RADIO TEST REPORT

For

Shenzhen KVD Communication Equipment Limited

LTE GSM/WCDMA Smartphone

Test Model: S60 Lite

Prepared for	:	Shenzhen KVD Communication Equipment Limited
Address	:	Lenovo R&D Center 2F-B, South First Road, High-tech Park, Nanshan District, Shenzhen, Guangdong, China
Prepared by	:	Shenzhen LCS Compliance Testing Laboratory Ltd.
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Web	:	www.LCS-cert.com
Mail	:	webmaster@LCS-cert.com
Date of receipt of test sample	:	Dec 21, 2017
Number of tested samples	:	1
Serial number	:	Prototype
Date of Test	:	Dec 21, 2017~Jan 03, 2018
Date of Report	:	Jan 03, 2018

CE

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RADIO TEST REPORT
ETSI EN 301 511 V12.5.1 (2017-03)
Global System for Mobile communications (GSM); Mobile Stations (MS) equipment; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU

Report Reference No.	:	**LCS171221034AEF**
Date of Issue	:	Jan 03, 2018
Testing Laboratory Name.....	:	**Shenzhen LCS Compliance Testing Laboratory Ltd.**
Address	:	1/F., Xingyuan Industrial Park, Tongda Road, Bao'an Avenue, Bao'an District, Shenzhen, Guangdong, China
Testing Location/ Procedure.....	:	Full application of Harmonised standards ■ Partial application of Harmonised standards ☐ Other standard testing method ☐
Applicant's Name.....	:	**Shenzhen KVD Communication Equipment Limited**
Address	:	Lenovo R&D Center 2F-B, South First Road, High-tech Park, Nanshan District, Shenzhen, Guangdong, China
Test Specification		
Standard	:	ETSI EN 301 511 V12.5.1 (2017-03)
Test Report Form No.	:	LCSEMC-1.0
TRF Originator	:	Shenzhen LCS Compliance Testing Laboratory Ltd.
Master TRF	:	Dated 2017-06

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Test Item Description.	:	**LTE GSM/WCDMA Smartphone**
Trade Mark	:	DOOGEE
Test Model	:	S60 Lite
Ratings	:	DC 3.8V by Li-ion Battery(5580mAh) Recharged by DC 5V/7V/3A,9V/2.7A,12V/2A Adapter
Result	:	**Positive**

Compiled by:	**Supervised by:**	**Approved by:**
Calvin Weng	Dick Su	Gavin Liang
Calvin Weng/ Administrators	Dick Su/ Technique principal	Gavin Liang/ Manager

RADIO -- TEST REPORT

Test Report No. : LCS171221034AEF	Jan 03, 2018 Date of issue

Test Model.....	:	S60 Lite
EUT.....	:	LTE GSM/WCDMA Smartphone
Applicant.....	**:**	**Shenzhen KVD Communication Equipment Limited**
Address.....	:	Lenovo R&D Center 2F-B, South First Road, High-tech Park, Nanshan District, Shenzhen, Guangdong, China
Telephone.....	:	
Fax.....	:	
Manufacturer.....	**:**	**Shenzhen KVD Communication Equipment Limited**
Address.....	:	A,3rd floor, Building A2, Silicon valley Digital Industrial Park,22nd of Dafu industrial area,Aobei Community,Guanlan town,Longhua District,shenzhen 518000, China
Telephone.....	:	
Fax.....	:	
Factory.....	**:**	**Shenzhen KVD Communication Equipment Limited**
Address.....	:	A,3rd floor, Building A2, Silicon valley Digital Industrial Park,22nd of Dafu industrial area,Aobei Community,Guanlan town,Longhua District,shenzhen 518000, China
Telephone.....	:	
Fax.....	:	

Test Result	Positive

The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

Revision History

Revision	Issue Date	Revisions	Revised By
000	Jan 03, 2018	Initial Issue	Gavin Liang

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1. GENERAL INFORMATION

1.1. Product Description for Equipment Under Test (EUT)

EUT	:	LTE GSM/WCDMA Smartphone
Test Model	:	S60 Lite
Power Supply	:	DC 3.8V by Li-ion Battery(5580mAh) Recharged by DC 5V/7V/3A,9V/2.7A,12V/2A Adapter
Hardware Version	:	T777_MAIN_PCB_V1.1
Software Version	:	DOOGEE-S60 Lite-Android7.0-20171227
2G	:	
Support Band	:	☒GSM 900 (EU-Band) ☒DCS 1800 (EU-Band) ☒GSM 850 (U.S.-Band) ☒PCS 1900 (U.S.-Band)
Release Version	:	R99
GPRS Class	:	Class 12
EGPRS Class	:	Class 12
Uplink	:	GSM 900: 880MHz ~ 915MHz DCS 1800: 1710MHz ~ 1785MHz
Downlink	:	GSM 900: 925MHz ~ 960MHz DCS 1800: 1805MHz ~ 1880MHz
Type Of Modulation	:	GMSK for GSM/GPRS; GMSK/8PSK for EGPRS
Antenna Description	:	PIFA Antenna, 0dBi(Max.)
Power Class	:	GSM 900: Class 4, DCS 1800: Class 1
3G	:	
Support Band	:	☐WCDMA Band II (U.S.-Band) ☐WCDMA Band V (U.S.-Band) ☒WCDMA Band I (EU-Band) ☒WCDMA Band VIII (EU-Band)
Release Version	:	R99
Uplink	:	WCDMA Band I: 1920MHz ~ 1980MHz WCDMA Band VIII: 880MHz~915MHz
Downlink	:	WCDMA Band I: 2110MHz ~ 2170MHz WCDMA Band VIII: 925MHz~960MHz
Type Of Modulation	:	WCDMA: QPSK; HSDPA/HSUPA: QPSK
Antenna Description	:	PIFA Antenna, 0dBi(Max.)
Power Class	:	Class 3

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LTE	:	
Support Band	:	☒E-UTRA Band 1(EU-Band) ☒E-UTRA Band 3(EU-Band) ☒E-UTRA Band 7(EU-Band) ☒E-UTRA Band 8(EU-Band) ☒E-UTRA Band 20(EU-Band)
LTE Release Version	:	R9
Uplink	:	E-UTRA Band 1: 1920MHz ~ 1980MHz E-UTRA Band 3: 1710MHz~1785MHz E-UTRA Band 7: 2500MHz ~ 2570MHz E-UTRA Band 8: 880MHz ~ 915MHz E-UTRA Band 20: 832MHz ~ 862MHz
Downlink	:	E-UTRA Band 1: 2110MHz ~ 2170MHz E-UTRA Band 3: 1805MHz~1880MHz E-UTRA Band 7: 2620MHz ~ 2690MHz E-UTRA Band 8: 925MHz ~ 960MHz E-UTRA Band 20: 791MHz ~ 821MHz
Type Of Modulation	:	QPSK/16-QAM
Antenna Description	:	PIFA Antenna; 0dBi(Max.) for Band 1,3,7,8,20
Power Class	:	Class 3
Bluetooth	:	
Frequency Range	:	2.402-2.480GHz
Channel Number	:	79 channels for Bluetooth V4.0 (DSS) 40 channels for Bluetooth V4.0 (DTS)
Channel Spacing	:	1MHz for Bluetooth V4.0 (DSS) 2MHz for Bluetooth V4.0 (DTS)
Modulation Type	:	GFSK, π/4-DQPSK, 8-DPSK for Bluetooth V4.0 (DSS) GFSK for Bluetooth V4.0 (DTS)
Bluetooth Version	:	V4.0
Antenna Description	:	PIFA Antenna, -1dBi(Max.)
WIFI(2.4G Band)	:	
Frequency Range	:	2412-2472MHz
Channel Spacing	:	5MHz
Channel Number	:	13 Channel for 20MHz bandwidth(2412~2472MHz) 9 channels for 40MHz bandwidth(2422~2462MHz)
Modulation Type	:	802.11b: DSSS; 802.11g/n: OFDM
Antenna Description	:	PIFA Antenna, -1dBi(Max.)

