



FCC RADIO TEST REPORT

FCC ID : UZ7TCX010
Equipment : Touch Computer
Brand Name : ZEBRA
Model Name : TCX010
Applicant : Zebra Technologies Corporation
3 Overlook Point, Lincolnshire, IL 60069 USA
Manufacturer : Zebra Technologies Corporation
3 Overlook Point, Lincolnshire, IL 60069 USA
Standard : FCC Part 15 Subpart C §15.247

The product was received on Oct. 03, 2025 and testing was started from Oct. 14, 2025 to Dec. 06, 2025. We, Sporton International Inc. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval from Sporton International Inc. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Louis Wu

Approved by: Louis Wu

Sporton International Inc. EMC & Wireless Communications Laboratory
No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)



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History of this test report

Report No.	Version	Description	Issue Date
FR571515-01L	01	Initial issue of report	Dec. 11, 2025
FR571515-01L	02	Revise section 3.8.3 This report is an updated version, replacing the report issued on Dec. 11, 2025.	Jan. 06, 2026

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.1	15.247(a)(1)	Number of Channels	Pass	-
3.2	15.247(a)(1)	Hopping Channel Separation	Pass	-
3.3	15.247(a)(1)	Dwell Time of Each Channel	Pass	-
3.4	15.247(a)(1)	20dB Bandwidth	Pass	-
3.4	2.1049	99% Occupied Bandwidth	Pass	-
3.5	15.247(b)(1)	Output Power	Pass	-
3.6	15.247(d)	Conducted Band Edges	Pass	-
3.7	15.247(d)	Conducted Spurious Emission	Pass	-
3.8	15.247(d)	Radiated Band Edges and Radiated Spurious Emission	Pass	8.69 dB under the limit at 30.00 MHz
3.9	15.207	AC Conducted Emission	Pass	11.63 dB under the limit at 0.159 MHz
3.10	15.203	Antenna Requirement	Pass	-

Conformity Assessment Condition:

1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacture who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
2. The measurement uncertainty please refer to each test result in the section "Measurement Uncertainty".

Disclaimer:

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.

Reviewed by: Wei Chen
Report Producer: Dara Chiu



1 General Description

1.1 Product Feature of Equipment Under Test

Product Feature	
Equipment	Touch Computer
Brand Name	ZEBRA
Model Name	TCX010
FCC ID	UZ7TCX010
EUT supports Radios application	NFC/UHF RFID WLAN 11a/b/g/n HT20/HT40 WLAN 11ac VHT20/VHT40/VHT80/VHT160 WLAN 11ax HE20/HE40/HE80/HE160 WLAN 11be ETH20/ ETH 40/ ETH 80/ ETH 160/ ETH 320 Bluetooth BR/EDR/LE
SW Version	eris_A15_userdebug_GMS_RelKey_2025-10-07-205955_main_SE
FW Version	eris_A15_userdebug_GMS_RelKey_2025-10-07-205955_main_SE
MFD	30-Sep-25
EUT Stage	Identical Prototype

Remark: The above EUT's information was declared by manufacturer.

<Sample list>

	Scanner	Camera	Bumper
Sample 1	SE4730	Main	w/o
Sample 2	SE4780	Main+Indirect Time-of-Flight	w/o
Sample 3	SE4780	Main+Ultra wide Camera	w/o
Sample 4	SE4730	Main+Indirect Time-of-Flight	w/o
Sample 5	SE4730	Main+Ultra wide Camera	w/o
Sample 6	SE4730	Main	w/
Sample 7	SE4780	Main+Indirect Time-of-Flight	w/
Sample 8	SE4780	Main+Ultra wide Camera	w/
Sample 9	SE4730	Main+Indirect Time-of-Flight	w/
Sample 10	SE4730	Main+Ultra wide Camera	w/

Specification of Accessories				
AC Adapter 1 (TYPE C Wall Charger 1)	Brand Name	Zebra	Model Name	SAWA-102-22520A
AC Adapter 2 (TYPE A Wall Charger 2)	Brand Name	Zebra	Model Name	SAWA-65-20005A
Trigger Handle 1	Brand Name	Zebra	Part Number	TRG-TC5A-ELEC-01
Trigger Handle 2	Brand Name	Zebra	Part Number	TRG-TC7A-ELEC-01
Arm Mount 1	Brand Name	Zebra	Part Number	SG-TC5A-WMADP-01
Arm Mount 2	Brand Name	Zebra	Part Number	SG-TC5A-WMADP2-01
Soft Holster	Brand Name	Zebra	Part Number	SG-NGTC5TC7-HLSTR-01
Rugged boot	Brand Name	Zebra	Part Number	SG-TC5AEXO-01
Earphone 1 (Wired headset USB-C)	Brand Name	Zebra	Part Number	HDST-USBC-PTT1-01
Earphone 2 (3.5mm PTT Headset)	Brand Name	Zebra	Part Number	HDST-35MM-PTT1-01
Earphone 3 (Rugged Headset)	Brand Name	Zebra	Part Number	HS2100-OTH
Battery	Brand Name	Zebra	Model Name	BT-000535-0020
3.5mm to 3.5mm audio connector	Brand Name	Zebra	Part Number	CBL-HS2100-3MS1-01
USB Cable 1 USB-C to C Cable	Brand Name	Zebra	Part Number	CBL-EC5X-USBC3A-01
USB Cable 2 USB-A to C Cable	Brand Name	Zebra	Part Number	CBL-TC5X-USBC2A-01

1.2 Product Specification of Equipment Under Test

Product Specification is subject to this standard	
Tx/Rx Frequency Range	902.75 MHz ~ 927.25 MHz
Number of Channels	50
Maximum Output Power to Antenna	27.93 dBm (0.6209 W)
20dB Bandwidth	0.075 MHz
99% Occupied Bandwidth	0.064 MHz
Antenna Type / Gain	PIFA Antenna with gain 0.30 dBi
Type of Modulation	ASK

Remark: The above EUT's information was declared by manufacturer. Please refer to Disclaimer in report summary.

1.3 Modification of EUT

No modifications are made to the EUT during all test items.

1.4 Testing Location

The test location is accredited based on TAF code 1190 and 3786 designated by NCC (National Communication Commission).

Test Site	Sporton International Inc. EMC & Wireless Communications Laboratory
Test Site Location	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)
Test Site	Sporton International Inc. Wensan Laboratory
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.)

FCC designation No.: TW1190 and TW3786

Note:

1. The test site complies with ANSI C63.4 2014 requirement.
2. The conducted test items subcontracted to Sporton International Inc. Wensan Laboratory (TAF Code: 3786).

1.5 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ FCC Part 15 Subpart C §15.247
- ♦ FCC KDB Publication No. 558074 D01 15.247 Meas Guidance v05r02
- ♦ FCC KDB 414788 D01 Radiated Test Site v01r01
- ♦ ANSI C63.10-2020

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. The TAF code is not including all the FCC KDB listed without accreditation.
3. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.



2 Test Configuration of Equipment Under Test

2.1 Carrier Frequency Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
902.75-927.25 MHz	1	902.75	28	916.25
	2	903.25	29	916.75
	3	903.75	30	917.25
	4	904.25	31	917.75
	5	904.75	32	918.25
	6	905.25	33	918.75
	7	905.75	34	919.25
	8	906.25	35	919.75
	9	906.75	36	920.25
	10	907.25	37	920.75
	11	907.75	38	921.25
	12	908.25	39	921.75
	13	908.75	40	922.25
	14	909.25	41	922.75
	15	909.75	42	923.25
	16	910.25	43	923.75
	17	910.75	44	924.25
	18	911.25	45	924.75
	19	911.75	46	925.25
	20	912.25	47	925.75
	21	912.75	48	926.25
	22	913.25	49	926.75
	23	913.75	50	927.25
	24	914.25		
	25	914.75		
	26	915.25		
	27	915.75		

2.2 Test Mode

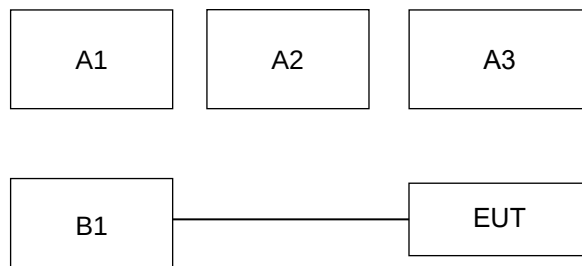
- a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, the measured emission level of the EUT was maximized by rotating the EUT on a turntable, adjusting the orientation of the EUT and EUT antenna in three orthogonal axis (X: flat, Y: portrait, Z: landscape), and adjusting the measurement antenna orientation, following C63.10 exploratory test procedures and only the worst case emissions were reported in this report.
- b. AC power line Conducted Emission was tested under maximum output power.

The following summary table is showing all test modes to demonstrate in compliance with the standard.

Summary table of Test Cases	
Test Item	UHF RFID
Conducted Test Cases	Mode 1: UHF RFID Tx 902.75 MHz Mode 2: UHF RFID Tx 914.75 MHz Mode 3: UHF RFID Tx 927.25 MHz
Radiated Test Cases	Mode 1: UHF RFID Tx 902.75 MHz Mode 2: UHF RFID Tx 914.75 MHz Mode 3: UHF RFID Tx 927.25 MHz
AC Conducted Emission	Mode 1: WLAN 5G Idle + BT Idle + RFID read + AC Adapter 2 + USB Cable 2 with AC Adapter for Sample 2
Remark: For Radiated Test Cases, the tests were performed with AC Adapter 1, USB cable 1, Sample 2	

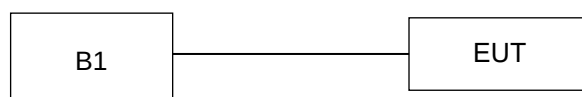
2.3 Connection Diagram of Test System

<AC Conducted Emission Mode>



Conduction Test Setup									
No.	Wireless Station	Connection Type	Test Mode						
			1	-	-	-	-	-	-
A1	BT Earphone	Bluetooth	X						
A2	AP router	WiFi	X						
A3	RFID Tag	RFID	X						
No.	Power Source	Connection Type	1	-	-	-	-	-	-
B1	AC : 120V/60Hz	USB Cable	X						

<Radiated Spurious Emission Mode>



Radiation Tx Test Setup									
No.	Power Source	Connection Type	Test Mode						
			1~3	-	-	-	-	-	-
B1	AC : 120V/60Hz	USB Cable	X						



2.4 Support Unit used in test configuration and system

Item	Equipment	Brand Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Bluetooth Earphone	Jlab Jbund Mini	2AHYV	N/A	N/A	N/A
2.	WLAN AP	ASUS	RT-AC66U	MSQ-RTAC66U	N/A	Unshielded, 1.8 m
3.	Notebook	Dell	Latitude 3420	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
4.	RFID Tag	N/A	N/A	N/A	N/A	N/A



2.5 EUT Operation Test Setup

The RF test items, utility “QRCT 4.0.170.1” was installed in Notebook which was programmed in order to make the EUT get into the engineering modes to provide channel selection, power level, data rate and the application type and for continuous transmitting signals.

