

Test Report for FCC

Report Number		ESTCFC2109-003			
Applicant	Company name	ZENITH Z5			
	Address	Suite 1405,A Tower,11 Beobwon-ro 11-gil,Songpa-gu Seoul South Korea			
	Telephone	+82-10-7766-7774			
	Contact Person	Cho Jeongho			
	Factory address	Suite 1405,A Tower,11 Beobwon-ro 11-gil,Songpa-gu Seoul South Korea			
Product	Product name	Automotive Diagnostic Scan tool			
	Model No.	ZENITH Z5	Manufacturer	EZDS Co., LTD.	
	Serial No.	NONE	Country of origin	Korea	
Test date	30-Aug-21		Date of issued	7-Sep-21	
Test location	EMC Test Lab 140-16, Eongmalli-ro, Majang-myeon, Icheon-si, Gyeonggi-do, R. O. Korea				
Standard	FCC PART 15 Subpart B , ANSI C 63.4(2014)				
Test item	☒ Conducted Emission	☐ Class A	☒ Class B	Test result	OK
	☒ Radiated Emission	☐ Class A	☒ Class B	Test result	OK
Measurement facility registration number		659627			
Tested by	Test Engineer	H.H. Yeon	(Signature)		
Reviewed by	Technical Manager	J.M. Yang	(Signature)		
Abbreviation	OK, Pass = Complied, Fail = Failed, N/A = not applicable				
* Note - FCC ID : 2A2JFZENITHZ5 - This test report is not permitted to copy partly without our permission. - This test report is not related to KOLAS accreditation. - This test result is dependent on only equipment to be used. - This test result based on a single evaluation of one sample of the above mentioned.					

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1. Laboratory Information

1.1 General

This EUT (Equipment Under Test) has been shown to be capable of compliance with the applicable technical standards and is tested in accordance with the measurement procedures as indicated in this report. ESTECH Lab attests to accuracy of test data. All measurement reported herein were performed by ESTECH Co., Ltd.

ESTECH Lab assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

1.2 Test Lab.

Corporation Name : ESTECH Co., Ltd.

Head Office : Suite 1015 World Meridian II, 123 Gasan Digital 2-ro, Geumcheon-gu, Seoul 153-759, R. O. Korea

EMC Test Lab : 140-16, Eongmalli-ro, Majang-myeon, Icheon-si, Gyeonggi-do, R.O.Korea

1.3 Official Qualification(s)

MSIT : Designated in accordance with the provisions of Radio Waves Act and
International Standard ISO/IEC 17025

FCC : Designated with registration number 659627 under APECTEL MRA
between the RRA and the FCC.

VCCI : Registered in the scope of conducted and radiated measurement,
(R-20023,T-20023,G-20033 and C-20021)

2. Description of EUT

2.1 Summary of Equipment Under Test

Product	: Automotive Diagnostic Scan tool
Model Number	: ZENITH Z5
Serial Number	: NONE
Manufacturer	: EZDS Co., LTD.
Country of origin	: Korea
Sample Receipt Date	: 12-Jul-21
Rating	: DC (9 ~ 30) V EUT Battery : DC 3.8 V, 3 200 mAh
Testing Voltage	: AC 120 V, 60 Hz (AC to DC adapter is not a component and is provided for testing)
Internal Clock	: CPU 2.0 GHz and 5 825 MHz for WLAN

2.2 General descriptions of EUT

Z5 Base Unit specification

General Specification	
Category	Specifications
CPU	Octa Core Processor 2.0 GHz
Operating System	Andoroid 9
System Memory	3G / Internal 32G
External Memory	Micro SD Card
LCD	8.0 inch FHD (1920 x 1200)
Input Devices	Capacitive Touch Screen, 3 Hard Keys (Power, Volume +, Volume -)
Camera	8 megapixel auto-focus with LED flash
Sound	Loud Speackerl 1 microphone; 3.5 pi standard audio jack
Rechargeable Battery	Li-ion 3.8V 3200 mAh
Operating voltage	DC 9 ~ 30V
Sensors	Ambient Light, Proximity, Gyroscope, Accelerometer
Dimension	225 x 136 x 33 mm
Weight	800g

Connectivity

External port	USB 2.0 1ea, USB 3.0 2 ea
Network	RJ45 Ethernet, Wifi 802.11 a/b/g/n, Bluetooth 4.2

Supported Vehicle Communication Protocols

CAN (High speed, Low speed, Single), ISO-9141, ISO-9141-CARB, KWP-2000, SAE-J1708, SAE-J1587, J1850(PWM/V/PW), Melco Pull-Down
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3. Test Standards

Test Standard : FCC PART 15 Subpart B

This Standard sets out the regulations under which an intentional, unintentional, or incidental radiator may be operated without an individual license. It also contains the technical specifications, administrative requirements and other conditions relating to the marketing of Part 15 devices.

Test Method : ANSI C 63.4 (2014)

This standard sets forth uniform methods of measurement of radio-frequency (RF) signals and noise emitted from both unintentional and intentional emitters of RF energy in the frequency range 9 kHz to 40 GHz. Methods for the measurement of radiated and AC power-line conducted radio noise are covered and may be applied to any such equipment unless otherwise specified by individual equipment requirements. These methods cover measurement of certain devices that deliberately radiate energy, such as intentional emitters, but does not cover licensed transmitters. This standard is not intended for certification/approval of avionic equipment or for industrial, scientific, and medical (ISM) equipment. These methods apply to the measurement of individual units or systems comprised of multiple units.

4. Measurement Condition

4.1 EUT Operation.

– EUT was in the following mode of operation during all tests.

(MODE 1)

1. Connected EUT to Note PC, and checked the communication with EUT through the test program.
2. Played Color Bar Video continuously.
3. Performed Reading/Writing Internal/External Memory Device of EUT.
4. Connected EUT to external network and performed Sending/Receiving ping data.
5. Checked the status of the Smartphone charging.
6. MODE 1 – PC Link Mode

(MODE 2)

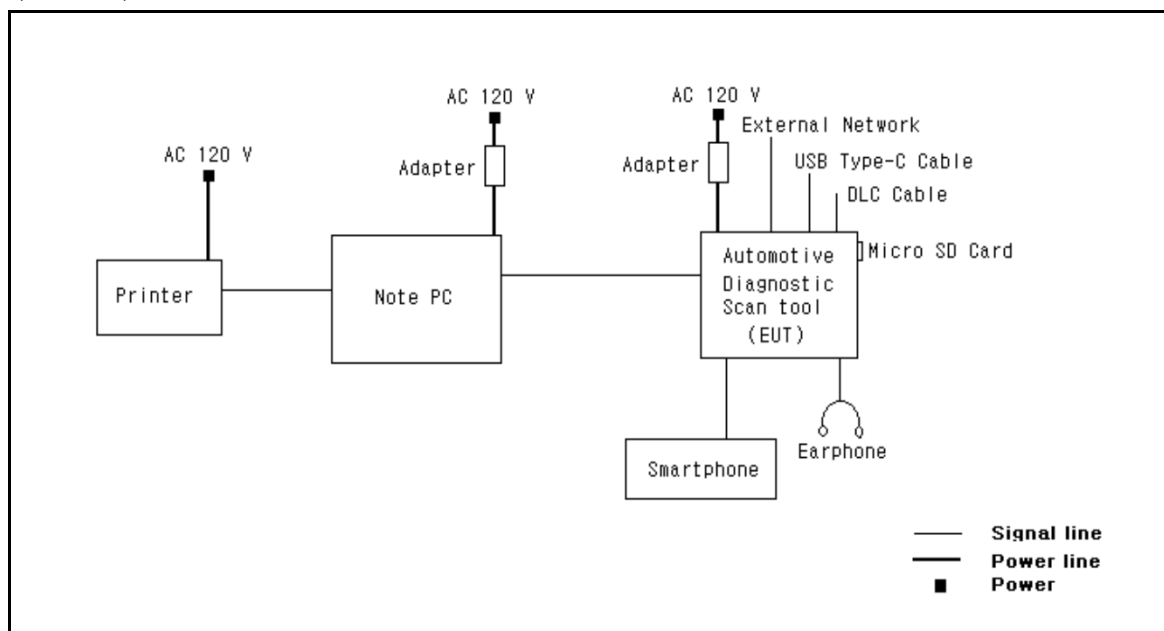
1. Played Color Bar Video continuously.
2. Performed Reading/Writing Internal/External Memory Device of EUT.
3. Connected EUT to external network and performed Sending/Receiving ping data.
4. Checked the status of the Smartphone charging.
5. Checked the communication of looped DLC cables.
6. MODE 2 – DLC Link Mode

(MODE 3)

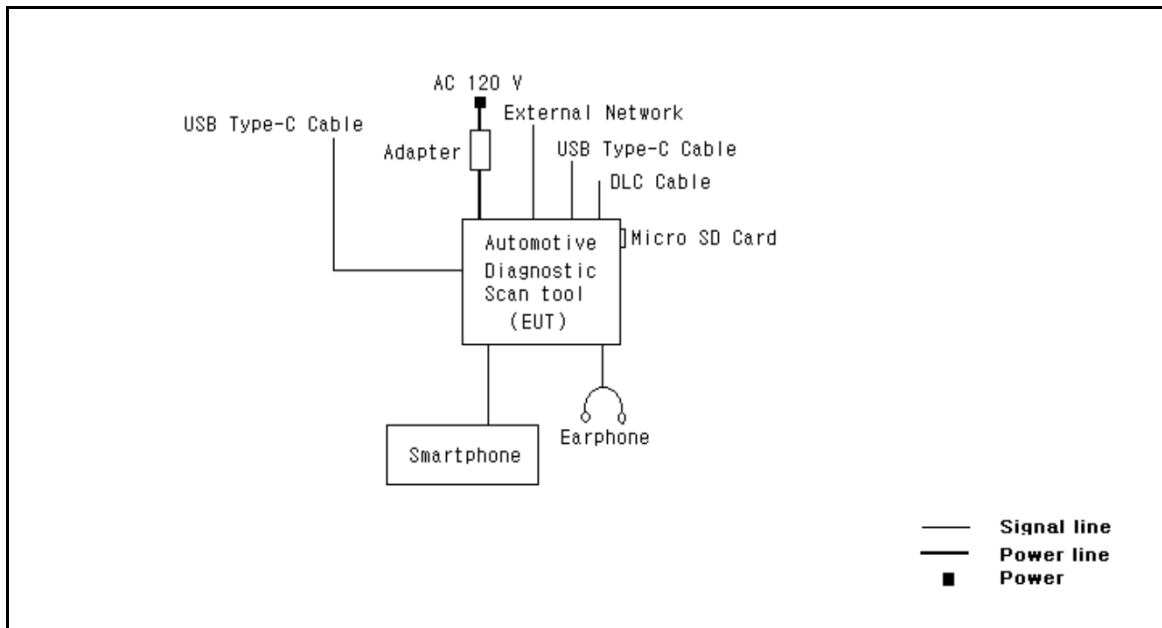
1. Played Color Bar Video continuously.
2. Performed Reading/Writing Internal/External Memory Device of EUT.
3. Checked the communication of looped DLC cables.
4. MODE 3 – Single Mode

4.2 Configuration and Peripherals

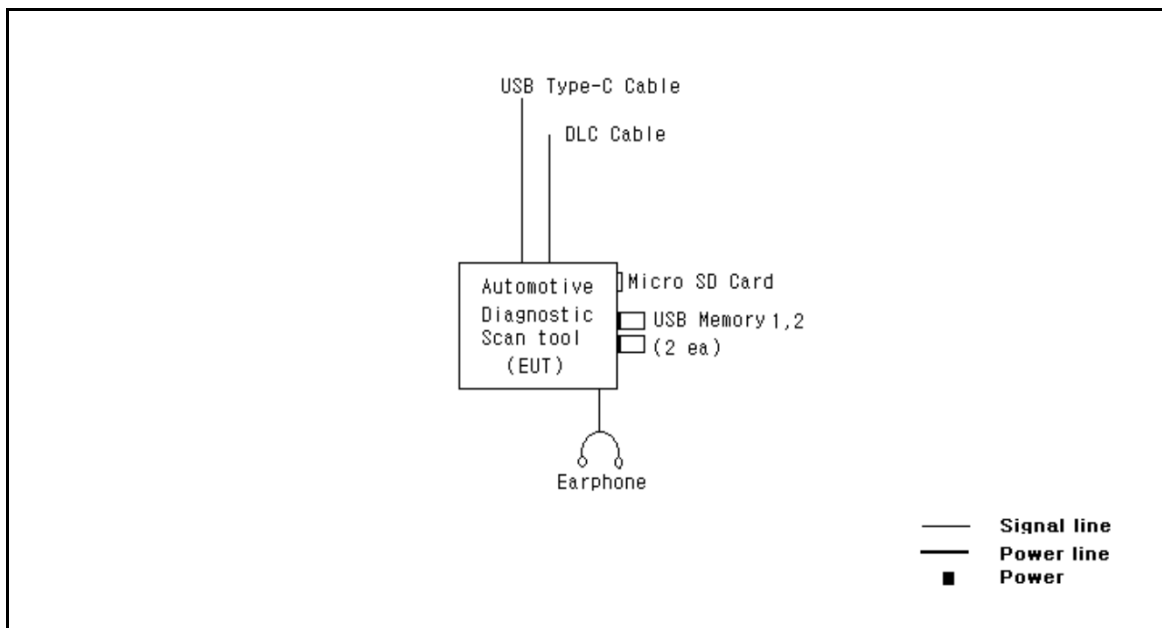
(MODE 1)



(MODE 2)



(MODE 3)



4.3 EUT and Support equipment

(MODE 1)

Equipment Name	Model Name	S/N	Manufacturer	Remark (FCC ID)
Automotive Diagnostic Scan tool	ZENITH Z5	NONE	EZDS Co., LTD.	EUT
Adapter	SK05T-1200320Z	NONE	Shenzhen Simsukian Electronics Technology Co., Ltd.	
Earphone	NONE	NONE	Apple Inc.	
Smartphone	SM-G960N	R39K203LQW	SAMSUNG	
Note PC	TP00026A	NONE	Lenovo	
Adapter	42t5292	NONE	CHICONY POWER TECHNOLOGY (SUZHOU) CO., LTD.	
Printer	K10229	NONE	CANON VIETNAM CO.,LTD.	
Micro SD Card	M203	NONE	TOSHIBA	

(MODE 2)

Equipment Name	Model Name	S/N	Manufacturer	Remark (FCC ID)
Automotive Diagnostic Scan tool	ZENITH Z5	NONE	EZDS Co., LTD.	EUT
Adapter	SK05T-1200320Z	NONE	Shenzhen Simsukian Electronics Technology Co., Ltd.	
Earphone	NONE	NONE	Apple Inc.	
Smartphone	SM-G960N	R39K203LQW	SAMSUNG	
Micro SD Card	M203	NONE	TOSHIBA	

(MODE 3)

Equipment Name	Model Name	S/N	Manufacturer	Remark (FCC ID)
Automotive Diagnostic Scan tool	ZENITH Z5	NONE	EZDS Co., LTD.	EUT
Earphone	NONE	NONE	Apple Inc.	
Micro SD Card	M203	NONE	TOSHIBA	
USB Memory 1	USM32CA1	NONE	SONY Corp.	
USB Memory 2	MUF-32BA/APC	NONE	SAMSUNG	

