

# RADIO TEST REPORT

**Product** : Pro 5 Wire-Free Spotlight Camera  
**Model Name** : VMC4060  
**FCC ID** : 2APLE18300428  
**Test Regulation** : FCC 47 CFR Part 15 Subpart C (Section 15.247)  
**Received Date** : 2023/12/18  
**Test Date** : 2024/1/16 ~ 2024/1/24  
**Issued Date** : 2024/2/1

**Applicant** : Arlo Technologies Inc  
2200 Faraday Avenue, Suite 150, Carlsbad, CA 92008, USA

**Issued By** : Underwriters Laboratories Taiwan Co., Ltd.  
Building A, B and E, No. 372-7, Sec. 4, Zhongxing Rd.,  
Zhudong Township, Hsinchu County, Taiwan



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Telephone : +886-2-7737-3000  
Facsimile (FAX) : +886-3-583-7948



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## 1. Attestation of Test Results

**APPLICANT:** Arlo Technologies Inc  
2200 Faraday Avenue, Suite 150, Carlsbad, CA 92008, USA

**MANUFACTURER:** Fuyu Precision Component Company Limited  
Lot M1 and Lot F, Quang Chau Industrial Park, Van Trung  
Commune, Viet Yen District, Bac Giang Province, Viet Nam

**EUT DESCRIPTION:** Pro 5 Wire-Free Spotlight Camera

**BRAND:** Arlo

**MODEL:** VMC4060

**SAMPLE STAGE:** Engineering Verification Test sample

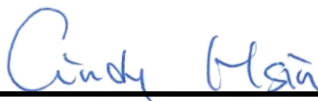
**DATE of TESTED:** 2024/1/16 ~ 2024/1/24

APPLICABLE STANDARDS	
STANDARD	Test Results
FCC 47 CFR PART 15 Subpart C (Section 15.247)	PASS

Underwriters Laboratories Taiwan Co., Ltd. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by Underwriters Laboratories Taiwan Co., Ltd. based on interpretations and/or observations of test results. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

**Note:** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by Underwriters Laboratories Taiwan Co., Ltd. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Underwriters Laboratories Taiwan Co., Ltd. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

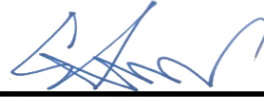
Prepared By:



Cindy Hsin  
Project Handler

Date : 2024/2/1

Approved and Authorized By:



Eric Lee  
Senior Laboratory Engineer

Date : 2024/2/1

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## 2. Summary of Test Results

Summary of Test Results		
FCC Clause	Test Items	Result
15.247(a)(2)	6dB Bandwidth	PASS
15.247(b)	Conducted Output Power	PASS
15.247(e)	Power Spectral Density	PASS
15.247(d)	Antenna Port Emission	PASS
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	PASS
15.207	AC Power Conducted Emission	PASS
15.203	Antenna Requirement	PASS

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### 3. Test Methodology and Reference Procedures

The tests documented in this report were performed in accordance with 47 CFR FCC Part 2, KDB558074 D01 Meas Guidance v05r02, KDB414788 D01 Radiated Test Site v01r01, ANSI C63.10-2013.

### 4. Facilities and Accreditation

<b>Test Location</b>	Underwriters Laboratories Taiwan Co., Ltd.
<b>Address</b>	Building A, B and E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan
<b>Accreditation Certificate</b>	Underwriters Laboratories Taiwan Co., Ltd. is accredited by TAF, Laboratory Code 3398.

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## 5. Measurement Uncertainty

For statement of conformity, simple acceptance (Section 3.1.4 of IEC Guide 115) was applied as decision rule for measurement in this test report.

The following uncertainties have been calculated to provide a confidence level of 95 % using a coverage factor  $k=2$ .

Determining compliance based on the results of the compliance measurement, not considering measurement instrumentation uncertainty.

Measurement	Frequency	Uncertainty
Conducted disturbance at mains terminals ports	150kHz ~ 30MHz	3.1 dB
RF Conducted	9 kHz - 40GHz	2.3 dB
Radiated disturbance below 30MHz	9 kHz - 30 MHz	3.2 dB
Radiated disturbance below 1 GHz	30MHz ~ 1GHz	6.1 dB
Radiated disturbance above 1 GHz	1GHz ~ 40GHz	5.1 dB

## 6. Equipment under Test

### 6.1. Description of EUT

<b>Product</b>	Pro 5 Wire-Free Spotlight Camera
<b>Brand Name</b>	Arlo
<b>Model Name</b>	VMC4060
<b>Operating Frequency</b>	904 MHz ~ 926MHz
<b>Modulation</b>	O-QPSK
<b>Transfer Rate</b>	250Kbps
<b>Number of Channel</b>	12
<b>Maximum Output Power</b>	18.72 dBm
<b>Normal Voltage</b>	5Vdc from adapter 3.85Vdc from battery 3.6Vdc from battery
<b>Sample ID</b>	Conducted Test: 6854048 Radiated Test: 6854048

Note:

1. The EUT incorporates a SISO function. Physically, the EUT provides one completed transmitters and one receivers.

Modulation Mode	Tx,Rx Function
Sub-G	1TX,1RX

2. The EUT contains following accessory devices:

Product	Brand	Model	Description
USB Cable	Nienyi	310-50012-04	Length:0.9m
Battery	Arlo	A-4a	4800mAh, 3.85V, 18.48Wh
Battery	Arlo	A-14	13400mAh, 3.6V, 48.24Wh

3. The above EUT information is declared by manufacturer and for more detailed features description, please refer the manufacturer's or user's manual, the laboratory shall not be held responsible.

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## 6.2. Channel List

12 channels are provided for Sub-G:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	904	7	916
2	906	8	918
3	908	9	920
4	910	10	922
5	912	11	924
6	914	12	926

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### 6.3. Test Condition

Test Item	Test Site No.	Environmental Condition	Input Power	Test Date	Tested by
Antenna Port Conducted Measurement	SR4	20~22°C/ 62~64%RH	5Vdc	2024/01/22~ 2024/01/23	WaterNil Guan
Radiated Spurious Emission	966-2	22~26°C/ 62~68%RH	5Vdc	2024/01/16~ 2024/01/19	WaterNil Guan
AC power Line Conducted Emission	SR1	22°C/ 62%RH	120Vac/ 60Hz	2024/01/24	WaterNil Guan

FCC Test Firm Registration Number: 498077

### Sample Calculation:

#### Antenna Port Conducted Measurement:

- Where relevant, the follow sample calculation is provided:  
 Result Value (dBm) = Reading Value (dBm) +Attenuator Factor (dB) + Cable Loss (dB).  
 Example: Result Value (10dBm) = Reading Value (-2dBm) +Attenuator Factor (10dB) + Cable Loss(2dB).  
 \*Test plot only shown the “Result Value”.

#### Radiated Spurious Emission:

- Where relevant, the follow sample calculation is provided:  
 Result Value (dBuV/m) = Reading Value (dBuV) + Correction Factor (dB/m).  
 Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB) - Preamp Factor (dB).  
 Example: Result Value (34.5dBuV/m) = Reading Value (40.1dBV) + Antenna Factor (18.7dB/m) + Cable Loss (4.2dB) - Preamp Factor (28.5dB).

#### AC power Line Conducted Emission:

- Where relevant, the follow sample calculation is provided:  
 Result Value (dBuV) = Reading Value (dBuV) + Correction Factor (dB).  
 Correction Factor (dB) = Insertion loss(dB) + Cable loss(dB).  
 Example: Result Value (53.7dBuV) = Reading Value (35.1dBm) + Insertion loss(18.1dB) + Cable loss(0.5dB).

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#### 6.4. Description of Available Antennas

Ant. No.	Transmitter Circuit	Brand Name	Model Name	Ant. Type	Maximum Gain (dBi)
1	Chain (0)	N/A	N/A	PCB	-2.4

Note: The above antenna information was provided from customer and for more detailed features description, please refer the manufacturer's specification or user's manual, the laboratory shall not be held responsible..

