

CO-LOCATION RADIO TEST REPORT

Product : Security Camera

Model Name : VMC4072

Series Model : VMC4070

FCC ID : 2APLE18300434

Test Regulation : FCC 47 CFR PART 15 Subpart C (Section 15.247)
FCC 47 CFR PART 15 Subpart E (Section 15.407)

Received Date : 2025/5/8

Test Date : 2025/3/28 ~ 2025/5/20

Issued Date : 2025/6/30

Applicant : Arlo Technologies Inc
5770 Fleet St, Suite 200, 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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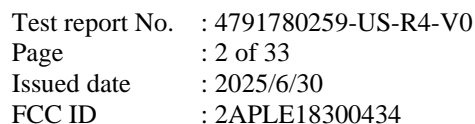
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Doc No: Form-ULID-004737 (DCS:17-EM-F0876) / 6.1



Original Test Report No.: 4791780259-US-R4-V0

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1. Attestation of Test Results

APPLICANT: Arlo Technologies Inc
5770 Fleet St, Suite 200, Carlsbad, CA 92008 USA

MANUFACTURER: Arlo Technologies Inc
5770 Fleet St, Suite 200, Carlsbad, CA 92008 USA

EUT DESCRIPTION: Security Camera

BRAND: arlo

MODEL: VMC4072

SERIES MODEL: VMC4070

SAMPLE STAGE: Engineering Verification Test Sample

DATE of TESTED: 2025/3/28 ~ 2025/5/20

APPLICABLE STANDARDS	
STANDARD	Test Results
FCC 47 CFR PART 15 Subpart C (Section 15.247)	PASS
FCC 47 CFR PART 15 Subpart E (Section 15.407)	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:



Sally Lu
Project Handler

Date : 2025/6/30

Approved and Authorized By:



Eric Lee
Senior Laboratory Engineer

Date : 2025/6/30

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2. Summary of Test Results

Summary of Test Results		
FCC Clause	Test Items	Result
15.205 / 15.209 / 15.247(d) / 15.407(b) (1/2/3/4(i/ii)/9) /15.407(b)(5)(8)	Radiated Spurious Emission	PASS
15.247(d)	Antenna Port Emission	PASS
15.207 15.407(b)(9)	AC Power Conducted Emission	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, KDB 789033 D02 General UNII Test Procedure New Rules v02r01, KDB414788 D01 Radiated Test Site v01r01, ANSI C63.10-2013.

4. Facilities and Accreditation

Test Location	Underwriters Laboratories Taiwan Co., Ltd.
Address	Building A, B and E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan
Accreditation Certificate	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	2.4 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

Product	Security Camera
Brand Name	arlo
Model Name	VMC4072
Series Model	VMC4070
Normal Voltage	5Vdc/6.6Vdc from Host 3.89Vdc/3.6Vdc from Battery

Operating Frequency	BT LE: 2402MHz ~ 2480MHz 2.4G WiFi: 2412MHz ~ 2462MHz 5G WiFi: 5180 ~ 5240MHz, 5260 ~ 5320MHz, 5500 ~ 5720MHz, 5745 ~ 5825MHz
Sample ID	Conducted Test:8293189
	Radiated Test:8293189

Note:

1. The models difference table as below:

Model	MECH (Enclosure)	Battery Type
VMC4072	Large housing	4 cell battery(A-14)
VMC4070	Regular the housing that have two different colors, one is white and another is black	1 cell battery(A-23)
All models are electrically identical (Include: circuitry, components, layout, antenna type and gain).		

2. The EUT contains following accessory devices:

Product	Brand	Model	Description
USB Cable	Nienyi	310-50024-01	Length: 1m
Mount	Arlo	Mount	-

3. The EUT contains a removable, rechargeable battery.

Brand	Model	Description
Arlo	A-23	3.89Vdc, 21.41Wh, 5655mAh (VMC4070)
Arlo	A-14	3.6Vdc, 46.8Wh, 13000mAh (VMC4072)

4. 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. Test Condition

Test Item	Test Site No.	Environmental	Input Power	Test Date	Tested by
Radiated Spurious Emission	966-2	22~26°C/ 62~68% RH	5Vdc	2025/03/28~ 2025/05/20	WaterNil Guan
AC power Line Conducted Emission	SR1	23~25°C/ 57~59% RH	120Vac/ 60Hz	2025/05/05~ 2025/05/13	WaterNil Guan

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 (40.1dBuV) + 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 (35.1dBuV) + Insertion loss(18.1dB) + Cable loss(0.5dB).

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6.3. Description of Available Antennas

Ant. No.	Transmitter Circuit	Frequency Range	Brand Name	Model Name	Maximum Gain (dBi)	Ant. Type	Connector Type
1	Chain0	2402 ~ 2480MHz 5150 ~ 5875MHz	arlo	2APLE18300434	2 3.4	Internal / Metal	N/A

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.

6.4. Test Mode Applicability and Tested Channel Detail

Simultaneously transmission condition:

Condition	Technology	
1	WLAN (2.4GHz)	BT-LE
2	WLAN (5GHz)	BT-LE

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

7. Test Equipment

Test Equipment List					
Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Expired date
Radiated Spurious Emission					
Spectrum Analyzer	Keysight	N9010A	MY56070818	2025/3/12	2026/3/11
EMI Test Receiver	Rohde & Schwarz	ESR7	101754	2024/12/24	2025/12/23
Loop Antenna	ETS lindgren	6502	00213440	2024/12/11	2025/12/10
Trilog-Broadband Antenna with 5dB Attenuator	Schwarzbeck & EMCI	VULB 9168 & N-6-05	774 & AT-N0538	2024/12/30	2025/12/29
Horn Antenna (1-18 GHz)	Schwarzbeck	BBHA 9120 D	01690	2024/11/27	2025/11/26
Horn Antenna (18-40 GHz)	Schwarzbeck	BBHA 9170	781	2024/12/18	2025/12/17
Preamplifier (30-1000 MHz)	EMCI	EMC330E	980405	2024/5/28	2025/5/27
Preamplifier (1-18 GHz)	EMCI	EMC051835BE	980406	2025/1/13	2026/1/12
Preamplifier (18-40GHz)	EMCI	EMC184040SEE	980426	2025/4/7	2026/4/6
Cables (9k-18 GHz)	Hanyitek	K1K50-UP0264-K1K50-2500	170214-4 & 170425-2	2024/11/22	2025/11/21
Cables (18-40GHz)	Hanyitek	K1K50-UP0264-K1K50-2500	170214-1 & 170214-2	2024/11/22	2025/11/21