2.6 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example:

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 4.2 dB and 10 dB attenuator.

$$\begin{aligned}\text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)}. \\ &= 4.2 + 10 = 14.2 \text{ (dB)}\end{aligned}$$

3 Test Result

3.1 Number of Channel Measurement

3.1.1 Limits of Number of Hopping Frequency

For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies.

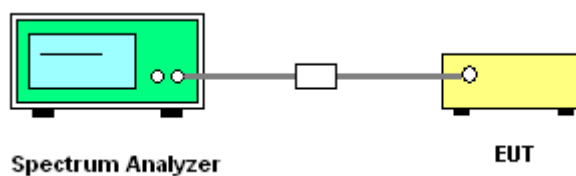
3.1.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

3.1.3 Test Procedure

1. The testing follows ANSI C63.10 clause 7.8.3.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set the maximum power setting and enable the EUT to transmit continuously.
4. Enable the EUT hopping function.
5. Use the following spectrum analyzer settings: Span = the frequency band of operation; RBW = 100 kHz; VBW $\geq$ RBW; Sweep = No faster than coupled (auto) time; Detector function = peak; Trace = max hold.
6. The number of hopping frequency used is defined as the number of total channel.
7. Record the measurement data derived from spectrum analyzer.

3.1.4 Test Setup

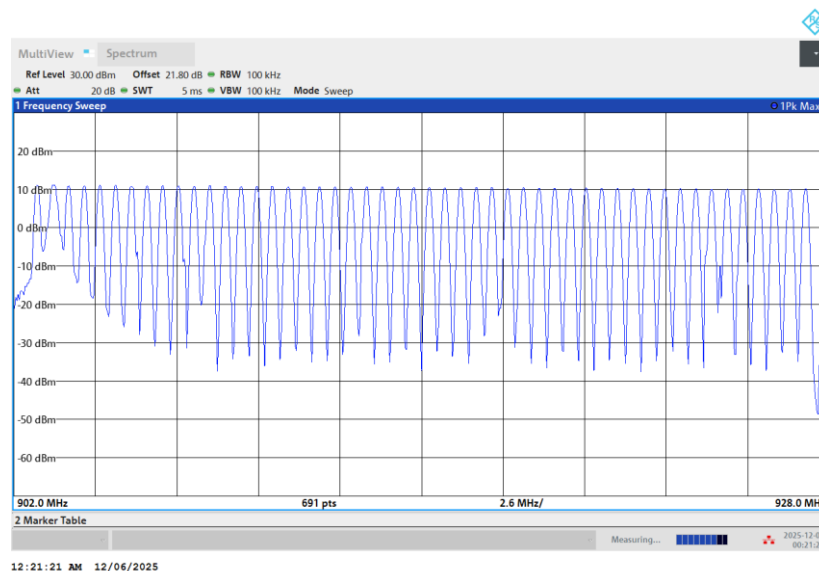


3.1.5 Test Result of Number of Hopping Frequency

Test Mode :	UHF RFID	Temperature :	20 ~ 25°C
Test Engineer :	Shiming Liu	Relative Humidity :	50 ~ 56%

Number of Hopping (Channel)	Limits (Channel)	Pass/Fail
50	≥ 50	Pass

Number of Hopping Channel Plot on Channel 00 - 49



3.2 Hopping Channel Separation Measurement

3.2.1 Limit of Hopping Channel Separation

Frequency hopping systems operating in the 902.75-927.25 MHz band may have hopping channel carrier frequencies that are 20 dB bandwidth of the hopping channel.

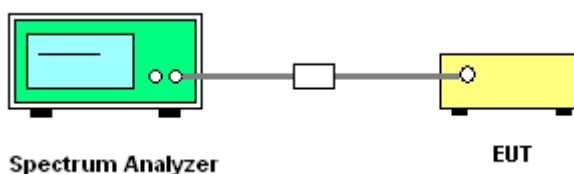
3.2.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

3.2.3 Test Procedures

1. The testing follows ANSI C63.10 clause 7.8.2.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set the maximum power setting and enable the EUT to transmit continuously.
4. Enable the EUT hopping function.
5. Use the following spectrum analyzer settings:
Span = wide enough to capture the peaks of two adjacent channels;
RBW = 100 kHz; VBW $\geq$ RBW; Sweep = No faster than coupled (auto) time; Detector function = peak; Trace = max hold.
6. Measure and record the results in the test report.

3.2.4 Test Setup



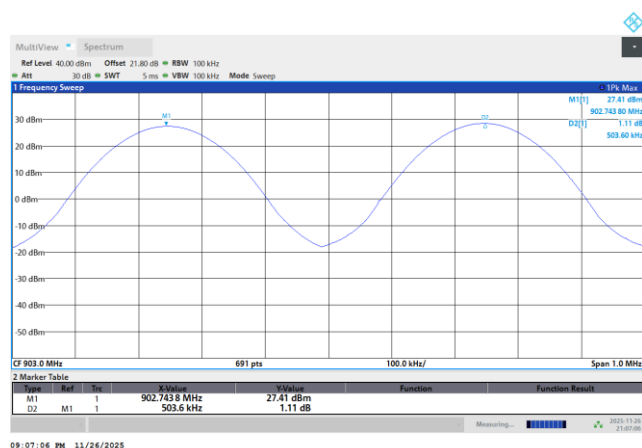


3.2.5 Test Result of Hopping Channel Separation

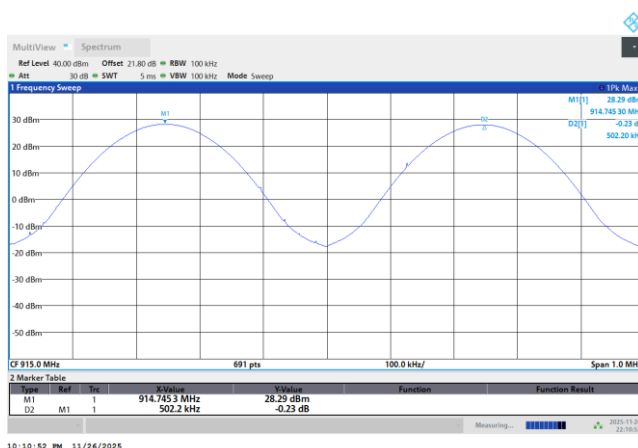
Test Mode :	UHF RFID	Temperature :	20 ~ 25°C
Test Engineer :	Shiming Liu	Relative Humidity :	50 ~ 56%

Mod.	NTX	Freq. (MHz)	Hopping Channel Separation Measurement (MHz)	Hopping Channel Separation Measurement Limit (MHz)	Pass/Fail
UHF RFID	1	902.75	0.504	0.0754	Pass
UHF RFID	1	914.75	0.502	0.0754	Pass
UHF RFID	1	927.25	0.502	0.0753	Pass

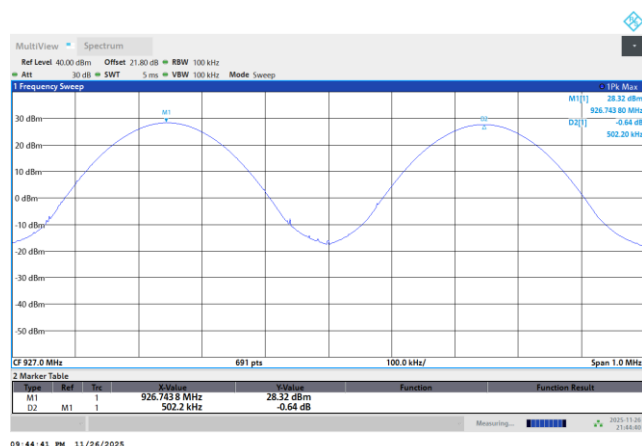
Channel Separation Plot on 902.75 MHz



Channel Separation Plot on 914.75 MHz



Channel Separation Plot on 927.25 MHz



3.3 Dwell Time Measurement

3.3.1 Limit of Dwell Time

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 20 seconds multiplied by the number of hopping channels employed.

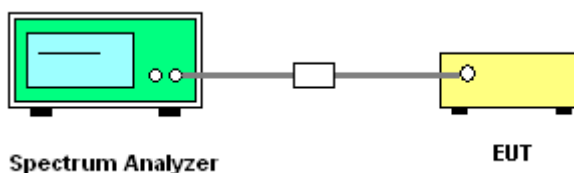
3.3.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

3.3.3 Test Procedures

1. The testing follows ANSI C63.10 clause 7.8.4.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set the maximum power setting and enable the EUT to transmit continuously.
4. Enable the EUT hopping function.
5. Use the following spectrum analyzer settings: Span = zero span, centered on a hopping channel; RBW = 1 MHz; VBW $\geq$ RBW; Sweep = as necessary to capture the entire dwell time per hopping channel; Detector function = peak; Trace = max hold.
6. Measure and record the results in the test report.

