

Prüfbericht-Nr.: <i>Test report no.:</i>	CN2358UP 001	Auftrags-Nr.: <i>Order no.:</i>	168437534	Seite 1 von 21 Page 1 of 21
Kunden-Referenz-Nr.: <i>Client reference no.:</i>	N/A	Auftragsdatum: <i>Order date:</i>	2023-08-01	
Auftraggeber: <i>Client:</i>	SAIC GM WULING AUTOMOBILE CO.,LTD 18th Hexi Road, Liuzhou City, Guangxi, Zhuang Autonomous Region, China			
Prüfgegenstand: <i>Test item:</i>	ICE (In Car Entertainment)			
Bezeichnung / Typ-Nr.: <i>Identification / Type no.:</i>	MP-202SMY-MEXICO			
Auftrags-Inhalt: <i>Order content:</i>	Test Report			
Prüfgrundlage: <i>Test specification:</i>	CFR47 FCC Part 15: Subpart C Section 15.247			
Wareneingangsdatum: <i>Date of sample receipt:</i>	2023-08-15	Please refer to Photo Document		
Prüfmuster-Nr.: <i>Test sample no.:</i>	A003537037-001~003 A003537037-007,014,015			
Prüfzeitraum: <i>Testing period:</i>	2023-08-16 - 2023-08-31			
Ort der Prüfung: <i>Place of testing:</i>	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüfergebnis*: <i>Test result*:</i>	Pass			
geprüft von: <i>tested by:</i>	genehmigt von: <i>authorized by:</i>			
Datum: <i>Date:</i>	2024-03-04	Ausstellungsdatum: <i>Issue date:</i>	2024-03-04	
Stellung / Position:	Sachverständige(r)/Expert	Stellung / Position:	Sachverständige(r)/Expert	
Sonstiges / <i>Other:</i>	FCC ID: 2AVYXMP202S-00			
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>		Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i>		
* Legende: P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet * Legend: P(ass) = passed a.m. test specification(s) F(ail) = failed a.m. test specification(s) N/A = not applicable N/T = not tested				
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Anmerkungen
Remarks

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4	Die Entscheidungsregel für Konformitätserklärungen basierend auf numerischen Messergebnissen in diesem Prüfbericht basiert auf der "Null-Grenzwert-Regel" und der "Einfachen Akzeptanz" gemäß ILAC G8:2019 und IEC Guide 115:2021, es sei denn, in der auf Seite 1 dieses Berichts genannten angewandten Norm ist etwas anderes festgelegt oder vom Kunden gewünscht. Dies bedeutet, dass die Messunsicherheit nicht berücksichtigt wird und daher auch nicht im Prüfbericht angegeben wird. Zu weiteren Informationen bezüglich des Risikos durch diese Entscheidungsregel siehe ILAC G8:2019. <i>The decision rule for statements of conformity, based on numerical measurement results, in this test report is based on the "Zero Guard Band Rule" and "Simple Acceptance" in accordance with ILAC G8:2019 and IEC Guide 115:2021, unless otherwise specified in the applied standard mentioned on Page 1 of this report or requested by the customer. This means that measurement uncertainty is not taken in account and hence also not declared in the test report. For additional information to the resulting risk based of this decision rule please refer to ILAC G8:2019.</i>

Test Summary

5.1.1 ANTENNA REQUIREMENT

RESULT: Pass

5.1.2 MAXIMUM PEAK CONDUCTED OUTPUT POWER

RESULT: Pass

5.1.3 99% BANDWIDTH

RESULT: Pass

5.1.4 20dB BANDWIDTH

RESULT: Pass

5.1.5 CARRIER FREQUENCY SEPARATION

RESULT: Pass

5.1.6 NUMBER OF HOPPING FREQUENCY

RESULT: Pass

5.1.7 TIME OF OCCUPANCY

RESULT: Pass

5.1.8 CONDUCTED SPURIOUS EMISSIONS MEASURED IN 100 KHz BANDWIDTH

RESULT: Pass

5.1.9 RADIATED SPURIOUS EMISSION

RESULT: Pass

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1 General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix A: Test Results of FCC Part 15C

Appendix B: Photographs of the Test Set-up

2 Test Sites

2.1 Test Facilities

TÜV Rheinland (Shenzhen) Co., Ltd.

No. 362 Huanguan Road Middle, Longhua District, 518110, Shenzhen, P. R. China.

FCC Accreditation Designation No.: CN1260

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Radio Spectrum Testing (SRD-Tonscend)				
Equipment	Manufacturer	Model	Serial No.	Cal. until
EXA Signal Analyzer, Multi-touch	Keysight	N9010B	MY60241175	2024-09-21
MXG X-Series RF Vector Signal Generator	Keysight	N5182B	MY61250137	2024-09-21
EXG X-Series Microwave Analog Signal Generator	Keysight	N5173B	MY61250141	2024-09-21
DC power supply	Keysight	E3642A	MY61276100	2024-09-21
Power Control Unit	Tonscend	JS0806-4ADC	N/A	2024-09-21
Automation Control Unit	Tonscend	JS0806-2	21C8060396	2024-09-21
Test Software	Tonscend	JS1120-3	N/A	N/A
Control PC	Lenovo	TianYi510S-071MB	YLX23JMF	N/A
Shielding Room 8#	Albatross	SR8	APC17151-SR8	2024-06-22
Unwanted Emission Testing (TS9975)				
Equipment	Manufacturer	Model	Serial No.	Cal. until
EMI Test Receiver	R&S	ESR 7	102021	2024-07-25
Signal Analyzer	R&S	FSV 40	101439	2024-07-25
System Controller Interface	R&S	SCI-100	S10010038	N/A
Filterbank	R&S	Wlan	100759	2024-07-25
OSP	R&S	OSP 120	102040	N/A
Pre-amplifier	R&S	SCU08F1	08320031	2024-07-25
Amplifier	R&S	SCU-18F	180070	2024-07-25
Amplifier	R&S	SCU40A	100475	2024-07-25
Trilog Broadband Antenna (30 MHz - 7 GHz)	Schwarzbeck	VULB 9162	193	2024-08-06
Double-Ridged Antenna (1 -18 GHz)	ETS-LINDGREN	3117	00218717	2024-08-06
Wideband Ridged Horn Antenna (18-40 GHz)	Steatite	QMS-00880	19067	2024-08-27
Active Loop Antenna	Schwarzbeck	FMZB 1513	302	2024-08-06
Test software	R&S	EMC32 (V10.60.10)	N/A	N/A

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Control PC	Dell	OptiPlex 7050	36NV9P2	N/A
3m Semi-Anechoic Chamber	Albatross	SAC-3m	APC17151-SAC	2024-06-22

2.3 Traceability

All measurement equipment calibrations are traceable to NIM (National Institute of Metrology) or where calibration is performed in other countries, to equivalent nationally recognized standards organizations.

2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

2.5 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements as below table.

Table 2: Measurement Uncertainty

Parameter	Uncertainty (k=2)
Occupied Channel Bandwidth	$\pm 2.08 \%$
RF output power, conducted	$\pm 0.99 \text{ dB}$
Unwanted Emissions, conducted	$\pm 0.89 \text{ dB}$
All emissions, radiated	$\pm 4.17 \text{ dB}$

2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix A & B of this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Shenzhen) Co., Ltd. file for certification follow-up purposes.

2.7 Status of Facility Used for Testing

The TÜV Rheinland (Shenzhen) Co., Ltd. Test facility located at No. 362 Huanguan Road Middle, Longhua District, 518110, Shenzhen, P. R. China. is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

3 General Product Information

3.1 Product Function and Intended Use

The EUT is a ICE (In Car Entertainment) intended to be assembled into automotive environment, which supports Bluetooth, AM/FM and GPS technologies.

For details refer to the User Manual, Technical Description and Circuit Diagram.

3.2 Ratings and System Details

Table 3: Technical Specification of EUT

General Information of EUT	Value
Kind of Equipment:	ICE (In Car Entertainment)
Type Designation:	MP-202SMY-MEXICO
FCC ID:	2AVYXMP202S-00
Operating Voltage:	DC 12V
Testing Voltage:	DC 12V
Operating Temperature Range:	-30 °C ~ +80 °C
Technical Specification of Bluetooth BR & EDR	
Operating Frequency:	2402 MHz to 2480 MHz
Type of Modulation:	GFSK, $\pi/4$ -DQPSK, 8DPSK
Channel Number:	79 channels
Channel Separation:	1MHz
Antenna Type:	Integral Antenna
Antenna Gain:	4.11 dBi Max

Table 4: RF Channel and Frequency of Bluetooth BR & EDR

RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
0	2402.00	20	2422.00	40	2442.00	60	2462.00
1	2403.00	21	2423.00	41	2443.00	61	2463.00
2	2404.00	22	2424.00	42	2444.00	62	2464.00
3	2405.00	23	2425.00	43	2445.00	63	2465.00
4	2406.00	24	2426.00	44	2446.00	64	2466.00
5	2407.00	25	2427.00	45	2447.00	65	2467.00
6	2408.00	26	2428.00	46	2448.00	66	2468.00
7	2409.00	27	2429.00	47	2449.00	67	2469.00
8	2410.00	28	2430.00	48	2450.00	68	2470.00
9	2411.00	29	2431.00	49	2451.00	69	2471.00
10	2412.00	30	2432.00	50	2452.00	70	2472.00
11	2413.00	31	2433.00	51	2453.00	71	2473.00

12	2414.00	32	2434.00	52	2454.00	72	2474.00
13	2415.00	33	2435.00	53	2455.00	73	2475.00
14	2416.00	34	2436.00	54	2456.00	74	2476.00
15	2417.00	35	2437.00	55	2457.00	75	2477.00
16	2418.00	36	2438.00	56	2458.00	76	2478.00
17	2419.00	37	2439.00	57	2459.00	77	2479.00
18	2420.00	38	2440.00	58	2460.00	78	2480.00
19	2421.00	39	2441.00	59	2461.00		

Test frequencies are lowest channel: 2402 MHz, middle channel: 2441 MHz and highest channel: 2480 MHz for Bluetooth BR & EDR

3.3 Independent Operation Modes

The basic operation modes are:

- A. On, Bluetooth transmitting mode
 - 1) Low Channel
 - 2) Middle Channel
 - 3) High Channel
- B. On, Transmitting on Hopping channel
- C. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

3.5 Submitted Documents

- Application Form
- ID Label and Location Info
- Schematics
- Operation Description
- Block Diagram
- PCB Layout

4 Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

Radio Spectrum: The equipment under test (EUT) was configured at its highest power output in order to measure its highest possible radiation and conducted level. The test modes were adapted accordingly in reference to the instructions for use.

Emission: The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5. All tests were performed according to the procedures in ANSI C63.10: 2013.

According to clause 3.1, all tests were performed on model *MP-202SMY-MEXICO* in this report.

4.3 Special Accessories and Auxiliary Equipment

Table 5: List of Accessories and Auxiliary Equipment

Description	Manufacturer	Model	S/N	Rating
Laptop	Lenovo	T480	PF-16A6N8	N/A
DC power Supply	Topward	3303D	809332	0-30 Volts, 0-3 Amps

4.4 Countermeasures to Achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Technical Construction File (TCF).

No additional measures were employed to achieve compliance.

4.5 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test (Below 1GHz)

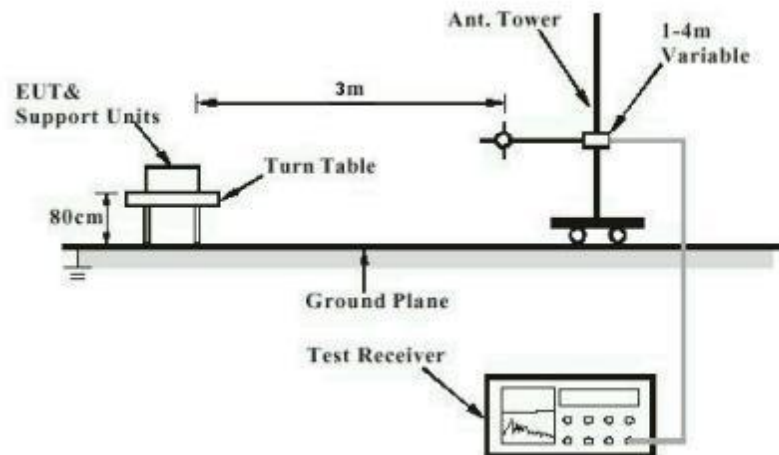


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)

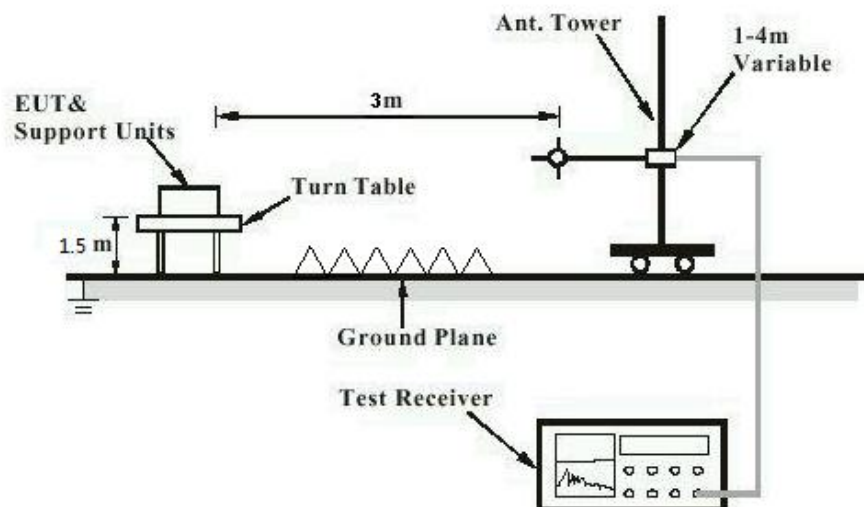
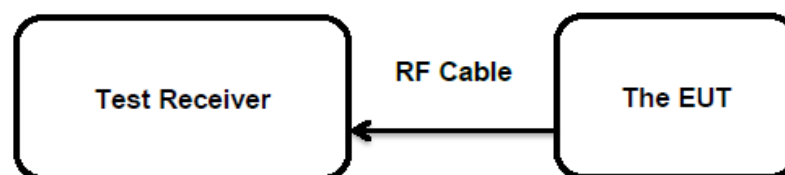


Diagram of Measurement Configuration for Conducted Transmitter Measurement



5 Test Results

5.1 Transmitter Requirement & Test Suites

5.1.1 Antenna Requirement

RESULT:

Pass

Test Specification

Test standard : FCC Part 15.247(b)(4) and Part 15.203

According to the manufacturer declared, the EUT has an Integral Antenna, the directional gain of antenna is 4.11dBi, and the antenna connector is designed with permanent attachment and no consideration of replacement.