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Test Equipment List					
Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Expired date
Antenna Port Conducted Measurement					
Signal Analyzer	Rohde & Schwarz	FSVA3044	101281	2025/3/5	2026/3/4
Signal Analyzer	Rohde & Schwarz	FSV40	101490	2024/7/1	2025/6/30
Attenuator	EMCI	EMC-40ATK2W10	17002	2024/11/13	2025/11/12
USB Power Sensor	Anritsu	MA24408A	12031	2024/7/13	2025/7/12
Temperature & Humidity Test Chamber	GIANT FORCE	GTH-150- 40-CP-AR	MAA1701-010	2025/2/25	2026/2/24
AC power Line Conducted Emission					
EMI Test Receiver	Rohde & Schwarz	ESR7	101753	2024/10/1	2025/9/30
Two-Line V-Network	Rohde & Schwarz	ENV216	102136	2024/5/14	2025/5/13
Impuls-Begrenzer Pulse Limiter	Rohde & Schwarz	ESH3-Z2	102219-Qt	2024/8/29	2025/8/28
Cables	TITAN	CFD200	T0732ACFD 20020A300-2	2025/4/21	2026/4/20

UL Software		
Description	Name	Version
Radiated measurement	e3	6.191211 (V6)
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	Laptop	DELL	Latitude E5470	3JFKWF2	Provided by Lab
B	Mount	Arlo	Mount	N/A	Provided by Client

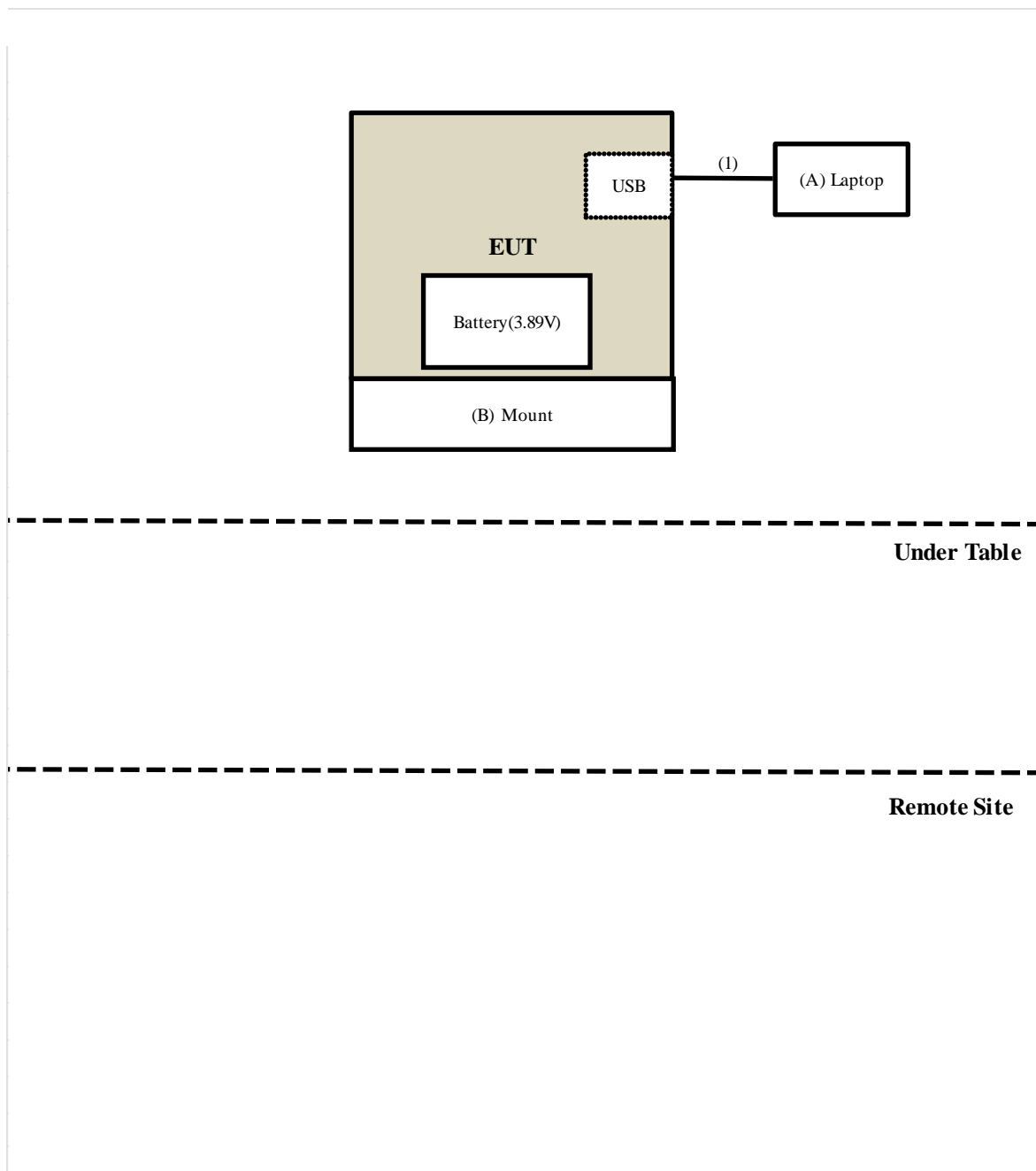
I/O Cables

ID	Equipment	Brand Name	Model Name	Length (m)	Remark
1	USB Cable	Nienyi	310-50024-01	0.9	Provided by Client

