

Report No.: SZEM160100046803

No. 1 Workshop, M-10, Middle section, Science & Technology Park, Nanshan

District, Shenzhen, Guangdong, China 518057

Telephone: +86 (0) 755 2601 2053 Fax: +86 (0) 755 2671 0594

Email: ee.shenzhen@sgs.com Page: 1 of 48

FCC REPORT

Application No: SZEM1601000468RG

Applicant:Hisense International Co., Ltd.Manufacturer:Hisense Communications Co., Ltd.Factory:Hisense Communications Co., Ltd.

Product Name: Mobile Phone Model No.(EUT): Hisense L675

Trade Mark: Hisense PCC ID: 2ADOBL675

Standards: 47 CFR Part 15, Subpart C (2015)

 Date of Receipt:
 2016-01-29

 Date of Test:
 2016-02-04

 Date of Issue:
 2016-02-23

Test Result: PASS *

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



Jack Zhang EMC Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.



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2 Version

Revision Record							
Version Chapter Date Modifier Remark							
00		2016-02-23		Original			

Authorized for issue by:		
Tested By	Benson Wang	2016-02-04
	(Benson Wang) /Project Engineer	Date
Prepared By	Joyce Shi (Joyce Shi) /Clerk	2016-02-23 Date
	(doyce Silly / Olerk	Date
Checked By	Eric Fu	2016-02-23
	(Eric Fu) /Reviewer	Date



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3 Test Summary

Test Item	Test Requirement	Test method	Result
Antenna Requirement	47 CFR Part 15, Subpart C Section 15.203/15.247 (c)	ANSI C63.10 2013	PASS
AC Power Line Conducted Emission	47 CFR Part 15, Subpart C Section 15.207	ANSI C63.10 2013	PASS
Conducted Peak Output Power	47 CFR Part 15, Subpart C Section 15.247 (b)(3)	ANSI C63.10 2013	PASS
6dB Occupied Bandwidth	47 CFR Part 15, Subpart C Section 15.247 (a)(2)	ANSI C63.10 2013	PASS
Power Spectral Density	47 CFR Part 15, Subpart C Section 15.247 (e)	ANSI C63.10 2013	PASS
Band-edge for RF Conducted Emissions	47 CFR Part 15, Subpart C Section 15.247(d)	ANSI C63.10 2013	PASS
RF Conducted Spurious Emissions	47 CFR Part 15, Subpart C Section 15.247(d)	ANSI C63.10 2013	PASS
Radiated Spurious Emissions	47 CFR Part 15, Subpart C Section 15.205/15.209	ANSI C63.10 2013	PASS
Restricted bands around fundamental frequency (Radiated Emission)	47 CFR Part 15, Subpart C Section 15.205/15.209	ANSI C63.10 2013	PASS



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5 General Information

5.1 Client Information

Applicant:	Hisense International Co., Ltd.				
Address of Applicant:	Floor 22, Hisense Tower, 17 Donghai Xi Road, Qingdao, 266071, China				
Manufacturer:	Hisense Communications Co., Ltd.				
Address of Manufacturer:	218 Qianwangang Road, Qingdao Economic & Technological Development Zone, Qingdao				
Factory:	Hisense Communications Co., Ltd.				
Address of Factory:	218 Qianwangang Road, Qingdao Economic & Technological Development Zone, Qingdao				

5.2 General Description of EUT

Product Name:	Mobile Phone
Model No.:	Hisense L675
Trade Mark:	Hisense
Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	BT 4.0 dual mode
	This report is for BLE mode.
Modulation Type:	GFSK
Number of Channel:	40
Sample Type:	Portable product
Test Software of EUT:	L675-userdebug 6.0 MRA58K L1224.6.01.01 release-keys
Antenna Type:	PIFA
Antenna Gain:	0.7dBi
Battery:	Lithium-ion battery:3.8V(charge by adapter)

Remark:

Model No.: Hisense L675

There are two kinds of color in this model, Only the sample in section 7 was tested, since the circuit design, PCB layout, electrical components used, internal wiring and functions were identical for the above samples, only different on colors.

And the accessories have different colors as below for marketing purpose.

Accessories	Model No	Color
Earphone	NLD-EM116T-50SH/ NLD-EM116T-40SH	white and black
Data cable	GEM1-2828L08WHR/ GEM1-2828L08BKR	white and black
Adaptor	A31-501000	white and black



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Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
0	2402MHz	10	2422MHz	20	2442MHz	30	2462MHz
1	2404MHz	11	2424MHz	21	2444MHz	31	2464MHz
2	2406MHz	12	2426MHz	22	2446MHz	32	2466MHz
3	2408MHz	13	2428MHz	23	2448MHz	33	2468MHz
4	2410MHz	14	2430MHz	24	2450MHz	34	2470MHz
5	2412MHz	15	2432MHz	25	2452MHz	35	2472MHz
6	2414MHz	16	2434MHz	26	2454MHz	36	2474MHz
7	2416MHz	17	2436MHz	27	2456MHz	37	2476MHz
8	2418MHz	18	2438MHz	28	2458MHz	38	2478MHz
9	2420MHz	19	2440MHz	29	2460MHz	39	2480MHz

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel	Frequency	
The lowest channel (CH0)	2402MHz	
The middle channel (CH19)	2440MHz	
The highest channel (CH39)	2480MHz	



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5.3 Test Environment

Operating Environment	Operating Environment:				
Temperature:	25.0 °C				
Humidity:	53 % RH				
Atmospheric Pressure:	1020mbar				

5.4 Description of Support Units

The EUT has been tested independent unit.

5.5 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch E&E Lab,

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China. 518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.



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5.6 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

CNAS (No. CNAS L2929)

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

• A2LA (Certificate No. 3816.01)

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

VCCI

The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-823, R-4188, T-1153 and C-2383 respectively.

FCC – Registration No.: 556682

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 556682.

Industry Canada (IC)

The 3m Semi-anechoic chambers and the 10m Semi-anechoic chambers of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-2, 4620C-3.

5.7 Deviation from Standards

None.

5.8 Abnormalities from Standard Conditions

None.

5.9 Other Information Requested by the Customer

None.



