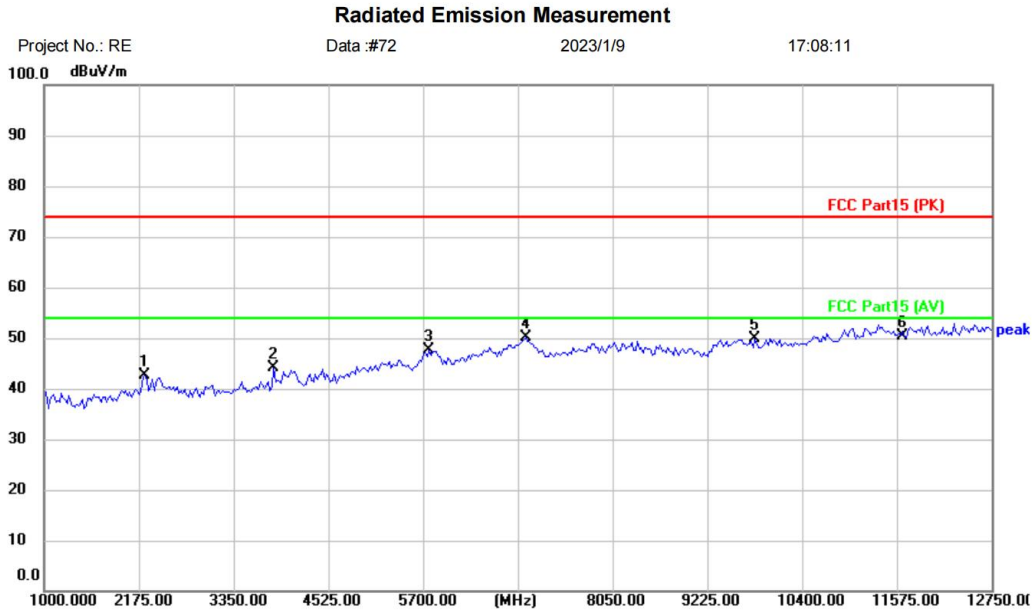
[TestMode: TX band4 a 5825 channel]; [Polarity: Vertical]



Site
Limit: FCC Part15 (PK)
EUT: Set-Top Box
M/N: MAG540w3
Mode: 5G band4 TX-H
Note:

Polarization: ***Vertical***
Power:

Temperature: (C)
Humidity: %RH

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment
1		2245.500	46.17	-3.66	42.51	74.00	-31.49	peak	
2		3843.500	44.68	-0.46	44.22	74.00	-29.78	peak	
3		5770.500	39.10	8.53	47.63	74.00	-26.37	peak	
4		6969.000	39.79	10.27	50.06	74.00	-23.94	peak	
5		9812.500	38.35	11.41	49.76	74.00	-24.24	peak	
6	*	11650.000	36.61	13.74	50.35	74.00	-23.65	peak	

*:Maximum data x:Over limit !:over margin 〈Reference Only

Test Result: Pass

Remark:

1. Final Level =Receiver Read level + Correct factor
2. Correct factor = Antenna Factor + Cable Loss – Preamplifier Factor
3. The emission levels of other frequencies are very lower than the limit and not show in test report.

BlueAsia

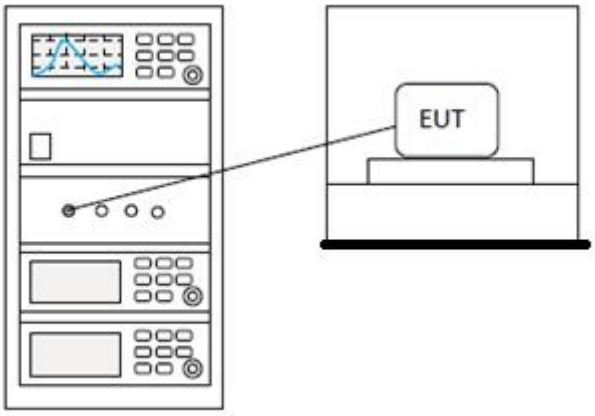
13 DFS: CHANNEL CLOSING TRANSMISSION TIME

Test Standard	47 CFR Part 15, Subpart E 15.407
Test Method	KDB 905462 D02 Section 7.8.3
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Jozu
Temperature	25℃
Humidity	60%

13.1 LIMITS

Limit:	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period(should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst. It is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required facilitating a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions)