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GPS Receiver	:
Receive Frequency	: 1575.42MHz
Channel Number	: 1
Antenna Description	: PIFA Antenna
FM Receiver	:
Frequency Range	: 87.5MHz ~ 108MHz
Modulation Type	: FM
Antenna Description	: External Antenna(earphone)

1.2. Support equipment List

Manufacturer	Description	Model	Serial Number	Certificate
--	--	--	--	--

1.3. External I/O

I/O Port Description	Quantity	Cable
USB Port	1	1 m, unshielded
Earphone	1	N/A

1.4. Objective

Standard Referenced	Standard Title	Standard Version
ETSI EN 301 511	Global System for Mobile communications (GSM); Mobile Stations (MS) equipment; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU	V12.5.1 (2017-03)
ETSI TS 151 010-1	Digital cellular telecommunications system (Phase 2+); Mobile Station (MS) conformance specification; Part 1: Conformance specification (3GPP TS 51.010-1 version 12.8.0 Release 12)	V12.8.0 (2016-05)

The objective is to determine compliance with ETSI EN 301 511 V12.5.1 (2017-03).

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1.5. Test Conditions

Conditions	Temperature	Voltage
Normal	21-25℃	DC 3.8V
Low extreme temperature/low extreme voltage (LT/LV);	-10℃	DC 3.4V
Low extreme temperature/high extreme voltage (LT/HV);	-10℃	DC 4.35V
High extreme temperature/low extreme voltage (HT/LV);	+55℃	DC 3.4V
High extreme temperature/high extreme voltage (HT/HV).	+55℃	DC 4.35V
Note1: For all conditions, the humidity range is:40-75%, the pressure range is 86-106kPa. The High Voltage DC 4.35V and Low Voltage DC 3.4V was declared by manufacturer		

1.6. Description Of Test Mode

During all testing, EUT is in link mode with base station emulator at maximum power level in each test mode and channel as below:

Mode	Channel	Frequency(MHz)
GSM 900	975	880.2
	37	897.4
	124	914.8

Mode	Channel	Frequency(MHz)
DCS 1800	512	1710.2
	698	1747.4
	885	1784.8

Operating modes of EUT during test	
Traffic Mode	A communication link is set up with a System Simulator (ss). The Absolute Radio Frequency Channel Number is allocated to the lowest, middle and highest channel during the test for all working frequency bands. The EUT is commanded to operate at maximum transmitting power. A call has been established.
Idle Mode	The EUT is synchronized to SS, and able to respond to paging messages and incoming call. An established call has been released.

***Note: The EUT has one LTE/GSM/WCDMA card slot(SIM1) and one GSM card slot(SIM2). The result for LTE/GSM/WCDMA card slot(SIM1) is the worst case which was only recorded.

1.7. List Of Measuring Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1	X-series USB Peak and Average Power Sensor Aglient	Agilent	U2021XA	MY54080022	2017-10-27	2018-10-26
2	4 CH. Simultaneous Sampling 14 Bits 2MS/s	Agilent	U2531A	MY54080016	2017-10-27	2018-10-26
3	Test Software	Ascentest	AT890-SW	20160630	N/A	N/A
4	RF Control Unit	Ascentest	AT890-RFB	N/A	2017-06-17	2018-06-16
5	ESA-E SERIES SPECTRUM ANALYZER	Agilent	E4407B	MY41440754	2017-11-18	2018-11-17
6	MXA Signal Analyzer	Agilent	N9020A	MY49100040	2017-06-17	2018-06-16
7	SPECTRUM ANALYZER	R&S	FSP	100503	2017-06-17	2018-06-16
8	MXG Vector Signal Generator	Agilent	N5182A	MY47071151	2017-11-18	2018-11-17
9	ESG VECTOR SIGNAL GENERATOR	Agilent	E4438C	MY42081396	2017-11-18	2018-11-17
10	PSG Analog Signal Generator	Agilent	E8257D	MY4520521	2017-11-18	2018-11-17
11	Universal Radio Communication Tester	R&S	CMU 200	105788	2017-06-17	2018-06-16
12	WIDEBAND RADIO COMMUNICATION TESTER	R&S	CMW 500	103818	2017-06-17	2018-06-16
13	RF Control Unit	Tonscend	JS0806-1	N/A	2017-06-17	2018-06-16
14	DC Power Supply	Agilent	E3642A	N/A	2017-11-18	2018-11-17
15	LTE Test Software	Tonscend	JS1120-1	N/A	N/A	N/A
16	Temperature & Humidity Chamber	GUANGZHOU GOGNWEN	GDS-100	70932	2017-10-11	2018-10-10
17	DC Source	CHROMA	62012P-80-60	34782951	2017-10-11	2018-10-10
18	RF Filter	Micro-Tronics	BRC50718	S/N-017	2017-06-17	2018-06-16
19	RF Filter	Micro-Tronics	BRC50719	S/N-011	2017-06-17	2018-06-16
20	RF Filter	Micro-Tronics	BRC50720	S/N-011	2017-06-17	2018-06-16
21	RF Filter	Micro-Tronics	BRC50721	S/N-013	2017-06-17	2018-06-16
22	RF Filter	Micro-Tronics	BRM50702	S/N-195	2017-06-17	2018-06-16
23	Splitter/Combiner	Micro-Tronics	PS2-15	CB11-20	2017-06-17	2018-06-16
24	Splitter/Combiner	Micro-Tronics	CB11-20	N/A	2017-06-17	2018-06-16
25	Attenuator	Micro-Tronics	PAS-8-10	S/N23466	2017-06-17	2018-06-16
26	3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	2017-06-17	2018-06-16
27	Positioning Controller	MF	MF-7082	/	2017-06-17	2018-06-16
28	EMI Test Software	AUDIX	E3	N/A	2017-06-17	2018-06-16
29	EMI Test Receiver	R&S	ESR 7	101181	2017-06-17	2018-06-16
30	AMPLIFIER	QuieTek	QTK-A2525G	CHM10809065	2017-11-18	2018-11-17
31	Active Loop Antenna	SCHWARZBECK	FMZB 1519B	00005	2017-06-23	2018-06-22
32	By-log Antenna	SCHWARZBECK	VULB9163	9163-470	2017-05-02	2018-05-01
33	Horn Antenna	EMCO	3115	6741	2017-06-23	2018-06-22
34	RF Cable-R03m	Jye Bao	RG142	CB021	2017-06-17	2018-06-16
35	RF Cable-HIGH	SUHNER	SUCOFLEX 106	03CH03-HY	2017-06-17	2018-06-16
36	TEST RECEIVER	R&S	ESCI	101142	2017-06-17	2018-06-16
37	RF Cable-CON	UTIFLEX	3102-26886-4	CB049	2017-06-17	2018-06-16
38	10dB Attenuator	SCHWARZBECK	MTS-IMP136	261115-001-00	2017-06-17	2018-06-16

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				32		
39	Artificial Mains	R&S	ENV216	101288	2017-06-17	2018-06-16
40	Power Analyzer Test System	Voltech	PM6000	20000670053	2017-06-17	2018-06-16
41	ESD Simulator	SCHLODER	SESD 230	604035	2017-06-17	2018-06-16
42	RF POWER AMPLIFIER	OPHIR	5225R	1052	2017-03-22	2018-03-21
43	RF POWER AMPLIFIER	OPHIR	5273F	1019	2017-03-24	2018-03-23
44	Stacked Broadband Log Periodic Antenna	SCHWARZBECK	STLP 9128	9128ES-145	2017-04-28	2018-04-27
45	Stacked Mikrowellen Log.-Per Antenna	SCHWARZBECK	STLP 9149	9149-482	2017-04-28	2018-04-27
46	Electric field probe	Narda S.TS./PMM	EP601	611WX70332	2017-02-05	2018-02-04
47	Power Meter	Agilent	E4419B	MY45104493	2017-06-17	2018-06-16
48	Power Sensor	Agilent	E9301H	MY41495234	2017-06-17	2018-06-16
49	Power Sensor	Agilent	E4412A	MY41500229	2017-06-17	2018-06-16
50	Immunity Simulative Generator	EM TEST	UCS500-M4	0101-34	2017-11-18	2018-11-17
51	Simulator	FRANKONIA	CIT-10	A126A1195	2017-06-17	2018-06-16
52	CDN	FRANKONIA	CDN-M2	5100100100	2017-06-17	2018-06-16
53	CDN	FRANKONIA	CDN-M3	0900-11	2017-06-17	2018-06-16
54	Attenuator	FRANKONIA	ATT6	0010222A	2017-06-17	2018-06-16
55	Infuse tongs	EM TEST	EM-Clamp	0513A031201	2017-06-17	2018-06-16
56	Voltage dips and up generator	3CTEST	VDG-1105G	EC0171014	2017-06-17	2018-06-16
Note: All equipment is calibrated through GUANGZHOU LISAI CALIBRATION AND TEST CO.,LTD.						

