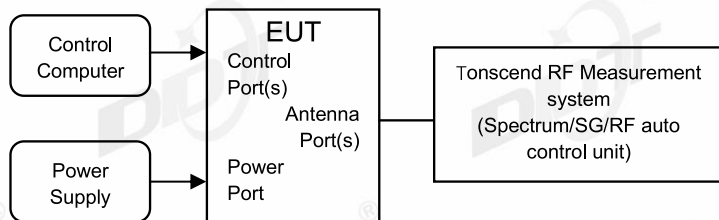




10. Duty Cycle

10.1. Block diagram of test setup



10.2. Limit

Just for Report.

10.3. Test procedure

- (1) Connected the EUT's antenna port to the Spectrum Analyzer by suitable attenuator, The cable loss and attenuator loss have been put into spectrum analyzer as amplitude offset. set the Spectrum Analyzer as below:

Centre Frequency: The centre frequency of the middle hopping channel.

Resolution BW: 10 MHz.

Video BW: 10 MHz.

Span: Zero span.

Detector: Peak.

Trace Mode: Clear Write.

Sweep: Video Trigger

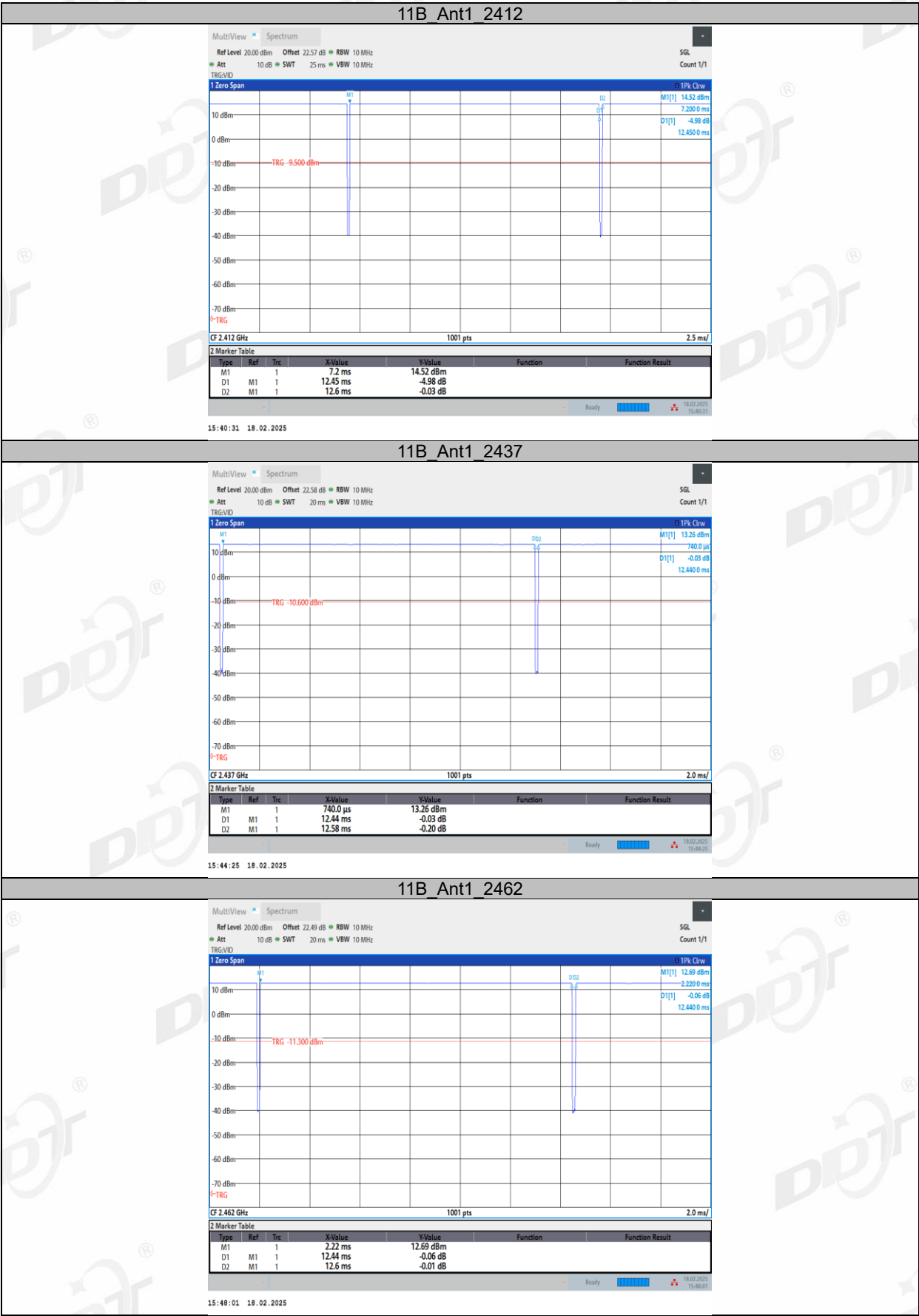
- (2) When the trace is complete, measure the sending time of 1 burst and the duty cycle of 1 burst cycle.
- (3) Calculate dwell time follow below formula:
Duty cycle= Pulse's on time / Burst cycle

10.4. Test result

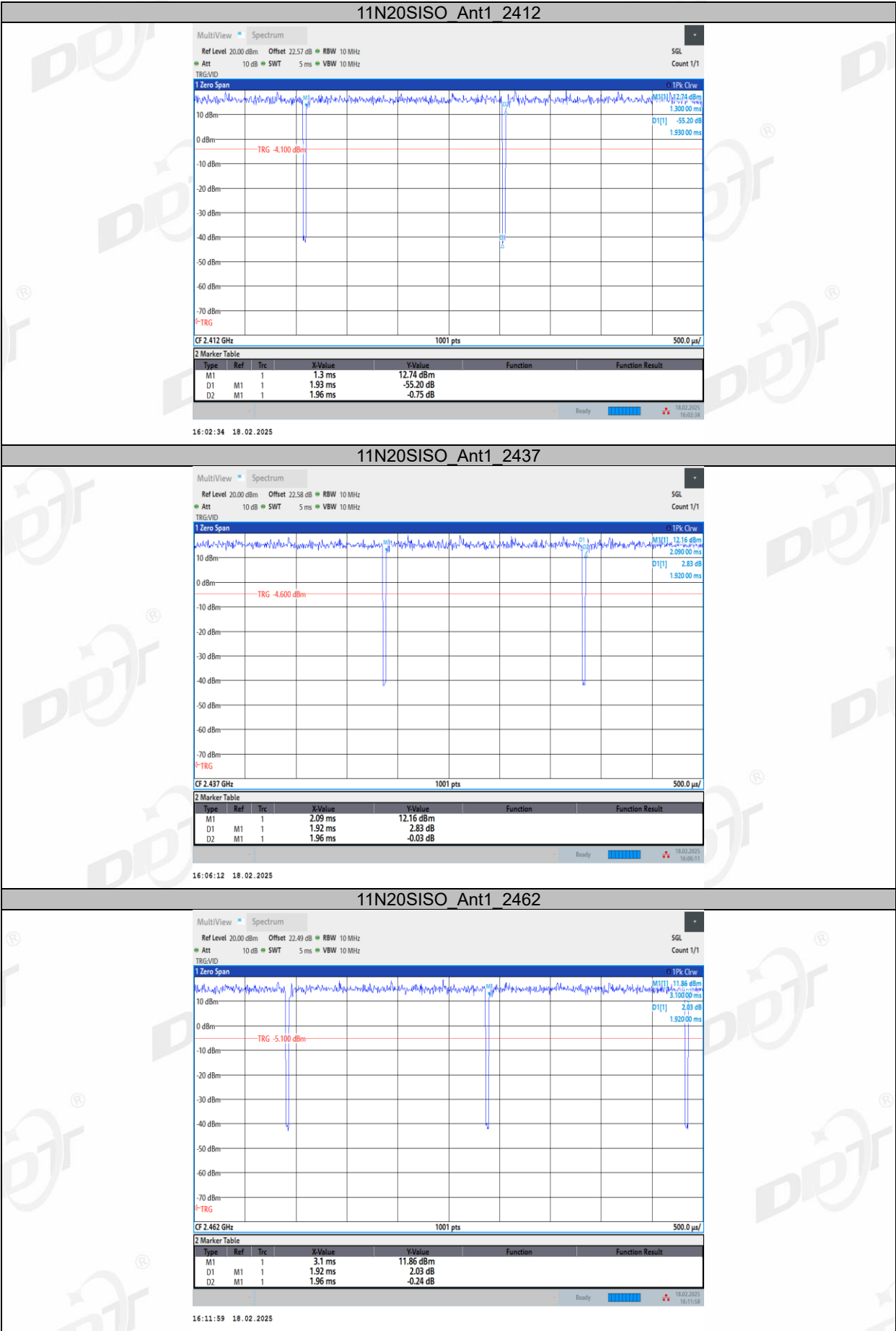
Test Engineer:	Zoe Peng	Test Site:	RF Measurement System 4#
Ambient Condition:	22.3℃, 46.5%RH	Test Date:	2025.02.18-2025.02.18
Test Power Supply:	DC 12V	Sample Number:	S24122405-004

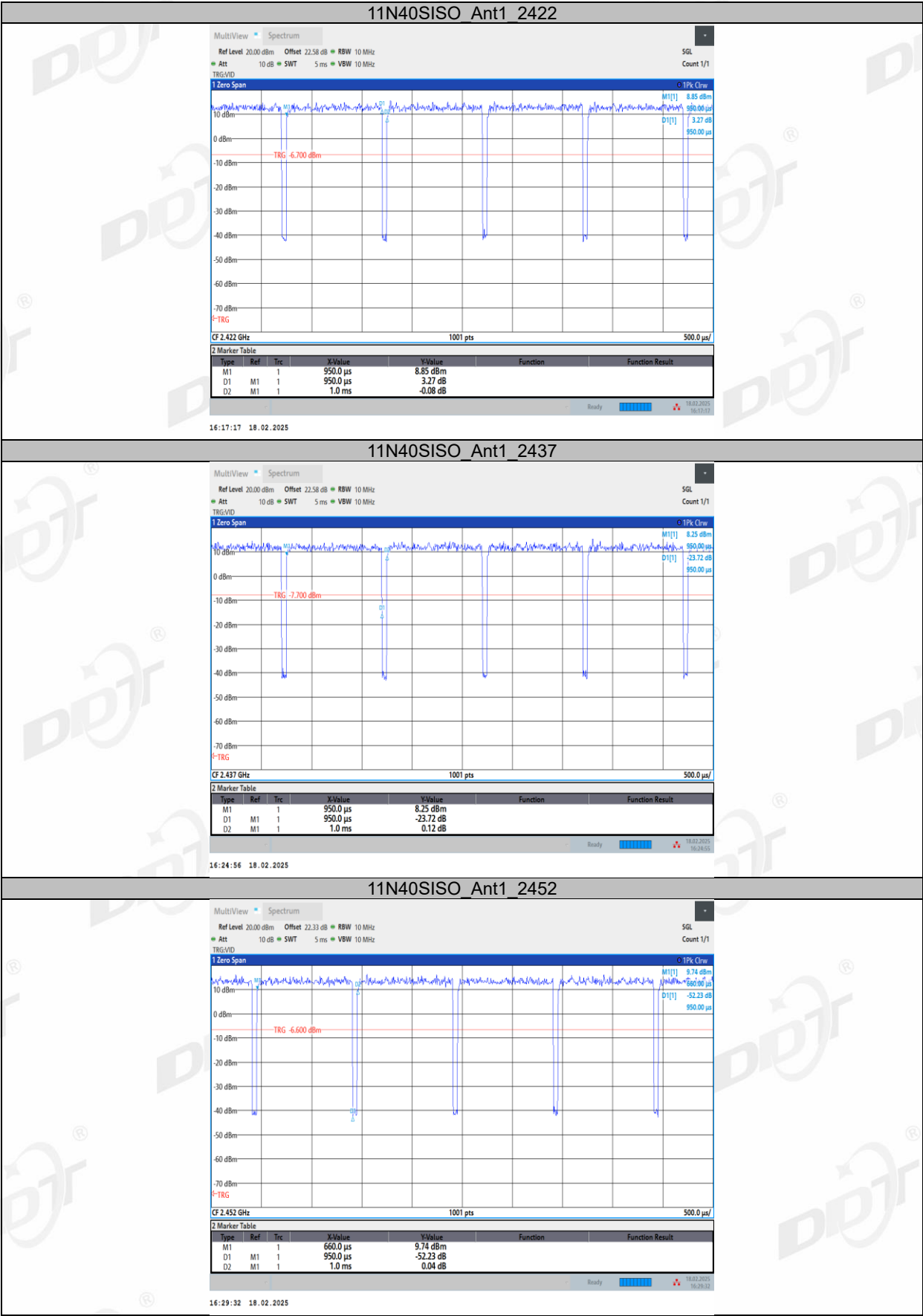
Test Mode	Antenna	Frequency [MHz]	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]
11B	Ant1	2412	12.45	12.60	98.81
		2437	12.44	12.58	98.89
		2462	12.44	12.60	98.73
11G	Ant1	2412	2.06	2.10	98.10
		2437	2.06	2.10	98.10
		2462	2.07	2.10	98.57
11N20SISO	Ant1	2412	1.93	1.96	98.47
		2437	1.92	1.96	97.96
		2462	1.92	1.96	97.96
11N40SISO	Ant1	2422	0.95	1.00	95.00
		2437	0.95	1.00	95.00
		2452	0.95	1.00	95.00