13.2 BLOCK DIAGRAM OF TEST SETUP



13.3 PROCEDURE

1) The radar pulse generator is setup to provide a pulse at frequency that the master and client are operating. A type 0 radar pulse with a 1us pulse width and a 1428us PRI is used for the testing.
2) The vector signal generator is adjusted to provide the radar burst (18 pulses) at the level of approximately -61dBm at the antenna port of the master device.
3) A trigger is provided from the pulse generator to the DFS monitoring system in order to capture the traffic and the occurrence of the radar pulse.
4) EUT will associate with the master at channel. The file ¡°iperf.exe¡± specified by the FCC is streamed

from the PC 2 through the master and the client device to the PC 1 and played in full motion video using Media Player Classic Ver. 6.4.8.6 in order to properly load the network for the entire period of the test.
5) When radar burst with a level equal to the DFS Detection Threshold +1dB is generated on the operating channel of the U-NII device. At time T0 the radar waveform generator sends a burst of pulse of the radar waveform at Detection Threshold +1dB.
6) Observe the transmissions of the EUT at the end of the radar Burst on the Operating Channel. Measure and record the transmissions from the UUT during the observation time (Channel Move Time). One 15 seconds plot is reported for the Short Pulse Radar Type 0. The plot for the Short Pulse Radar Types start at the end of the radar burst. The Channel Move Time will be calculated based on the zoom in 600ms plot of the Short Pulse Radar Type.
7) Measurement of the aggregate duration of the Channel Closed Transmission Time method. With the spectrum analyzer set to zero span tuned to the center frequency of the EUT operating channel at the radar simulated frequency, peak detection, and max hold, the dwell time per bin is given by: Dwell (0.3ms) =S (12000ms) / B (4000); where Dwell is the dwell time per spectrum analyzer sampling bin, S is sweep time and B is the number of spectrum analyzer sampling bins. An upper bound of the aggregate duration of the intermittent control signals of Channel Closing Transmission Time is calculated by: C (ms)= N X Dwell (0.3ms); where C is the Closing Time, N is the number of spectrum analyzer sampling bins (intermittent control signals) showing a U-NII transmission and Dwell is the dwell time per bin.
8) Measurement the EUT for more than 30 minutes following the channel move time to verify that no transmission or beacons occur on this channel.

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13.4 TEST DATA

Pass: Please Refer To DFS Report: BLA-EMC-202210-A6206

BlueAsia

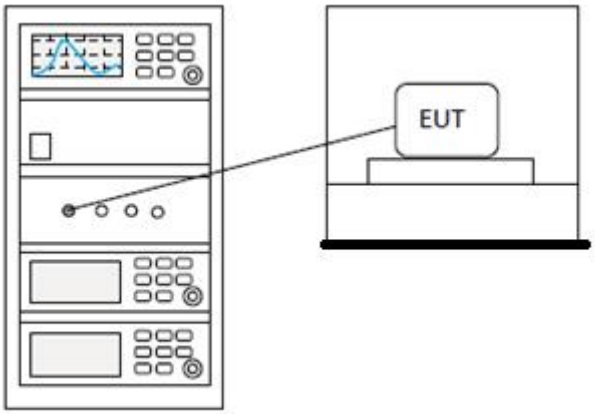
14 DFS: NON-OCCUPANCY PERIOD

Test Standard	47 CFR Part 15, Subpart E 15.407
Test Method	KDB 905462 D02 Section 7.8.3
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Jozu
Temperature	25℃
Humidity	60%

14.1 LIMITS

Limit:	Minimum 30 minutes

14.2 BLOCK DIAGRAM OF TEST SETUP



14.3 PROCEDURE

1) The radar pulse generator is setup to provide a pulse at frequency that the master and client are operating. A type 0 radar pulse with a 1us pulse width and a 1428us PRI is used for the testing.
2) The vector signal generator is adjusted to provide the radar burst (18 pulses) at the level of approximately -61dBm at the antenna port of the master device.
3) A trigger is provided from the pulse generator to the DFS monitoring system in order to capture the traffic and the occurrence of the radar pulse.
4) EUT will associate with the master at channel. The file ¡°iperf.exe¡± specified by the FCC is streamed from the PC 2 through the master and the client device to the PC 1 and played in full motion video using Media Player Classic Ver. 6.4.8.6 in order to properly load the network for the entire period of the test.
5) When radar burst with a level equal to the DFS Detection Threshold +1dB is generated on the operating channel of the U-NII device. At time T0 the radar waveform generator sends a burst of pulse of the radar waveform at Detection Threshold +1dB.
6) Observe the transmissions of the EUT at the end of the radar Burst on the Operating Channel.

