

EMC TEST REPORT

Application No. : LH-230702312134

Applicant : Shenzhen Cheyang Technology Co., Ltd.

Equipment Under Test (EUT)

EUT Name : Car radio

Model No. : Z0625

Serial No. : See page 4

Brand Name : N/A

Receipt Date : 2023-07-21

Test Date : 2023-07-21 to 2023-08-02

Issue Date : 2023-08-02

Standards : ETSI EN 301 489-1 V2.2.3
ETSI EN 301 489-17 V3.2.4

Conclusions : **PASS**

In the configuration tested, the EUT complied with the standards specified above. The EUT technically complies with the RED Directive of 2014/53/EU requirements.

Test/Witness Engineer : *York xin*

Approved & Authorized : *Jack su*



This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in the report.

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1. General Information

1.1 Client Information

Applicant	:	Shenzhen Cheyang Technology Co., Ltd.
Address	:	369 Bulong Road, Ma'antang Community, Bantian Street, Longgang District, Shenzhen
Manufacturer	:	Shenzhen Cheyang Technology Co., Ltd.
Address	:	369 Bulong Road, Ma'antang Community, Bantian Street, Longgang District, Shenzhen

1.2.1 General Description of EUT (Equipment Under Test)

EUT Name	:	Car radio
Model No.	:	Z0625
Serial No.	:	Z0625C1, Q3366, Q3371, Q3161, Q3221KT, A2618KT, Q3461, A2769, Q3336, Q3203, K0129, A2516KT, Q3162KT, A2308KT, Q3217KT, AP019, Q3150, A2628KT, K0126, A2818, A2065, A2718, N3000KT, N2052, A2749, A2420F3, A2422F3, A2424F3, A2426F3, A2428F3, CY-1001, A3018, N2042, A3012, A3019, A3013, A3107, A2319, A2798, A3061, A2795, A2181, A2222, Q3570, A2905, A2799, Q3516, M1520, A2742, A3040, A3041, A3011, A2797, A2748, A3032, Q3300, A2772, A3017, A3091, A3056, A3195, Q3508, Z2085, A3215, A3080, A2666, A2915, A2743, A3039, A2796, A3049, A2773, A2893, Q3184, A2207, A3196, A3194, A2761, A3037, A2071, A2747, A2950, A2184, A3067, A3021, A3048, A2787, A3197, A2794, A2762, A3054, A2638, A3216, A3079, A3066, A3047, A3100, A2112, W5087, Q3306, A2900, A3082, A3038, A2882, A3084, A2740, A2806, Q3196, A3110, Q3521, A3065
Model Difference	:	The different models are identical in schematic and critical component, the only different is the appearance.
Product Description	Operation Frequency:	2402MHz~2480MHz
	Number of Channel:	79 Channels see note (2)
	Out Power:	3.72 dBm 1Mbps 2.49 dBm 3Mbps
	Antenna Gain:	0 dBi
	Modulation Type:	GFSK 1Mbps(1Mbps) $\pi/4$ -DQPSK(2Mbps) 8-DPSK(3Mbps)
	Date Rate:	1~3 Mbps
Power Supply	:	DC Voltage supplied from host system by USB cable DC Power Li-Polymer battery
Power Rating	:	DC 12V, 1A
Connecting I/O Port(S)	:	Please refer to the User's Manual

Note:

(1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual. This Test Report EN301 489 For Bluetooth, under R&TTE Directive Article 3.1(b).

(2) Channel List:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	2402	27	2429	54	2456
01	2403	28	2430	55	2457
02	2404	29	2431	56	2458
03	2405	30	2432	57	2459
04	2406	31	2433	58	2460
05	2407	32	2434	59	2461
06	2408	33	2435	60	2462
07	2409	34	2436	61	2463
08	2410	35	2437	62	2464
09	2411	36	2438	63	2465
10	2412	37	2439	64	2466
11	2413	38	2440	65	2467
12	2414	39	2441	66	2468
13	2415	40	2442	67	2469
14	2416	41	2443	68	2470
15	2417	42	2444	69	2471
16	2418	43	2445	70	2472
17	2419	44	2446	71	2473
18	2420	45	2447	72	2474
19	2421	46	2448	73	2475
20	2422	47	2449	74	2476
21	2423	48	2450	75	2477
22	2424	49	2451	76	2478
23	2425	50	2452	77	2479

24	2426	51	2453	78	2480
25	2427	52	2454		
26	2428	53	2455		

1.2.2 General Description of EUT (Equipment Under Test)

EUT Name	:	Car radio	
Model No.	:	Z0625	
Serial No.	:	Z0625C1, Q3366, Q3371, Q3161, Q3221KT, A2618KT, Q3461, A2769, Q3336, Q3203, K0129, A2516KT, Q3162KT, A2308KT, Q3217KT, AP019, Q3150, A2628KT, K0126, A2818, A2065, A2718, N3000KT, N2052, A2749, A2420F3, A2422F3, A2424F3, A2426F3, A2428F3, CY-1001, A3018, N2042, A3012, A3019, A3013, A3107, A2319, A2798, A3061, A2795, A2181, A2222, Q3570, A2905, A2799, Q3516, M1520, A2742, A3040, A3041, A3011, A2797, A2748, A3032, Q3300, A2772, A3017, A3091, A3056, A3195, Q3508, Z2085, A3215, A3080, A2666, A2915, A2743, A3039, A2796, A3049, A2773, A2893, Q3184, A2207, A3196, A3194, A2761, A3037, A2071, A2747, A2950, A2184, A3067, A3021, A3048, A2787, A3197, A2794, A2762, A3054, A2638, A3216, A3079, A3066, A3047, A3100, A2112, W5087, Q3306, A2900, A3082, A3038, A2882, A3084, A2740, A2806, Q3196, A3110, Q3521, A3065	
Model Difference	:	The different models are identical in schematic and critical component, the only different is the appearance.	
Product Description	:	Operation Frequency:	2412MHz~2472MHz
		Modulation Type:	802.11b: CCK, QPSK, BPSK 802.11g: OFDM 802.11n: OFDM
		Bit Rate of Transmitter:	802.11b:11/5.5/2/1Mbps 802.11g:54/48/36/24/18/12/9/6 Mbps 802.11n: up to 150Mbps
		Number of Channel:	Please see Note(2)
		Antenna Designation:	Please see Note(3)
		EIRP Power:	802.11b:12.86 dBm 802.11g: 12.35dBm 802.11n: 11.82 dBm
Power Source	:	DC Voltage supplied from AC/DC adapter DC Voltage supplied from Li-Polymer battery	
Power Rating	:	DC 12V, 1A	
Connecting I/O Port(S)	:	Please refer to the User's Manual	

Note:

(1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

(2) Channel List:

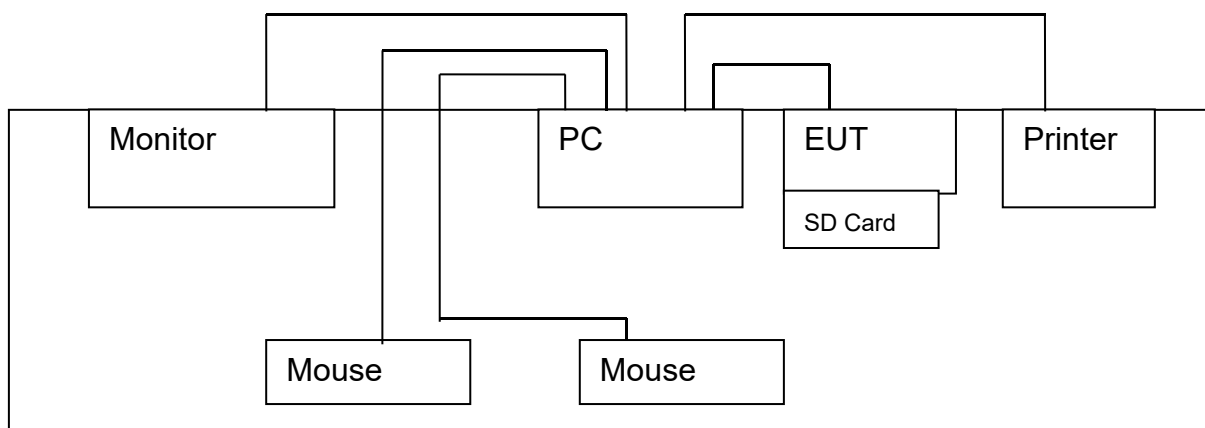
Channel List					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2412	06	2437	11	2462
02	2417	07	2442	12	2467
03	2422	08	2447	13	2472

(3) Antenna description

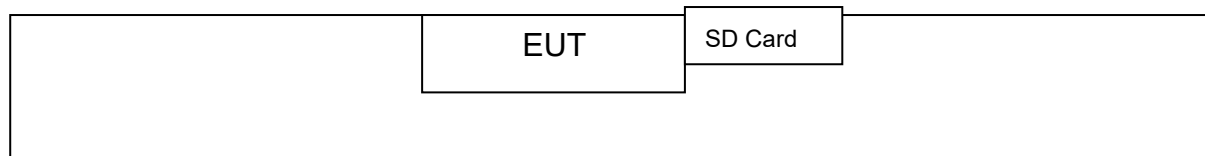
Ant.	Brand	Model Name	Antenna Type	Gain (dBi)
1	N/A	N/A	Embedded Ant.	0

1.3 Block Diagram Showing the Configuration of System Tested

Mode 1: Loading Data from PC



Mode 2: WiFi Link



1.4 Description of Support Units

Name	Model	S/N	Manufacturer	Used "√"
SD Card	1 GB	----	Kingston	√
Flash Disk	1 GB	----	SSK	√
Headphone	H54E0	----	Sony	√
Printer	HP1505n	VNF3G06957	HP	√
Modem	RX304Xv2	----	ASUS	√
LCD Monitor	E170Sc	----	DELL	√
PC	OPTIPLEX380	----	DELL	√
TV	K102	----	KONKIA	√

1.5 Description of Operating Mode

To investigate the maximum EMI emission characteristics generated from EUT, the test system was pre-scanning tested based on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	Loading Data from PC
Mode 2	WiFi Link

The EUT system operated these modes were found to be the worst case during the pre-scanning test as Following:

EMI Test	
Final Test Mode	Description
Mode 1	Loading Data from PC
Mode 2	WiFi Link
Harmonics/Flicks Test	
Final Test Mode	Description
Mode 2	Loading Data from PC
EMS Test	
Final Test Mode	Description
Mode 1	Loading Data from PC
Mode 2	WiFi Link

1.6 Performance Criterion

According to **ETSI EN 301 489-17** standard, the general performance criteria as following:

Criterion	During Test	After test
A	Shall operate as intended May show degradation of performance (see note 1) Shall be no loss of function Shall be no unintentional transmissions	Shall operate as intended Shall be no degradation of performance (see note 2) Shall be no loss of function Shall be no loss of stored data or user programmable functions
B	May show loss of function (one or more) May show degradation of performance (see note 1) No unintentional transmissions	Functions shall be self-recoverable shall operate as intended after recovering Shall be no degradation of performance (see note 2) Shall be no loss of stored data or user programmable

		functions
C	May be loss of function (one or more)	Functions shall be recoverable by the operator shall operate as intended after recovering Shall be no degradation of performance (see note 2)

NOTE 1: Degradation of performance during the test is understood as a degradation to a level not below a minimum performance level specified by the manufacturer for the use of the apparatus as intended. In some cases the specified minimum performance level may be replaced by a permissible degradation of performance. If the minimum performance level or the permissible performance degradation is not specified by the manufacturer then either of these may be derived from the product description and documentation (including leaflets and advertising) and what the user may reasonably expect from the apparatus if used as intended.

NOTE 2: No degradation of performance after the test is understood as no degradation below a minimum performance level specified by the manufacturer for the use of the apparatus as intended. In some cases the specified minimum performance level may be replaced by a permissible degradation of performance. After the test no change of actual operating data or user retrievable data is allowed. If the minimum performance level or the permissible performance degradation is not specified by the manufacturer then either of these may be derived from the product description and documentation (including leaflets and advertising) and what the user may reasonably expect from the apparatus if used as intended.

1.7 The Requirement of Performance Criteria

1	Performance criteria for continuous phenomena applied to transmitters (CT)	Criterion A of the applicable class shall apply
2	Performance criteria for transient phenomena applied to transmitters (TT)	Criterion B of the applicable class shall apply
3	Performance criteria for continuous phenomena applied to receivers (CR)	Criterion A of the applicable class shall apply
4	Performance criteria for transient phenomena applied to transmitters (TR)	Criterion B of the applicable class shall apply

1.8 Test Facility

The testing report were performed by the Shenzhen LH Testing Technology Co., Ltd., in their facilities located at 106 and 107, building B15, Yintian Industrial Zone, Yantian community, Xixiang street, Bao'an District, Shenzhen.