Test Setup

Controlled using a bespoke application (Typing RF command by terminal tool(Tera Term version 4.94)) 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. 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

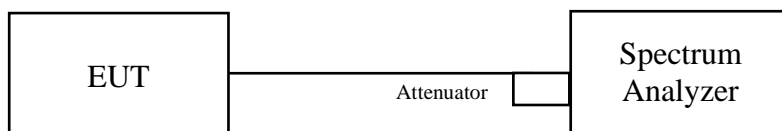
Measurement Procedure REF

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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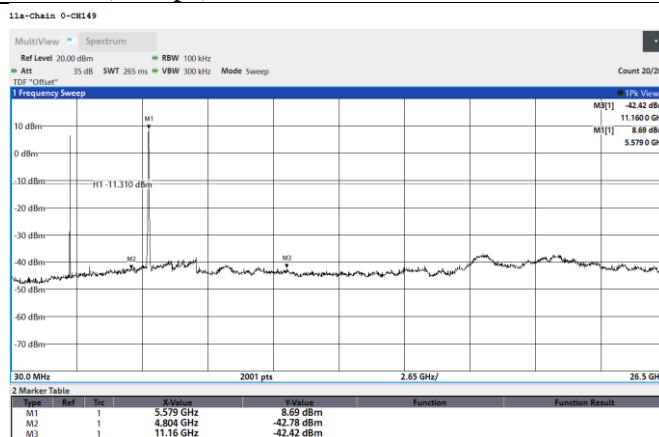
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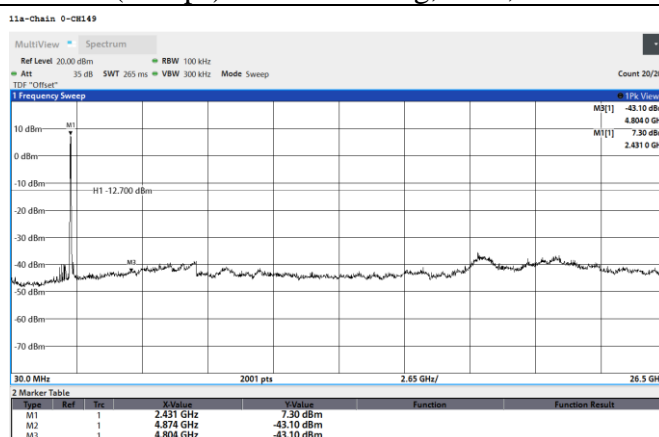
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Test Data

BT LE(2Mbps) CH0 + 802.11a CH116, Reference



BT LE(2Mbps) CH0 + 802.11g, CH6, Reference



9.2. 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.

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Limits of unwanted emission out of the restricted bands

Applicable To		Limit	
789033 D02 General UNII Test Procedure New Rules v02r01		Field Strength at 3m	
		PK:74 (dBμV/m)	AV:54 (dBμV/m)
Frequency Band	Applicable To	EIRP Limit	Equivalent Field Strength at 3m
5150~5250 MHz	15.407(b)(1)	PK:-27 (dBm/MHz)	PK:68.2(dBμV/m)
5250~5350 MHz	15.407(b)(2)		
5470~5725 MHz	15.407(b)(3)		
5725~5850 MHz	15.407(b)(4)(i)	PK:-27 (dBm/MHz) ^{*1} PK:10 (dBm/MHz) ^{*2} PK:15.6 (dBm/MHz) ^{*3} PK:27 (dBm/MHz) ^{*4}	PK: 68.2(dBμV/m) ^{*1} PK:105.2 (dBμV/m) ^{*2} PK: 110.8(dBμV/m) ^{*3} PK:122.2 (dBμV/m) ^{*4}
*1 beyond 75 MHz or more above of the band edge. *2 below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above. *3 below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above. *4 from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.			

Note:

The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E = \frac{1000000\sqrt{30P}}{3} \mu\text{V/m, where P is the eirp (Watts).}$$

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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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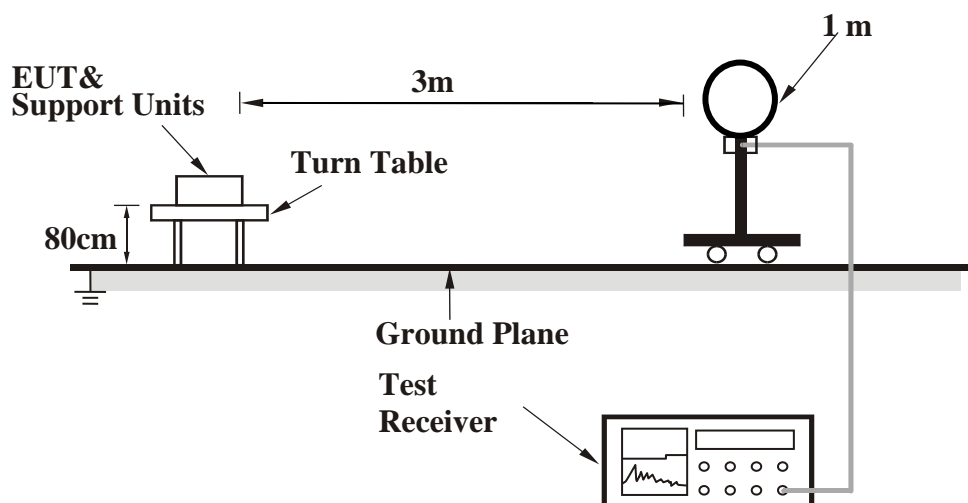
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Note:

- The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
- 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.
- 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, for $1/T$ (Duty cycle $< 98\%$) video bandwidth detail information refer to main report duty cycle test result.
- 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.
- Test data of Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
- Test data of Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
- Test data of Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
- Test data of Notation "@" = Fundamental Frequency
- 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.