## 6.5. Test Mode Applicability and Tested Channel Detail

- The EUT has two adapter types: 2AEA010 and AD2158, above two types was pre-tested, the worst case was found in the AD2158. Therefore only the test data of the AD2158 was recorded in this report.
- The EUT has two batteries: A-4a and A-14 , above two types was pre-tested, the worst case was found in the A-4a. Therefore only the test data of the A-4a was recorded in this report.
- For Antenna Port Conducted Measurement, this item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- For below 30MHz testing, investigation was done on three antenna orientations (parallel, perpendicular, and ground-parallel), parallel and perpendicular are the worst orientations, therefore testing was performed on these two orientations only.
- For below 1 GHz radiated emission and AC power line conducted emission have performed all modes of operation were investigated and the worst-case emissions are reported.
- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

Test Item	Modulation Type	Available Channel	Test Channel	Data Rate
Radiated Emissions	Sub-G	1 to 12	1,6,12	250 kbps
Radiated Emissions (Below 1GHz)	Sub-G	1 to 12	1,6,12	250 kbps
AC Power Line Conducted Emission	Sub-G	1 to 12	6	250 kbps
Antenna Port Conducted Measurement	Sub-G	1 to 12	1,6,12	250 kbps

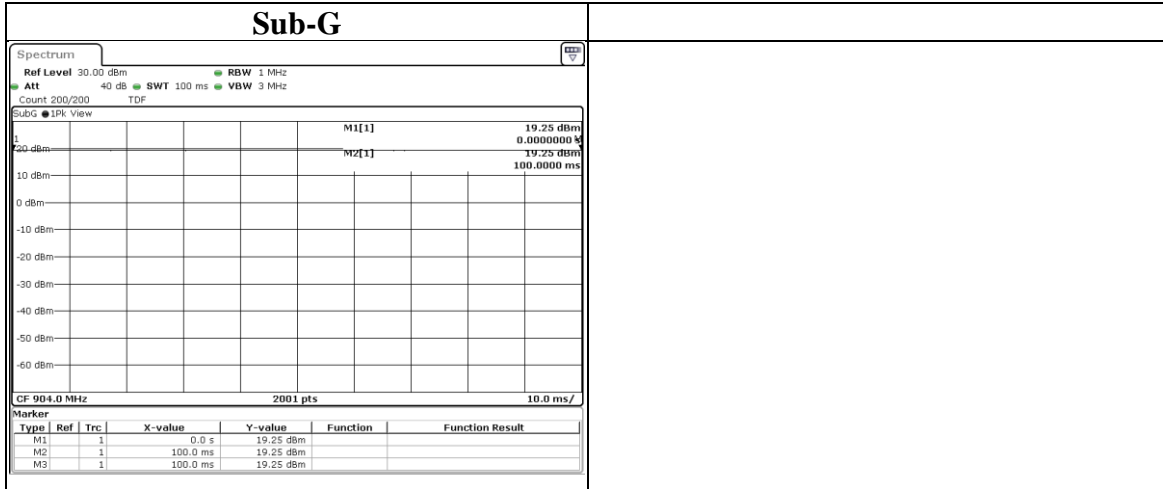
Simultaneously transmission condition:

Condition	Technology	
1	Sub-G	WLAN (2.4GHz)
2	Sub-G	WLAN (5GHz)

Note: The emission of the simultaneous operation has been evaluated and no non-compliance was found.

### 6.6. Duty cycle

Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle	Duty Factor (dB)	VBW Set (above 1GHz)
Sub-G	100.000	100.000	1.0000	N/A	10Hz



## 7. Test Equipment

Test Equipment List					
Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Expired date
<b>Radiated Spurious Emission</b>					
Spectrum Analyzer	Keysight	N9010A	MY56070834	2023/10/11	2024/10/10
EMI Test Receiver	Rohde & Schwarz	ESR7	101754	2023/11/22	2024/11/21
Loop Antenna	ETS lindgren	6502	00213440	2023/12/13	2024/12/12
Trilog-Broadband Antenna with 5dB Attenuator	Schwarzbeck & EMCI	VULB 9168 & N-6-05	774 & AT-N0538	2023/2/13	2024/2/12
Horn Antenna (1-18 GHz)	Schwarzbeck	BBHA 9120 D	01690	2023/12/8	2024/12/7
Horn Antenna (18-40 GHz)	Schwarzbeck	BBHA 9170	781	2023/12/27	2024/12/26
Preamplifier (30-1000 MHz)	EMCI	EMC330E	980404	2023/5/24	2024/5/23
Preamplifier (1-18 GHz)	EMCI	EMC051835BE	980406	2023/2/17	2024/2/16
Preamplifier (18-40GHz)	EMCI	EMC184040SEE	980426	2023/5/9	2024/5/8
Cables	Hanyitek	K1K50-UP0264-K1K50-2500	170214-4 & 170425-2	2023/11/29	2024/11/28
Cables	Hanyitek	K1K50-UP0264-K1K50-2500	170214-1 & 170214-2	2023/11/29	2024/11/28

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Test Equipment List					
Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Expired date
<b>Antenna Port Conducted Measurement</b>					
Spectrum Analyzer	Keysight	N9010A	MY56070834	2023/10/11	2024/10/10
Attenuator	EMCI	EMC-40ATK2W10	17002	2023/11/15	2024/11/14
Pulse Power Sensor	Anritsu	MA2411B	1531202	2023/12/11	2024/12/10
Power Meter	Anritsu	ML2495A	1645002	2023/12/11	2024/12/10
<b>AC power Line Conducted Emission</b>					
EMI Test Receiver	Rohde & Schwarz	ESR7	101753	2023/10/23	2024/10/22
Two-Line V-Network	Rohde & Schwarz	ENV216	102136	2023/5/24	2024/5/23
Impuls-Begrenzer Pulse Limiter	Rohde & Schwarz	ESH3-Z2	102219-Qt	2023/9/7	2024/9/6
Cables	TITAN	CFD200	T0732ACFD2 0020A300-2	2023/5/23	2024/5/22

UL Software		
Description	Name	Version
Radiated measurement	e3	6.191211 (V6)
Conducted measurement	RF-Conducted-FCC 15247	ver 1.0
AC power Line Conducted Emission	EZ_EMG	UL-3A1.2

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## 8. Description of Test Setup

### Support Equipment

ID	Equipment	Brand Name	Model Name	S/N	Remark
A	AC Adapter	PIE	AD2158	332-50114-01	Provided by Client
B	Test Tool	N/A	N/A	N/A	Provided by Client
C	Laptop	DELL	Latitude E5470	CXSKWF2	Provided by Lab

### I/O Cables

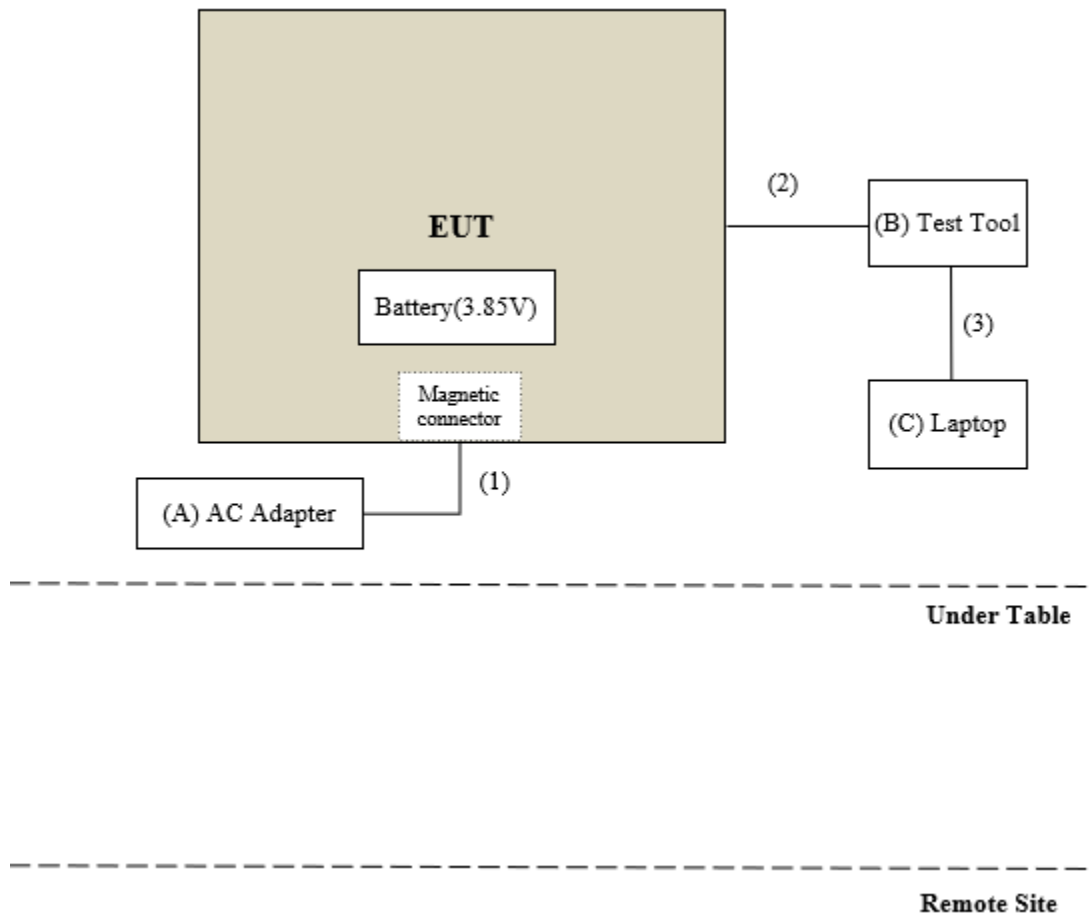
ID	Equipment	Brand Name	Model Name	Length (m)	Remark
1	USB Cable	Nienyi	310-50012-04	0.9	Provided by Client
2	Test Tool Cable	N/A	N/A	0.23	Provided by Client
3	Micro USB Cable	WONDER	WA-W07UA	0.8	Provided by Lab



## Test Setup

Controlled using a bespoke application (Typing RF command by terminal tool(Putty version 0.62)) on a test Notebook. The application was used to enable a continuous transmission mode and to select the test channels, data rates, modulation schemes and power setting as required.