Measure and record the transmissions from the UUT during the observation time (Channel Move Time). One 15 seconds plot is reported for the Short Pulse Radar Type 0. The plot for the Short Pulse Radar Types start at the end of the radar burst. The Channel Move Time will be calculated based on the zoom in 600ms plot of the Short Pulse Radar Type.

7) Measurement of the aggregate duration of the Channel Closed Transmission Time method. With the spectrum analyzer set to zero span tuned to the center frequency of the EUT operating channel at the radar simulated frequency, peak detection, and max hold, the dwell time per bin is given by: Dwell (0.3ms) =S (12000ms) / B (4000); where Dwell is the dwell time per spectrum analyzer sampling bin, S is sweep time and B is the number of spectrum analyzer sampling bins. An upper bound of the aggregate duration of the intermittent control signals of Channel Closing Transmission Time is calculated by: C (ms)= N X Dwell (0.3ms); where C is the Closing Time, N is the number of spectrum analyzer sampling bins (intermittent control signals) showing a U-NII transmission and Dwell is the dwell time per bin.

8) Measurement the EUT for more than 30 minutes following the channel move time to verify that no transmission or beacons occur on this channel.

BlueAsia

14.4 TEST DATA

Pass: Please Refer To DFS Report: BLA-EMC-202210-A6206

BlueAsia

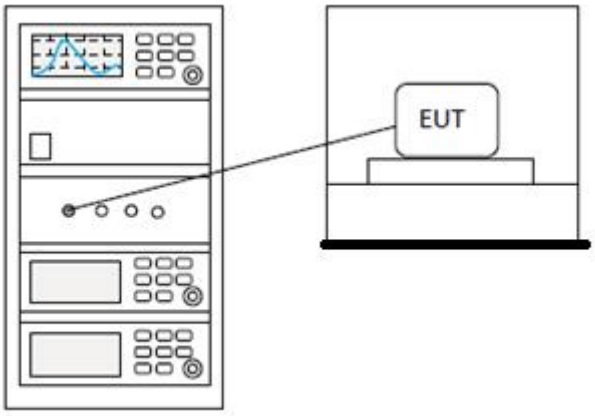
15 PEAK POWER SPECTRUM DENSITY

Test Standard	47 CFR Part 15, Subpart E 15.407
Test Method	KDB 789033 D02 II F
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Jozu
Temperature	25℃
Humidity	60%

15.1 LIMITS

Frequency band(MHz)	Limit
5150-5250	≤17dBm in 1MHz for master device
	≤11dBm in 1MHz for client device
5250-5350	≤11dBm in 1MHz for client device
5470-5725	≤11dBm in 1MHz for client device
5725-5850	≤30dBm in 500 kHz
Remark:	The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test.

15.2 BLOCK DIAGRAM OF TEST SETUP



BlueAsia

15.3 TEST DATA

Pass: Please Refer To Appendix: Appendix1 For Details

BlueAsia

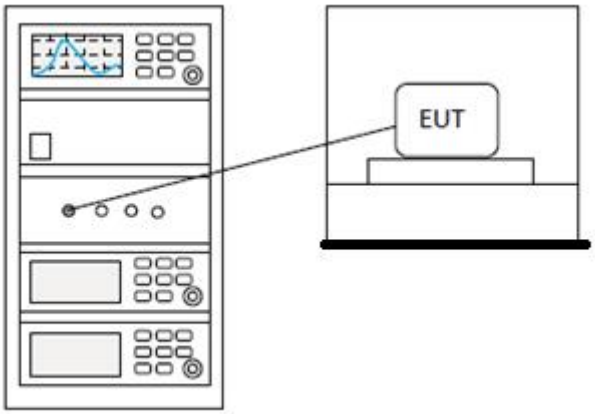
16 MAXIMUM CONDUCTED OUTPUT POWER

Test Standard	47 CFR Part 15, Subpart E 15.407
Test Method	KDB 789033 D02 II E
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Jozu
Temperature	25℃
Humidity	60%

16.1 LIMITS

Frequency band(MHz)	Limit
5150-5250	≤1W(30dBm) for master device
	≤250mW(24dBm) for client device
5250-5350	≤250mW(24dBm) for client device or 11dBm+10logB*
5470-5725	≤250mW(24dBm) for client device or 11dBm+10logB*
5725-5850	≤1W(30dBm)
Remark:	* Where B is the 26dB emission bandwidth in MHz. The maximum conducted output power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage.