10.5. Test graphs









11. Antenna Requirements

11.1. Limit

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

11.2. Result

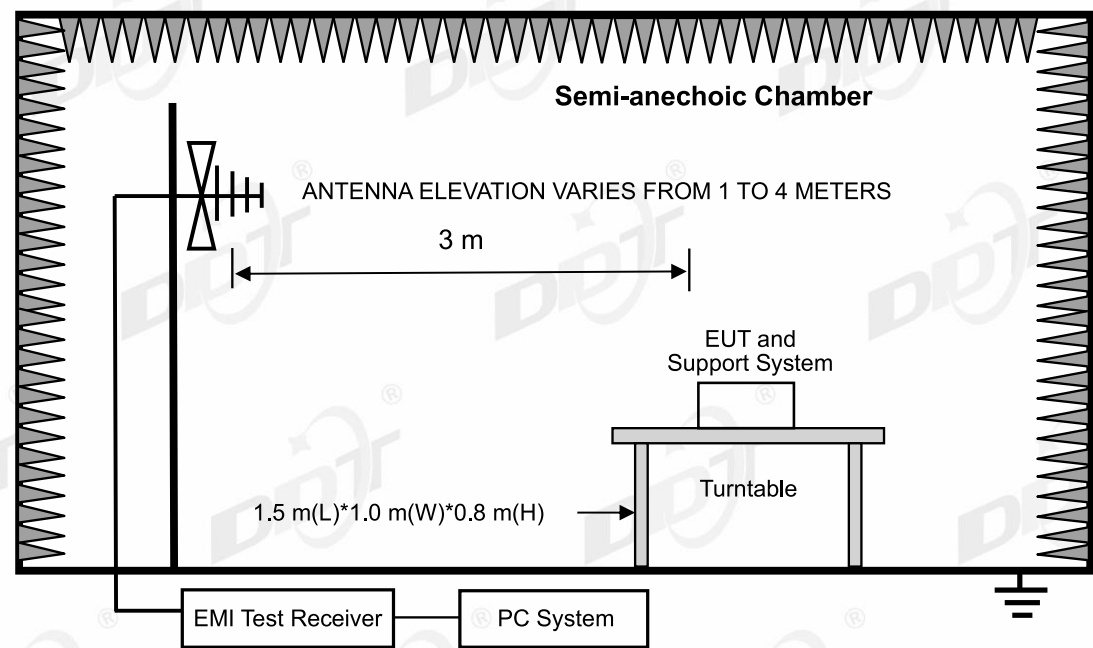
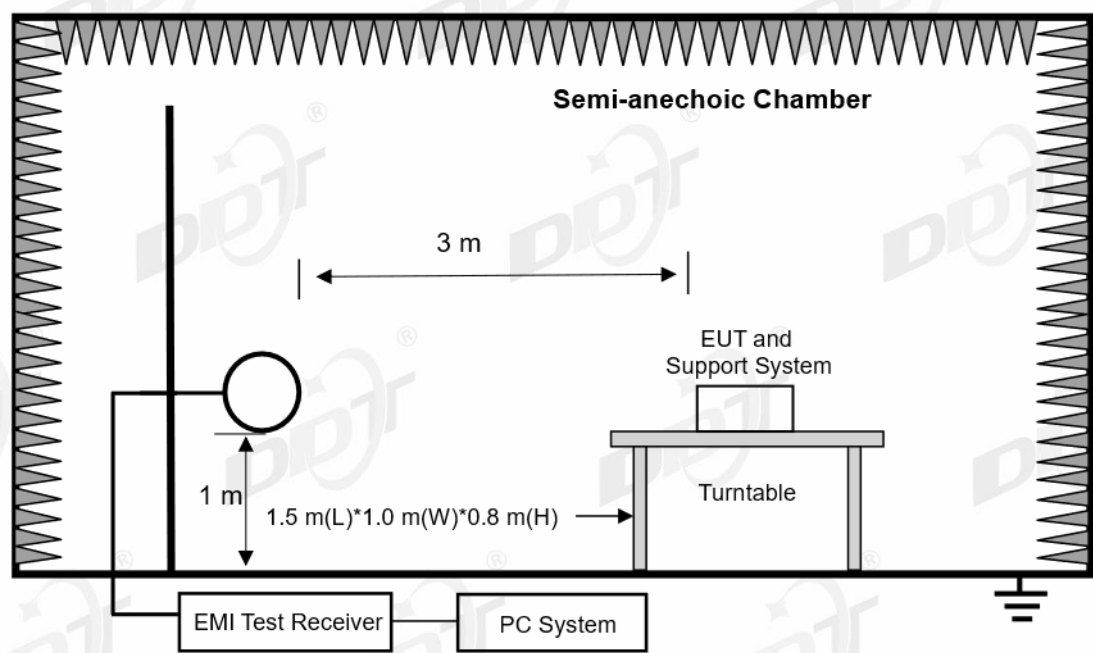
The antenna used for this product as Antenna information described in section 2.1 of the report, and there is no other antenna than that furnished by the responsible party shall be used with the device.

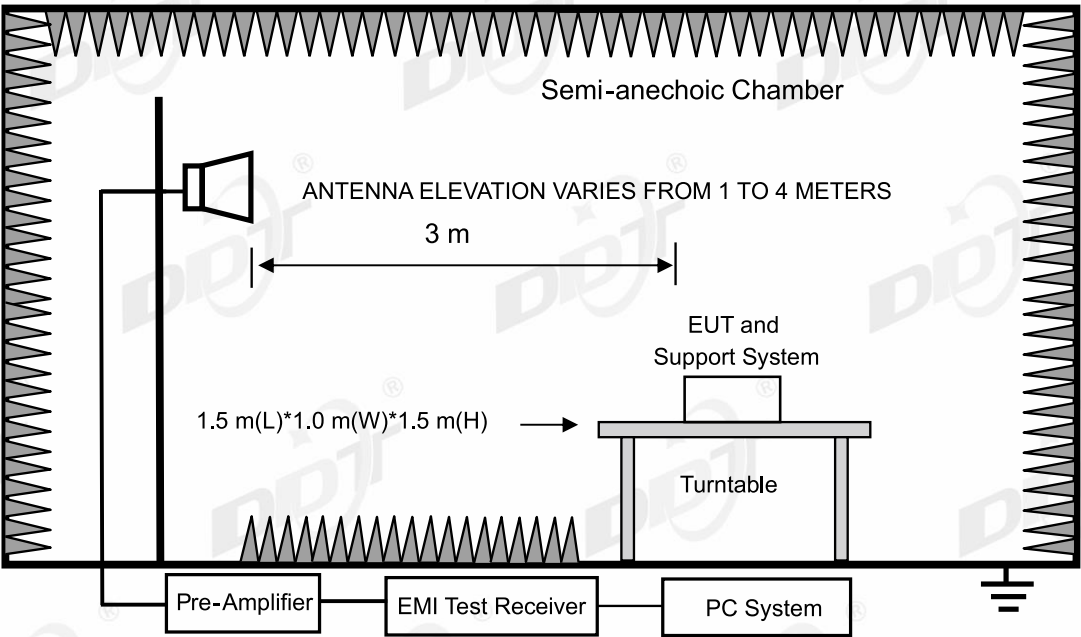
12. Radiated Emission

12.1. Test equipment

Equipment	Manufacturer	Model No.	Serial No.	Cal Due To	Cal. Interval
Active Loop Antenna	Schwarzbeck	FMZB1519	DDT-ZC00524	2025/09/11	2 Year
RF Cable	N/A	W24.02 HL-562	DDT-ZC04022	2025/03/31	1 Year
Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	DDT-ZC00506	2025/04/26	1 Year
RF Cable	N/A	W13.02 AP1-X2	DDT-ZC04023	2025/03/31	1 Year
High Pass filter	Xi'an Xingbo	XBLBQ-GTA67	DDT-ZC02179	2025/04/22	1 Year
EMI TEST RECEIVER	R&S	ESU26	DDT-ZC01909	2025/03/31	1 Year
PSA Series Spectrum Analyzer	Agilent	E4447A	DDT-ZC00517	2025/03/31	1 Year
RF cable	Zhongke Junchuang	JCT26S-NJ-NJ-1.5M	DDT-ZC02762	2025/03/31	1 Year
Micro-Tronics filters	REBES	BRM50716	DDT-ZC03240	/	/
High pass filter	Micro-Tronics	HPM50108	DDT-ZC00560	2025/04/22	1 Year
Trilog Broadband Antenna	Schwarzbeck	VULB 9163	DDT-ZC02050	2025/07/11	2 Year
RF cable	Yuhu Technology	ZT26S-SMAJ-SMAJ-1M	DDT-ZC02037	2025/03/31	1 Year
Hochgewinn-Hornantenne	SCHWARZBECK	BBHA 9120 D	DDT-ZC02129	2025/09/18	2 Year
Micro-Tronics filters	REBES	BRM50702	DDT-ZC03242	/	/
High pass filter	Micro-Tronics	HPM50102	DDT-ZC00561	2025/04/22	1 Year
Pre-amplifier	COM-POWER	PAM-118A	DDT-ZC01293	2025/08/25	1 Year
RF cable	Yuhu Technology	JCTB810-NJ-NJ-9M	DDT-ZC02538	2025/03/31	1 Year
Pre-amplifier	COM-POWER	PAM-840A	DDT-ZC01693	2025/03/31	1 Year

12.2. Block diagram of test setup





12.3. Limits

(1) FCC 15.205 Restricted frequency band

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
¹ 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.1772&4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.2072&4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(²)
13.36-13.41			

1Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz

2Above 38.6

RSS-Gen section 8.10 Restricted frequency bands*

MHz	MHz	MHz	GHz
0.090-0.110	12.51975-12.52025	240-285	3.5-4.4
0.495-0.505	12.57675-12.57725	322-335.4	4.5-5.15
2.1735-2.1905	13.36-13.41	399.9-410	5.35-5.46
3.020-3.026	16.42-16.423	608-614	7.25-7.75
4.125-4.128	16.69475-16.69525	960-1427	8.025-8.5
4.1772&4.17775	16.80425-16.80475	1435-1626.5	9.0-9.2
4.2072&4.20775	25.5-25.67	1645.5-1646.5	9.3-9.5
5.677-5.683	37.5-38.25	1660-1710	10.6-12.7
6.215-6.218	73-74.6	1718.8-1722.2	13.25-13.4
6.26775-6.26825	74.8-75.2	2200-2300	14.47-14.5
6.31175-6.31225	108-138	2310-2390	15.35-16.2
8.291-8.294	149.9-150.05	2483.5-2500	17.7-21.4
8.362-8.366	156.52475-156.52525	2655-2900	22.01-23.12
8.37625-8.38675	156.7-156.9	3260-3267	23.6-24.0
8.41425-8.41475	162.0125-167.17	3332-3339	31.2-31.8
12.29-12.293	167.72-173.2	3345.8-3358	36.43-36.5
			Above 38.6

* Certain frequency bands listed in table and in bands above 38.6 GHz are designated for licence-exempt applications. These frequency bands and the requirements that apply to related devices are set out in the 200 and 300 series of RSSs.

(2) FCC 15.209 Limit & RSS-Gen section 8.9 Limit

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		uV/m	dBuV/m
0.009 ~ 0.490	300	2400/F(kHz)	67.6-20log(F)
0.490 ~ 1.705	30	24000/F(kHz)	87.6-20log(F)
1.705 ~ 30.0	30	30	29.54
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above 1000	3	74.0 dBuV/m (Peak) 54.0 dBuV/m (Average)	

Note:

(1) The emission limits shown in the above table are based on measurements employing a CISPR QP detector except for the frequency bands 9 - 90 kHz, 110 - 490 kHz and above 1000 MHz, radiated emissions limits in these three bands are based on measurements employing an average detector.

(2) At frequencies below 30 MHz, measurement may be performed at a distance closer than that specified, and the limit at closer measurement distance can be extrapolated by below formula:

$$\text{Limit}_{3\text{m}}(\text{dBuV/m}) = \text{Limit}_{30\text{m}}(\text{dBuV/m}) + 40\text{Log}(30\text{m}/3\text{m})$$

(3) Limit for this EUT

The emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209, and the emissions appearing within RSS-Gen section 8.10 Restricted frequency bands shall not exceed the limits shown in RSS-Gen section 8.9, all the other emissions shall be at least 20 dB below the fundamental emissions or comply with 15.209 limits and RSS-Gen section 8.9 limits.

12.4. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	Description	other
/	/	/	/	/

12.5. Test procedure

(1) EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber for below 1G and 150 cm above the ground plane inside a fully-anechoic chamber for above 1G.

(2) Test antenna was located 3 m from the EUT on an adjustable mast, and the antenna used as below table.

Test frequency range	Test antenna used	Test antenna distance
9 kHz - 30 MHz	Active Loop antenna	3 m
30 MHz - 1 GHz	Trilog Broadband Antenna	3 m
1 GHz - 18 GHz	Double Ridged Horn Antenna (1 GHz-18 GHz)	3 m
18 GHz - 40 GHz	Horn Antenna (18 GHz-40 GHz)	1 m

According ANSI C63.10:2013 clause 6.4.6 and 6.5.3, for measurements below 30 MHz, Antenna was located 3 m from EUT, the loop antenna was positioned in three antenna orientations (parallel, perpendicular, and round-parallel), for each measurement antenna alignment, the EUT shall be rotated through 0° to 360° on a turntable, and the lowest height of the magnetic antenna shall be 1 m above the ground. For measurement above 30MHz, the trilog Broadband Antenna or Horn Antenna was located 3m from EUT, Measurements were made with the antenna positioned in both the horizontal and vertical planes of Polarization, and the measurement antenna was varied from 1 m to 4 m. in height above the reference ground plane to obtain the maximum signal strength.