4.4 Cable Connecting

(MODE 1)

Start Equipment		End Equipment		Cable Standard		Remark
Name	I/O port	Name	I/O port	Length(m)	Shielded	
Automotive Diagnostic Scan tool	DC-IN	Adapter	Power	2.0	Unshielded	
Automotive Diagnostic Scan tool	LAN	External Network	LAN	20.0	Unshielded	
Automotive Diagnostic Scan tool	USB Type-C	-	-	1.0	Shielded	
Automotive Diagnostic Scan tool	DLC	-	-	1.0	Shielded	
Automotive Diagnostic Scan tool	Micro SD Card Slot	Micro SD Card	Micro SD Card Slot	-	-	
Automotive Diagnostic Scan tool	Audio	Earphone	Audio	1.0	Unshielded	
Automotive Diagnostic Scan tool	USB	Smartphone	USB Type-C	2.0	Shielded	
Automotive Diagnostic Scan tool	USB Type-C	Note PC	USB	1.0	Shielded	
Note PC	USB	Printer	USB Type-B	2.0	Shielded	
Note PC	DC-IN	Adapter	Power	2.0	Unshielded	

(MODE 2)

Start Equipment		End Equipment		Cable Standard		Remark
Name	I/O port	Name	I/O port	Length(m)	Shielded	
Automotive Diagnostic Scan tool	DC-IN	Adapter	Power	2.0	Unshielded	
Automotive Diagnostic Scan tool	LAN	External Network	LAN	20.0	Unshielded	
Automotive Diagnostic Scan tool	USB Type-C	-	-	1.0	Shielded	
Automotive Diagnostic Scan tool	DLC	-	-	1.0	Shielded	
Automotive Diagnostic Scan tool	Micro SD Card Slot	Micro SD Card	Micro SD Card Slot	-	-	
Automotive Diagnostic Scan tool	Audio	Earphone	Audio	1.0	Unshielded	
Automotive Diagnostic Scan tool	USB	Smartphone	USB Type-C	2.0	Shielded	
Automotive Diagnostic Scan tool	USB Type-C	-	-	1.0	Shielded	

(MODE 3)

Start Equipment		End Equipment		Cable Standard		Remark
Name	I/O port	Name	I/O port	Length(m)	Shielded	
Automotive Diagnostic Scan tool	USB Type-C	-	-	1.0	Shielded	
Automotive Diagnostic Scan tool	DLC	-	-	1.0	Shielded	
Automotive Diagnostic Scan tool	Micro SD Card Slot	Micro SD Card	Micro SD Card Slot	-	-	
Automotive Diagnostic Scan tool	Audio	Earphone	Audio	1.0	Unshielded	
Automotive Diagnostic Scan tool	USB Type-C	USB Memory 1	USB Type-C	-	-	
Automotive Diagnostic Scan tool	USB	USB Memory 2	USB	-	-	

5. Measurement of radiated disturbance

Above 30 MHz Electric Field strength was measured in accordance with FCC PART 15 Subpart B. The test setup was made according to ANSI C 63.4 (2014) on an 10 m semi-anechoic chamber, which allows a 3 m distance measurement. The EUT was placed in the center of Plastic table. The height of this table was 0.8 m. The measurement was conducted with both horizontal and vertical antenna polarization. The turntable has fully rotated. For further description of the configuration refer to the picture of the test setup.

5.1 Measurement equipments

Equipment Name	Type	Manufacturer	Serial No.	Next Calibration date
Test Receiver	ESCI7	ROHDE & SCHWARZ	100916	19-Jul-22
Logbicon Antenna	VULB 9168	SCHWARZBECK	193	14-Jan-22
Turn Table	DT3000-2t	Innco System GmbH	N/A	N/A
Antenna Mast	MA4000-EP	Innco System GmbH	N/A	N/A
Antenna Master & Turn table controller	CO3000-P	Innco System GmbH	CO3000/1138 /44661018/P	N/A
EMI TEST RECEIVER	ESU	ROHDE & SCHWARZ	100529	19-Jul-22
Horn Antenna	BBHA 9170	SCHWARZBECK	751	22-Jul-22
Horn Antenna	BBHA9120D	SCHWARZBECK	469	24-Dec-21
AMPLIFIER	TK-PA18H	TESTEK	N/A	19-Jul-22
AMPLIFIER	TK-PA1840H	TESTEK	N/A	19-Jul-22
EMI TEST RECEIVER	ESW	ROHDE & SCHWARZ	101554	19-Apr-22
Turn Table	DT1500-S	Innco System GmbH	N/A	N/A
Antenna Mast	MA4640-XP-ET	Innco System GmbH	N/A	N/A
Antenna Master & Turn table controller	CO3000	Innco System GmbH	CO3000/931 /38240516/L	N/A

5.2 Environmental Condition

Below 1 GHz –Test Place : 10 m Semi-anechoic chamber

(MODE 1)

Temperature (°C) : 22.4 °C

Humidity (% R.H.) : 51.7 % R.H.

(MODE 2)

Temperature (°C) : 22.4 °C

Humidity (% R.H.) : 51.7 % R.H.

(MODE 3)

Temperature (°C) : 22.4 °C

Humidity (% R.H.) : 51.7 % R.H.

Above 1 GHz–Test Place : 3 m Semi-anechoic chamber

(MODE 1)

Temperature (°C) : 21.4 °C

Humidity (% R.H.) : 52.3 % R.H.

(MODE 2)

Temperature (°C) : 21.4 °C

Humidity (% R.H.) : 52.3 % R.H.

(MODE 3)

Temperature (°C) : 21.4 °C

Humidity (% R.H.) : 52.3 % R.H.

5.3 Test data (Below 1 GHz)

(MODE 1)

Test Date : 30-Aug-21

Measurement Distance : 3 m

Frequency (MHz)	Reading (dB μ V)	Position (V/H)	Height (m)	Correction Factor		Result Value(Quasi-peak)		
				Ant Factor (dB)	Cable (dB)	Limit (dB μ V/m)	Result (dB μ V/m)	Margin (dB)
35.50	19.25	V	1.5	12.11	0.76	40.00	32.12	7.88
120.60	21.91	V	1.0	10.41	1.48	43.50	33.80	9.70
166.00	23.30	H	3.6	12.81	1.73	43.50	37.85	5.65
188.70	22.30	H	3.4	10.98	1.86	43.50	35.13	8.37
375.00	20.75	H	1.0	15.09	2.73	46.00	38.57	7.43
436.00	17.49	V	1.0	16.69	2.97	46.00	37.15	8.85
Remark	H : Horizontal, V : Vertical *Result Value = Reading + Ant Factor + Cable loss *Margin= Limit - Result							

(MODE 2)

Test Date : 30-Aug-21

Measurement Distance : 3 m

Frequency (MHz)	Reading (dB μ V)	Position (V/H)	Height (m)	Correction Factor		Result Value(Quasi-peak)		
				Ant Factor (dB)	Cable (dB)	Limit (dB μ V/m)	Result (dB μ V/m)	Margin (dB)
31.80	24.16	V	1.5	12.02	0.73	40.00	36.91	3.09
69.70	18.94	V	1.5	12.56	1.08	40.00	32.57	7.43
95.50	26.90	V	1.2	7.81	1.28	43.50	35.99	7.51
102.60	26.60	V	1.0	8.76	1.29	43.50	36.65	6.85
111.20	23.73	V	1.0	9.92	1.39	43.50	35.04	8.46
180.00	21.67	V	1.0	11.60	1.81	43.50	35.08	8.42
Remark	H : Horizontal, V : Vertical *Result Value = Reading + Ant Factor + Cable loss *Margin= Limit - Result							

(MODE 3)

Test Date : 30-Aug-21

Measurement Distance : 3 m

Frequency (MHz)	Reading (dB μ V)	Position (V/H)	Height (m)	Correction Factor		Result Value(Quasi-peak)		
				Ant Factor (dB)	Cable (dB)	Limit (dB μ V/m)	Result (dB μ V/m)	Margin (dB)
126.00	14.62	V	1.0	10.82	1.51	43.50	26.95	16.55
144.00	13.30	V	1.0	12.66	1.61	43.50	27.56	15.94
239.00	17.21	V	1.0	10.80	2.11	46.00	30.12	15.88
375.00	12.85	H	3.2	15.09	2.73	46.00	30.67	15.33
475.90	10.97	H	1.0	17.28	3.11	46.00	31.36	14.64
960.00	6.70	V	1.0	23.80	4.66	46.00	35.16	10.84
Remark	H : Horizontal, V : Vertical *Result Value = Reading + Ant Factor + Cable loss *Margin= Limit - Result							

5.4 Test data (Above 1 GHz)

(MODE 1)

Test Date : 30-Aug-21

Measurement Distance :

3 m

Frequency (MHz)	Reading (dB μ V)	Position (V/H)	Height (m)	Correction Factor		Result Value		
				Ant Factor (dB)	Cable (dB)	Limit (dB μ V/m)	Result (dB μ V/m)	Margin (dB)
Peak(RBW:1 MHz VBW:1 MHz)								
1008.00	55.40	H	1.0	24.62	-43.50	74.00	36.53	37.47
1008.00	56.64	V	1.0	24.62	-43.50	74.00	37.77	36.23
1250.00	51.51	H	1.0	25.45	-42.88	74.00	34.08	39.92
1250.00	56.77	V	1.0	25.45	-42.88	74.00	39.34	34.66
1752.00	52.66	H	1.0	25.31	-41.74	74.00	36.22	37.78
1752.00	58.20	V	1.0	25.31	-41.74	74.00	41.76	32.24
Average(RBW:1 MHz VBW:10 Hz)								
1008.00	44.90	H	1.0	24.62	-43.50	54.00	26.03	27.97
1008.00	45.69	V	1.0	24.62	-43.50	54.00	26.82	27.18
1250.00	41.20	H	1.0	25.45	-42.88	54.00	23.77	30.23
1250.00	52.26	V	1.0	25.45	-42.88	54.00	34.83	19.17
1752.00	44.95	H	1.0	25.31	-41.74	54.00	28.51	25.49
1752.00	41.54	V	1.0	25.31	-41.74	54.00	25.10	28.90
Remark	H : Horizontal, V : Vertical * Result Value = Reading + Ant Factor + Cable loss - Amplifier Gain * Margin= Limit - Result * Highest frequency of the EUT is 5.825 GHz, so radiated emission was performed up to 40 GHz.							
	*Application method of the highest frequency is in the following							
	*Highest frequency of the EUT is less than 108 MHz, the measurement shall only be made up to 1 GHz.							
	*Highest frequency of the EUT is between 108 MHz and 500 MHz, the measurement shall only be made up to 2 GHz.							
	*Highest frequency of the EUT is between 500 MHz and 1 GHz, the measurement shall only be made up to 5 GHz.							
	*Highest frequency of the EUT is above 1 GHz, the measurement shall be made up to 5 times the highest frequency or 40 GHz,							

(MODE 2)

Test Date : 30-Aug-21

Measurement Distance : 3 m

Frequency (MHz)	Reading (dB μ V)	Position (V/H)	Height (m)	Correction Factor		Result Value		
				Ant Factor (dB)	Cable (dB)	Limit (dB μ V/m)	Result (dB μ V/m)	Margin (dB)
Peak(RBW:1 MHz VBW:1 MHz)								
1250.00	51.64	H	1.0	25.45	-42.88	74.00	34.21	39.79
1250.00	56.19	V	1.0	25.45	-42.88	74.00	38.76	35.24
1924.00	50.81	H	1.0	25.90	-41.15	74.00	35.56	38.44
1924.00	51.66	V	1.0	25.90	-41.15	74.00	36.41	37.59
2390.00	52.05	H	1.0	27.83	-40.44	74.00	39.44	34.56
2390.00	53.54	V	1.0	27.83	-40.44	74.00	40.93	33.07
Average(RBW:1 MHz VBW:10 Hz)								
1250.00	41.38	H	1.0	25.45	-42.88	54.00	23.95	30.05
1250.00	51.67	V	1.0	25.45	-42.88	54.00	34.24	19.76
1924.00	40.25	H	1.0	25.90	-41.15	54.00	25.00	29.00
1924.00	40.71	V	1.0	25.90	-41.15	54.00	25.46	28.54
2390.00	40.83	H	1.0	27.83	-40.44	54.00	28.22	25.78
2390.00	40.92	V	1.0	27.83	-40.44	54.00	28.31	25.69
Remark	H : Horizontal, V : Vertical * Result Value = Reading + Ant Factor + Cable loss - Amplifier Gain * Margin= Limit - Result * Highest frequency of the EUT is 5.825 GHz, so radiated emission was performed up to 40 GHz. *Application method of the highest frequency is in the following *Highest frequency of the EUT is less than 108 MHz, the measurement shall only be made up to 1 GHz. *Highest frequency of the EUT is between 108 MHz and 500 MHz, the measurement shall only be made up to 2 GHz. *Highest frequency of the EUT is between 500 MHz and 1 GHz, the measurement shall only be made up to 5 GHz. *Highest frequency of the EUT is above 1 GHz, the measurement shall be made up to 5 times the highest frequency or 40 GHz,							

(MODE 3)

Test Date : 30-Aug-21

Measurement Distance : 3 m

Frequency (MHz)	Reading (dB μ V)	Position (V/H)	Height (m)	Correction Factor		Result Value		
				Ant Factor (dB)	Cable (dB)	Limit (dB μ V/m)	Result (dB μ V/m)	Margin (dB)
Peak(RBW:1 MHz VBW:1 MHz)								
1250.00	52.47	H	1.0	25.45	-42.88	74.00	35.04	38.96
1250.00	56.63	V	1.0	25.45	-42.88	74.00	39.20	34.80
1920.00	52.00	H	1.0	25.88	-41.16	74.00	36.72	37.28
1920.00	51.44	V	1.0	25.88	-41.16	74.00	36.16	37.84
2386.00	51.61	H	1.0	27.84	-40.44	74.00	39.01	34.99
2386.00	51.85	V	1.0	27.84	-40.44	74.00	39.25	34.75
Average(RBW:1 MHz VBW:10 Hz)								
1250.00	41.26	H	1.0	25.45	-42.88	54.00	23.83	30.17
1250.00	51.59	V	1.0	25.45	-42.88	54.00	34.16	19.84
1920.00	41.01	H	1.0	25.88	-41.16	54.00	25.73	28.27
1920.00	41.13	V	1.0	25.88	-41.16	54.00	25.85	28.15
2386.00	40.10	H	1.0	27.84	-40.44	54.00	27.50	26.50
2386.00	40.29	V	1.0	27.84	-40.44	54.00	27.69	26.31
Remark	H : Horizontal, V : Vertical * Result Value = Reading + Ant Factor + Cable loss - Amplifier Gain * Margin= Limit - Result * Highest frequency of the EUT is 5.825 GHz, so radiated emission was performed up to 40 GHz. *Application method of the highest frequency is in the following *Highest frequency of the EUT is less than 108 MHz, the measurement shall only be made up to 1 GHz. *Highest frequency of the EUT is between 108 MHz and 500 MHz, the measurement shall only be made up to 2 GHz. *Highest frequency of the EUT is between 500 MHz and 1 GHz, the measurement shall only be made up to 5 GHz. *Highest frequency of the EUT is above 1 GHz, the measurement shall be made up to 5 times the highest frequency or 40 GHz,							

6. Measurement of conducted disturbance

The continuous disturbance voltage of AC Mains in the frequency from 0.15 MHz to 30 MHz was measured in accordance to FCC PART 15 Subpart B . The test setup was made according to ANSI C 63.4 (2014) in a shielded room. The EUT was placed on a non-conductive table at least 0.8 m above the ground plan. A grounded vertical reference plane was positioned in a distance of 0.4 m from the EUT. The distance from the EUT to other metal surfaces was at least 0.8 m. The EUT was only earthen by its power cord through the line impedance stabilizing network. The power cord has been bundled to a length of 1.0 m. The test receiver with Quasi Peak detector complies with CISPR 16.