16.2 BLOCK DIAGRAM OF TEST SETUP



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16.3 TEST DATA

Pass: Please Refer To Appendix: Appendix1 For Details

BlueAsia

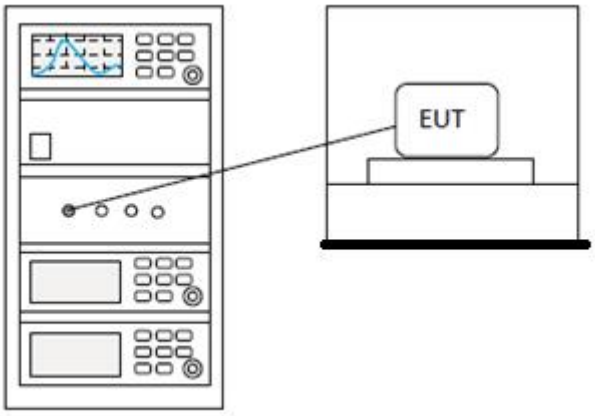
17 MINIMUM 6 DB BANDWIDTH (5.725-5.85 GHZ BAND)

Test Standard	47 CFR Part 15, Subpart E 15.407
Test Method	KDB 789033 D02 II C 2
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Jozu
Temperature	25℃
Humidity	60%

17.1 LIMITS

Limit:	≥500 kHz

17.2 BLOCK DIAGRAM OF TEST SETUP



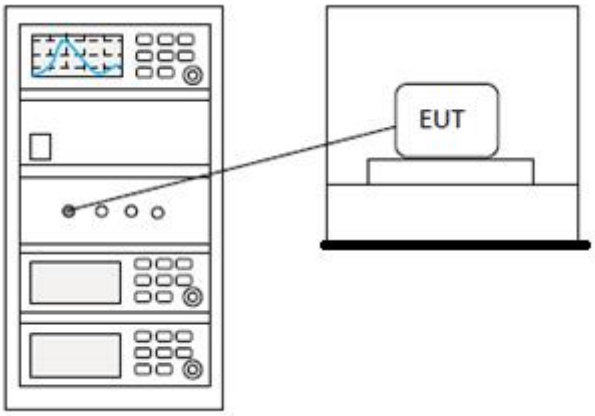
17.3 TEST DATA

Pass: Please Refer To Appendix: Appendix1 For Details

18 26DB EMISSION BANDWIDTH

Test Standard	47 CFR Part 15, Subpart E 15.407
Test Method	KDB 789033 D02 II C 1
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Jozu
Temperature	25℃
Humidity	60%

18.1 BLOCK DIAGRAM OF TEST SETUP



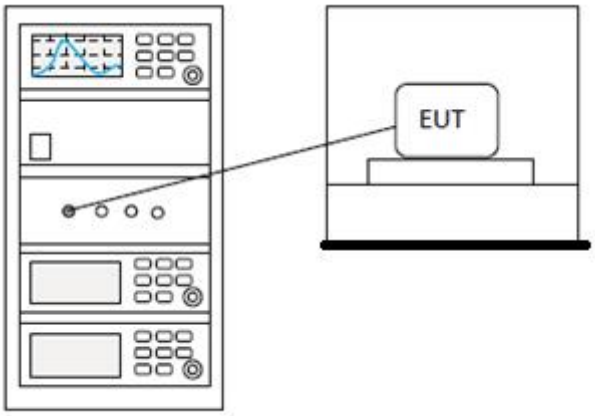
18.2 TEST DATA

Pass: Please Refer To Appendix: Appendix1 For Details

19 99% BANDWIDTH

Test Standard	47 CFR Part 15, Subpart E 15.407
Test Method	KDB 789033 II D
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Jozu
Temperature	25℃
Humidity	60%

19.1 BLOCK DIAGRAM OF TEST SETUP



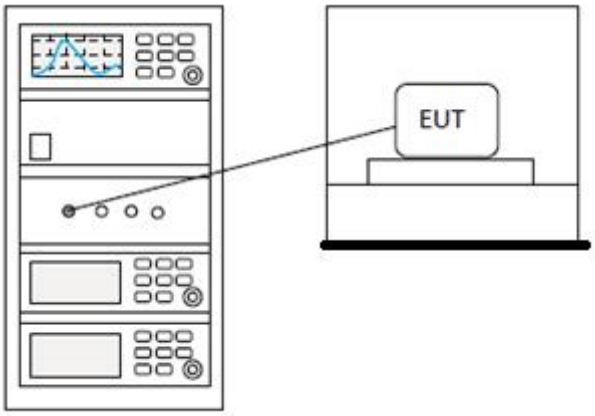
19.2 TEST DATA

Pass: Please Refer To Appendix: Appendix1 For Details

20 DUTY CYCLE

Test Standard	47 CFR Part 15, Subpart E 15.407
Test Method	KDB 789033 II B 1
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Jozu
Temperature	25℃
Humidity	60%