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5.10 Equipment List

	Conducted Emission							
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. date (yyyy-mm-dd)	Cal.Due date (yyyy-mm-dd)		
1	Shielding Room	ZhongYu Electron	GB-88	SEL0042	2015-05-13	2016-05-13		
2	LISN	Rohde & Schwarz	ENV216	SEL0152	2015-10-09	2016-10-09		
3	LISN	ETS-LINDGREN	3816/2	SEL0021	2015-05-13	2016-05-13		
4	8 Line ISN	Fischer Custom Communications Inc.	FCC-TLIS N-T8-02	SEL0162	2015-08-30	2016-08-30		
5	4 Line ISN	Fischer Custom Communications Inc.	FCC-TLIS N-T4-02	SEL0163	2015-08-30	2016-08-30		
6	2 Line ISN	Fischer Custom Communications Inc.	FCC-TLIS N-T2-02	SEL0164	2015-08-30	2016-08-30		
7	EMI Test Receiver	Rohde & Schwarz	ESCI	SEL0022	2015-05-13	2016-05-13		
8	Coaxial Cable	SGS	N/A	SEL0025	2015-05-13	2016-05-13		
9	DC Power Supply	Zhao Xin	RXN-305D	SEL0117	2015-10-09	2016-10-09		
10	Humidity/ Temperature Indicator	Shanhai Qixiang	ZJ1-2B	SEL0103	2015-10-24	2016-10-24		
11	Barometer	Chang Chun	DYM3	SEL0088	2015-05-13	2016-05-13		



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						1		
	RE in Chamber							
Item	Test Equipment	Manufacturer	Model No.	Inventory No.		Cal.Due date		
1	3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEL0017	(yyyy-mm-dd) 2015-05-13	(yyyy-mm-dd) 2016-05-13		
2	EMI Test Receiver	Agilent Technologies	N9038A	SEL0312	2015-09-16	2016-09-16		
3	EMI Test software	AUDIX	E3	SEL0050	N/A	N/A		
4	BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEL0015	2014-11-15	2017-11-15		
5	Double-ridged horn (1-18GHz)	ETS-LINDGREN	3117	SEL0006	2015-10-17	2016-10-17		
6	Horn Antenna (18-26GHz)	ETS-LINDGREN	3160	SEL0076	2014-11-24	2017-11-24		
7	Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEL0053	2015-05-13	2016-05-13		
8	Pre-Amplifier (0.1-26.5GHz)	Compliance Directions Systems Inc.	PAP-0126	SEL0168	2015-10-17	2016-10-17		
9	Coaxial cable	SGS	N/A	SEL0027	2015-05-13	2016-05-13		
10	Coaxial cable	SGS	N/A	SEL0189	2015-05-13	2016-05-13		
11	Coaxial cable	SGS	N/A	SEL0121	2015-05-13	2016-05-13		
12	Coaxial cable	SGS	N/A	SEL0178	2015-05-13	2016-05-13		
13	Band filter	Amindeon	82346	SEL0094	2015-05-13	2016-05-13		
14	Barometer	Chang Chun	DYM3	SEL0088	2015-05-13	2016-05-13		
15	DC Power Supply	Zhao Xin	RXN-305D	SEL0117	2015-10-09	2016-10-09		
16	Humidity/ Temperature Indicator	Shanhai Qixiang	ZJ1-2B	SEL0103	2015-10-24	2016-10-24		
17	Signal Generator (10M-27GHz)	Rohde & Schwarz	SMR27	SEL0067	2015-05-13	2016-05-13		
18	Loop Antenna	Beijing Daze	ZN30401	SEL0203	2015-05-13	2016-05-13		



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	RF connected test							
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. date (yyyy-mm-dd)	Cal.Due date (yyyy-mm-dd)		
1	DC Power Supply	Zhao Xin	RXN-305D	SEL0117	2015-10-09	2016-10-09		
2	Humidity/ Temperature Indicator	HYGRO	ZJ1-2B	SEL0033	2015-10-24	2016-10-24		
3	Spectrum Analyzer	Rohde & Schwarz	FSP	SEL0154	2015-10-17	2016-10-17		
4	Coaxial cable	SGS	N/A	SEL0178	2015-05-13	2016-05-13		
5	Coaxial cable	SGS	N/A	SEL0179	2015-05-13	2016-05-13		
6	Barometer	ChangChun	DYM3	SEL0088	2015-05-13	2016-05-13		
7	Signal Generator	Rohde & Schwarz	SML03	SEL0068	2015-04-25	2016-04-25		
8	POWER METER	R & S	NRVS	SEL0144	2015-10-09	2016-10-09		
9	Attenuator	Beijin feihang taida	TST-2-6dB	SEL0205	2015-04-25	2016-04-25		



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6 Test results and Measurement Data

6.1 Antenna Requirement

Standard requirement: 47 CFR Part 15C Section 15.203 /247(c)

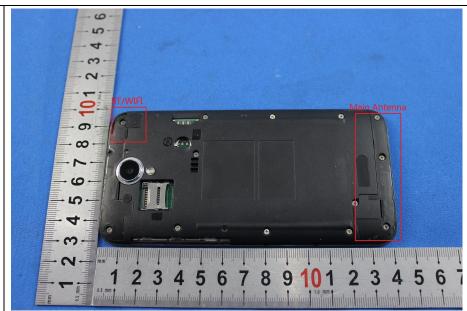
15.203 requirement:

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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.247(b) (4) requirement:

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

EUT Antenna:



The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 0.7dBi.





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6.2 Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.207						
Test Method:	ANSI C63.10: 2013						
Test Frequency Range:	150kHz to 30MHz						
Limit:		Limit (c	lBuV)				
	Frequency range (MHz)	Quasi-peak	Average				
	0.15-0.5	66 to 56*	56 to 46*				
	0.5-5	0.5-5 56 46					
	5-30	60	50				
	* Decreases with the logarithm	n of the frequency.					
Test Procedure:	 * Decreases with the logarithm of the frequency. 1) The mains terminal disturbance voltage test was conducted in a shielded room. 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded. 3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane. 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2. 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to 						
Test Setup:	Shielding Room EUT AC Mains LISN1	AE LISN2 AC Mai Ground Reference Plane	Test Receiver				



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Test Mode:	Transmitting with GFSK modulation. Charge +Transmitting mode.
Instruments Used:	Refer to section 5.10 for details.
Test Results:	Pass



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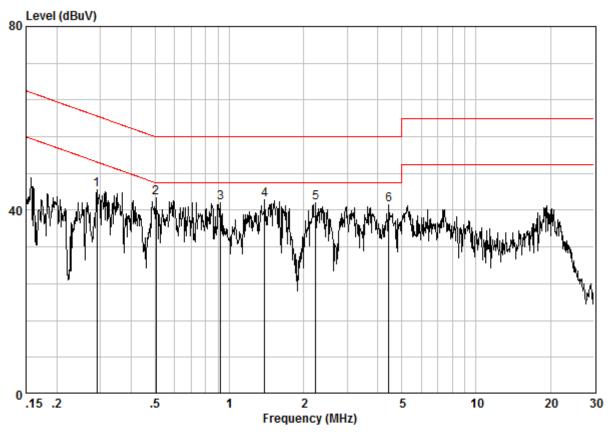
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Measurement Data

An initial pre-scan was performed on the live and neutral lines with peak detector.

Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

Live line:



Site : Shielding Room Condition : CE LINE Job No. : 0468RG Test Mode : Charge+TX

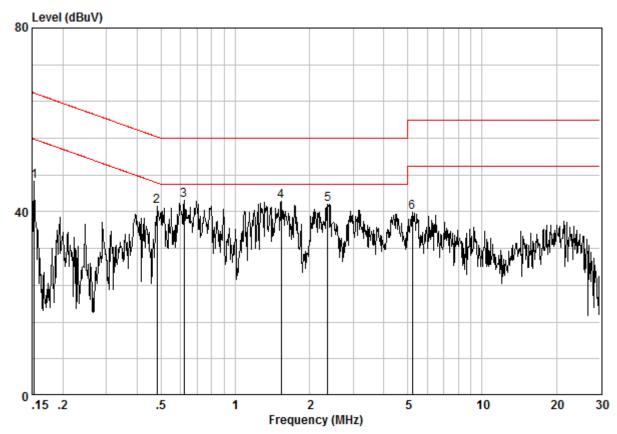
		Freq		LISN Factor			Limit Line	Over Limit	Remark
		MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1		0.29088	0.01	9.59	34.85	44.45	50.50	-6.05	Peak
2	@	0.50469	0.01	9.59	33.07	42.67	46.00	-3.33	Peak
3	@	0.92330	0.02	9.62	31.93	41.58	46.00	-4.42	Peak
4	@	1.388	0.02	9.59	32.66	42.27	46.00	-3.73	Peak
5	@	2.237	0.02	9.63	32.03	41.68	46.00	-4.32	Peak
6	@	4.430	0.01	9.64	31.62	41.27	46.00	-4.73	Peak



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Neutral line:



Site : Shielding Room Condition : CE NEUTRAL Job No. : 0468RG Test Mode : Charge+TX

		Freq		LISN Factor				Over Limit	Remark
		MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1		0.15321	0.02	9.62	36.92	46.56	55.82	-9.26	Peak
2	@	0.48119	0.01	9.63	31.63	41.27	46.32	-5.05	Peak
3	@	0.62054	0.02	9.63	32.77	42.41	46.00	-3.59	Peak
4	@	1.535	0.02	9.64	32.59	42.26	46.00	-3.74	Peak
5	@	2.371	0.02	9.67	31.93	41.62	46.00	-4.38	Peak
6		5.221	0.01	9.72	30.23	39.96	50.00	-10.04	Peak

Notes:

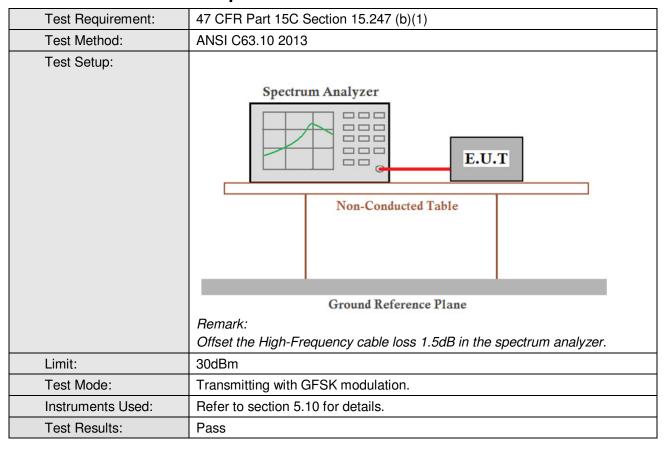
- The following Quasi-Peak and Average measurements were performed on the EUT:
- 2. Final Test Level = Receiver Reading + LISN Factor + Cable Loss.



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6.3 Conducted Peak Output Power



Measurement Data

GFSK mode					
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result		
Lowest	-2.12	30.00	Pass		
Middle	-1.19	30.00	Pass		
Highest	-1.58	30.00	Pass		

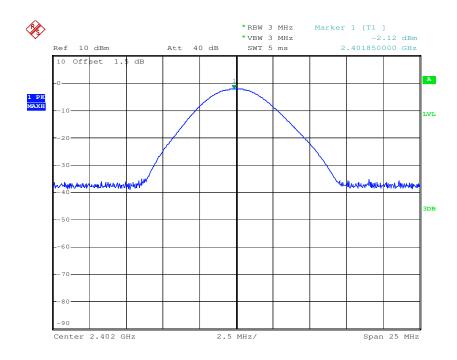


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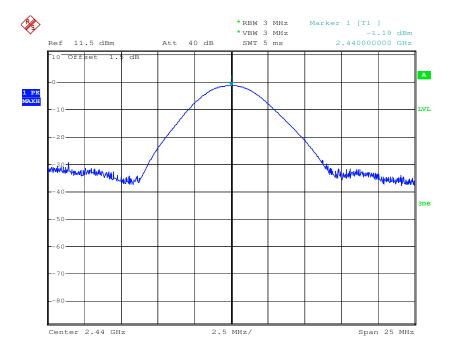
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Test plot as follows:

Test mode: GFSK Test channel: Lowest





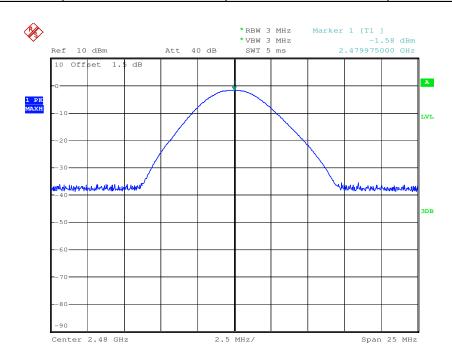




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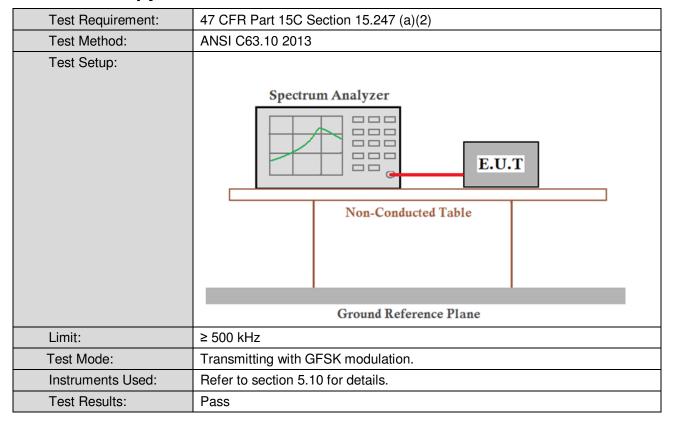