## Setup Diagram for Test



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## 9. Test Results

### 9.1. 6dB Bandwidth

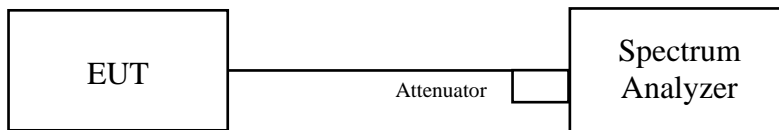
#### Requirements

The minimum 6 dB bandwidth shall be at least 500 kHz.

#### Test procedure

- Set resolution bandwidth (RBW) = 100kHz.
- Set the video bandwidth (VBW)  $\geq 3 \times$  RBW, Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

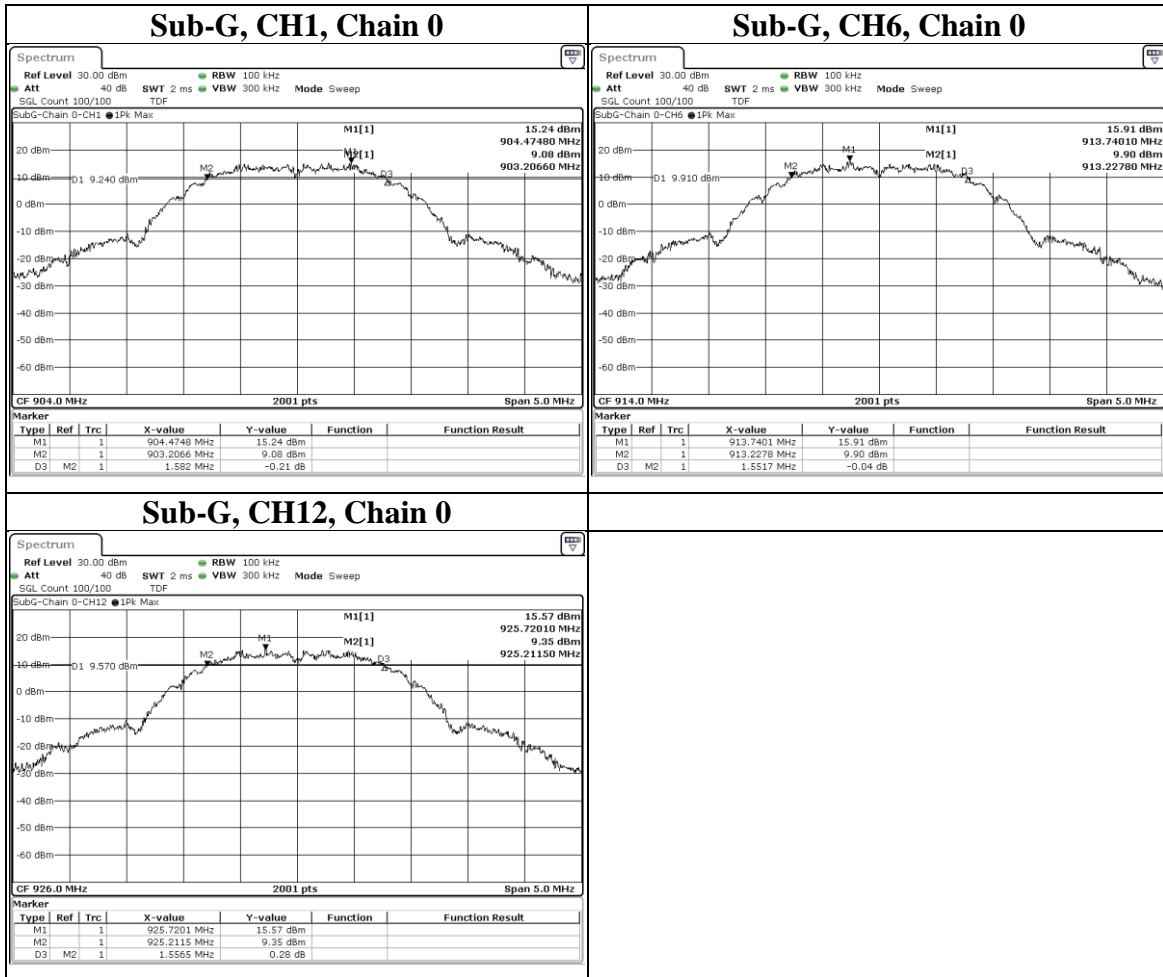
#### Test Setup



The loss between RF output port of the EUT and the input port of the Spectrum Analyzer has been taken into consideration.

### Test Data

Mode	CH	Freq (MHz)	6dB BW (MHz)	Limit (MHz)	Result
Sub-G	1	904	1.582	0.5	PASS
Sub-G	6	914	1.552	0.5	PASS
Sub-G	12	926	1.556	0.5	PASS



## 9.2. Conducted Output Power

### Requirements

For systems using digital modulation in the 902-928 MHz bands: 1 Watt.

Note:

1. Directional Gain =  $G_{\text{ant}} + 10 \log (\text{Nant})$  dBi.

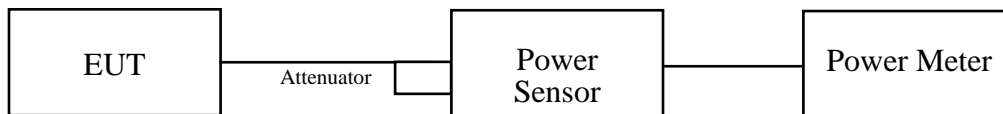
Nant: Number of Transmit Antennas

G1, G2, ..., Gn: Gain of Individual Antennas (Same for Each Antenna)

### Test Procedure

A peak power sensor was used on the output port of the EUT. A power meter was used to read the response of the peak power sensor. Record the power level.

### Test Setup



The loss between RF output port of the EUT and the input port of the Power Meter has been taken into consideration.

**Test Data****Peak Power****Sub-G**

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass / Fail
1	904	73.79	18.68	30	PASS
6	914	74.473	18.72	30	PASS
12	926	74.302	18.71	30	PASS

**Average Power (Reference Only)****Sub-G**

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)
1	904	73.282	18.65
6	914	73.961	18.69
12	926	73.961	18.69

## 9.3. Power Spectral Density

### Requirements

The Maximum of Power Spectral Density Measurement is 8dBm in any 3 kHz (If  $G_{TX} > 6$  dBi, then  $PSD = 8 - (G_{TX} - 6)$ ).

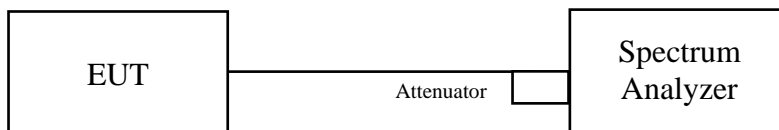
Note:

1. PSD = power spectral density that he same method as used to determine the conducted output power shall be used to determine the power spectral density. And power spectral density in dBm/MHz.
2.  $G_{TX}$  = the maximum transmitting antenna directional gain in dBi.

### Test procedure

- a. Set analyzer center frequency to DTS channel center frequency.
- b. Set the span to 1.5 times the DTS bandwidth.
- c. Set the RBW to:  $3 \text{ kHz} \leq RBW \leq 100 \text{ kHz}$ .
- d. Set the VBW  $\geq 3 \times RBW$ .
- e. Detector = peak.
- f. Sweep time = auto couple.
- g. Trace mode = max hold.
- h. Allow trace to fully stabilize.
- i. Use the peak marker function to determine the maximum amplitude level within the RBW.