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1.8. Measurement Uncertainty (95% confidence levels, k=2)

Test Item		Uncertainty
Radio Frequency	:	0.9×10^{-4}
Total RF Power, Conducted	:	1.0 dB
RF Power Density, Conducted	:	1.8 dB
Spurious Emissions, Conducted	:	1.8 dB
All Emissions, Radiated	:	3.1 dB
Temperature	:	0.5°C
Humidity	:	1 %
DC And Low Frequency Voltages	:	1 %

1.9. Description of Test Facility

FCC Registration Number. is 254912.
Industry Canada Registration Number. is 9642A-1.
ESMD Registration Number. is ARCB0108.
UL Registration Number. is 100571-492.
TUV SUD Registration Number. is SCN1081.
TUV RH Registration Number. is UA 50296516-001

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2. SYSTEM TEST CONFIGURATION

2.1. Justification

N/A

2.2. EUT Exercise Software

N/A

2.3. Special Accessories

The special accessories were supplied by Shenzhen LCS Compliance Testing Laboratory Ltd.

2.4. Block Diagram/Schematics

Please refer to the related document.

2.5. Equipment Modifications

Shenzhen LCS Compliance Testing Laboratory Ltd. has not done any modification on the EUT.

2.6. Test Setup

Please refer to the test setup photo.

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3. SUMMARY OF TEST RESULTS

Reference Clause No. (ETSI TS 151 010-1)	Reference Clause No. (ETSI EN 301 511)	Description of Test Items	GSM 900	DCS 1800
			Result	Result
13.1	4.2.1	Transmitter - Frequency error and phase error		
		NT / NV	Pass	Pass
		LT / LV	Pass	Pass
		LT / HV	Pass	Pass
		HT / LV	Pass	Pass
		HT / HV	Pass	Pass
		Vibration X-axis	Pass	Pass
		Vibration Y-axis	Pass	Pass
		Vibration Z-axis	Pass	Pass
13.2	4.2.2	Transmitter - Frequency error under multipath and interference conditions		
		NT / NV	Pass	Pass
		LT / LV	Pass	Pass
		LT / HV	Pass	Pass
		HT / LV	Pass	Pass
		HT / HV	Pass	Pass
13.16.1	4.2.4	Frequency error and phase error in GPRS multislot configuration		
		NT / NV	Pass	Pass
		LT / LV	Pass	Pass
		LT / HV	Pass	Pass
		HT / LV	Pass	Pass
		HT / HV	Pass	Pass
		Vibration X-axis	Pass	Pass
		Vibration Y-axis	Pass	Pass
		Vibration Z-axis	Pass	Pass
13.3	4.2.5	Transmitter output power and burst timing		
		NT / NV	Pass	Pass
		LT / LV	Pass	Pass
		LT / HV	Pass	Pass
		HT / LV	Pass	Pass
		HT / HV	Pass	Pass
13.4	4.2.6	Transmitter - Output RF spectrum		
		NT / NV	Pass	Pass
		LT / LV	Pass	Pass
		LT / HV	Pass	Pass
		HT / LV	Pass	Pass
		HT / HV	Pass	Pass
13.16.2	4.2.10	Transmitter output power in GPRS multislot configuration		
		NT / NV	Pass	Pass
		LT / LV	Pass	Pass
		LT / HV	Pass	Pass
		HT / LV	Pass	Pass
		HT / HV	Pass	Pass

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13.16.3	4.2.11	Output RF spectrum in GPRS multislot configuration		
		NT / NV	Pass	Pass
		LT / LV	Pass	Pass
		LT / HV	Pass	Pass
		HT / LV	Pass	Pass
		HT / HV	Pass	Pass
12.1.1	4.2.12	Conducted spurious emissions - MS allocated a channel		
		NT / NV	Pass	Pass
		NT / LV	Pass	Pass
		NT / HV	Pass	Pass
12.1.2	4.2.13	Conducted spurious emissions - MS in idle mode		
		NT / NV	Pass	Pass
		NT / LV	Pass	Pass
		NT / HV	Pass	Pass
12.2.1	4.2.16	Radiated spurious emissions - MS allocated a channel		
		NT / NV	Pass	Pass
		NT / LV	Pass	Pass
		NT / HV	Pass	Pass
12.2.2	4.2.17	Radiated spurious emissions - MS in idle mode		
		NT / NV	Pass	Pass
		NT / LV	Pass	Pass
		NT / HV	Pass	Pass
14.7.1	4.2.20	Receiver Blocking and spurious response - speech channels		
		NT / NV	Pass	Pass
13.17.1	4.2.22	Frequency error and Modulation accuracy in EGPRS Configuration		
		NT / NV	Pass	Pass
		LT / LV	Pass	Pass
		LT / HV	Pass	Pass
		HT / LV	Pass	Pass
		HT / HV	Pass	Pass
13.17.2	4.2.23	Frequency error under multipath and interference conditions in EGPRS Configuration		
		NT / NV	Pass	Pass
		LT / LV	Pass	Pass
		LT / HV	Pass	Pass
		HT / LV	Pass	Pass
		HT / HV	Pass	Pass
13.17.3	4.2.24	EGPRS Transmitter output power		
		NT / NV	Pass	Pass
		LT / LV	Pass	Pass
		LT / HV	Pass	Pass
		HT / LV	Pass	Pass
		HT / HV	Pass	Pass
13.17.4	4.2.25	Output RF spectrum in EGPRS configuration		
		NT / NV	Pass	Pass
		LT / LV	Pass	Pass
		LT / HV	Pass	Pass

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		HT / LV	Pass	Pass
		HT / HV	Pass	Pass
14.18.5	4.2.26	Blocking and spurious response in EGPRS configuration		
		NT / NV	Pass	Pass

***Note:

Result: Describes test result of Test Case.

Pass: Test Case passed on specified conformance test platform.

NT: Normal temperature – 25℃

NV: Normal voltage. – DC 3.8V

HT: High temperature – +55℃

HV: High voltage – DC 4.35V

LT: Low temperature – -10℃

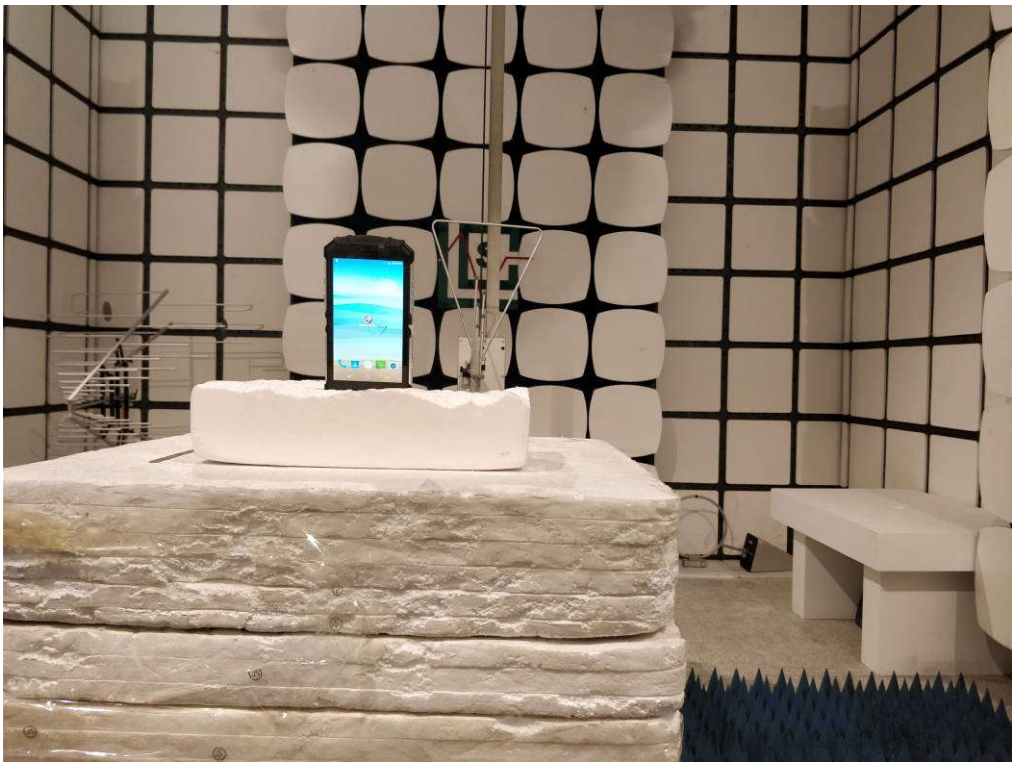
LV: Low voltage – DC 3.4V

Vibration X-axis/ Y-axis/ Z-axis: Vibration test condition for X/Y/Z axis.