6.1 Measurement equipments

Equipment Name	Type	Manufacturer	Serial No.	Next Calibration date
Pulse Limiter	ESH3-Z2	ROHDE & SCHWARZ	102772	19-Jul-22
TEST Receiver	ESPI	ROHDE & SCHWARZ	100005	19-Jul-22
LISN	ENV216	ROHDE & SCHWARZ	101231	19-Jul-22
LISN	NNLK8121	SCHWARZBECK	#695	19-Jul-22

6.2 Environmental Condition

Test Place : Shielded Room

(MODE 1)

Temperature (°C) : 21.5 °C

Humidity (% R.H.) : 51.3 % R.H.

(MODE 2)

Temperature (°C) : 21.5 °C

Humidity (% R.H.) : 51.3 % R.H.

(MODE 3)

Temperature (°C) : N/A

Humidity (% R.H.) : N/A

6.3 Test data

(MODE 1)

Test Date : 30-Aug-21

Frequency (MHz)	Correction Factor		Line (H/N)	Quasi-peak Value			Cispr Average Value		
	Lisn (dB)	Cable (dB)		Limit (dB μ V)	Reading (dB μ V)	Result (dB μ V)	Limit (dB μ V)	Reading (dB μ V)	Result (dB)
0.15	0.04	0.17	N	66.00	56.05	56.26	56.00	39.36	39.57
0.16	0.06	0.17	H	65.67	54.78	55.01	55.67	38.24	38.47
0.18	0.05	0.18	H	64.49	50.89	51.12	54.49	35.80	36.03
0.21	0.05	0.18	H	63.32	46.42	46.65	53.32	30.43	30.66
1.50	0.05	0.51	N	56.00	38.06	38.62	46.00	27.28	27.84
18.24	0.31	0.42	H	60.00	40.42	41.16	50.00	37.23	37.97
Remark	H : Hot Line, N : Neutral Line * Correction Factor = Lisn + Cable * Result = Correction Factor + Reading								

(MODE 2)

Test Date : 30-Aug-21

Frequency (MHz)	Correction Factor		Line (H/N)	Quasi-peak Value			Cispr Average Value		
	Lisn (dB)	Cable (dB)		Limit (dB μ V)	Reading (dB μ V)	Result (dB μ V)	Limit (dB μ V)	Reading (dB μ V)	Result (dB)
0.17	0.04	0.17	N	65.06	54.20	54.41	55.06	37.98	38.19
0.18	0.05	0.18	H	64.63	52.40	52.63	54.63	36.36	36.59
0.20	0.05	0.18	H	63.45	47.57	47.80	53.45	32.87	33.10
16.23	0.29	0.43	N	60.00	44.20	44.91	50.00	39.39	40.10
18.24	0.31	0.42	H	60.00	47.28	48.02	50.00	44.73	45.47
19.71	0.34	0.42	H	60.00	45.29	46.05	50.00	42.44	43.20
Remark	H : Hot Line, N : Neutral Line * Correction Factor = Lisn + Cable * Result = Correction Factor + Reading								

(MODE 3) – N/A

Test Date :

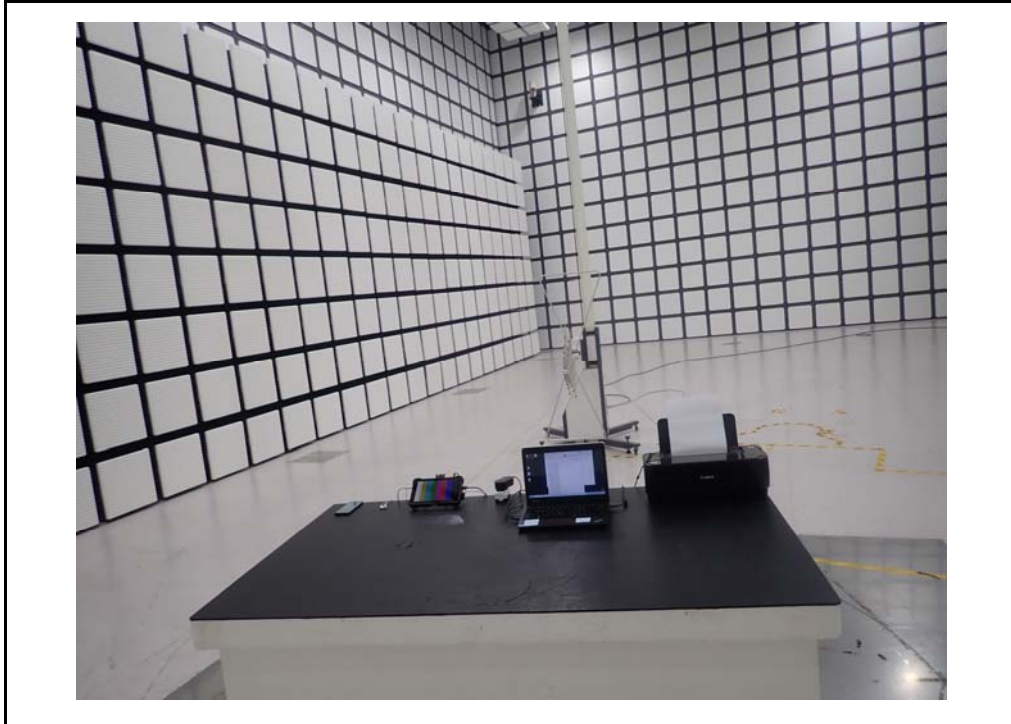
Frequency (MHz)	Correction Factor		Line (H/N)	Quasi-peak Value			Cispr Average Value		
	Lisn (dB)	Cable (dB)		Limit (dB μ V)	Reading (dB μ V)	Result (dB μ V)	Limit (dB μ V)	Reading (dB μ V)	Result (dB)
Remark	H : Hot Line, N : Neutral Line * Correction Factor = Lisn + Cable * Result = Correction Factor + Reading * MODE 3 is battery operating.								

7. Photographs of test setup

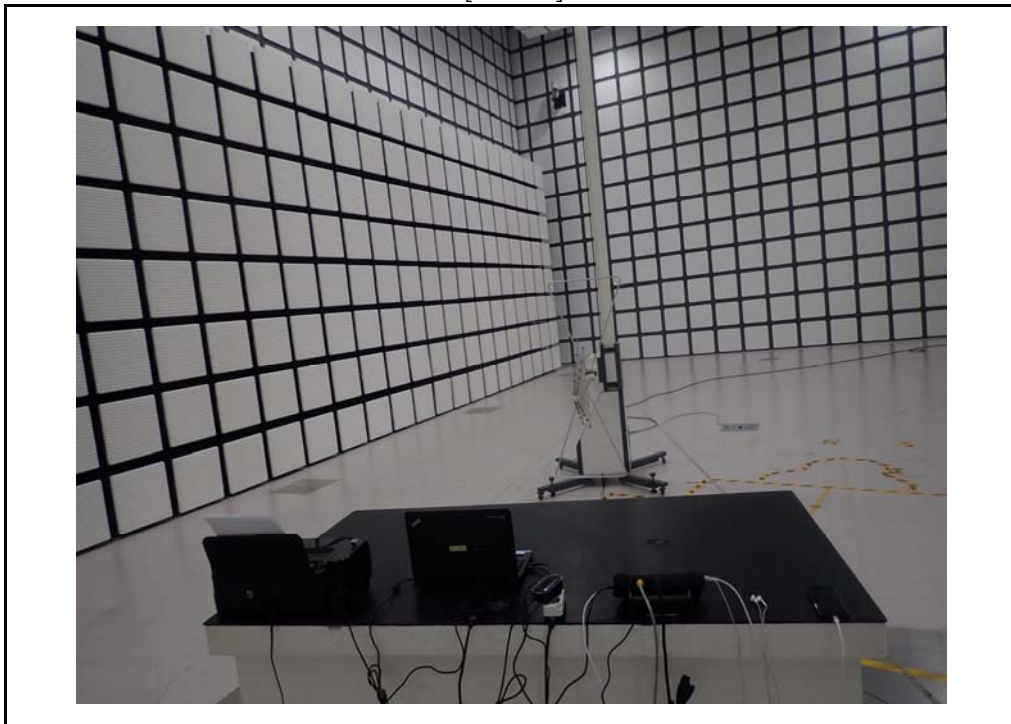
7.1 Setup for Radiated Test : (30 ~ 1 000) MHz

(MODE 1)

[Front]

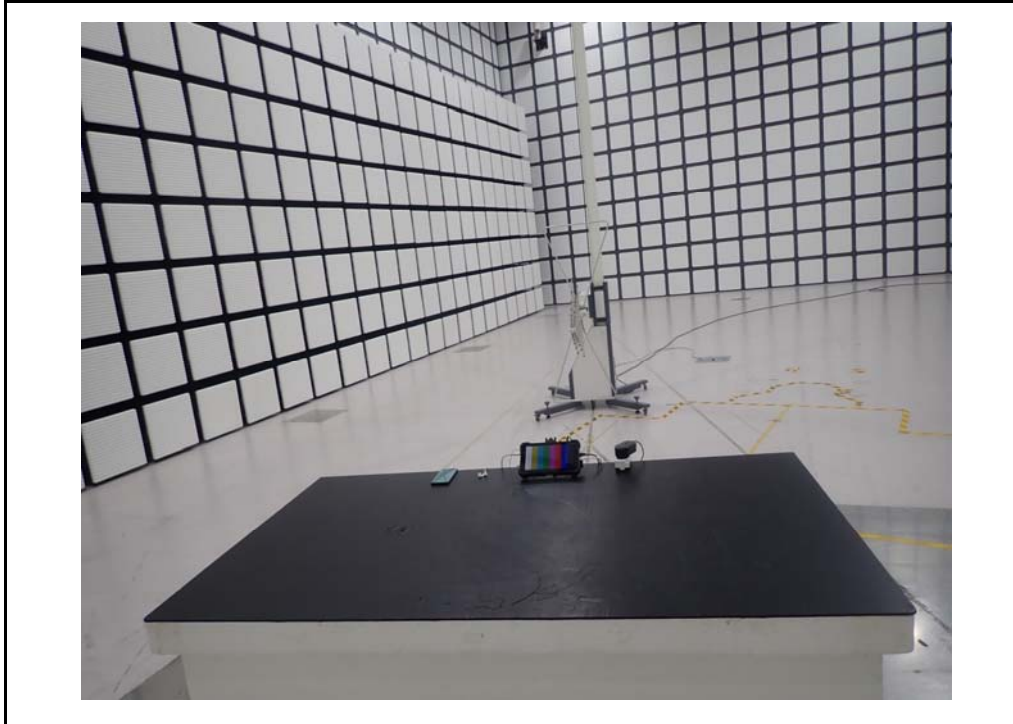


[Rear]

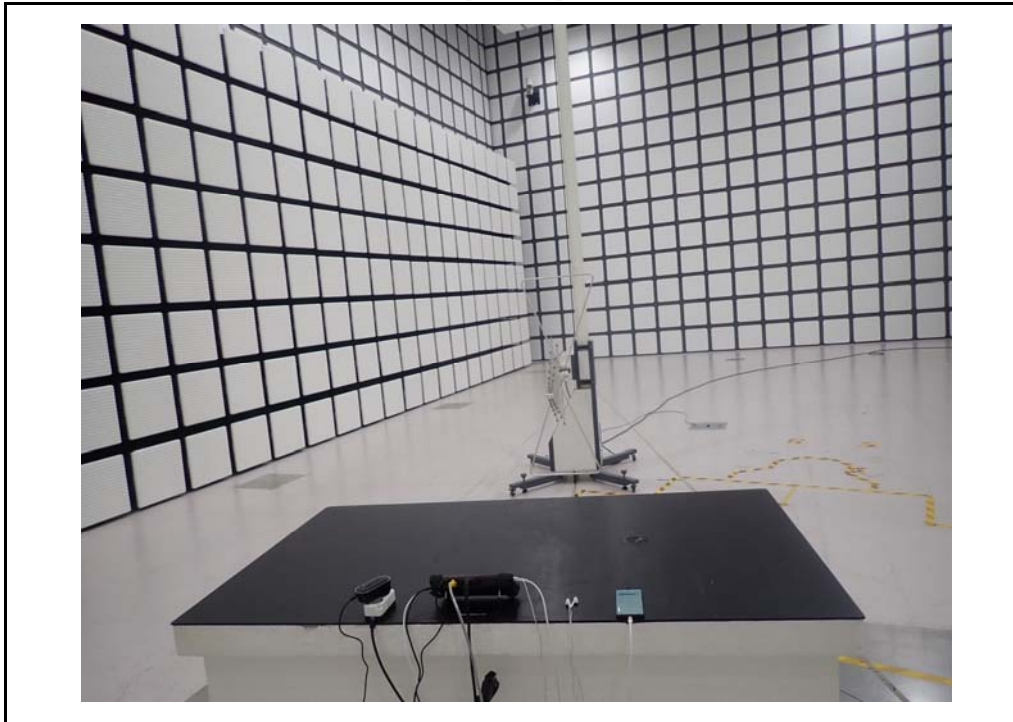


(MODE 2)

[Front]

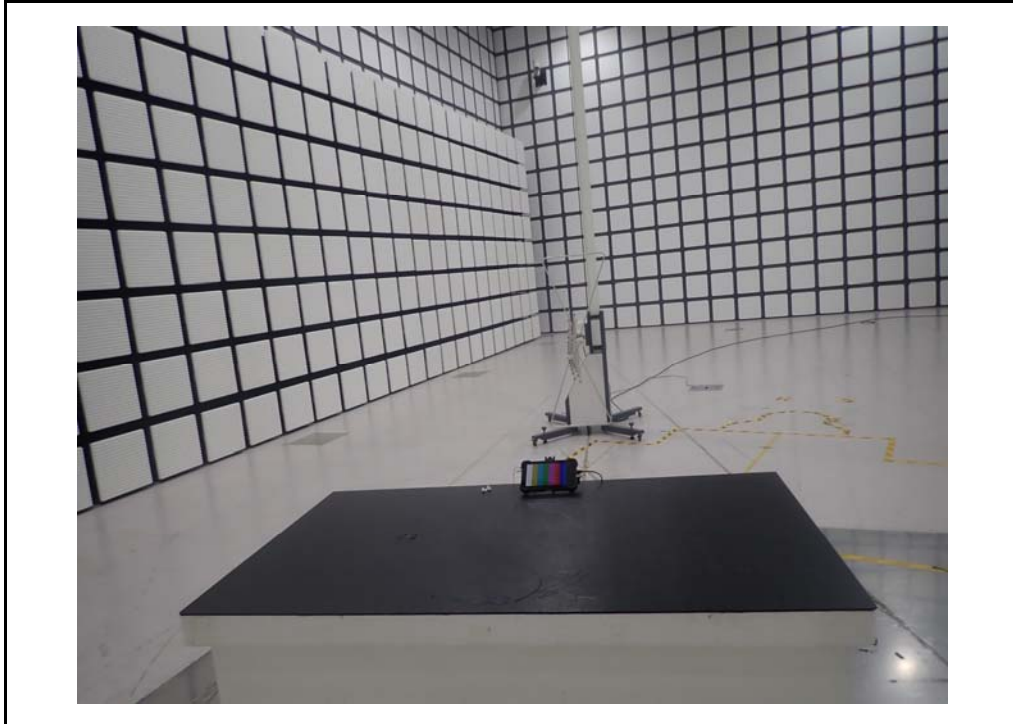


[Rear]