Therefore, the EUT is considered sufficient to comply with the provision.

Refer to EUT Photo for further details.

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5.1.2 Maximum Peak Conducted Output Power

RESULT:
Pass
Test Specification

Test standard : FCC Part 15.247(b)(1)
 Basic standard : ANSI C63.10: 2013
 Limits : FHSS < 0.125 Watts
 Kind of test site : Shielded Room

Test Setup

Date of testing : 2023-08-16 to 2023-08-31
 Input voltage : DC 12V by DC source
 Operation mode : A
 Test channel : Low / Middle / High
 Ambient temperature : 24 °C
 Relative humidity : 40 %
 Atmospheric pressure : 101 kPa

Table 6: Test Result of Maximum Peak Conducted Output Power

Test Mode	Test Channel (MHz)	Measured Peak Power		Limit (W)
		(dBm)	(W)	
GFSK (BR)	2402.0	5.60	0.0036	< 0.125
	2441.0	5.56	0.0036	
	2480.0	7.79	0.0060	
Maximum Measured Value		7.79	0.0060	

Test Mode	Test Channel (MHz)	Measured Peak Power		Limit (W)
		(dBm)	(W)	
8DPSK (EDR)	2402.0	5.40	0.0035	< 0.125
	2441.0	5.50	0.0035	
	2480.0	7.76	0.0060	
Maximum Measured Value		7.76	0.0060	

Note:

- 1) The cable loss is taken into account in results.
- 2) Antenna gain(G): 4.11 dBi

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5.1.3 99% Bandwidth

RESULT:

Pass

Test Specification

Test standard	: FCC Part 15.247(a)
Basic standard	: ANSI C63.10: 2013
Kind of test site	: Shielded Room

Test Setup

Date of testing	: 2023-08-30
Input voltage	: DC 12V by DC source
Operation mode	: A
Test channel	: Low / Middle / High
Ambient temperature	: 24 °C
Relative humidity	: 40 %
Atmospheric pressure	: 101 kPa

For the measurement records, refer to the appendix A.

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5.1.4 20dB Bandwidth

RESULT:

Pass

Test Specification

Test standard	: FCC Part 15.247(a)(1)
Basic standard	: ANSI C63.10: 2013
Kind of test site	: Shielded Room

Test Setup

Date of testing	: 2023-08-30
Input voltage	: DC 12V by DC source
Operation mode	: A
Test channel	: Low / Middle / High
Ambient temperature	: 24 °C
Relative humidity	: 40 %
Atmospheric pressure	: 101 kPa

For the measurement records, refer to the appendix A.

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5.1.5 Carrier Frequency Separation

RESULT:

Pass

Test Specification

Test standard	: FCC Part 15.247(a)(1)
Basic standard	: ANSI C63.10: 2013
Limits	: $\geq 25\text{kHz}$ or 2/3 of 20dB bandwidth, whichever is greater
Kind of test site	: Shielded Room

Test Setup

Date of testing	: 2023-08-30
Input voltage	: DC 12V by DC source
Operation mode	: B
Test channel	: Low / Middle / High
Ambient temperature	: 24 °C
Relative humidity	: 40 %
Atmospheric pressure	: 101 kPa

For the measurement records, refer to the appendix A.

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5.1.6 Number of Hopping Frequency

RESULT:

Pass

Test Specification

Test standard	: FCC part 15.247(a)(1)(iii)
Basic standard	: ANSI C63.10: 2013
Limits	: ≥ 15 non-overlapping channels
Kind of test site	: Shielded Room

Test Setup

Date of testing	: 2023-08-30
Input voltage	: DC 12V by DC source
Operation mode	: B
Ambient temperature	: 24 °C
Relative humidity	: 40 %
Atmospheric pressure	: 101 kPa

For the measurement records, refer to the appendix A.

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5.1.7 Time of Occupancy

RESULT:

Pass

Test Specification

Test standard	: FCC part 15.247(a)(1)(iii)
Basic standard	: ANSI C63.10: 2013
Limits	: < 0.4s
Kind of test site	: Shielded Room

Test Setup

Date of testing	: 2023-08-30
Input voltage	: DC 12V by DC source
Operation mode	: B
Test channel	: Low / Middle / High
Ambient temperature	: 24 °C
Relative humidity	: 40 %
Atmospheric pressure	: 101 kPa

For the measurement records, refer to the appendix A.

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5.1.8 Conducted Spurious Emissions Measured in 100 kHz Bandwidth

RESULT:

Pass

Test Specification

Test standard	: FCC Part 15.247(d)
Basic standard	: ANSI C63.10: 2013
Limits	: 20dB (below that in the 100kHz bandwidth within the band that contains the highest level of the desired power); In addition, radiated emissions which fall in the restricted bands, must also comply with the radiated emission limits specified in 15.209(a)
Kind of test site	: Shielded Room

Test Setup

Date of testing	: 2023-08-30
Input voltage	: DC 12V by DC source
Operation mode	: A
Test channel	: Low / Middle / High
Ambient temperature	: 24 °C
Relative humidity	: 40 %
Atmospheric pressure	: 101 kPa

Test results of 100kHz Bandwidth of Frequency Band Edge by Conducted method refer to test plots, and compliance is achieved as well.

For the measurement records, refer to the appendix A.

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5.1.9 Radiated Spurious Emission

RESULT:**Pass****Test Specification**

Test standard	: FCC Part 15.247(d) & FCC Part 15.205
Basic standard	: ANSI C63.10: 2013
Limits	: Refer to 15.209(a) of FCC part 15.247(d)
Kind of test site	: 3m Semi-anechoic Chamber

Test Setup

Date of testing	: 2023-08-31
Input voltage	: DC 12V by DC source
Operation mode	: A
Test channel	: Low / Middle / High
Ambient temperature	: Refer to test result
Relative humidity	: Refer to test result
Atmospheric pressure	: 101 kPa

Remark:

Testing was carried out within frequency range 9kHz to the tenth harmonics. Only the worst case spurious emissions configuration of the each mode were reported.

For the measurement records, refer to the appendix A.

6 Photographs of the Test Set-Up

For photographs of the test set-up, refer to the appendix B.

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Appendix A: Test Results of FCC Part 15C

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Appendix A.1: Test Results of 99% Bandwidth

TestMode	Antenna	Channel	OCB [MHz]	FL [MHz]	FH [MHz]	Limit [MHz]	Verdict
DH5	Ant1	2402	0.89346	2401.5550	2402.4485	---	PASS
		2441	0.88971	2440.5560	2441.4457	---	PASS
		2480	0.89201	2479.5560	2480.4480	---	PASS
3DH5	Ant1	2402	1.1879	2401.4018	2402.5897	---	PASS
		2441	1.1787	2440.4055	2441.5842	---	PASS
		2480	1.1927	2479.3973	2480.5900	---	PASS

DH5_Ant1_2402

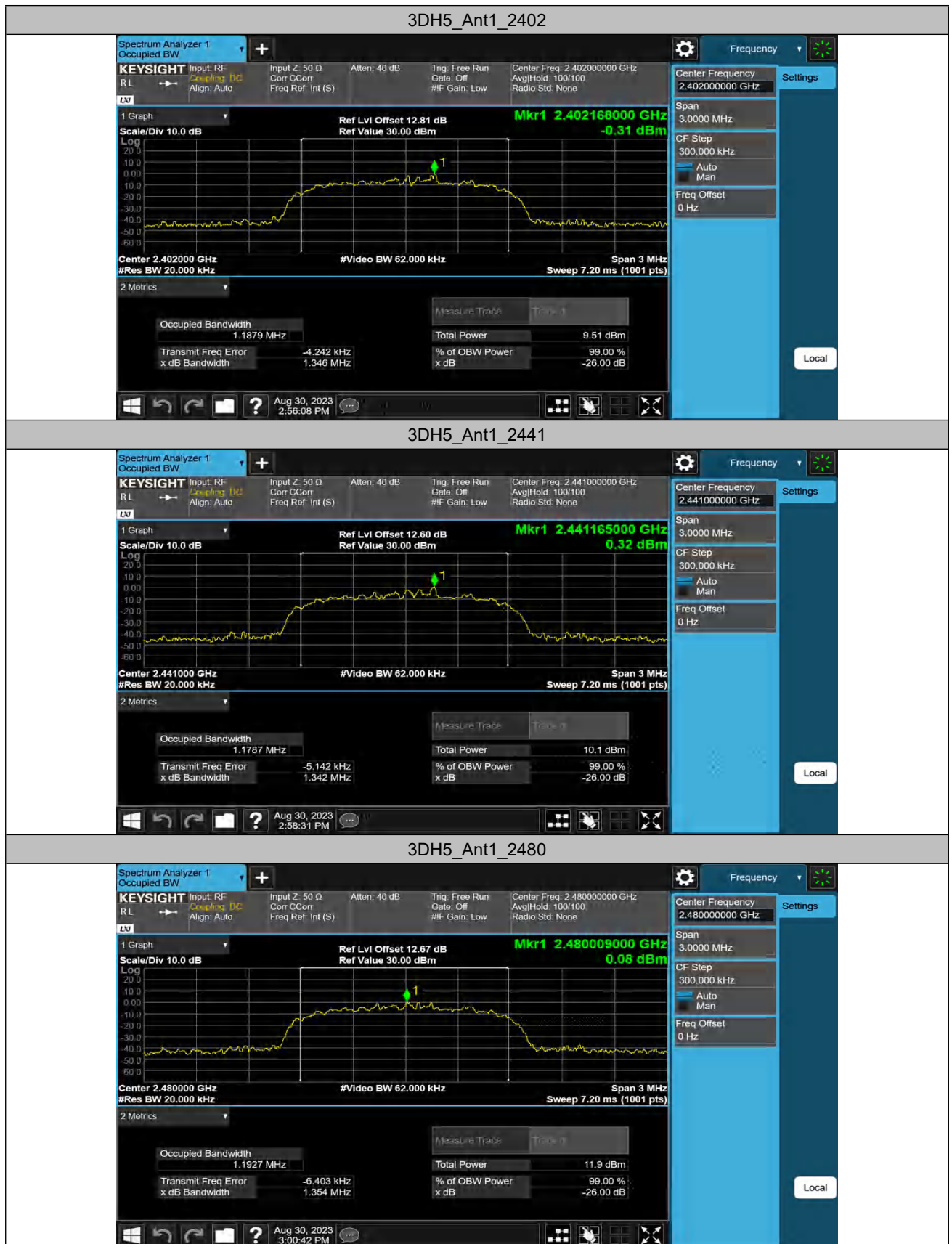


DH5_Ant1_2441



DH5_Ant1_2480





Appendix A.2: Test Results of 20dB Bandwidth

TestMode	Antenna	Channel	20db EBW [MHz]	FL [MHz]	FH [MHz]	Limit [MHz]	Verdict
DH5	Ant1	2402	0.942	2401.538	2402.480	---	PASS
		2441	0.951	2440.538	2441.489	---	PASS
		2480	0.951	2479.538	2480.489	---	PASS
3DH5	Ant1	2402	1.311	2401.346	2402.657	---	PASS
		2441	1.278	2440.352	2441.630	---	PASS
		2480	1.293	2479.352	2480.645	---	PASS