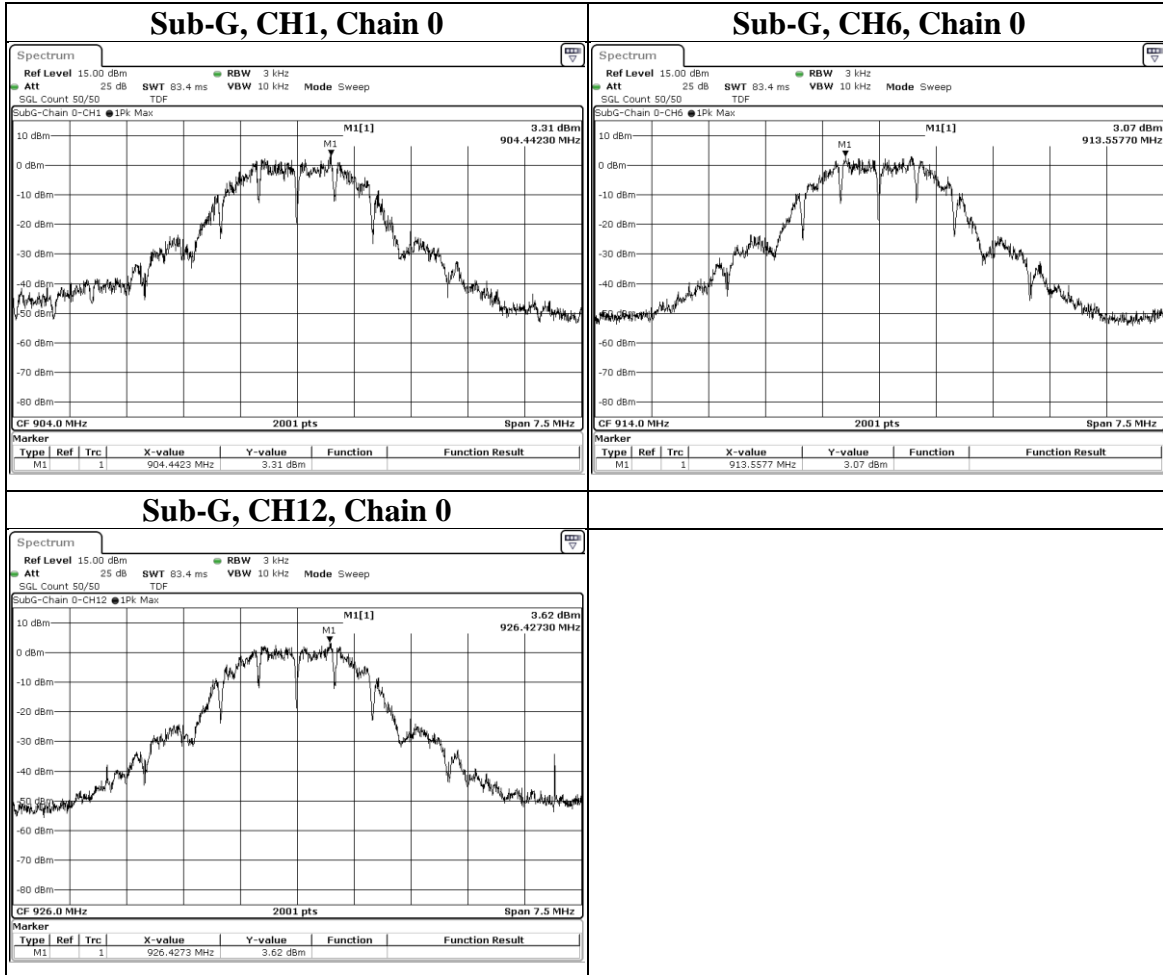
### Test Setup



The loss between RF output port of the EUT and the input port of the Spectrum Analyzer has been taken into consideration.

### Test Data

Mode	CH	Freq (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
Sub-G	1	904	3.31	8	PASS
Sub-G	6	914	3.07	8	PASS
Sub-G	12	926	3.62	8	PASS



## 9.4. Conducted Out of Band Emission

### Requirements

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b) (3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209 (a) is not required.

### Test procedure

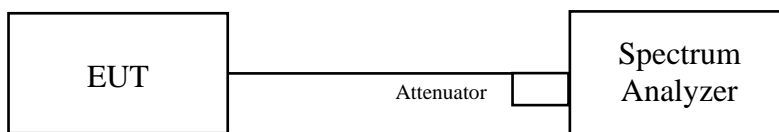
Measurement Procedure REF

1. Set the RBW = 100 kHz.
2. Set the VBW  $\geq$  300 kHz.
3. Set the span to 1.5 times the DTS bandwidth.
4. Detector = peak.
5. Sweep time = auto couple.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.
8. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

Measurement Procedure OOBE

1. Set RBW = 100 kHz.
2. Set VBW  $\geq$  300 kHz.
3. Detector = peak.
4. Sweep = auto couple.
5. Trace Mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum amplitude level.

### Test Setup



The loss between RF output port of the EUT and the input port of the Spectrum Analyzer has been taken into consideration.

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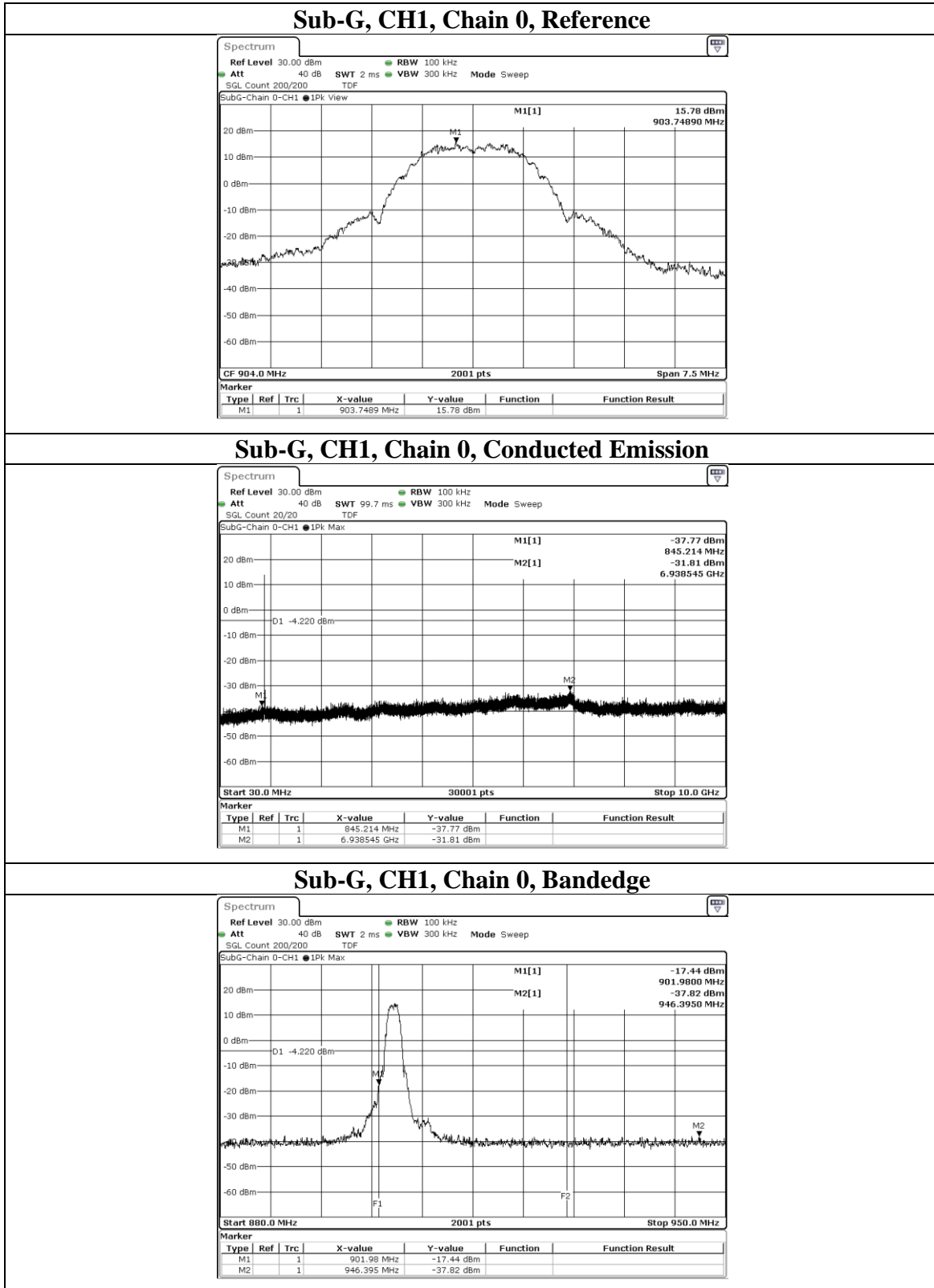
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### Test Data