2 Test Results Summary

Test procedures according to the technical standards:

EMC Emission				
Standard	Test Item	Limit	Judgment	Remark
EN 55032: 2015/A1: 2020	Conducted Emission	Class B	PASS	
	Radiated Emission	Class B	PASS	
EN IEC 61000-3-2: 2019/A1: 2021	Harmonic Current Emission	Class D NOTE(2)	PASS	
EN 61000-3-3: 2013/A1:2019	Voltage Fluctuations& Flicker		PASS	
EMC Immunity				
Standard	Test Item	Performance Criteria	Judgment	Remark
EN 61000-4-2: 2009	Electrostatic Discharge	B	PASS	
EN IEC 61000-4-3:2020	RF electromagnetic field	A	PASS	
EN 61000-4-4: 2012	Fast transients	B	PASS	
EN 61000-4-5: 2014/A1:2017	Surges	B	PASS	
EN 61000-4-6: 2014	Injected Current	A	PASS	
EN IEC 61000-4-11:2020	Volt. Interruptions Volt. Dips	B / C / C NOTE (3)	PASS	

NOTE:

- (1)" N/A" denotes test is not applicable in this Test Report
- (2) The power consumption of EUT is less than 75W and no Limits apply.
- (3)Voltage dip: 100% reduction – Performance Criteria B
Voltage dip: 100% reduction – Performance Criteria B
Voltage dip: 70% reduction – Performance Criteria C
Voltage Interruption: 0% Interruption – Performance Criteria C

3 Test Equipment Used

3.1 Test Equipment Used to Measure Conducted Disturbance					
No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
LH-EMC001	EMI Test Receiver	Rohde & Schwarz	ESCS30	Dec. 29, 2022	1 Year
LH-EMC002	AMN	Rohde & Schwarz	ESH3-Z5	Dec. 29, 2022	1 Year
LH-EMC003	ANN	SCHWARZBECK	NNBL8226-2	Dec. 29, 2022	1 Year
3.2 Test Equipment Used to Measure Disturbance Power					
No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
LH-EMC004	EMI Test Receiver	Rohde & Schwarz	ESI26	Dec. 29, 2022	1 Year
LH-EMC005	Bilog Antenna	Chase	CBL6112B	Dec. 29, 2022	1 Year
LH-EMC006	Positioning Controller	C&C	CC-C-1F	Dec. 29, 2022	1 Year
3.3 Test Equipment Used to Measure Harmonic Current/ Voltage Fluctuation and Flicker					
No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
LH-EMC007	Harmonic Flicker Test System	CI	5001ix-CTS-40	Dec. 29, 2022	1 Year
3.4 Test Equipment Used to Measure Electrostatic Discharge Immunity					
No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
LH-EMC008	ESD Tester	SCHNAFFNER	NSG435	Dec. 29, 2022	1 Year
3.5 Test Equipment Used to Measure Conducted Immunity					
No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
LH-EMC009	RF Generator	FRANKONIA	CIT-10/75	Dec. 29, 2022	1 Year
LH-EMC010	Attenuator	FRANKONIA	59-6-33	Dec. 29, 2022	1 Year
LH-EMC011	M-CDN	LUTHI	M2/M3	Dec. 29, 2022	1 Year
LH-EMC012	CDN	LUTHI	AF2	Dec. 29, 2022	1 Year
LH-EMC013	EM Injection Clamp	LUTHI	EM101	Dec. 29, 2022	1 Year
3.6 Test Equipment Used to Measure Electrical Fast Transient/Burst Immunity					
No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
LH-EMC014	Signal Generator	Rohde & Schwarz	SMT03	Dec. 29, 2022	1 Year
LH-EMC015	Power Meter	Rohde & Schwarz	NRVD	Dec. 29, 2022	1 Year

LH-EMC016	Voltage Probe	Rohde & Schwarz	URV5-Z2	Dec. 29, 2022	1 Year
LH-EMC017	Voltage Probe	Rohde & Schwarz	URV5-Z2	Dec. 29, 2022	1 Year
LH-EMC018	Power Amplifier	AR	150W1000	Dec. 29, 2022	1 Year
LH-EMC019	Bilog Antenna	Chase	CBL6111C	Dec. 29, 2022	1 Year

3.7 Test Equipment Used to Measure Electrical Fast Transient/Burst Immunity

No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
LH-EMC020	Simulator	EMTEST	UCS500M4	Dec. 29, 2022	1 Year
LH-EMC021	Auto-transformer	EMTEST	V4780S2	Dec. 29, 2022	1 Year

3.8 Test Equipment Used to Measure Surge Immunity

No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
LH-EMC022	Simulator	EMTEST	UCS500M4	Dec. 29, 2022	1 Year
LH-EMC023	Coupling Clamp	EMTEST	HFK	Dec. 29, 2022	1 Year

3.9 Test Equipment Used to Measure Voltage Dips and Interruptions Immunity

No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
LH-EMC024	Simulator	EMTEST	UCS500N5	Dec. 29, 2022	1 Year
LH-EMC025	Auto-transformer	EMTEST	V4780S2	Dec. 29, 2022	1 Year

3.10 Test Equipment Used to Measure Power Frequency magnetic field

No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
LH-EMC026	Power Frequency Magnetic Field Generator	EMTEST	----	Dec. 29, 2022	1 Year

4 Conducted Disturbance Test

4.2 Test Standard and Limit

4.2.1 Test Standard

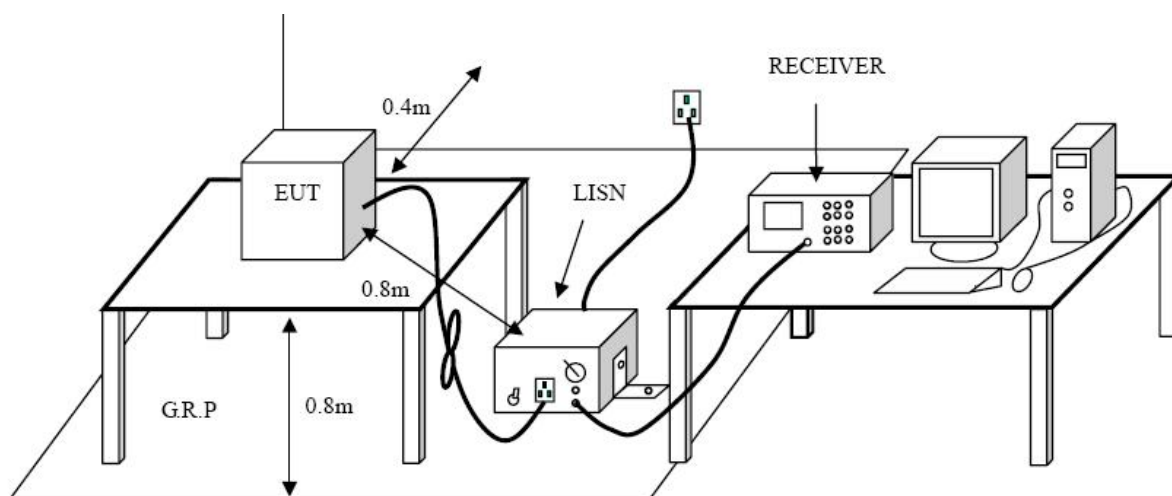
ETSI EN 301 489-1 Clause 8.4
 ETSI EN 301 489-17
 EN 55032: 2015/A1: 2020 Class B

4.2.2 Test Limit

Conducted Disturbance Test Limit

Frequency	Maximum RF Line Voltage (Db μ V)	
	Quasi-peak Level	Average Level
150kHz~500kHz	66 ~ 56 *	56 ~ 46 *
500kHz~5MHz	56	46
5MHz~30MHz	60	50
Remark: *Decreasing linearly with logarithm of the frequency		

4.3 Test Setup



4.4 Test Procedure

The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the

cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

LISN at least 80 cm from the nearest part of EUT chassis.

The bandwidth of EMI test receiver is set at 9kHz, and the test frequency band is from 0.15MHz to 30MHz.

4.5 Test Condition

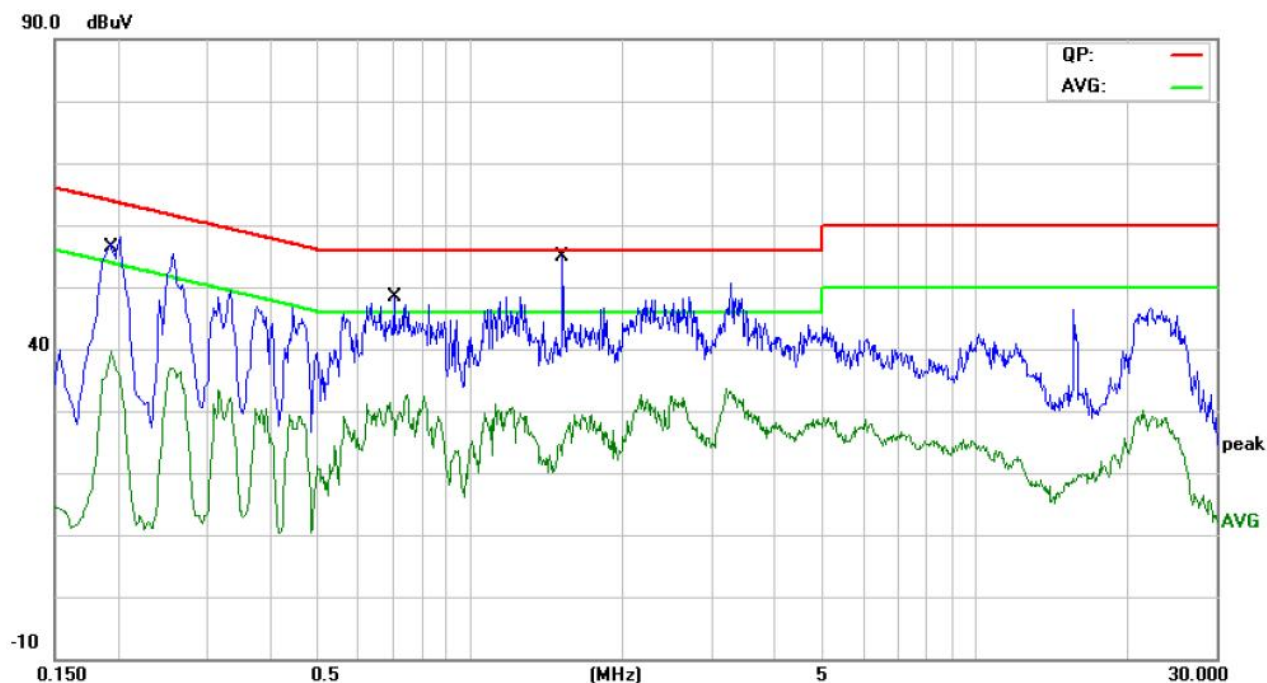
Temperature	:	25 °C
Relative Humidity	:	48 %
Pressure	:	1010 hPa
Test Power	:	DC 12V

4.6 Test Data

Please refer the following pages.

Operating Condition: Mode 1

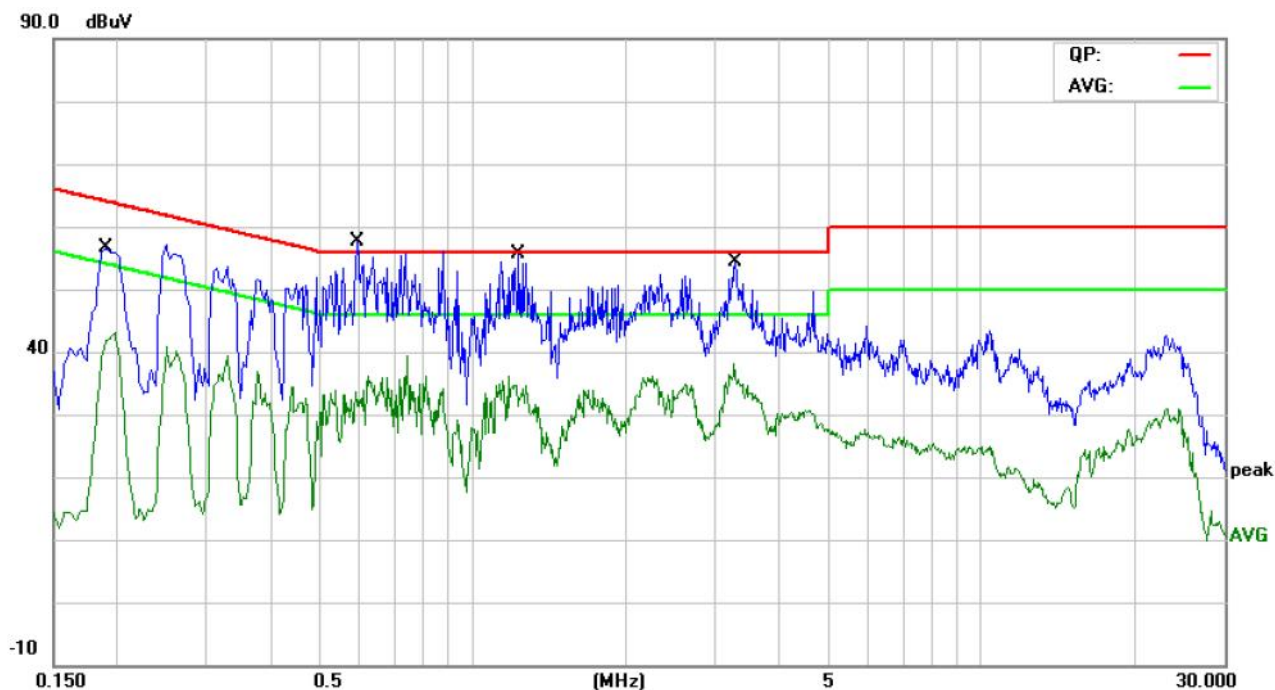
Test Specification: Line



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1965	39.78	10.36	50.14	63.75	-13.61	QP	
2		0.1965	25.63	10.36	35.99	53.75	-17.76	AVG	
3		0.7060	32.94	9.44	42.38	56.00	-13.62	QP	
4		0.7060	18.13	9.44	27.57	46.00	-18.43	AVG	
5		1.5220	24.15	9.32	33.47	56.00	-22.53	QP	
6		1.5220	10.69	9.32	20.01	46.00	-25.99	AVG	