DH5_Ant1_2402



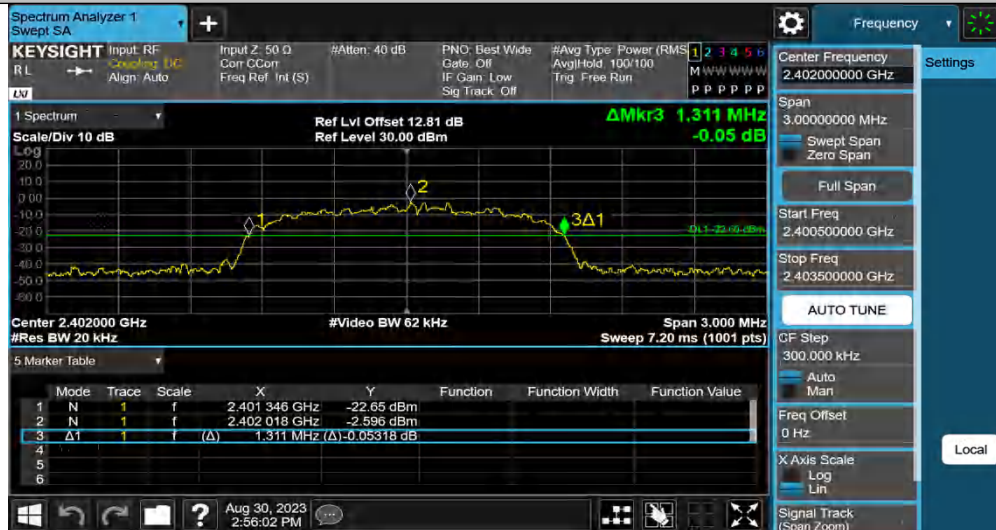
DH5_Ant1_2441



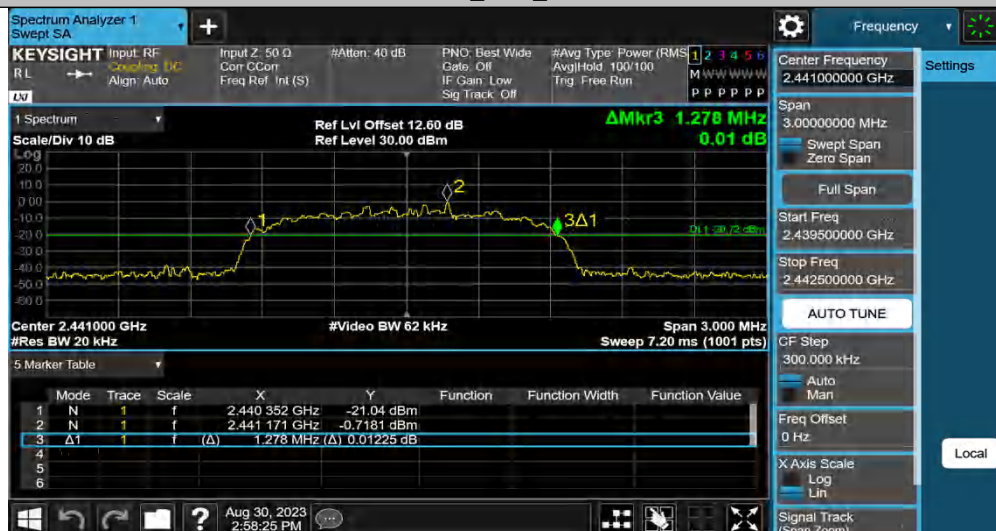
DH5_Ant1_2480



3DH5_Ant1_2402



3DH5_Ant1_2441



3DH5_Ant1_2480



Appendix A.3: Test Results of Carrier Frequency Separation

TestMode	Antenna	Channel	Result [MHz]	Limit [MHz]	Verdict
DH5	Ant1	Hop	1.008	≥0.951	PASS
3DH5	Ant1	Hop	1.1	≥0.874	PASS



Appendix A.4: Test Results of Number of Hopping Frequency

TestMode	Antenna	Channel	Result [Num]	Limit [Num]	Verdict
DH5	Ant1	Hop	79	≥15	PASS
3DH5	Ant1	Hop	79	≥15	PASS



Appendix A.5: Test Results of Time of Occupancy

TestMode	Antenna	Channel	BurstWidth [ms]	TotalHops [Num]	Result [s]	Limit [s]	Verdict
DH1	Ant1	Hop	0.372	313	0.116	≤0.4	PASS
DH3	Ant1	Hop	1.628	157	0.256	≤0.4	PASS
DH5	Ant1	Hop	2.877	106	0.305	≤0.4	PASS
3DH1	Ant1	Hop	0.381	312	0.119	≤0.4	PASS
3DH3	Ant1	Hop	1.631	158	0.258	≤0.4	PASS
3DH5	Ant1	Hop	2.882	99	0.285	≤0.4	PASS

DH1_Ant1_Hop



DH3_Ant1_Hop





DH5_Ant1_Hop

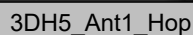


3DH1_Ant1_Hop



3DH3_Ant1_Hop

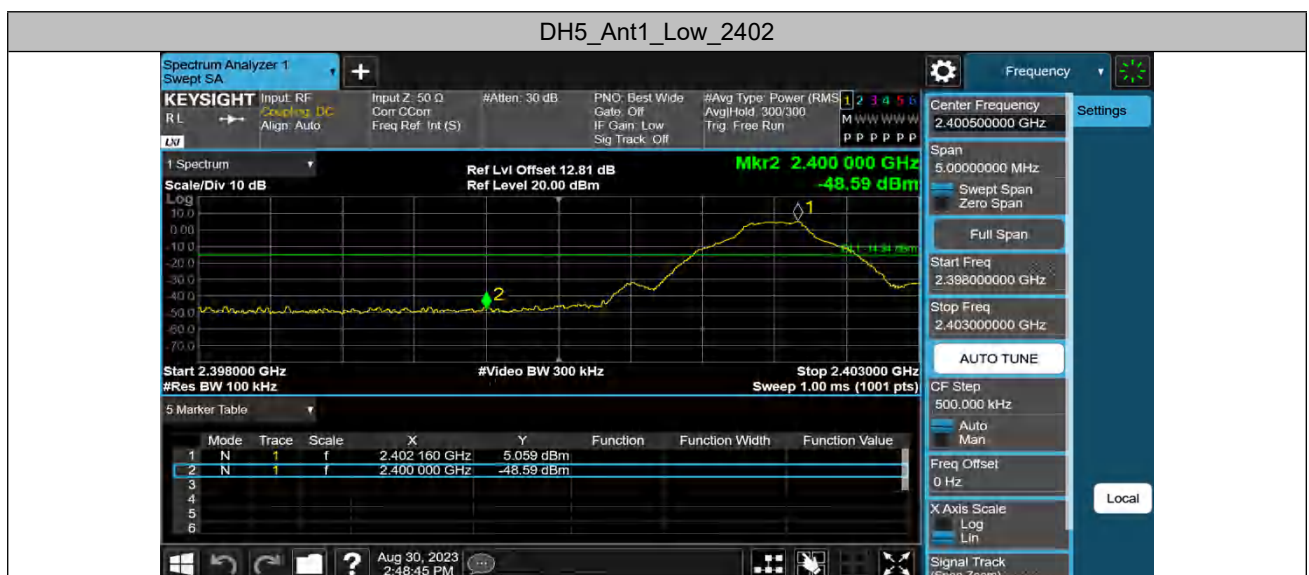




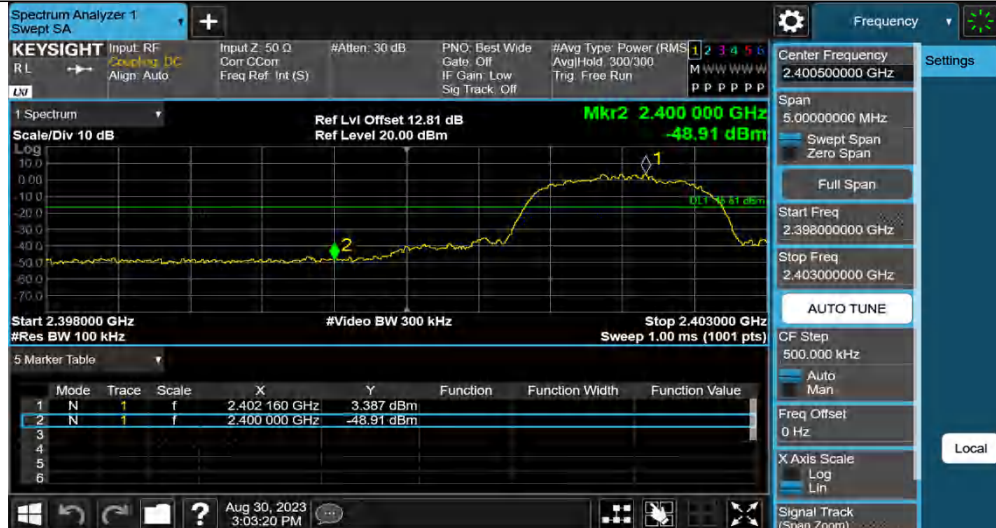
Appendix A.6: Test Results of Conducted Spurious Emissions Measured in 100 kHz Bandwidth

Band Edge

TestMode	Antenna	ChName	Channel	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	5.059	-48.59	≤-14.94	PASS
		High	2480	7.416	-48.48	≤-12.58	PASS
3DH5	Ant1	Low	2402	3.387	-48.91	≤-16.61	PASS
		High	2480	5.993	-47.96	≤-14.01	PASS
DH5	Ant1	Hopping	2402	4.616	-48.38	≤-15.38	PASS
		Hopping	2480	6.573	-48.73	≤-13.43	PASS
3DH5	Ant1	Hopping	2402	-0.8117	-49.92	≤-20.81	PASS
		Hopping	2480	3.011	-49.28	≤-16.99	PASS