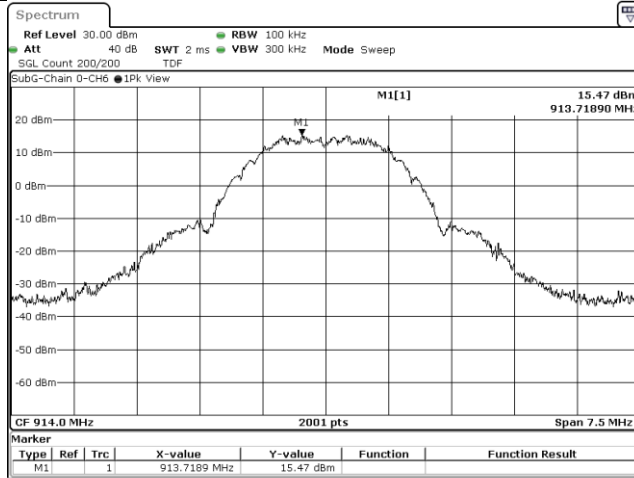
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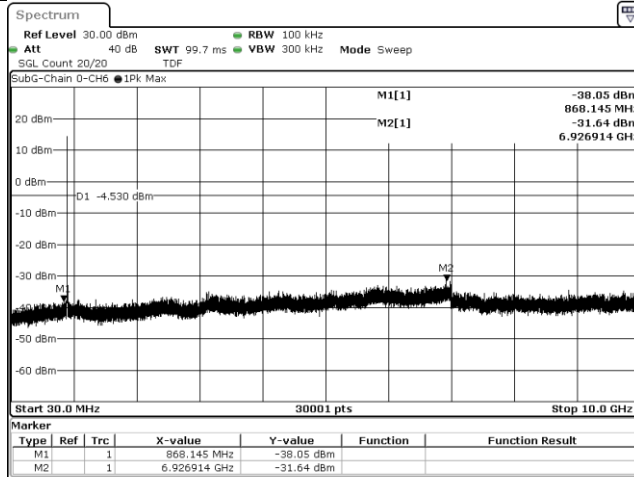
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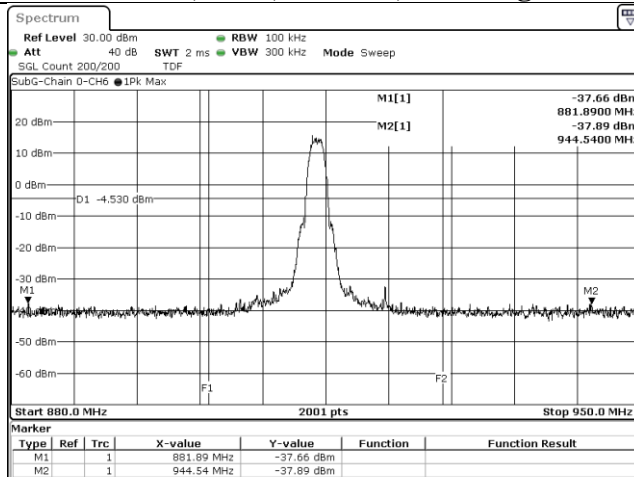
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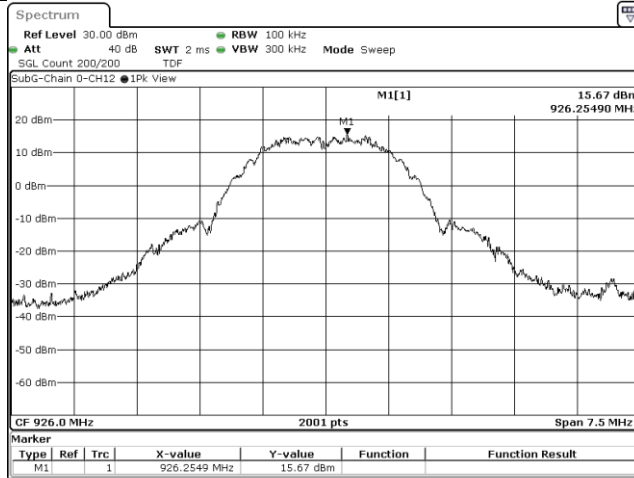
### Sub-G, CH6, Chain 0, Conducted Emission



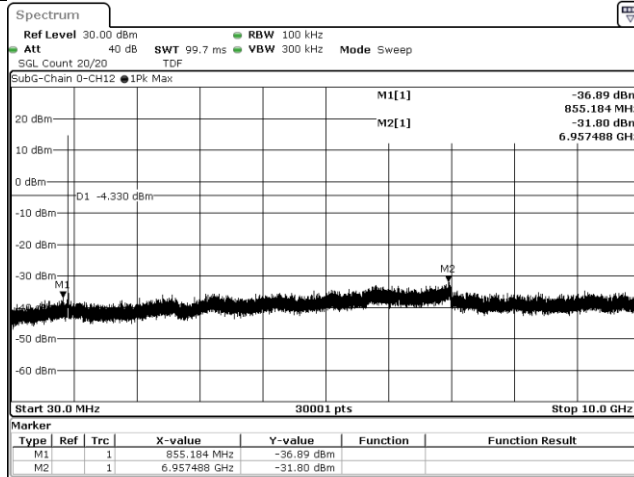
### Sub-G, CH6, Chain 0, Bandedge



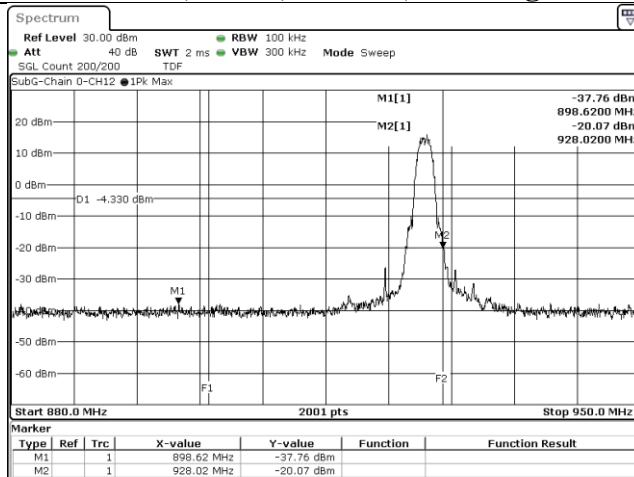
### Sub-G, CH12, Chain 0, Reference



### Sub-G, CH12, Chain 0, Conducted Emission



### Sub-G, CH12, Chain 0, Bandedge



## 9.5. Radiated Spurious Emission

### Requirements

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)	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

**NOTE:**

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

## Test Procedures

[For 9 kHz ~ 30 MHz]

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. For measurement below 30MHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is 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.

### NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

[For above 30 MHz]

- a. The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. 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 from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. For measurement below 1GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is 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.
- f. The test-receiver system was set to peak and average detects function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

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**Note:**

- a. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
- b. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
- c. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is  $\geq 1/T$  (Duty cycle  $< 98\%$ ) or 10Hz (Duty cycle  $\geq 98\%$ ) for Average detection (AV) at frequency above 1GHz.

Configuration	Average	
	RBW	VBW
Sub-G	1MHz	Refer to section 6.6 for duty cycle.

- d. All modes of operation were investigated (includes all external accessories) and the worst-case emissions are reported, the other emission levels were low against the limit.
- e. Test data of Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
- f. Test data of Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
- g. Test data of Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB) - Preamp Factor (dB).
- h. Test data of Notation "@" = Fundamental Frequency
- i. Test data of Notation "\*" = The peak result under 20 dB above and complies with AVG limit, AVG result is deemed to comply with AVG limit.

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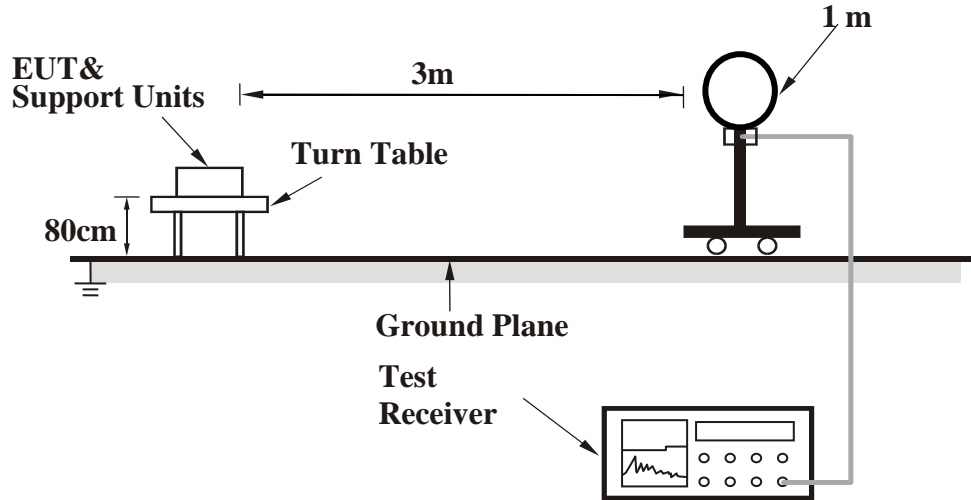
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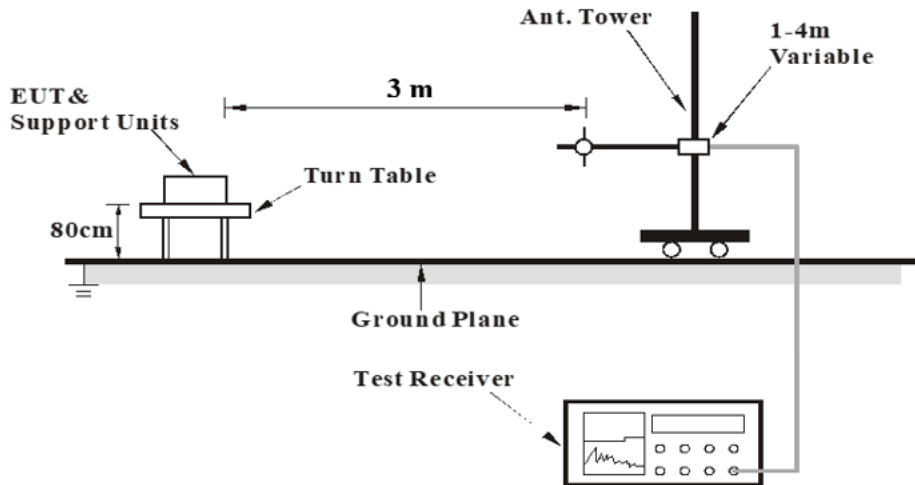
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### Test Setup