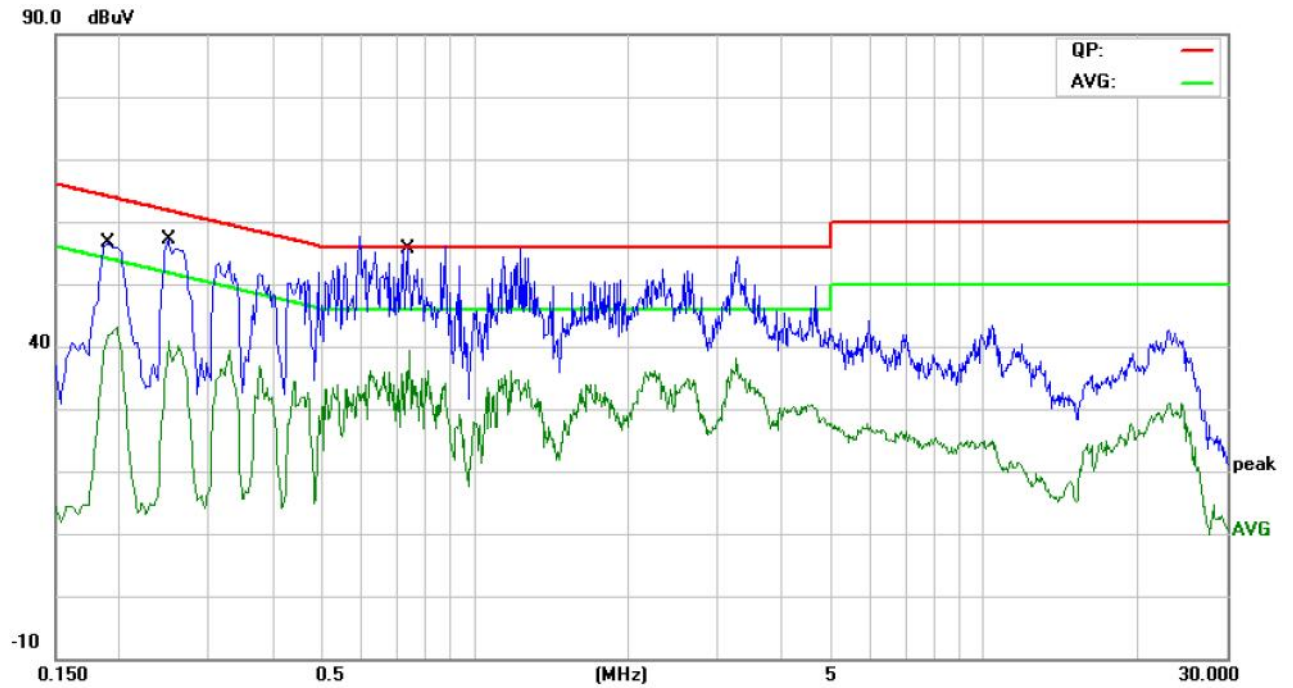
Operating Condition: Mode 1

Test Specification: Neutral



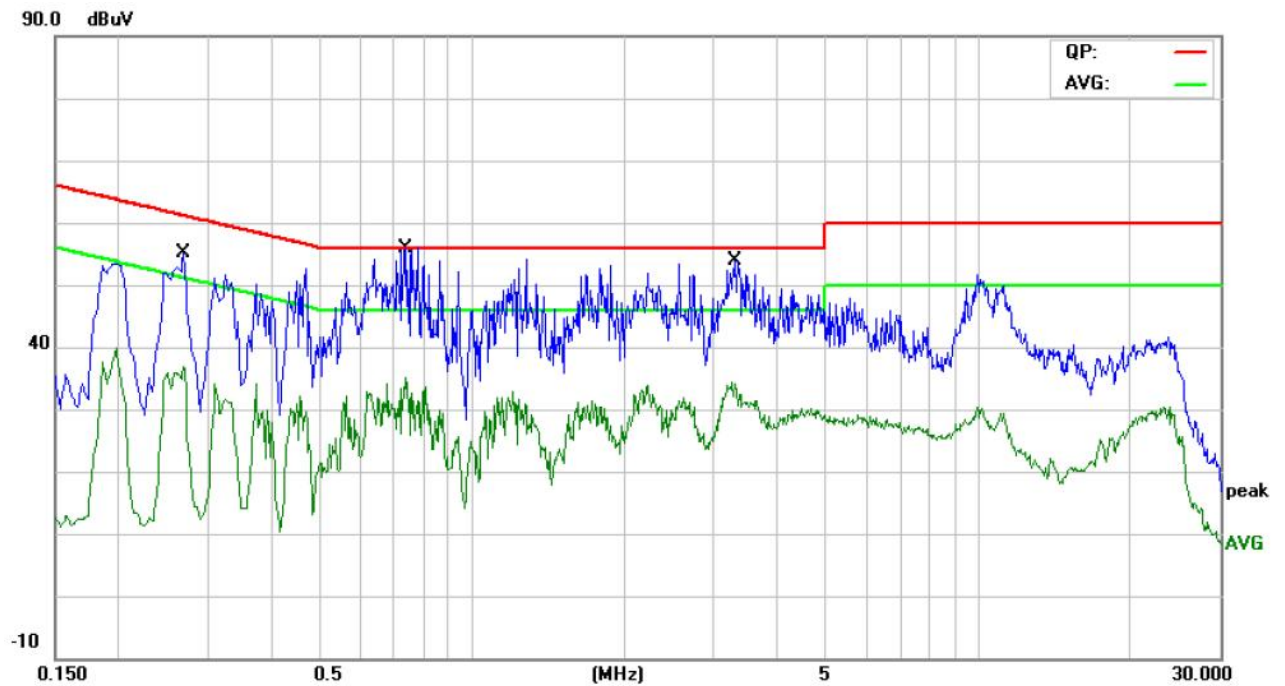
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1900	40.16	10.47	50.63	64.03	-13.40	QP	
2		0.1900	25.42	10.47	35.89	54.03	-18.14	AVG	
3		0.5940	31.71	9.43	41.14	56.00	-14.86	QP	
4		0.5940	16.16	9.43	25.59	46.00	-20.41	AVG	
5		1.2340	29.93	9.34	39.27	56.00	-16.73	QP	
6		1.2340	15.33	9.34	24.67	46.00	-21.33	AVG	
7		3.2780	32.04	9.42	41.46	56.00	-14.54	QP	
8		3.2780	21.64	9.42	31.06	46.00	-14.94	AVG	

Operating Condition: Mode 2
Test Specification: Line



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1900	39.92	10.47	50.39	64.03	-13.64	QP	
2		0.1900	25.28	10.47	35.75	54.03	-18.28	AVG	
3		0.2500	38.96	9.98	48.94	61.75	-12.81	QP	
4		0.2500	24.21	9.98	34.19	51.75	-17.56	AVG	
5	*	0.7380	34.44	9.46	43.90	56.00	-12.10	QP	
6		0.7380	20.93	9.46	30.39	46.00	-15.61	AVG	

Operating Condition: Mode 2
Test Specification: Neutral



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.2700	39.84	9.90	49.74	61.12	-11.38	QP	
2		0.2700	22.02	9.90	31.92	51.12	-19.20	AVG	
3	*	0.7420	37.35	9.46	46.81	56.00	-9.19	QP	
4		0.7420	23.10	9.46	32.56	46.00	-13.44	AVG	
5		3.3020	34.15	9.42	43.57	56.00	-12.43	QP	
6		3.3020	22.29	9.42	31.71	46.00	-14.29	AVG	

5 Radiated Disturbance Test

5.2 Test Standard and Limit

5.2.1 Test Standard

ETSI EN 301 489-1 Clause 8.2
ETSI EN 301 489-17
EN 55032: 2015/A1: 2020 Class B

5.2.2 Test Limit

Radiated Disturbance Test Limit

FREQUENCY (MHz)	Class A (at 10m)	Class B (at 10m)
	dBuV/m	dBuV/m
30 – 230	40	30
230 – 1000	47	37

Notes:

- (1) The limit for radiated test was performed according to as following: EN 55022
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

Limits Of Radiated Emission Measurement (Above 1000MHz)

FREQUENCY (MHz)	Class A (dBuV/m) (at 3m)		Class B (dBuV/m) (at 3m)	
	PEAK	AVERAGE	PEAK	AVERAGE
1000-3000	76	56	70	50
3000-6000	80	60	74	54

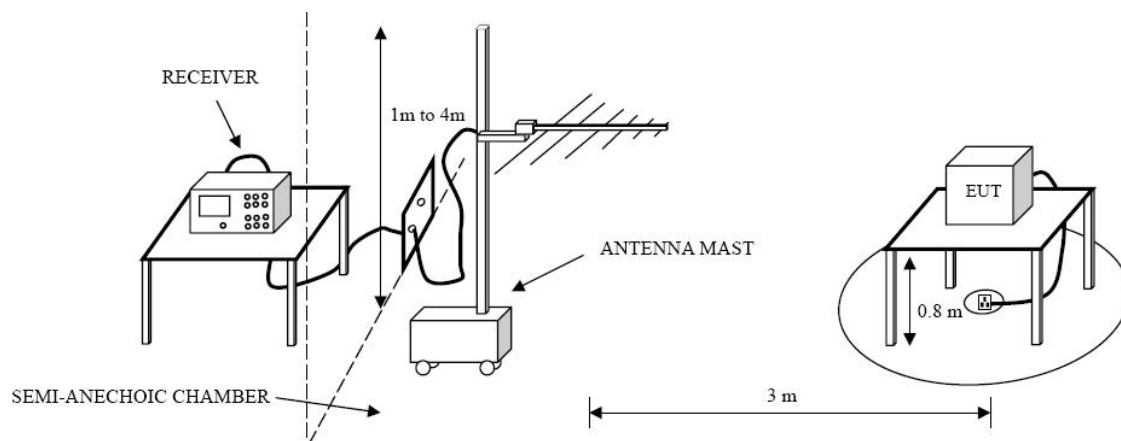
Notes:

- (1) The lower limit applies at the transition frequency.

Frequency Range of Radiated Measurement

Highest frequency generated or Upper frequency of measurement used in the device or on which the device operates or tunes (MHz)	Range (MHz)
Below 108	1000
108 – 500	2000
500 – 1000	5000
Above 1000	5th harmonic of the highest frequency or 6 GHz, whichever is lower

5.3 Test Setup



5.4 Test Procedure

The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3m. The table was rotated 360 degrees to determine the position of the highest radiation.

The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

The initial step in collecting radiated emission data is a spectrum Quasi Peak detector mode scanning the measurement frequency range.

If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.

5.5 Test Condition

Temperature	:	25 °C
Relative Humidity	:	48 %
Pressure	:	1010 hPa
Test Power	:	DC 12V

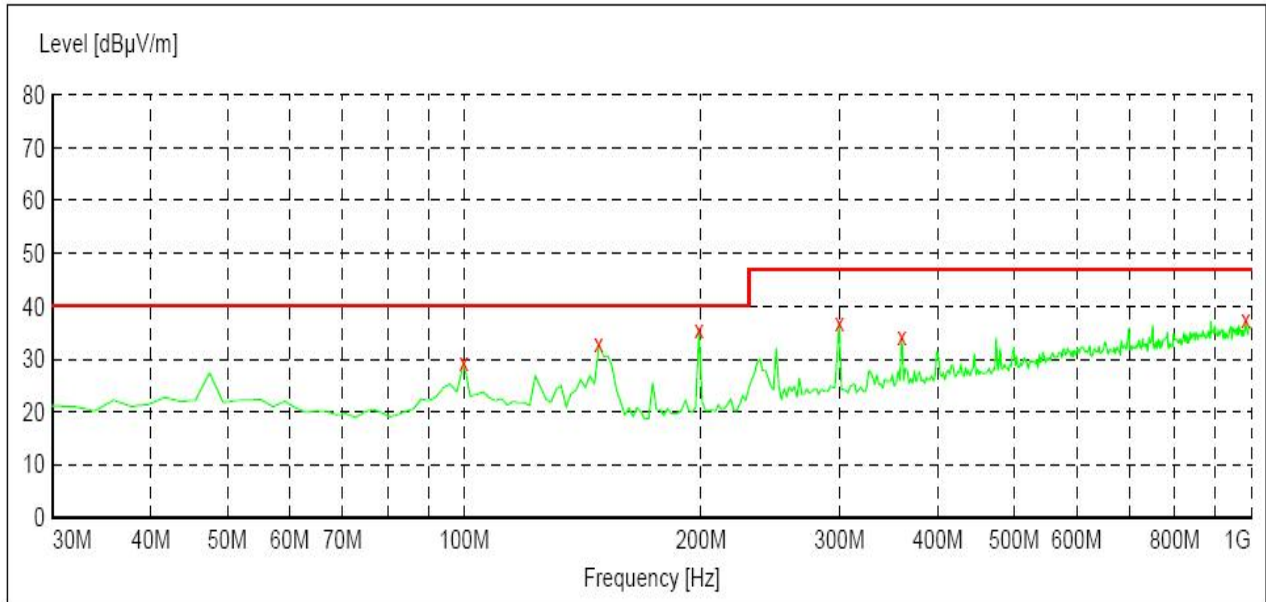
5.6 Test Data

Please refer to the following pages.

