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Summary of Test Result

Conformance Test Specifications			
Report Clause	Ref. Std. Clause	Description	Result
1.1.2	15.203	Antenna Requirement	Complied
3.1	15.207	AC Power-line Conducted Emissions	Complied
3.2	15.407(a)	Emission Bandwidth	Complied
3.3	15.407(a)	Maximum Conducted Output Power	Complied
3.4	15.407(a)	Peak Power Spectral Density	Complied
3.5	15.407(b)	Unwanted Emissions	Complied
3.6	15.407(g)	Frequency Stability	Complied

1 General Description

1.1 Information

1.1.1 RF General Information

Frequency Range (MHz)	IEEE Std. 802.11	Ch. Frequency (MHz)	Channel Number
5150-5250	n (HT20), ac (VHT20)	5180-5240	36-48 [4]
5725-5850		5745-5825	149-165 [5]
5150-5250	n (HT40), ac (VHT40)	5190-5230	38-46 [2]
5725-5850		5755-5795	151-159 [2]
5150-5250	ac (VHT80)	5210	42 [1]
5725-5850		5775	155 [1]

Band	Mode	BWch (MHz)	Nant
5.2G	HT20	20	4
5.2G	HT20,BF	20	4
5.2G	VHT20	20	4
5.2G	VHT20,BF	20	4
5.2G	HT40	40	4
5.2G	HT40,BF	40	4
5.2G	VHT40	40	4
5.2G	VHT40,BF	40	4
5.2G	VHT80	80	4
5.2G	VHT80,BF	80	4
5.8G	HT20	20	4
5.8G	HT20,BF	20	4
5.8G	VHT20	20</	

Note:

- ♦ 5.2G/5.2G-I(IC) is the 5.2GHz Band (5.15-5.25GHz).
- ♦ 5.8G/5.8G-I(IC) is the 5.8GHz Band (5.725-5.850GHz).
- ♦ 11n HT20 and HT40 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.
- ♦ VHT20, VHT40 and VHT80 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM modulation.
- ♦ BWch is the nominal channel bandwidth.
- ♦ Nss-Min is the minimum number of spatial streams.
- ♦ Nant is the number of outputs. e.g., 2(2,3) means have 2 outputs for port 2 and port 3. 2 means have 2 outputs for port 1 and port 2.

For 5GHz WLAN function:

For IEEE 802.11n/ac mode (4TX/4RX)

Chain 3, Chain 4, Chain 5 and Chain 6 can be used as transmitting/receiving antenna.

Chain 3, Chain 4, Chain 5 and Chain 6 could transmit/receive simultaneously.

For Zigbee function:

For Zigbee mode (1TX/1RX)

The EUT supports the antenna with TX and RX diversity functions.

Both Chain 7 and Chain 8 support transmit and receive functions, but only one of them will be used at one time.

The Chain 8 generated the worst case, so it was selected to test and record in the report.

1.1.3 Mode Test Duty Cycle

For 4T1S

Mode	DC	T(s)	VBW(Hz) $\geq 1/T$
VHT20	0.995	n/a (DC $\geq$ 0.98)	n/a (DC $\geq$ 0.98)
VHT20,BF	0.997	n/a (DC $\geq$ 0.98)	n/a (DC $\geq$ 0.98)
VHT40	0.995	n/a (DC $\geq$ 0.98)	n/a (DC $\geq$ 0.98)
VHT40,BF	0.938	2.788m	1k
VHT80	0.986	n/a (DC $\geq$ 0.98)	n/a (DC $\geq$ 0.98)
VHT80,BF	0.973	4.615m	300

For 4T2S

2 Test Configuration of EUT

2.1 Test Channel Mode

For 4T1S

Band	Mode	BWch (MHz)	Nss-Min	Nant	Ch. (MHz)	Range	Power Setting
5.2G	VHT20	20	1,(M0)	4	5180	L	23
5.2G	VHT20	20	1,(M0)	4	5200	M	23
5.2G	VHT20	20	1,(M0)	4	5240	H	23
5.8G	VHT20	20	1,(M0)	4	5745	L	23
5.8G	VHT20	20	1,(M0)	4	5785	M	23
5.8G	VHT20	20	1,(M0)	4	5825	H	23
5.2G	VHT40	40	1,(M0)	4	5190	L	19
5.2G	VHT40	40	1,(M0)	4	5230	H	23
5.8G	VHT40	40	1,(M0)	4	5755	L	23
5.8G	VHT40	40	1,(M0)	4	5795	H	23
5.2G	VHT80	80	1,(M0)	4	5210	S	17
5.8G	VHT80	80	1,(M0)	4	5775	S	23
5.2G	VHT20,BF	20	1,(M0)	4	5180	L	22
5.2G	VHT20,BF	20	1,(M0)				