<Frequency Range 9 kHz ~ 30 MHz>



<Frequency Range 30 MHz ~ 1 GHz >



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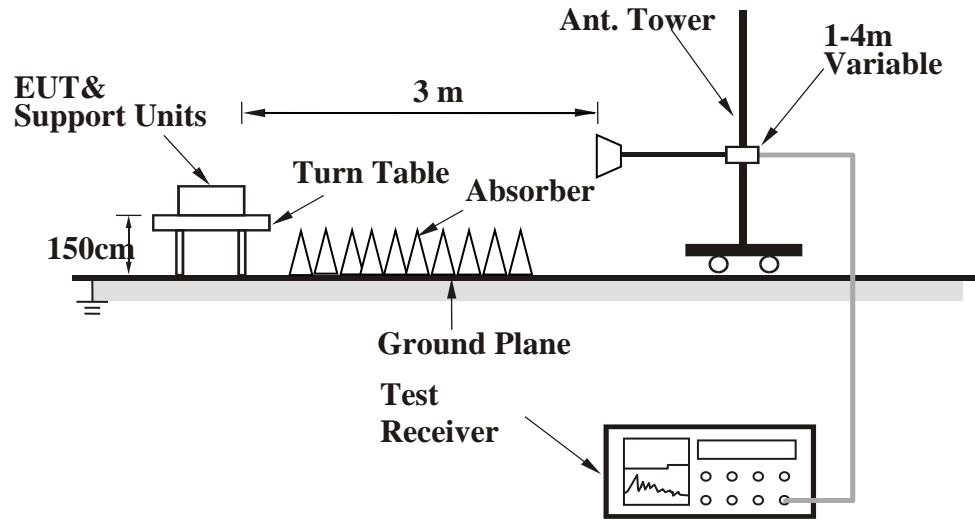
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<Frequency Range above 1 GHz>



For the actual test configuration, please refer to the Setup Configurations.

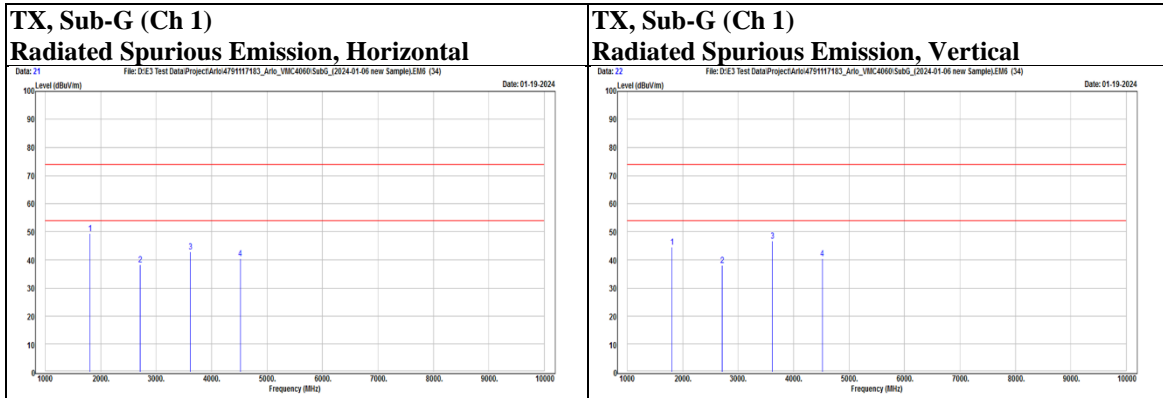


## Test Data

### Above 1 GHz

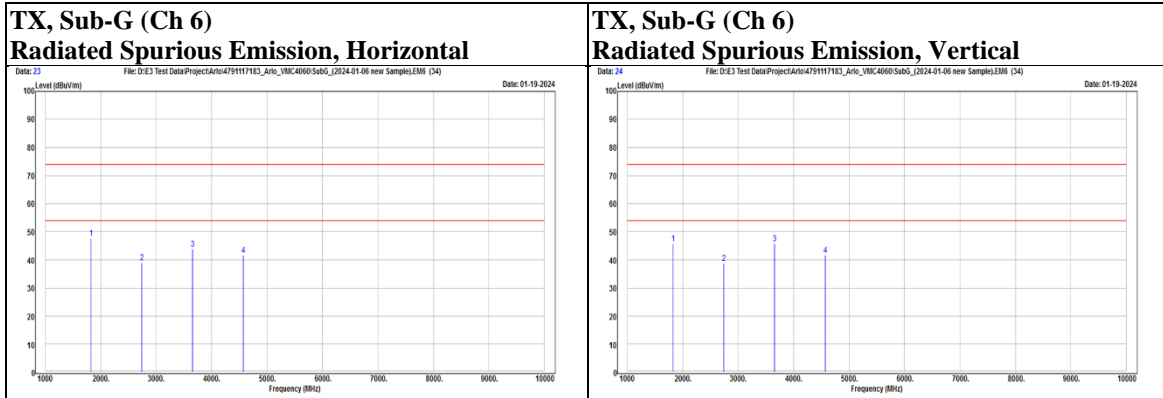
Mode	Sub-G	Channel	1
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Polarization	Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
		(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
Horizontal	*	1808	57.08	-7.78	49.3	74	-24.7	PK
	*	2712	41.76	-3.34	38.42	74	-35.58	PK
	*	3616	43.04	-0.09	42.95	74	-31.05	PK
	*	4520	36.85	3.72	40.57	74	-33.43	PK
Vertical	*	1808	52.41	-7.78	44.63	74	-29.37	PK
	*	2712	41.43	-3.34	38.09	74	-35.91	PK
	*	3616	46.8	-0.09	46.71	74	-27.29	PK
	*	4520	36.75	3.72	40.47	74	-33.53	PK



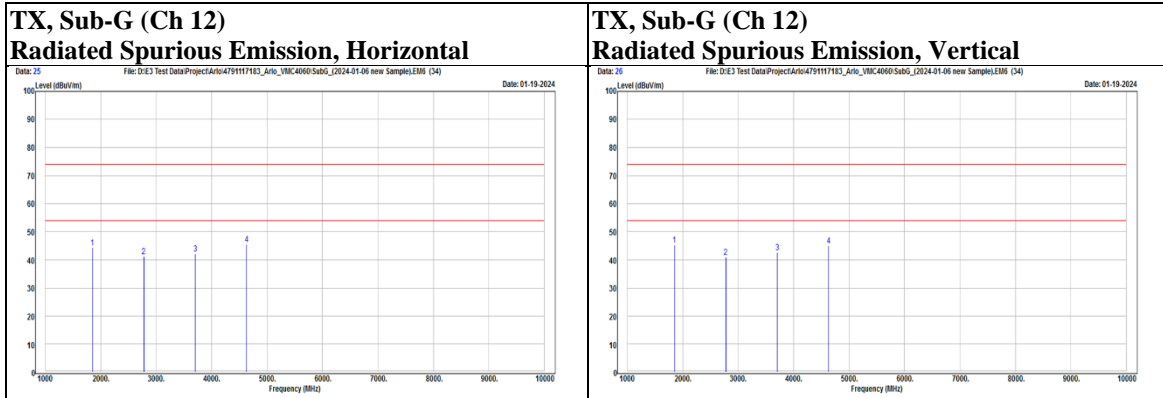
Mode	Sub-G	Channel	6
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Polarization	Notation	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
Horizontal	*	1828	55.29	-7.63	47.66	74	-26.34	PK
	*	2742	42.39	-3.28	39.11	74	-34.89	PK
	*	3656	44	-0.09	43.91	74	-30.09	PK
	*	4570	37.43	4.15	41.58	74	-32.42	PK
Vertical	*	1828	53.31	-7.63	45.68	74	-28.32	PK
	*	2742	42	-3.28	38.72	74	-35.28	PK
	*	3656	45.8	-0.09	45.71	74	-28.29	PK
	*	4570	37.46	4.15	41.61	74	-32.39	PK