3DH5_Ant1_Low_2402



3DH5_Ant1_High_2480

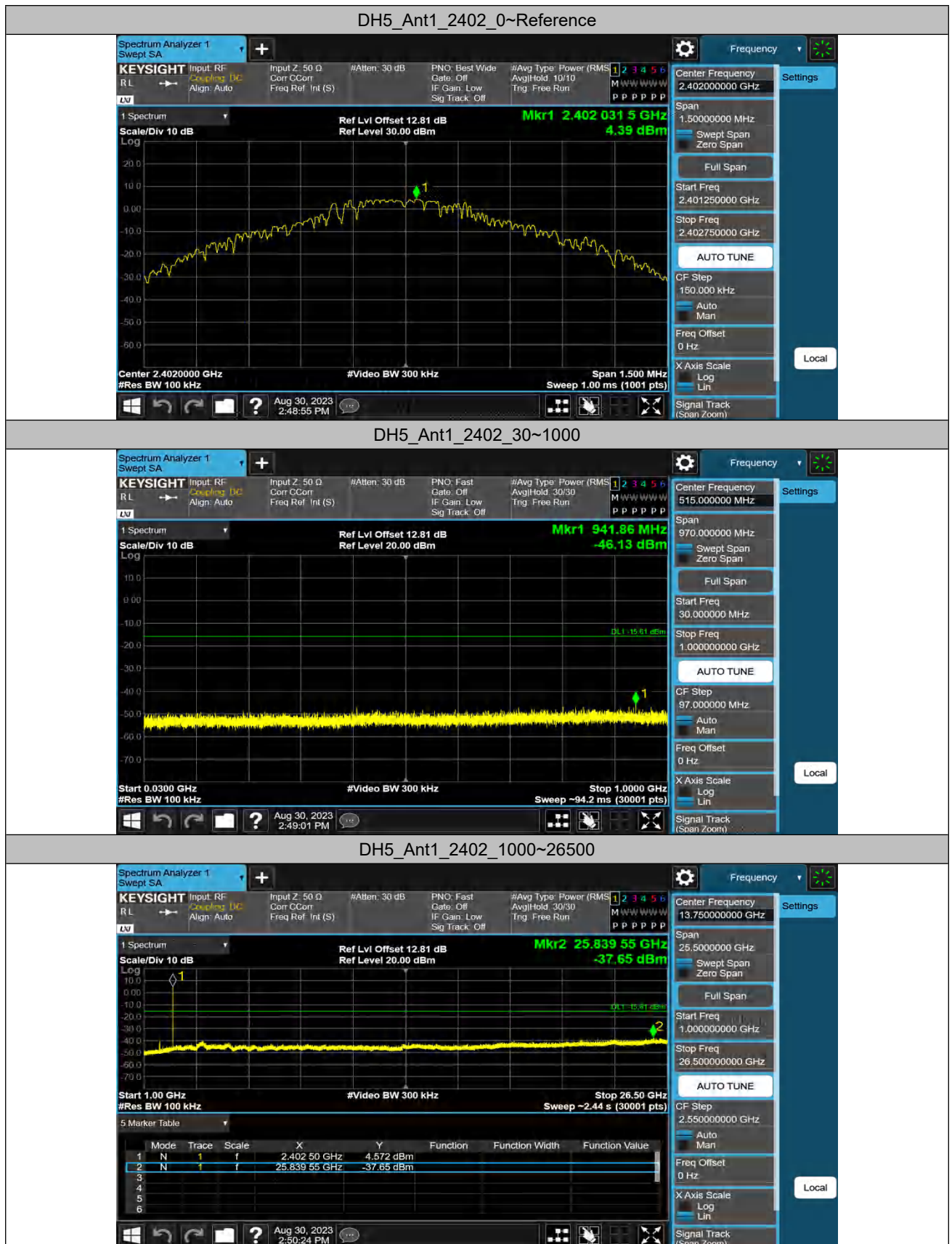


DH5_Ant1_Hopping_2402



Conducted Spurious Emission

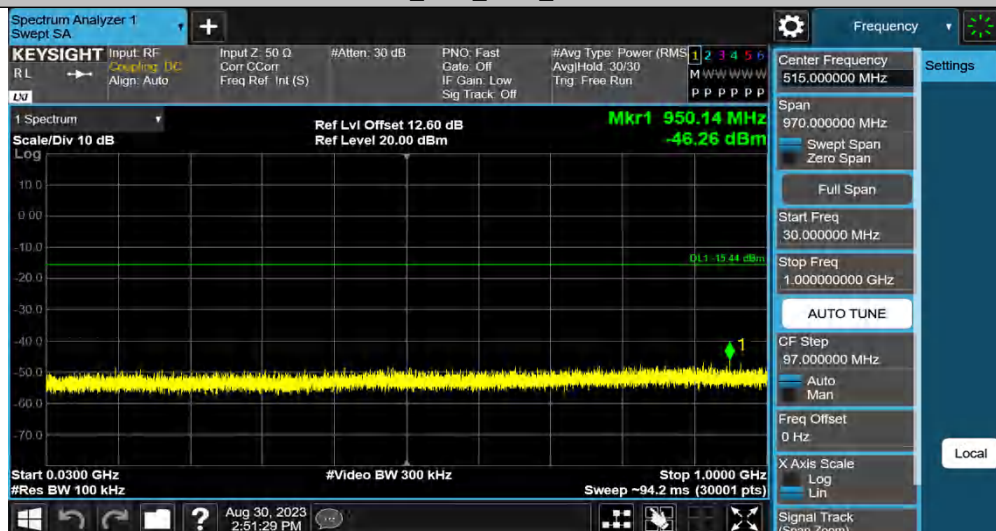
TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	Reference	4.39	4.39	---	PASS
			30~1000	4.39	-46.13	≤-15.61	PASS
			1000~26500	4.39	-37.65	≤-15.61	PASS
		2441	Reference	4.56	4.56	---	PASS
			30~1000	4.56	-46.26	≤-15.44	PASS
			1000~26500	4.56	-38.35	≤-15.44	PASS
		2480	Reference	6.70	6.70	---	PASS
			30~1000	6.70	-47.13	≤-13.3	PASS
			1000~26500	6.70	-38.03	≤-13.3	PASS
3DH5	Ant1	2402	Reference	0.69	0.69	---	PASS
			30~1000	0.69	-46.97	≤-19.31	PASS
			1000~26500	0.69	-38.11	≤-19.31	PASS
		2441	Reference	0.53	0.53	---	PASS
			30~1000	0.53	-47.32	≤-19.47	PASS
			1000~26500	0.53	-37.71	≤-19.47	PASS
		2480	Reference	2.68	2.68	---	PASS
			30~1000	2.68	-46.71	≤-17.32	PASS
			1000~26500	2.68	-37.61	≤-17.32	PASS