(1) Bellow 1 G

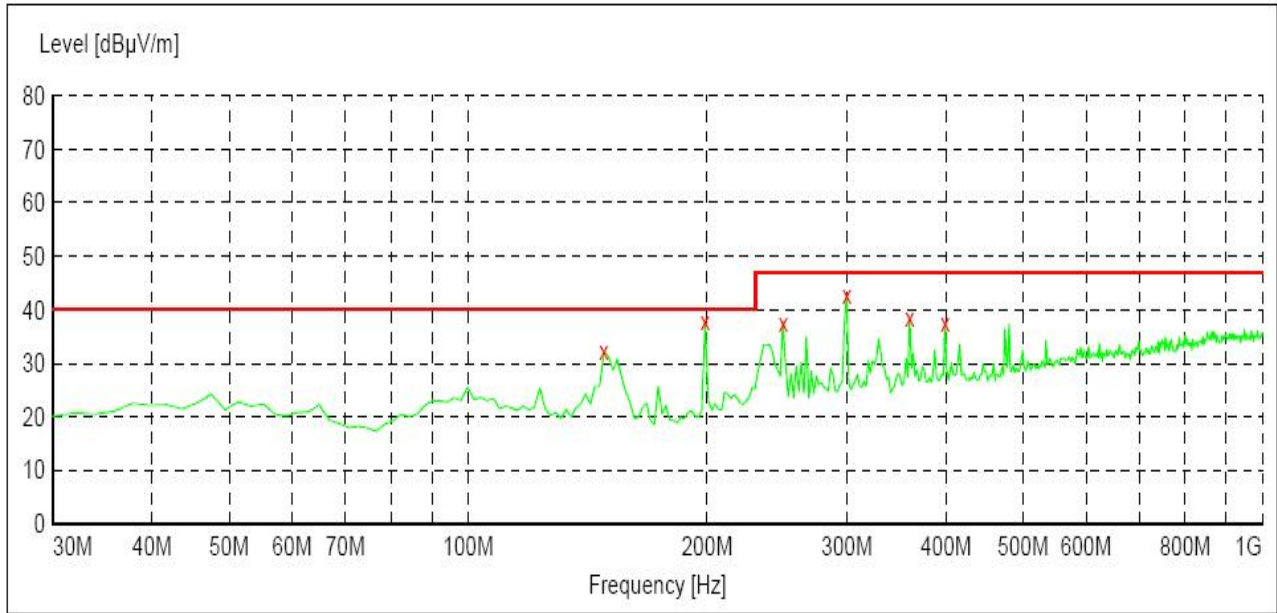
Operation Condition: Mode 1

Test Specification: Horizontal



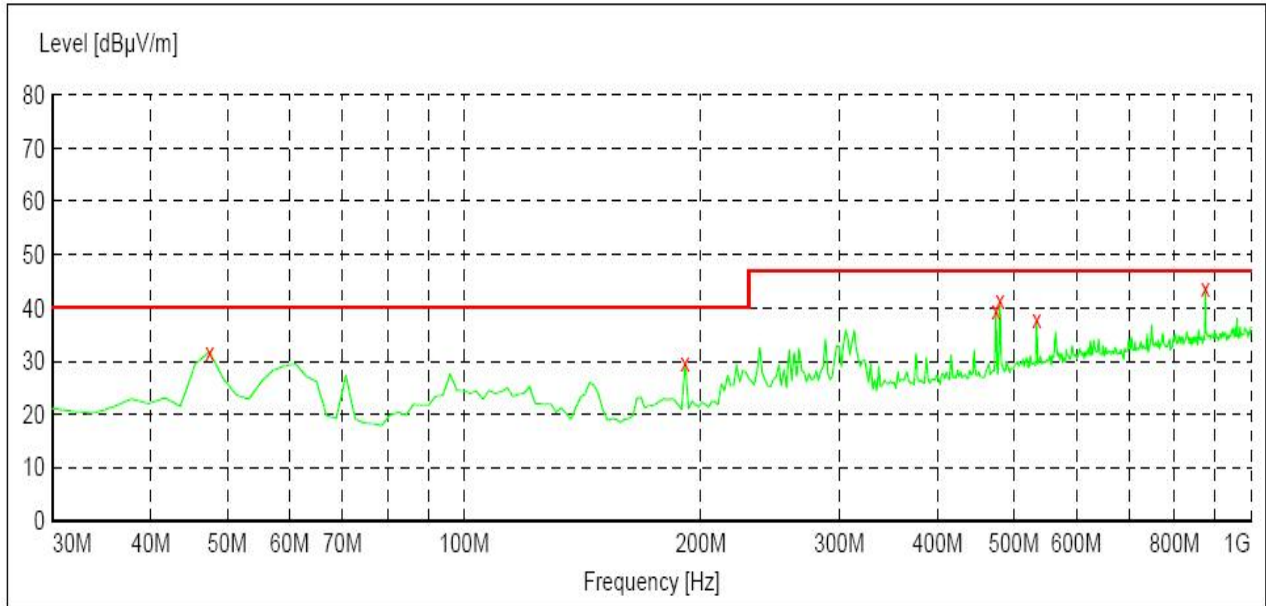
Frequency MHz	Level dBμV/m	Transd dB	Limit dBμV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
99.840000	29.40	17.5	40.0	10.6	---	100.0	0.00	HORIZONTAL
148.340000	32.90	12.3	40.0	7.1	---	100.0	0.00	HORIZONTAL
198.780000	35.80	14.9	40.0	4.2	---	100.0	0.00	HORIZONTAL
299.660000	36.80	18.7	47.0	10.2	---	100.0	0.00	HORIZONTAL
359.800000	34.40	20.6	47.0	12.6	---	100.0	0.00	HORIZONTAL
984.480000	37.50	29.8	47.0	9.5	---	100.0	0.00	HORIZONTAL

Operation Condition: Mode 1
Test Specification: Vertical



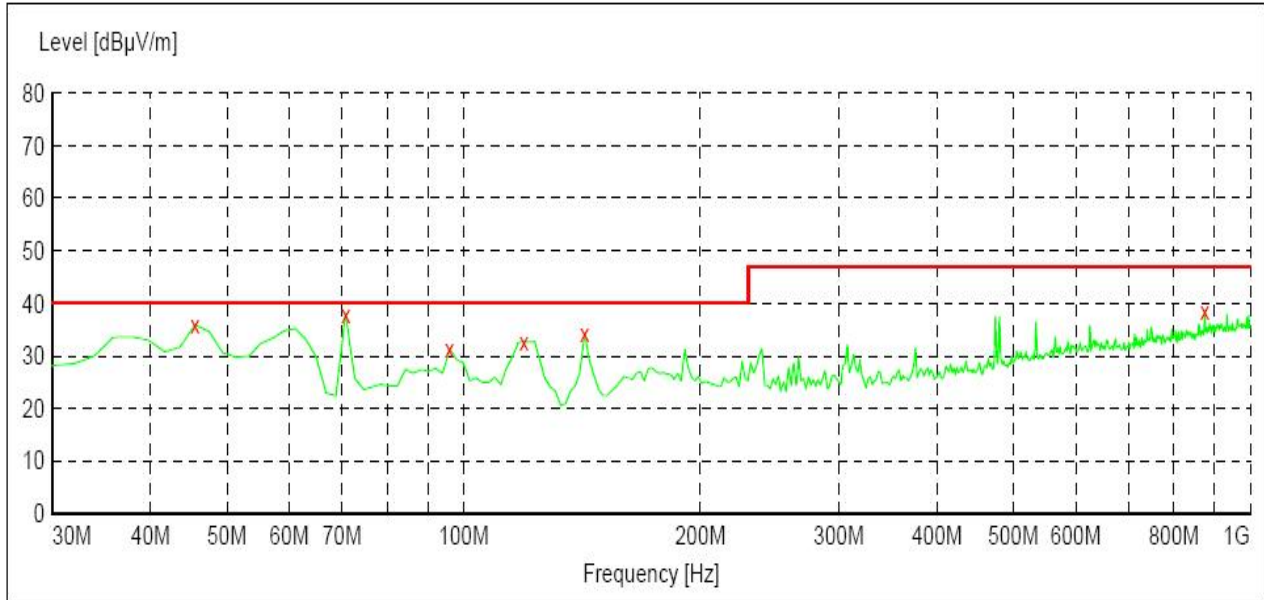
Frequency MHz	Level dBμV/m	Transd dB	Limit dBμV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
148.340000	32.40	12.3	40.0	7.6	---	100.0	0.00	HORIZONTAL
198.780000	38.00	14.9	40.0	2.0	---	100.0	0.00	HORIZONTAL
249.220000	37.70	17.2	47.0	9.3	---	100.0	0.00	HORIZONTAL
299.660000	42.70	18.7	47.0	4.3	---	100.0	0.00	HORIZONTAL
359.800000	38.60	20.6	47.0	8.4	---	100.0	0.00	HORIZONTAL
398.600000	37.70	21.4	47.0	9.3	---	100.0	0.00	HORIZONTAL

Operation Condition: Mode 2
Test Specification: Horizontal



Frequency MHz	Level dBμV/m	Transd dB	Limit dBμV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
47.460000	31.80	15.8	40.0	8.2	---	100.0	0.00	HORIZONTAL
191.020000	29.70	14.8	40.0	10.3	---	100.0	0.00	HORIZONTAL
474.260000	39.70	22.9	47.0	7.3	---	100.0	0.00	HORIZONTAL
480.080000	41.60	23.1	47.0	5.4	---	100.0	0.00	HORIZONTAL
534.400000	37.80	24.6	47.0	9.2	---	100.0	0.00	HORIZONTAL
875.840000	43.90	28.9	47.0	3.1	---	100.0	0.00	HORIZONTAL

Operation Condition: Mode 2
Test Specification: Vertical



Frequency MHz	Level dBμV/m	Transd dB	Limit dBμV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
45.520000	35.90	15.9	40.0	4.1	---	100.0	0.00	VERTICAL
70.740000	38.10	12.4	40.0	1.9	---	100.0	0.00	VERTICAL
95.960000	31.30	17.2	40.0	8.7	---	100.0	0.00	VERTICAL
119.240000	32.80	14.8	40.0	7.2	---	100.0	0.00	VERTICAL
142.520000	34.40	12.3	40.0	5.6	---	100.0	0.00	VERTICAL
875.840000	38.60	28.9	47.0	8.4	---	100.0	0.00	VERTICAL

(2) Above 1 G

EUT:	Car radio	Model Name :	Z0625
Temperature:	26°C	Relative Humidity:	60%
Pressure:	1010 hPa	Test Voltage :	DC 12V
Antenna :	Vertical		
Test Mode :	Mode 2		

No.	Frequency	Measurment	Limit	Margin	Detector	Note
	(MHz)	(dBuv/m)	(dBuv/m)	(dB)		
1	1505.000	54.06	70	15.94	peak	
2	1505.000	44.28	50	5.72	AVG	

EUT:	Car radio	Model Name :	Z0625
Temperature:	26°C	Relative Humidity:	60%
Pressure:	1010 hPa	Test Voltage :	DC 12V
Antenna :	Horizontal		
Test Mode :	Mode 2		

No.	Frequency	Measurment	Limit	Margin	Detector	Note
	(MHz)	(dBuv/m)	(dBuv/m)	(dB)		
1	1505.000	52.81	70	17.19	peak	
2	1505.000	43.16	50	6.94	AVG	

6 Harmonic Current Emission Test

6.2 Test Standard and Limit

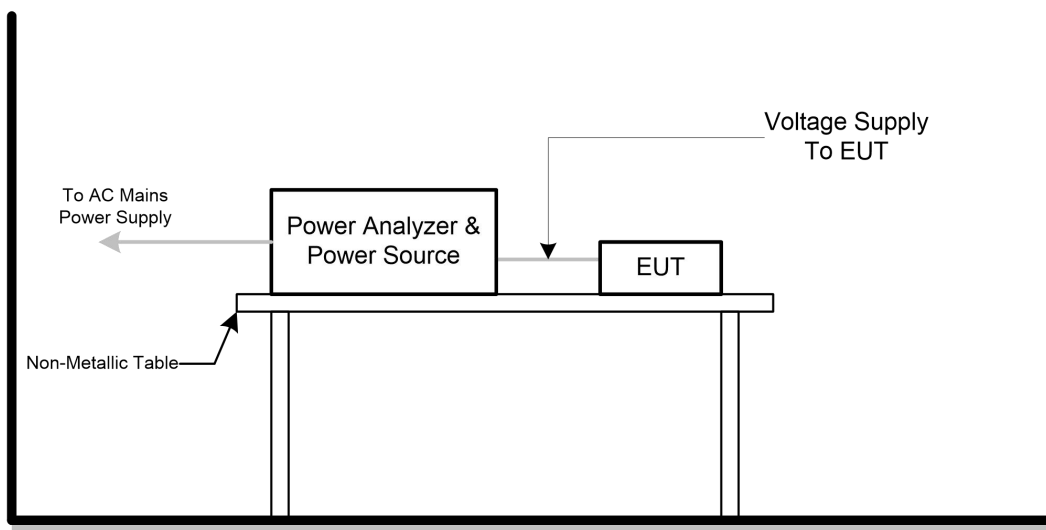
6.2.1 Test Standard

ETSI EN 301 489-1 Clause 8.5
ETSI EN 301 489-17
EN IEC 61000-3-2: 2019/A1: 2021

6.2.2 Limits

IEC 555-2					
Table- I			Table-II		
Equipment Category	Harmonic order n	Max. permissible harmonic current (in Amperes)	Equipment Category	Harmonic order n	Max. permissible harmonic current (in Amperes)
Non Portable Tools Or TV Receivers	odd harmonics		TV Receivers	odd harmonics	
	3	2.30		3	0.8
	5	1.14		5	0.65
	7	0.77		7	0.45
	9	0.40		9	0.30
	11	0.33		11	0.17
	13	0.21		13	0.12
	15≤n≤39	0.15 • 15/n		15≤n≤39	0.10 • 15/n
	even harmonics			even harmonics	
	2	1.08		2	0.30
	4	0.43		4	0.15
	8	0.30			
	8≤n≤40	0.23 • 8/n		DC	0.05
EN IEC 61000-3-2					
Equipment Category	Max. permissible harmonic current (in Amperes)	Equipment Category	Harmonic order n	Max. permissible harmonic current	
Class A	Same as Limits Specified in Table I But onlyodd Harmonics required	Class D		(in A)	(mA/w)
			3	2.30	3.4
			5	1.14	1.9
			7	0.77	1.0
			9	0.40	0.5
			11	0.33	0.35
			8≤n≤40	See Tabel I	3.85/n
Only odd harmonics required					

6.3 Test Setup



6.4 Test Procedure

The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to produce the maximum harmonic components under normal operating conditions.