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6.4 6dB Occupy Bandwidth



Measurement Data

	GFSK mode		
Test channel	6dB Occupy Bandwidth (MHz)	Limit (kHz)	Result
Lowest	0.696	≥500	Pass
Middle	0.702	≥500	Pass
Highest	0.702	≥500	Pass

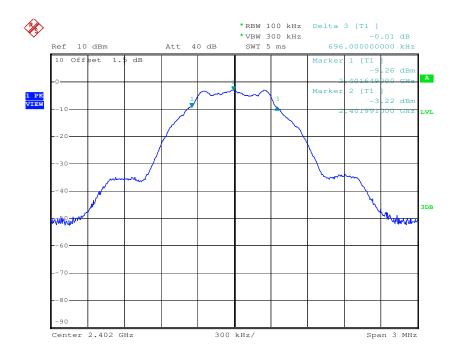


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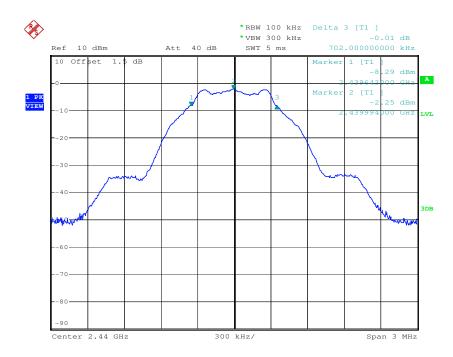
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Test plot as follows:

Test mode: GFSK Test channel: Lowest





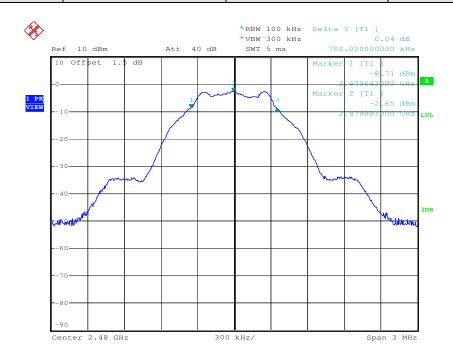




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Test mode: GFSK Test channel: Highest



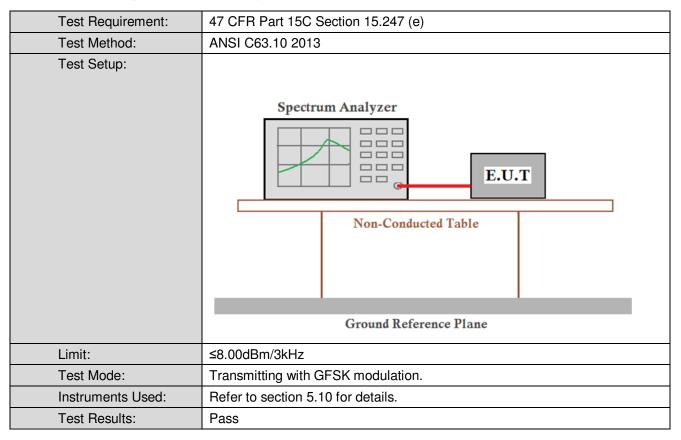




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6.5 Power Spectral Density



Measurement Data

GFSK mode						
Test channel	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result			
Lowest	-17.88	≤8.00	Pass			
Middle	-16.96	≤8.00	Pass			
Highest	-17.28	≤8.00	Pass			

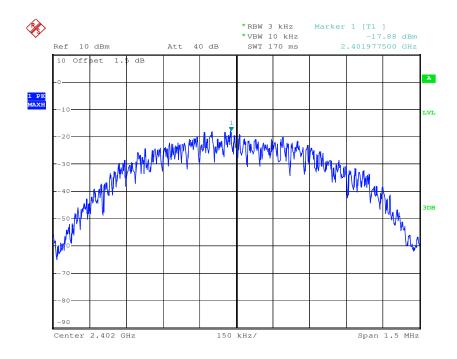


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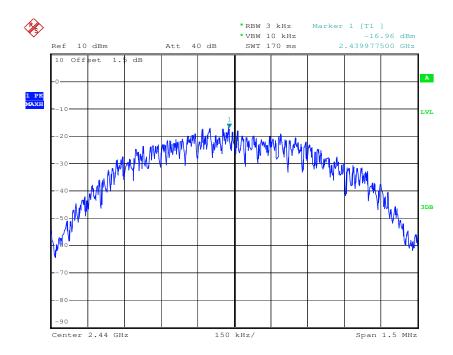
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Test plot as follows:

Test mode: GFSK Test channel: Lowest





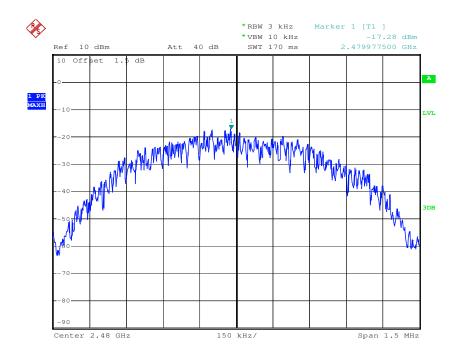




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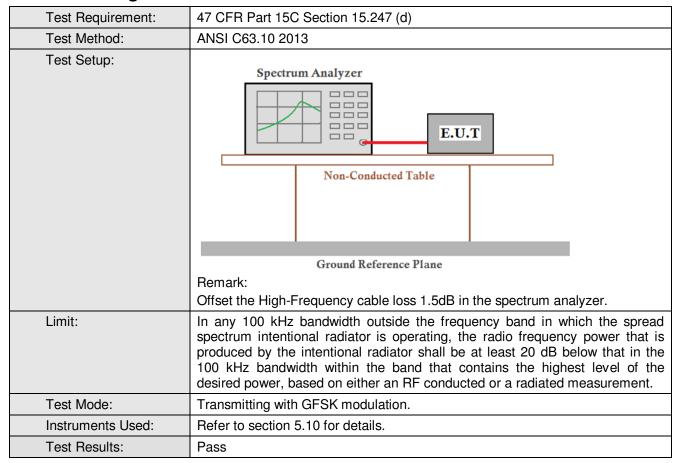