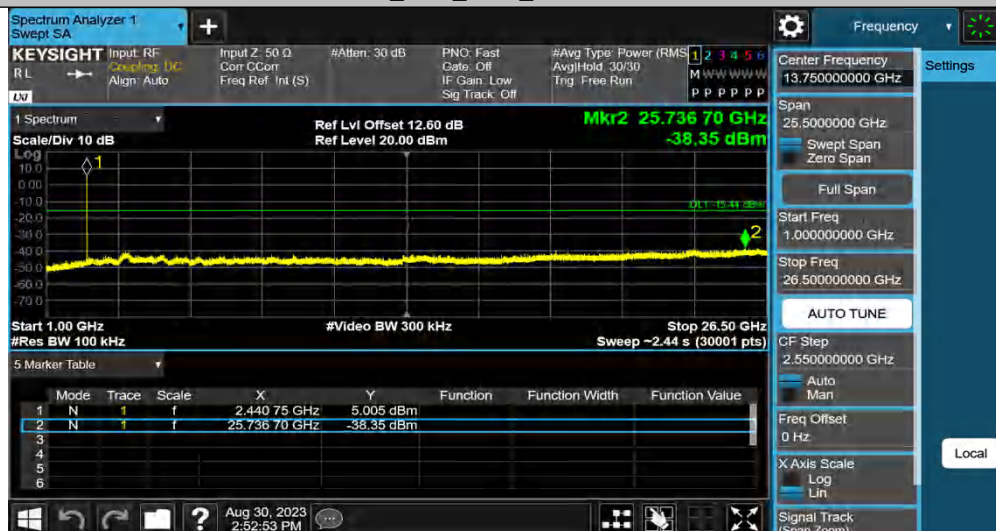
DH5_Ant1_2441_0~Reference



DH5_Ant1_2441_30~1000



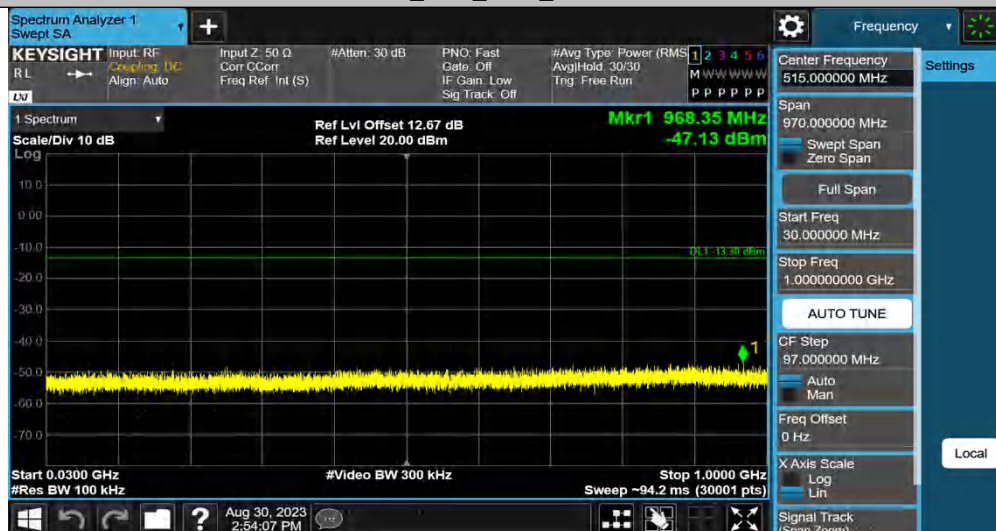
DH5_Ant1_2441_1000~26500



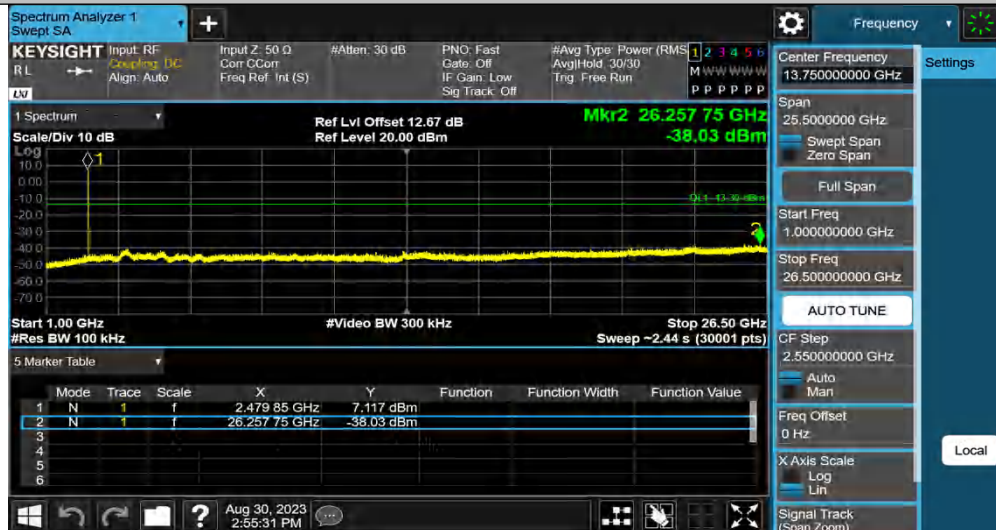
DH5_Ant1_2480_0~Reference



DH5_Ant1_2480_30~1000



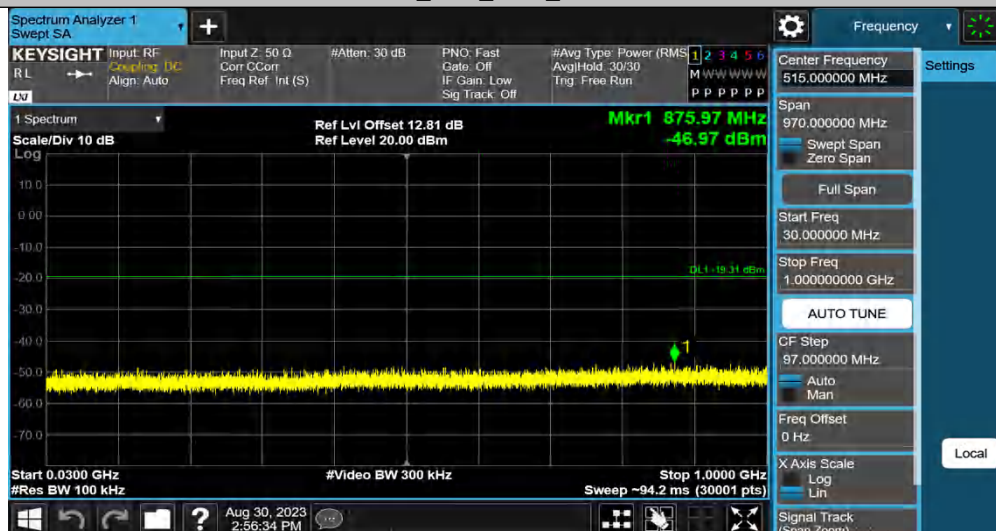
DH5_Ant1_2480_1000~26500



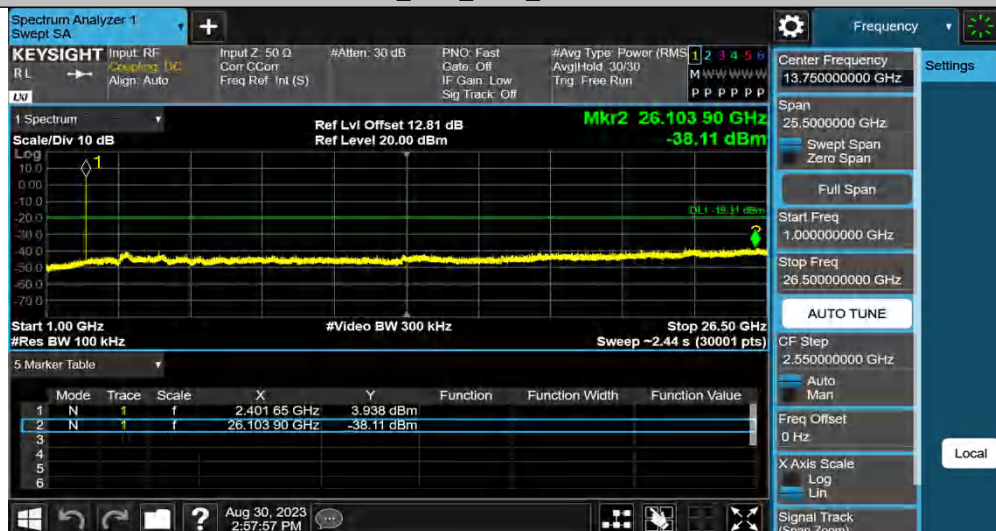
3DH5_Ant1_2402_0~Reference



3DH5_Ant1_2402_30~1000



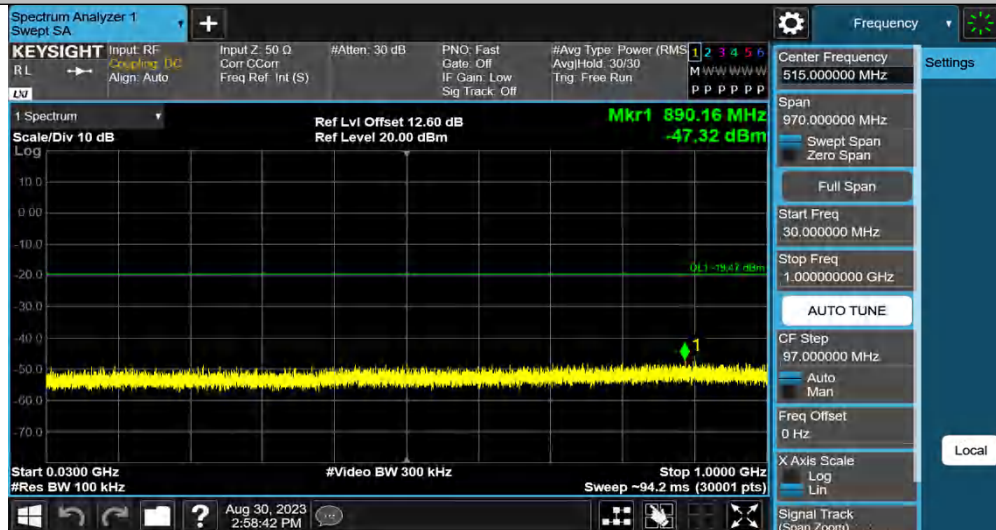
3DH5_Ant1_2402_1000~26500



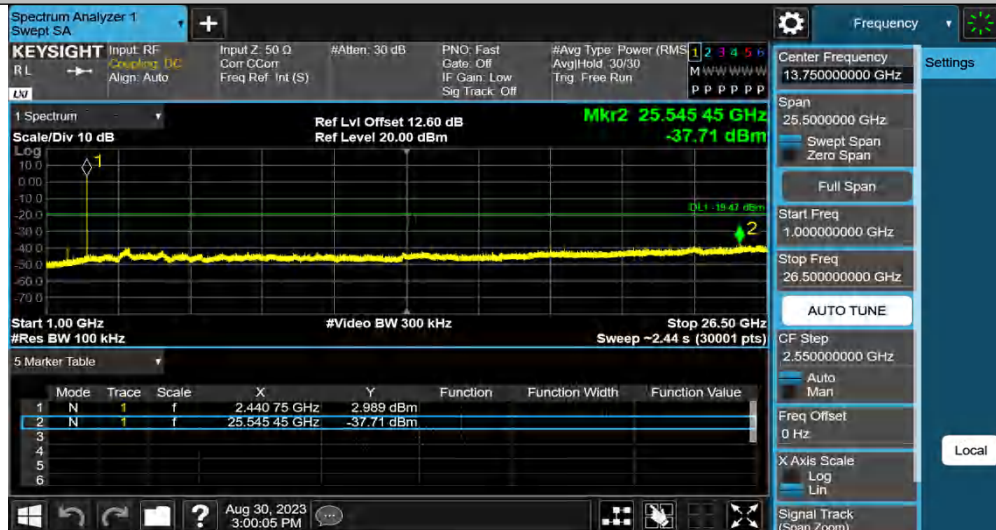
3DH5_Ant1_2441_0~Reference



3DH5_Ant1_2441_30~1000



3DH5_Ant1_2441_1000~26500



3DH5_Ant1_2480_0~Reference



3DH5_Ant1_2480_30~1000



3DH5_Ant1_2480_1000~26500



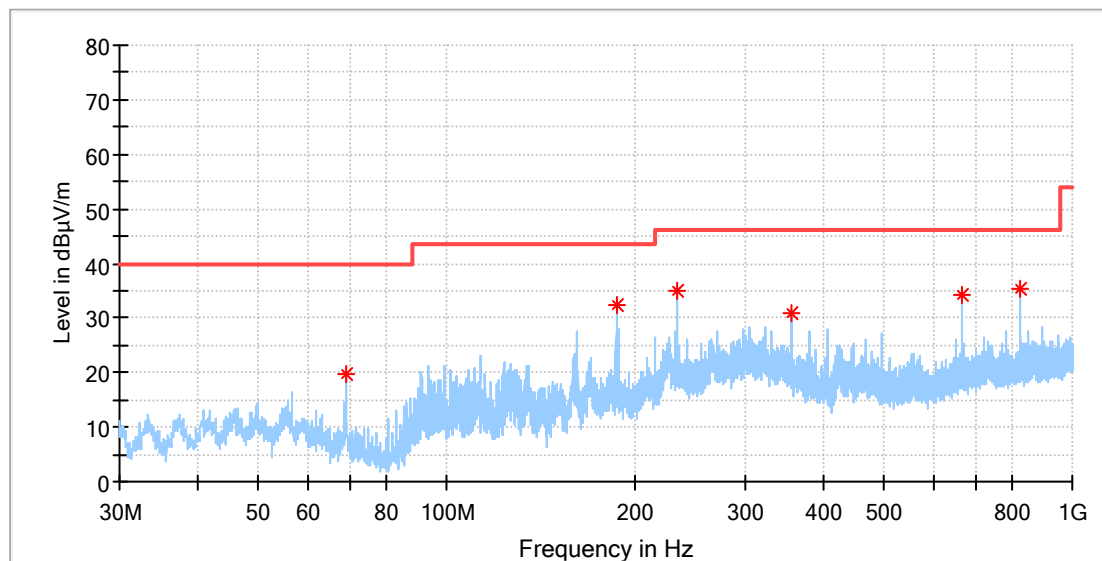
Appendix A.7: Test Results of Radiated Spurious Emissions

Note: 1. Testing was carried out within frequency range 9kHz to the tenth harmonics. The measurement results below 30MHz and 18GHz - 26.5GHz were greater than 20dB below the limit, so only the radiated spurious emissions from 30MHz to 18GHz were reported. 2. This testing was carried out on different modulations, but only the worst case (GFSK) was presented in this report.

30 MHz - 1GHz

EUT Information

EUT Name:	ICE (In Car Entertainment)
Model:	MP-202SMY-MEXICO
Test Mode:	BR_DH5_Mid channel
Order No/Sample No:	168437534/A003537037-001
Test Voltage:	DC 12V From DC Source
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

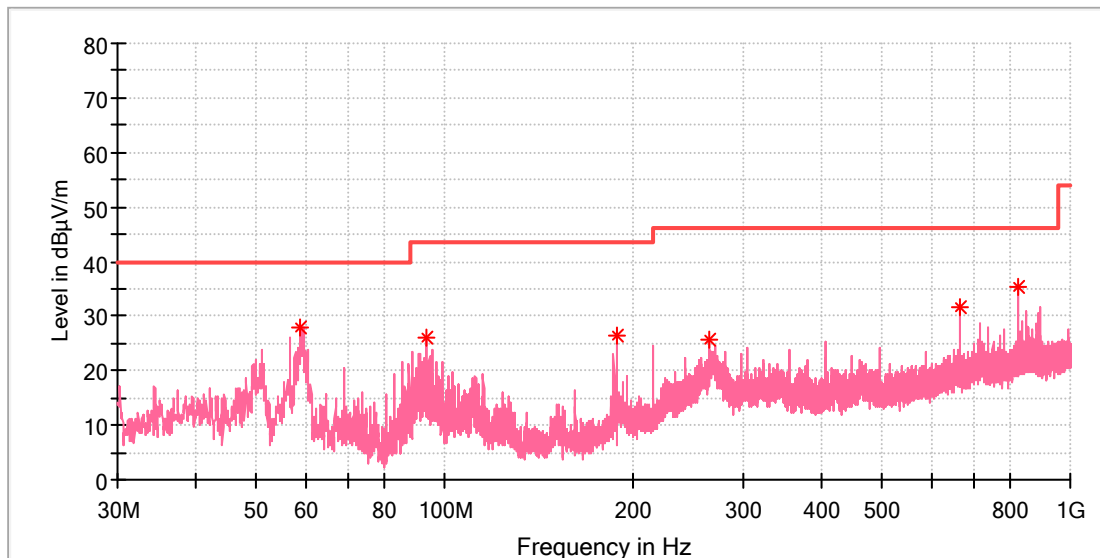
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
69.173077	19.67	40.00	20.33	100.0	H	101.0	-21.8
186.580385	32.27	43.50	11.23	100.0	H	150.0	-20.2
233.177692	35.01	46.00	10.99	100.0	H	279.0	-18.3
356.367692	31.00	46.00	15.00	100.0	H	207.0	-15.0
666.506539	34.38	46.00	11.62	100.0	H	101.0	-9.0
824.206154	35.24	46.00	10.76	100.0	H	127.0	-6.3

Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---	---	---	---

EUT Information

EUT Name: ICE (In Car Entertainment)
Model: MP-202SMY-MEXICO
Test Mode: BR_DH5_Mid channel
Order No/Sample No: 168437534/A003537037-001
Test Voltage: DC 12V From DC Source
Remark: Temp 23 Humi:56%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin



Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
58.838846	27.93	40.00	12.07	100.0	V	127.0	-19.2
93.423077	26.01	43.50	17.49	100.0	V	16.0	-20.4
189.005385	26.51	43.50	16.99	100.0	V	111.0	-20.0
264.329615	25.84	46.00	20.16	100.0	V	277.0	-17.4
666.506539	31.52	46.00	14.48	100.0	V	7.0	-9.0
824.243462	35.40	46.00	10.60	100.0	V	41.0	-6.3

Final Result

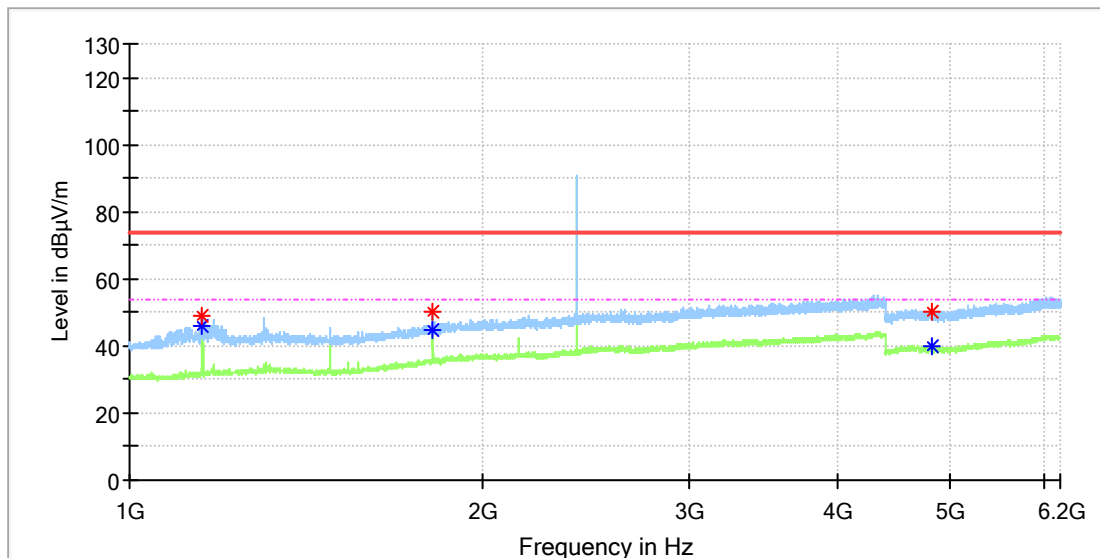
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---		---	---

1GHz - 18GHz

Note: The highest waveform in the figure is Bluetooth Fundamental.

EUT Information

EUT Name:	ICE (In Car Entertainment)
Model:	MP-202SMY-MEXICO
Test Mode:	BR_DH5_Low channel
Order No/Sample No:	168437534/A003537037-001
Test Voltage:	DC 12V From DC Source
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

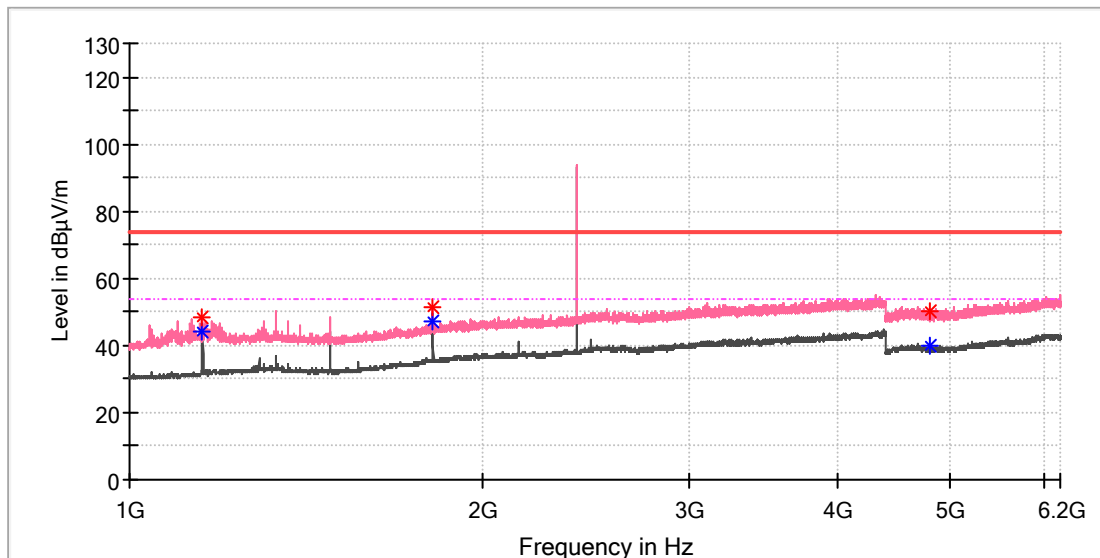
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1154.000000	49.24	---	74.00	24.76	150.0	H	148.0	0.8
1154.000000	---	45.92	54.00	8.08	150.0	H	148.0	0.8
1813.000000	50.14	---	74.00	23.86	150.0	H	110.0	4.8
1813.500000	---	44.91	54.00	9.09	150.0	H	110.0	4.8
4812.500000	50.33	---	74.00	23.67	150.0	H	357.0	11.8
4817.500000	---	39.79	54.00	14.21	150.0	H	224.0	11.8