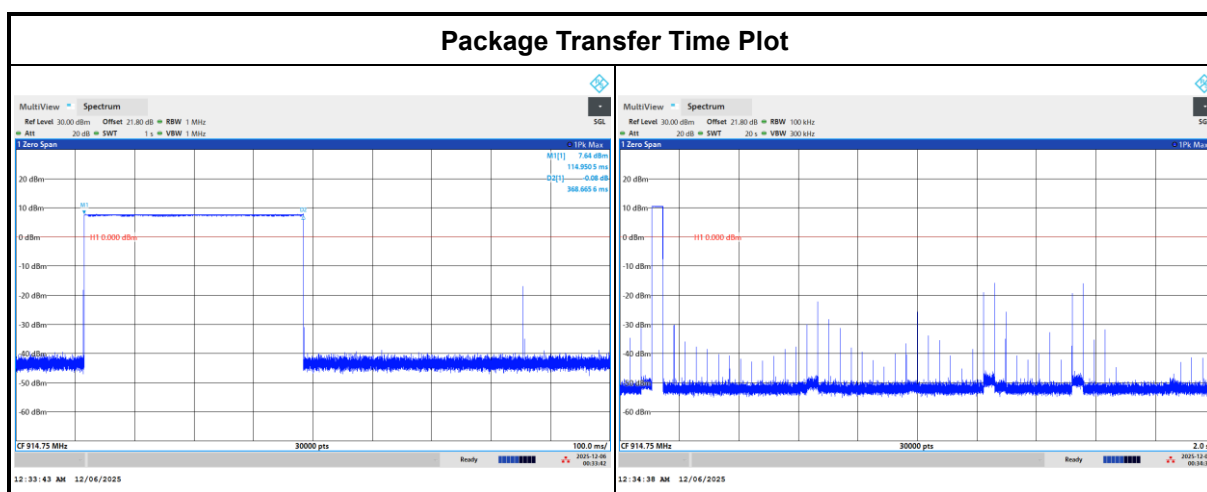
3.3.4 Test Setup



3.3.5 Test Result of Dwell Time

Test Mode :	UHF RFID	Temperature :	20 ~ 25°C
Test Engineer :	Shiming Liu	Relative Humidity :	50 ~ 56%

Mod.	Channel Number Rate	Package Transfer Time (msec)	Hops Over Occupancy Time (hops)	Dwell Time (sec)	Limits (sec)	Pass/Fail
Nomal	50	368.67	1.00	0.369	0.4	Pass



Remark: Dwell Time(s) = Hops Over Occupancy Time (hops) x Package Transfer Time

3.4 20dB and 99% Bandwidth Measurement

3.4.1 Limit of 20dB and 99% Bandwidth

Reporting only

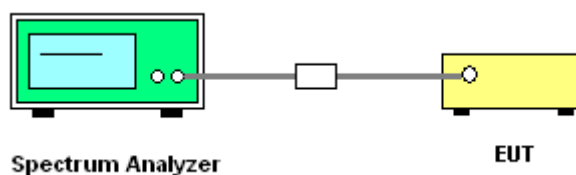
3.4.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

3.4.3 Test Procedures

1. The testing follows ANSI C63.10 clause 6.9.2 and 6.9.3.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set the maximum power setting and enable the EUT to transmit continuously.
4. Use the following spectrum analyzer settings for 20 dB Bandwidth measurement.
Span = approximately 2 to 5 times the 20 dB bandwidth, centered on a hopping channel;
RBW $\geq$ 1% of the 20 dB bandwidth; VBW $\geq$ RBW; Sweep = auto; Detector function = peak;
Trace = max hold.
5. Use the following spectrum analyzer settings for 99 % Bandwidth measurement.
Span = approximately 1.5 to 5 times the 99% bandwidth, centered on a hopping channel;
RBW $\geq$ 1-5% of the 99% bandwidth; VBW $\geq$ 3 * RBW; Sweep = auto; Detector function = peak;
Trace = max hold.
6. Measure and record the results in the test report.

3.4.4 Test Setup



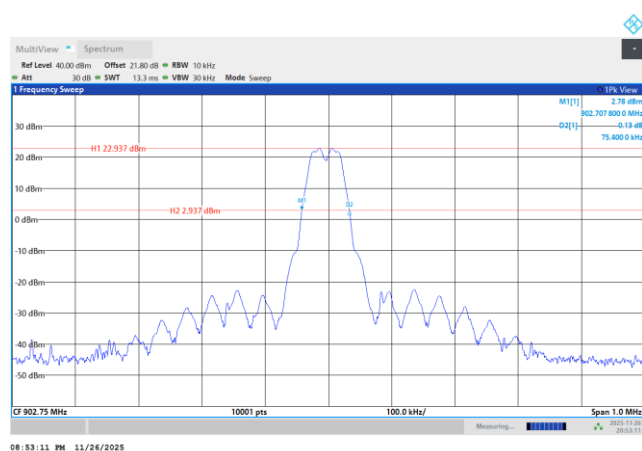


3.4.5 Test Result of 20dB Bandwidth

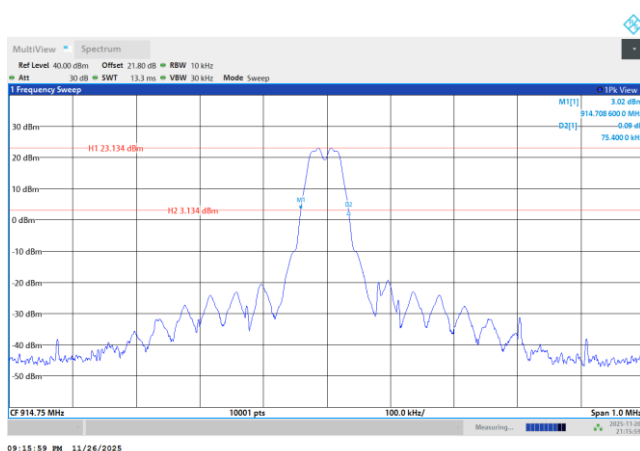
Test Mode :	UHF RFID	Temperature :	20 ~ 25°C
Test Engineer :	Shiming Liu	Relative Humidity :	50 ~ 56%

Mod.	NTX	Freq.(MHz)	20db BW (MHz)	Pass/Fail
UHF RFID	1	902.75	0.075	Pass
UHF RFID	1	914.75	0.075	Pass
UHF RFID	1	927.25	0.075	Pass

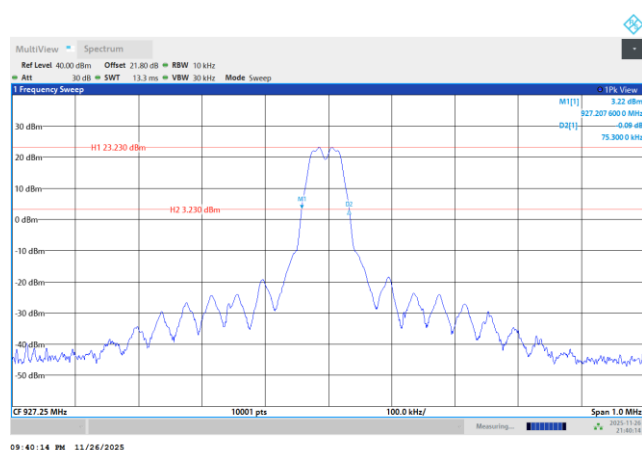
20 dB Bandwidth Plot on 902.75 MHz



20 dB Bandwidth Plot on 914.75 MHz



20 dB Bandwidth Plot on 927.25 MHz



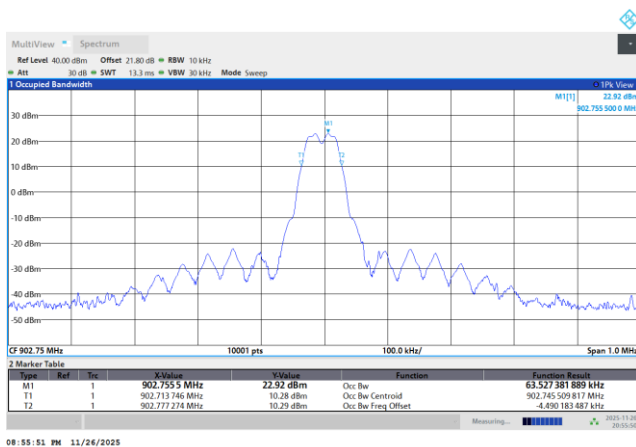


3.4.6 Test Result of 99% Occupied Bandwidth

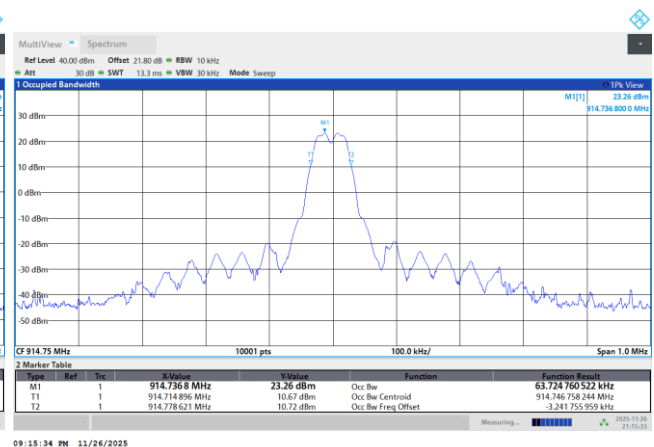
Test Mode :	UHF RFID	Temperature :	20 ~ 25°C
Test Engineer :	Shiming Liu	Relative Humidity :	50 ~ 56%

Mod.	NTX	Freq. (MHz)	99% Bandwidth (MHz)	Pass/Fail
UHF RFID	1	902.75	0.064	Reporting Only
UHF RFID	1	914.75	0.064	Reporting Only
UHF RFID	1	927.25	0.064	Reporting Only

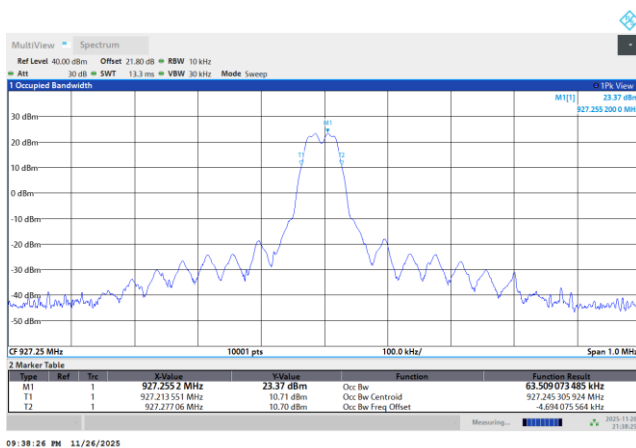
99% Occupied Bandwidth Plot on 902.75 MHz



99% Occupied Bandwidth Plot on 914.75 MHz



99% Occupied Bandwidth Plot on 927.25 MHz



Note: The occupied channel bandwidth is maintained within the band of operation for all of the modulations.

3.5 Output Power Measurement

3.5.1 Limit of Output Power

Section 15.247 (a) Operation under the provisions of this Section is limited to frequency hopping and digitally modulated intentional radiators that comply with the following provisions: (1)(i) For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

Section 15.247 (b) The maximum peak conducted output power of the intentional radiator shall not exceed the following: (2) For frequency hopping systems operating in the 902-928 MHz band: 1 watt for systems employing at least 50 hopping channels; and, 0.25 watts for systems employing less than 50 hopping channels, but at least 25 hopping channels, as permitted under paragraph (a)(1)(i) of this section.