The Worst Case Mode for Following Conformance Tests	
Tests Item	Unwanted Emissions
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.
Operating Mode < 1GHz	CTX
1	EUT in Y axis - Zigbee function
2	EUT in Y axis - WLAN 2.4G function
3	EUT in Y axis - WLAN 5G function
For operating mode 2 is the worst case and it was record in this test report.	
Operating Mode > 1GHz	CTX
For non-beamforming mode:	
1	EUT in Y axis for 4T1S
For beamforming mode:	
1	EUT in Y axis for 4T1S
2	EUT in Y axis for 4T2S

The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis
Operating Mode	
1	WLAN 2.4GHz function + WLAN 5GHz function + Zigbee function
Refer to Sporton Test Report No.: FA602141 for Co-location RF Exposure Evaluation.	

2.4 Accessories

Accessories			
Equipment Name	Brand Name	Model Name	Rating
AC Adapter	DIRECTV	EPS17R0-15	INPUT: 120V~1.8A 60Hz OUTPUT: 25.2V-2.86A 72W
Other			
Equipment Name	Brand Name	Model Name	Remark
Hard Drive	SEAGATE	1ET64-671	2TB

2.5 Support Equipment

For Test Site No: CO01-CB

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
1	NB	DELL	E6430	DoC
2	Flash disk3.0	ADATA	C103	DoC
3	SIM Card	DIRECTV	NA	DoC

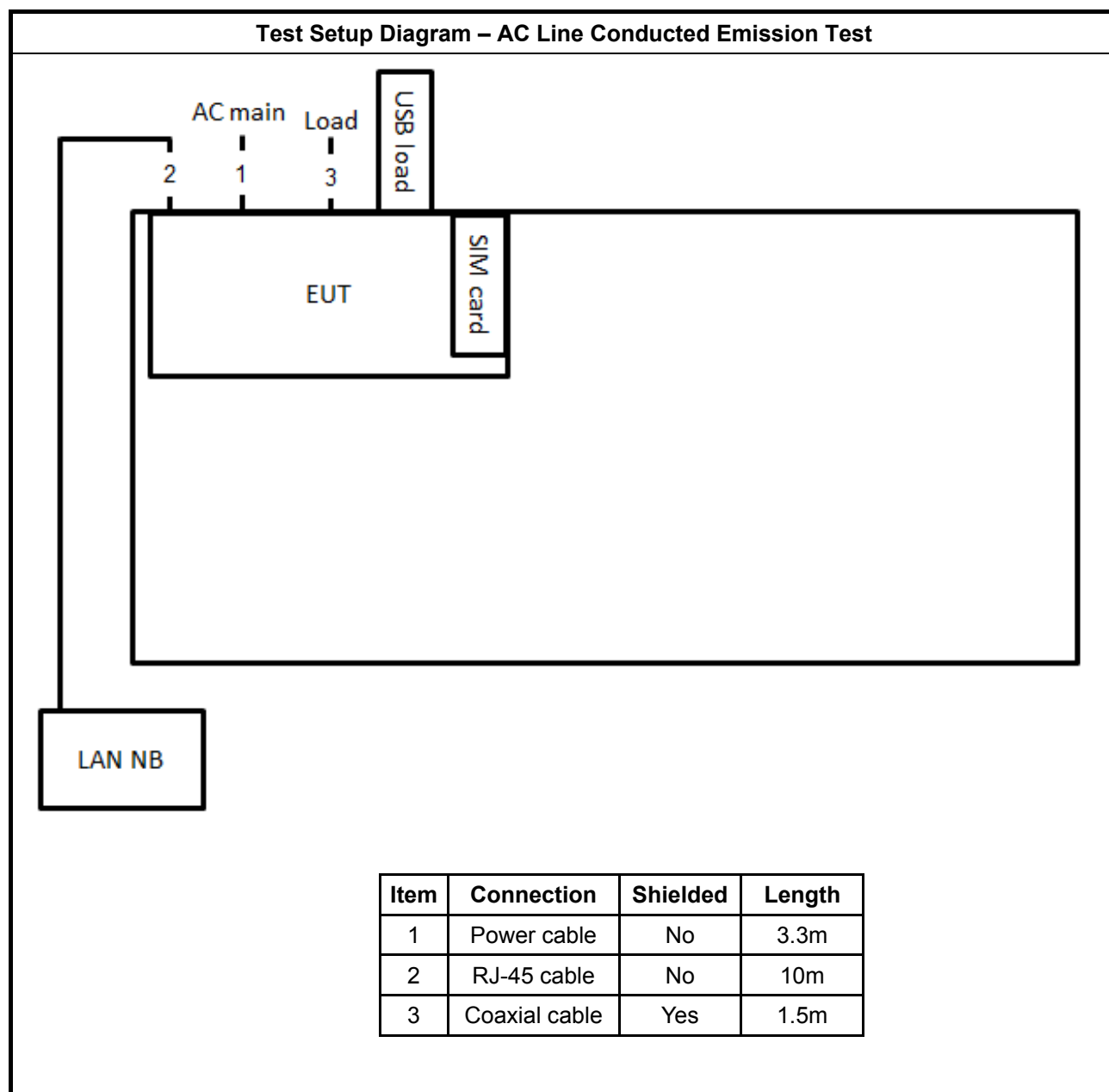
For Test Site No: 03CH01-CB (above 1GHz)
For non-beamforming mode