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---		---	---

EUT Information

EUT Name: ICE (In Car Entertainment)
Model: MP-202SMY-MEXICO
Test Mode: BR_DH5_Low channel
Order No/Sample No: 168437534/A003537037-001
Test Voltage: DC 12V From DC Source
Remark: Temp 23 Humi:56%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin



Critical_Freqs

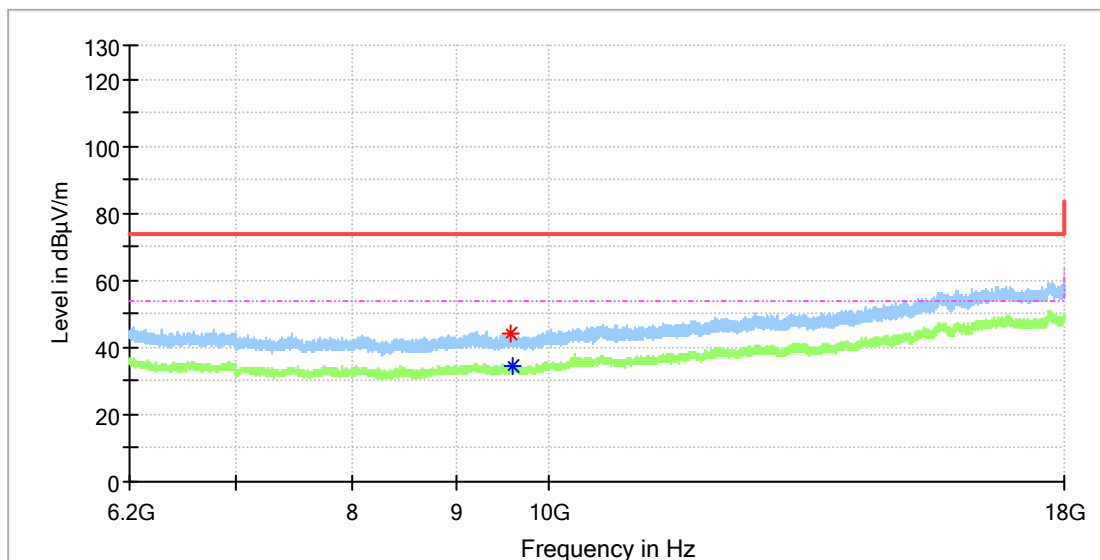
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1154.000000	48.41	---	74.00	25.59	150.0	V	268.0	0.8
1154.000000	---	44.43	54.00	9.57	150.0	V	268.0	0.8
1813.500000	51.57	---	74.00	22.43	150.0	V	248.0	4.8
1813.500000	---	47.19	54.00	6.81	150.0	V	248.0	4.8
4805.500000	---	39.66	54.00	14.34	150.0	V	283.0	11.8
4810.500000	50.35	---	74.00	23.65	150.0	V	344.0	11.8

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---		---	---

EUT Information

EUT Name: ICE (In Car Entertainment)
Model: MP-202SMY-MEXICO
Test Mode: BR_DH5_Low channel
Order No/Sample No: 168437534/A003537037-001
Test Voltage: DC 12V From DC Source
Remark: Temp 23 Humi:56%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin



Critical_Freqs

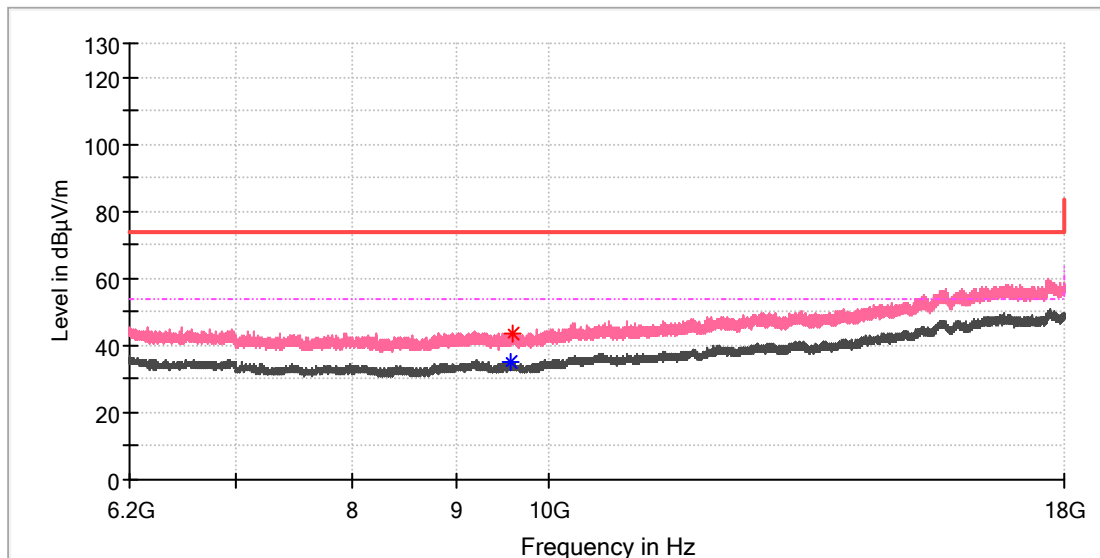
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
9576.275000	44.27	---	74.00	29.73	150.0	H	317.0	10.3
9602.333333	---	34.75	54.00	19.25	150.0	H	120.0	10.4

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---		---	---

EUT Information

EUT Name: ICE (In Car Entertainment)
Model: MP-202SMY-MEXICO
Test Mode: BR_DH5_Low channel
Order No/Sample No: 168437534/A003537037-001
Test Voltage: DC 12V From DC Source
Remark: Temp 23 Humi:56%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin



Critical Freqs

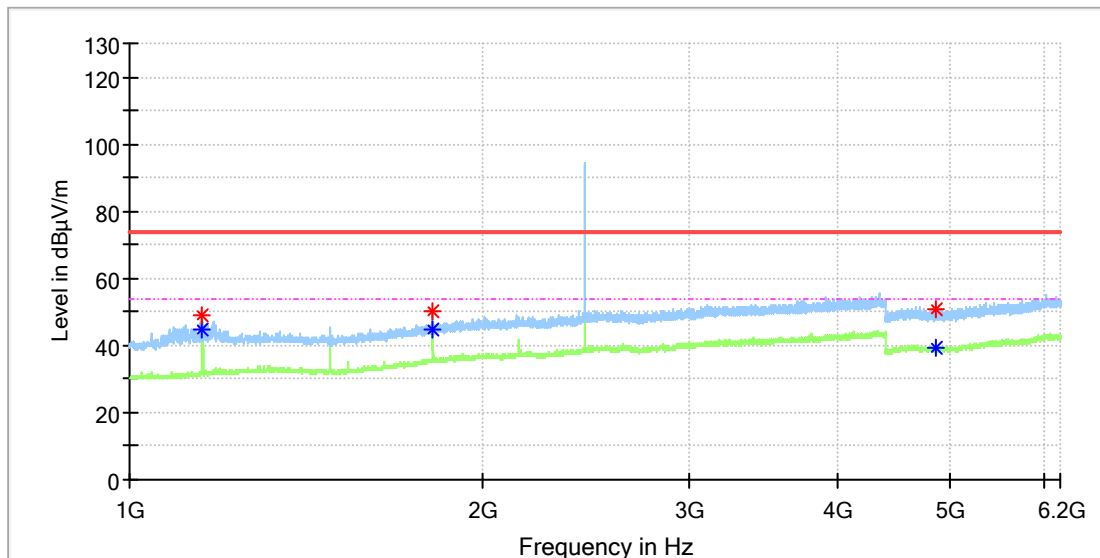
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
9584.633333	---	35.24	54.00	18.76	150.0	V	258.0	10.3
9594.958333	43.59	---	74.00	30.41	150.0	V	90.0	10.3

Final Result

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---		---	---

EUT Information

EUT Name: ICE (In Car Entertainment)
Model: MP-202SMY-MEXICO
Test Mode: BR_DH5_Mid channel
Order No/Sample No: 168437534/A003537037-001
Test Voltage: DC 12V From DC Source
Remark: Temp 23 Humi:56%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin



Critical Freqs

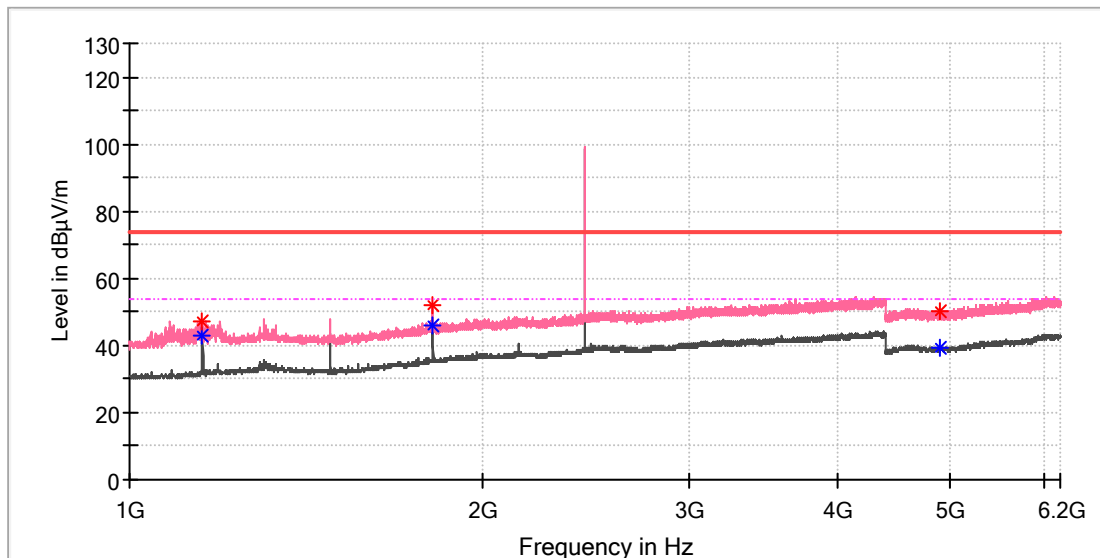
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1154.000000	48.88	---	74.00	25.12	150.0	H	149.0	0.8
1154.000000	---	44.75	54.00	9.25	150.0	H	149.0	0.8
1813.000000	50.13	---	74.00	23.87	150.0	H	97.0	4.8
1813.500000	---	44.85	54.00	9.15	150.0	H	108.0	4.8
4857.000000	---	39.27	54.00	14.73	150.0	H	151.0	11.8
4860.000000	50.69	---	74.00	23.31	150.0	H	284.0	11.8

Final Result

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---		---	---

EUT Information

EUT Name: ICE (In Car Entertainment)
Model: MP-202SMY-MEXICO
Test Mode: BR_DH5_Mid channel
Order No/Sample No: 168437534/A003537037-001
Test Voltage: DC 12V From DC Source
Remark: Temp 23 Humi:56%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin



Critical_Freqs

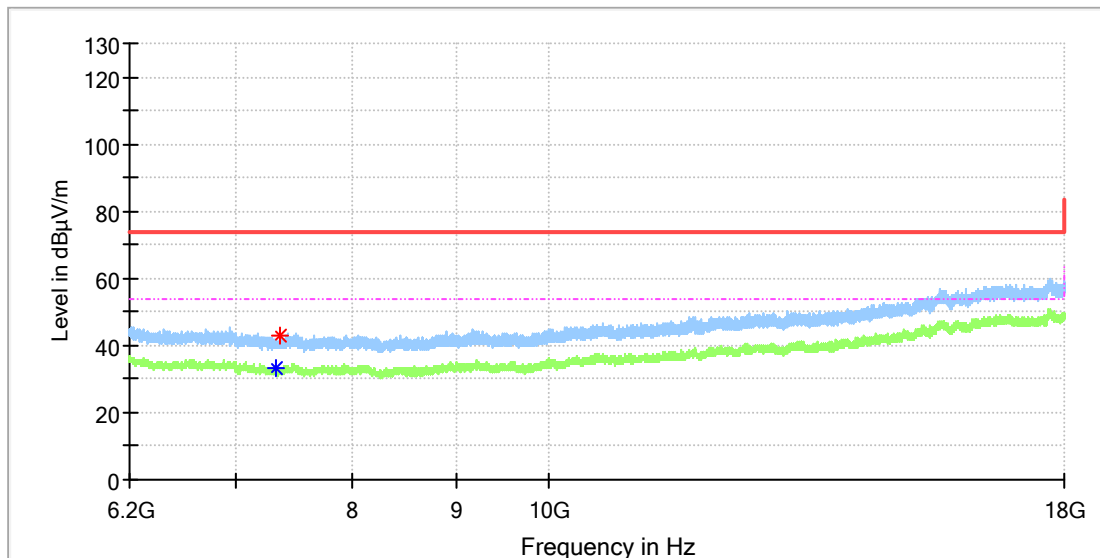
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1153.500000	47.34	---	74.00	26.66	150.0	V	208.0	0.8
1154.000000	---	43.00	54.00	11.00	150.0	V	268.0	0.8
1813.000000	51.97	---	74.00	22.03	150.0	V	102.0	4.8
1813.500000	---	46.20	54.00	7.80	150.0	V	102.0	4.8
4894.500000	50.34	---	74.00	23.66	150.0	V	332.0	11.8
4902.500000	---	39.52	54.00	14.48	150.0	V	174.0	11.8

