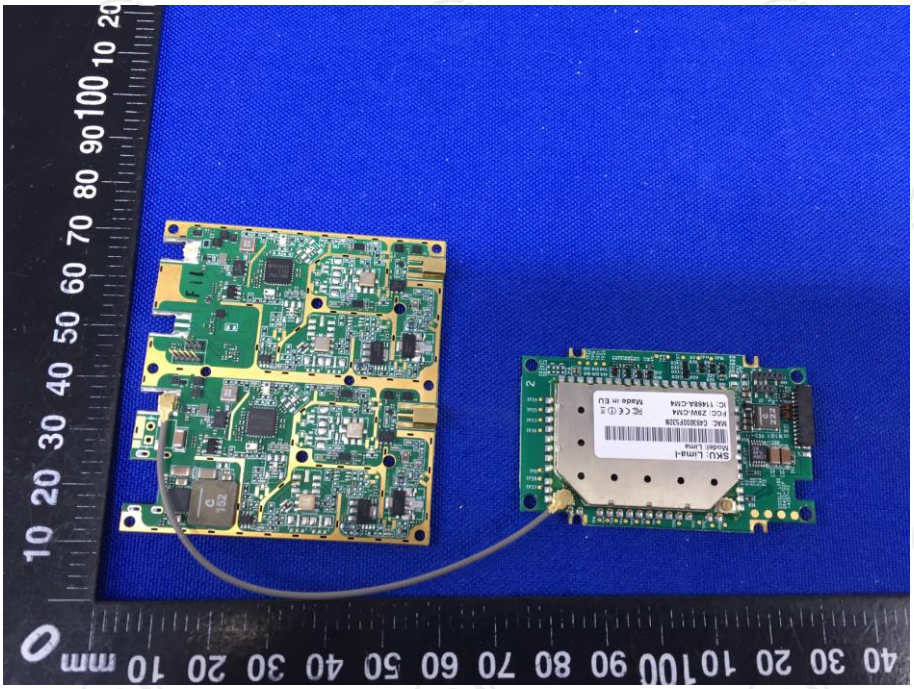




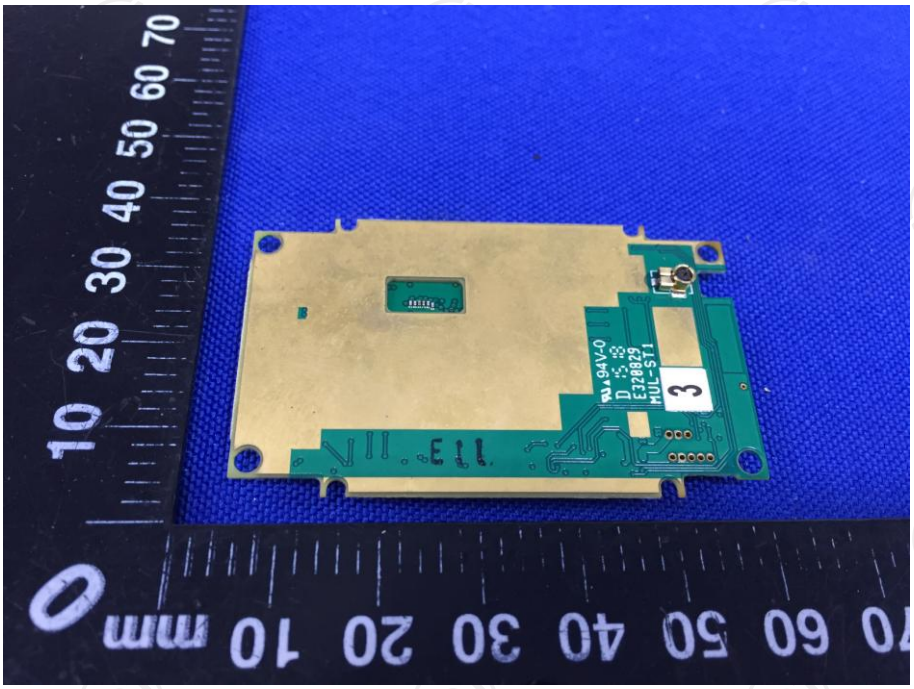
Product: Smart Radio
Model: RM-915-2H
Internal Photos