(3) Below pre-scan procedure was first performed in order to find prominent frequency spectrum radiated emissions from 9 kHz to 25 GHz:

(a) Scanning the peak frequency spectrum with the antenna specified in step (3), and the EUT was rotated 360 degree, the antenna height was varied from 1 m to 4 m (Except loop antenna, it's fixed 1 m above ground.)

- (b) Change work frequency or channel of device if practicable.
- (c) Change modulation type of device if practicable.
- (d) Change power supply range from 85% to 115% of the rated supply voltage
- (e) Rotated EUT though three orthogonal axes to determine the attitude of EUT arrangement

produces highest emissions.

Spectrum frequency from 9 kHz to 25 GHz (tenth harmonic of fundamental frequency) was investigated, and no any obvious emission were detected from 18 GHz to 25 GHz, so below final test was performed with frequency range from 9 kHz to 18 GHz.

(4) For final emissions measurements at each frequency of interest, the EUT was rotated and the antenna height was varied between 1 m and 4 m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. In order to find the maximum emission, the relative positions of equipment and all of the interface cables were changed according to ANSI C63.10:2013 on Radiated Emission test.

(5) The emissions from 9 kHz to 1 GHz were measured based on CISPR QP detector except for the frequency bands 9 - 90 kHz, 110 - 490 kHz, for emissions from 9 kHz - 90 kHz, 110 kHz - 490 kHz and above 1 GHz were measured based on average detector, for emissions above 1 GHz, peak emissions also be measured and need comply with Peak limit.

(6) The emissions from 9 kHz to 1 GHz, QP or average values were measured with EMI receiver with below RBW.

Frequency band	RBW
9 kHz - 150 kHz	200 Hz
150 kHz - 30 MHz	9 kHz
30 MHz - 1 GHz	120 kHz

(7) For emissions above 1GHz, both Peak and Average level were measured with Spectrum Analyzer, and the RBW is set at 1 MHz, VBW is set at 3 MHz for Peak measure; According ANSI C63.10:2013 clause 4.1.4.2.2 procedure for average measure.

(8) For portable device, X axis, Y axis, Z axis are tested, and worse setup is reported.

(9) According exploratory test, the emission levels are 20 dB below the limit detected from 9 kHz to 30 MHz and 18 GHz to 25 GHz, so the final test was performed with frequency range from 30 MHz to 18 GHz and recorded in below.

(10) 30 MHz ~ 25 GHz: (Scan with all mode, the worst case is record and report)

(11) For emissions below 1 GHz, according exploratory explorer test, when change Tx mode and channel, have no distinct influence on emissions level, so for emissions below 1 GHz, the final test was only performed with the worst mode.

(12) The worst simultaneous case and was recorded.

12.6. Test result

PASS. (See below detailed test result)

12.7. Test data

TR-4-E-009 Radiated Emission Test Result

Test Date:

2025-01-16

Tested By:

Zhong Nan

EUT:

In-vehicle Multimedia Screen

Model Number:

MTCJ20

Test Mode:

2.4G WIFI TX mode

Power Supply:

DC 12V

Condition:

Temp:21.4°C;Humi:47.1%

Test Site:

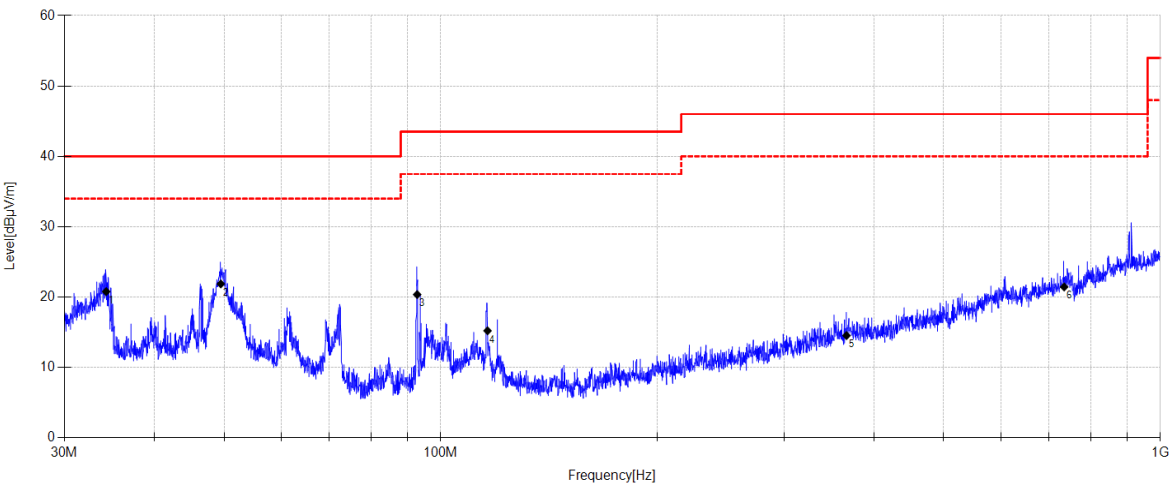
DDT 3# Chamber

File Path:

d:\ts\2024 report data\Q24122405-6E\FCC BELOW1G\20250116-043345_H

Memo:

Sample Number:S24122405-001 Power Setting:10



Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable Loss [dB]	Result [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	34.299	36.53	11.56	3.79	20.78	40.00	19.22	QP	Horizontal
2	49.493	36.24	12.85	3.88	21.87	40.00	18.13	QP	Horizontal
3	92.766	37.97	9.32	4.17	20.36	43.50	23.14	QP	Horizontal
4	116.182	31.15	10.87	4.31	15.21	43.50	28.29	QP	Horizontal
5	366.383	25.32	15.15	5.49	14.53	46.00	31.47	QP	Horizontal
6	735.052	26	20.00	6.78	21.44	46.00	24.56	QP	Horizontal

Note:

1. Result Level = Reading + Cable loss + Antenna Factor + AMP

2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date:

2025-01-16

Tested By:

Zhong Nan

EUT:

In-vehicle Multimedia Screen

Model Number:

MTCJ20

Test Mode:

2.4G WIFI TX mode

Power Supply:

DC 12V

Condition:

Temp:21.4°C;Humi:47.1%

Test Site:

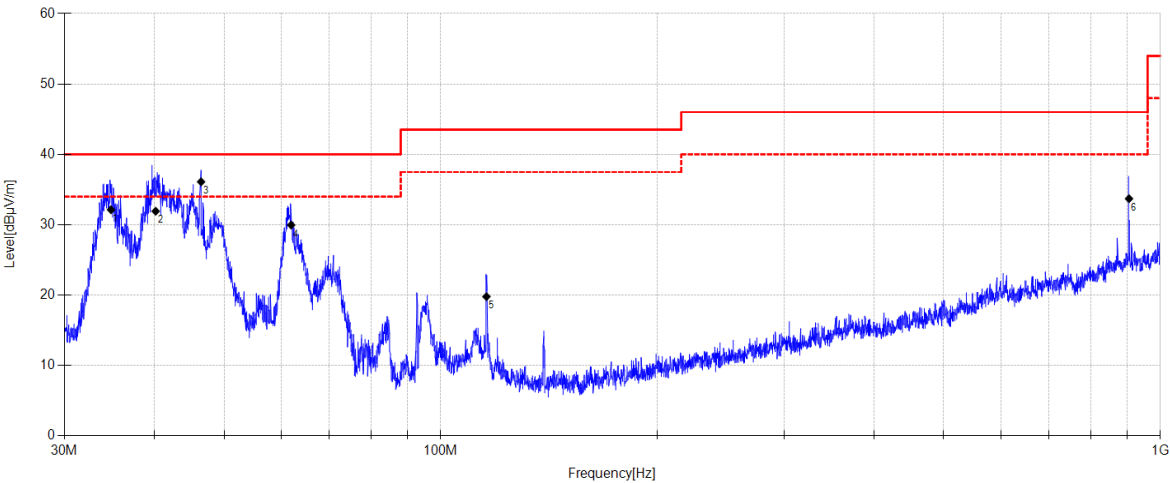
DDT 3# Chamber

File Path:

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Memo:

Sample Number:S24122405-001 Power Setting:10



Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable Loss [dB]	Result [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	34.832	47.85	11.59	3.79	32.13	40.00	7.87	QP	Vertical
2	40.181	47.33	11.87	3.82	31.92	40.00	8.08	QP	Vertical
3	46.466	50.71	12.63	3.86	36.10	40.00	3.90	QP	Vertical
4	61.986	44.29	12.79	3.97	29.95	40.00	10.05	QP	Vertical
5	115.776	35.75	10.84	4.31	19.78	43.50	23.72	QP	Vertical
6	904.595	35.14	21.90	7.21	33.70	46.00	12.30	QP	Vertical

Note:

1. Result Level = Reading + Cable loss + Antenna Factor + AMP

2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date:

2025-01-15

Tested By:

Zhong Nan

EUT:

In-vehicle Multimedia Screen

Model Number:

MTCJ20

Test Mode:

11N20 2412MHz TX mode

Power Supply:

DC 12V

Condition:

Temp:21.4°C;Humi:47.1%

Test Site:

DDT 3# Chamber

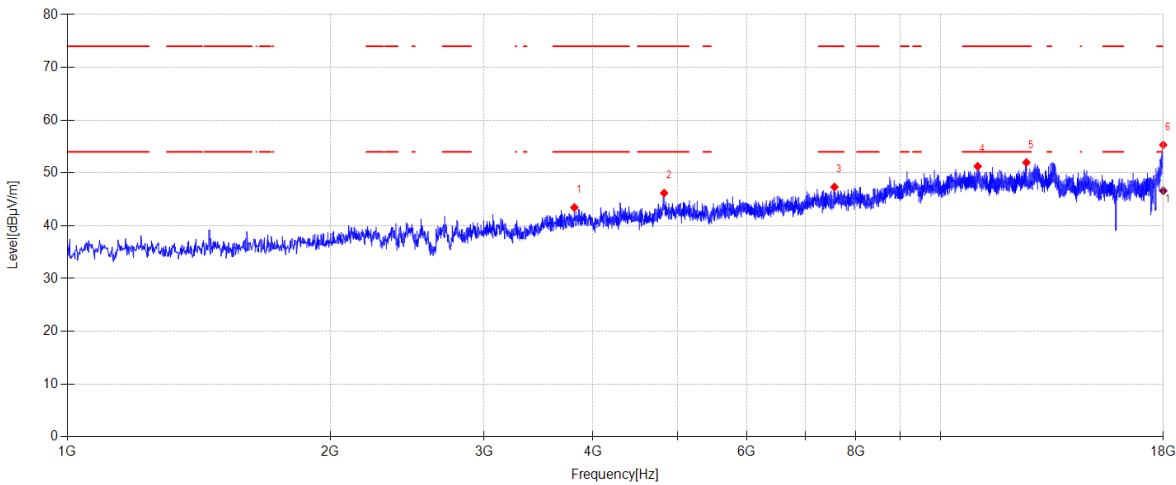
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d:\ts\2024 report data\Q24122405-6E\FCC ABOVE1G 2.4G\1

Memo:

Sample Number:S24122405-001 Power Setting:10

Test Graph



Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	3808.400	47.27	30.73	5.08	-39.63	43.45	74.00	30.55	PK	Horizontal
2	4825.000	47.09	33.15	5.55	-39.61	46.18	74.00	27.82	PK	Horizontal
3	7562.000	44.67	36.42	6.74	-40.49	47.34	74.00	26.66	PK	Horizontal
4	11031.700	42.84	39.30	8.15	-39.03	51.26	74.00	22.74	PK	Horizontal
5	12543.000	43.43	39.40	9.04	-39.89	51.98	74.00	22.02	PK	Horizontal
6	17994.900	39.77	42.37	13.18	-40.00	55.32	74.00	18.68	PK	Horizontal

Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	17994.900	31.06	42.37	13.18	46.61	54.00	7.39	AV	Horizontal

- Note:
1. Level = Reading + Cable loss + Antenna Factor + AMP

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date:

2025-01-15

Tested By:

Zhong Nan

EUT:

In-vehicle Multimedia Screen

Model Number:

MTCJ20

Test Mode:

11N20 2412MHz TX mode

Power Supply:

DC 12V

Condition:

Temp:21.4°C;Humi:47.1%

Test Site:

DDT 3# Chamber

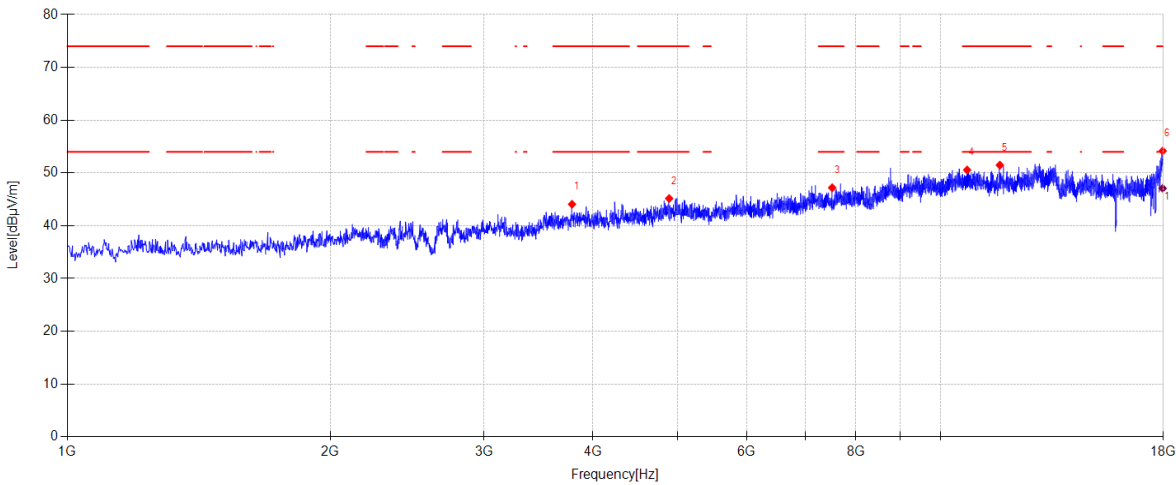
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Memo:

Sample Number:S24122405-001 Power Setting:10

Test Graph



Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	3784.600	47.97	30.64	5.09	-39.63	44.07	74.00	29.93	PK	Vertical
2	4889.600	46.02	33.17	5.58	-39.61	45.16	74.00	28.84	PK	Vertical
3	7516.100	44.56	36.47	6.71	-40.54	47.20	74.00	26.80	PK	Vertical
4	10729.100	42.34	39.40	7.99	-39.16	50.57	74.00	23.43	PK	Vertical
5	11694.700	43.60	39.00	8.57	-39.69	51.48	74.00	22.52	PK	Vertical
6	17969.400	38.82	42.25	13.10	-40.00	54.17	74.00	19.83	PK	Vertical

Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	17969.400	31.74	42.25	13.10	47.09	54.00	6.91	AV	Vertical

- Note:
1. Level = Reading + Cable loss + Antenna Factor + AMP

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date:

2025-01-15

Tested By:

Zhong Nan

EUT:

In-vehicle Multimedia Screen

Model Number:

MTCJ20

Test Mode:

11N20 2462MHz TX mode

Power Supply:

DC 12V

Condition:

Temp:21.4°C;Humi:47.1%

Test Site:

DDT 3# Chamber

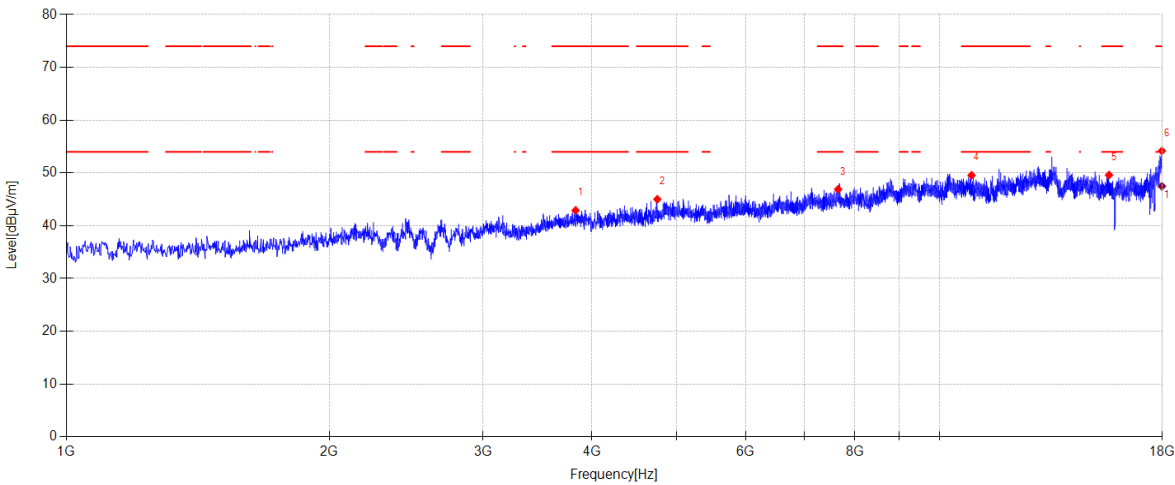
File Path:

d:\ts\2024 report data\Q24122405-6E\FCC ABOVE1G 2.4G\3

Memo:

Sample Number:S24122405-001 Power Setting:10

Test Graph



Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	3830.500	46.64	30.82	5.08	-39.64	42.90	74.00	31.10	PK	Horizontal
2	4751.900	46.83	32.31	5.50	-39.62	45.02	74.00	28.98	PK	Horizontal
3	7655.500	43.91	36.61	6.79	-40.41	46.90	74.00	27.10	PK	Horizontal
4	10882.100	41.23	39.32	8.07	-39.07	49.55	74.00	24.45	PK	Horizontal
5	15638.700	40.53	38.56	9.91	-39.40	49.60	74.00	24.40	PK	Horizontal
6	17977.900	38.76	42.29	13.13	-40.00	54.18	74.00	19.82	PK	Horizontal

Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	17977.900	32.06	42.29	13.13	47.48	54.00	6.52	AV	Horizontal

- Note:
1. Level = Reading + Cable loss + Antenna Factor + AMP

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date:

2025-01-15

Tested By:

Zhong Nan

EUT:

In-vehicle Multimedia Screen

Model Number:

MTCJ20

Test Mode:

11N20 2462MHz TX mode

Power Supply:

DC 12V

Condition:

Temp:21.4°C;Humi:47.1%

Test Site:

DDT 3# Chamber

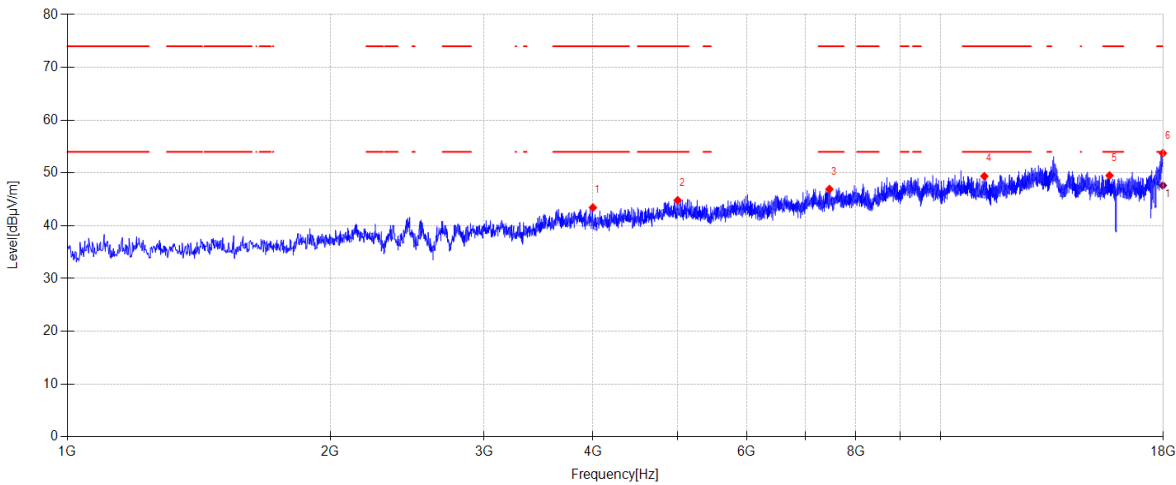
File Path:

d:\ts\2024 report data\Q24122405-6E\FCC ABOVE1G 2.4G\4

Memo:

Sample Number:S24122405-001 Power Setting:10

Test Graph



Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	3998.800	47.16	30.90	5.05	-39.68	43.43	74.00	30.57	PK	Vertical
2	5000.100	45.57	33.20	5.65	-39.60	44.82	74.00	29.18	PK	Vertical
3	7461.700	44.25	36.58	6.68	-40.58	46.93	74.00	27.07	PK	Vertical
4	11227.200	41.15	39.20	8.27	-39.23	49.39	74.00	24.61	PK	Vertical
5	15620.000	40.43	38.58	9.90	-39.40	49.51	74.00	24.49	PK	Vertical
6	17977.900	38.32	42.29	13.13	-40.00	53.74	74.00	20.26	PK	Vertical

Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	17977.900	32.21	42.29	13.13	47.63	54.00	6.37	AV	Vertical

- Note:
1. Level = Reading + Cable loss + Antenna Factor + AMP

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date:

2025-01-15

Tested By:

Zhong Nan

EUT:

In-vehicle Multimedia Screen

Model Number:

MTCJ20

Test Mode:

11N20 2437MHz TX mode

Power Supply:

DC 12V

Condition:

Temp:21.4°C;Humi:47.1%

Test Site:

DDT 3# Chamber

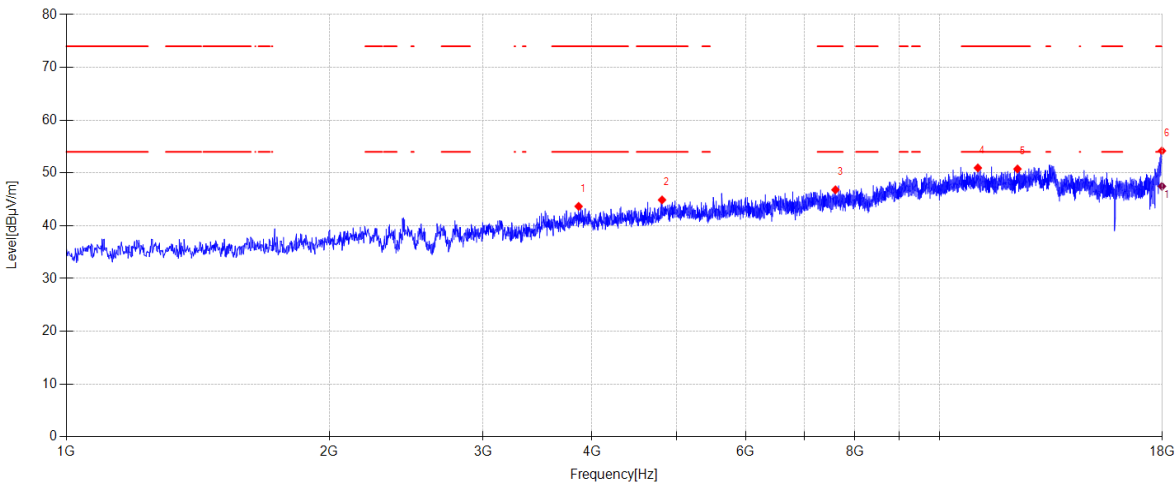
File Path:

d:\ts\2024 report data\Q24122405-6E\FCC ABOVE1G 2.4G\29

Memo:

Sample Number:S24122405-001 Power Setting:10

Test Graph



Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	3861.100	47.28	30.97	5.07	-39.65	43.67	74.00	30.33	PK	Horizontal
2	4811.400	46.17	32.80	5.54	-39.62	44.89	74.00	29.11	PK	Horizontal
3	7601.100	44.01	36.50	6.76	-40.46	46.81	74.00	27.19	PK	Horizontal
4	11065.700	42.56	39.30	8.17	-39.07	50.96	74.00	23.04	PK	Horizontal
5	12284.600	42.48	39.30	8.91	-39.94	50.75	74.00	23.25	PK	Horizontal
6	17983.000	38.73	42.32	13.14	-40.00	54.19	74.00	19.81	PK	Horizontal

Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	17983.000	32.01	42.32	13.14	47.47	54.00	6.53	AV	Horizontal

- Note:
1. Level = Reading + Cable loss + Antenna Factor + AMP

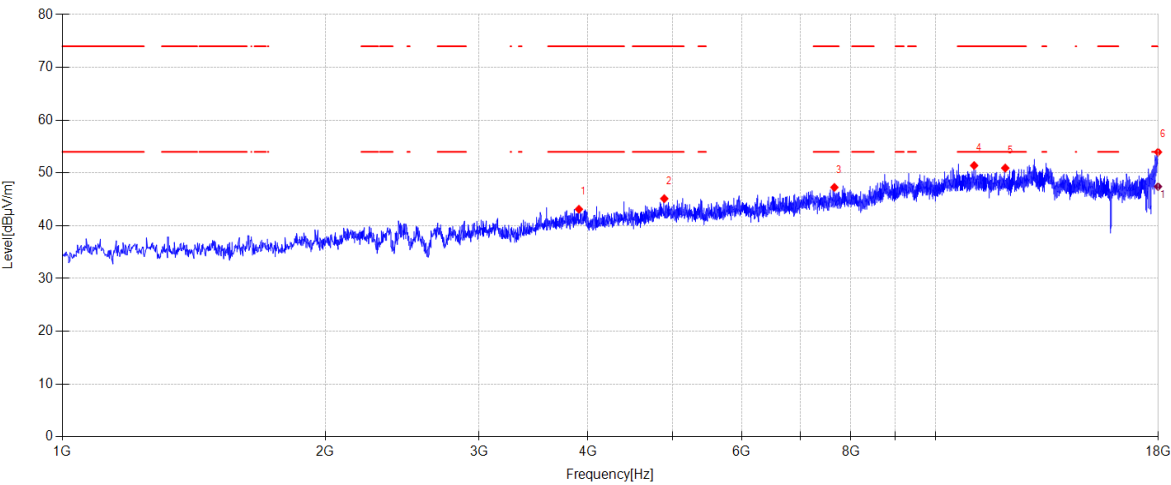
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2025-01-15 Tested By: Zhong Nan
EUT: In-vehicle Multimedia Screen Model Number: MTCJ20
Test Mode: 11N20 2437MHz TX mode Power Supply: DC 12V
Condition: Temp:21.4°C;Humi:47.1% Test Site: DDT 3# Chamber
File Path: d:\ts\2024 report data\Q24122405-6E\FCC ABOVE1G 2.4G\30
Memo: Sample Number:S24122405-001 Power Setting:10