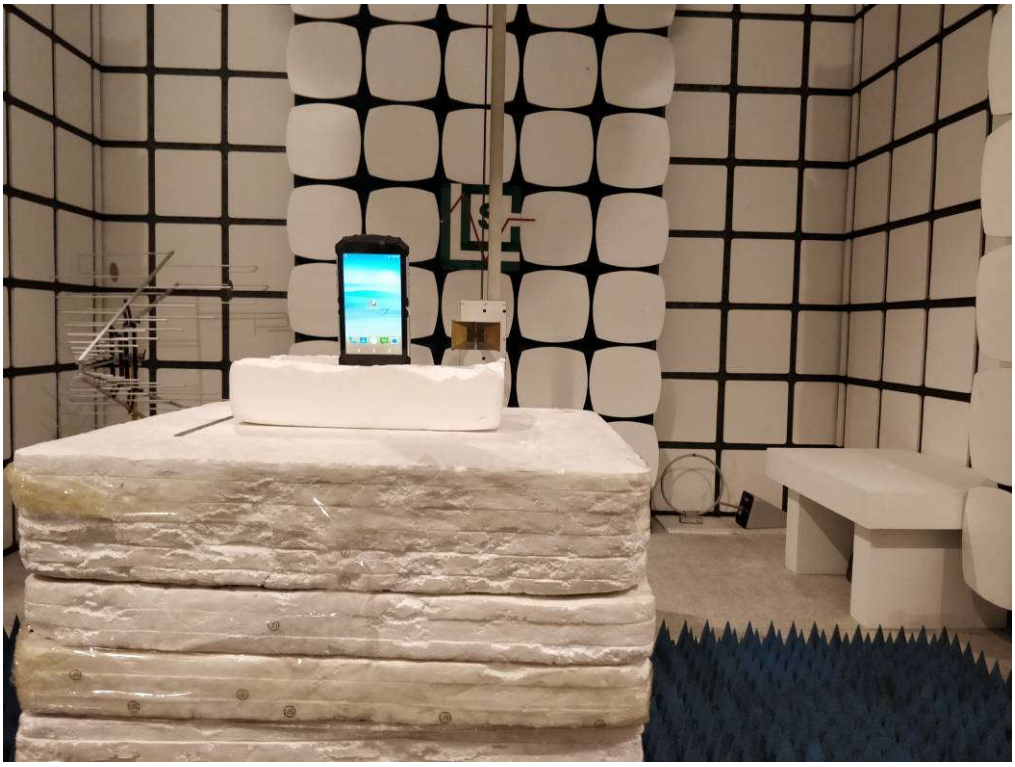
N/A: Not applicable.

—: Not test.

4. PHOTOGRAPHS OF TEST SETUP



Spurious Emission below 1GHz



Spurious Emission above 1GHz

Annex A

Transmitter output power and burst timing(Worst Case)

Mode: GSM 900 , Low channel CH 975:880.2MHz						
Power Control level	Output power(dBm)					Conclusion
	Normal	L.V. L.T	L.V. H.T.	H.V L.T	H.V. H.T	
5	**32.40**	32.23	32.27	32.31	32.38	PASS
6	30.31	30.23	30.32	30.25	30.39	PASS
7	28.11	28.13	28.30	28.28	28.11	PASS
8	26.39	26.34	26.32	26.31	26.23	PASS
9	24.87	24.86	24.89	24.85	24.77	PASS
10	22.08	22.20	22.02	22.01	22.19	PASS
11	20.41	20.44	20.49	20.46	20.49	PASS
12	18.97	19.07	19.02	19.09	19.08	PASS
13	16.99	17.02	16.99	16.97	17.09	PASS
14	14.95	15.01	15.07	15.01	14.97	PASS
15	13.05	13.04	12.91	13.02	13.09	PASS
16	10.98	10.90	11.00	11.06	10.94	PASS
17	7.98	8.03	8.08	8.01	8.03	PASS
18	5.97	5.96	6.01	6.07	6.04	PASS
19	3.97	3.92	4.05	4.09	4.08	PASS

Mode: GSM 900 , middle channel CH 37:897.4MHz						
Power Control level	Output power(dBm)					Conclusion
	Normal	L.V. L.T	L.V. H.T.	H.V L.T	H.V. H.T	
5	32.28	32.14	32.18	32.12	32.25	PASS
6	30.28	30.39	30.37	30.30	30.21	PASS
7	28.16	28.27	28.26	28.21	28.17	PASS
8	26.29	26.35	26.28	26.34	26.39	PASS
9	24.80	24.72	24.89	24.85	24.78	PASS
10	22.03	22.19	22.07	22.16	22.12	PASS
11	20.45	20.45	20.48	20.54	20.47	PASS
12	19.02	18.98	18.93	19.02	19.03	PASS
13	16.93	16.92	16.95	17.06	17.04	PASS
14	14.96	14.94	14.91	14.93	15.08	PASS
15	12.99	12.91	13.01	13.05	13.02	PASS
16	11.00	11.01	11.04	10.98	11.05	PASS
17	8.03	7.99	7.99	8.06	7.94	PASS
18	5.98	5.99	5.92	6.02	5.97	PASS
19	4.01	4.03	4.02	4.00	3.91	PASS

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Mode: GSM 900 , High channel CH 124:914.8MHz						
Power Control level	Output power(dBm)					Conclusion
	Normal	L.V. L.T	L.V. H.T.	H.V L.T	H.V. H.T	
5	32.14	32.25	32.21	32.12	32.29	PASS
6	30.34	30.23	30.24	30.36	30.22	PASS
7	28.21	28.12	28.14	28.19	28.19	PASS
8	26.27	26.21	26.23	26.27	26.26	PASS
9	24.88	24.89	24.75	24.75	24.76	PASS
10	22.12	22.09	22.18	22.18	22.08	PASS
11	20.59	20.47	20.51	20.41	20.56	PASS
12	19.05	18.92	18.94	19.04	19.08	PASS
13	16.94	16.96	16.96	17.09	17.06	PASS
14	15.04	15.07	14.97	14.99	14.95	PASS
15	13.09	13.02	13.01	12.99	13.02	PASS
16	10.96	11.09	10.91	11.01	10.98	PASS
17	8.02	7.99	7.93	7.96	8.02	PASS
18	6.08	6.10	6.00	5.92	6.03	PASS
19	3.93	4.10	3.92	4.00	4.00	PASS

Mode: DCS1800, Low channel CH 512:1710.2MHz						
Power Control level	Output power(dBm)					Conclusion
	Normal	L.V. L.T	L.V. H.T.	H.V L.T	H.V. H.T	
0	**29.37**	29.22	29.36	29.35	29.23	PASS
1	27.03	27.05	26.99	27.05	26.91	PASS
2	25.56	25.47	25.40	25.49	25.51	PASS
3	23.31	23.39	23.35	23.49	23.36	PASS
4	21.53	21.65	21.70	21.66	21.56	PASS
5	19.32	19.23	19.38	19.22	19.32	PASS
6	17.50	17.48	17.49	17.49	17.36	PASS
7	15.45	15.42	15.46	15.56	15.46	PASS
8	13.44	13.35	13.40	13.34	13.41	PASS
9	11.59	11.46	11.47	11.60	11.53	PASS
10	9.43	9.55	9.56	9.59	9.55	PASS
11	7.31	7.35	7.43	7.43	7.30	PASS
12	5.11	5.13	5.17	5.16	5.22	PASS
13	3.21	3.32	3.20	3.28	3.26	PASS
14	1.22	1.29	1.35	1.21	1.29	PASS
15	-0.76	-0.74	-0.89	-0.79	-0.75	PASS

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Mode: DCS1800, middle channel CH 698:1747.4MHz						
Power Control level	Output power(dBm)					Conclusion
	Normal	L.V. L.T	L.V. H.T.	H.V L.T	H.V. H.T	
0	29.13	29.25	29.30	29.10	29.14	PASS
1	27.05	26.91	26.96	27.01	27.06	PASS
2	25.47	25.56	25.42	25.44	25.47	PASS
3	23.31	23.47	23.49	23.42	23.32	PASS
4	21.52	21.56	21.65	21.57	21.51	PASS
5	19.33	19.28	19.30	19.27	19.28	PASS
6	17.35	17.30	17.32	17.36	17.46	PASS
7	15.43	15.47	15.54	15.58	15.59	PASS
8	13.50	13.43	13.41	13.41	13.46	PASS
9	11.41	11.56	11.58	11.60	11.50	PASS
10	9.58	9.44	9.56	9.49	9.41	PASS
11	7.39	7.39	7.37	7.32	7.44	PASS
12	5.17	5.15	5.14	5.15	5.17	PASS
13	3.26	3.30	3.25	3.28	3.37	PASS
14	1.29	1.40	1.33	1.32	1.31	PASS
15	-0.86	-0.88	-0.75	-0.80	-0.84	PASS