Test Setup

<Frequency Range 9 kHz ~ 30 MHz>



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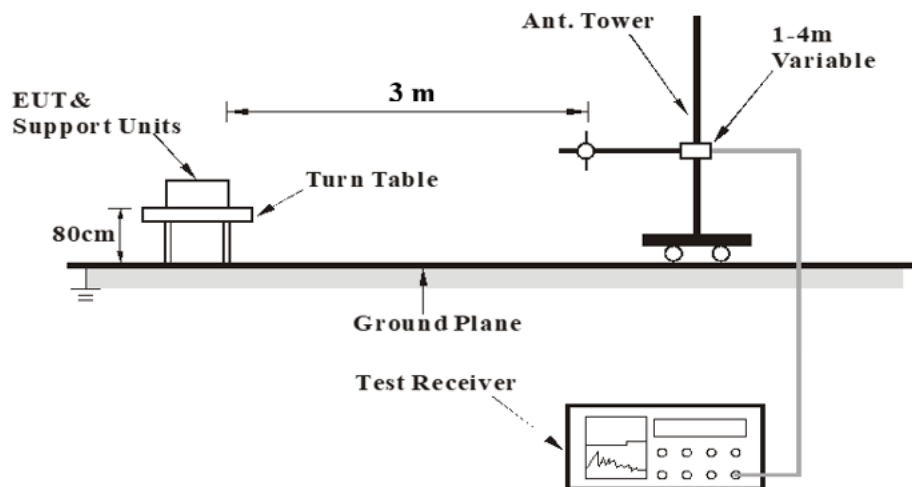
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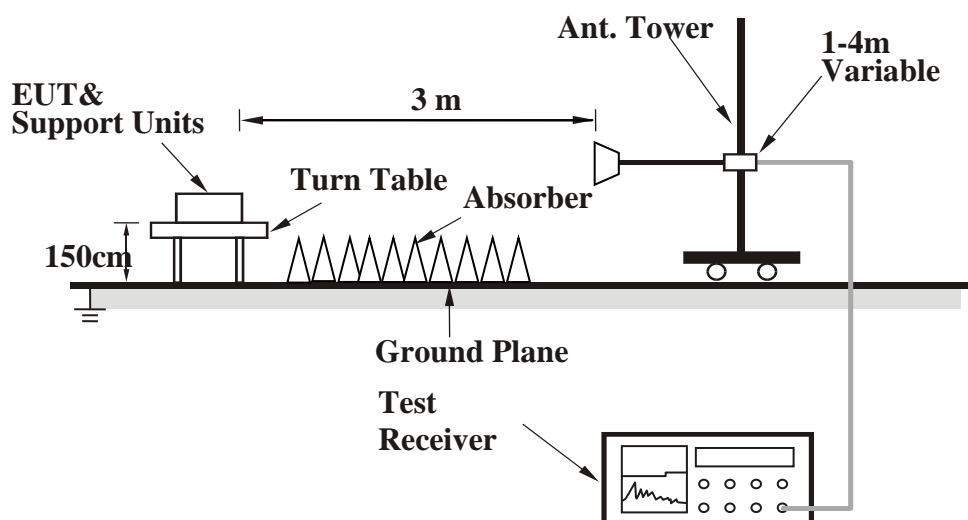
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<Frequency Range 30 MHz ~ 1 GHz >



<Frequency Range above 1 GHz>



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

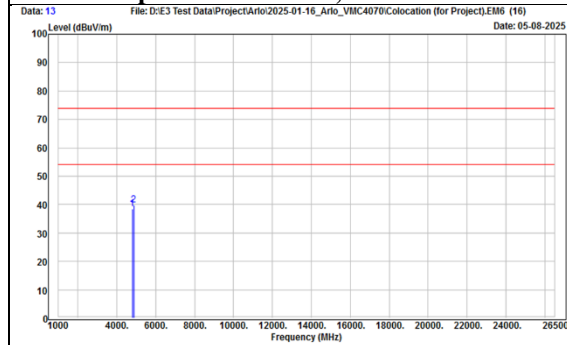
Test Data

Above 1 GHz

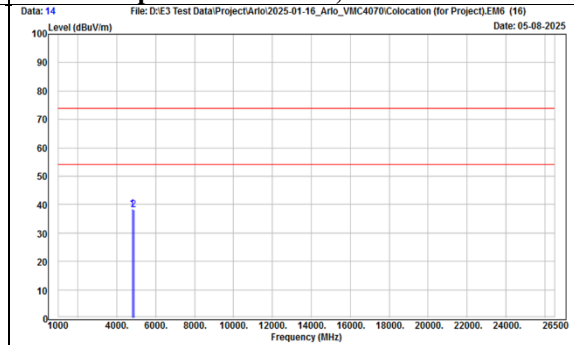
Mode	2.4G 802.11g & LE2M	Channel	2.4G 802.11g (CH6) & LE2M (CH0)
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Polarization	Notation	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
Horizontal	*	4804	35.82	2.63	38.45	74	-35.55	PK
		4874	37.15	2.66	39.81	74	-34.19	PK
Vertical	*	4804	35.74	2.63	38.37	74	-35.63	PK
		4874	35.65	2.66	38.31	74	-35.69	PK

Co-location, 2.4G 802.11g (Ch6) & LE2M (Ch0) Radiated Spurious Emission, Horizontal



Co-location, 2.4G 802.11g (Ch6) & LE2M (Ch 0) Radiated Spurious Emission, Vertical