Test Graph



Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	3905.300	46.53	31.19	5.07	-39.66	43.13	74.00	30.87	PK	Vertical
2	4891.300	46.02	33.14	5.58	-39.61	45.13	74.00	28.87	PK	Vertical
3	7660.600	44.27	36.62	6.79	-40.41	47.27	74.00	26.73	PK	Vertical
4	11074.200	43.00	39.30	8.18	-39.07	51.41	74.00	22.59	PK	Vertical
5	12021.100	42.94	39.22	8.77	-40.00	50.93	74.00	23.07	PK	Vertical
6	17986.400	38.47	42.33	13.15	-40.00	53.95	74.00	20.05	PK	Vertical

Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	17986.400	31.94	42.33	13.15	47.42	54.00	6.58	AV	Vertical

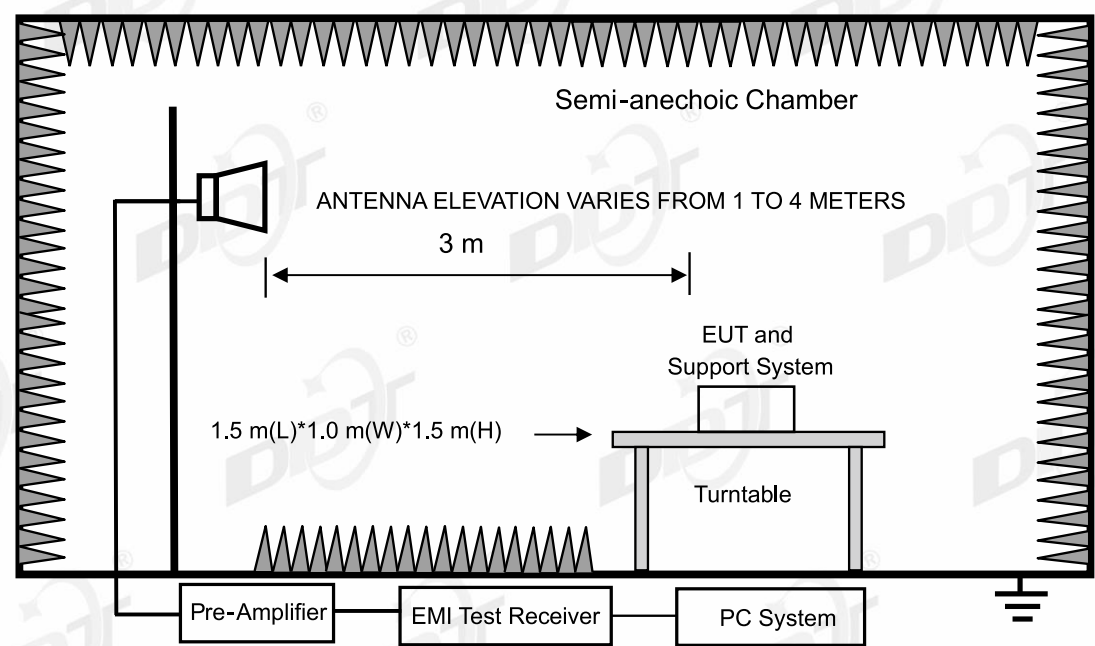
- Note:
- 1. Level = Reading + Cable loss + Antenna Factor + AMP
 - 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
 - 3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

13. Band Edge Compliance

13.1. Test equipment

Equipment	Manufacturer	Model No.	Serial No.	Cal Due To	Cal. Interval
Active Loop Antenna	Schwarzbeck	FMZB1519	DDT-ZC00524	2025/09/11	2 Year
RF Cable	N/A	W24.02 HL-562	DDT-ZC04022	2025/03/31	1 Year
Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	DDT-ZC00506	2025/04/26	1 Year
RF Cable	N/A	W13.02 AP1-X2	DDT-ZC04023	2025/03/31	1 Year
High Pass filter	Xi'an Xingbo	XBLBQ-GTA67	DDT-ZC02179	2025/04/22	1 Year
EMI TEST RECEIVER	R&S	ESU26	DDT-ZC01909	2025/03/31	1 Year
PSA Series Spectrum Analyzer	Agilent	E4447A	DDT-ZC00517	2025/03/31	1 Year
RF cable	Zhongke Junchuang	JCT26S-NJ-NJ-1.5M	DDT-ZC02762	2025/03/31	1 Year
Micro-Tronics filters	REBES	BRM50716	DDT-ZC03240	/	/
High pass filter	Micro-Tronics	HPM50108	DDT-ZC00560	2025/04/22	1 Year
Trilog Broadband Antenna	Schwarzbeck	VULB 9163	DDT-ZC02050	2025/07/11	2 Year
RF cable	Yuhu Technology	ZT26S-SMAJ-SMAJ-1M	DDT-ZC02037	2025/03/31	1 Year
Hochgewinn-Hornantenne	SCHWARZBECK	BBHA 9120 D	DDT-ZC02129	2025/09/18	2 Year
Micro-Tronics filters	REBES	BRM50702	DDT-ZC03242	/	/
High pass filter	Micro-Tronics	HPM50102	DDT-ZC00561	2025/04/22	1 Year
Pre-amplifier	COM-POWER	PAM-118A	DDT-ZC01293	2025/08/25	1 Year
RF cable	Yuhu Technology	JCTB810-NJ-NJ-9M	DDT-ZC02538	2025/03/31	1 Year
Pre-amplifier	COM-POWER	PAM-840A	DDT-ZC01693	2025/03/31	1 Year

13.2. Block diagram of test setup



13.3. Limits

All restriction band should comply with 15.209 and RSS-Gen section 8.9 limits, other emission should be at least 20 dB below the fundamental.

13.4. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	Description	other
/	/	/	/	/

13.5. Test procedure

Same with Radiated Emission except change investigated frequency range.

Remark: All restriction band have been tested, and only the worst case is shown in report.

13.6. Test result

PASS. (See below detailed test result)

13.7. Test data

TR-4-E-009 Radiated Emission Test Result

Test Date:

2025-01-15

Tested By:

Zhong Nan

EUT:

In-vehicle Multimedia Screen

Model Number:

MTCJ20

Test Mode:

11N20 2462MHz TX mode

Power Supply:

DC 12V

Condition:

Temp:21.4°C;Humi:47.1%

Test Site:

DDT 3# Chamber

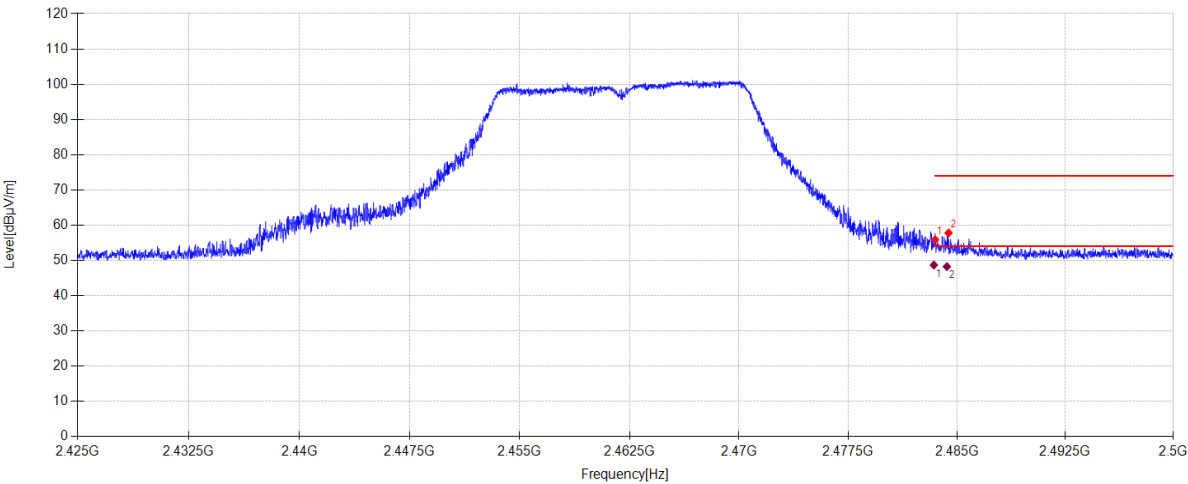
File Path:

d:\ts\2024 report data\Q24122405-6E\FCC ABOVE1G 2.4G\5

Memo:

Sample Number:S24122405-001 Power Setting:10

Test Graph



Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2483.500	24.72	27.53	3.62	0.00	55.87	74.00	18.13	PK	Horizontal
2	2484.430	26.63	27.54	3.62	0.00	57.79	74.00	16.21	PK	Horizontal

Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2483.415	17.53	27.53	3.62	48.68	54.00	5.32	AV	Horizontal
2	2484.315	17.09	27.54	3.62	48.25	54.00	5.75	AV	Horizontal

Note:

1. Level = Reading + Cable loss + Antenna Factor + AMP

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date:

2025-01-15

Tested By:

Zhong Nan

EUT:

In-vehicle Multimedia Screen

Model Number:

MTCJ20

Test Mode:

11N20 2462MHz TX mode

Power Supply:

DC 12V

Condition:

Temp:21.4°C;Humi:47.1%

Test Site:

DDT 3# Chamber

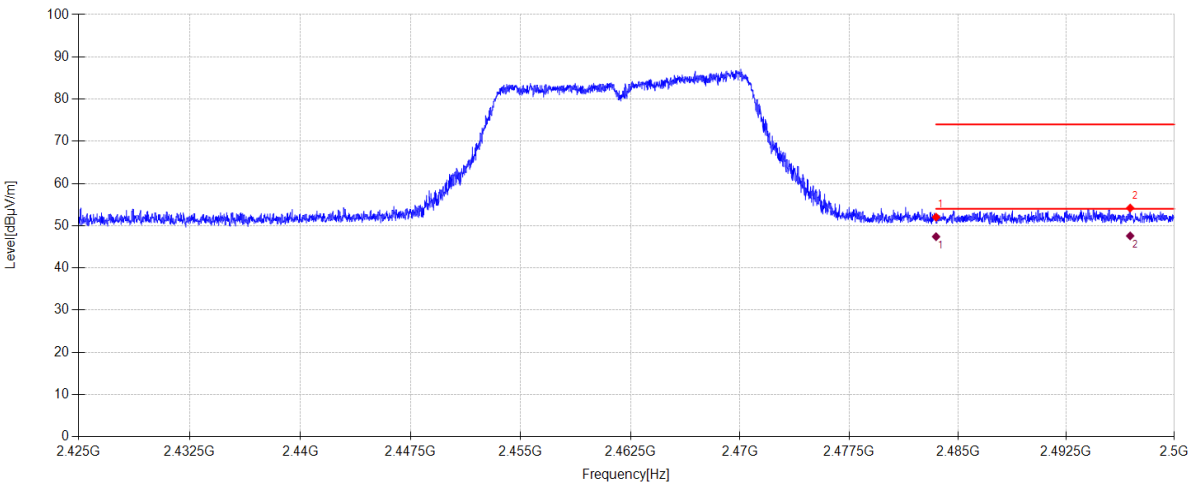
File Path:

d:\ts\2024 report data\Q24122405-6E\FCC ABOVE1G 2.4G\6

Memo:

Sample Number:S24122405-001 Power Setting:10

Test Graph



Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2483.500	20.88	27.53	3.62	0.00	52.03	74.00	21.97	PK	Vertical
2	2496.933	22.96	27.59	3.63	0.00	54.18	74.00	19.82	PK	Vertical

Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2483.500	16.26	27.53	3.62	47.41	54.00	6.59	AV	Vertical
2	2496.933	16.37	27.59	3.63	47.59	54.00	6.41	AV	Vertical

- Note:
1. Level = Reading + Cable loss + Antenna Factor + AMP

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date:

2025-01-15

Tested By:

Zhong Nan

EUT:

In-vehicle Multimedia Screen

Model Number:

MTCJ20

Test Mode:

11N20 2412MHz TX mode

Power Supply:

DC 12V

Condition:

Temp:21.4°C;Humi:47.1%

Test Site:

DDT 3# Chamber

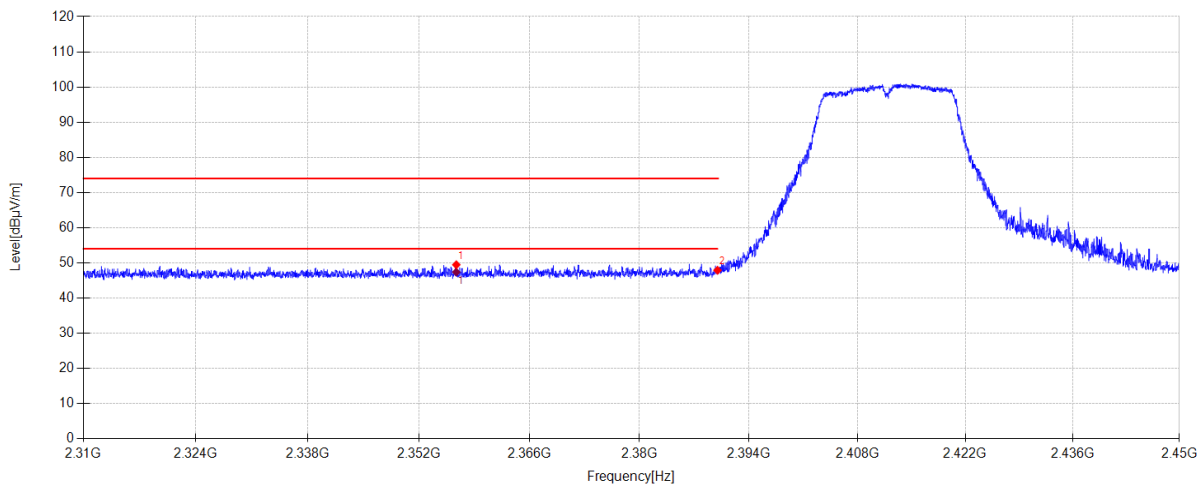
File Path:

d:\ts\2024 report data\Q24122405-6E\FCC ABOVE1G 2.4G\7

Memo:

Sample Number:S24122405-001 Power Setting:10

Test Graph



Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2356.718	18.79	27.13	3.55	0.00	49.47	74.00	24.53	PK	Horizontal
2	2390.000	17.08	27.26	3.57	0.00	47.91	74.00	26.09	PK	Horizontal

Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity	
1	2356.718	16.71	27.13	3.55	47.39	54.00	6.61	AV	Horizontal	

Note:

1. Level = Reading + Cable loss + Antenna Factor + AMP

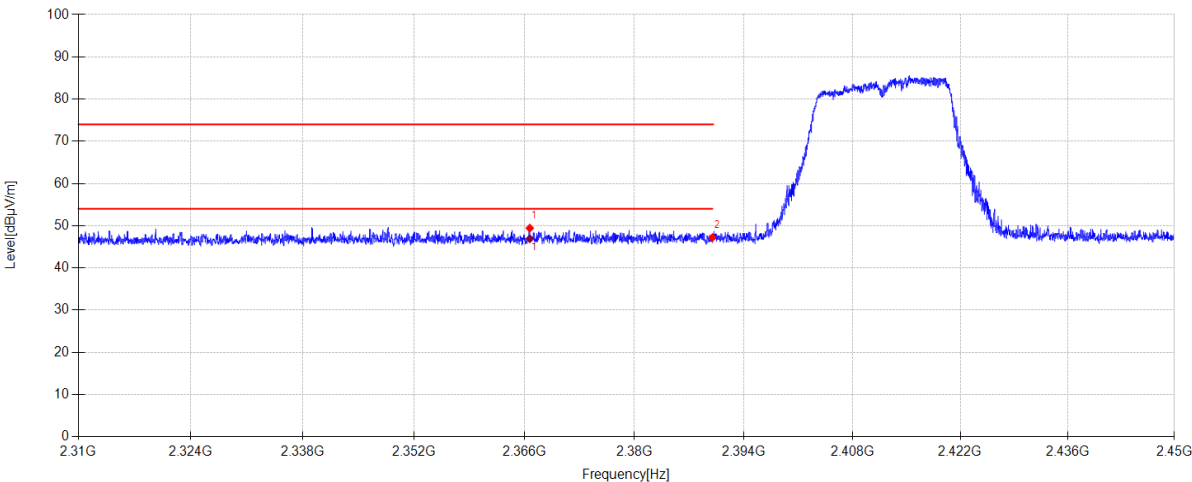
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2025-01-15 Tested By: Zhong Nan
EUT: In-vehicle Multimedia Screen Model Number: MTCJ20
Test Mode: 11N20 2412MHz TX mode Power Supply: DC 12V
Condition: Temp:21.4°C;Humi:47.1% Test Site: DDT 3# Chamber
File Path: d:\ts\2024 report data\Q24122405-6E\FCC ABOVE1G 2.4G\8
Memo: Sample Number:S24122405-001 Power Setting:10

Test Graph



Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2366.672	18.70	27.17	3.56	0.00	49.43	74.00	24.57	PK	Vertical
2	2390.000	16.38	27.26	3.57	0.00	47.21	74.00	26.79	PK	Vertical

Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2366.672	16.19	27.17	3.56	46.92	54.00	7.08	AV	Vertical

Note:
1. Level = Reading + Cable loss + Antenna Factor + AMP
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date:

2025-01-15

Tested By:

Zhong Nan

EUT:

In-vehicle Multimedia Screen

Model Number:

MTCJ20

Test Mode:

11G 2412MHz TX mode

Power Supply:

DC 12V

Condition:

Temp:21.4°C;Humi:47.1%

Test Site:

DDT 3# Chamber

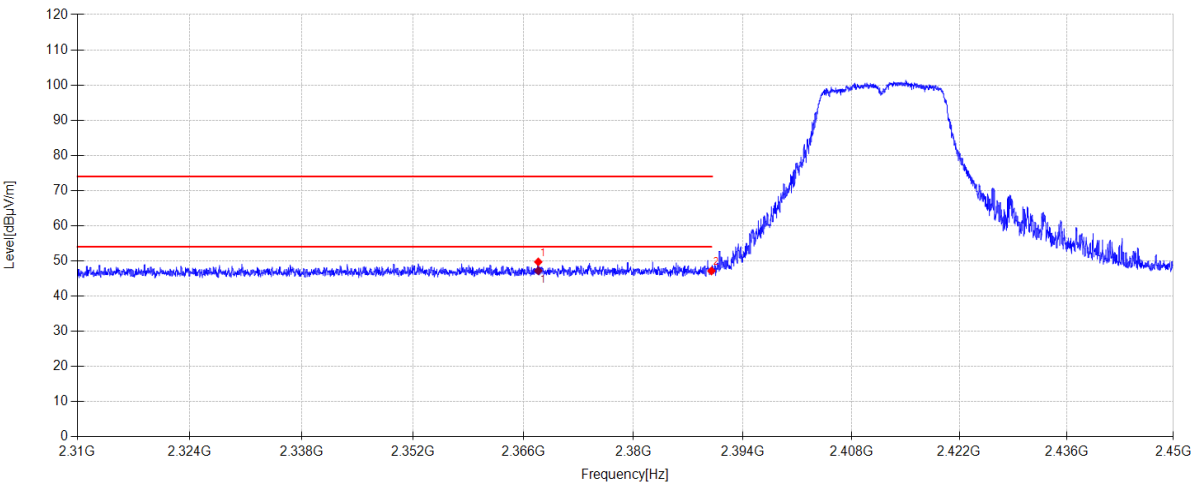
File Path:

d:\ts\2024 report data\Q24122405-6E\FCC ABOVE1G 2.4G\9

Memo:

Sample Number:S24122405-001 Power Setting:10

Test Graph



Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2367.876	18.98	27.17	3.56	0.00	49.71	74.00	24.29	PK	Horizontal
2	2390.000	16.32	27.26	3.57	0.00	47.15	74.00	26.85	PK	Horizontal

Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity	
1	2367.876	16.48	27.17	3.56	47.21	54.00	6.79	AV	Horizontal	

- Note:
1. Level = Reading + Cable loss + Antenna Factor + AMP

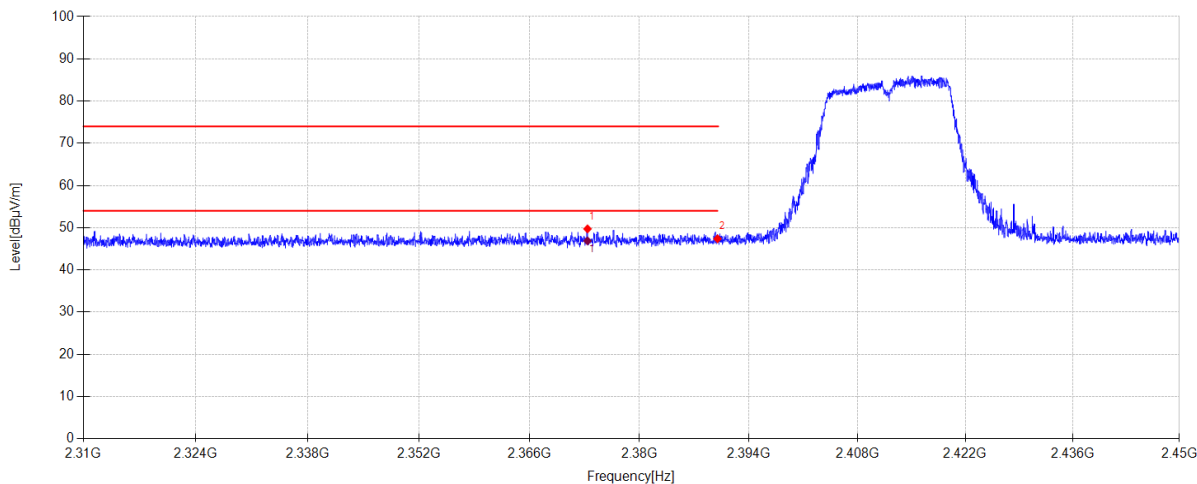
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2025-01-15 Tested By: Zhong Nan
EUT: In-vehicle Multimedia Screen Model Number: MTCJ20
Test Mode: 11G 2412MHz TX mode Power Supply: DC 12V
Condition: Temp:21.4°C;Humi:47.1% Test Site: DDT 3# Chamber
File Path: d:\ts\2024 report data\Q24122405-6E\FCC ABOVE1G 2.4G\10
Memo: Sample Number:S24122405-001 Power Setting:10

Test Graph



Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2373.378	18.98	27.19	3.56	0.00	49.73	74.00	24.27	PK	Vertical
2	2390.000	16.55	27.26	3.57	0.00	47.38	74.00	26.62	PK	Vertical

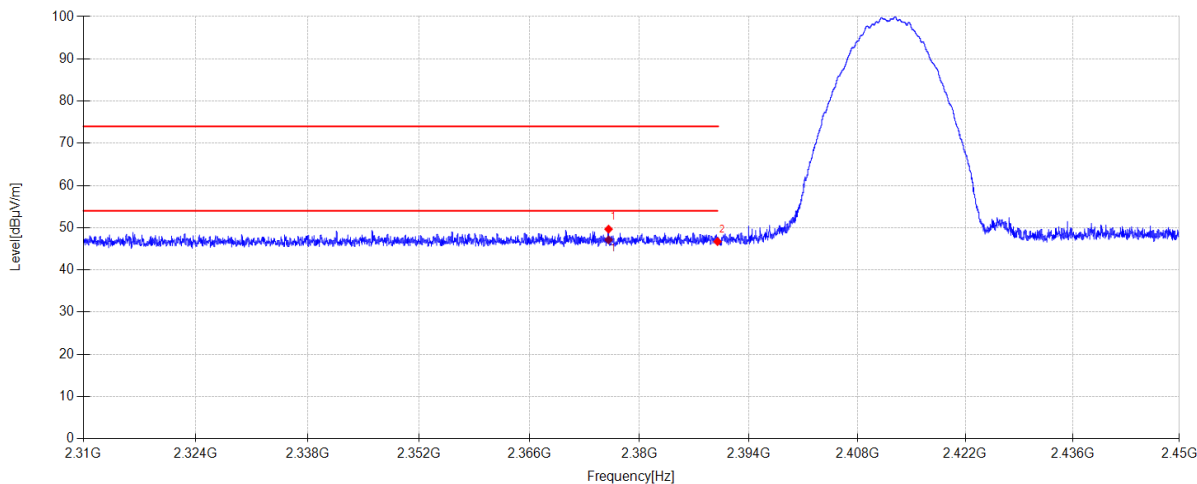
Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2373.378	16.13	27.19	3.56	46.88	54.00	7.12	AV	Vertical

- Note:
- 1. Level = Reading + Cable loss + Antenna Factor + AMP
 - 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
 - 3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2025-01-15 Tested By: Zhong Nan
EUT: In-vehicle Multimedia Screen Model Number: MTCJ20
Test Mode: 11B 2412MHz TX mode Power Supply: DC 12V
Condition: Temp:21.4°C;Humi:47.1% Test Site: DDT 3# Chamber
File Path: d:\ts\2024 report data\Q24122405-6E\FCC ABOVE1G 2.4G\11
Memo: Sample Number:S24122405-001 Power Setting:10

Test Graph



Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2376.066	18.90	27.20	3.56	0.00	49.66	74.00	24.34	PK	Horizontal
2	2390.000	15.89	27.26	3.57	0.00	46.72	74.00	27.28	PK	Horizontal

Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity	
1	2376.066	16.37	27.20	3.56	47.13	54.00	6.87	AV	Horizontal	

Note:
1. Level = Reading + Cable loss + Antenna Factor + AMP
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date:

2025-01-15

Tested By:

Zhong Nan

EUT:

In-vehicle Multimedia Screen

Model Number:

MTCJ20

Test Mode:

11B 2412MHz TX mode

Power Supply:

DC 12V

Condition:

Temp:21.4°C;Humi:47.1%

Test Site:

DDT 3# Chamber

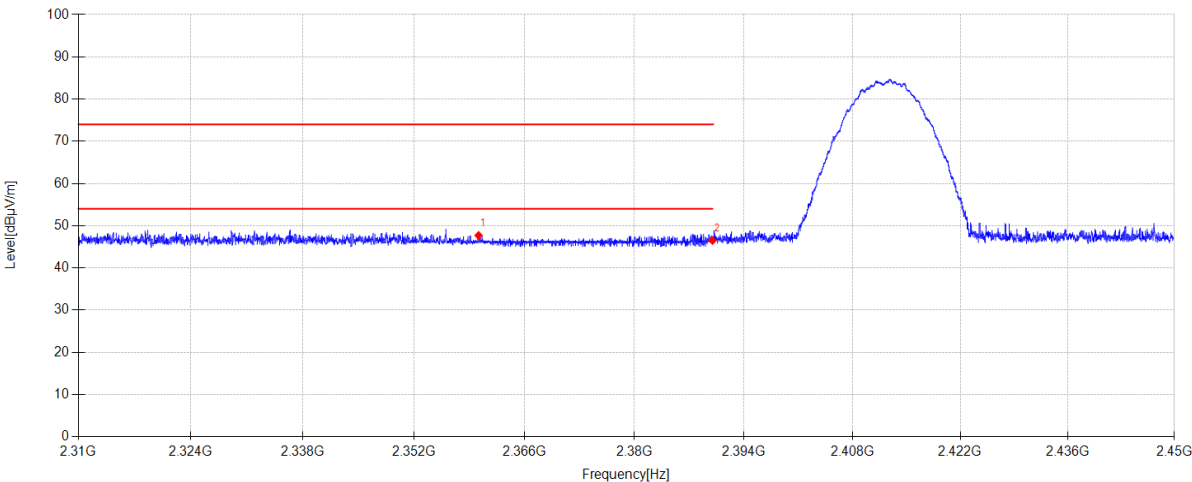
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Memo:

Sample Number:S24122405-001 Power Setting:10

Test Graph



Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2360.176	17.01	27.14	3.55	0.00	47.70	74.00	26.30	PK	Vertical
2	2390.000	15.68	27.26	3.57	0.00	46.51	74.00	27.49	PK	Vertical

Note:

1. Level = Reading + Cable loss + Antenna Factor + AMP

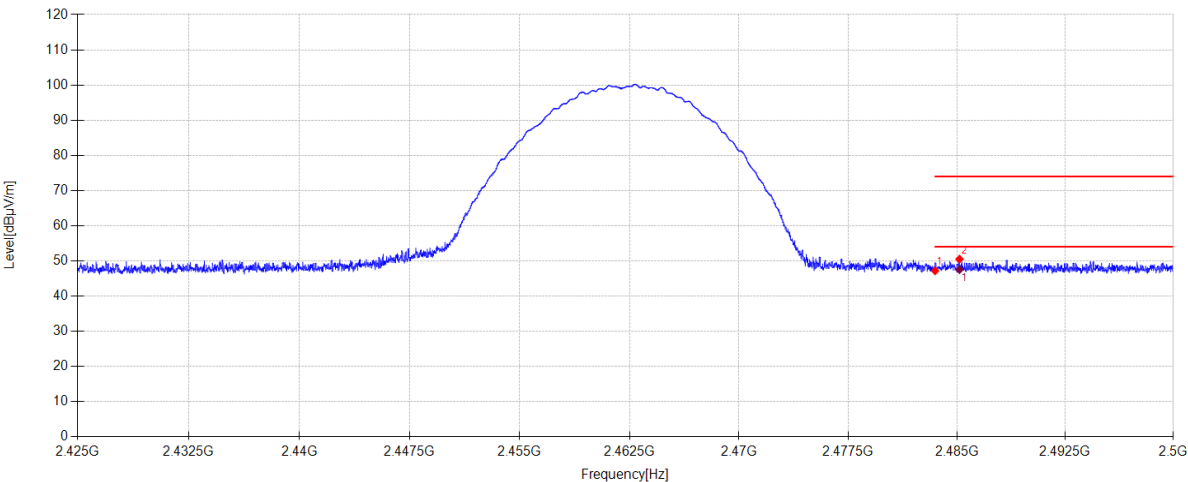
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2025-01-15 Tested By: Zhong Nan
EUT: In-vehicle Multimedia Screen Model Number: MTCJ20
Test Mode: 11B 2462MHz TX mode Power Supply: DC 12V
Condition: Temp:21.4°C;Humi:47.1% Test Site: DDT 3# Chamber
File Path: d:\ts\2024 report data\Q24122405-6E\FCC ABOVE1G 2.4G\13
Memo: Sample Number:S24122405-001 Power Setting:10

Test Graph



Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2483.500	16.03	27.53	3.62	0.00	47.18	74.00	26.82	PK	Horizontal
2	2485.188	19.35	27.54	3.62	0.00	50.51	74.00	23.49	PK	Horizontal

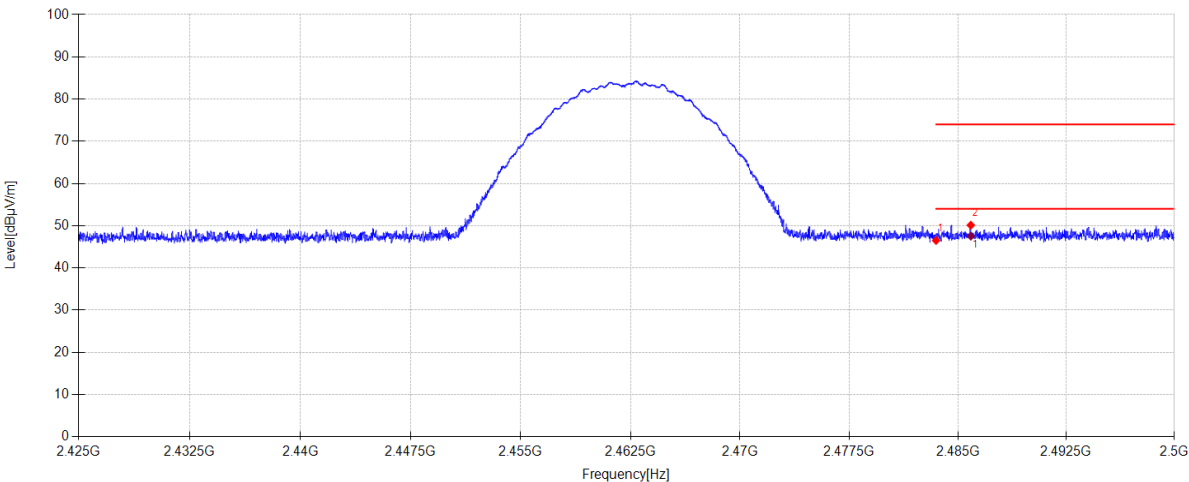
Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2485.188	16.37	27.54	3.62	47.53	54.00	6.47	AV	Horizontal

- Note:
- 1. Level = Reading + Cable loss + Antenna Factor + AMP
 - 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
 - 3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2025-01-15 Tested By: Zhong Nan
EUT: In-vehicle Multimedia Screen Model Number: MTCJ20
Test Mode: 11B 2462MHz TX mode Power Supply: DC 12V
Condition: Temp:21.4°C;Humi:47.1% Test Site: DDT 3# Chamber
File Path: d:\ts\2024 report data\Q24122405-6E\FCC ABOVE1G 2.4G\14
Memo: Sample Number:S24122405-001 Power Setting:10

Test Graph



Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2483.500	15.36	27.53	3.62	0.00	46.51	74.00	27.49	PK	Vertical
2	2485.900	18.97	27.54	3.62	0.00	50.13	74.00	23.87	PK	Vertical

Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity	
1	2485.900	16.37	27.54	3.62	47.53	54.00	6.47	AV	Vertical	

- Note:
- 1. Level = Reading + Cable loss + Antenna Factor + AMP
 - 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
 - 3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date:

2025-01-15

Tested By:

Zhong Nan

EUT:

In-vehicle Multimedia Screen

Model Number:

MTCJ20

Test Mode:

11G 2462MHz TX mode

Power Supply:

DC 12V

Condition:

Temp:21.4°C;Humi:47.1%

Test Site:

DDT 3# Chamber

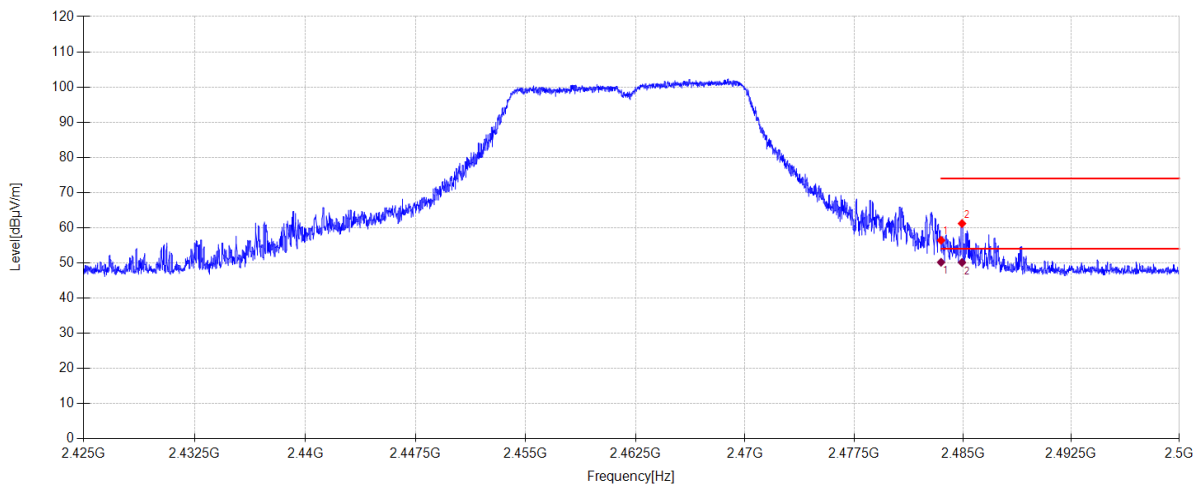
File Path:

d:\ts\2024 report data\Q24122405-6E\FCC ABOVE1G 2.4G\15

Memo:

Sample Number:S24122405-001 Power Setting:10

Test Graph



Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2483.500	25.26	27.53	3.62	0.00	56.41	74.00	17.59	PK	Horizontal
2	2484.948	30.03	27.54	3.62	0.00	61.19	74.00	12.81	PK	Horizontal

Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity	
1	2483.500	19.03	27.53	3.62	50.18	54.00	3.82	AV	Horizontal	
2	2484.948	18.96	27.54	3.62	50.12	54.00	3.88	AV	Horizontal	

Note:

1. Level = Reading + Cable loss + Antenna Factor + AMP

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date:

2025-01-15

Tested By:

Zhong Nan

EUT:

In-vehicle Multimedia Screen

Model Number:

MTCJ20

Test Mode:

11G 2462MHz TX mode

Power Supply:

DC 12V

Condition:

Temp:21.4°C;Humi:47.1%

Test Site:

DDT 3# Chamber

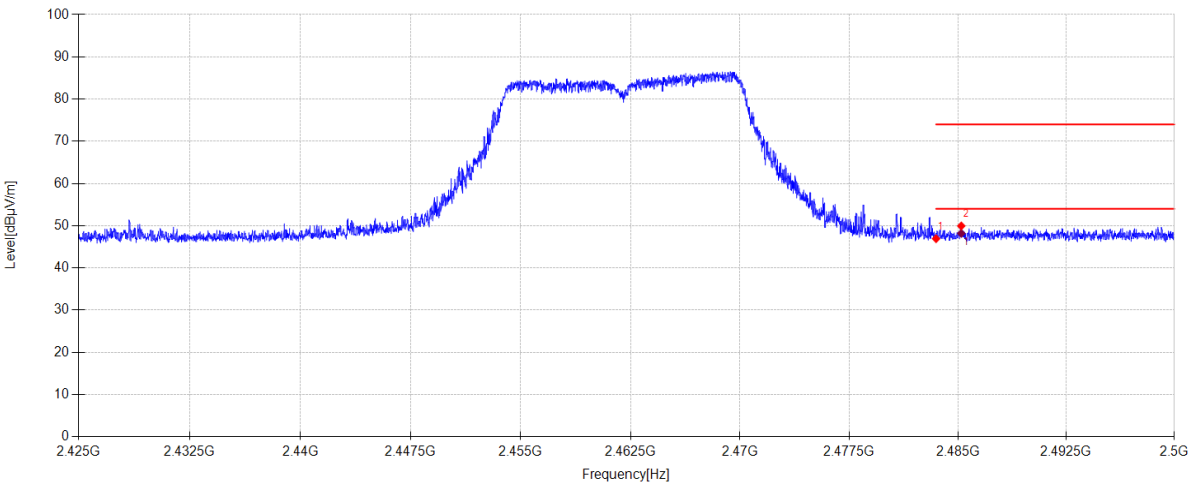
File Path:

d:\ts\2024 report data\Q24122405-6E\FCC ABOVE1G 2.4G\16

Memo:

Sample Number:S24122405-001 Power Setting:10

Test Graph



Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2483.500	15.78	27.53	3.62	0.00	46.93	74.00	27.07	PK	Vertical
2	2485.240	18.79	27.54	3.62	0.00	49.95	74.00	24.05	PK	Vertical

Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity	
1	2485.240	17.02	27.54	3.62	48.18	54.00	5.82	AV	Vertical	

- Note:
1. Level = Reading + Cable loss + Antenna Factor + AMP

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date:

2025-01-15

Tested By:

Zhong Nan

EUT:

In-vehicle Multimedia Screen

Model Number:

MTCJ20

Test Mode:

11N40 2422MHz TX mode

Power Supply:

DC 12V

Condition:

Temp:21.4°C;Humi:47.1%

Test Site:

DDT 3# Chamber

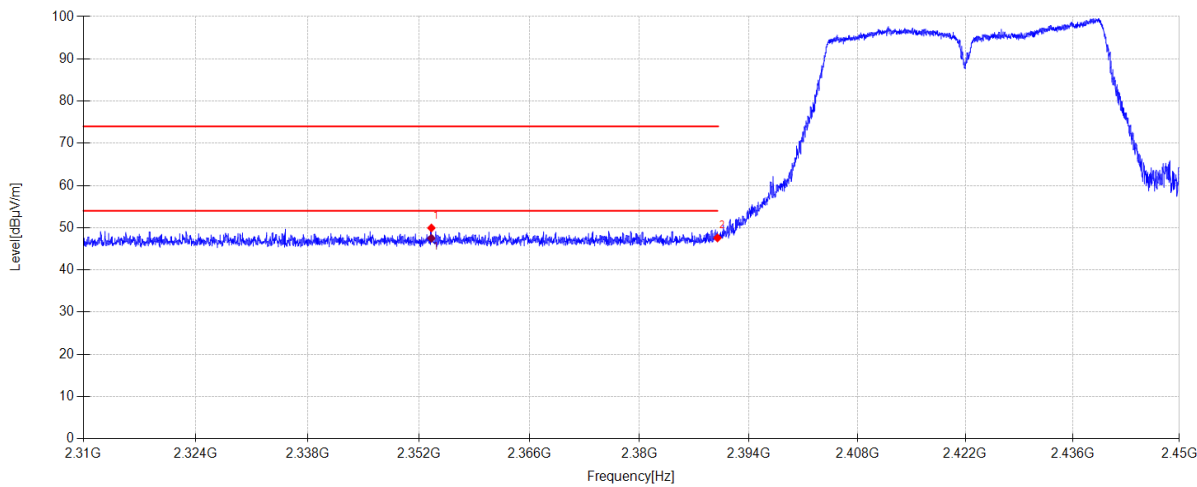
File Path:

d:\ts\2024 report data\Q24122405-6E\FCC ABOVE1G 2.4G\17

Memo:

Sample Number:S24122405-001 Power Setting:10

Test Graph



Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2353.568	19.28	27.11	3.55	0.00	49.94	74.00	24.06	PK	Horizontal
2	2390.000	16.76	27.26	3.57	0.00	47.59	74.00	26.41	PK	Horizontal

Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity	
1	2353.568	16.84	27.11	3.55	47.50	54.00	6.50	AV	Horizontal	

Note:

1. Level = Reading + Cable loss + Antenna Factor + AMP

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date:

2025-01-15

Tested By:

Zhong Nan

EUT:

In-vehicle Multimedia Screen

Model Number:

MTCJ20

Test Mode:

11N40 2422MHz TX mode

Power Supply:

DC 12V

Condition:

Temp:21.4°C;Humi:47.1%

Test Site:

DDT 3# Chamber

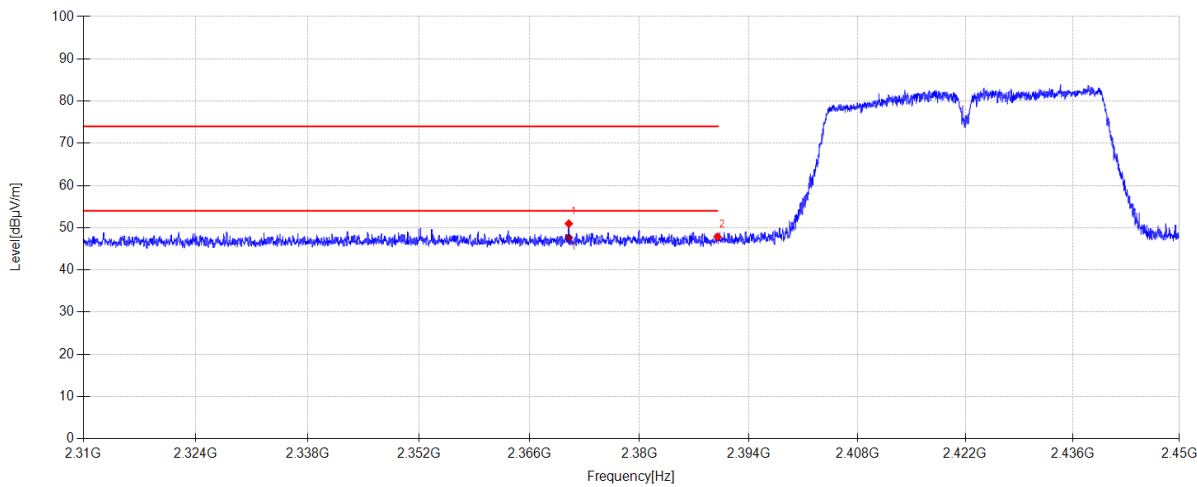
File Path:

d:\ts\2024 report data\Q24122405-6E\FCC ABOVE1G 2.4G\18

Memo:

Sample Number:S24122405-001 Power Setting:10

Test Graph



Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2370.998	20.22	27.18	3.56	0.00	50.96	74.00	23.04	PK	Vertical
2	2390.000	17.02	27.26	3.57	0.00	47.85	74.00	26.15	PK	Vertical

Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity	
1	2370.998	16.91	27.18	3.56	47.65	54.00	6.35	AV	Vertical	

Note:

1. Level = Reading + Cable loss + Antenna Factor + AMP

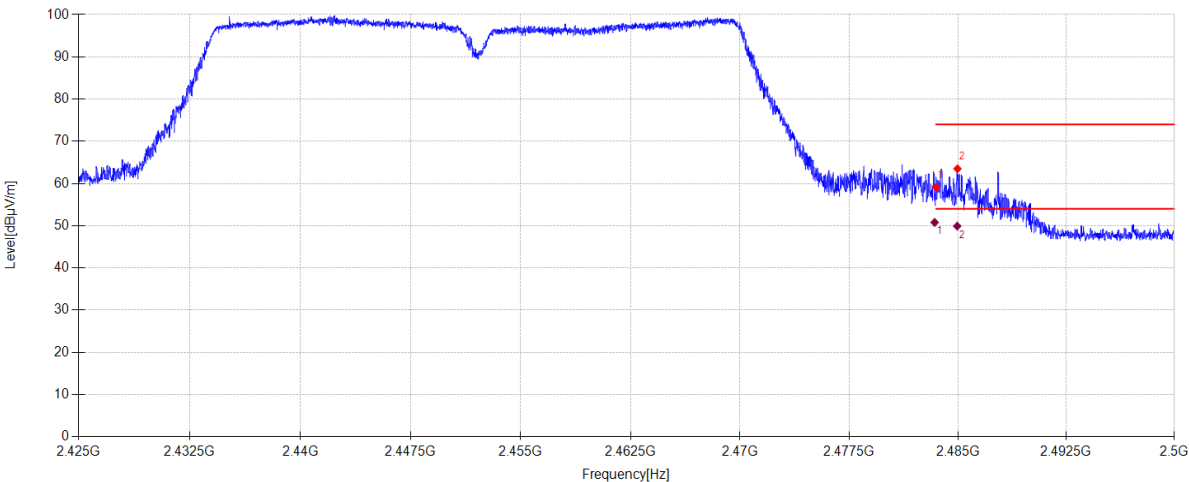
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2025-01-15 Tested By: Zhong Nan
EUT: In-vehicle Multimedia Screen Model Number: MTCJ20
Test Mode: 11N40 2452MHz TX mode Power Supply: DC 12V
Condition: Temp:21.4°C;Humi:47.1% Test Site: DDT 3# Chamber
File Path: d:\ts\2024 report data\Q24122405-6E\FCC ABOVE1G 2.4G\19
Memo: Sample Number:S24122405-001 Power Setting:10

Test Graph



Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2483.500	27.96	27.53	3.62	0.00	59.11	74.00	14.89	PK	Horizontal
2	2484.978	32.34	27.54	3.62	0.00	63.50	74.00	10.50	PK	Horizontal

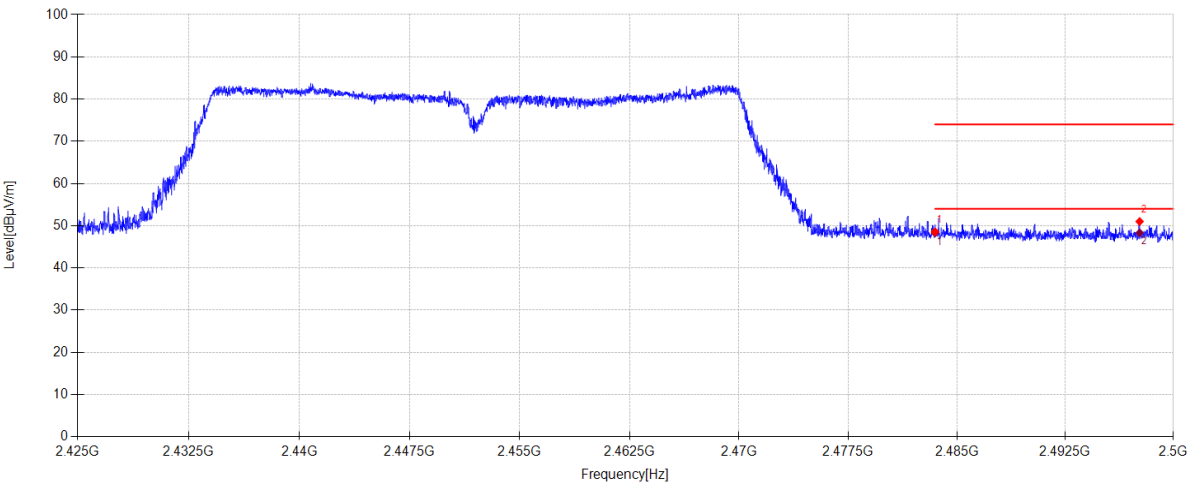
Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2483.404	19.64	27.53	3.62	50.79	54.00	3.21	AV	Horizontal
2	2484.957	18.75	27.54	3.62	49.91	54.00	4.09	AV	Horizontal

Note:
1. Level = Reading + Cable loss + Antenna Factor + AMP
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2025-01-15 Tested By: Zhong Nan
EUT: In-vehicle Multimedia Screen Model Number: MTCJ20
Test Mode: 11N40 2452MHz TX mode Power Supply: DC 12V
Condition: Temp:21.4°C;Humi:47.1% Test Site: DDT 3# Chamber
File Path: d:\ts\2024 report data\Q24122405-6E\FCC ABOVE1G 2.4G\20
Memo: Sample Number:S24122405-001 Power Setting:10

Test Graph



Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2483.500	17.42	27.53	3.62	0.00	48.57	74.00	25.43	PK	Vertical
2	2497.660	19.78	27.59	3.63	0.00	51.00	74.00	23.00	PK	Vertical

Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity	
1	2483.500	17.13	27.53	3.62	48.28	54.00	5.72	AV	Vertical	
2	2497.660	17.09	27.59	3.63	48.31	54.00	5.69	AV	Vertical	

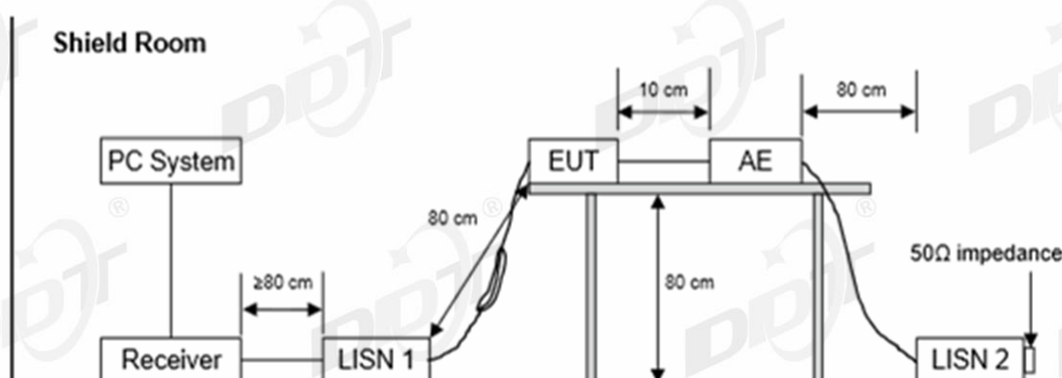
Note:
1. Level = Reading + Cable loss + Antenna Factor + AMP
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

14. Power Line Conducted Emissions

14.1. Test equipment

Equipment	Manufacturer	Model No.	Serial No.	Cal Due To
/	/	/	/	/

14.2. Block diagram of test setup



14.3. Limits

Frequency	Quasi-Peak Level dB(uV)	Average Level dB(uV)
150 kHz~500 kHz	66 ~ 56*	56 ~ 46*
500 kHz~5 MHz	56	46
5 MHz~30 MHz	60	50

Note 1: * Decreasing linearly with logarithm of frequency.

Note 2: The lower limit shall apply at the transition frequencies.

14.4. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	Description	other
/	/	/	/	/

14.5. Test procedure

The EUT and Support equipment, if needed, were put placed on a non-metallic table, 80cm above the ground plane.

All support equipment power received from a second LISN.

Emissions were measured on each current carrying line of the EUT using an EMI Test Receiver connected to the LISN powering the EUT.

The Receiver scanned from 150 kHz to 30 MHz for emissions in each of the test modes.

During the above scans, the emissions were maximized by cable manipulation.

The test mode(s) described in clause 2.4 were scanned during the preliminary test.

After the preliminary scan, we found the test mode producing the highest emission level.

The EUT configuration and worse cable configuration of the above highest emission levels were recorded for reference of the final test.

EUT and support equipment were set up on the test bench as per the configuration with highest emission level in the preliminary test.

A scan was taken on both power lines, Neutral and Line, recording at least the six highest emissions.

Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit.

The test data of the worst-case condition(s) was recorded.

The bandwidth of test receiver is set at 9 kHz.

14.6. Test result

Not applicable. EUT is DC powered.

16. Photos of the EUT

Please refer to DDT-Q24122405-1E appendix I

-----End Report-----