Mode: DCS1800, high channel CH 885:1784.8MHz						
Power Control level	Output power(dBm)					Conclusion
	Normal	L.V. L.T	L.V. H.T.	H.V L.T	H.V. H.T	
0	29.25	29.25	29.12	29.15	29.20	PASS
1	27.01	27.08	27.02	27.06	27.00	PASS
2	25.50	25.55	25.50	25.50	25.44	PASS
3	23.35	23.30	23.38	23.48	23.44	PASS
4	21.65	21.57	21.60	21.57	21.65	PASS
5	19.31	19.27	19.30	19.24	19.30	PASS
6	17.38	17.41	17.37	17.38	17.45	PASS
7	15.54	15.59	15.50	15.46	15.48	PASS
8	13.34	13.46	13.35	13.44	13.39	PASS
9	11.48	11.57	11.48	11.54	11.40	PASS
10	9.59	9.44	9.53	9.45	9.48	PASS
11	7.32	7.33	7.45	7.38	7.47	PASS
12	5.28	5.29	5.30	5.18	5.10	PASS
13	3.33	3.29	3.39	3.36	3.21	PASS
14	1.38	1.38	1.39	1.29	1.34	PASS
15	-0.74	-0.90	-0.83	-0.74	-0.76	PASS

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Mode: EGPRS 900 , Low channel CH 975:880.2MHz						
Power Control level	Output power(dBm)					Conclusion
	Normal	L.V. L.T	L.V. H.T.	H.V L.T	H.V. H.T	
8	26.31	26.28	26.21	26.34	26.31	PASS
9	24.79	24.86	24.75	24.73	24.88	PASS
10	22.19	22.09	22.18	22.03	22.02	PASS
11	20.53	20.56	20.54	20.42	20.55	PASS
12	19.08	18.97	18.92	19.05	18.94	PASS
13	17.04	16.99	17.05	17.08	17.10	PASS
14	14.90	14.93	14.92	15.00	15.01	PASS
15	13.07	12.97	12.94	12.91	13.04	PASS
16	10.95	11.04	11.05	11.02	10.91	PASS
17	8.09	8.06	8.05	7.93	7.99	PASS
18	6.03	6.03	6.08	6.06	6.06	PASS
19	4.04	4.03	4.01	4.06	4.02	PASS

Mode: EGPRS 900 , middle channel CH 37:897.4MHz						
Power Control level	Output power(dBm)					Conclusion
	Normal	L.V. L.T	L.V. H.T.	H.V L.T	H.V. H.T	
8	26.31	26.25	26.26	26.26	26.33	PASS
9	24.79	24.72	24.78	24.89	24.84	PASS
10	22.02	22.02	22.04	22.06	22.19	PASS
11	20.46	20.48	20.56	20.52	20.48	PASS
12	18.92	18.92	19.03	18.98	18.92	PASS
13	16.99	16.96	17.09	17.05	17.09	PASS
14	14.96	15.10	15.02	15.01	15.01	PASS
15	13.08	12.96	12.91	13.01	12.94	PASS
16	10.94	11.02	11.05	11.03	10.91	PASS
17	7.90	7.98	7.93	8.01	8.03	PASS
18	5.93	6.03	6.02	5.92	6.05	PASS
19	3.97	4.07	4.04	3.94	3.95	PASS

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Mode: EGPRS 900 , High channel CH 124:914.8MHz						
Power Control level	Output power(dBm)					Conclusion
	Normal	L.V. L.T	L.V. H.T.	H.V L.T	H.V. H.T	
8	26.30	26.24	26.26	26.32	26.31	PASS
9	24.87	24.80	24.77	24.70	24.74	PASS
10	22.11	22.19	22.16	22.00	22.13	PASS
11	20.42	20.56	20.55	20.50	20.55	PASS
12	18.92	19.03	18.92	18.91	18.98	PASS
13	16.96	17.09	17.01	16.99	16.99	PASS
14	15.03	15.00	15.10	15.03	15.07	PASS
15	12.98	13.09	12.97	12.99	12.94	PASS
16	10.99	11.01	11.03	10.96	10.95	PASS
17	8.07	8.08	7.99	8.00	8.03	PASS
18	6.08	6.04	5.91	6.04	6.04	PASS
19	4.09	4.07	4.04	4.02	4.03	PASS

Mode: EGPRS 1800, Low channel CH 512:1710.2MHz						
Power Control level	Output power(dBm)					Conclusion
	Normal	L.V. L.T	L.V. H.T.	H.V L.T	H.V. H.T	
2	25.41	25.49	25.51	25.56	25.56	PASS
3	23.40	23.38	23.44	23.39	23.31	PASS
4	21.64	21.70	21.61	21.61	21.61	PASS
5	19.26	19.21	19.35	19.32	19.31	PASS
6	17.46	17.46	17.40	17.42	17.35	PASS
7	15.40	15.51	15.47	15.50	15.45	PASS
8	13.39	13.33	13.37	13.39	13.43	PASS
9	11.44	11.56	11.45	11.49	11.60	PASS
10	9.46	9.41	9.57	9.53	9.41	PASS
11	7.46	7.40	7.42	7.46	7.38	PASS
12	5.14	5.25	5.19	5.25	5.16	PASS
13	3.32	3.22	3.33	3.28	3.32	PASS
14	1.32	1.30	1.37	1.26	1.37	PASS
15	-0.82	-0.72	-0.79	-0.70	-0.74	PASS

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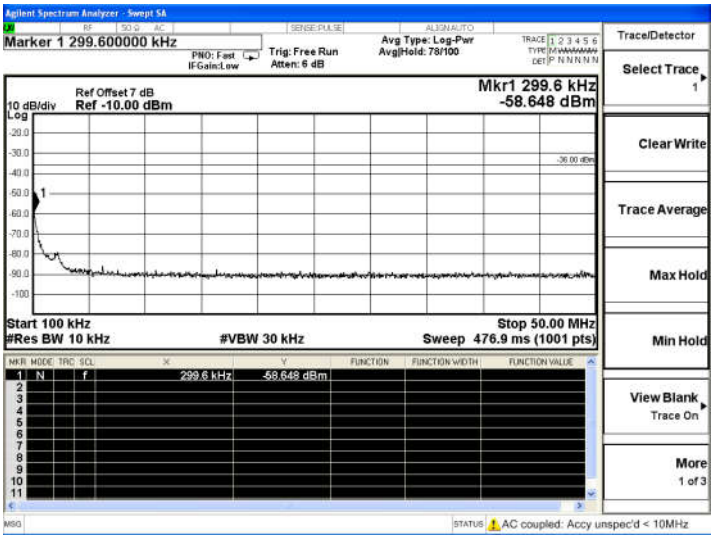
Mode: EGPRS 1800, middle channel CH 698:1747.4MHz						
Power Control level	Output power(dBm)					Conclusion
	Normal	L.V. L.T	L.V. H.T.	H.V L.T	H.V. H.T	
2	25.44	25.54	25.41	25.40	25.45	PASS
3	23.40	23.40	23.43	23.39	23.37	PASS
4	21.69	21.64	21.65	21.52	21.63	PASS
5	19.27	19.37	19.32	19.29	19.28	PASS
6	17.31	17.43	17.43	17.34	17.47	PASS
7	15.40	15.54	15.43	15.59	15.57	PASS
8	13.34	13.31	13.36	13.46	13.41	PASS
9	11.55	11.41	11.42	11.47	11.40	PASS
10	9.41	9.49	9.44	9.54	9.49	PASS
11	7.38	7.33	7.42	7.33	7.34	PASS
12	5.12	5.29	5.25	5.12	5.19	PASS
13	3.25	3.21	3.27	3.21	3.33	PASS
14	1.37	1.31	1.24	1.34	1.30	PASS
15	-0.73	-0.75	-0.89	-0.88	-0.82	PASS