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6.6 Band-edge for RF Conducted Emissions



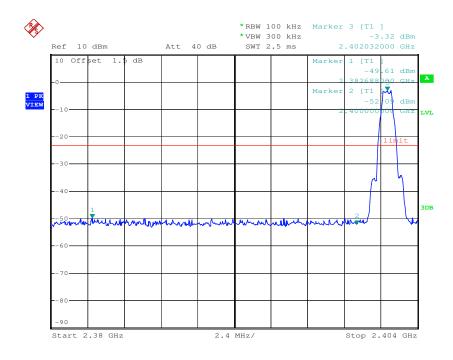


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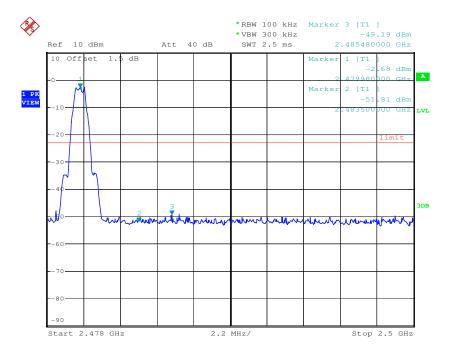
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Test plot as follows:

Test mode: GFSK Test channel: Lowest









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6.7 Spurious RF Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.247 (d)			
Test Method:	ANSI C63.10 2013			
Test Setup:	Spectrum Analyzer E.U.T Non-Conducted Table			
	Remark: Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer.			
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.			
Test Mode:	Transmitting with GFSK modulation.			
Instruments Used:	Refer to section 5.10 for details.			
Test Results:	Pass			

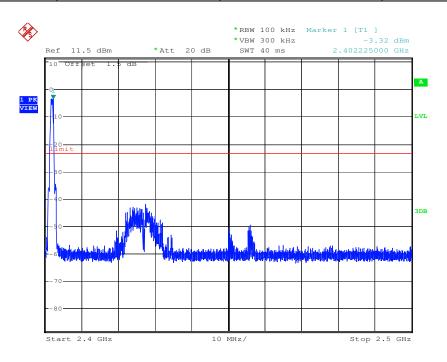


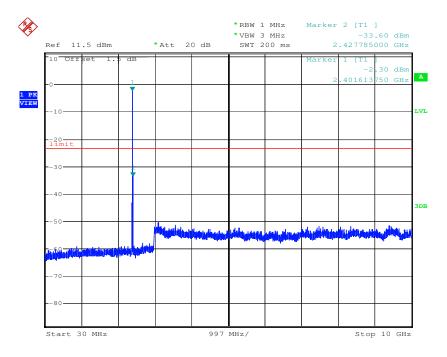
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Test plot as follows:

Test mode: GFSK Test channel: Lowest

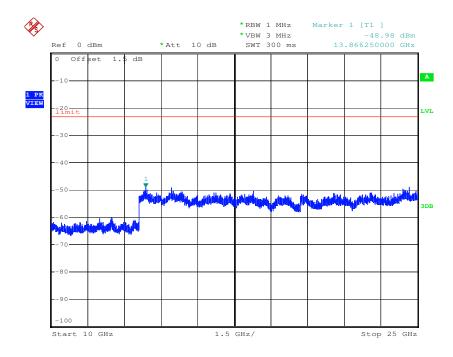




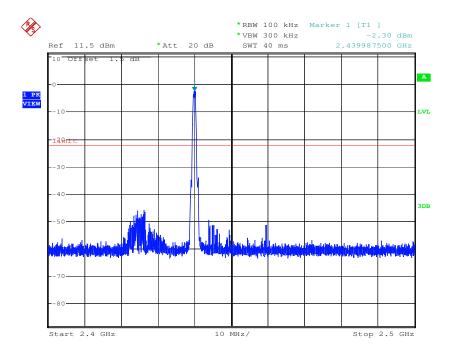


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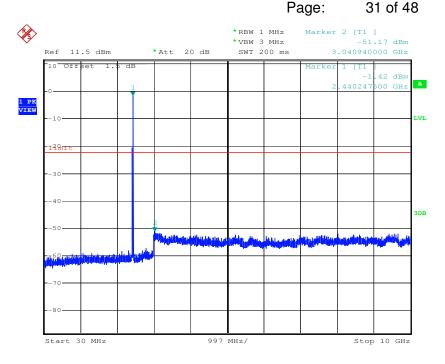


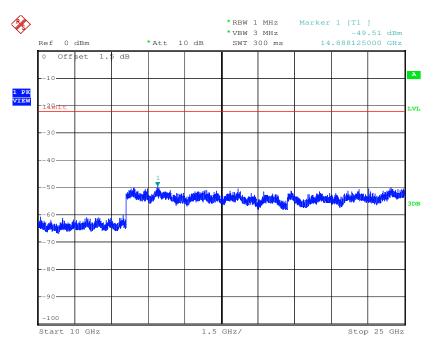






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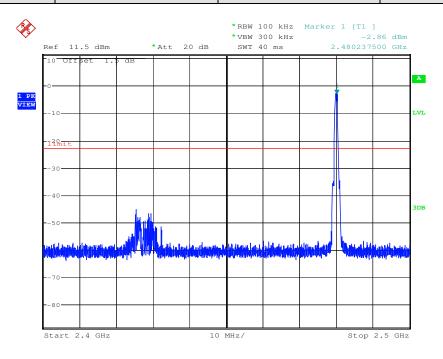


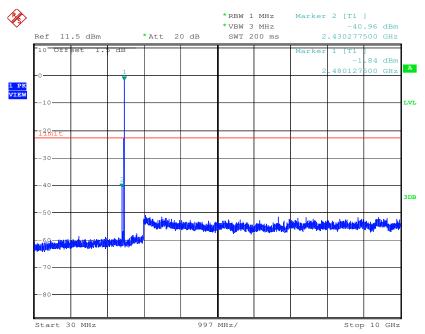


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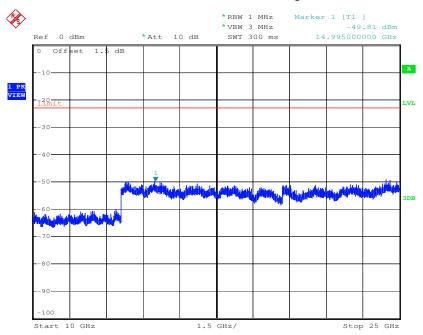






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Remark:

Use 100kHz RBW to determine the relative limit in the band 2.4GHz to 2.5GHz, and Use 1MHz RBW to measure spurious emissions in the band 30MHz to 10GHz and 10GHz to 25GHz. The sweep points set to 30001.