Mode	Sub-G	Channel	12
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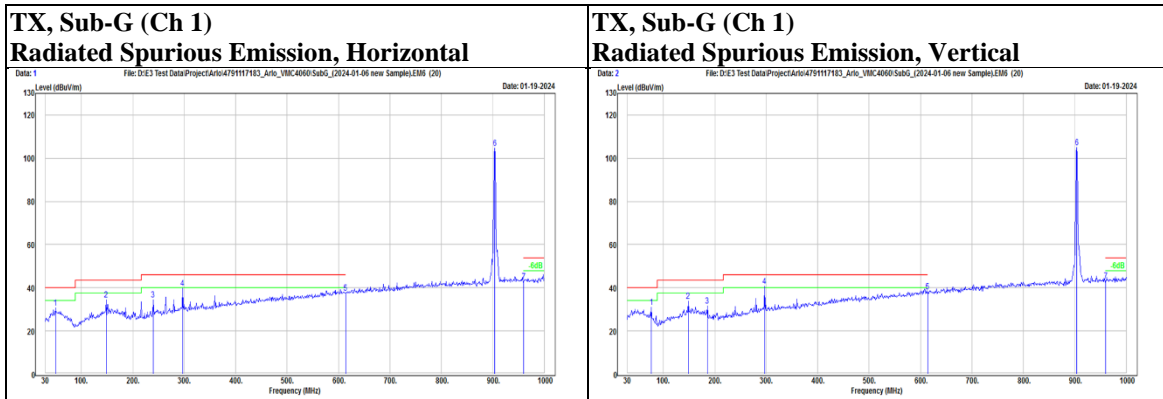
Polarization	Notation	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
Horizontal	*	1852	51.76	-7.45	44.31	74	-29.69	PK
	*	2778	44.29	-3.11	41.18	74	-32.82	PK
	*	3704	42.33	-0.05	42.28	74	-31.72	PK
	*	4630	40.95	4.7	45.65	74	-28.35	PK
Vertical	*	1852	52.75	-7.45	45.3	74	-28.7	PK
	*	2778	44.05	-3.11	40.94	74	-33.06	PK
	*	3704	42.73	-0.05	42.68	74	-31.32	PK
	*	4630	40.28	4.7	44.98	74	-29.02	PK



**Below 1 GHz**

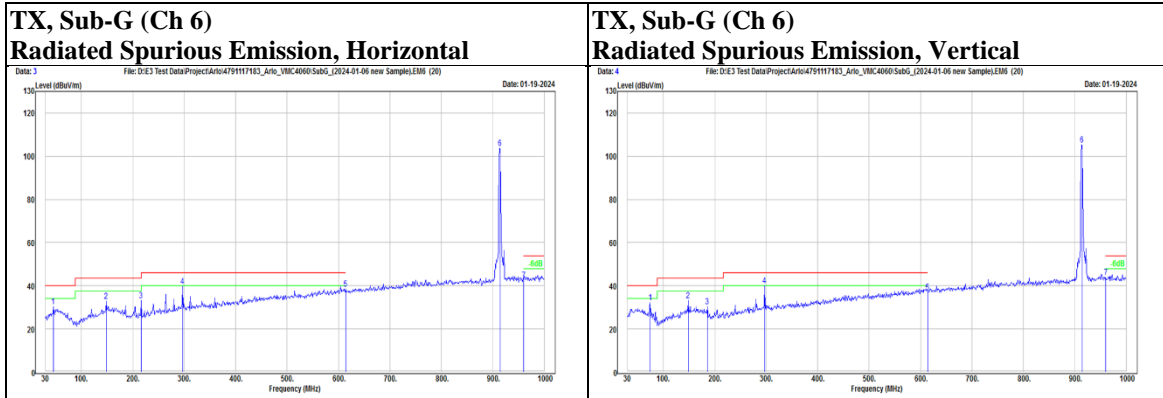
Mode	Sub-G	Channel	1
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Polarization	Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
		(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
Horizontal		49.4	32.5	-1.95	30.55	40	-9.45	PK
		148.34	36.28	-1.96	34.32	43.5	-9.18	PK
		239.52	37.1	-2.73	34.37	46	-11.63	PK
		296.75	40.47	-0.61	39.86	46	-6.14	PK
		614	29.56	8.02	37.58	46	-8.42	PK
	@	904	92.11	12.66	104.77	N/A	N/A	PK
		960	29.37	13.65	43.02	54	-10.98	PK
Vertical		76.56	36.12	-5.1	31.02	40	-8.98	PK
		148.34	35.64	-1.96	33.68	43.5	-9.82	PK
		185.2	35.08	-3.55	31.53	43.5	-11.97	PK
		296.75	41.26	-0.61	40.65	46	-5.35	PK
		614	30.34	8.02	38.36	46	-7.64	PK
	@	904	92.15	12.66	104.81	N/A	N/A	PK
		960	29.6	13.65	43.25	54	-10.75	PK



Mode	Sub-G	Channel	6
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Polarization	Notation	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
Horizontal		45.52	32.71	-2.24	30.47	40	-9.53	PK
		148.34	34.86	-1.96	32.9	43.5	-10.6	PK
		216.24	37.43	-4.33	33.1	46	-12.9	PK
		296.75	40.28	-0.61	39.67	46	-6.33	PK
		614	30.65	8.02	38.67	46	-7.33	PK
	@	914	90.92	12.81	103.73	N/A	N/A	PK
		960	28.97	13.65	42.62	54	-11.38	PK
Vertical		74.62	37.06	-4.76	32.3	40	-7.7	PK
		148.34	35.11	-1.96	33.15	43.5	-10.35	PK
		185.2	33.94	-3.55	30.39	43.5	-13.11	PK
		296.75	40.74	-0.61	40.13	46	-5.87	PK
		614	29.04	8.02	37.06	46	-8.94	PK
	@	914	92.35	12.81	105.16	N/A	N/A	PK
		960	30.17	13.65	43.82	54	-10.18	PK



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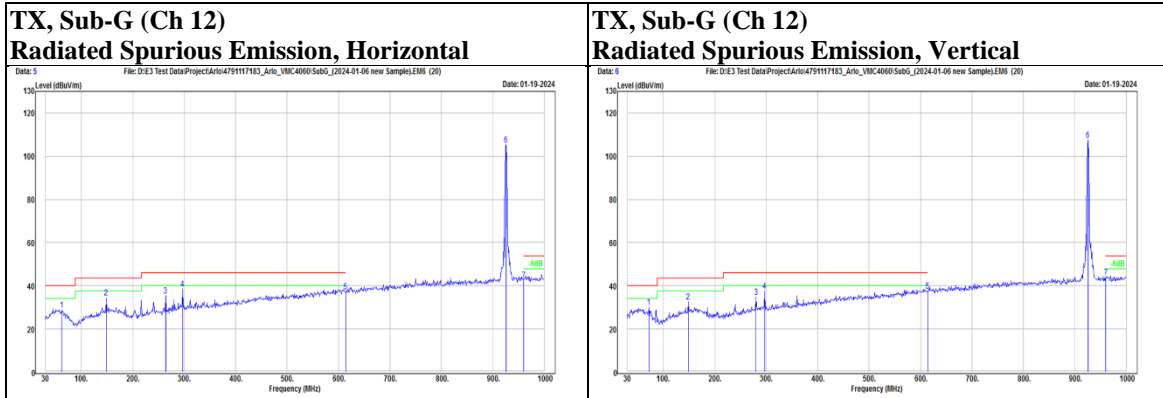
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Mode	Sub-G	Channel	12
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Polarization	Notation	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
Horizontal		62.01	31.26	-2.41	28.85	40	-11.15	PK
		148.34	36.37	-1.96	34.41	43.5	-9.09	PK
		263.77	37.23	-1.77	35.46	46	-10.54	PK
		296.75	39.1	-0.61	38.49	46	-7.51	PK
		614	29.34	8.02	37.36	46	-8.64	PK
	@	926	92.2	13.08	105.28	N/A	N/A	PK
		960	28.97	13.65	42.62	54	-11.38	PK
Vertical		71.71	33.95	-4.01	29.94	40	-10.06	PK
		148.34	34.54	-1.96	32.58	43.5	-10.92	PK
		280.26	35.86	-1.1	34.76	46	-11.24	PK
		296.75	38.06	-0.61	37.45	46	-8.55	PK
		614	29.56	8.02	37.58	46	-8.42	PK
	@	926	94.3	13.08	107.38	N/A	N/A	PK
		960	30.29	13.65	43.94	54	-10.06	PK



**9 kHz ~ 30 MHz Data:**

For 9 kHz to 30 MHz radiated emission have performed all modes of operation were investigated. The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

No non-compliance noted:

**KDB 414788 D01 OATS and Chamber Correlation Justification**

- Base on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.
- OATs and chamber correlation testing had been performed and chamber measured test results is the worst case test result.

Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30m open area test site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788.