20.1 BLOCK DIAGRAM OF TEST SETUP



20.2 TEST DATA

Pass: Please Refer To Appendix: Appendix1 For Details

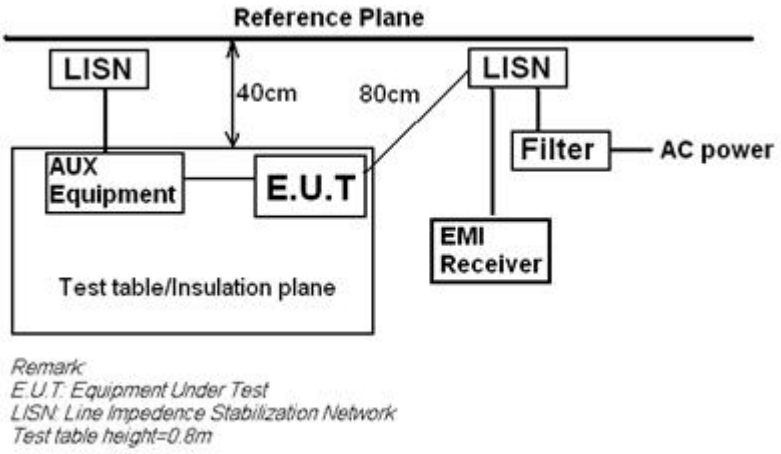
21 CONDUCTED EMISSIONS AT AC POWER LINE (150KHZ-30MHZ)

Test Standard	47 CFR Part 15, Subpart E 15.407
Test Method	ANSI C63.10 (2013) Section 6.2
Test Mode (Pre-Scan)	Transmitting mode
Test Mode (Final Test)	Transmitting mode
Tester	Jozu
Temperature	25℃
Humidity	60%

21.1 LIMITS

Frequency of emission(MHz)	Conducted limit(dBμV)	
	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.		

21.2 BLOCK DIAGRAM OF TEST SETUP



21.3 PROCEDURE

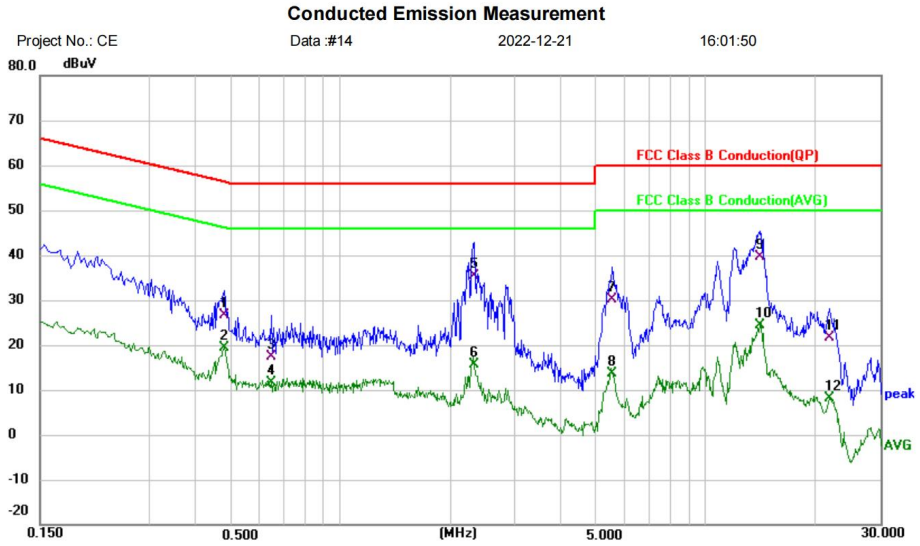
1) The mains terminal disturbance voltage test was conducted in a shielded room.
2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50ohm/50H + 5ohm linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.