The classification of EUT is according to section 5 of EN IEC 61000-3-2. The EUT is classified as follows:

Class A: Balanced three-phase equipment, Household appliances excluding equipment as Class D, Tools excluding portable tools, Dimmers for incandescent lamps, audio equipment, equipment not specified in one of the three other classes.

Class B: Portable tools. Arc welding equipment which is not professional equipment.

Class C: Lighting equipment.

Class D: Equipment having a specified power less than or equal to 600 W of the following types: Personal computers and personal computer monitors and television receivers.

6.5 Test Condition

Temperature	:	25 °C
Relative Humidity	:	48 %
Pressure	:	1010 hPa
Test Power	:	DC 12V

6.6 Test Data

Please see the following pages.

Harmonics – Class-D per Ed. 3.0 (2014) (Run time)

Test category: Class-D per Ed. 3.0 (2014) (European limits)

Test Margin: 100

Tested by: LH

Start time: 11:30:43

End time: 11:41:05

Test duration (min): 10

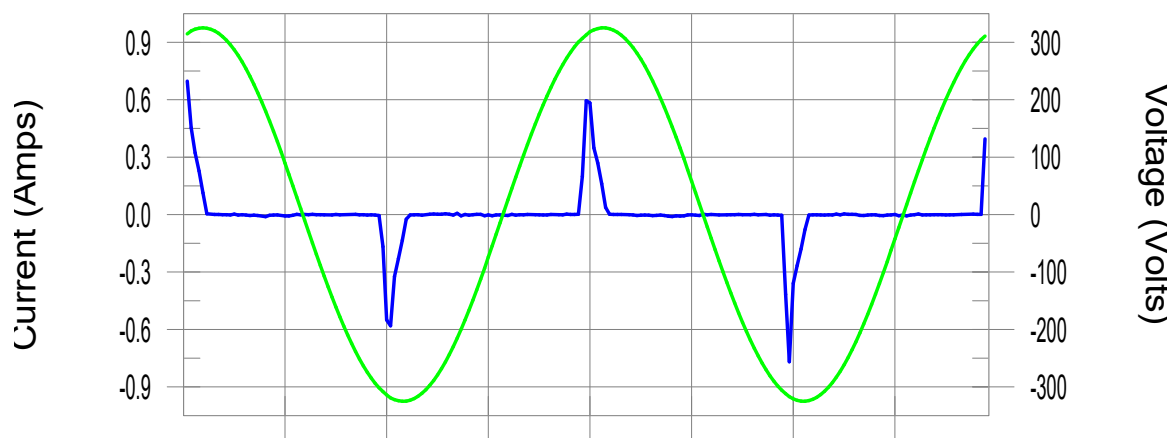
Data file name: H-000388.cts_data

Customer: Customer

Test Result: N/L

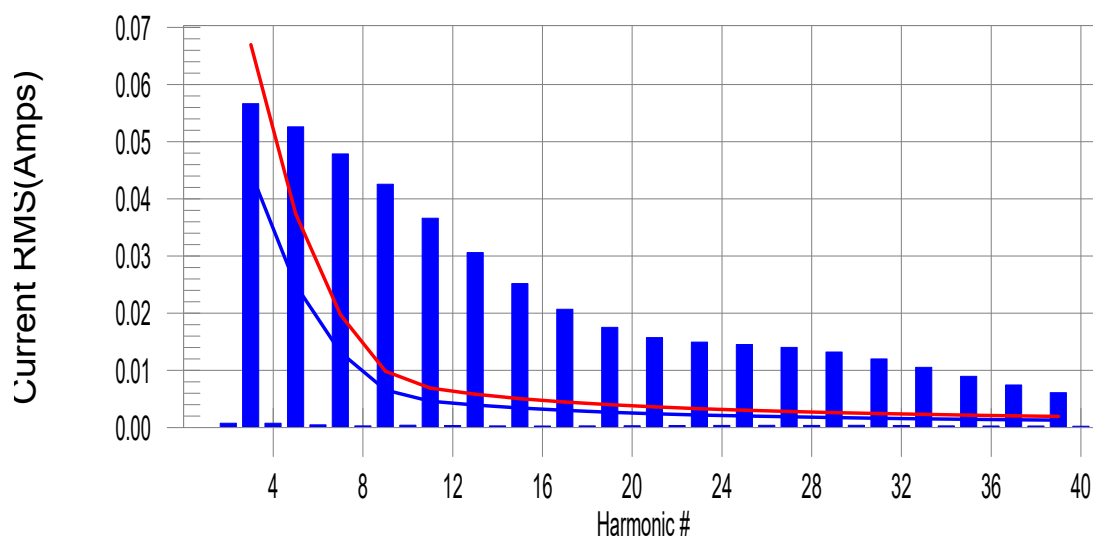
Source qualification: Normal

Current & voltage waveforms



Harmonics and Class D limit line

European Limits



Test result: N/L Worst harmonic was #0 with 0.00% of the limit.

Current Test Result Summary (Run time)

Test category: Class-D per Ed. 3.0 (2014) (European limits)
 Test Margin: 100 Tested by: LH
 Start time: 11:30:43 End time: 11:41:05
 Test duration (min): 10 Data file name: H-000388.cts_data
 Customer: Customer

Test Result: N/L Source qualification: Normal
 THC(A): 0.00 I-THD(%): 0.00 POHC(A): 0.000 POHC Limit(A): 0.000
 Highest parameter values during test:
 V_RMS (Volts): 229.95 Frequency(Hz): 50.00
 I_Peak (Amps): 0.836 I_RMS (Amps): 0.139
 I_Fund (Amps): 0.058 Crest Factor: 6.071
 Power (Watts): 13.1 Power Factor: 0.417

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.001						
3	0.056	0.045	0.0	0.057	0.067	0.00	N/L
4	0.001						
5	0.053	0.025	0.0	0.053	0.037	0.00	N/L
6	0.000						
7	0.048	0.013	0.0	0.048	0.020	0.00	N/L
8	0.000						
9	0.043	0.007	0.0	0.043	0.010	0.00	N/L
10	0.000						
11	0.037	0.005	0.0	0.037	0.007	0.00	N/L
12	0.000						
13	0.031	0.004	0.0	0.031	0.006	0.00	N/L
14	0.000						
15	0.025	0.003	0.0	0.025	0.005	0.00	N/L
16	0.000						
17	0.021	0.003	0.0	0.021	0.004	0.00	N/L
18	0.000						
19	0.018	0.003	0.0	0.018	0.004	0.00	N/L
20	0.000						
21	0.016	0.002	0.0	0.016	0.004	0.00	N/L
22	0.000						
23	0.015	0.002	0.0	0.015	0.003	0.00	N/L
24	0.000						
25	0.014	0.002	0.0	0.015	0.003	0.00	N/L
26	0.000						
27	0.014	0.002	0.0	0.014	0.003	0.00	N/L
28	0.000						
29	0.013	0.002	0.0	0.013	0.003	0.00	N/L
30	0.000						
31	0.012	0.002	0.0	0.012	0.002	0.00	N/L
32	0.000						
33	0.010	0.002	0.0	0.011	0.002	0.00	N/L
34	0.000						
35	0.009	0.001	0.0	0.009	0.002	0.00	N/L
36	0.000						
37	0.007	0.001	0.0	0.007	0.002	0.00	N/L
38	0.000						
39	0.006	0.001	0.0	0.006	0.002	0.00	N/L
40	0.000						

Note: The EUT power level is below 75.0 Watts and therefore has no defined limits

Voltage Source Verification Data (Run time)

Test category: Class-D per Ed. 3.0 (2014) (European limits)
 Test Margin: 100 Tested by: LH
 Start time: 11:30:43 End time: 11:41:05
 Test duration (min): 10 Data file name: H-000388.cts_data
 Customer: Customer

Test Result: N/L Source qualification: Normal

Highest parameter values during test:

Voltage (Vrms):	229.95	Frequency(Hz):	50.00
I_Peak (Amps):	0.836	I_RMS (Amps):	0.139
I_Fund (Amps):	0.058	Crest Factor:	6.071
Power (Watts):	13.1	Power Factor:	0.417

Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.070	0.460	15.32	OK
3	0.536	2.069	25.92	OK
4	0.053	0.460	11.60	OK
5	0.054	0.920	5.89	OK
6	0.026	0.460	5.74	OK
7	0.034	0.690	4.93	OK
8	0.009	0.460	1.98	OK
9	0.044	0.460	9.56	OK
10	0.015	0.460	3.17	OK
11	0.031	0.230	13.56	OK
12	0.014	0.230	5.98	OK
13	0.027	0.230	11.83	OK
14	0.006	0.230	2.61	OK
15	0.024	0.230	10.35	OK
16	0.009	0.230	3.83	OK
17	0.022	0.230	9.59	OK
18	0.012	0.230	5.39	OK
19	0.020	0.230	8.49	OK
20	0.011	0.230	4.65	OK
21	0.019	0.230	8.25	OK
22	0.004	0.230	1.93	OK
23	0.017	0.230	7.54	OK
24	0.004	0.230	1.76	OK
25	0.020	0.230	8.58	OK
26	0.004	0.230	1.66	OK
27	0.018	0.230	7.71	OK
28	0.003	0.230	1.32	OK
29	0.020	0.230	8.86	OK
30	0.004	0.230	1.76	OK
31	0.019	0.230	8.17	OK
32	0.003	0.230	1.37	OK
33	0.017	0.230	7.57	OK
34	0.003	0.230	1.14	OK
35	0.016	0.230	6.88	OK
36	0.003	0.230	1.33	OK
37	0.015	0.230	6.62	OK
38	0.003	0.230	1.25	OK
39	0.012	0.230	5.19	OK
40	0.005	0.230	2.22	OK

7 Voltage Fluctuation and Flicker test

7.2 Test Standard and Limit

7.2.1 Test Standard

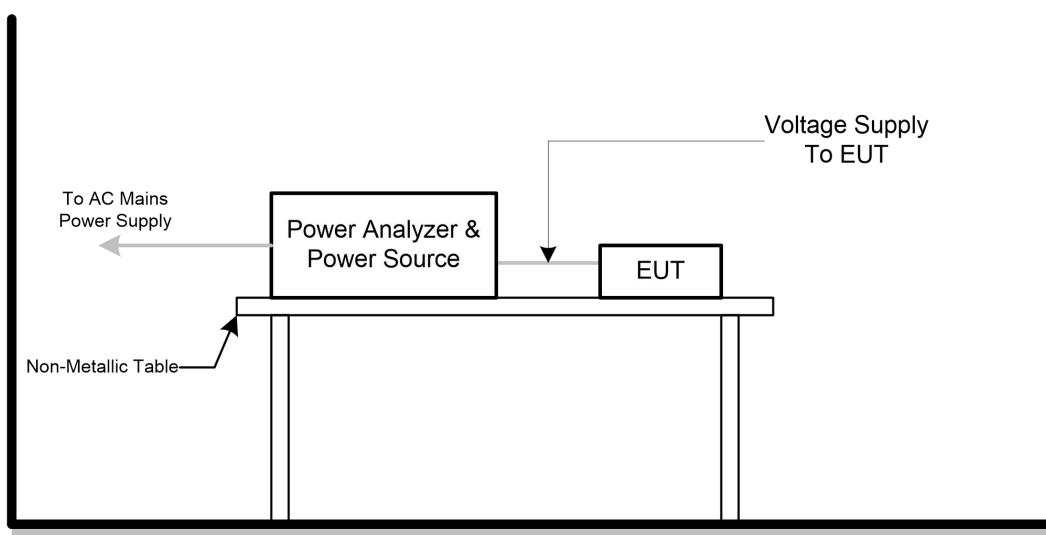
ETSI EN 301 489-1 Clause 8.6
ETSI EN 301 489-17
EN 61000-3-3: 2013/A1:2019

7.2.2 Limit

Flicker Test Limit

Tests	Limits		Descriptions
	IEC555-3	IEC 61000-3-3	
Pst	≤ 1.0 , $T_p = 10$ min.	≤ 1.0 , $T_p = 10$ min.	Short Term Flicker Indicator
Plt	N/A	≤ 0.65 , $T_p = 2$ hr.	Long Term Flicker Indicator
dc	$\leq 3\%$	$\leq 3\%$	Relative Steady-State V-Chang
dmax	$\leq 4\%$	$\leq 4\%$	Maximum Relative V-change
d (t)	N/A	$\leq 3\%$ for > 200 ms	RelativeV-change characteristic

7.3 Test Setup



7.4 Test Procedure

7.4.1 Fluctuation and Flickers Test:

Tests was performed according to the Test Conditions/Assessment of Voltage Fluctuations specified in Clause 5.0/6.0 of IEC555-3 and/or Clause 6.0/4.0 of IEC/EN 61000-3-3 depend on which standard adopted for compliance measurement.