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6.8 Radiated Spurious Emission

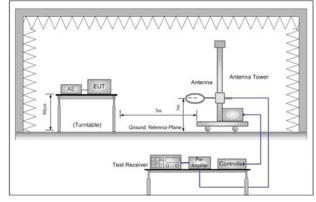
6.8.1 Spurious Emissions								
Test Requirement:		47 CFR Part 15C Section 15.209 and 15.205						
Test Method:	ANSI C63.10 2013							
Test Site:	Measurement Distance	: 3m	ı (Semi-Anecl	noic Cham	ber	·)		
Receiver Setup:	Frequency		Detector	RBW	7	VBW	Remark	Ī
	0.009MHz-0.090MH	Z	Peak	10kHz	<u> </u>	30kHz	Peak	
	0.009MHz-0.090MH	z	Average	10kHz	<u> </u>	30kHz	Average	
	0.090MHz-0.110MH	z	Quasi-peak	10kHz	<u> </u>	30kHz	Quasi-peak	
	0.110MHz-0.490MH	z	Peak	10kHz	<u> </u>	30kHz	Peak	
	0.110MHz-0.490MH	Z	Average	10kHz	<u> </u>	30kHz	Average	
	0.490MHz -30MHz		Quasi-peak	10kHz	<u> </u>	30kHz	Quasi-peak	
	30MHz-1GHz		Quasi-peak	100 kH	lz	300kHz	Quasi-peak	
	Al 4011-		Peak	1MHz		3MHz	Peak	
	Above 1GHz		Peak	1MHz	<u>.</u>	10Hz	Average	1
Limit:	Frequency		eld strength crovolt/meter)	Limit (dBuV/m)		Remark	Measureme distance (n	
	0.009MHz-0.490MHz	2	400/F(kHz)	-		-	300	
	0.490MHz-1.705MHz	24	1000/F(kHz)	-		-	30	
	1.705MHz-30MHz		30			30		
	30MHz-88MHz		100	40.0	40.0 Quasi-peak		3	
	88MHz-216MHz		150	43.5		uasi-peak	3	
	216MHz-960MHz 200		200	46.0 C		uasi-peak	3	
	960MHz-1GHz 500		500	54.0	Ø	uasi-peak	3	
	Above 1GHz 500		500	54.0	,	Average	3	
	Note: 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.							



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Test Setup:



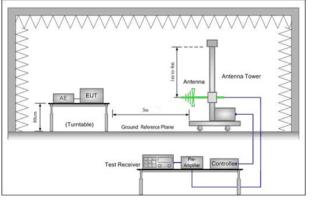


Figure 1. Below 30MHz

Figure 2. 30MHz to 1GHz

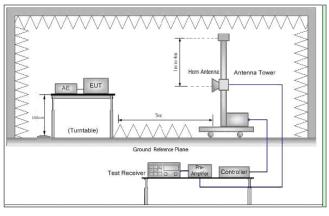


Figure 3. Above 1 GHz

Test Procedure:

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- g. If the emission level of the EUT in peak mode was 10dB lower than the



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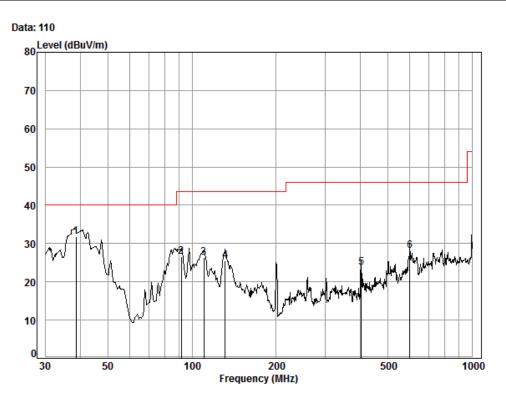
	limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. h. Test the EUT in the lowest channel (2402MHz),the middle channel (2440MHz),the Highest channel (2480MHz) i. The radiation measurements are performed in X, Y, Z axis positioning			
	for Transmitting mode, and found the X axis positioning which it is worst case.			
	j. Repeat above procedures until all frequencies measured was complete.			
Exploratory Test	Transmitting with GFSK modulation.			
Mode:	Transmitting mode, Charge + Transmitting mode.			
Final Test Mode:	Transmitting with GFSK modulation.			
	Pretest the EUT at Transmitting mode and Charge + Transmitting mode, found the Charge + Transmitting mode which it is worse case.			
	For below 1GHz part, through pre-scan, the worst case is the lowest channel.			
	Only the worst case is recorded in the report.			
Instruments Used:	Refer to section 5.10 for details.			
Test Results:	Pass			



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Radiated Emission below 1GHz					
30MHz~1GHz (QP)					
Test mode:	Charge + Transmitting mode	Vertical			



Condition: 3m VERTICAL Job No. : 0468RG

Test mode: Charge+Tx mode

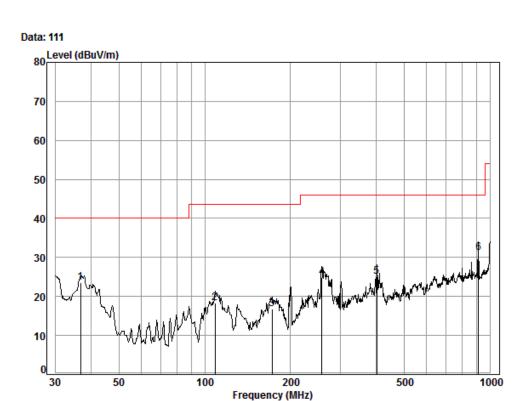
	Freq			Preamp Factor				
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	38.62	0.60	13.91	27.32	44.53	31.72	40.00	-8.28
2	91.49	1.12	8.85	27.21	43.94	26.70	43.50	-16.80
3	110.18	1.23	8.69	27.13	43.58	26.37	43.50	-17.13
4	131.30	1.28	7.97	27.01	43.28	25.52	43.50	-17.98
5	401.84	2.21	16.39	27.15	32.26	23.71	46.00	-22.29
6	599.32	2.70	19.68	27.54	33.29	28.13	46.00	-17.87