(MODE 3)

[Front]



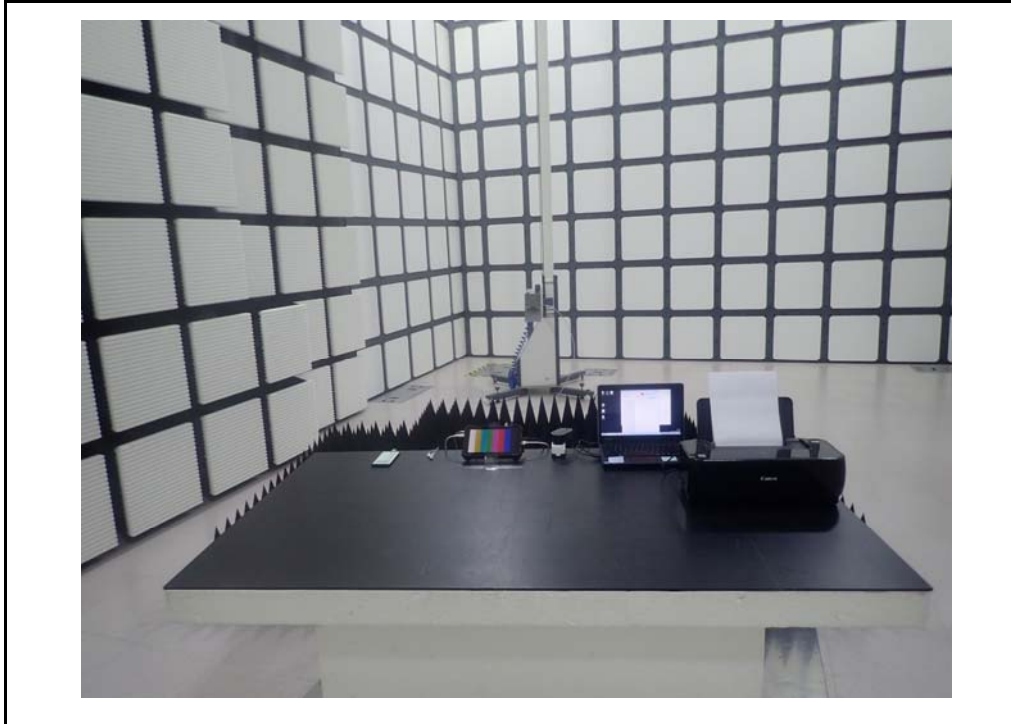
[Rear]



7.2 Setup for Radiated Test : above 1 GHz

(MODE 1)

[Front]

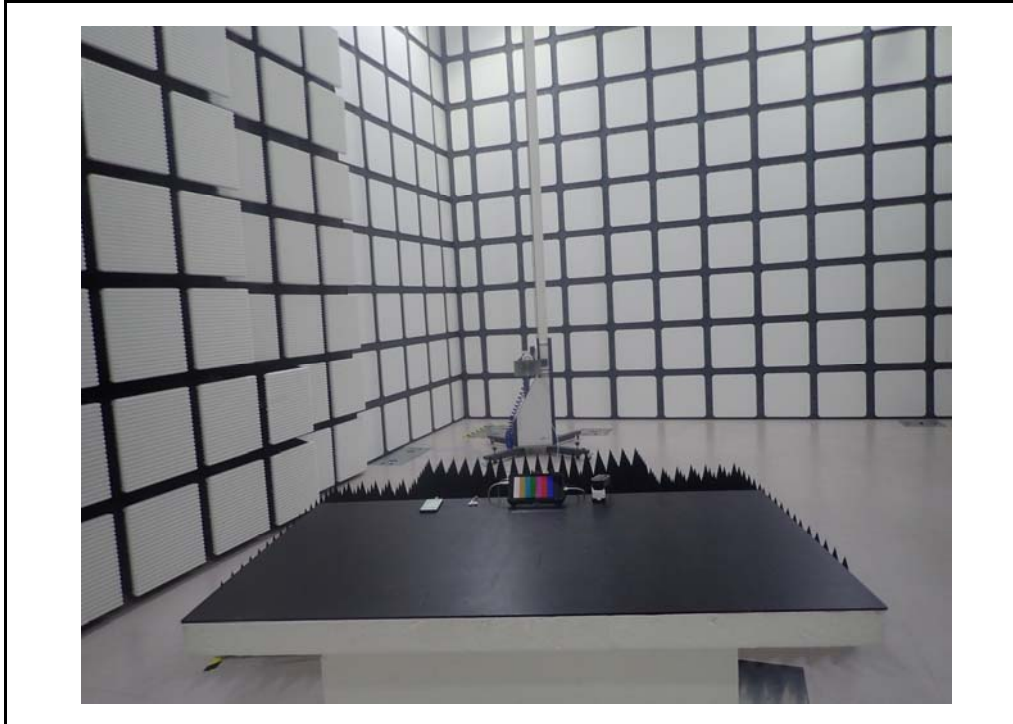


[Rear]



(MODE 2)

[Front]

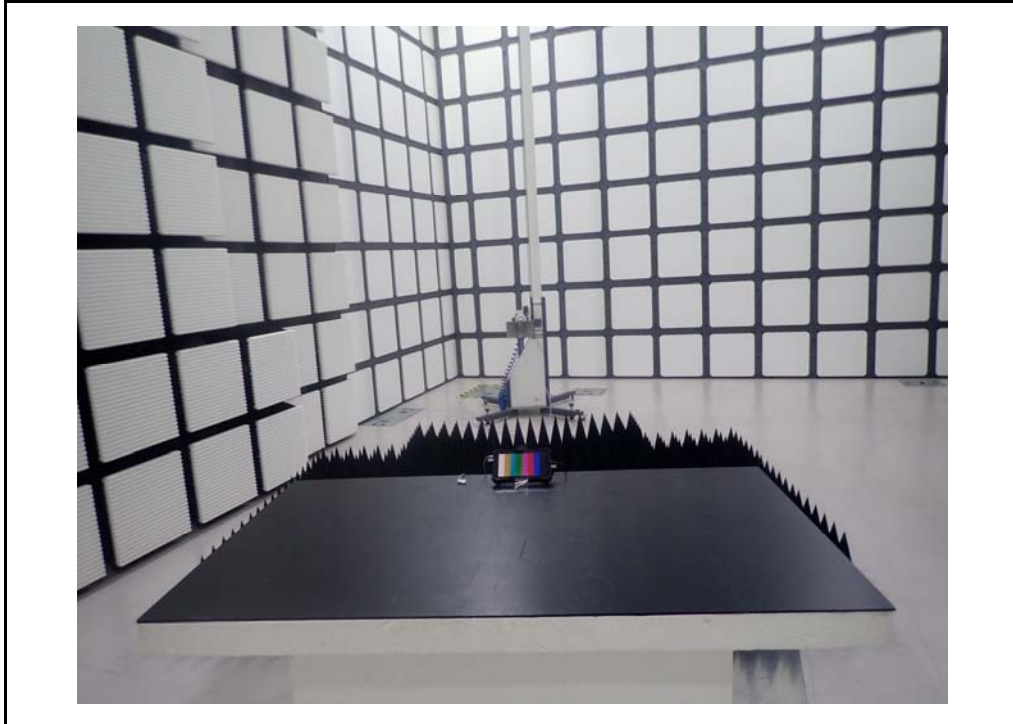


[Rear]

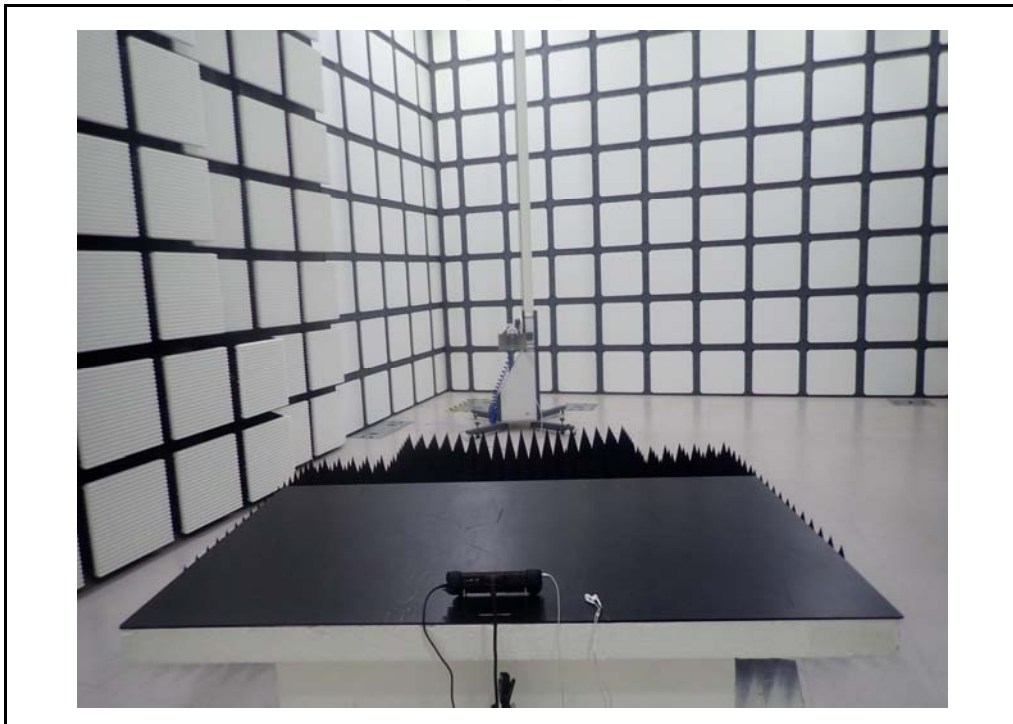


(MODE 3)

[Front]



[Rear]



7.3 Setup for Conducted Test : (0.15 ~ 30) MHz

(MODE 1)

[Front]



[Rear]



(MODE 2)

[Front]

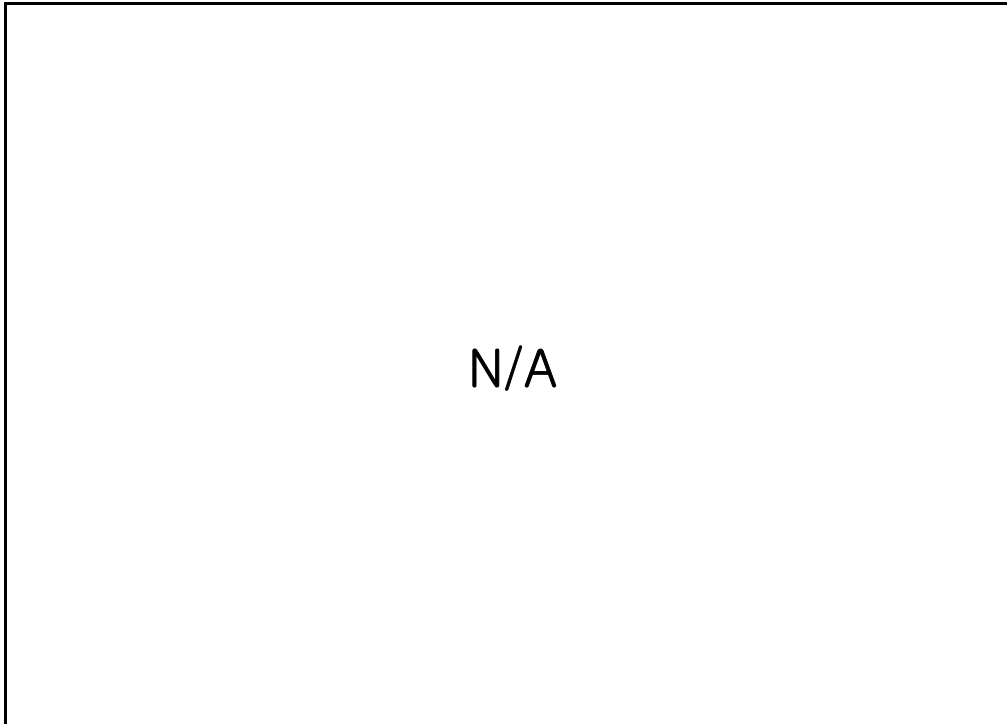


[Rear]

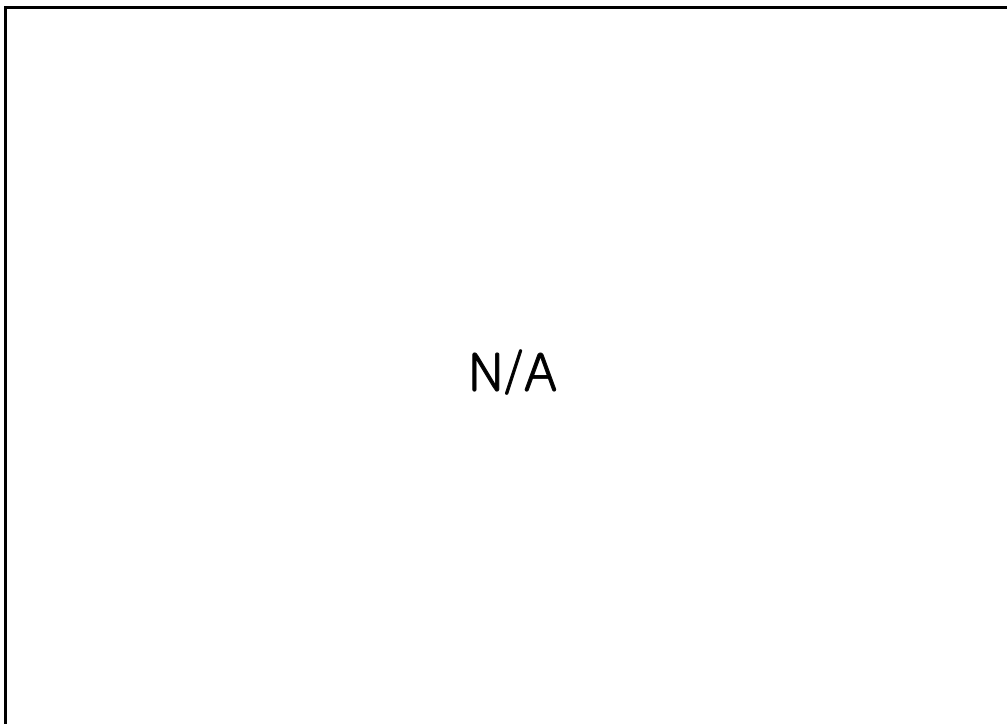


(MODE 3)