7.4.2 All types of harmonic current and/or voltage fluctuation in this report are assessed by direct measurement using flicker-meter.

7.4.3 For the actual test configuration, please refer to the related Item –Block Diagram of system tested.

7.5 Test Condition

Temperature	:	25 °C
Relative Humidity	:	48 %
Pressure	:	1010 hPa
Test Power	:	DC 12V

7.6 Test Data

Please see the following pages.

Flicker Test Summary per EN/IEC61000-3-3 (Run time)

Test category: Class-D per Ed. 3.0 (2014) (European limits)

Test Margin: 100

Tested by: LH

Start time: 11:15:39

End time: 11:26:00

Test duration (min): 10

Data file name: F-000387.cts_data

Customer: Customer

Test Result: Pass

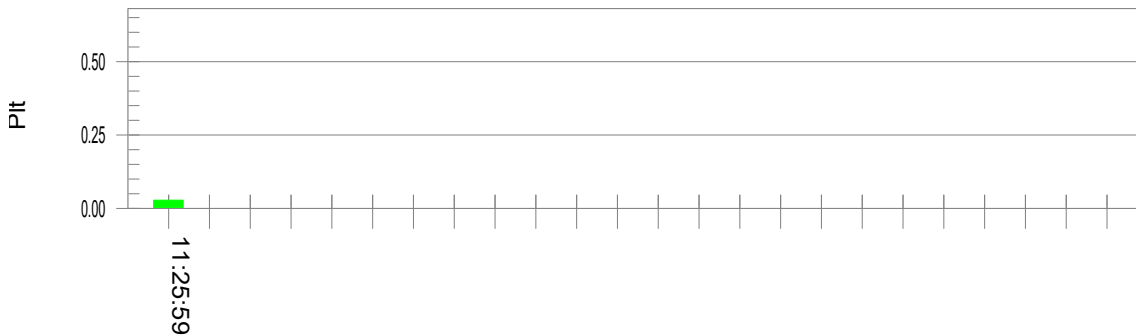
Status: Test Completed

Pst and limit line

European Limits



Plt and limit line



Parameter values recorded during the test:

Vrms at the end of test (Volt): 229.87

Highest dt (%): 0.00

Time(mS) > dt: 0.0

Highest dc (%): 0.00

Highest dmax (%): 0.00

Highest Pst (10 min. period): 0.064

Highest Plt (2 hr. period): 0.028

Test limit (%): 3.30 Pass

Test limit (mS): 500.0 Pass

Test limit (%): 3.30 Pass

Test limit (%): 4.00 Pass

Test limit: 1.000 Pass

Test limit: 0.650 Pass

8 Electrostatic Discharge Immunity Test

8.2 Test Requirements

8.2.1 Test Standard

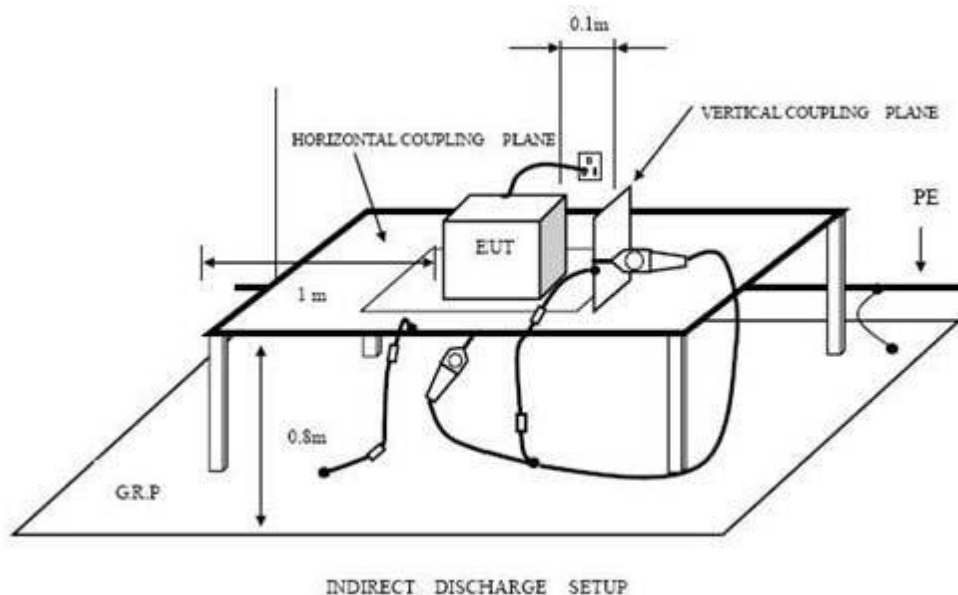
ETSI EN 301 489-1 Clause 9.3
 ETSI EN 301 489-17
 EN 61000-4-2: 2009

8.2.2 Test Level

Level	Test Voltage Contact Discharge (KV)	Test Voltage Air Discharge (KV)
1.	±2	±2
2.	±4	±4
3.	±6	±8
4.	±8	±15
X	Special	Special

8.2.3 Performance criterion: B

8.3 Test Setup



8.4 Test Procedure

8.4.1 Air Discharge:

This test is done on a non-conductive surface. The round discharge tip of the discharge

electrode shall be approached as fast as possible to touch the EUT. After each discharge, the discharge electrode shall be removed from the EUT. The generator is then re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed.

8.4.2 Contact Discharge:

All the procedure shall be same as air discharge. Except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

8.4.3 Indirect discharge for horizontal coupling plane

At least 10 single discharges (in the most sensitive polarity) shall be applied at the front edge of each HCP opposite the center point of each unit (if applicable) of the EUT and 0.1m from the front of the EUT. The long axis of the discharge electrode shall be in the plane of the HCP and perpendicular to its front edge during the discharge.

8.4.4 Indirect discharge for vertical coupling plane

At least 10 single discharges (in the most sensitive polarity) shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, is placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges shall be applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.

8.5 Test Data

Please refer to the following page.

Electrostatic Discharge Test Result

EUT :	Car radio	Model Name :	Z0625
Temperature :	22°C	Humidity :	50%
Power supply :	DC 12V	Test Mode :	Mode 1/2
Test Engineer :	Jim		
Criterion: B			
Air Discharge: ±8kV Contact Discharge: ±4kV			
For each point positive 10 times and negative 10 times discharge.			
Location	Kind C- Air Discharge C-Contact Discharge	Result	
Slot of the EUT	A	PASS	
USB Port	A	PASS	
SD Card Port	A	PASS	
Button	A	PASS	
Audio Port	A	PASS	
Screen	A	PASS	
Audio Port	A	PASS	
Enclosure of EUT	C	PASS	
USB Port	C	PASS	
Remark:			

9 Radiated Electromagnetic Field Immunity test

9.2 Test Requirements

9.2.1 Test Standard

ETSI EN 301 489-1 Clause 9.2
ETSI EN 301 489-17
EN IEC 61000-4-3:2020

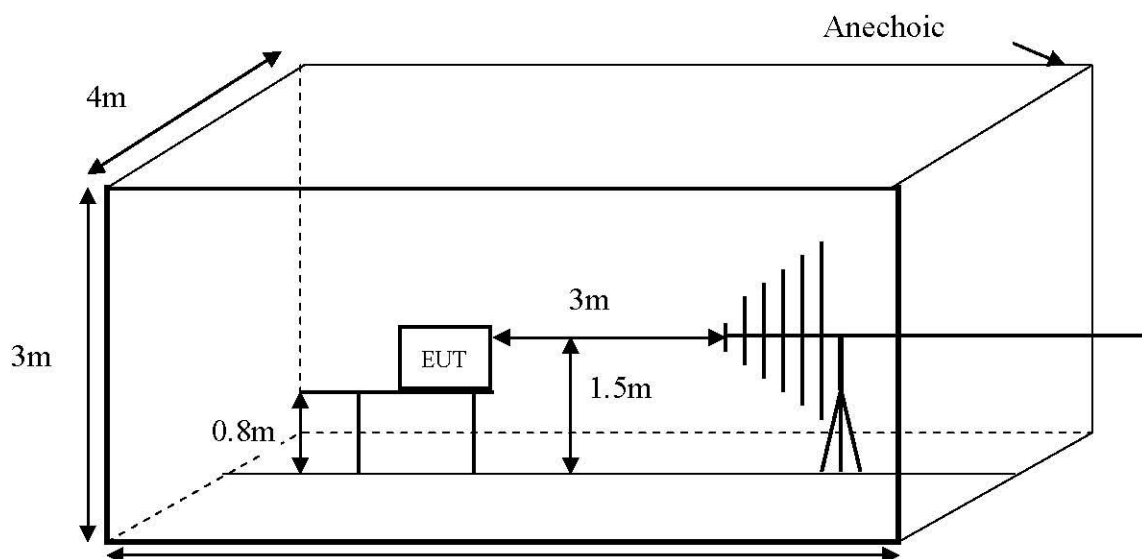
9.2.2 Test Level

Test Level for Radiated Electromagnetic Field Immunity Test

Port	Test Specification
Enclosure Port	80-1000MHz, and 1400-2700MHz 3 V/m 80 % AM (1kHz)

9.2.3 Performance criterion: A

9.3 Test Setup



9.4 Test Procedure

The EUT are placed on a table, which is 0.8 meter high above the ground. The EUT is set 3 meters away from the transmitting antenna, which is mounted on an antenna tower. Both horizontal and vertical polarization of the antenna is set on test. Each of the four sides of the EUT must be faced this transmitting antenna and measured individually.

In order to judge the EUT performance, a camera is used to monitor its screen.

All the scanning conditions are as following:

Condition of Test	Remark
1. Fielded Strength	3V/m
2. Radiated Signal	80%AM,1kHz Since Wave
3. Scanning Frequency	80-1000MHz,1400-2700MHz
4. Sweep time of radiated	0.0015 Decade/s
5. Dwell Time	3 Sec.

9.5 Test Data

Please refer to the following page.

RF Field Strength Susceptibility Test Results

EUT :	Car radio		Model Name :	Z0625	
Temperature :	22°C		Humidity :	50%	
Field Strength :	3V/m		Criterion :	A	
Power Supply :	DC 12V		Test Mode :	Mode 1/2	
Test Engineer:	Jim				
Modulation: <input type="checkbox"/> None <input type="checkbox"/> Pulse <input checked="" type="checkbox"/> AM 1KHz 80%					
	Frequency Rang 1:			Frequency Rang 2:	
	80~ 1000MHz			1400~2700MHz	
	Horizontal	Vertical	Horizontal	Vertical	
Front	PASS	PASS	PASS	PASS	
Right	PASS	PASS	PASS	PASS	
Rear	PASS	PASS	PASS	PASS	
Left	PASS	PASS	PASS	PASS	
Note:					

10Electrical Fast Transient/Burst Test

10.2 Test Requirements

10.2.1 Test Standard

ETSI EN 301 489-1 Clause 9.4
ETSI EN 301 489-17
EN 61000-4-4: 2012

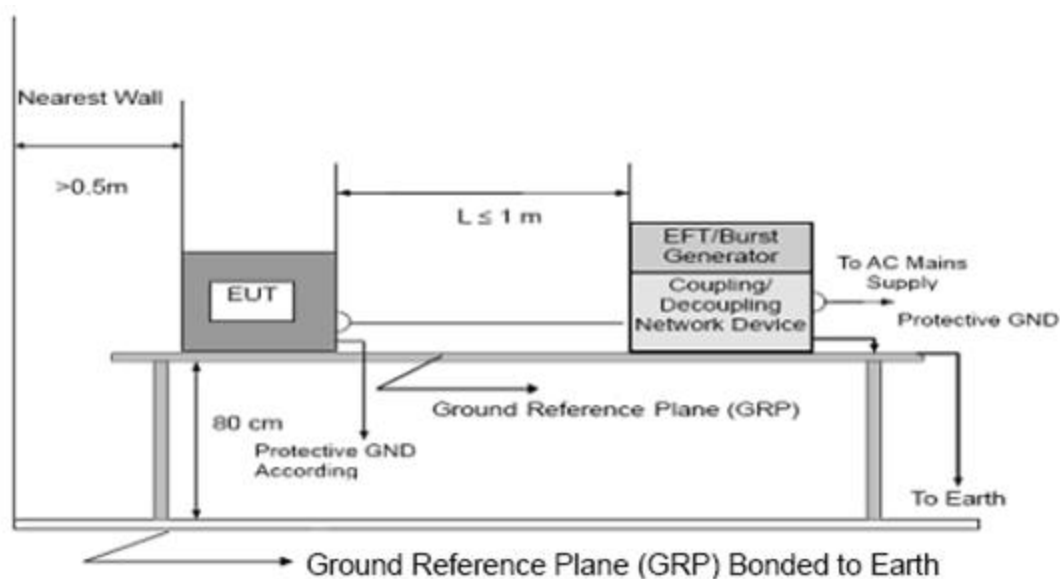
10.2.2 Test Level

Test Level for Electrical Fast Transient Test

	On Switching Adapter Lines	On I/O (Input/Output) Signal data and control lines
Test Voltage:	1 KV	0.5 KV
Polarity:	Positive& Negative	
Impulse Wave Shape:	5/50ns	
Burst Duration:	15ms	
Burst Period:	300ms	
Test Duration:	Not less than 1 min	

10.2.3 Performance criterion: B

10.3 Test Setup



10.4 Test Procedure

10.4.1 For input and output AC power ports:

The EUT is connected to the power mains by using a coupling device which couples the EFT interference signal to AC power lines. Both polarities of the test voltage should be applied during compliance test and the duration of the test is 1minute.