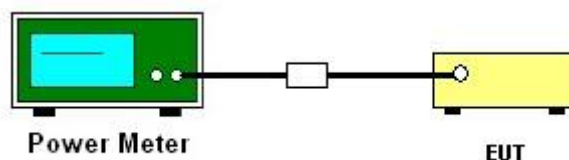
3.5.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

3.5.3 Test Procedures

1. The testing follows ANSI C63.10 clause 7.8.5.
2. The RF output of EUT was connected to the power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set the maximum power setting and enable the EUT to transmit continuously.
4. Measure the conducted output power with cable loss and record the results in the test report.
5. Measure and record the results in the test report.

3.5.4 Test Setup



3.5.5 Test Result of Output Power

Test Mode :	UHF RFID	Temperature :	20 ~ 25°C
Test Engineer :	Shiming Liu	Relative Humidity :	50 ~ 56%

Frequency (MHz)	RF Power (dBm)		
	UHF	Max. Limits (dBm)	Pass/Fail
902.75	27.93	30.00	Pass
914.75	27.91	30.00	Pass
927.25	27.83	30.00	Pass

3.5.6 Test Result of Average Power (Reporting Only)

Test Mode :	UHF RFID	Temperature :	20 ~ 25°C
Test Engineer :	Shiming Liu	Relative Humidity :	50 ~ 56%

Frequency (MHz)	RF Power (dBm)	
	UHF	
902.75	25.98	
914.75	25.96	
927.25	25.90	

3.6 Conducted Band Edges Measurement

3.6.1 Limit of Band Edges

In any 100 kHz bandwidth outside the intentional radiation frequency band, the radio frequency power shall be at least 20 dB below the highest level of the radiated power. In addition, radiated emissions which fall in the restricted bands must also comply with the radiated emission limits.

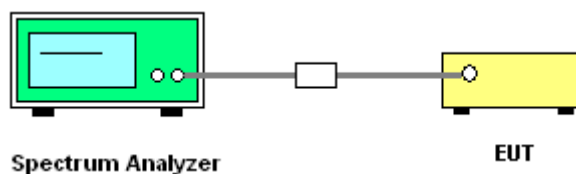
3.6.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

3.6.3 Test Procedures

1. The testing follows ANSI C63.10 clause 6.10.
2. Set the maximum power setting and enable the EUT to transmit continuously.
3. Set RBW = 100 kHz, VBW = 300 kHz. Band edge emissions must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW. The attenuation shall be 30 dB instead of 20 dB when RMS conducted output power procedure is used.
4. Enable hopping function of the EUT and then repeat step 2 and 3.
5. Measure and record the results in the test report.

3.6.4 Test Setup

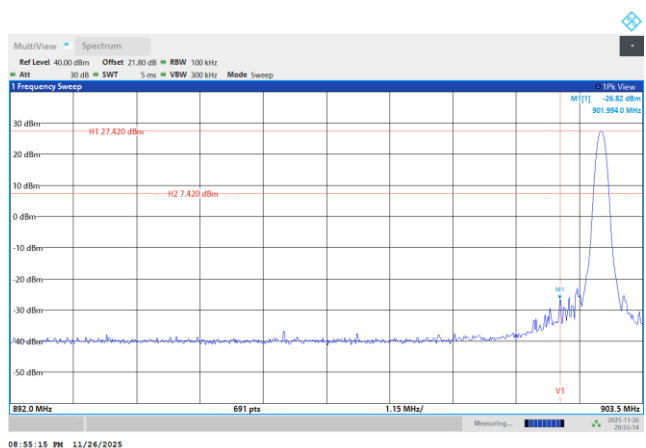




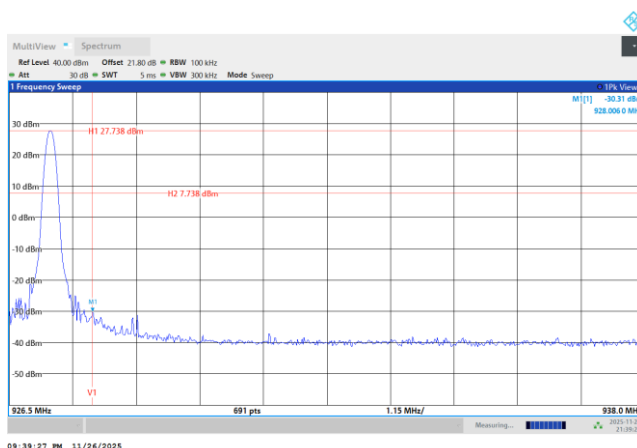
3.6.5 Test Result of Conducted Band Edges

Test Mode :	UHF RFID	Temperature :	20 ~ 25°C
Test Engineer :	Shiming Liu	Relative Humidity :	50 ~ 56%

Low Band Edge Plot on 902.75 MHz



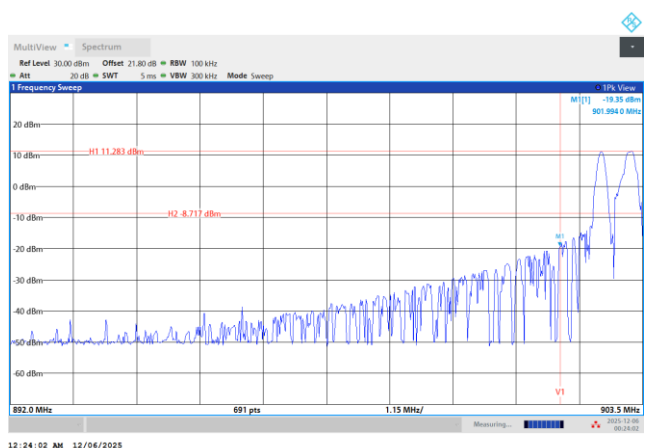
High Band Edge Plot on 927.25 MHz



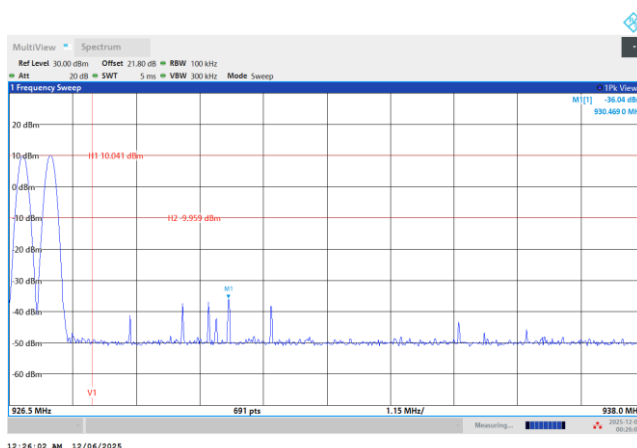
3.6.6 Test Result of Conducted Hopping Mode Band Edges

Test Mode :	UHF RFID	Temperature :	20 ~ 25°C
Test Engineer :	Shiming Liu	Relative Humidity :	50 ~ 56%

Hopping Mode Low Band Edge Plot on 902.75 MHz



Hopping Mode High Band Edge Plot on 927.25 MHz



3.7 Conducted Spurious Emission Measurement

3.7.1 Limit of Spurious Emission Measurement

In any 100 kHz bandwidth outside the intentional radiation frequency band, the radio frequency power shall be at least 20 dB below the highest level of the radiated power. In addition, radiated emissions which fall in the restricted bands must also comply with the radiated emission limits.

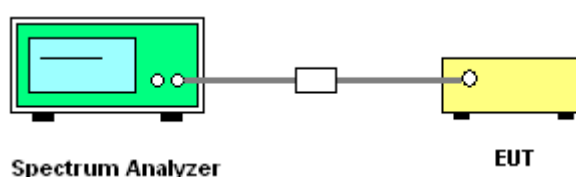
3.7.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

3.7.3 Test Procedure

1. The testing follows ANSI C63.10 clause 7.8.7.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set the maximum power setting and enable the EUT to transmit continuously.
4. Set RBW = 100 kHz, VBW = 300 kHz, scan up through 10th harmonic. All harmonics / spurs must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW.
5. Measure and record the results in the test report.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

3.7.4 Test Setup

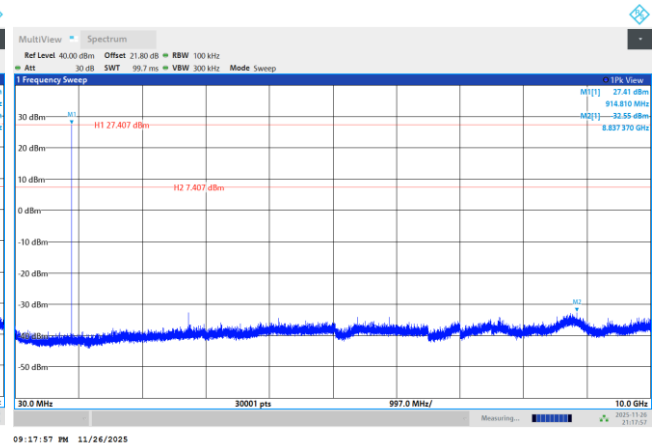
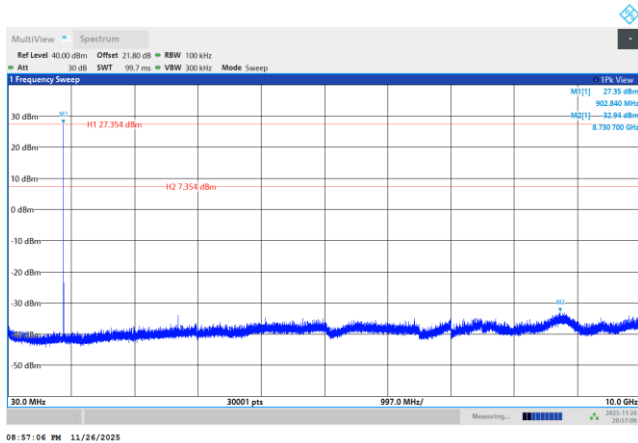




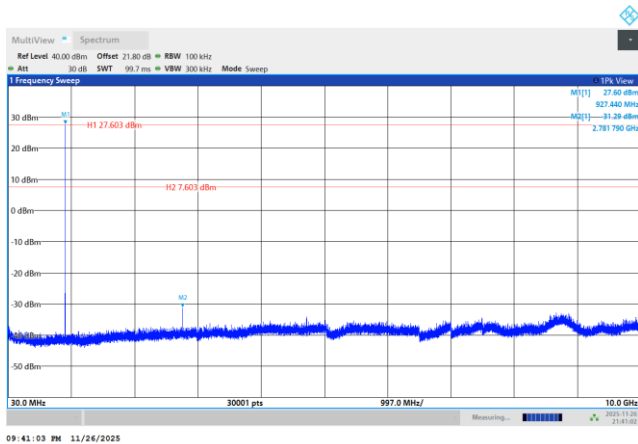
3.7.5 Test Result of Conducted Spurious Emission

Test Mode :	UHF RFID	Temperature :	20 ~ 25°C
Test Engineer :	Shiming Liu	Relative Humidity :	50 ~ 56%

CSE Plot on 902.75 MHz between 30MHz ~ 10 GHz CSE Plot on 914.75 MHz between 30MHz ~ 10 GHz



CSE Plot on 927.25 MHz between 30MHz ~ 10 GHz



3.8 Radiated Band Edges and Spurious Emission Measurement

3.8.1 Limit of Radiated Band Edges and Spurious Emission

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. In addition, radiated emissions which fall in the restricted bands must also comply with the limits as below.