[Front]



[Rear]



8. Photographs of EUT

[Front]

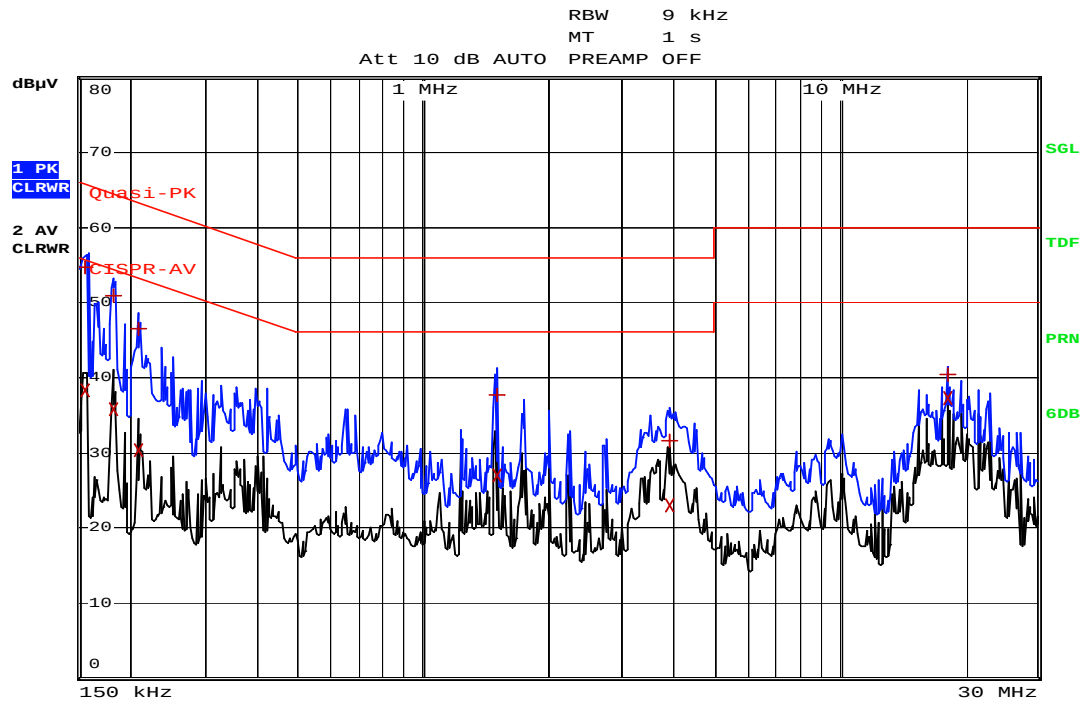


[Rear]



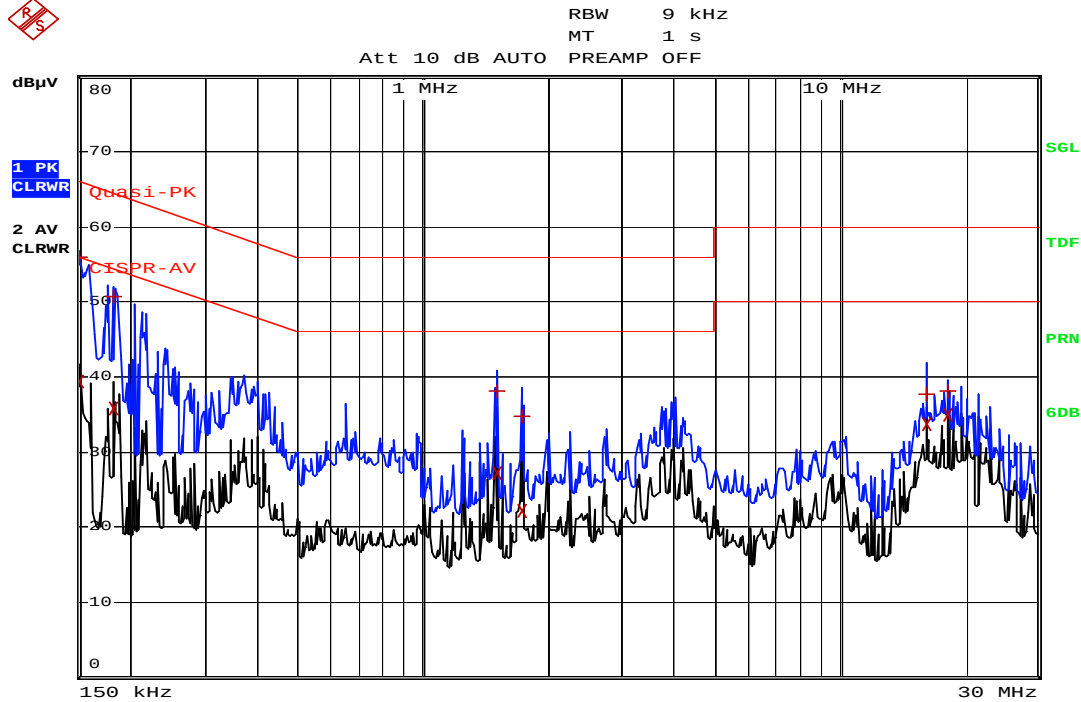
Appendix 1. Test data graphs
* conducted emission
(MODE 1)

* HOT



Comment: ESTC-21-01058-A-H
Date: 30.AUG.2021 10:41:08

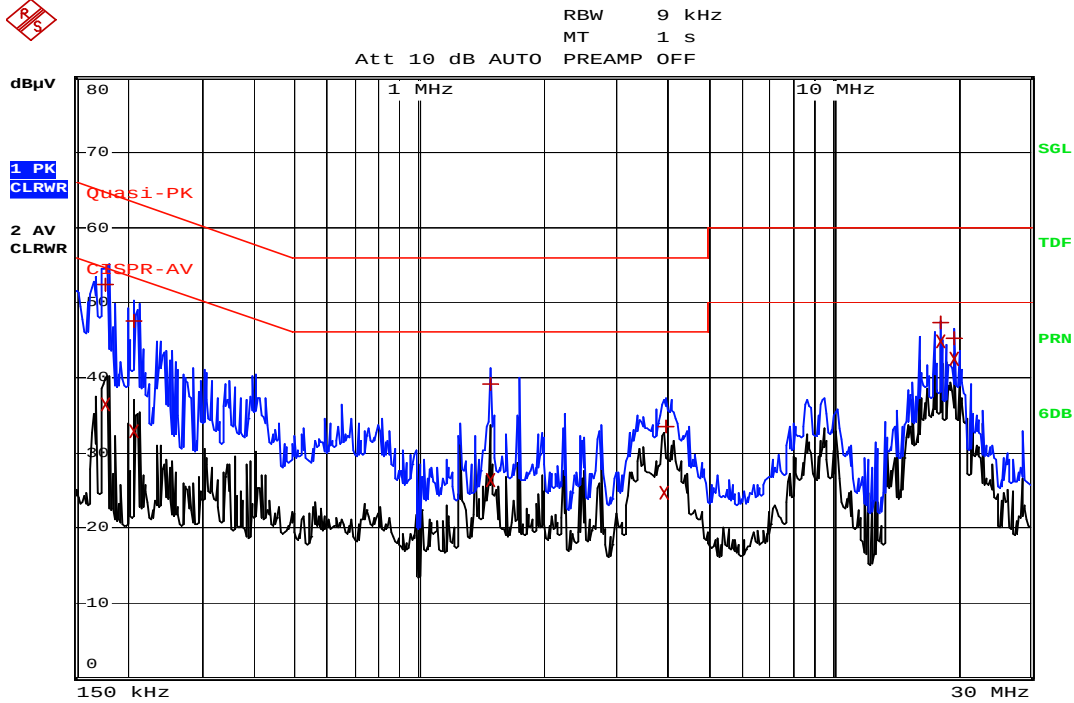
* NEUTRAL



Comment: ESTC-21-01058-A-N
Date: 30.AUG.2021 10:48:21

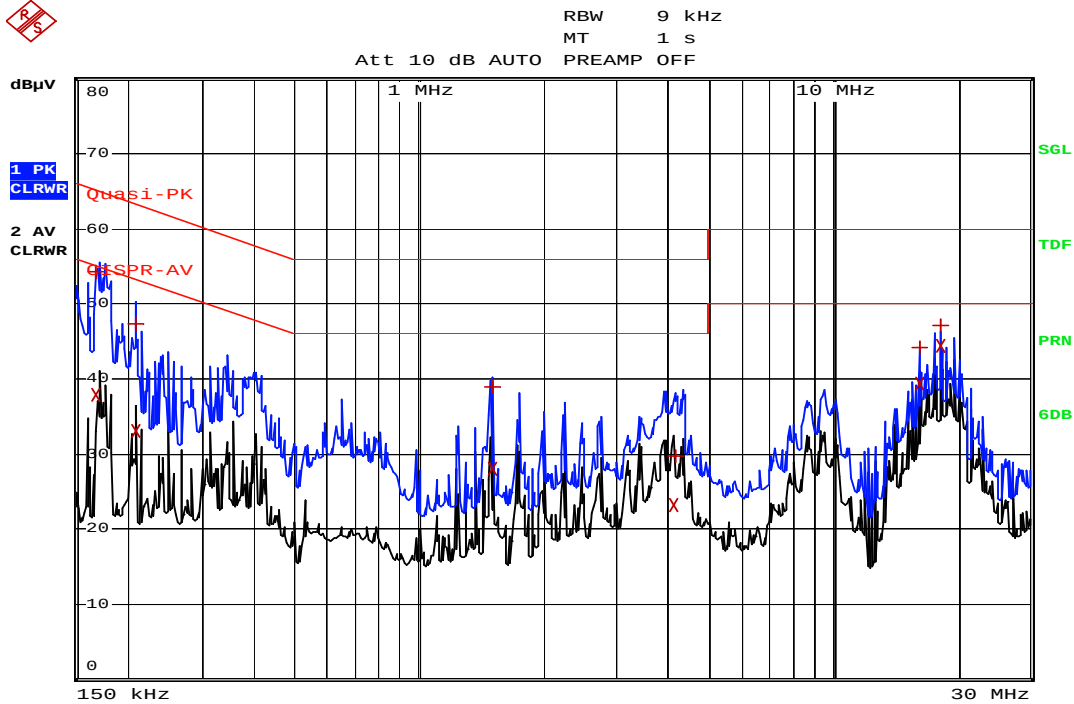
(MODE 2)

* HOT



Comment: ESTC-21-01058-B-H
Date: 30.AUG.2021 10:58:25

* NEUTRAL

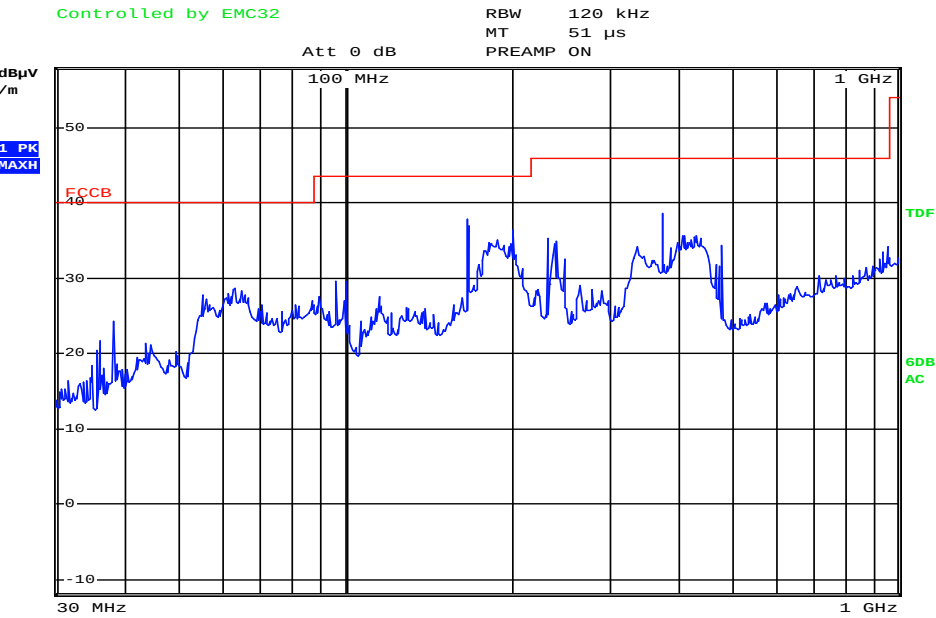


Comment: ESTC-21-01058-B-N
Date: 30.AUG.2021 11:05:37

* radiated emission (below 1 GHz)

(MODE 1)