10.4.2 For signal lines and control lines ports:

A coupling clamp is use to couple the EFT interference signal to the signal and control lines. Both polarities of the test voltage should be applied during compliance test and the duration of the test is 1 minute.

10.4.3 For DC input and DC output power ports:

The EUT is connected to the power mains by using a coupling device which couples the EFT interference signal to DC power lines. Both polarities of the test voltage should be applied during compliance test and the duration of the test is 1 minute.

10.5 Test Data

Please refer to the following page.

Electrical Fast Transient/Burst Test Results

EUT :	Car radio	Model Name :	Z0625
Temperature :	22°C	Humidity:	50%
Power Supply :	DC 12V	Criterion :	B
Test Engineer :	Ariel	Test Mode :	Mode 1/2
Test Results Description			
Line : <input checked="" type="checkbox"/> AC Mains Line <input type="checkbox"/> DC Power Line <input type="checkbox"/> Signal <input type="checkbox"/> I/O Cable			
Test Level: <input checked="" type="checkbox"/> 1KV <input type="checkbox"/> 0.5KV			
Port(s)	Polarity	Results	Judgment
Line(L)	P	A	PASS
	N	A	PASS
Neutral(N)	P	A	PASS
	N	A	PASS
Ground(PE)	P	N/A	
	N	N/A	
Signal /Control Line(LAN)	P	N/A	
	N	N/A	
Remark:			

11 Surge Immunity Test

11.2 Test Requirements

11.2.1 Test Standard

ETSI EN 301 489-1 Clause 9.8
ETSI EN 301 489-17
EN 61000-4-5: 2014/A1:2017

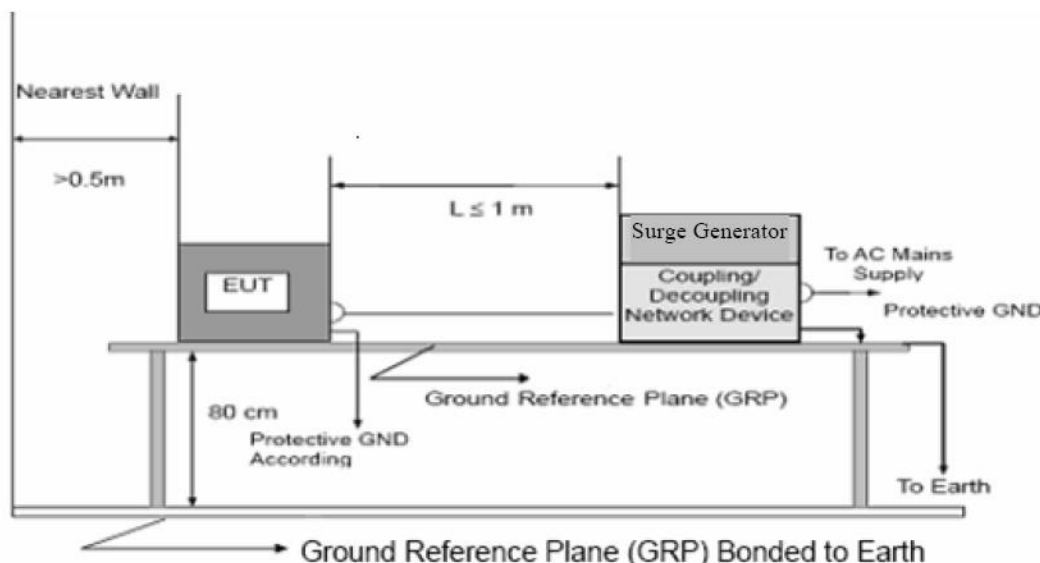
11.2.2 Level

Test Level for Surge Immunity Test

Basic Standard:	EN 61000-4-5
Wave-Shape:	Combination Wave 1.2/50us Open Circuit Voltage 8/20us Short Circuit Current
Test Voltage	Power Line:0.5kV,1kV,2kV
Surge Input/Output:	L1-L2,I1-PE,L2-PE
Generator Source:	2 ohm between networks
Impedance:	12ohm between network and ground
Polarity:	Positive/Negative
Phase Angle:	0/90/180/270
Pulse Repetition Rate:	1 time/min.(maximum)
Number of Tests:	5 positive and 5 negative at selected points

11.2.3 Performance criterion: B

11.3 Test Setup



11.4 Test Procedure

- 11.4.1 Set up the EUT and test generator.
- 11.4.2 For line to line coupling mode, provide a 1.0 KV 1.2/50us voltage surge
- 11.4.3 (at open-circuit condition) and 8/20us current surge to EUT selected points.
- 11.4.4 At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are conducted during test.
- 11.4.5 Different phase angles are done individually.
- 11.4.6 Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

11.5 Test Data

Please refer to the following page.

Surge Immunity Test Results

EUT :	Car radio		Model Name :	Z0625	
Temperature :	22°C		Humidity:	50%	
Power Supply :	DC 12V		Criterion :	A	
Test Engineer :	Jim		Test Mode :	Mode 1/2	
Test Results Description					
Location	Polarity	Phase Angle	No of Pulse	Pulse Voltage (KV)	Result
L-N	±	0	5	1.0	PASS
	±	90	5	1.0	PASS
	±	180	5	1.0	PASS
	±	270	5	1.0	PASS
L-PE	±	0	5	N/A	
	±	90	5	N/A	
	±	180	5	N/A	
	±	270	5	N/A	
N-PE	±	0	5	N/A	
	±	90	5	N/A	
	±	180	5	N/A	
	±	270	5	N/A	
Signal Line (N/A)	±	N/A		N/A	
Remark:					

12 Injection Current Test

12.2 Test Requirements

12.2.1 Test Standard

ETSI EN 301 489-1 Clause 9.5
ETSI EN 301 489-17
EN 61000-4-6: 2014

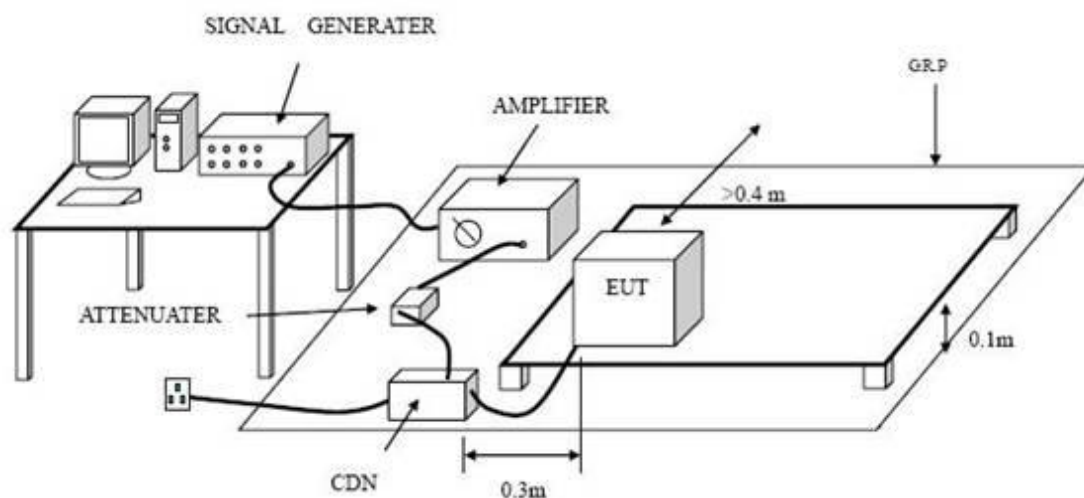
12.2.2 Test Level

Test Level for Conducted Immunity

Port	Test Specification
Input AC power port	0.15MHz~80MHz 3V(r.m.s.) (unmodulated)

12.2.3 Performance criterion: A

12.3 Test Setup



12.4 Test Procedure

12.4.1 Set up the EUT, CDN and test generators.

12.4.2 Let the EUT work in test mode and test it.

12.4.3 The EUT are placed on an insulating support 0.1m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane about 0.3m from EUT. Cables between CDN and EUT are as short as possible, and their height above the ground reference plane shall be between 30 and 50 mm (where possible).

12.4.4 The disturbance signal description below is injected to EUT through CDN.

- 12.4.5 The EUT operates within its operational mode(s) under intended climatic conditions after power on.
- 12.4.6 The frequency range is swept from 0.150MHz to 230MHz using 3V signal level, and with the disturbance signal 80% amplitude modulated with a 1KHz sine wave.
- 12.4.7 The rate of sweep shall not exceed 1.5×10^{-3} decades/s. Where the frequency is swept incrementally, the step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value.
- 12.4.8 Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion.

12.5 Test Data

Please refer to the following page.

Injected Currents Susceptibility Test Results

EUT :	Car radio	Model Name :	Z0625	
Temperature :	22°C	Humidity:	50%	
Power Supply :	DC 12V	Criterion :	A	
Test Engineer :	Jim	Test Mode :	Mode 1/2	
Test Results Description				
Frequency Range (MHz)	Injected Position	Voltage Level (e.m.f.)	Result	Judgment
0.15 ~ 80	AC Mains	3V(rms),AM Modulated 1000Hz,80%	A	PASS
0.15 ~ 80	DC Mains	3V(rms),AM Modulated 1000Hz,80%	N/A	
0.15 ~ 80	Signal Mains	3V(rms),AM Modulated 1000Hz,80%	N/A	
Remark :				

13 Voltage Dips and Interruptions Immunity Test

13.2 Test Requirements

13.2.1 Test Standard

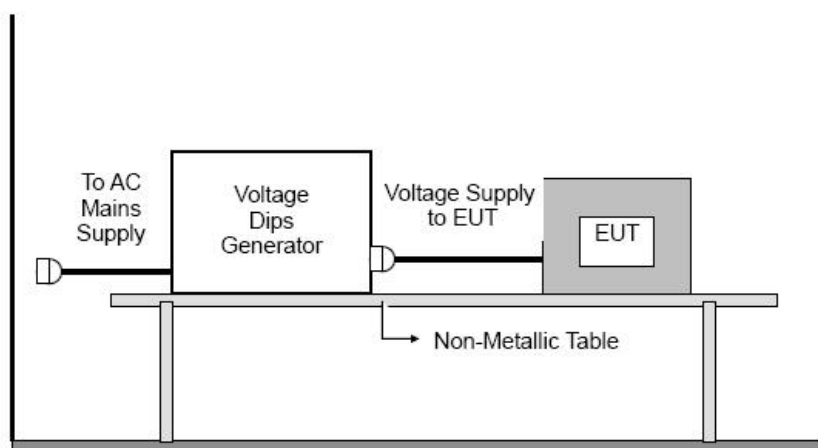
ETSI EN 301 489-1 Clause 9.7
ETSI EN 301 489-17
EN IEC 61000-4-11:2020

13.2.2 Level

Test Level for Voltage Dips and Interruptions

Basic Standard:	EN IEC 61000-4-11
Required Performance:	B(For 100% Voltage Dips) B(For 100% Voltage Dips) C(For 30% Voltage Dips) C(For 100% Voltage Interruptions)
Test Duration Time:	Minimum three test events in sequence
Interval Between Event:	Minimum ten seconds
Phase Angle:	0°/45°/90°/135°/180°/225°/270°/315°/360°
Test Cycle:	3 times

13.3 Test Setup



13.4 Test Procedure

The EUT shall be tested for each selected combination of test levels and duration with a sequence of three dips/interruptions with intervals of 10 s minimum (between each test event). Each representative mode of operation shall be tested. Abrupt changes in supply voltage shall occur at zero crossings of the voltage waveform.