Frequency (MHz)	Field Strength (microvolts/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

3.8.2 Measuring Instruments

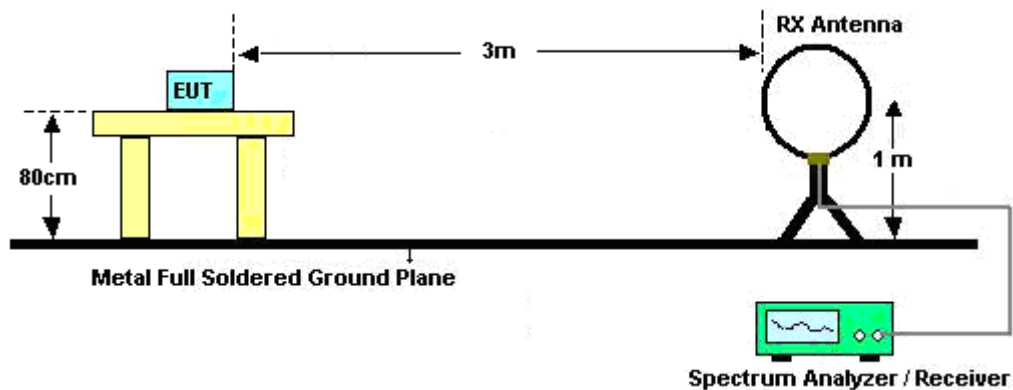
Please refer to the measuring equipment list in this test report.

3.8.3 Test Procedures

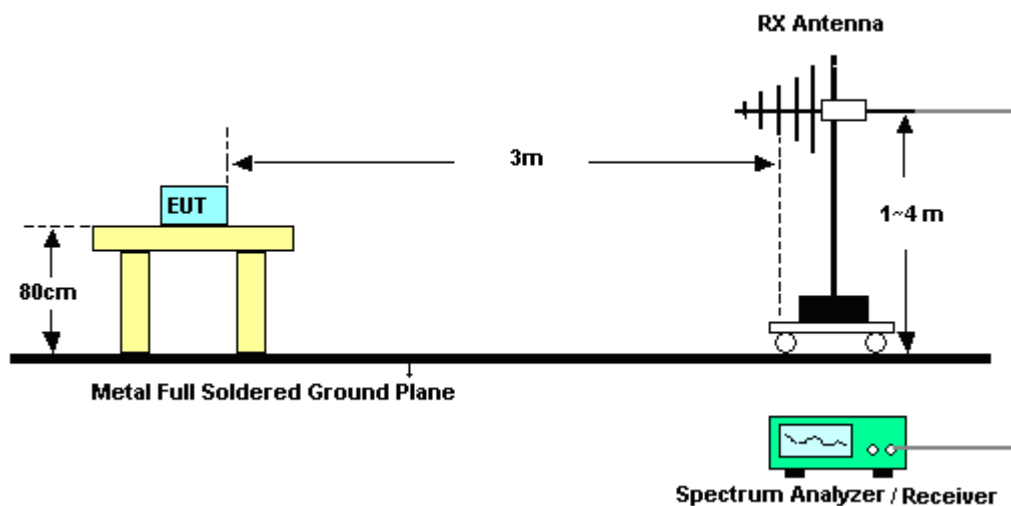
1. The EUT is placed on a turntable with 0.8 meter for frequency below 1 GHz and 1.5 meter for frequency above 1 GHz respectively above ground.
2. The EUT is set 3 meters away from the receiving antenna, which is mounted on the top of a variable height antenna tower.
3. For each suspected emission, the EUT is 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 to comply with the guidelines.
4. Set the maximum power setting and enable the EUT to transmit continuously.
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 $\geq$ RBW; Sweep = auto; Detector function = peak; Trace = max hold;
 - (3) Set RBW = 1 MHz, VBW= 3 MHz for $f \geq 1$ GHz for peak measurement.
For average measurement:
 - VBW = 10 Hz, when duty cycle is no less than 98 percent.
 - VBW $\geq 1/T$, 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.
6. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
7. Radiated testing below 1 GHz is performed by adjusting the antenna tower from 1 m to 4 m and by rotating the turn table from 0 degree to 360 degrees to find the peak maximum hold reading. When there is no suspected emission found and the emission level is with at least 6 dB margin against QP limit line, the position is marked as “-”.
8. Radiated testing above 1 GHz is performed by adjusting the antenna tower from 1 m to 4 m and by rotating the turn table from 0 degree to 360 degrees to find the peak maximum hold reading for scanning all frequencies. When there is no suspected emission found and the harmonic emission level is with at least 6 dB margin against average limit line, the position is marked as “-”.

3.8.4 Test Setup

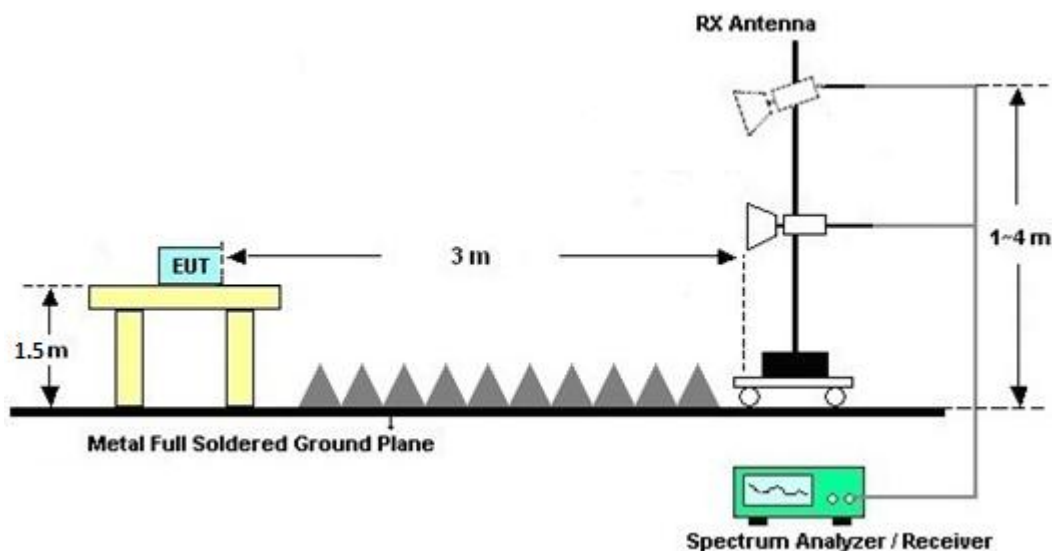
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.8.5 Test Results of Radiated Spurious Emissions (9 kHz ~ 30 MHz)

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 reported.

There is adequate comparison measurement of both open-field test site and alternative test site - semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, and the result came out very similar.

3.8.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix B and C.

3.8.7 Duty Cycle

Please refer to Appendix D.

3.8.8 Test Result of Radiated Spurious Emission

Please refer to Appendix B and C.

3.9 AC Power Line Conducted Emissions Measurement

3.9.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of Emission (MHz)	Conducted Limit (dB μ V)	
	Quasi-Peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

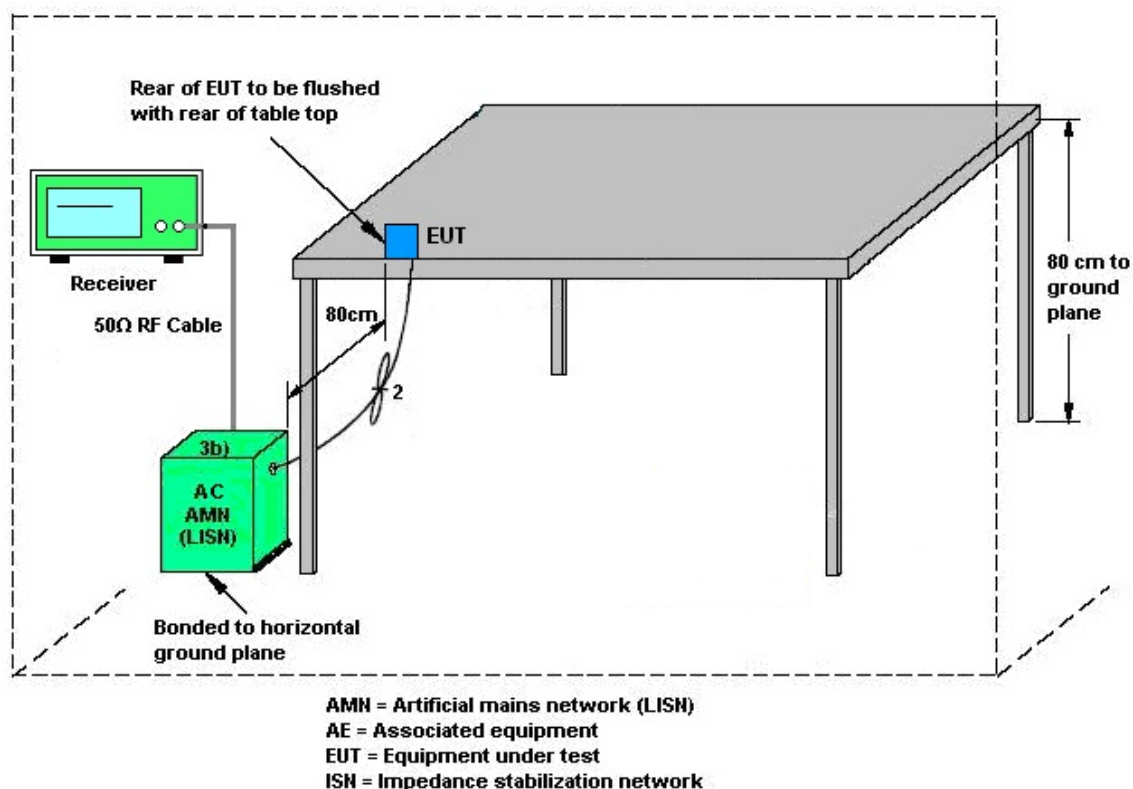
3.9.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

3.9.3 Test Procedures

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN shall be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

3.9.4 Test setup



3.9.5 Test Result of AC Conducted Emission

Please refer to Appendix A.