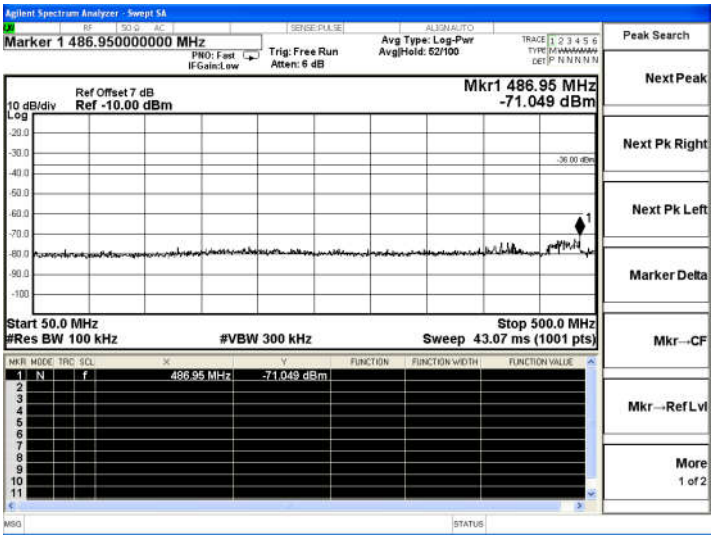
Mode: EGPRS 1800, high channel CH 885:1784.8MHz						
Power Control level	Output power(dBm)					Conclusion
	Normal	L.V. L.T	L.V. H.T.	H.V L.T	H.V. H.T	
2	25.52	25.45	25.57	25.57	25.48	PASS
3	23.46	23.46	23.44	23.39	23.50	PASS
4	21.60	21.63	21.64	21.56	21.69	PASS
5	19.27	19.33	19.21	19.33	19.35	PASS
6	17.42	17.37	17.38	17.48	17.38	PASS
7	15.42	15.45	15.55	15.51	15.52	PASS
8	13.35	13.38	13.31	13.41	13.43	PASS
9	11.52	11.55	11.49	11.55	11.49	PASS
10	9.60	9.52	9.42	9.46	9.46	PASS
11	7.40	7.32	7.45	7.50	7.47	PASS
12	5.11	5.22	5.19	5.27	5.26	PASS
13	3.23	3.26	3.26	3.31	3.35	PASS
14	1.37	1.22	1.38	1.22	1.20	PASS
15	-0.89	-0.79	-0.88	-0.84	-0.87	PASS

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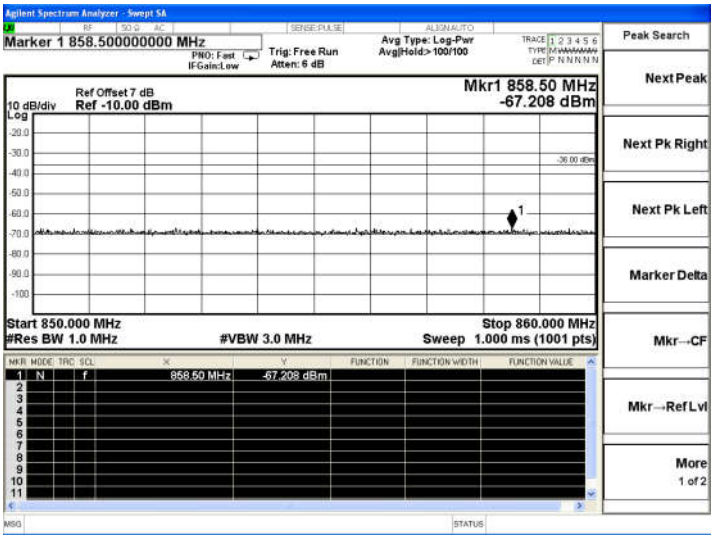
Transmitter spurious emissions

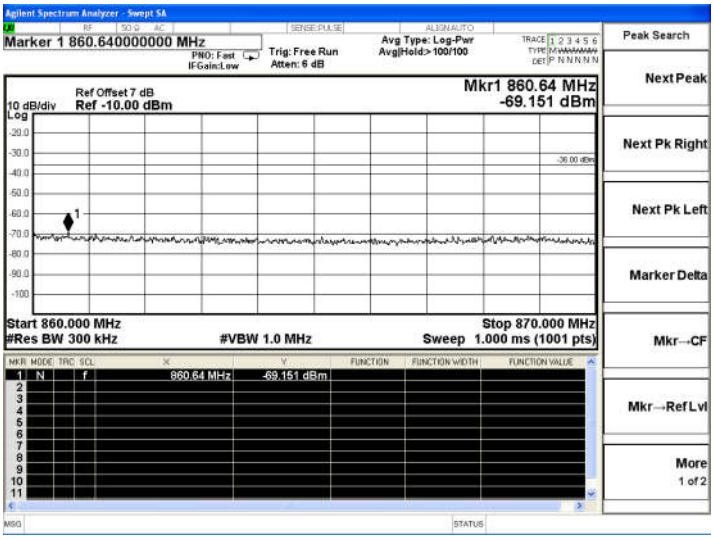
Conducted spurious emissions - MS allocated a channel(Worst Case)
GSM 900 Normal condition Middle channel original test data