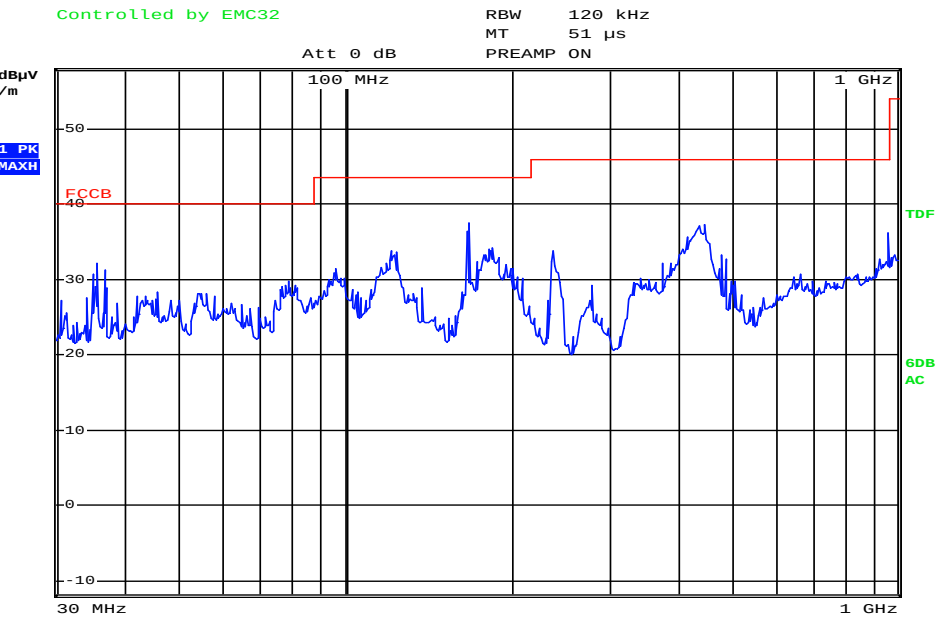
* HORIZONTAL



ESTC-21-01058-A-H

Date: 30.AUG.2021 09:04:13

* VERTICAL

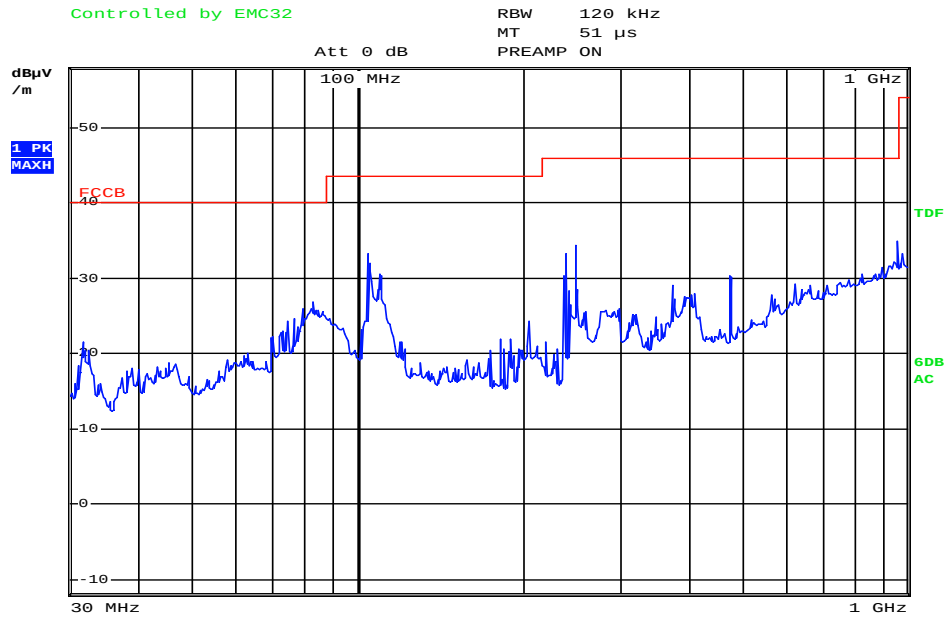


ESTC-21-01058-A-V

Date: 30.AUG.2021 08:50:20

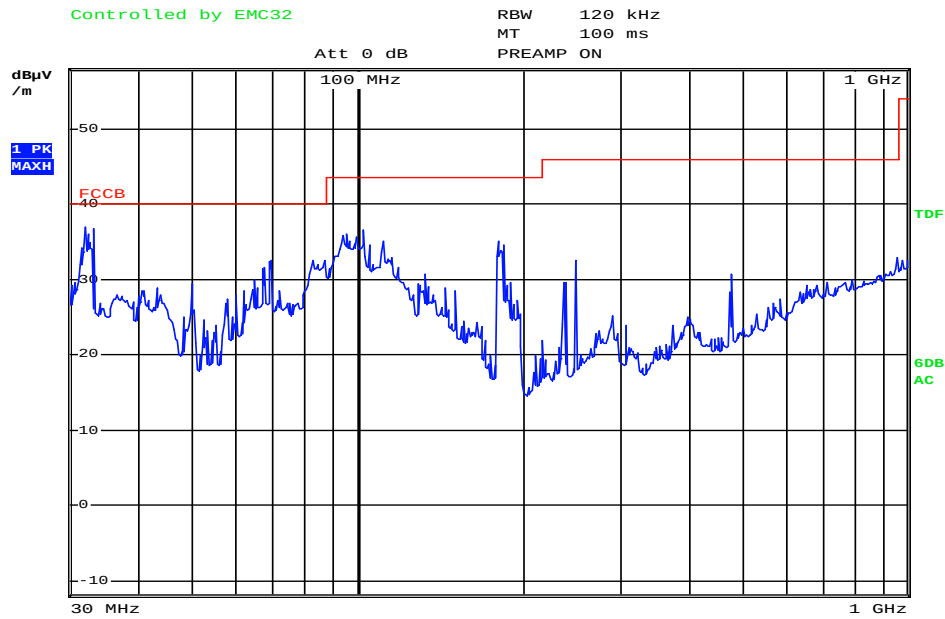
(MODE 2)

* HORIZONTAL



ESTC-21-01058-B-H
Date: 30.AUG.2021 09:38:09

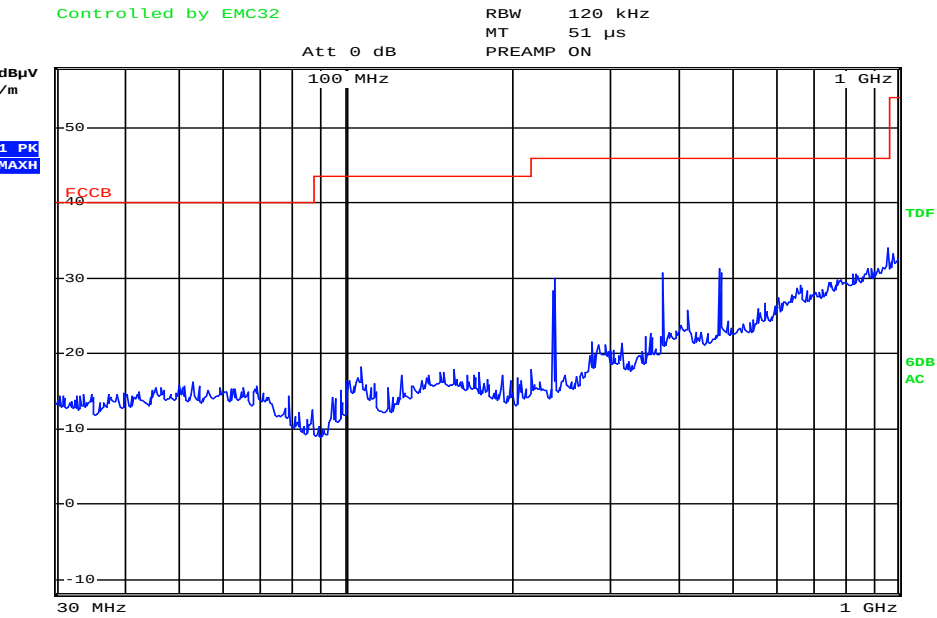
* VERTICAL



ESTC-21-01058-B-V
Date: 30.AUG.2021 09:23:10

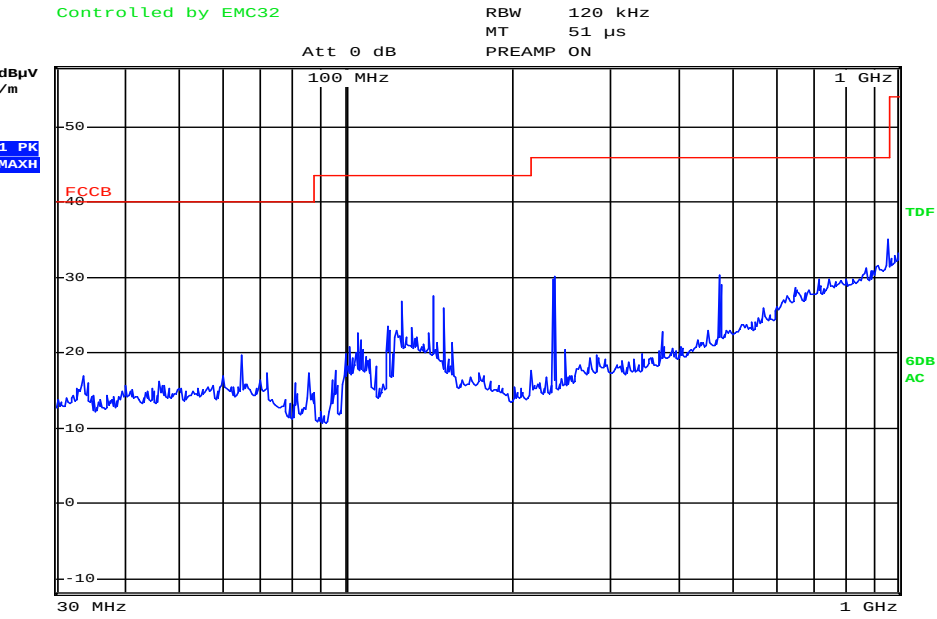
(MODE 3)

* HORIZONTAL



ESTC-21-01058-C-H
Date: 30.AUG.2021 10:14:28

* VERTICAL

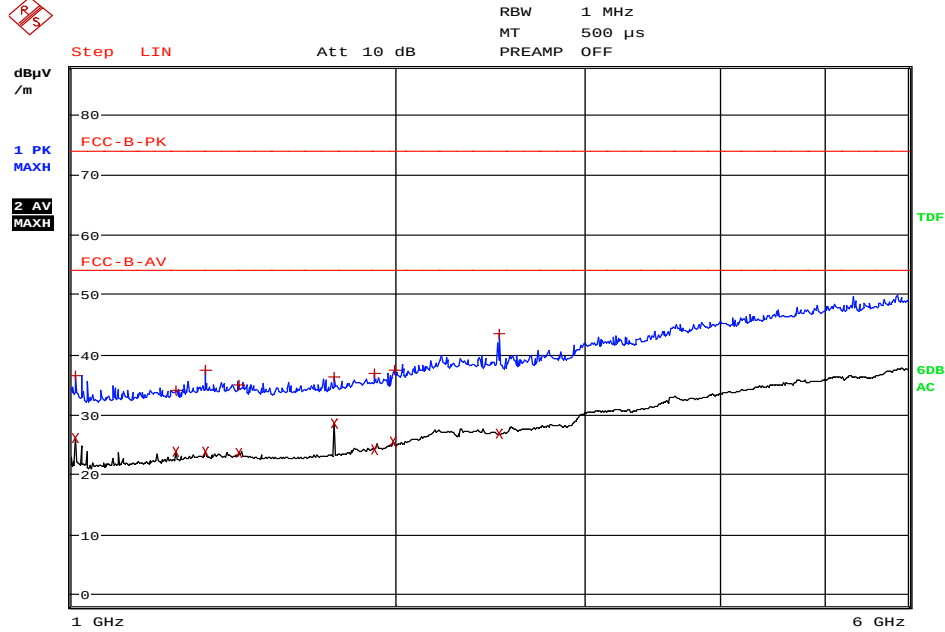


ESTC-21-01058-C-V
Date: 30.AUG.2021 09:57:48

* radiated emission (above 1 GHz)

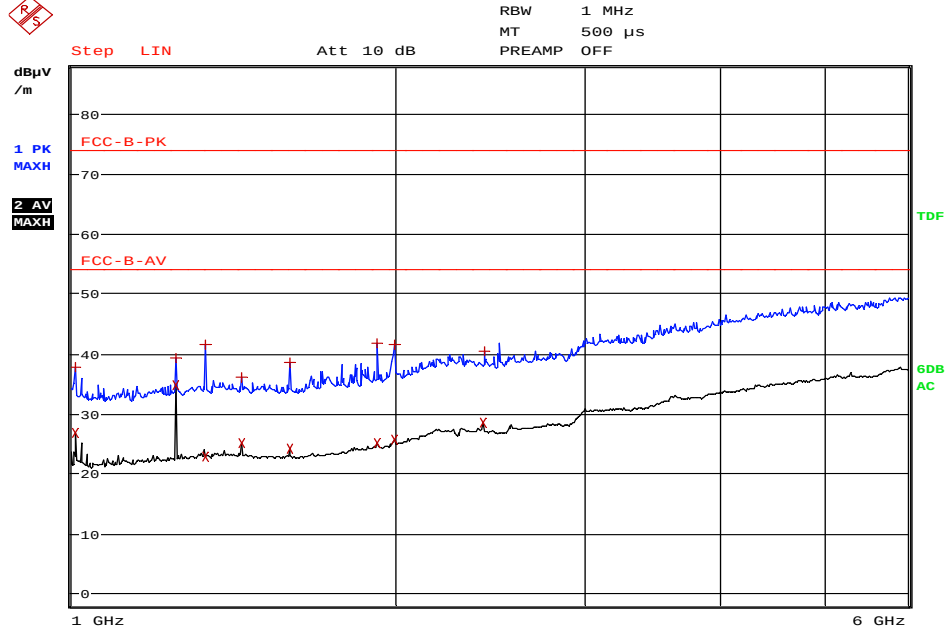
(MODE 1)

*HORIZONTAL



ESTC-21-01058-A-H
Date: 30.AUG.2021 11:43:43

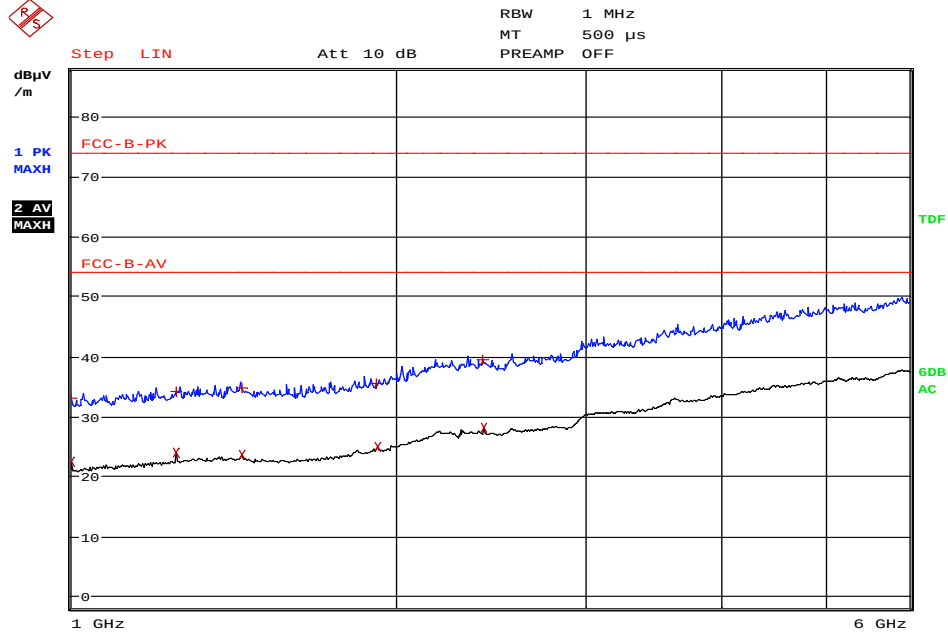
*VERTICAL



ESTC-21-01058-A-V
Date: 30.AUG.2021 11:35:17

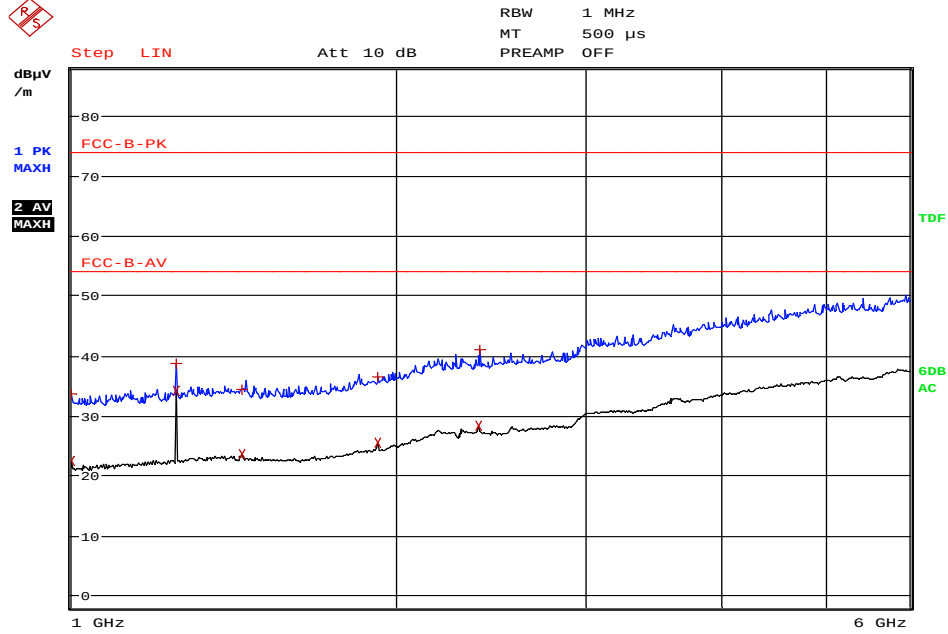
(MODE 2)