3.10 Antenna Requirements

3.10.1 Standard Applicable

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of § 15.211, 15.213, 15.217, 15.219, 15.221, or § 15.236. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with § 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

3.10.2 Antenna Anti-Replacement Construction

Antenna permanently attached.



4 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Bilog Antenna	TESEQ	CBL 6111D & 00800N1D01N-06	35419 & 03	30MHz~1GHz	Apr. 21, 2025	Nov. 01, 2025 ~ Nov. 03, 2025	Apr. 20, 2026	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00075962	1GHz ~ 18GHz	Nov. 28, 2024	Nov. 01, 2025 ~ Nov. 03, 2025	Nov. 27, 2025	Radiation (03CH07-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100315	9 kHz~30 MHz	Mar. 06, 2025	Nov. 01, 2025 ~ Nov. 03, 2025	Mar. 05, 2026	Radiation (03CH07-HY)
Preamplifier	MITEQ	AMF-7D-00101800-30-10P	1590075	1GHz~18GHz	Apr. 18, 2025	Nov. 01, 2025 ~ Nov. 03, 2025	Apr. 17, 2026	Radiation (03CH07-HY)
Preamplifier	COM-POWER	PA-103A	161241	10MHz~1GHz	Sep. 30, 2025	Nov. 01, 2025 ~ Nov. 03, 2025	Sep. 29, 2026	Radiation (03CH07-HY)
Preamplifier	Agilent	8449B	3008A02362	1GHz~26.5GHz	Mar. 22, 2025	Nov. 01, 2025 ~ Nov. 03, 2025	Mar. 21, 2026	Radiation (03CH07-HY)
Preamplifier	EMEC	EM18G40G	060873	18-40GHz	Aug. 08, 2025	Nov. 01, 2025 ~ Nov. 03, 2025	Aug. 07, 2026	Radiation (03CH07-HY)
Spectrum Analyzer	Agilent	N9030A	MY52350276	3Hz~44GHz	Mar. 28, 2025	Nov. 01, 2025 ~ Nov. 03, 2025	Mar. 27, 2026	Radiation (03CH07-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY28655/4 MY24971/4 MY15682/4	30MHz to 18GHz	Feb. 20, 2025	Nov. 01, 2025 ~ Nov. 03, 2025	Feb. 19, 2026	Radiation (03CH07-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY28655/4 MY24971/4	9kHz to 30MHz	Feb. 20, 2025	Nov. 01, 2025 ~ Nov. 03, 2025	Feb. 19, 2026	Radiation (03CH07-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 126	532078/126E	30MHz~18GHz	Sep. 13, 2025	Nov. 01, 2025 ~ Nov. 03, 2025	Sep. 12, 2026	Radiation (03CH07-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	MY2858/2	18GHz~40GHz	Feb. 20, 2025	Nov. 01, 2025 ~ Nov. 03, 2025	Feb. 19, 2026	Radiation (03CH07-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	801606/2	9KHz ~ 40GHz	Apr. 23, 2025	Nov. 01, 2025 ~ Nov. 03, 2025	Apr. 22, 2026	Radiation (03CH07-HY)
Controller	EMEC	EM1000	N/A	Control Ant Mast	N/A	Nov. 01, 2025 ~ Nov. 03, 2025	N/A	Radiation (03CH07-HY)
Controller	MF	MF-7802	N/A	Control Turn table	N/A	Nov. 01, 2025 ~ Nov. 03, 2025	N/A	Radiation (03CH07-HY)
Antenna Mast	EMEC	AM-BS-4500E	N/A	Boresight mast 1M~4M	N/A	Nov. 01, 2025 ~ Nov. 03, 2025	N/A	Radiation (03CH07-HY)
Turn Table	ChainTek	Chaintek 3000	N/A	0~360 Degree	N/A	Nov. 01, 2025 ~ Nov. 03, 2025	N/A	Radiation (03CH07-HY)
Software	Audix	E3	N/A	N/A	N/A	Nov. 01, 2025 ~ Nov. 03, 2025	N/A	Radiation (03CH07-HY)
USB Data Logger	TECPEL	TR-32	HE17XB2495	N/A	Feb. 24, 2025	Nov. 01, 2025 ~ Nov. 03, 2025	Feb. 23, 2026	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	00991	18GHz~40GHz	May 29, 2025	Nov. 01, 2025 ~ Nov. 03, 2025	May 28, 2026	Radiation (03CH07-HY)



Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Hygrometer	TECEP	DTM-303A	TP224371	N/A	Jun. 16, 2025	Oct. 14, 2025 ~ Dec. 06, 2025	Jun. 15, 2026	Conducted (TH05-HY)
Power Meter	Anritsu	ML2495A	1036004	N/A	Jul. 01, 2025	Oct. 14, 2025 ~ Dec. 06, 2025	Jun. 30, 2026	Conducted (TH05-HY)
Power Sensor	Anritsu	MA2411B	1027253	300MHz~40GHz	Jul. 01, 2025	Oct. 14, 2025 ~ Dec. 06, 2025	Jun. 30, 2026	Conducted (TH05-HY)
Signal Analyzer	Rohde & Schwarz	FSV3044	101467	10HZ~44GHZ	Jan. 14, 2025	Oct. 14, 2025 ~ Dec. 06, 2025	Jan. 13, 2026	Conducted (TH05-HY)
Switch Control Mainframe	E-Instrument	ETF-1405-0	EC1900157 (BOX6)	N/A	Feb. 10, 2025	Oct. 14, 2025 ~ Dec. 06, 2025	Feb. 09, 2026	Conducted (TH05-HY)
Software	Sporton	BTWIFI_Final_ version_24051 3	N/A	Conducted Other Test Item	N/A	Oct. 14, 2025 ~ Dec. 06, 2025	N/A	Conducted (TH05-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Nov. 15, 2025	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102388	N/A	Dec. 10, 2024	Nov. 15, 2025	Dec. 09, 2025	Conduction (CO05-HY)
Hygrometer	TECEP	DTM-303A	TP210031	N/A	Jun. 26, 2025	Nov. 15, 2025	Jun. 25, 2026	Conduction (CO05-HY)
Two-Line V- Network	Rohde & Schwarz	ENV216	100081	N/A	Jul. 25, 2025	Nov. 15, 2025	Jul. 24, 2026	Conduction (CO05-HY)
Software	Rohde & Schwarz	EMC32	N/A	N/A	N/A	Nov. 15, 2025	N/A	Conduction (CO05-HY)
Pulse Limiter	SCHWARZBECK	VTSD 9561-F N	00691	N/A	Jul. 29, 2025	Nov. 15, 2025	Jul. 28, 2026	Conduction (CO05-HY)
LISN Cable	MVE	RG-400	MQT2408250 1	N/A	Oct. 14, 2025	Nov. 15, 2025	Oct. 13, 2026	Conduction (CO05-HY)

5 Measurement Uncertainty

Uncertainty of Conducted Emission Measurement (150kHz ~ 30MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	3.7 dB
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Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	6.30 dB
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Uncertainty of Radiated Emission Measurement (1000 MHz ~ 6000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.50 dB
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Uncertainty of Radiated Emission Measurement (6000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.40 dB
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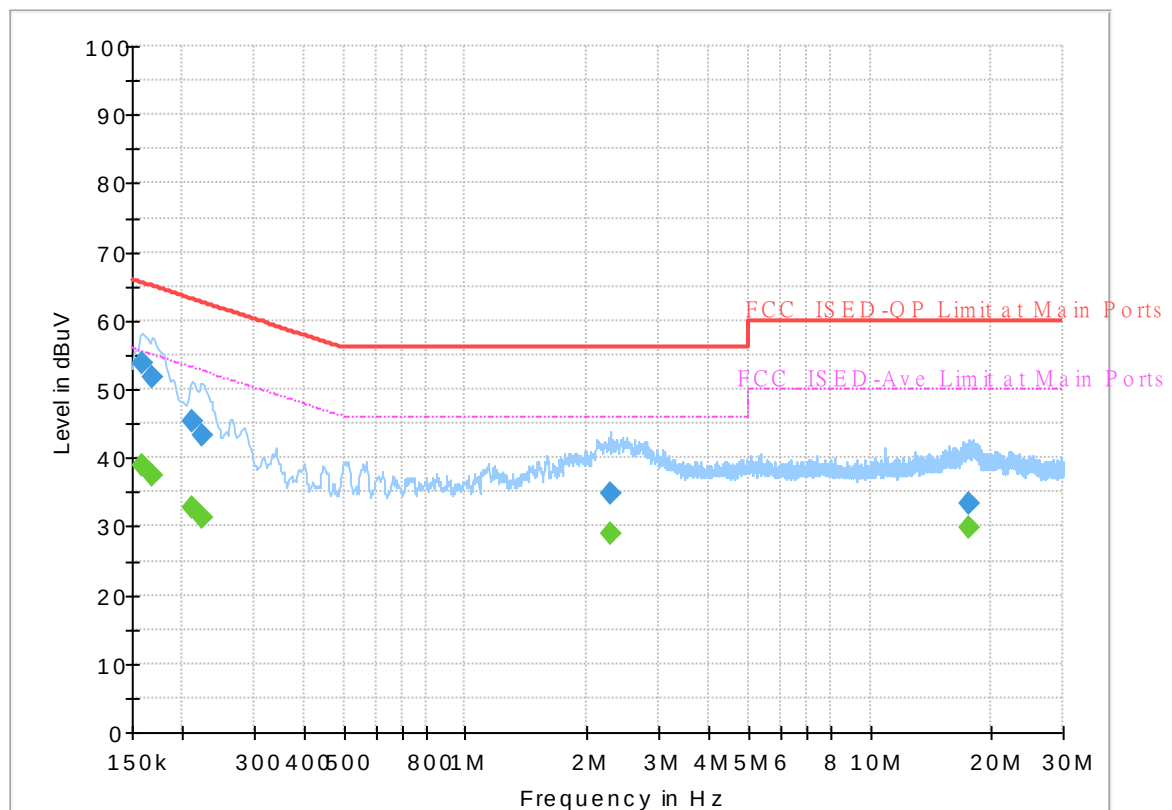
Appendix A. AC Conducted Emission Test Results