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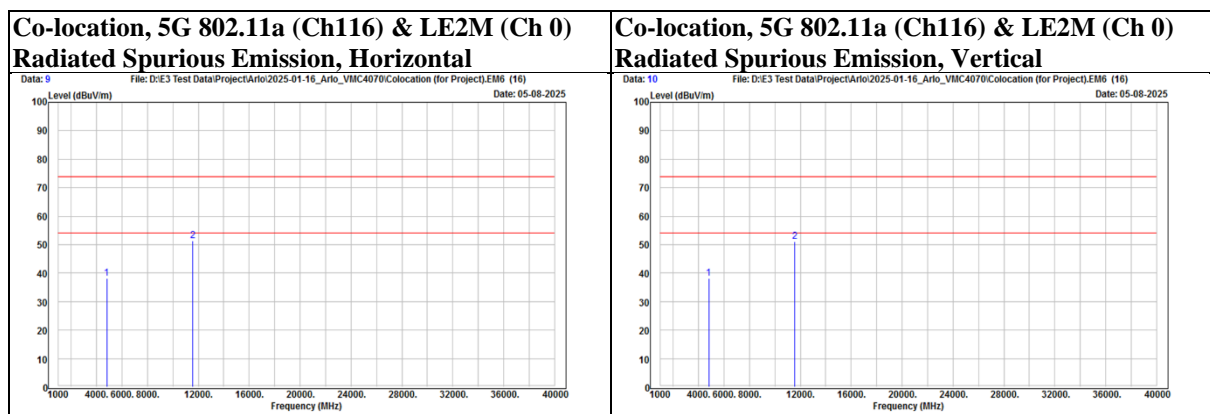
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Mode	5G 802.11a & LE2M	Channel	802.11a (CH116) & LE2M (CH0)
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Polarization	Notation @	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
Horizontal		4804	35.66	2.63	38.29	74	-35.71	PK
		11570	32.45	19.03	51.48	74	-22.52	PK
Vertical		4804	35.54	2.63	38.17	74	-35.83	PK
		11570	32.02	19.03	51.05	74	-22.95	PK

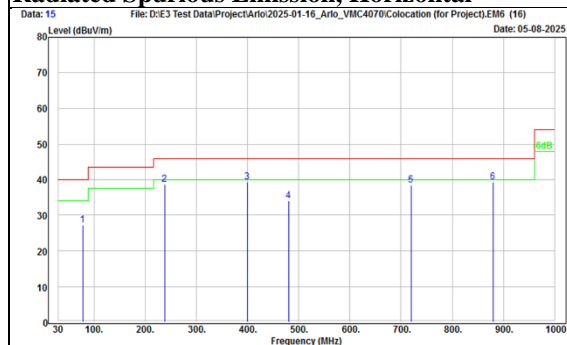


Below 1 GHz

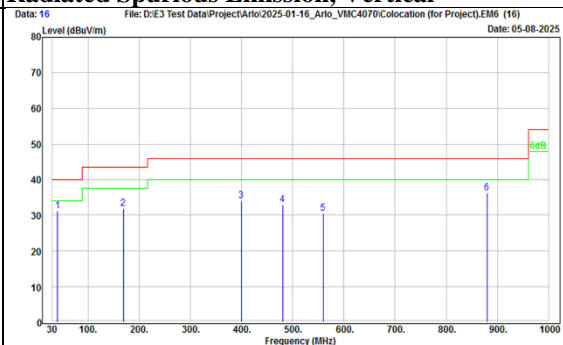
Mode	2.4G 802.11g & LE2M	Channel	2.4G 802.11g (CH6) & LE2M (CH0)
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Polarization	Notation	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
Horizontal		77.53	51.82	-24.51	27.31	40	-12.69	PK
		237.58	60.04	-21.36	38.68	46	-7.32	PK
		399.57	55.56	-16.15	39.41	46	-6.59	PK
		480.08	48.04	-13.96	34.08	46	-11.92	PK
		719.67	47.24	-8.68	38.56	46	-7.44	PK
		879.72	45.71	-6.27	39.44	46	-6.56	PK
Vertical		40.67	52.72	-21.46	31.26	40	-8.74	PK
		168.71	52.26	-20.36	31.9	43.5	-11.6	PK
		399.57	50.17	-16.15	34.02	46	-11.98	PK
		480.08	47.01	-13.96	33.05	46	-12.95	PK
		559.62	42.76	-12.17	30.59	46	-15.41	PK
		879.72	42.48	-6.27	36.21	46	-9.79	PK

Co-location, 2.4G 802.11g (Ch6) & LE2M (Ch0) Radiated Spurious Emission, Horizontal



Co-location, 2.4G 802.11g (Ch6) & LE2M (Ch0) Radiated Spurious Emission, Vertical



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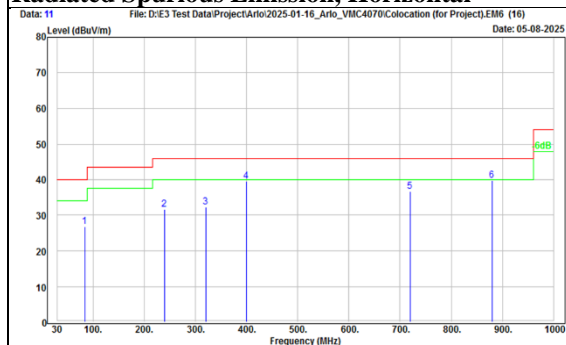
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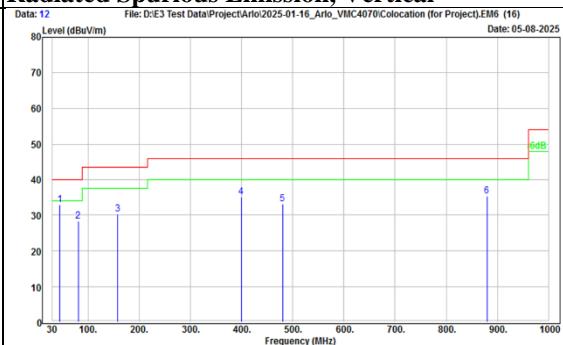
Mode	5G 802.11a & LE2M	Channel	5G 802.11a (Ch116) & LE2M (Ch0)
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Polarization	Notation @	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
Horizontal		83.35	52.78	-25.98	26.8	40	-13.2	PK
		239.52	52.9	-21.18	31.72	46	-14.28	PK
		320.03	50.57	-18.21	32.36	46	-13.64	PK
		399.57	55.64	-16.15	39.49	46	-6.51	PK
		719.67	45.37	-8.68	36.69	46	-9.31	PK
		879.72	46.07	-6.27	39.8	46	-6.2	PK
Vertical		44.55	54.07	-21.01	33.06	40	-6.94	PK
		80.44	53.78	-25.4	28.38	40	-11.62	PK
		158.04	50.28	-19.96	30.32	43.5	-13.18	PK
		399.57	51.22	-16.15	35.07	46	-10.93	PK
		480.08	47.05	-13.96	33.09	46	-12.91	PK
		879.72	41.68	-6.27	35.41	46	-10.59	PK