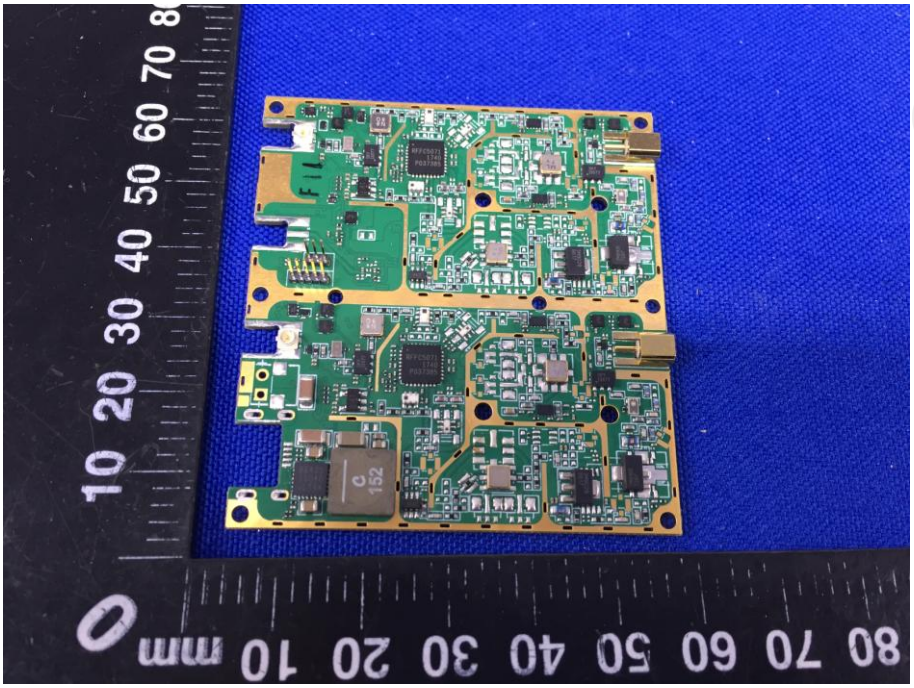


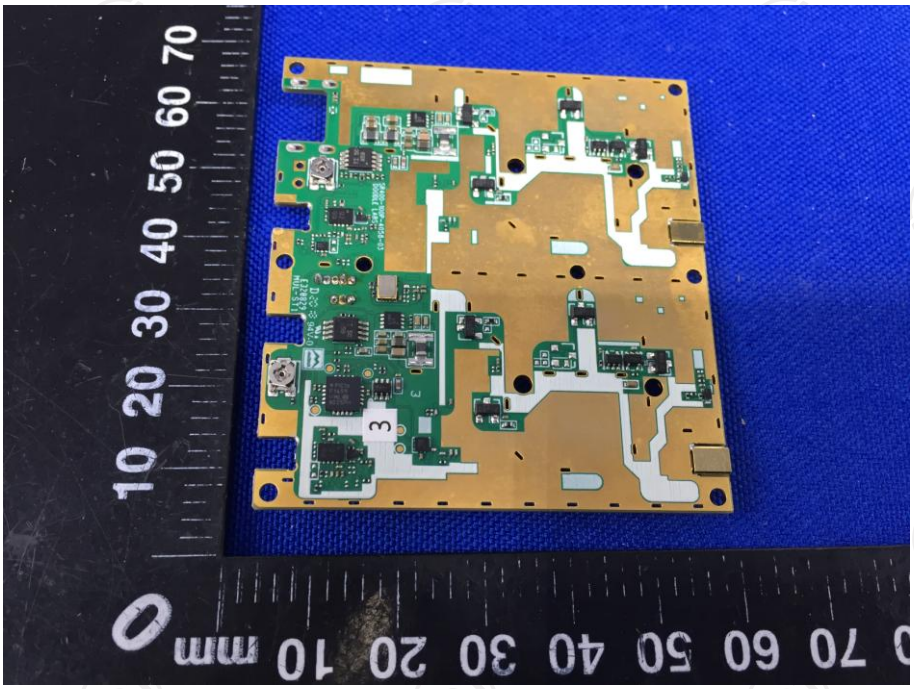


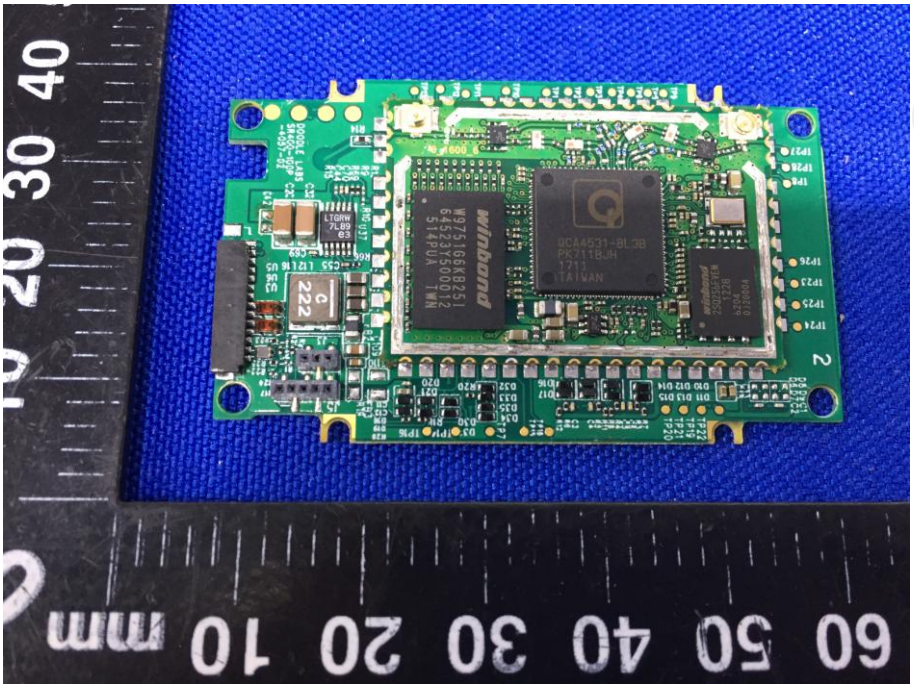



SKU: Lima-I
Model: Lima
MAC: C493000F532B
FCC: Z9W-CM4
IC: 11468A-CM4
Made in EU


94V-0
E370829
MUL_ST1
3







*****END OF REPORT*****

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