13.5 Test Data

Voltage Dips and Interruptions Test Results

EUT :	Car radio	Model Name :	Z0625	
Temperature :	22°C	Humidity :	50%	
Power Supply :	DC 12V	Criterion :	B&C	
Test Engineer :	Jim	Test Mode :	Mode 1/2	
Test Results Description				
Voltage Reduction	Cycles	Perform Criteria	Results	Judgment
Voltage dip 100%	0.5	B	A	PASS
Voltage dip 100%	1	B	A	PASS
Voltage dip 30%	25	C	B	PASS
Voltage Interruption100%	250	C	C	PASS
Remark:				

14 Photographs - Constructional Details

Photo 1 Appearance of EUT

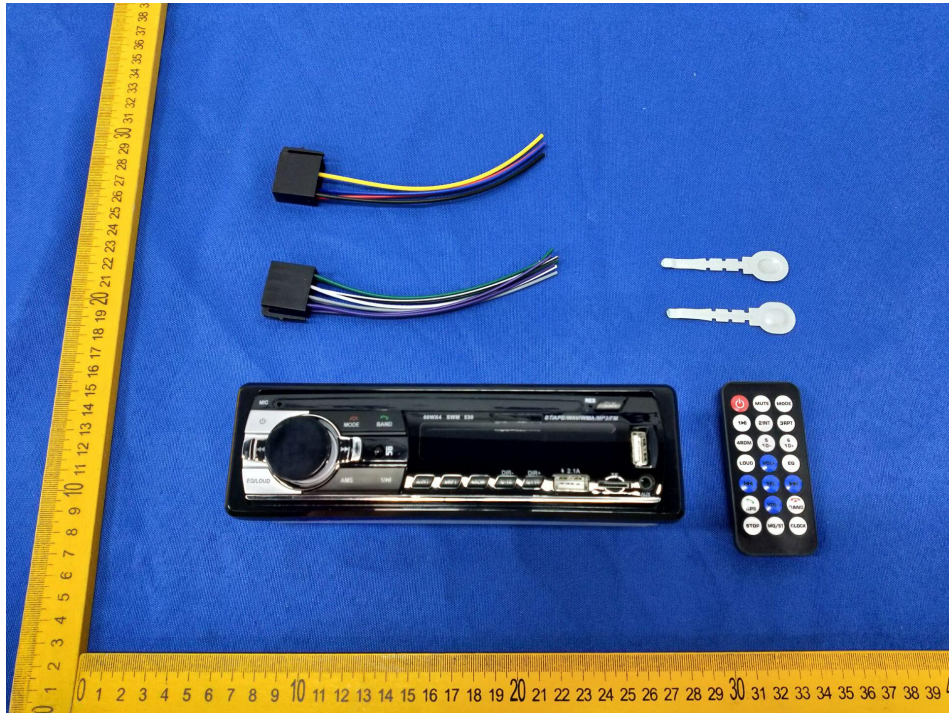


Photo 2 Appearance of EUT

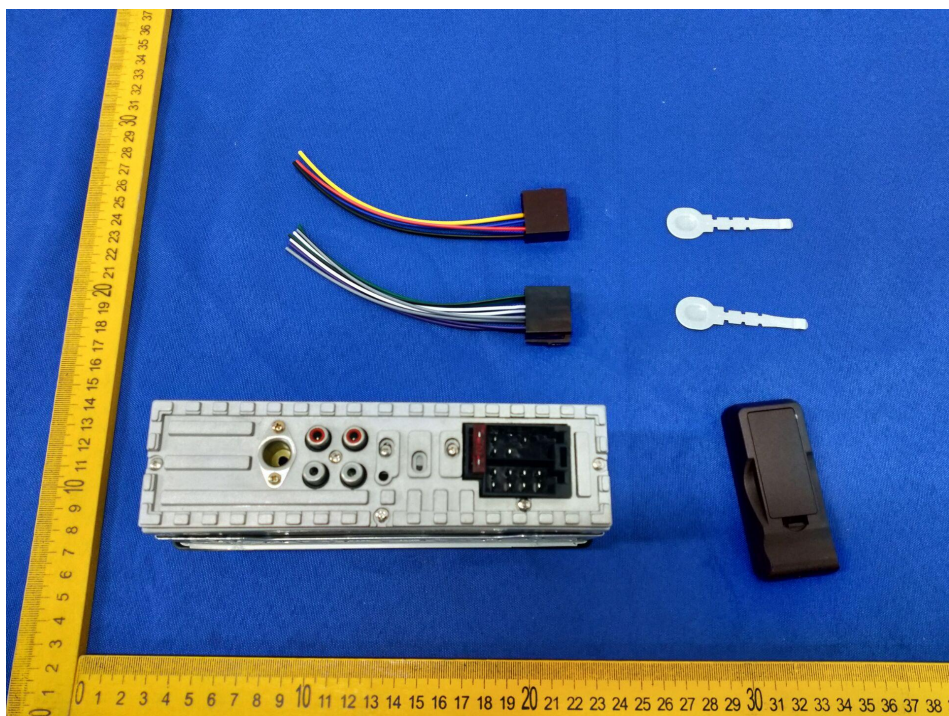


Photo 3 Appearance of EUT

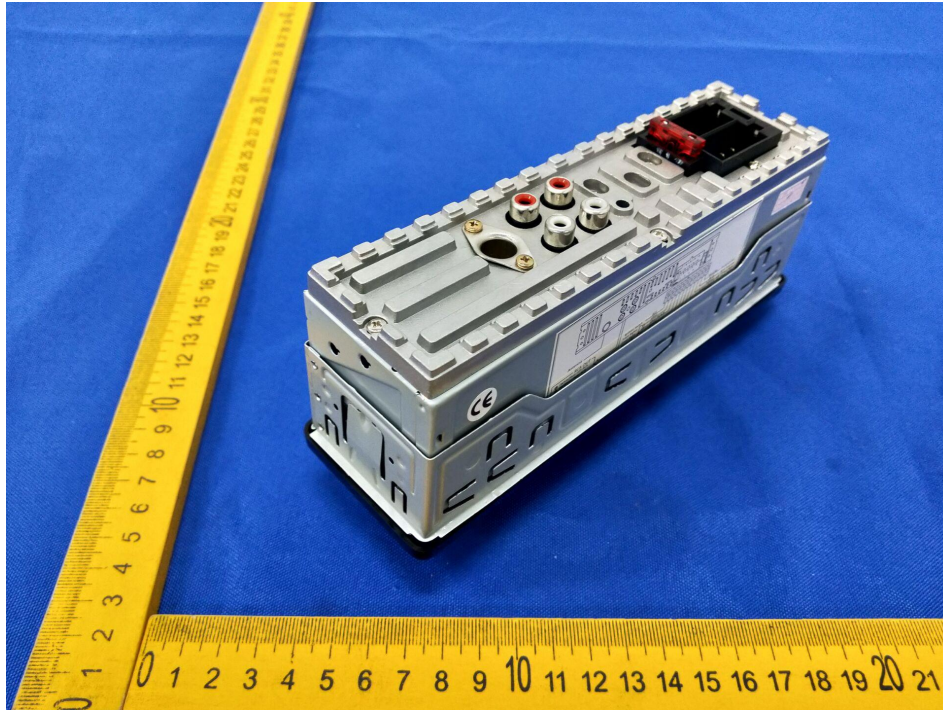


Photo 4 Inside of EUT

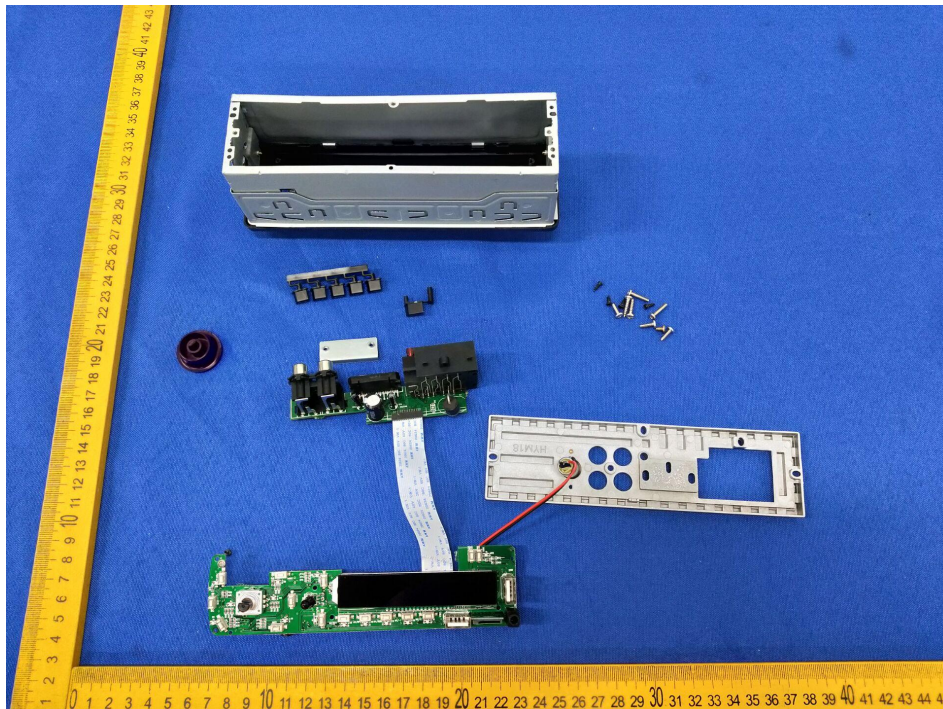


Photo 5 Appearance of PCB

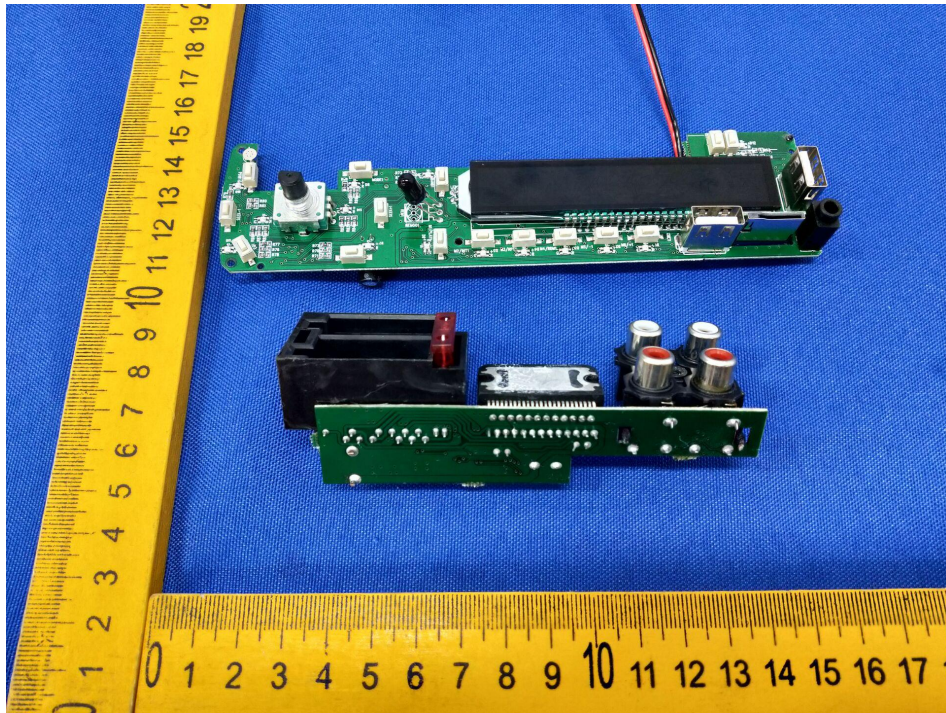
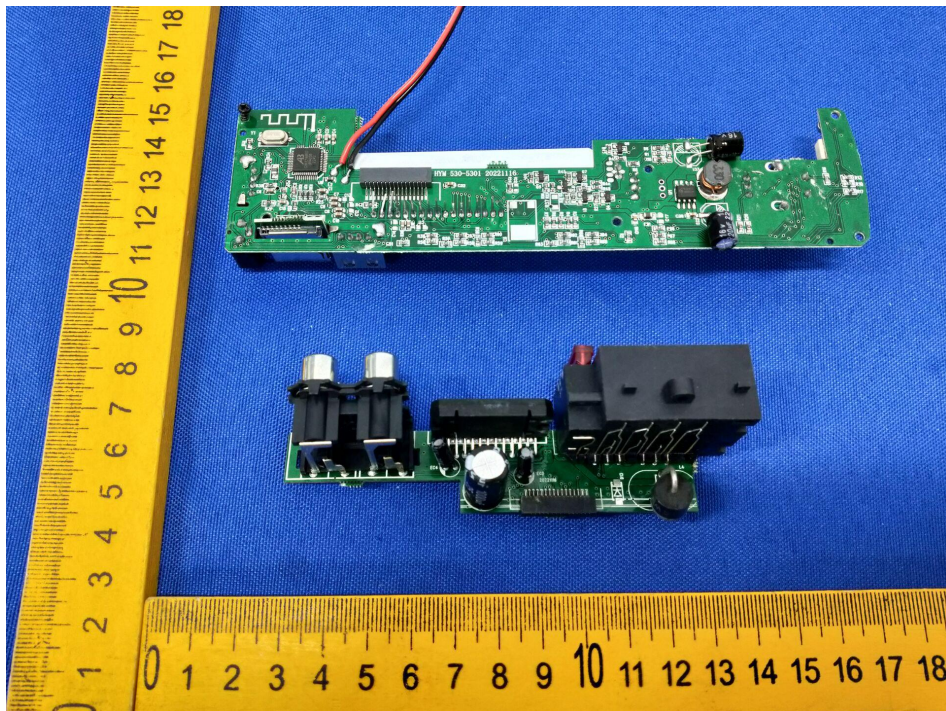


Photo 6 Appearance of PCB



END OF REPORT