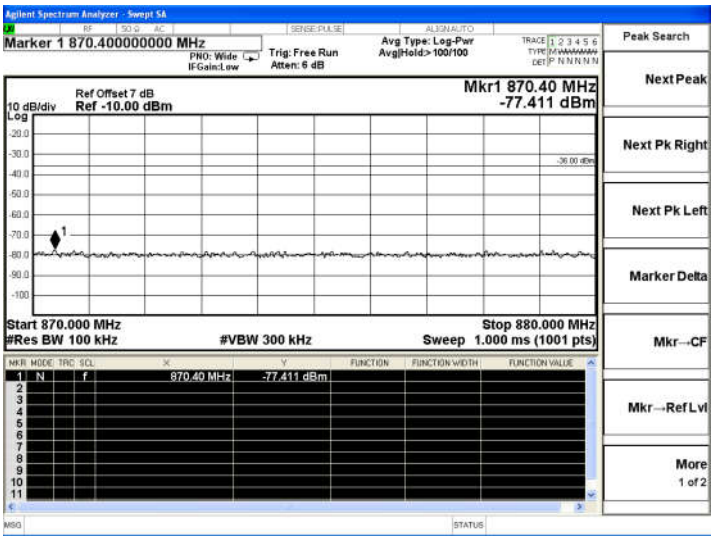




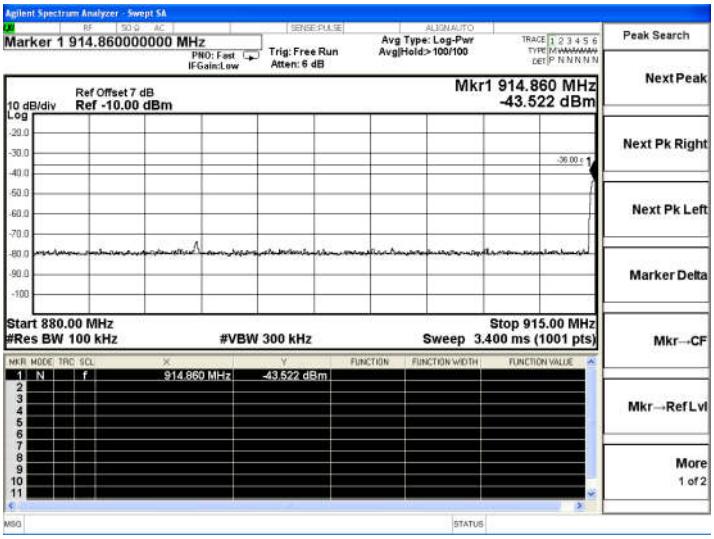


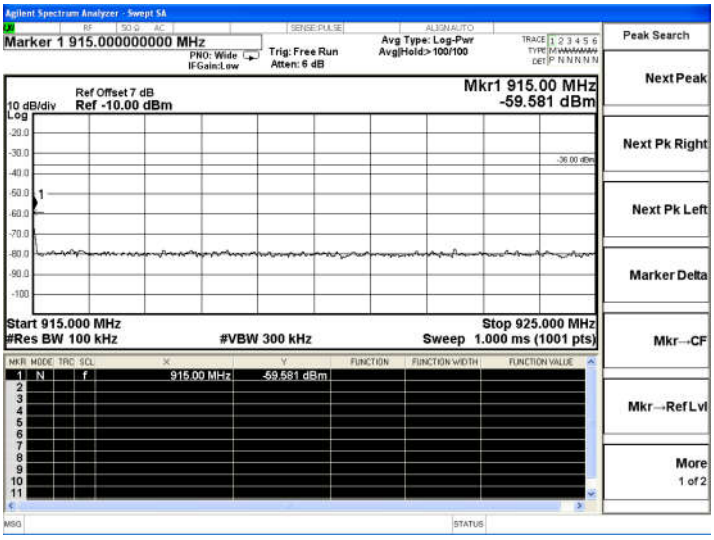


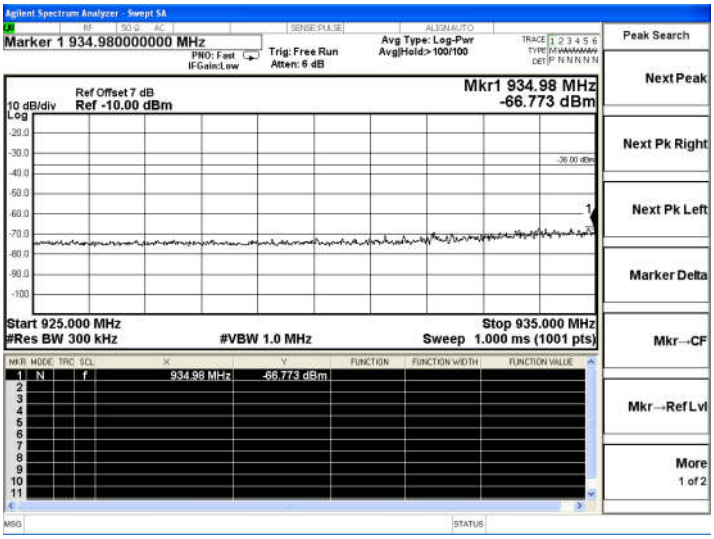


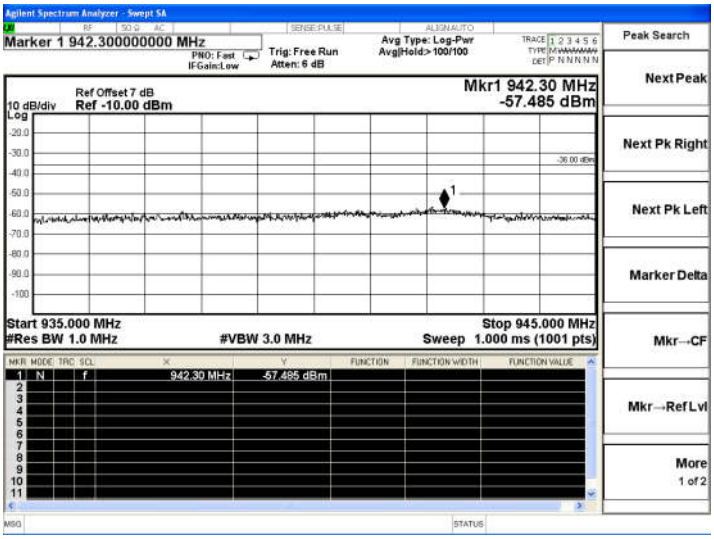


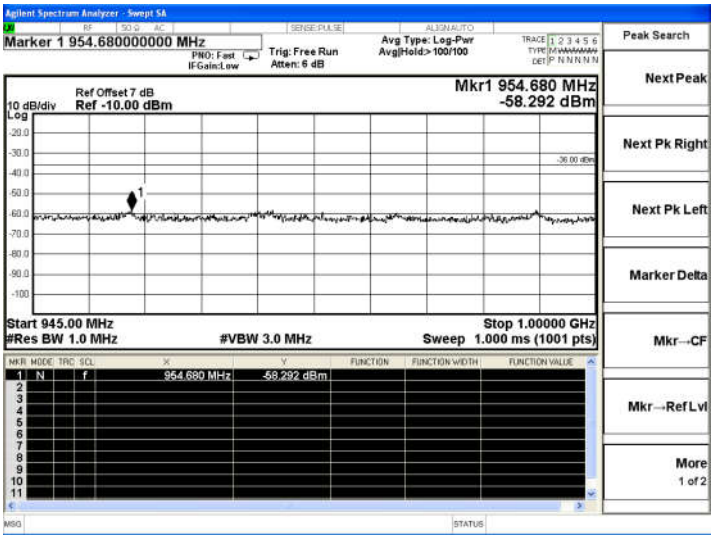
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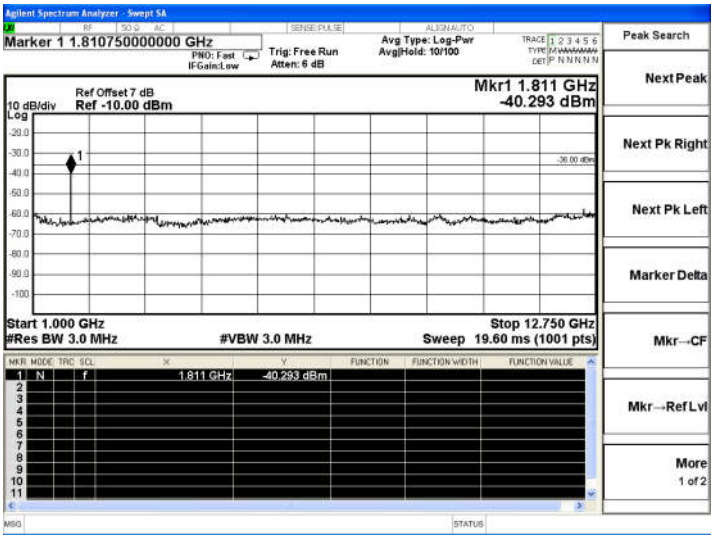

Agilent Spectrum Analyzer - Swept SA
Marker 1 914.860000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 6 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 7 dB
10 dB/div
Ref -10.00 dBm
Log
Mkr1 914.860 MHz
-43.522 dBm
Start 880.00 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 915.00 MHz
Sweep 3.400 ms (1001 pts)
1 N 1 f 914.860 MHz -43.522 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent Spectrum Analyzer - Swept SA
Marker 1 915.000000000 MHz
PNO: Wide
IFGain:Low
Trig: Free Run
Atten: 6 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 7 dB
10 dB/div
Ref -10.00 dBm
Log
Mkr1 915.00 MHz
-59.581 dBm
Start 915.000 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 925.000 MHz
Sweep 1.000 ms (1001 pts)
1 N 1 f 915.00 MHz -59.581 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

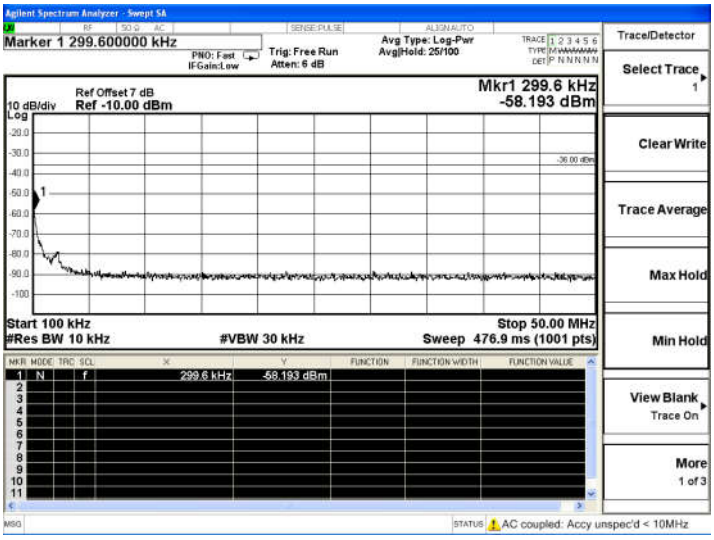

Agilent Spectrum Analyzer - Swept SA
Marker 1 934.980000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 6 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 7 dB
10 dB/div
Ref -10.00 dBm
Log
Mkr1 934.98 MHz
-66.773 dBm
Start 925.000 MHz
#Res BW 300 kHz
#VBW 1.0 MHz
Stop 935.000 MHz
Sweep 1.000 ms (1001 pts)
1 N 1 f 934.98 MHz -66.773 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