*HORIZONTAL



ESTC-21-01058-B-H
Date: 30.AUG.2021 13:27:14

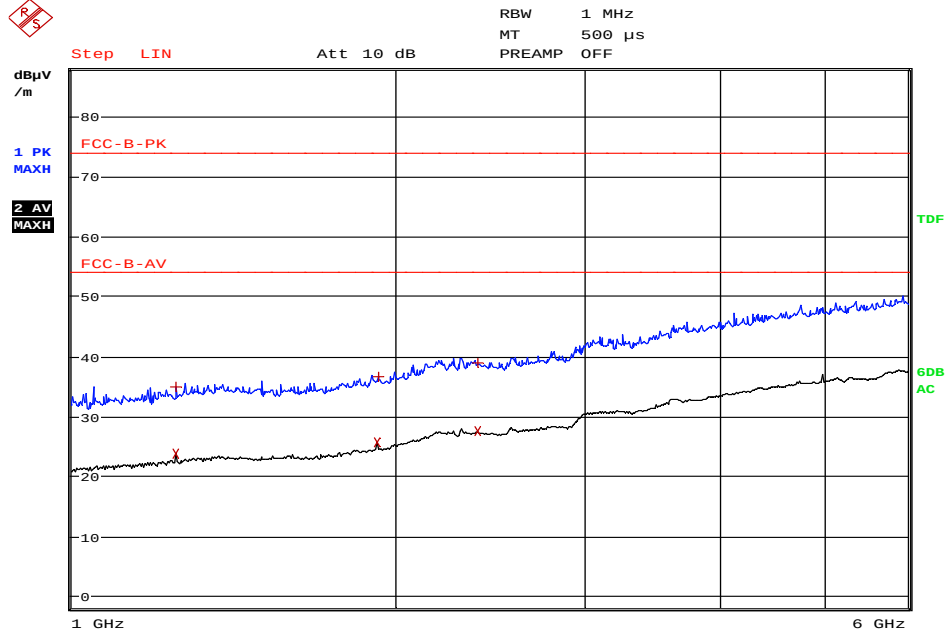
*VERTICAL



ESTC-21-01058-B-V
Date: 30.AUG.2021 13:19:58

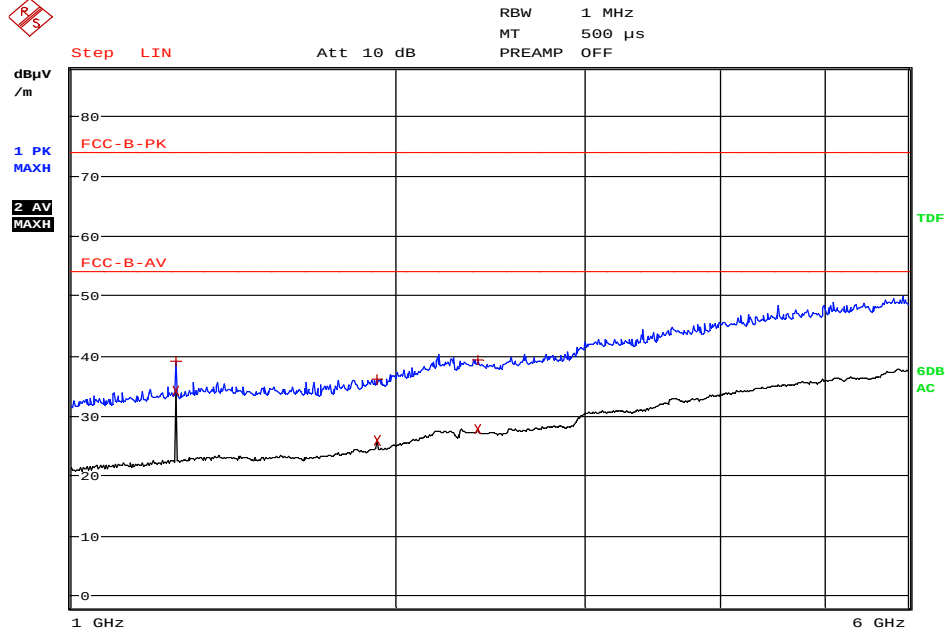
(MODE 3)

*HORIZONTAL



ESTC-21-01058-C-H
Date: 30.AUG.2021 14:28:13

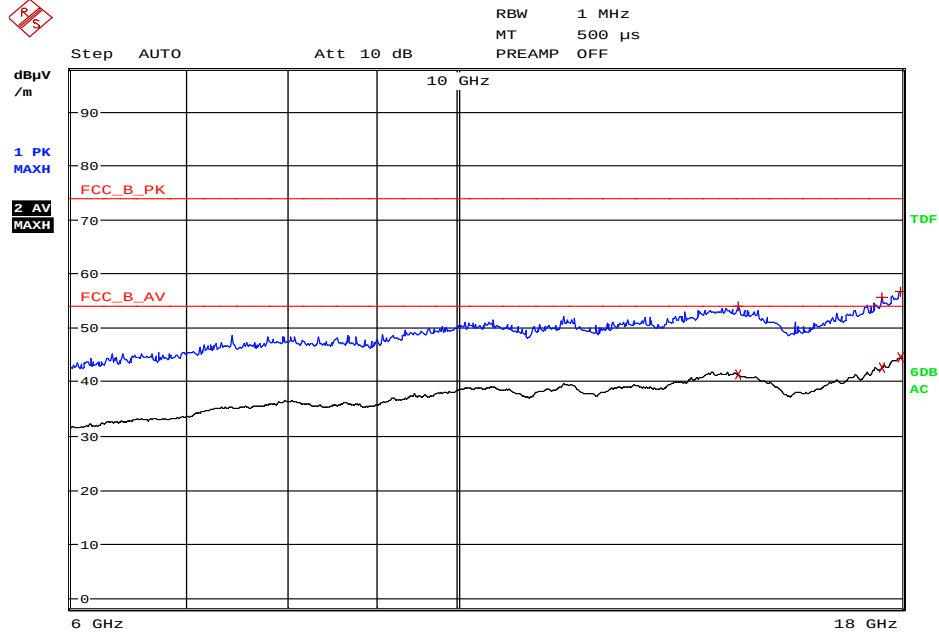
*VERTICAL



ESTC-21-01058-C-V
Date: 30.AUG.2021 14:22:38

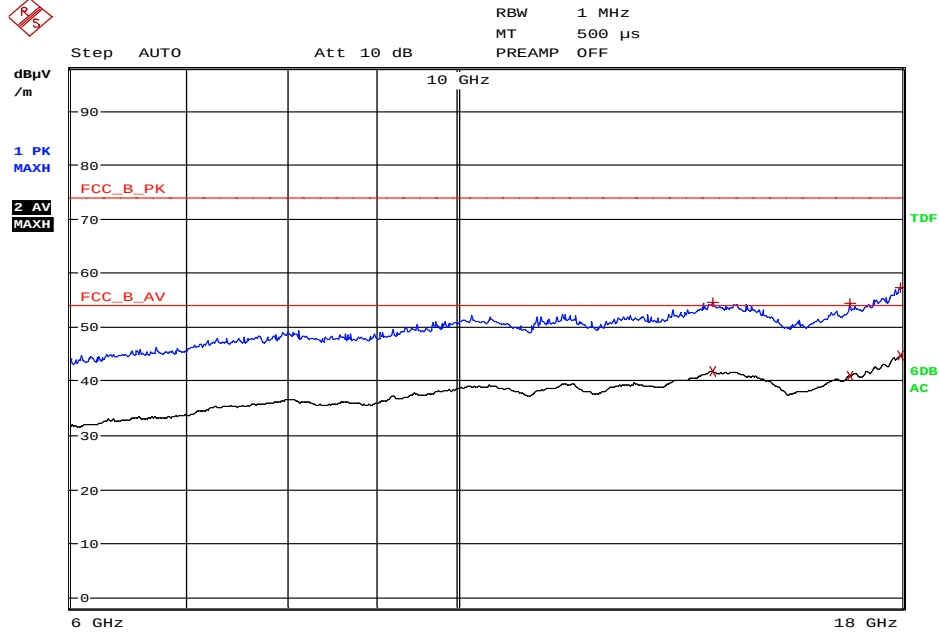
* radiated emission (6 to 18) GHz
(MODE 1)

*HORIZONTAL



ESTC-21-01058-A-H
Date: 30.AUG.2021 11:59:01

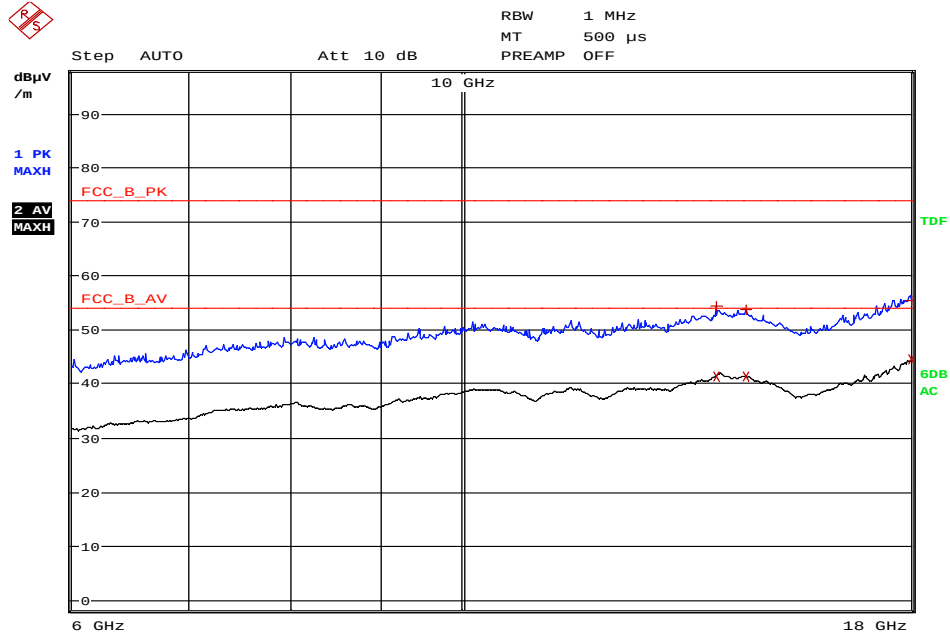
*VERTICAL



ESTC-21-01058-A-V
Date: 30.AUG.2021 11:53:24

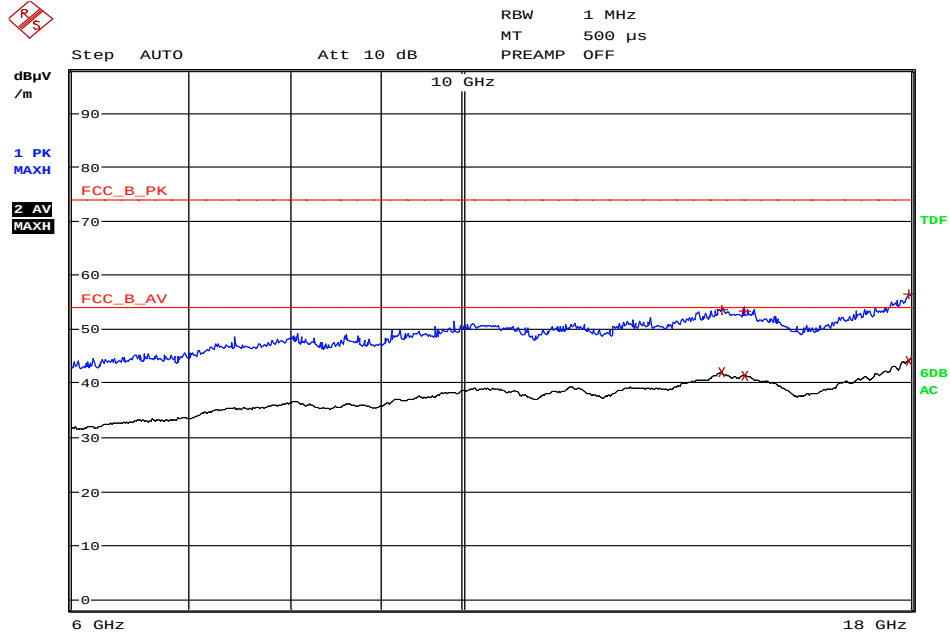
(MODE 2)

*HORIZONTAL



ESTC-21-01058-B-H
Date: 30.AUG.2021 13:39:54

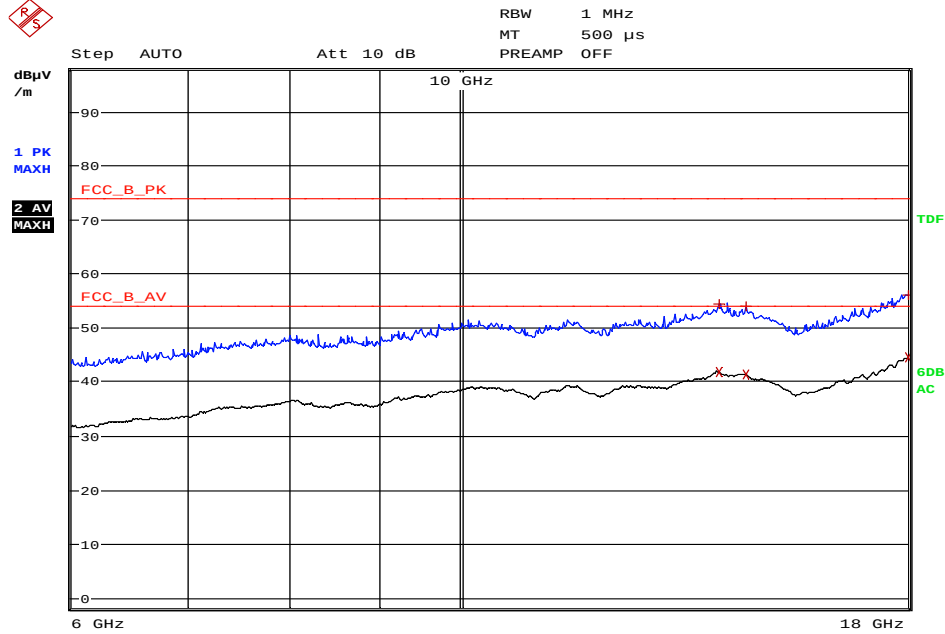
*VERTICAL



ESTC-21-01058-B-V
Date: 30.AUG.2021 13:35:18

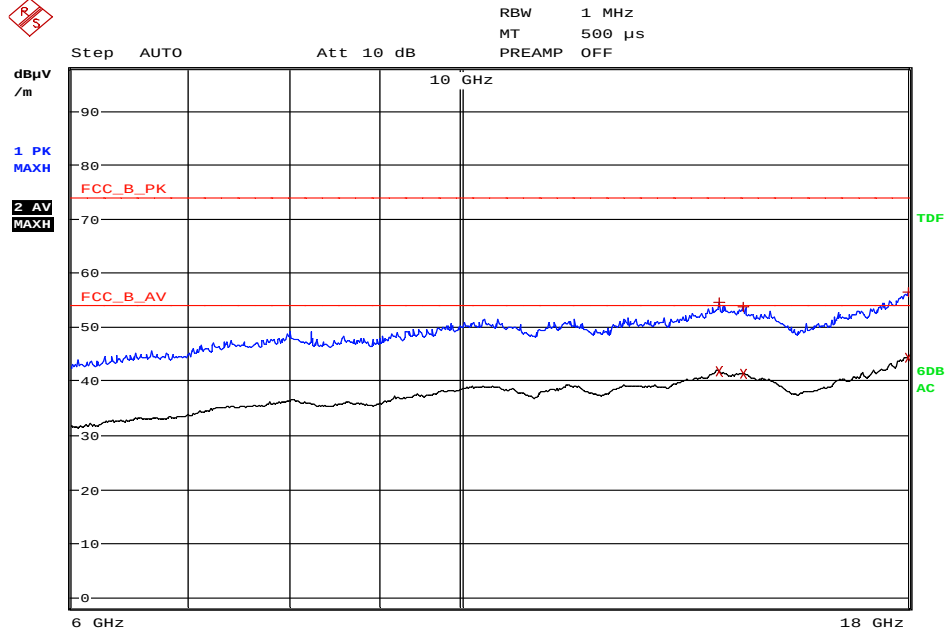
(MODE 3)