3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,
4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.
5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.
Remark: LISN=Read Level+ Cable Loss+ LISN Factor

BlueAsia

21.4 TEST DATA

[TestMode: Transmitting mode]; [Line: Nutral] ;[Power:AC120V/60Hz]



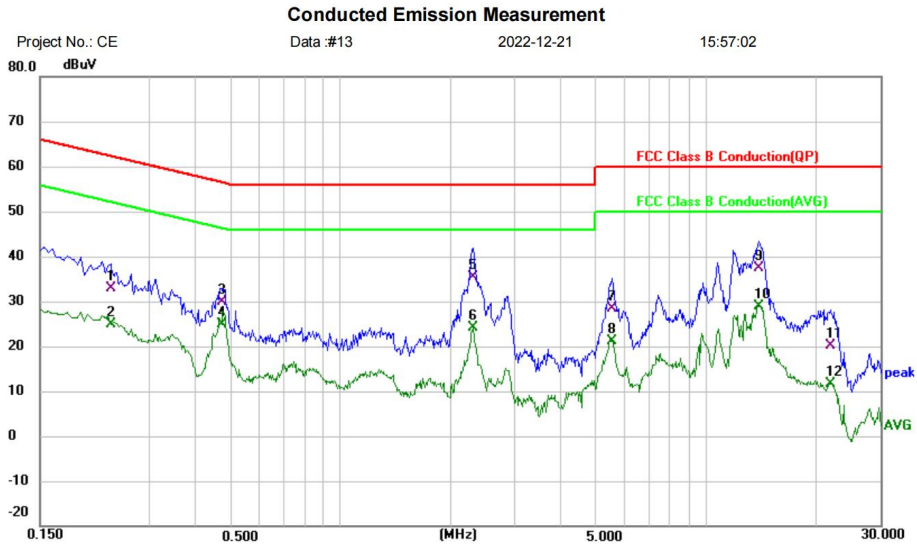
Site
Phase: N
Temperature: (C)
Limit: FCC Class B Conduction(QP)
Power:
Humidity: %RH
EUT: Set-Top Box
M/N: MAG540w3
Mode: 5G TX mode
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.4780	26.34	0.41	26.75	56.37	-29.62	QP	
2		0.4780	19.01	0.41	19.42	46.37	-26.95	AVG	
3		0.6460	17.03	0.34	17.37	56.00	-38.63	QP	
4		0.6460	11.33	0.34	11.67	46.00	-34.33	AVG	
5		2.3140	35.02	0.26	35.28	56.00	-20.72	QP	
6		2.3140	15.33	0.26	15.59	46.00	-30.41	AVG	
7		5.5420	29.67	0.34	30.01	60.00	-29.99	QP	
8		5.5420	13.23	0.34	13.57	50.00	-36.43	AVG	
9	*	14.0660	39.24	0.42	39.66	60.00	-20.34	QP	
10		14.0660	23.94	0.42	24.36	50.00	-25.64	AVG	
11		21.7300	21.15	0.45	21.60	60.00	-38.40	QP	
12		21.7300	7.80	0.45	8.25	50.00	-41.75	AVG	

*:Maximum data x:Over limit !:over margin 〈Reference Only

Test Result: Pass

[TestMode: Transmitting mode]; [Line: Line] ;[Power:AC120V/60Hz]



Site
Phase: L1
Temperature: (C)
Limit: FCC Class B Conduction(QP)
Power:
Humidity: %RH
EUT: Set-Top Box
M/N: MAG540w3
Mode: 5G TX mode
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.2340	32.15	0.80	32.95	62.31	-29.36	QP	
2		0.2340	24.14	0.80	24.94	52.31	-27.37	AVG	
3		0.4700	29.59	0.35	29.94	56.51	-26.57	QP	
4		0.4700	24.49	0.35	24.84	46.51	-21.67	AVG	
5	*	2.2980	35.26	0.23	35.49	56.00	-20.51	QP	
6		2.2980	23.97	0.23	24.20	46.00	-21.80	AVG	
7		5.5260	27.98	0.31	28.29	60.00	-31.71	QP	
8		5.5260	20.76	0.31	21.07	50.00	-28.93	AVG	
9		13.9540	37.18	0.31	37.49	60.00	-22.51	QP	
10		13.9540	28.61	0.31	28.92	50.00	-21.08	AVG	
11		21.9140	19.64	0.44	20.08	60.00	-39.92	QP	
12		21.9140	11.20	0.44	11.64	50.00	-38.36	AVG	

*:Maximum data x:Over limit !:over margin 〈Reference Only

Test Result: Pass

Notes:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Final Level =Receiver Read level + LISN Factor + Cable Loss.