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Test mode:	Charge + Transmitting mode	Horizontal
	enange i maneninang inicas	



Condition: 3m HORIZONTAL

Job No. : 0468RG

Test mode: Charge+Tx mode

	Freq			Preamp Factor				
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	36.77	0.60	14.90	27.33	35.44	23.61	40.00	-16.39
2	108.65	1.22	8.75	27.14	35.44	18.27	43.50	-25.23
3	172.60	1.36	9.61	26.81	32.63	16.79	43.50	-26.71
4	257.42	1.71	12.35	26.51	37.23	24.78	46.00	-21.22
5	400.43	2.20	16.40	27.13	33.65	25.12	46.00	-20.88
6	909.67	3.61	23.28	26.71	30.89	31.07	46.00	-14.93



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Transmitter E	Emission	above 1GHz	<u>'</u>							
Test mod	le:	GFSK		Test channel:		Lowes	t	R	emark:	Peak
Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Prea Fac (dl	tor	Read Level (dBuV)	Level (dBuV/m)		Line IV/m)	Over Limit (dB)	Polarization
3915.118	33.02	7.78	38.	53	46.30	48.57	7	'4	-25.43	Vertical
4804.000	34.10	8.87	38.	75	45.81	50.03	74	'4	-23.97	Vertical
5930.516	34.53	10.37	38.	95	46.77	52.72	7	74 -21.28 Vert		Vertical
7206.000	35.60	10.68	37.	64	41.08	49.72	7	'4	-24.28	Vertical
9608.000	37.10	12.50	36.	35	36.39	49.64	7	'4	-24.36	Vertical
12603.270	37.90	14.44	37.	75	38.10	52.69	7	'4	-21.31	Vertical
3937.843	33.04	7.79	38.	54	46.21	48.50	7	'4	-25.50	Horizontal
4804.000	34.10	8.87	38.	75	46.66	50.88	7	'4	-23.12	Horizontal
5982.226	34.66	10.51	38.	96	45.80	52.01	7	'4	-21.99	Horizontal
7206.000	35.60	10.68	37.	64	42.19	50.83	7	'4	-23.17	Horizontal
9608.000	37.10	12.50	36.	35	36.19	49.44	7	'4	-24.56	Horizontal
12603.270	37.90	14.44	37.	75	37.53	52.12	7	'4	-21.88	Horizontal

Test mode:		GFSK	Test	t channel:	Middle	Rem	ark:	Peak
Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
3870.060	32.97	7.77	38.51	46.07	48.30	74	-25.70	Vertical
4880.000	34.18	8.97	38.76	46.03	50.42	74	-23.58 Vertica	
5982.226	34.66	10.51	38.96	45.59	51.80	74	-22.20	Vertical
7320.000	35.54	10.72	37.59	41.88	50.55	74	-23.45	Vertical
9760.000	37.10	12.58	36.14	36.99	50.53	74	-23.47	Vertical
12639.790	37.92	14.55	37.79	37.82	52.50	74	-21.50	Vertical
3926.464	33.03	7.78	38.53	45.67	47.95	74	-26.05	Horizontal
4880.000	34.18	8.97	38.76	45.65	50.04	74	-23.96	Horizontal
5964.939	34.61	10.46	38.95	47.14	53.26	74	-20.74	Horizontal
7320.000	35.54	10.72	37.59	41.42	50.09	74	-23.91	Horizontal
9760.000	37.10	12.58	36.14	37.07	50.61	74	-23.39	Horizontal
12566.850	37.87	14.34	37.72	37.99	52.48	74	-21.52	Horizontal



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Test mode:		GFSK	Tes	t channel:	Highest	Rem	ark:	Peak
Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
3803.444	32.90	7.74	38.49	44.37	46.52	74	-27.48	Vertical
4960.000	34.26	9.09	38.78	45.61	50.18	74	-23.82	Vertical
6016.949	34.71	10.54	38.94	46.16	52.47	74	-21.53	Vertical
7440.000	35.60	10.77	37.54	40.32	49.15	74	-24.85	Vertical
9920.000	37.22	12.67	35.93	38.71	52.67	74	-21.33	Vertical
12639.790	37.92	14.55	37.79	38.00	52.68	74	-21.32	Vertical
3926.464	33.03	7.78	38.53	45.81	48.09	74	-25.91	Horizontal
4960.000	34.26	9.09	38.78	46.36	50.93	74	-23.07	Horizontal
5982.226	34.66	10.51	38.96	46.37	52.58	74	-21.42	Horizontal
7440.000	35.60	10.77	37.54	39.93	48.76	74	-25.24	Horizontal
9920.000	37.22	12.67	35.93	38.56	52.52	74	-21.48	Horizontal
12658.090	37.93	14.60	37.80	36.87	51.60	74	-22.40	Horizontal

Remark:

- 1) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:
 - Final Test Level = Receiver Reading + Antenna Factor + Cable Factor Preamplifier Factor
- 2) Scan from 9kHz to 25GHz, the disturbance above 13GHz and below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.
- 3) As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. So, only the peak measurements were shown in the report.

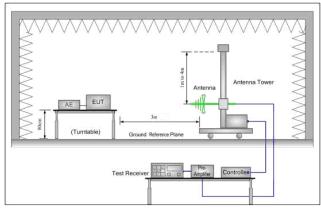


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6.9 Restricted bands around fundamental frequency

Test Requirement:	47 CFR Part 15C Section 15.209 and 15.205								
Test Method:	ANSI C63.10 2013								
Test Site:	Measurement Distance: 3m (Semi-Anechoic Chamber)								
Limit:	Frequency	Limit (dBuV/m @3m)	Remark						
	30MHz-88MHz	40.0	Quasi-peak Value						
	88MHz-216MHz	43.5	Quasi-peak Value						
	216MHz-960MHz	46.0	Quasi-peak Value						
	960MHz-1GHz	54.0	Quasi-peak Value						
	Above 1GHz	54.0	Average Value						
	Above IGHZ	Above IGH2 74.0 P							
			_						
Test Setup:									



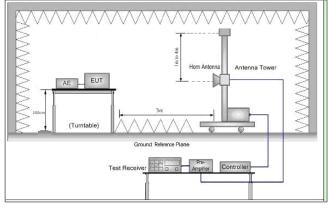


Figure 1. 30MHz to 1GHz

Figure 2. Above 1 GHz

Test Procedure:

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- g. Place a marker at the end of the restricted band closest to the transmit frequency to show compliance. Also measure any emissions in the restricted bands. Save the spectrum analyzer plot. Repeat for each power and modulation for lowest and highest channel