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---		---	---

EUT Information

EUT Name: ICE (In Car Entertainment)
Model: MP-202SMY-MEXICO
Test Mode: BR_DH5_Mid channel
Order No/Sample No: 168437534/A003537037-001
Test Voltage: DC 12V From DC Source
Remark: Temp 23 Humi:56%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin



Critical_Freqs

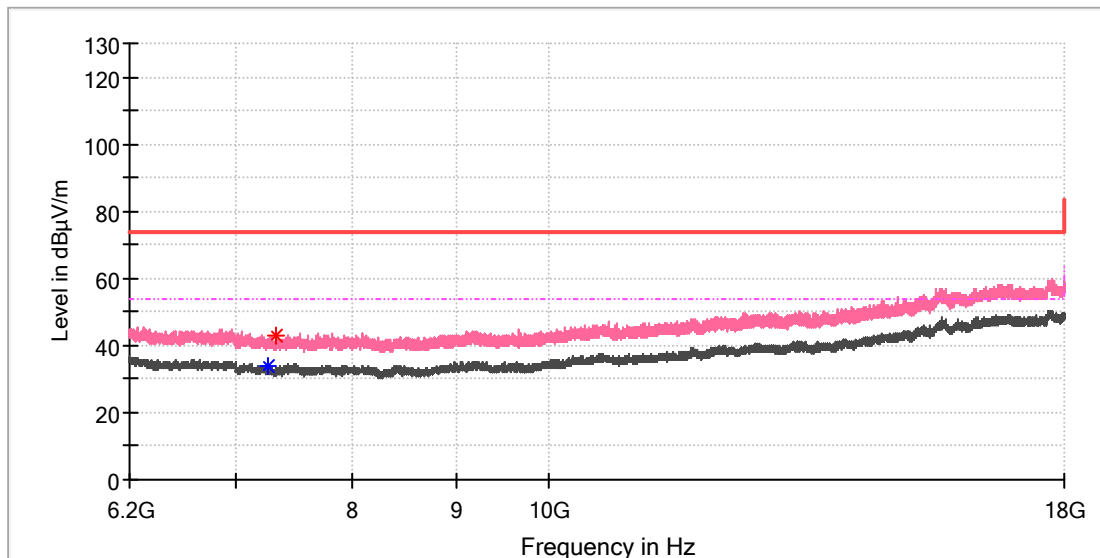
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7330.341667	---	33.53	54.00	20.47	150.0	H	137.0	8.1
7354.925000	43.12	---	74.00	30.88	150.0	H	101.0	8.1

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---		---	---

EUT Information

EUT Name: ICE (In Car Entertainment)
Model: MP-202SMY-MEXICO
Test Mode: BR_DH5_Mid channel
Order No/Sample No: 168437534/A003537037-001
Test Voltage: DC 12V From DC Source
Remark: Temp 23 Humi:56%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin



Critical_Freqs

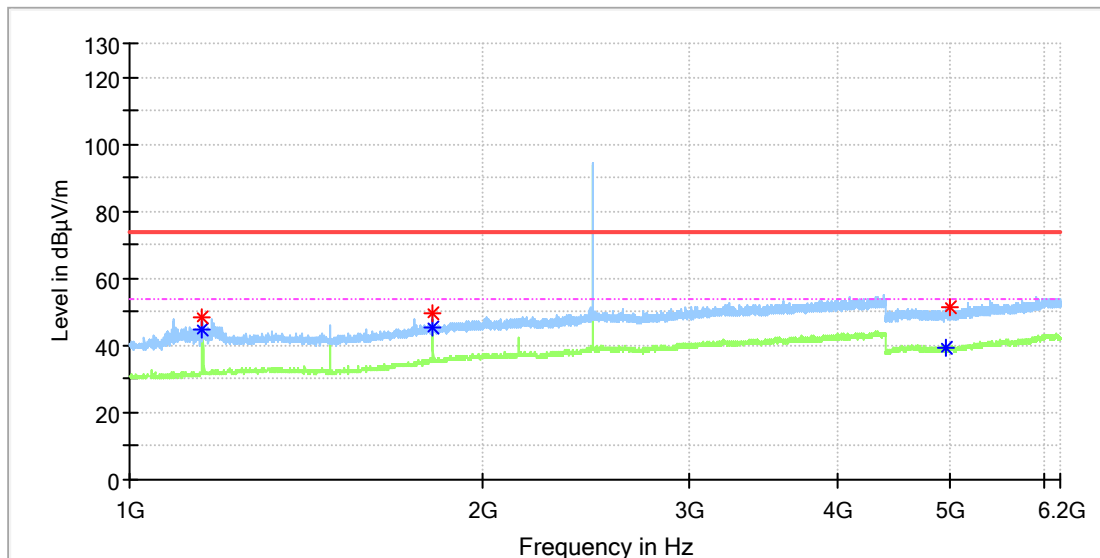
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7262.983333	---	33.83	54.00	20.17	150.0	V	109.0	8.5
7332.308333	42.97	---	74.00	31.03	150.0	V	74.0	8.1

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---		---	---

EUT Information

EUT Name: ICE (In Car Entertainment)
Model: MP-202SMY-MEXICO
Test Mode: BR_DH5_High channel
Order No/Sample No: 168437534/A003537037-001
Test Voltage: DC 12V From DC Source
Remark: Temp 23 Humi:56%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin



Critical_Freqs

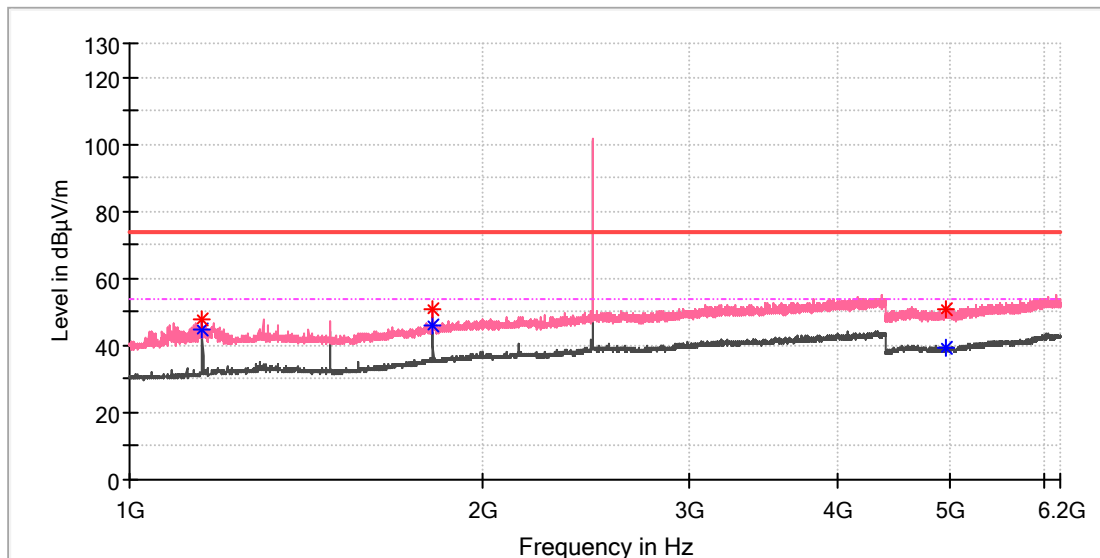
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1154.000000	48.20	---	74.00	25.80	150.0	H	155.0	0.8
1154.000000	---	44.77	54.00	9.23	150.0	H	155.0	0.8
1813.000000	49.76	---	74.00	24.24	150.0	H	107.0	4.8
1813.500000	---	45.08	54.00	8.92	150.0	H	101.0	4.8
4950.500000	---	39.45	54.00	14.55	150.0	H	205.0	11.8
4994.000000	51.20	---	74.00	22.80	150.0	H	356.0	11.8

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---		---	---

EUT Information

EUT Name: ICE (In Car Entertainment)
Model: MP-202SMY-MEXICO
Test Mode: BR_DH5_High channel
Order No/Sample No: 168437534/A003537037-001
Test Voltage: DC 12V From DC Source
Remark: Temp 23 Humi:56%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin



Critical Freqs

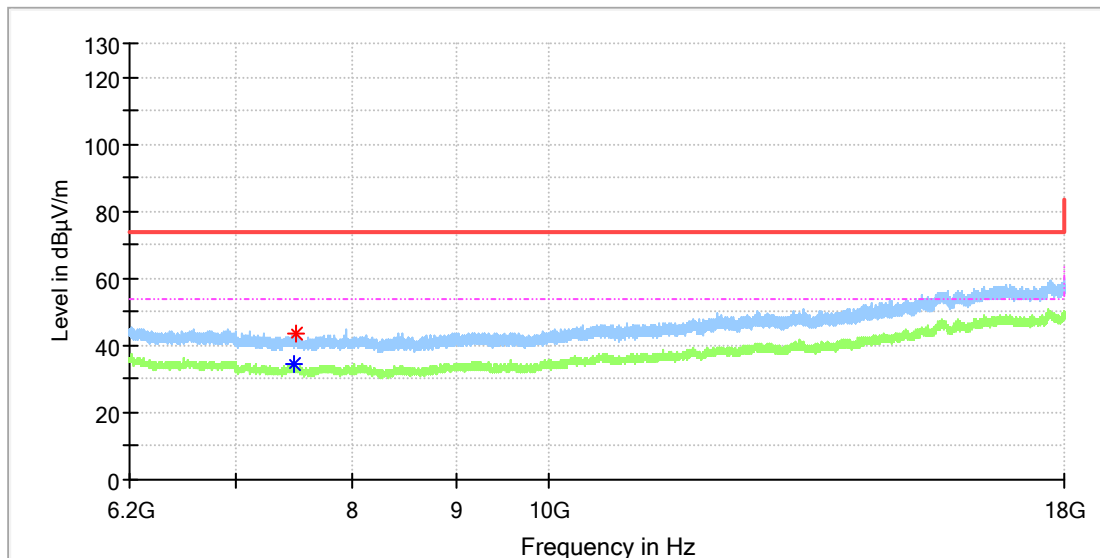
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1153.500000	47.72	---	74.00	26.28	150.0	V	260.0	0.8
1153.500000	---	44.48	54.00	9.52	150.0	V	260.0	0.8
1813.000000	51.04	---	74.00	22.96	150.0	V	102.0	4.8
1813.500000	---	46.03	54.00	7.97	150.0	V	102.0	4.8
4946.000000	50.63	---	74.00	23.37	150.0	V	146.0	11.8
4959.000000	---	39.32	54.00	14.68	150.0	V	228.0	11.8

Final Result

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---		---	---

EUT Information

EUT Name: ICE (In Car Entertainment)
Model: MP-202SMY-MEXICO
Test Mode: BR_DH5_High channel
Order No/Sample No: 168437534/A003537037-001
Test Voltage: DC 12V From DC Source
Remark: Temp 23 Humi:56%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin



Critical_Freqs

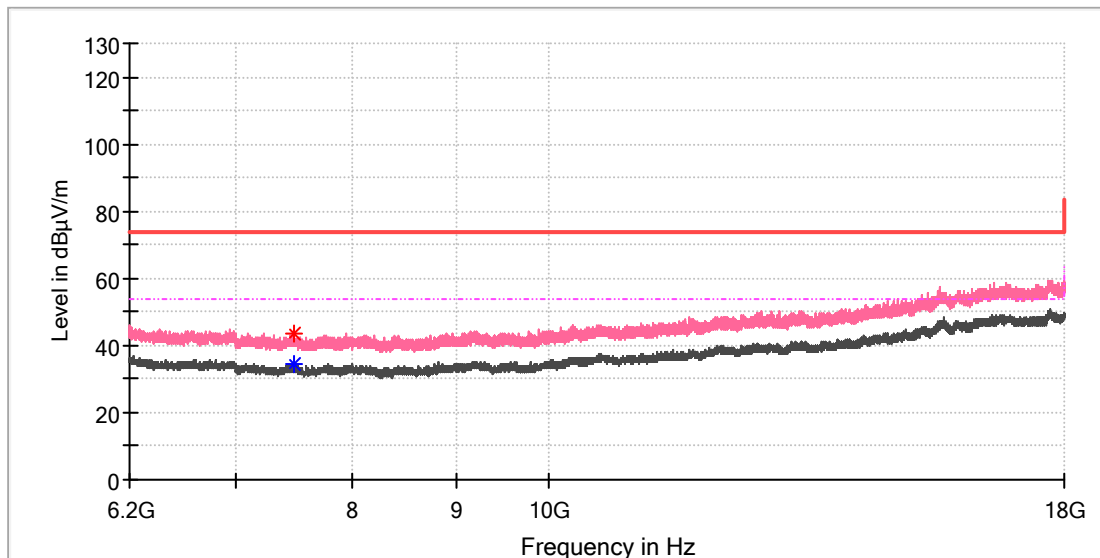
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7483.741667	---	34.55	54.00	19.45	150.0	H	176.0	8.7
7494.066667	43.38	---	74.00	30.62	150.0	H	93.0	8.7