Test Engineer :	Brian Chen	Temperature :	23 ~ 26°C
		Relative Humidity :	45 ~ 55%

EUT Information

Report NO : 571515-01
 Test Mode : Mode 1
 Test Voltage : 120Vac/60Hz
 Phase : Line

Full Spectrum



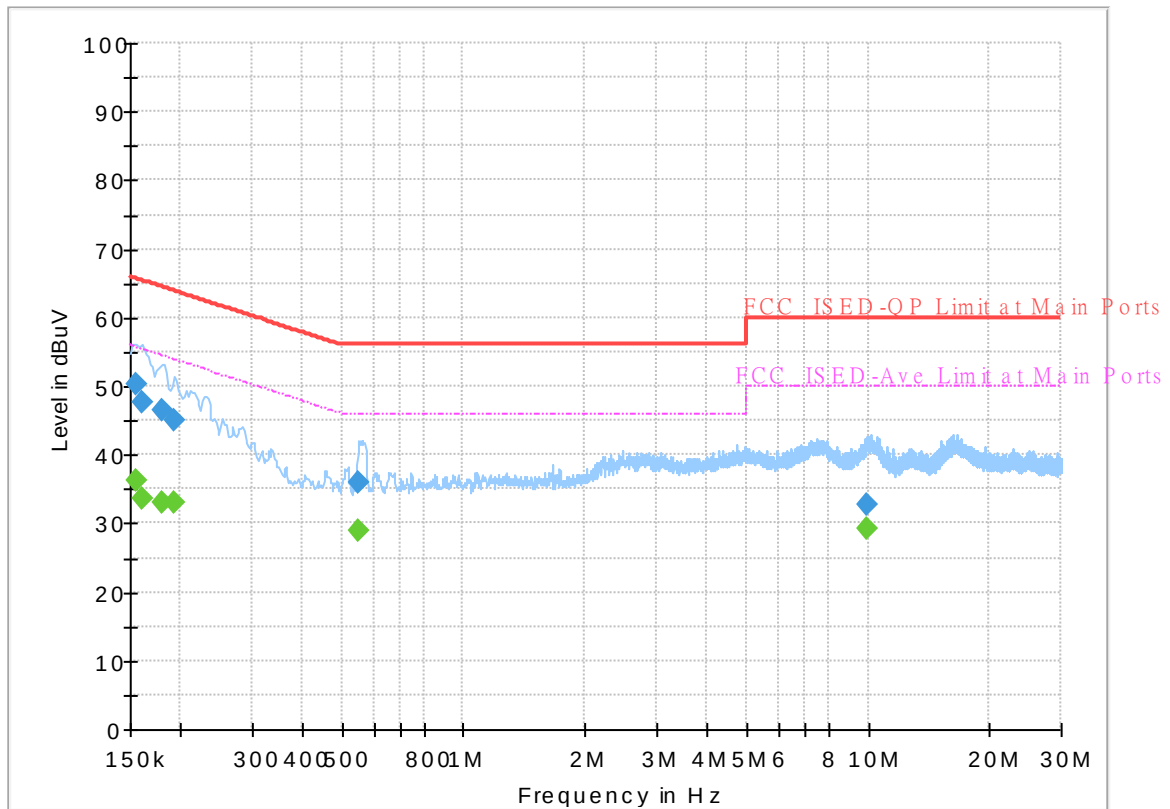
Final Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.159000	---	38.80	55.52	16.72	L1	OFF	19.8
0.159000	53.89	---	65.52	11.63	L1	OFF	19.8
0.168000	---	37.31	55.06	17.75	L1	OFF	19.8
0.168000	51.67	---	65.06	13.39	L1	OFF	19.8
0.210750	---	32.84	53.18	20.34	L1	OFF	19.8
0.210750	45.44	---	63.18	17.74	L1	OFF	19.8
0.224250	---	31.35	52.66	21.31	L1	OFF	19.8
0.224250	43.18	---	62.66	19.48	L1	OFF	19.8
2.274000	---	29.04	46.00	16.96	L1	OFF	19.9
2.274000	34.79	---	56.00	21.21	L1	OFF	19.9
17.652750	---	29.88	50.00	20.12	L1	OFF	20.5
17.652750	33.19	---	60.00	26.81	L1	OFF	20.5

EUT Information

Report NO : 571515-01
Test Mode : Mode 1
Test Voltage : 120Vac/60Hz
Phase : Neutral

Full Spectrum



Final Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.154500	---	36.36	55.75	19.39	N	OFF	19.8
0.154500	50.38	---	65.75	15.37	N	OFF	19.8
0.161250	---	33.57	55.40	21.83	N	OFF	19.8
0.161250	47.72	---	65.40	17.68	N	OFF	19.8
0.179250	---	32.99	54.52	21.53	N	OFF	19.8
0.179250	46.54	---	64.52	17.98	N	OFF	19.8
0.192750	---	33.15	53.92	20.77	N	OFF	19.8
0.192750	45.17	---	63.92	18.75	N	OFF	19.8
0.552750	---	28.97	46.00	17.03	N	OFF	19.8
0.552750	35.93	---	56.00	20.07	N	OFF	19.8
9.962250	---	29.23	50.00	20.77	N	OFF	20.5
9.962250	32.83	---	60.00	27.17	N	OFF	20.5



Appendix B. Radiated Spurious Emission

Test Engineer :	Ken Wu	Temperature :	21.8 ~ 24.7°C
		Relative Humidity :	59.0 ~ 67.5%

RFID

RFID (LF @ 3m)

RFID	Note	Frequency	Level	Margin	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
RFID 902.75MHz		53.22	22.49	-17.51	40	38.15	13.01	1.32	29.99	-	-	P	H
		89.4	29.67	-13.83	43.5	43.19	14.73	1.69	29.94	-	-	P	H
		132.6	27.48	-16.02	43.5	37.7	17.64	2.05	29.91	-	-	P	H
		337.1	22.05	-23.95	46	28.75	19.98	3.2	29.88	-	-	P	H
		563.2	26.8	-19.2	46	26.28	26.2	4.1	29.78	-	-	P	H
	*	902.75	116.54	-	-	111.52	28.96	5.14	29.08	100	108	P	H
		988.1	34.09	-19.91	54	26.48	30.67	5.46	28.52	-	-	P	H
													H
													H
													H
													H
		30	28.36	-11.64	40	34.09	23.68	0.58	29.99	-	-	P	V
		53.49	30.81	-9.19	40	46.55	12.93	1.32	29.99	-	-	P	V
		87.51	29.63	-10.37	40	43.43	14.47	1.68	29.95	-	-	P	V
		390.3	21.76	-24.24	46	26.87	21.4	3.38	29.89	-	-	P	V
		571.6	26.74	-19.26	46	26.35	26.04	4.14	29.79	-	-	P	V
	*	902.75	114.65	-	-	109.63	28.96	5.14	29.08	100	108	P	V
		969.9	35.39	-18.61	54	27.64	30.99	5.39	28.63	-	-	P	V
													V
													V
													V
													V



RFID	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
RFID 914.75MHz		50.25	23.74	-16.26	40	38.09	14.36	1.29	30	-	-	P	H
		89.13	31.43	-12.07	43.5	44.99	14.69	1.69	29.94	-	-	P	H
		155.82	26.63	-16.87	43.5	37.48	16.77	2.2	29.82	-	-	P	H
		331.5	24.87	-21.13	46	31.83	19.74	3.17	29.87	-	-	P	H
		558.3	26.37	-19.63	46	25.99	26.07	4.08	29.77	-	-	P	H
	*	914.75	116.1	-	-	110.82	29.09	5.19	29	100	360	P	H
		974.1	33.88	-20.12	54	26.13	30.95	5.41	28.61	-	-	P	H
													H
													H
													H
													H
													H
		30	28.45	-11.55	40	34.18	23.68	0.58	29.99	-	-	P	V
		54.84	30.42	-9.58	40	46.45	12.62	1.34	29.99	-	-	P	V
		86.43	29.98	-10.02	40	43.91	14.34	1.68	29.95	-	-	P	V
		337.8	22.03	-23.97	46	28.71	20.01	3.2	29.89	-	-	P	V
		586.3	26.93	-19.07	46	26.76	25.78	4.2	29.81	-	-	P	V
	*	914.75	113.47	-	-	108.19	29.09	5.19	29	100	107	P	V
		978.3	35.28	-18.72	54	27.56	30.88	5.42	28.58	-	-	P	V
													V
													V
													V
													V
													V

RFID	Note	Frequency	Level	Margin	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
RFID 927.25MHz		30.54	30.23	-9.77	40	35.92	23.66	0.64	29.99	-	-	P	H
		47.28	24.41	-15.59	40	37.45	15.72	1.26	30.02	-	-	P	H
		137.73	24.46	-19.04	43.5	34.71	17.55	2.09	29.89	-	-	P	H
		428.1	24.49	-21.51	46	28.28	22.51	3.56	29.86	-	-	P	H
		566	27.81	-18.19	46	27.33	26.15	4.11	29.78	-	-	P	H
	*	927.25	117.16	-	-	111.35	29.49	5.23	28.91	150	108	P	H
		965	34.3	-19.7	54	26.53	31.06	5.37	28.66	-	-	P	H
													H
													H
													H
													H
													H
		30	31.31	-8.69	40	37.04	23.68	0.58	29.99	-	-	P	V
		46.74	19.13	-20.87	40	31.89	16.01	1.25	30.02	-	-	Q	V
		91.02	21.31	-22.19	43.5	34.61	14.93	1.71	29.94	-	-	P	V
		424.6	23.84	-22.16	46	27.75	22.41	3.54	29.86	-	-	P	V
		565.3	27.37	-18.63	46	26.87	26.17	4.11	29.78	-	-	P	V
	*	927.25	108.7	-	-	102.89	29.49	5.23	28.91	200	42	P	V
		986	34.21	-19.79	54	26.6	30.69	5.45	28.53	-	-	P	V
													V
													V
													V
													V
													V
Remark	1. No other spurious found.												
	2. All results are PASS against limit line.												
	3. Non restricted band limit is radio frequency level down 20db												
	4. The emission position marked as "-" means no suspected emission found and emission level has at least 6dB margin against limit or emission is noise floor only.												