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	 h. Test the EUT in the lowest channel, the Highest channel i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case. j. Repeat above procedures until all frequencies measured was complete.
Exploratory Test Mode:	Transmitting with GFSK modulation.
	Transmitting mode, Charge + Transmitting mode.
Final Test Mode:	Transmitting with GFSK modulation.
	Pretest the EUT at Transmitting mode and Charge + Transmitting mode, found the Charge + Transmitting mode which it is worse case.
	Only the worst case is recorded in the report.
Instruments Used:	Refer to section 5.10 for details.
Test Results:	Pass



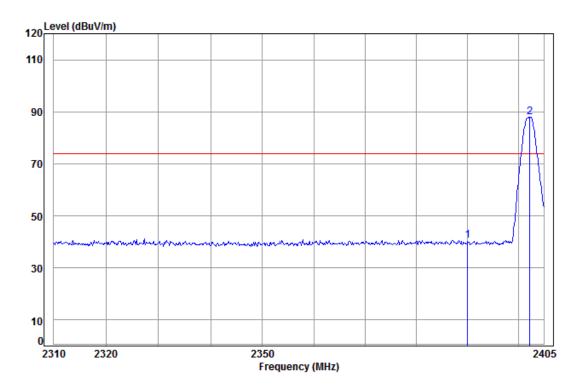


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Test plot as follows:

Worse case mode: GF	GFSK (DH5) Te	est channel:	Lowest	Remark:	Peak	Vertical	
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Condition: 3m Vertical

Job No: : 0616CR

Mode: : 2402 Band edge

: BLE

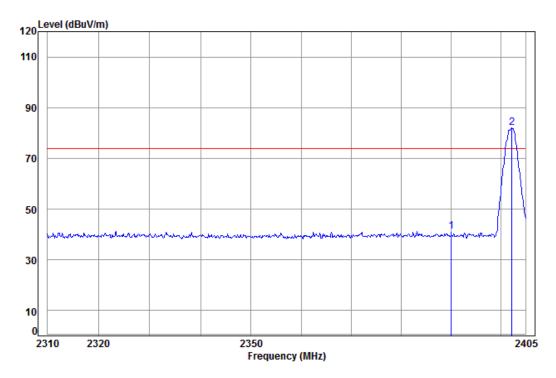
	Freq			Preamp Factor				
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
•	2390.00 2402.29							



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Worse case mode: GFSK (DH5) Test channel: Lowest Remark: Peak Horizontal



Condition: 3m Horizontal

Job No: : 0616CR

Mode: : 2402 Band edge

: BLE

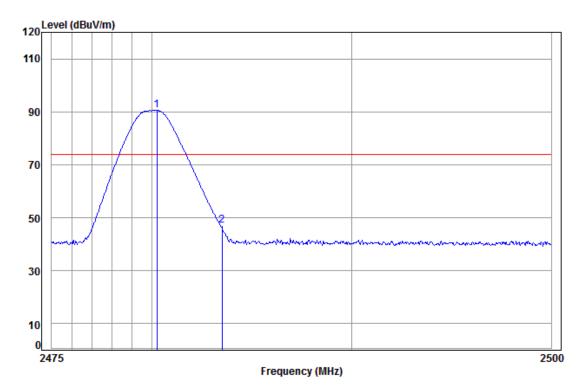
Cable Ant Preamp Read Limit 0ver Freq Loss Factor Factor Line Limit Level Level dB/m dBuV dBuV/m dBuV/m 1 pk 2390.00 5.34 28.57 38.11 45.29 41.09 74.00 -32.91 5.35 28.61 38.11 86.10 81.95 74.00 2402.29



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Worse case mode: GFSK (DH5) Test channel: Highest Remark: Peak Vertical



Condition: 3m Vertical

Job No: : 0616CR

Mode: : 2480 Band edge

: BLE

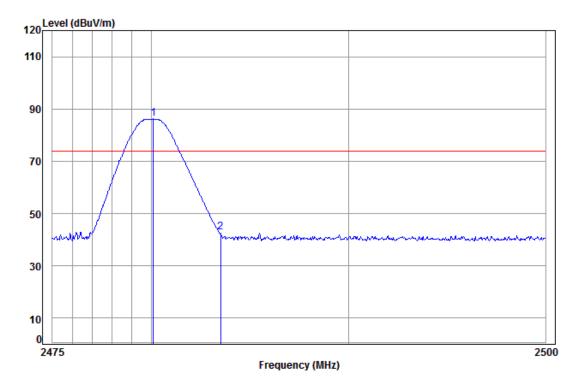
				Preamp Factor		Cable	: BLE Freq	
dB	dBuV/m	dBuV/m	dBuV	dB	dB/m	dB	MHz	_
							2480.25 2483.50	



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Worse case mode: GFSK (DH5) Test channel: Highest Remark: Peak Horizontal



Condition: 3m Horizontal

Job No: : 0616CR

Mode: : 2480 Band edge

: BLE

				Preamp Factor			Freq	
dB	dBuV/m	dBuV/m	dBuV	dB	dB/m	dB	MHz	-
							2480.10 2483.50	

Note:

1

The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level = Receiver Reading + Antenna Factor + Cable Factor - Preamplifier Factor

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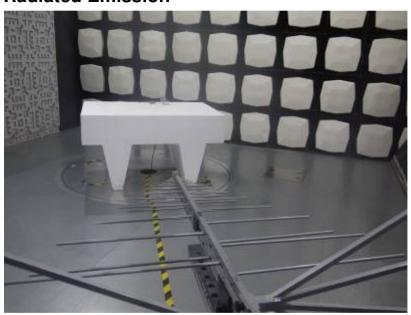
7 Photographs - EUT Test Setup

Test model No.: Hisense L675

7.1 Conducted Emission



7.2 Radiated Emission

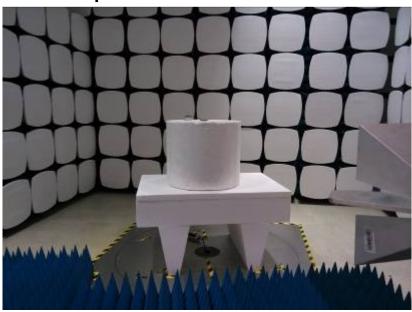




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7.3 Radiated Spurious Emission





8 Photographs - EUT Constructional Details

Refer to Appendix A - Photographs of EUT Constructional Details for SZEM1601000468RG.