FCC RF EXPOSURE REPORT

FCC ID: 2AG7N-MA-WIFI-AZ-V1

Project No.	**: 1512C237**
Equipment	**: MA_WiFi**
Model	**: MA_WiFi**
Applicant	**: ST Electronics (Info-Security) Pte Ltd**
Address	**: 100 Jurong East Street 21 ST Electronics Jurong East Building Singapore 609602**
According:	**: FCC Guidelines for Human Exposure IEEE C95.1**

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MPE CALCULATION METHOD:

Calculation Method of RF Safety Distance:

$$S = \frac{PG}{4\pi r^2} = \frac{EIRP}{4\pi r^2}$$

where:
S = power density
P = power input to the antenna
G = power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna

Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	WALSIN	ST MA_WIFI(AZ)	Chip	N/A	4
2	WALSIN	ST MA_WIFI(AZ)	Chip	N/A	4

Note:
1. The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and receivers (2T2R), all transmit signals are completely uncorrelated, then, Direction gain = GANT, that is Directional gain=4.
2. ANT 1 for 1TX was found to be the worst case and recorded.

2.4G:

Operating Mode / TX Mode	1TX	2TX
802.11b	V (ANT 1)	-
802.11g	V (ANT 1)	-
802.11n(20MHz)	-	V (ANT 1 + ANT 2)
802.11n(40MHz)	-	V (ANT 1 + ANT 2)

5G:

Operating Mode / TX Mode	1TX	2TX
802.11a	V (ANT 1)	-
802.11n(20MHz)	-	V (ANT 1+ANT 2)
802.11n(40MHz)	-	V (ANT 1+ANT 2)

TEST RESULTS

For 2.4G:

EUT：	MA_WiFi	Model Name :	MA_WiFi
Temperature：	25 ℃	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode ：	TX B MODE /CH01, CH06, CH11		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm^2)	Limit of Power Density (S) (mW/cm^2)	Test Result
4	2.5119	15.32	34.0408	0.01701964	1	Complies
4	2.5119	14.82	30.3389	0.01516877	1	Complies
4	2.5119	14.69	29.4442	0.01472144	1	Complies

EUT：	MA_WiFi	Model Name :	MA_WiFi
Temperature：	25 ℃	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode ：	TX G MODE /CH01, CH06, CH11		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm^2)	Limit of Power Density (S) (mW/cm^2)	Test Result
4	2.5119	17.24	52.9663	0.02648197	1	Complies
4	2.5119	16.69	46.6659	0.02333191	1	Complies
4	2.5119	17.34	54.2001	0.02709882	1	Complies

EUT：	MA_WiFi	Model Name :	MA_WiFi
Temperature:	25 ℃	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX N-20M MODE_ Total /CH01, CH06, CH11		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm^2)	Limit of Power Density (S) (mW/cm^2)	Test Result
4	2.5119	19.61	91.4113	0.04570360	1	Complies
4	2.5119	19.51	89.3305	0.04466325	1	Complies
4	2.5119	18.34	68.2339	0.03411539	1	Complies

EUT：	MA_WiFi	Model Name :	MA_WiFi
Temperature:	25 ℃	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX N-40M MODE_Total /CH03, CH06, CH09		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm^2)	Limit of Power Density (S) (mW/cm^2)	Test Result
4	2.5119	18.76	75.1623	0.03757945	1	Complies
4	2.5119	18.12	64.8634	0.03243026	1	Complies
4	2.5119	17.63	57.9429	0.02897013	1	Complies

For 5G UNII-1:

EUT：	MA_WiFi	Model Name :	MA_WiFi
Temperature:	25 ℃	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX A MODE_ Total /CH36, CH40, CH48		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm^2)	Limit of Power Density (S) (mW/cm^2)	Test Result
4	2.5119	13.79	23.9332	0.01196604	1	Complies
4	2.5119	13.77	23.8232	0.01191106	1	Complies
4	2.5119	13.84	24.2103	0.01210460	1	Complies

EUT：	MA_WiFi	Model Name :	MA_WiFi
Temperature:	25 ℃	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX N20 MODE_Total / CH36, CH40, CH48		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm^2)	Limit of Power Density (S) (mW/cm^2)	Test Result
4	2.5119	13.40	21.8776	0.01093831	1	Complies
4	2.5119	13.33	21.5278	0.01076342	1	Complies
4	2.5119	13.42	21.9786	0.01098880	1	Complies

EUT：	MA_WiFi	Model Name :	MA_WiFi
Temperature:	25 ℃	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX N40 MODE_ Total / CH38, CH46		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm^2)	Limit of Power Density (S) (mW/cm^2)	Test Result
4	2.5119	12.73	18.7499	0.00937455	1	Complies
4	2.5119	12.85	19.2752	0.00963719	1	Complies

For 5G UNII-3:

EUT：	MA_WiFi	Model Name :	MA_WiFi
Temperature:	25 ℃	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX A MODE_Total /CH149, CH157, CH165		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm^2)	Limit of Power Density (S) (mW/cm^2)	Test Result
4	2.5119	14.04	25.3513	0.01267507	1	Complies
4	2.5119	14.09	25.6448	0.01282184	1	Complies
4	2.5119	13.82	24.0991	0.01204898	1	Complies

EUT：	MA_WiFi	Model Name :	MA_WiFi
Temperature:	25 ℃	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX N20 MODE_Total /CH149, CH157, CH165		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm^2)	Limit of Power Density (S) (mW/cm^2)	Test Result
4	2.5119	13.12	20.5116	0.01025535	1	Complies
4	2.5119	13.70	23.4423	0.01172061	1	Complies
4	2.5119	13.93	24.7172	0.01235806	1	Complies

EUT：	MA_WiFi	Model Name :	MA_WiFi
Temperature:	25 ℃	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX N40 MODE_Total /CH151, CH159		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm^2)	Limit of Power Density (S) (mW/cm^2)	Test Result
4	2.5119	13.04	20.1372	0.01006817	1	Complies
4	2.5119	13.08	20.3236	0.01016133	1	Complies

Note: the calculated distance is 20 cm.