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---		---	---

EUT Information

EUT Name: ICE (In Car Entertainment)
Model: MP-202SMY-MEXICO
Test Mode: BR_DH5_High channel
Order No/Sample No: 168437534/A003537037-001
Test Voltage: DC 12V From DC Source
Remark: Temp 23 Humi:56%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7480.300000	43.61	---	74.00	30.39	150.0	V	280.0	8.7
7480.791667	---	34.27	54.00	19.73	150.0	V	231.0	8.7

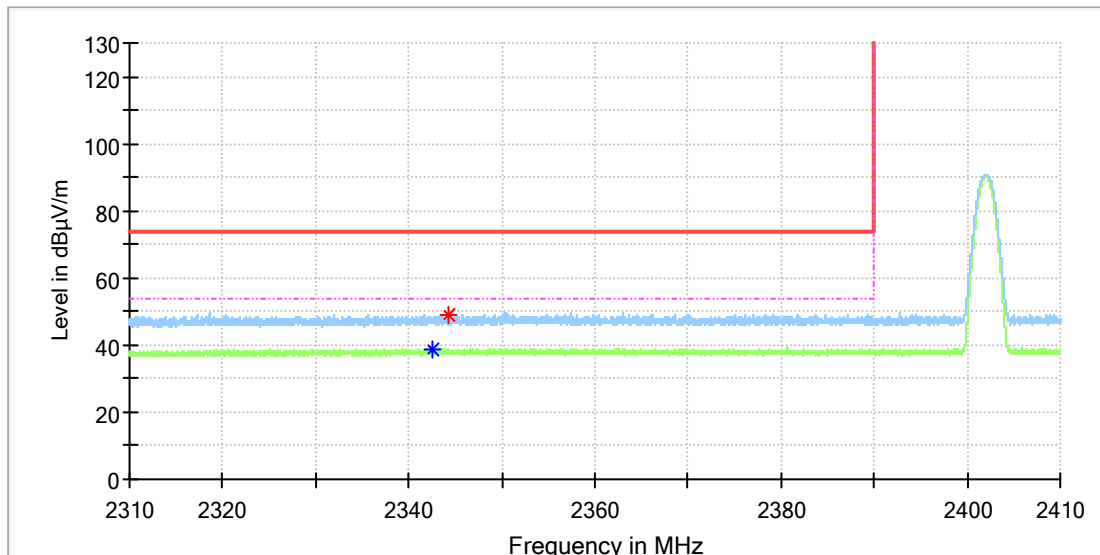
Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
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Appendix A.8: Test Results of Radiated Emissions in Restricted Bands

EUT Information

EUT Name:	ICE (In Car Entertainment)
Model:	MP-202SMY-MEXICO
Test Mode:	BR_DH5_Low channel
Order No/Sample No:	168437534/A003537037-001
Test Voltage:	DC 12V From DC Source
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

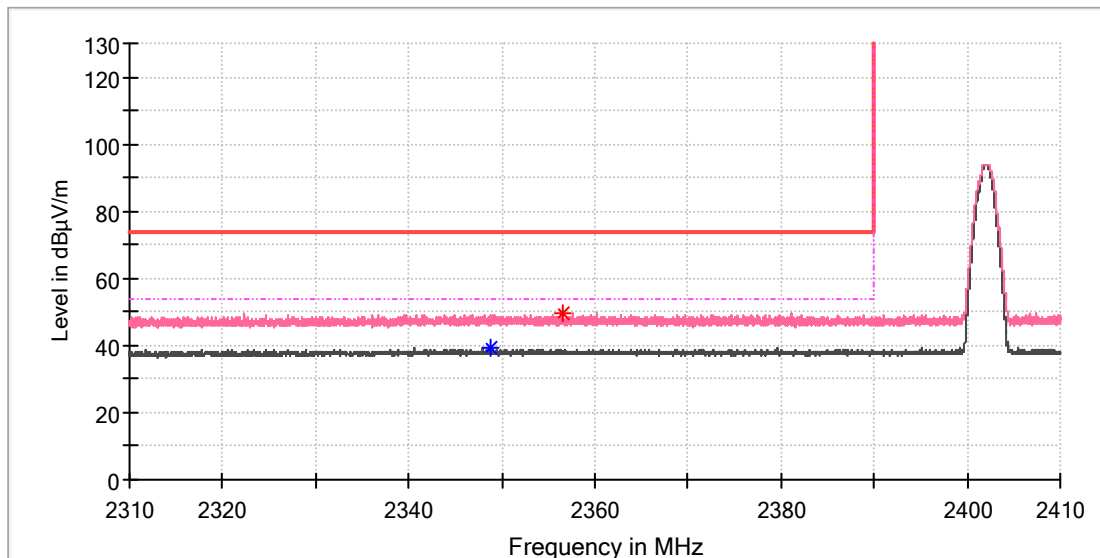
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2342.588235	---	38.60	54.00	15.40	150.0	H	217.0	6.8
2344.205882	49.13	---	74.00	24.87	150.0	H	53.0	6.9

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---		---	---

EUT Information

EUT Name: ICE (In Car Entertainment)
Model: MP-202SMY-MEXICO
Test Mode: BR_DH5_Low channel
Order No/Sample No: 168437534/A003537037-001
Test Voltage: DC 12V From DC Source
Remark: Temp 23 Humi:56%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin



Critical Freqs

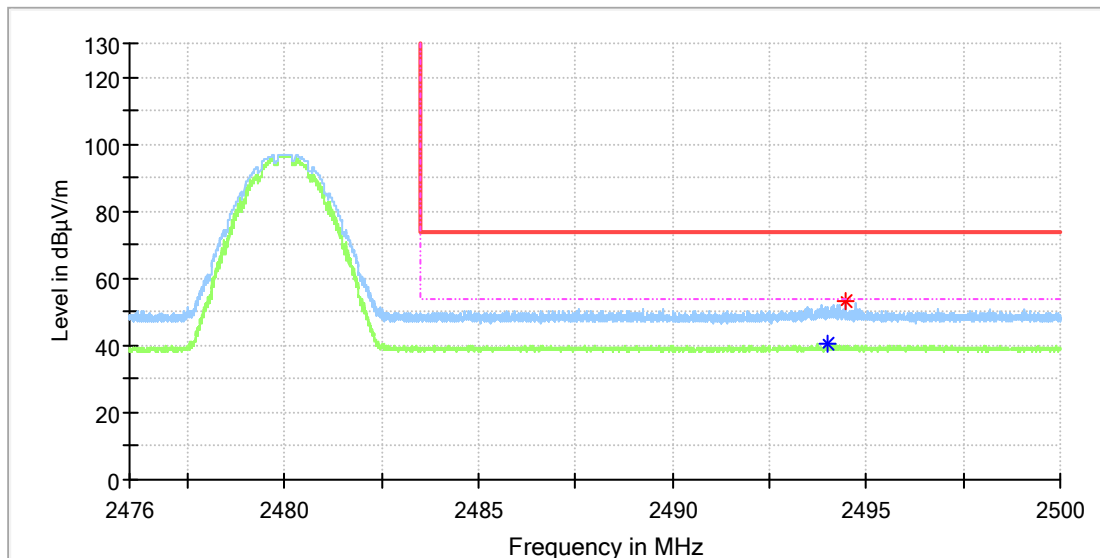
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2348.838235	---	39.41	54.00	14.60	150.0	V	199.0	6.9
2356.514706	49.60	---	74.00	24.40	150.0	V	305.0	6.9

Final Result

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---		---	---

EUT Information

EUT Name: ICE (In Car Entertainment)
Model: MP-202SMY-MEXICO
Test Mode: BR_DH5_High channel
Order No/Sample No: 168437534/A003537037-001
Test Voltage: DC 12V From DC Source
Remark: Temp 23 Humi:56%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin



Critical_Freqs

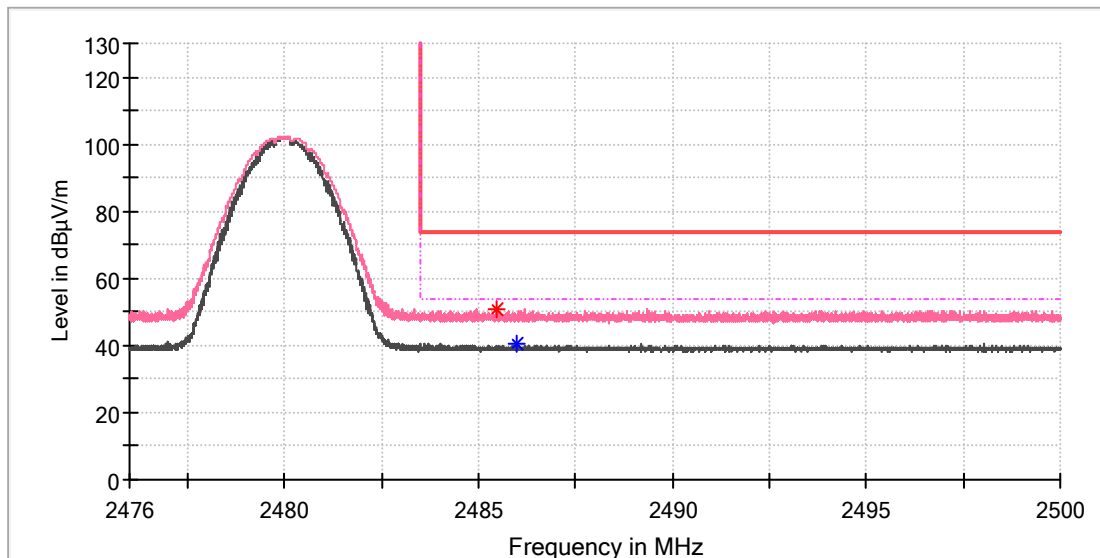
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2493.992941	---	40.74	54.00	13.26	150.0	H	91.0	7.4
2494.444706	52.94	---	74.00	21.06	150.0	H	18.0	7.4

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---		---	---

EUT Information

EUT Name: ICE (In Car Entertainment)
Model: MP-202SMY-MEXICO
Test Mode: BR_DH5_High channel
Order No/Sample No: 168437534/A003537037-001
Test Voltage: DC 12V From DC Source
Remark: Temp 23 Humi:56%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin



Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2485.451765	50.67	---	74.00	23.33	150.0	V	0.0	7.4
2485.995294	---	40.21	54.00	13.79	150.0	V	63.0	7.4

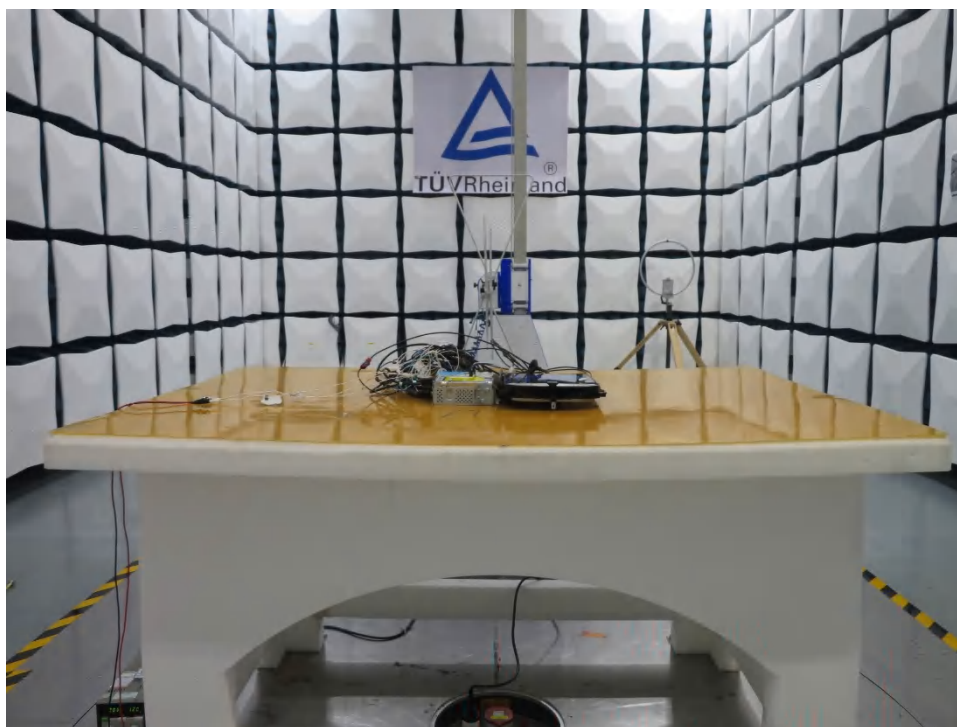
Final Result

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
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Appendix B: Photographs of the Test Set-Up

APPENDIX B: PHOTOGRAPHS OF THE TEST SET-UP	1
PHOTOGRAPH 1: SET-UP PHOTO FOR RADIATED SPURIOUS EMISSION, BELOW 1GHZ.....	2
PHOTOGRAPH 2: SET-UP PHOTO FOR RADIATED SPURIOUS EMISSION, ABOVE 1GHZ	2

Photograph 1: Set-up photo for Radiated Spurious Emission, Below 1GHz



Photograph 2: Set-up photo for Radiated Spurious Emission, Above 1GHz