*HORIZONTAL



ESTC-21-01058-C-H
Date: 30.AUG.2021 14:41:53

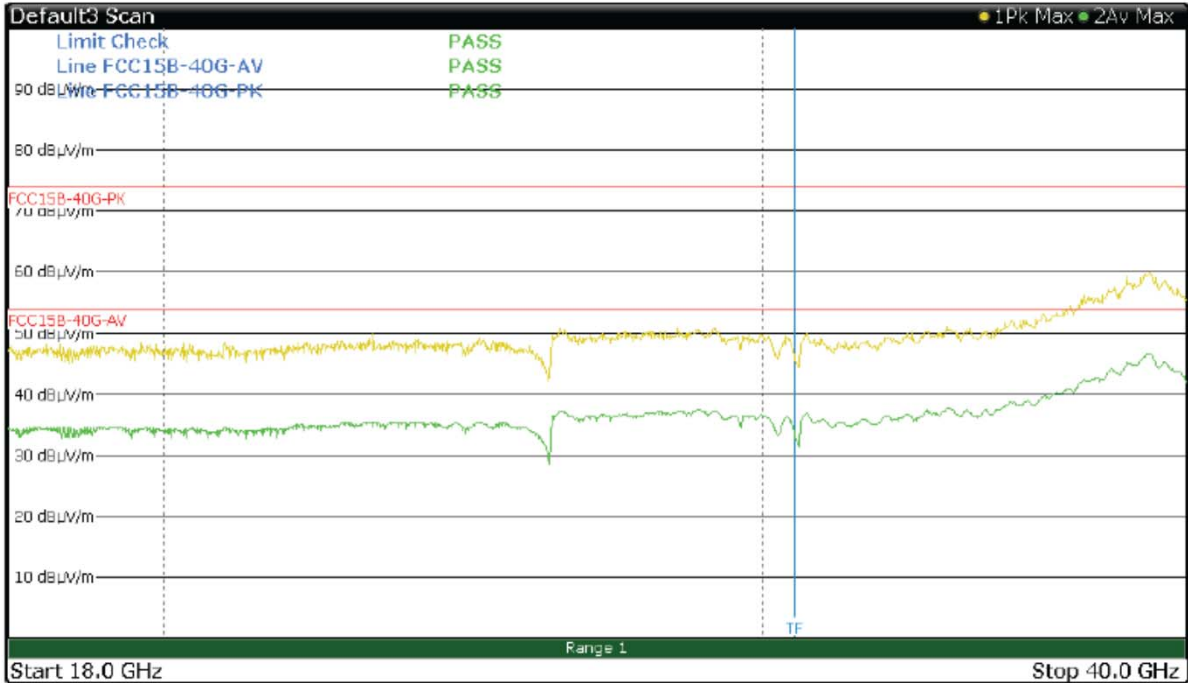
*VERTICAL



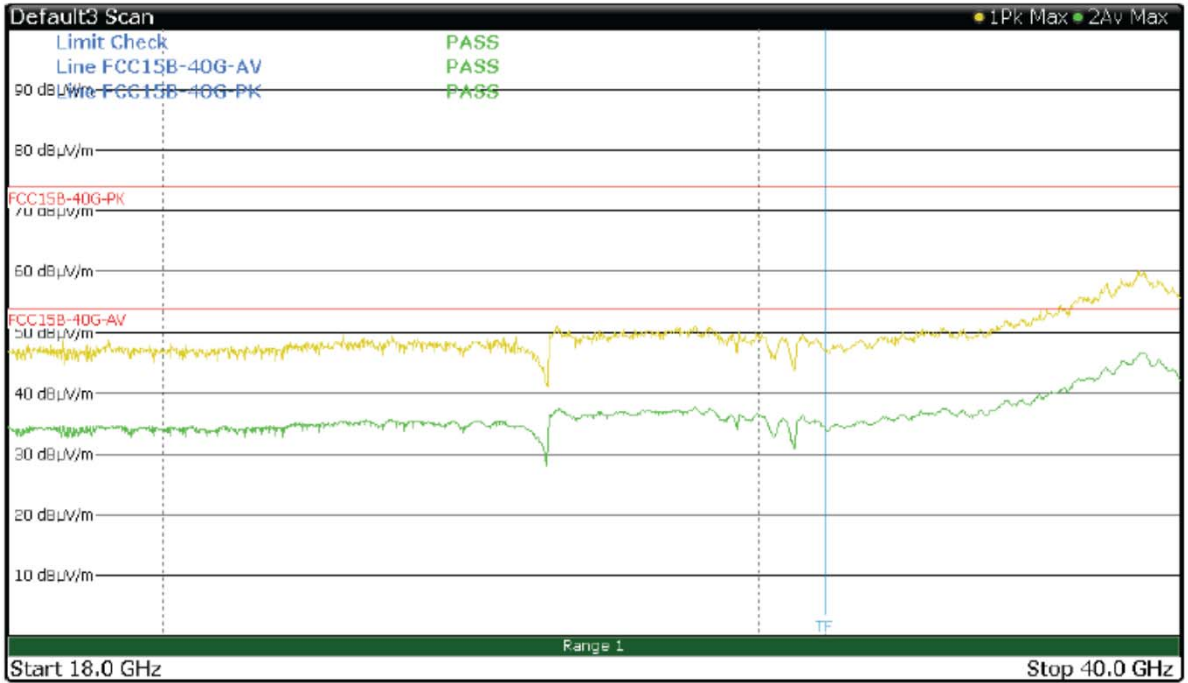
ESTC-21-01058-C-V
Date: 30.AUG.2021 14:34:27

* radiated emission (18 to 40) GHz
(MODE 1)

*HORIZONTAL

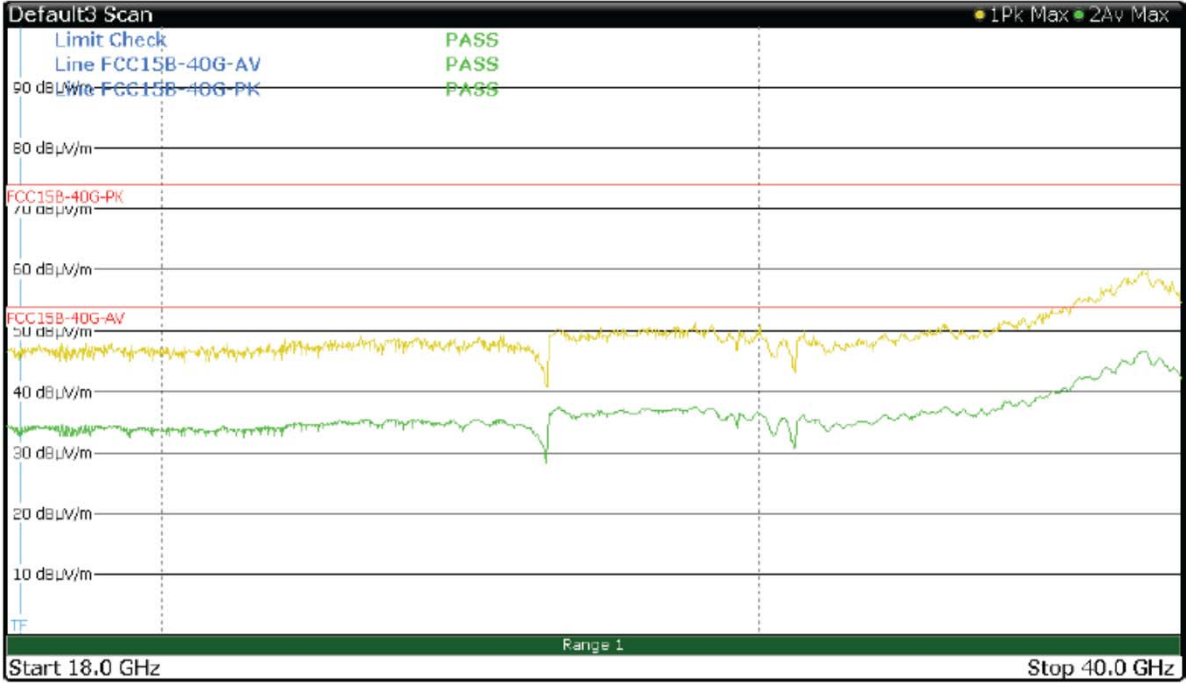


*VERTICAL

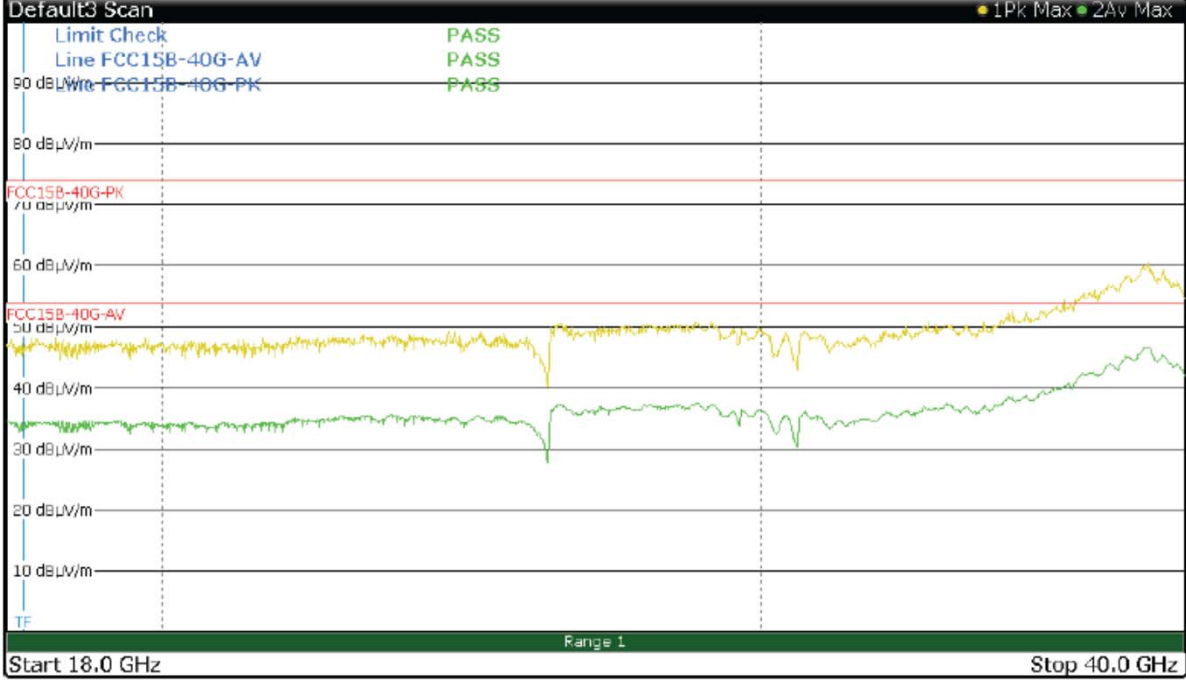


(MODE 2)

*HORIZONTAL

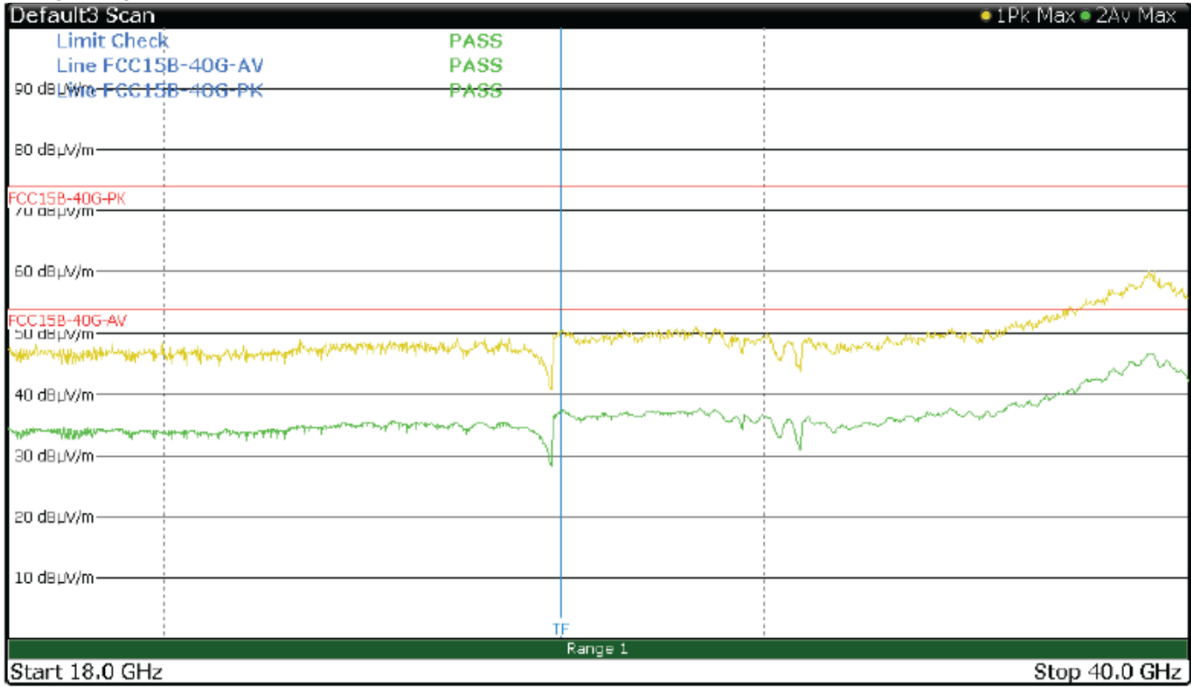


*VERTICAL



(MODE 3)

*HORIZONTAL



*VERTICAL