## 9.6. AC Power Line Conducted Emission

### Requirements

Frequency (MHz)	Conducted limit (dB $\mu$ V)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30	60	50

Note:

1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

### Test Procedures

- a. 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.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

NOTE:

1. The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.
2. All modes of operation were investigated (includes all external accessories) and the worst-case emissions are reported, the other emission levels were low against the limit.
3. Test data of Result value (dB $\mu$ V) = Reading value (dB $\mu$ V) + Correction Factor (dB).
4. Test data of Margin(dB) = Result value (dB $\mu$ V) - Limit value (dB $\mu$ V).
5. Test data of Correction Factor (dB) = Insertion loss(dB) + Cable loss(dB).

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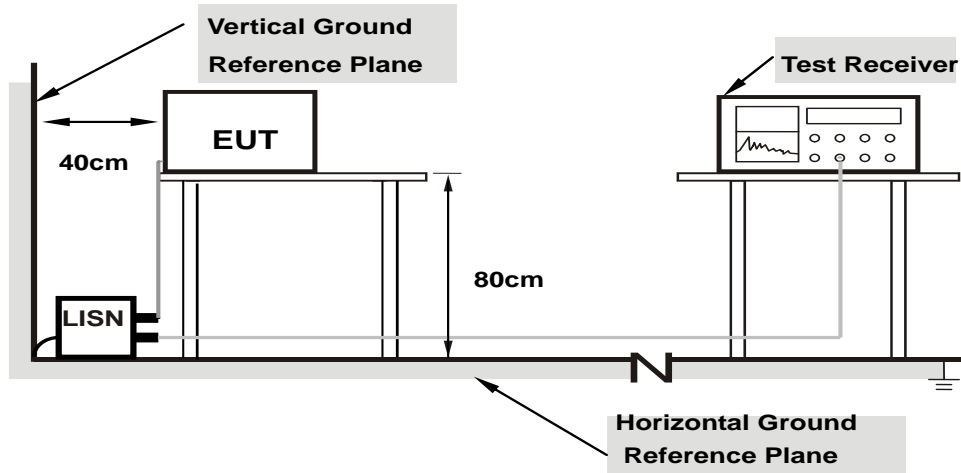
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## Test Setup

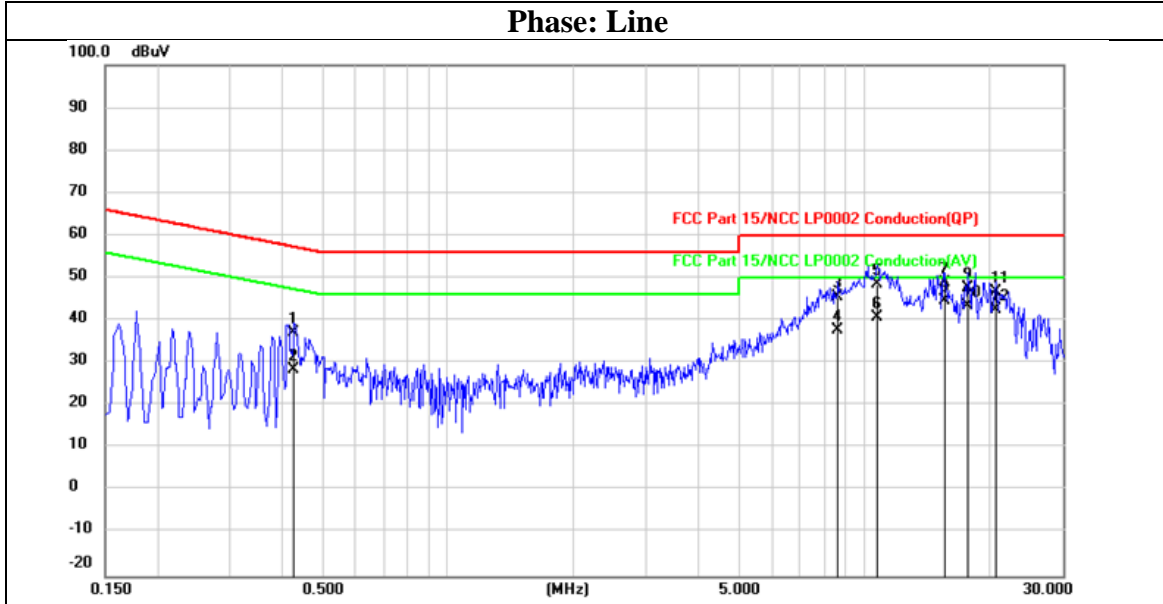


**Note: 1.Support units were connected to second LISN.**

For the actual test configuration, please refer to the Setup Configurations.

### Test Data

Mode	Sub-G_TX914	Channel	6
------	-------------	---------	---



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.4260	27.20	9.95	37.15	57.33	-20.18	QP
2	0.4260	18.37	9.95	28.32	47.33	-19.01	AVG
3	8.6420	35.28	10.22	45.50	60.00	-14.50	QP
4	8.6420	27.64	10.22	37.86	50.00	-12.14	AVG
5	10.7620	38.30	10.28	48.58	60.00	-11.42	QP
6	10.7620	30.52	10.28	40.80	50.00	-9.20	AVG
7	15.5580	38.46	10.41	48.87	60.00	-11.13	QP
8	15.5580	34.31	10.41	44.72	50.00	-5.28	AVG
9	17.8020	37.32	10.47	47.79	60.00	-12.21	QP
10	17.8020	32.93	10.47	43.40	50.00	-6.60	AVG
11	20.7620	36.27	10.54	46.81	60.00	-13.19	QP
12	20.7620	31.88	10.54	42.42	50.00	-7.58	AVG

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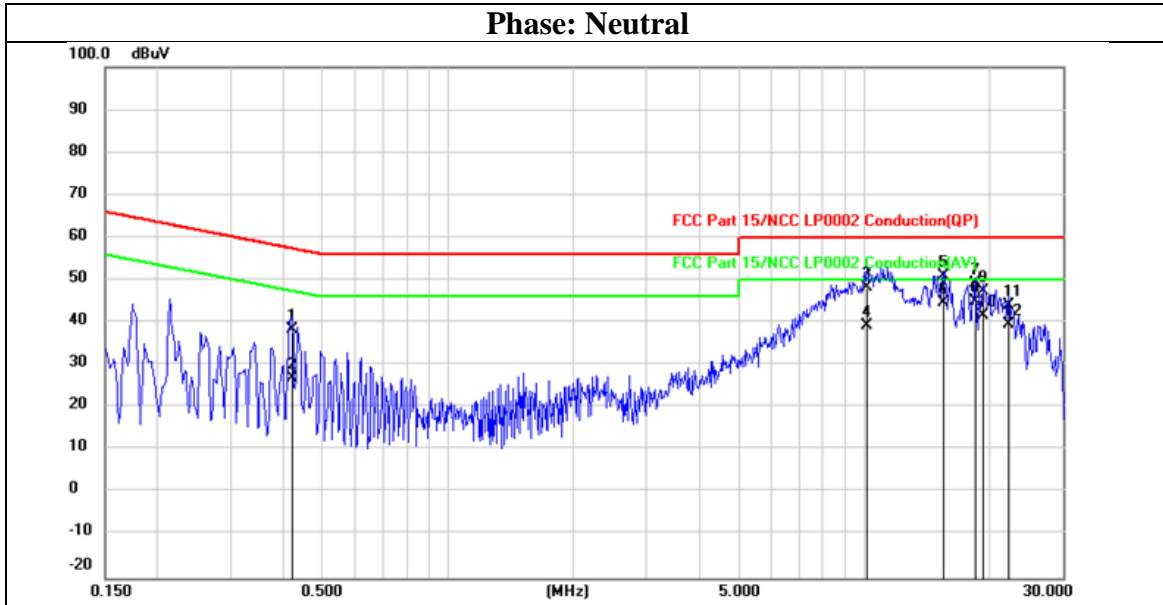
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Mode	Sub-G_TX914	Channel	6
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No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.4220	28.30	9.95	38.25	57.41	-19.16	QP
2	0.4220	17.14	9.95	27.09	47.41	-20.32	AVG
3	10.1580	38.14	10.26	48.40	60.00	-11.60	QP
4	10.1580	28.87	10.26	39.13	50.00	-10.87	AVG
5	15.5220	40.52	10.42	50.94	60.00	-9.06	QP
6	15.5220	34.23	10.42	44.65	50.00	-5.35	AVG
7	18.4820	38.50	10.51	49.01	60.00	-10.99	QP
8	18.4820	34.41	10.51	44.92	50.00	-5.08	AVG
9	19.3620	36.75	10.54	47.29	60.00	-12.71	QP
10	19.3620	31.23	10.54	41.77	50.00	-8.23	AVG
11	22.2420	33.34	10.62	43.96	60.00	-16.04	QP
12	22.2420	28.85	10.62	39.47	50.00	-10.53	AVG

## END OF REPORT

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