Co-location, 5G 802.11a (Ch116) & LE2M (Ch 0)
Radiated Spurious Emission, Horizontal



Co-location, 5G 802.11a (Ch116) & LE2M (Ch 0)
Radiated Spurious Emission, Vertical



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.

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9.3. AC Power Line Conducted Emission

Requirements

Frequency (MHz)	Conducted limit (dBμV)	
	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 (dBuV) = Reading value (dBuV) + Correction Factor (dB).
4. Test data of Margin(dB) = Result value (dBuV) - Limit value (dBuV).
5. Test data of Correction Factor (dB) = Insertion loss(dB) + Cable loss(dB).

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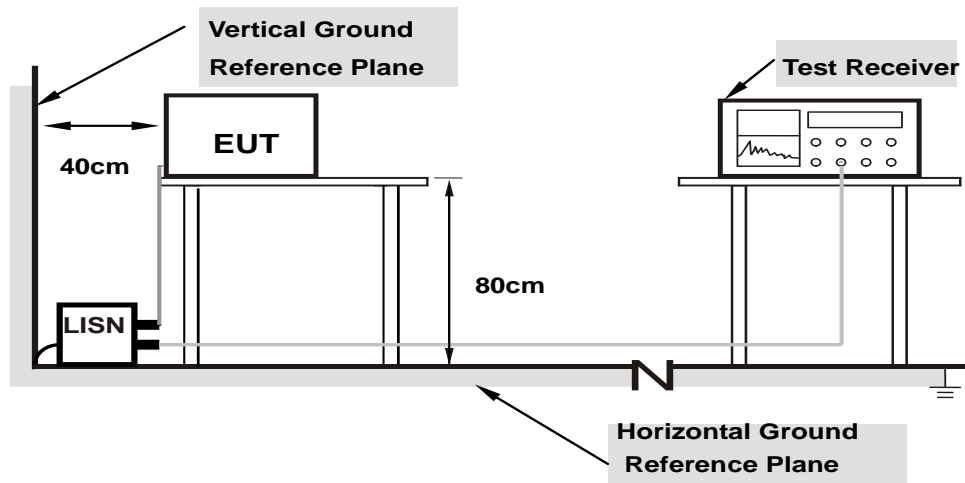
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Test Setup

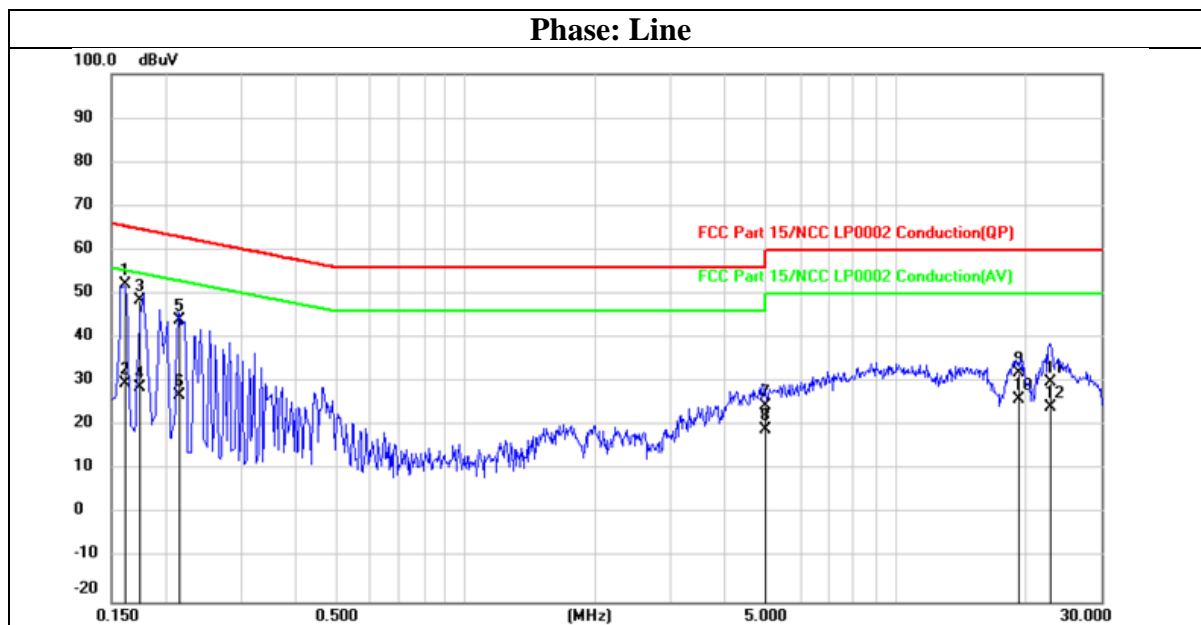


Note: 1.Support units were connected to second LISN.