**RFID (Harmonic @ 3m)**

RFID	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
RFID 902.75MHz		2708.25	39.56	-34.44	74	56.81	32.3	9.53	59.08	-	-	P	H
		3611	39.99	-34.01	74	55.21	33.14	10.85	59.21	-	-	P	H
		4513.75	43.14	-30.86	74	55.77	34	12.38	59.01	-	-	P	H
		5416.5	40.8	-33.2	74	50.32	34.63	13.21	57.36	-	-	P	H
		8124.75	40.71	-33.29	74	45.94	35.9	16.54	57.67	-	-	P	H
		9027.5	42.88	-31.12	74	47.56	36.2	17.79	58.67	-	-	P	H
												P	H
		2708.25	38.2	-35.8	74	55.45	32.3	9.53	59.08	-	-	P	V
		3611	39.88	-34.12	74	55.1	33.14	10.85	59.21	-	-	P	V
		4513.75	42.84	-31.16	74	55.47	34	12.38	59.01	-	-	P	V
		5416.5	40.39	-33.61	74	49.91	34.63	13.21	57.36	-	-	P	V
		8124.75	41.39	-32.61	74	46.62	35.9	16.54	57.67	-	-	P	V
		9027.5	42.86	-31.14	74	47.54	36.2	17.79	58.67	-	-	P	V
												P	V



RFID	Note	Frequency (MHz)	Level (dB μ V/m)	Margin (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
RFID 914.75MHz		2744.25	40.85	-33.15	74	57.96	32.34	9.64	59.09	-	-	P	H
		3659	42.22	-31.78	74	57.22	33.26	10.96	59.22	100	241	P	H
		3659	37.41	-16.59	54	52.41	33.26	10.96	59.22	100	241	A	H
		4573.75	41.68	-32.32	74	53.99	34.05	12.53	58.89	-	-	P	H
		7318	42.34	-31.66	74	48.95	35.7	15.38	57.69	-	-	P	H
		8232.75	41.85	-32.15	74	47.19	35.83	16.47	57.64	-	-	P	H
		9147.5	42.73	-31.27	74	47.5	36.29	17.95	59.01	-	-	P	H
		2744.25	39.61	-34.39	74	56.72	32.34	9.64	59.09	-	-	P	V
		3659	40.59	-33.41	74	55.59	33.26	10.96	59.22	-	-	P	V
		4573.75	41.93	-32.07	74	54.24	34.05	12.53	58.89	-	-	P	V
		7318	41.41	-32.59	74	48.02	35.7	15.38	57.69	-	-	P	V
		8232.75	40.91	-33.09	74	46.25	35.83	16.47	57.64	-	-	P	V
		9147.5	43.79	-30.21	74	48.56	36.29	17.95	59.01	-	-	P	V



RFID	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
RFID 927.25MHz		2781.75	39.72	-34.28	74	56.56	32.52	9.74	59.1	-	-	P	H
		3709	40.47	-33.53	74	55.49	33.12	11.09	59.23	-	-	P	H
		4636.25	39.89	-34.11	74	51.85	34.17	12.63	58.76	-	-	P	H
		7418	40.24	-33.76	74	46.98	35.7	15.43	57.87	-	-	P	H
		8345.25	42.09	-31.91	74	47.31	35.89	16.51	57.62	-	-	P	H
		2781.75	41.03	-32.97	74	57.87	32.52	9.74	59.1	-	-	P	V
		3709	38.73	-35.27	74	53.75	33.12	11.09	59.23	-	-	P	V
		4636.25	40.85	-33.15	74	52.81	34.17	12.63	58.76	-	-	P	V
		7418	40.89	-33.11	74	47.63	35.7	15.43	57.87	-	-	P	V
		8345.25	43.11	-30.89	74	48.33	35.89	16.51	57.62	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line. 3. Non restricted band limit is radio frequency level down 20db. 4. The emission position marked as "-" means no suspected emission found and emission level has at least 6dB margin against limit or emission is noise floor only.												



Note symbol

*	Fundamental Frequency which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
!	Test result is over limit line.
P/A	Peak or Average
H/V	Horizontal or Vertical



A calculation example for radiated spurious emission is shown as below:

BLE	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
BLE CH 00 2402MHz		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

1. Path Loss(dB) = Cable loss(dB) + Filter loss(dB) + Attenuator loss(dB)
2. Level(dBμV/m) =
Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
3. Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

For Peak Limit @ 2390MHz:

1. Level(dBμV/m)
= Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
= 32.22(dB/m) + 4.58(dB) + 54.51(dBμV) – 35.86 (dB)
= 55.45 (dBμV/m)
2. Over Limit(dB)
= Level(dBμV/m) – Limit Line(dBμV/m)
= 55.45(dBμV/m) – 74(dBμV/m)
= -18.55(dB)

For Average Limit @ 2390MHz:

1. Level(dBμV/m)
= Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
= 32.22(dB/m) + 4.58(dB) + 42.6(dBμV) – 35.86 (dB)
= 43.54 (dBμV/m)
2. Over Limit(dB)
= Level(dBμV/m) – Limit Line(dBμV/m)
= 43.54(dBμV/m) – 54(dBμV/m)
= -10.46(dB)

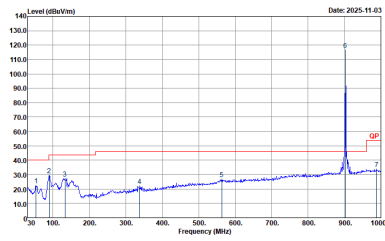
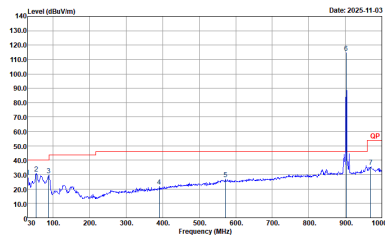
Both peak and average measured complies with the limit line, so test result is “PASS”.



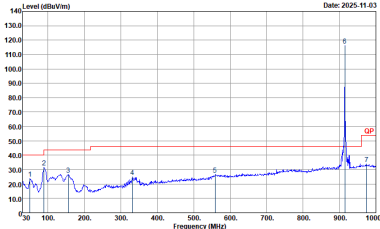
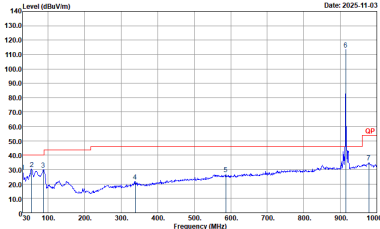
Appendix C. Radiated Spurious Emission Plots

Test Engineer :	Ken Wu	Temperature :	21.8 ~ 24.7°C
		Relative Humidity :	59.0 ~ 67.5%

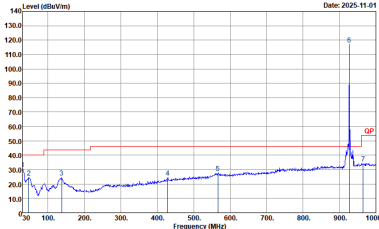
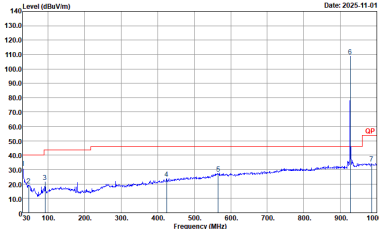
RFID (LF @ 3m)

RFID	RFID	
	RFID 902.75MHz	
	Horizontal	Vertical
QP / Peak	 Site : 03CH07-HY Condition : QP 3m LF-ANT-35419(6)_H HORIZONTAL Detector : Peak Project : 571515-01 Mode : 1	 Site : 03CH07-HY Condition : QP 3m LF-ANT-35419(6)_H VERTICAL Detector : Peak Project : 571515-01 Mode : 1



RFID	RFID	
	RFID 914.75MHz	
	Horizontal	Vertical
QP / Peak	 Site : 03CH07-HY Condition : QP 3m LF-ANT-35419(6)_H HORIZONTAL Detector : Peak Project : 571515-01 Mode : 2	 Site : 03CH07-HY Condition : QP 3m LF-ANT-35419(6)_H VERTICAL Detector : Peak Project : 571515-01 Mode : 2



RFID	RFID	
	RFID 927.25MHz	
	Horizontal	Vertical
QP / Peak	 Site : 03CH07-HY Condition : QP 3m LF-ANT-35419(6)_H HORIZONTAL Detector : Peak Project : 571515-01 Mode : 3	 Site : 03CH07-HY Condition : QP 3m LF-ANT-35419(6)_H VERTICAL Detector : Peak Project : 571515-01 Mode : 3



RFID (Harmonic @ 3m)

RFID	RFID	
	RFID 902.75MHz	
	Horizontal	Vertical
Peak Avg.	Level (dBuV/m) Date: 2025-11-01 Frequency (MHz) Site : 03CH07-HY Condition : PEAK_74 3m HF_ANT_00075962 HORIZONTAL Detector : Peak Project : 571515-01 Mode : 1	Level (dBuV/m) Date: 2025-11-01 Frequency (MHz) Site : 03CH07-HY Condition : PEAK_74 3m HF_ANT_00075962 VERTICAL Detector : Peak Project : 571515-01 Mode : 1

RFID	RFID	
	RFID 914.75MHz	
	Horizontal	Vertical
Peak Avg.	Site : 03CH07-HY Condition : PEAK_74 3m HF_ANT_00075962 HORIZONTAL Detector : Peak Project : 573515-01 Mode : 2	Site : 03CH07-HY Condition : PEAK_74 3m HF_ANT_00075962 VERTICAL Detector : Peak Project : 573515-01 Mode : 2



RFID	RFID	
	RFID 927.25MHz	
	Horizontal	Vertical
Peak Avg.	Level (dBuV/m) Date: 2025-11-01 Site : 03CH07-4Y Condition : PEAK_74 3m HF_ANT_00075962 HORIZONTAL Detector : Peak Project : 571515-01 Mode : 3 Level (dBuV/m) Date: 2025-11-01 Site : 03CH07-4Y Condition : PEAK_74 3m HF_ANT_00075962 VERTICAL Detector : Peak Project : 571515-01 Mode : 3	



Appendix D. Duty Cycle Plots

Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting
UHF RFID	100.00	-	-	10Hz