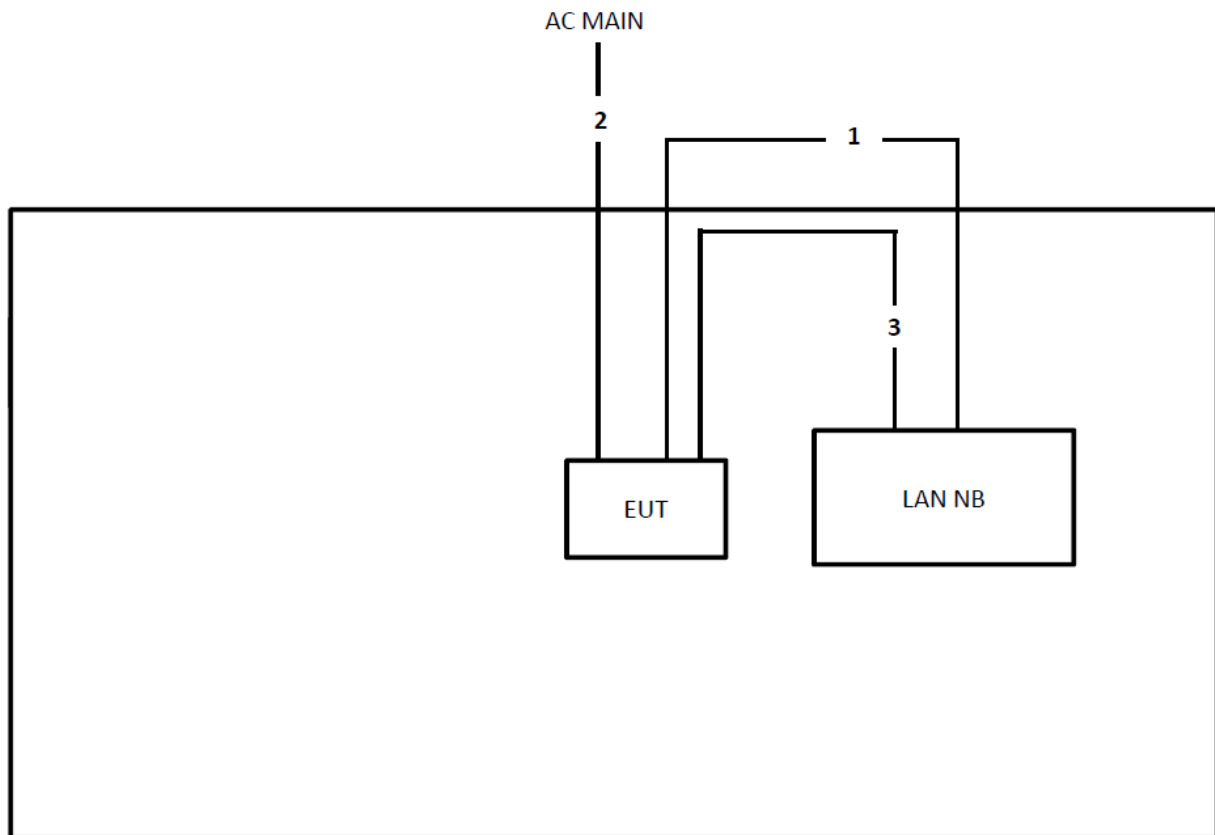
Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
1	NB	DELL	E4300	DoC

For beamforming mode

Support Equipment				

2.6 Test Setup Diagram



For non-beamforming mode
Test Setup Diagram - Radiated Test > 1GHz


Item	Connection	Shielded	Length
1	RJ-45 cable	No	3m
2	Power cable	No	3.3m
3	Console cable	Yes	2.1m