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

Test Data

Mode	Colocation_2.4G 802.11g & LE2M	Channel	2.4G 802.11g (CH6) & LE2M (CH0)
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No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1613	42.18	9.96	52.14	65.40	-13.26	QP
2	0.1613	19.73	9.96	29.69	55.40	-25.71	AVG
3	0.1743	38.66	9.96	48.62	64.75	-16.13	QP
4	0.1743	18.91	9.96	28.87	54.75	-25.88	AVG
5	0.2152	34.06	9.96	44.02	63.00	-18.98	QP
6	0.2152	16.90	9.96	26.86	53.00	-26.14	AVG
7	4.9507	14.33	10.12	24.45	56.00	-31.55	QP
8	4.9507	8.94	10.12	19.06	46.00	-26.94	AVG
9	19.3617	21.43	10.52	31.95	60.00	-28.05	QP
10	19.3617	15.61	10.52	26.13	50.00	-23.87	AVG
11	23.0734	19.45	10.63	30.08	60.00	-29.92	QP
12	23.0734	13.53	10.63	24.16	50.00	-25.84	AVG

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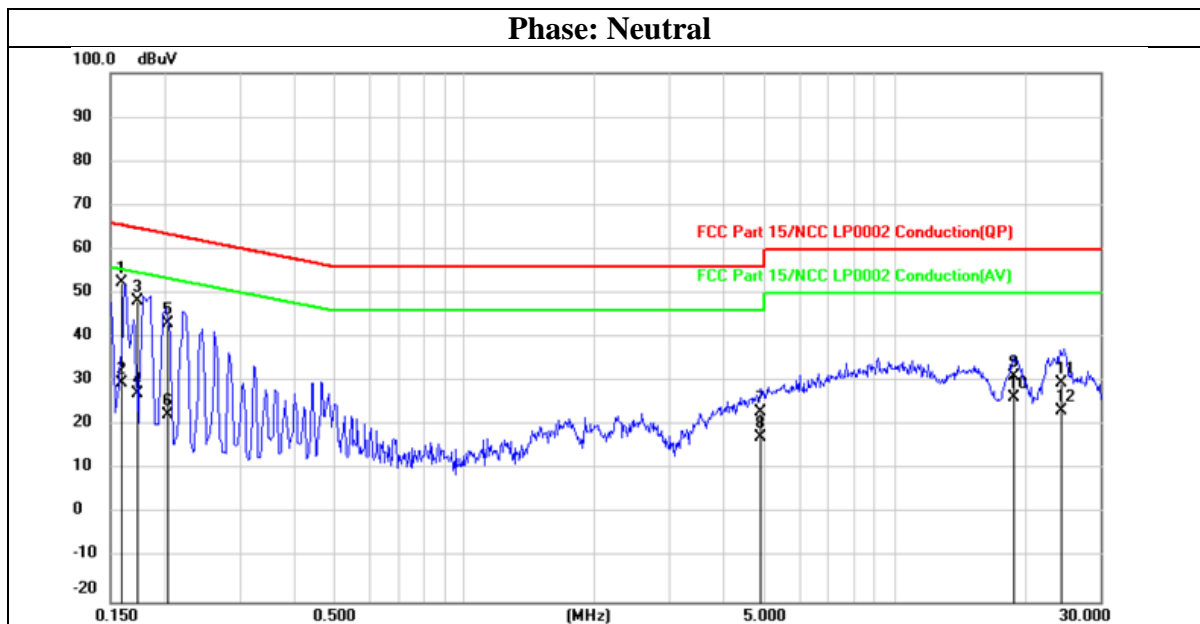
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Mode	Colocation_2.4G 802.11g & LE2M	Channel	2.4G 802.11g (CH6) & LE2M (CH0)
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No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1583	42.38	9.94	52.32	65.55	-13.23	QP
2	0.1583	19.79	9.94	29.73	55.55	-25.82	AVG
3	0.1731	38.43	9.94	48.37	64.81	-16.44	QP
4	0.1731	17.22	9.94	27.16	54.81	-27.65	AVG
5	0.2045	33.11	9.94	43.05	63.43	-20.38	QP
6	0.2045	12.51	9.94	22.45	53.43	-30.98	AVG
7	4.8857	13.11	10.08	23.19	56.00	-32.81	QP
8	4.8857	7.25	10.08	17.33	46.00	-28.67	AVG
9	18.9239	20.76	10.48	31.24	60.00	-28.76	QP
10	18.9239	15.79	10.48	26.27	50.00	-23.73	AVG
11	24.5957	18.87	10.65	29.52	60.00	-30.48	QP
12	24.5957	12.77	10.65	23.42	50.00	-26.58	AVG

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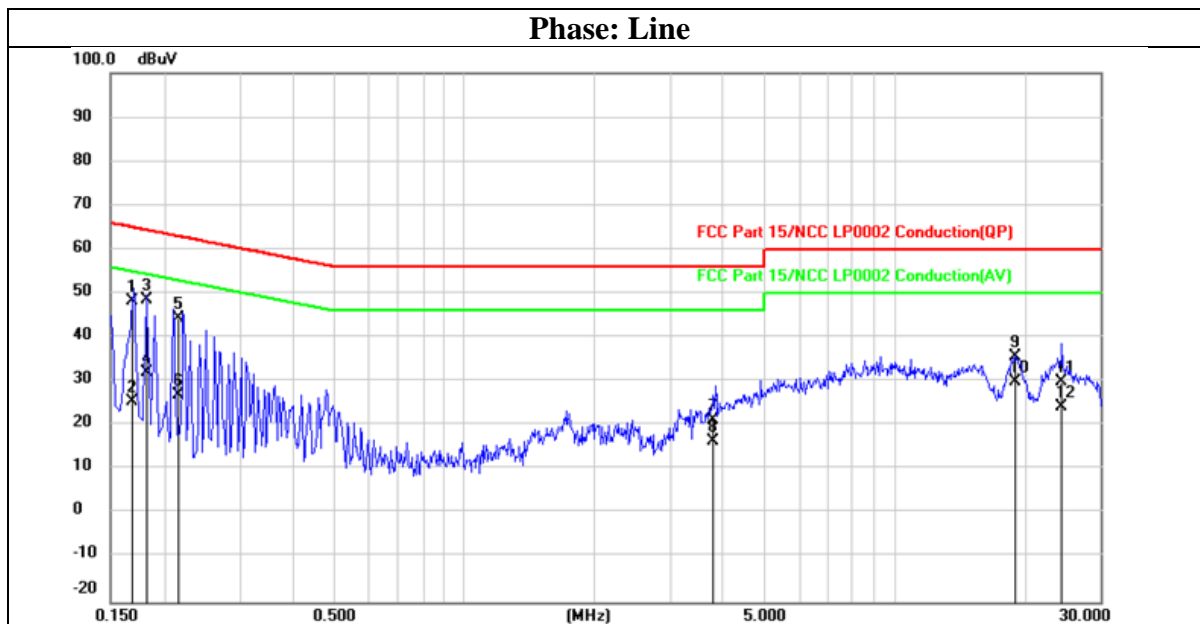
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Mode	Colocation_5G 802.11a & LE2M	Channel	802.11a (CH116) & LE2M (CH0)
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No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1683	38.35	9.96	48.31	65.04	-16.73	QP
2	0.1683	15.54	9.96	25.50	55.04	-29.54	AVG
3	0.1811	38.73	9.96	48.69	64.44	-15.75	QP
4	0.1811	22.09	9.96	32.05	54.44	-22.39	AVG
5	0.2148	34.31	9.96	44.27	63.02	-18.75	QP
6	0.2148	17.10	9.96	27.06	53.02	-25.96	AVG
7	3.8124	11.31	10.09	21.40	56.00	-34.60	QP
8	3.8124	6.47	10.09	16.56	46.00	-29.44	AVG
9	19.1004	25.24	10.52	35.76	60.00	-24.24	QP
10	19.1004	19.34	10.52	29.86	50.00	-20.14	AVG
11	24.4034	19.29	10.67	29.96	60.00	-30.04	QP
12	24.4034	13.57	10.67	24.24	50.00	-25.76	AVG

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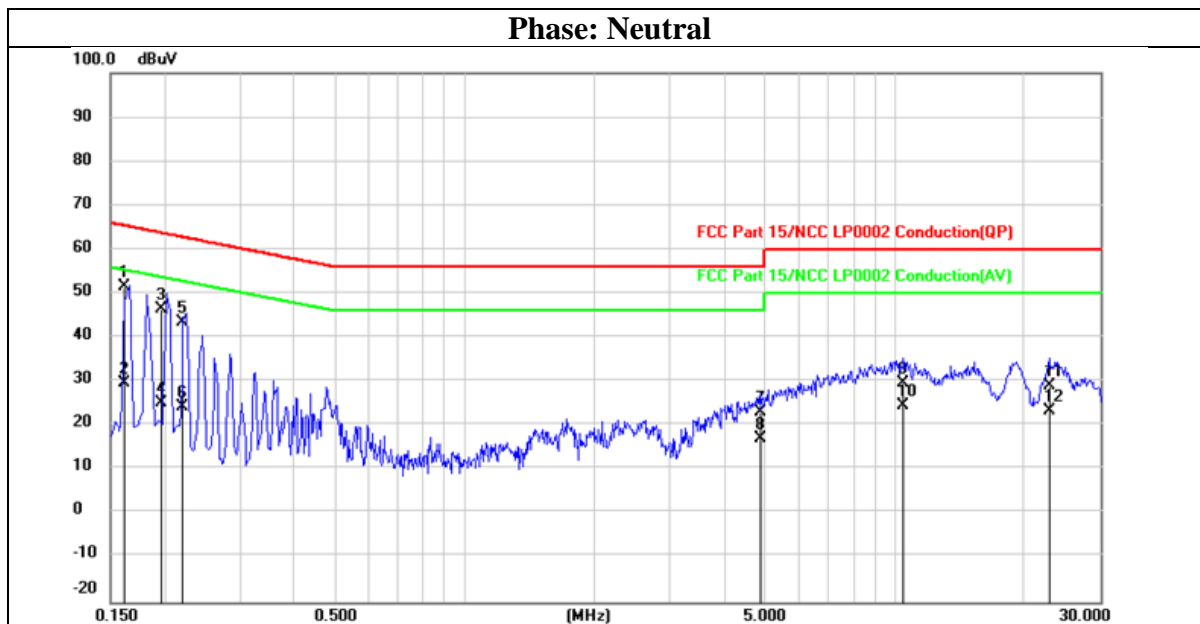
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Mode	Colocation_5G 802.11a & LE2M	Channel	2.4G 802.11a (CH116) & LE2M (CH0)
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No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1614	41.74	9.94	51.68	65.39	-13.71	QP
2	0.1614	19.81	9.94	29.75	55.39	-25.64	AVG
3	0.1977	36.65	9.94	46.59	63.71	-17.12	QP
4	0.1977	15.19	9.94	25.13	53.71	-28.58	AVG
5	0.2214	33.59	9.94	43.53	62.77	-19.24	QP
6	0.2214	14.38	9.94	24.32	52.77	-28.45	AVG
7	4.8739	13.03	10.08	23.11	56.00	-32.89	QP
8	4.8739	7.10	10.08	17.18	46.00	-28.82	AVG
9	10.4366	19.46	10.25	29.71	60.00	-30.29	QP
10	10.4366	14.21	10.25	24.46	50.00	-25.54	AVG
11	22.9076	18.42	10.60	29.02	60.00	-30.98	QP
12	22.9076	12.66	10.60	23.26	50.00	-26.74	AVG

END OF REPORT

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