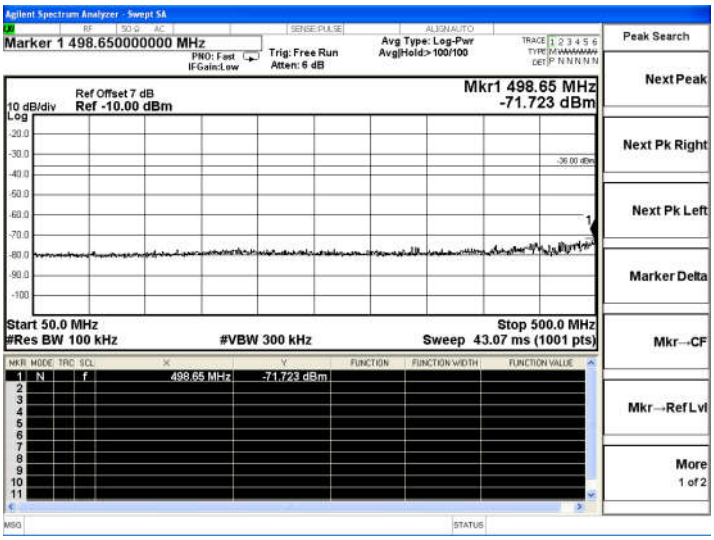

Agilent Spectrum Analyzer - Swept SA
Marker 1 942.300000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 6 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 7 dB
10 dB/div
Ref -10.00 dBm
Log
Mkr1 942.30 MHz
-57.485 dBm
Start 935.000 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 945.000 MHz
Sweep 1.000 ms (1001 pts)
1 N 1 f 942.30 MHz -57.485 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

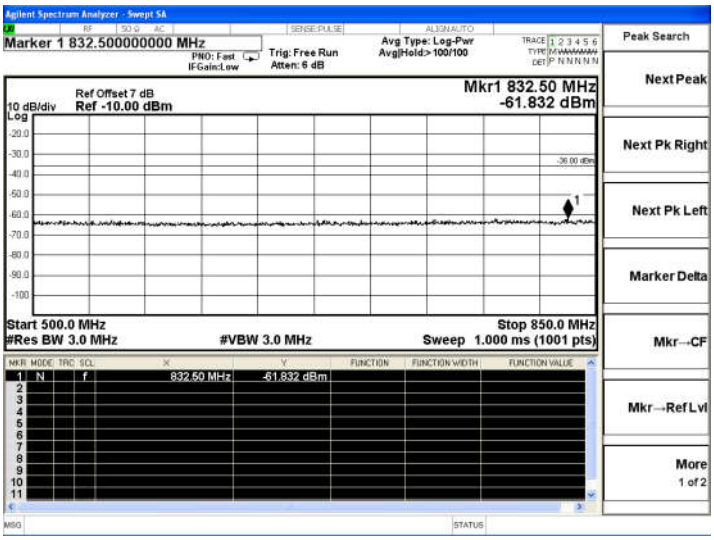

Agilent Spectrum Analyzer - Swept SA
Marker 1 954.680000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 6 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 7 dB
10 dB/div
Ref -10.00 dBm
Log
Mkr1 954.680 MHz
-58.292 dBm
Start 945.00 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 1.00000 GHz
Sweep 1.000 ms (1001 pts)
1 N 1 f 954.680 MHz -58.292 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent Spectrum Analyzer - Swept SA
Marker 1 1.810750000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 6 dB
Avg Type: Log-Pwr
Avg|Hold: 10/100
Ref Offset 7 dB
10 dB/div
Ref -10.00 dBm
Log
Mkr1 1.811 GHz
-40.293 dBm
Start 1.000 GHz
#Res BW 3.0 MHz
#VBW 3.0 MHz
Stop 12.750 GHz
Sweep 19.60 ms (1001 pts)
1 N 1 f 1.811 GHz -40.293 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

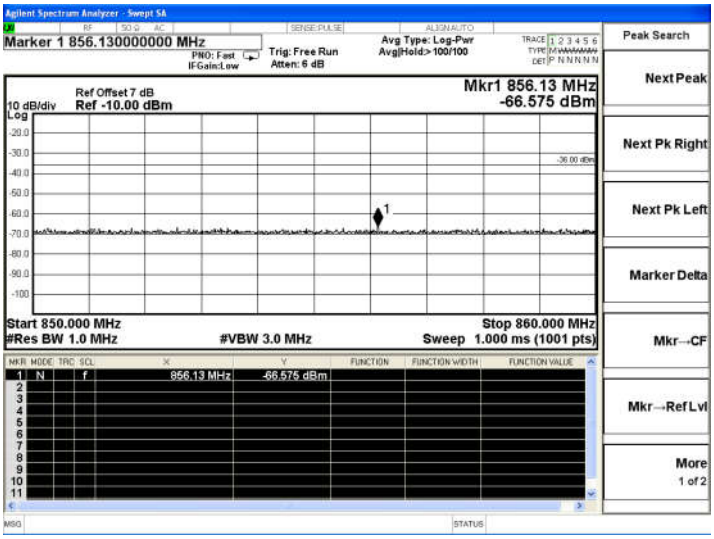
GSM 900 Extreme conditions in Middle channel

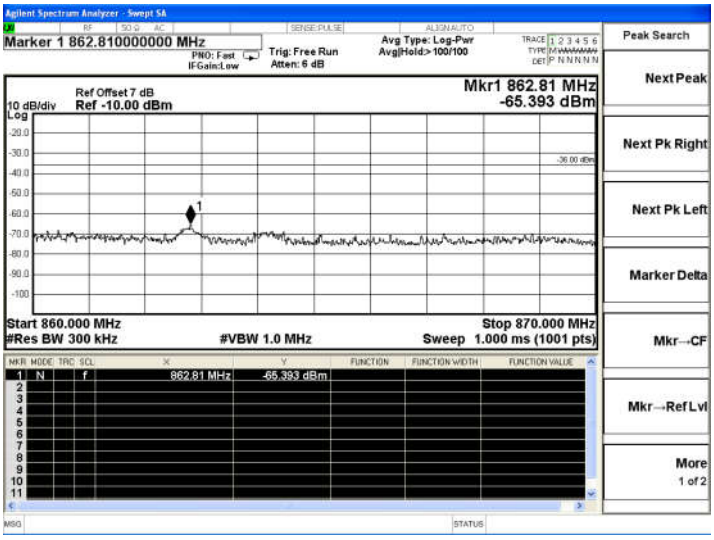


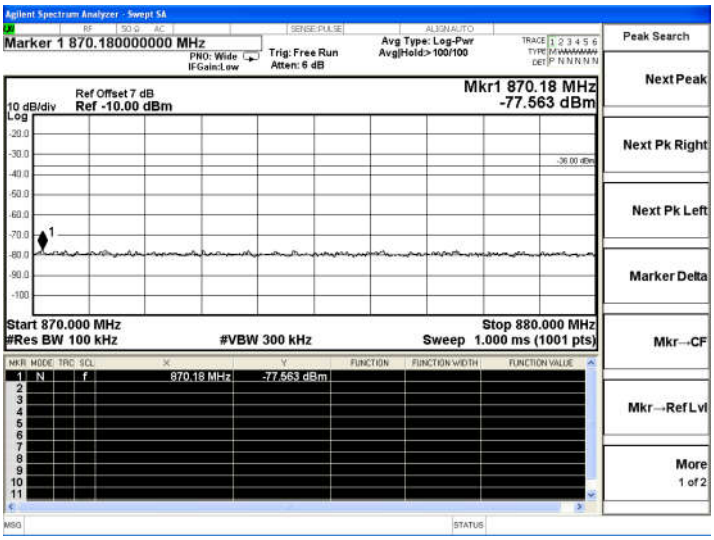




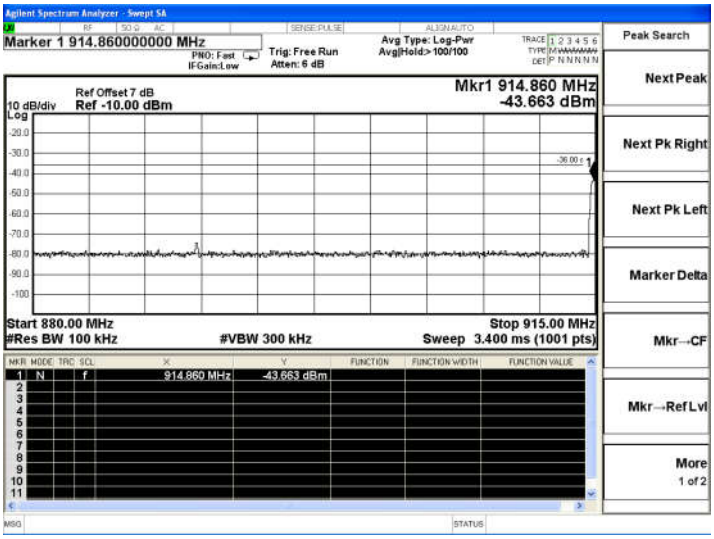
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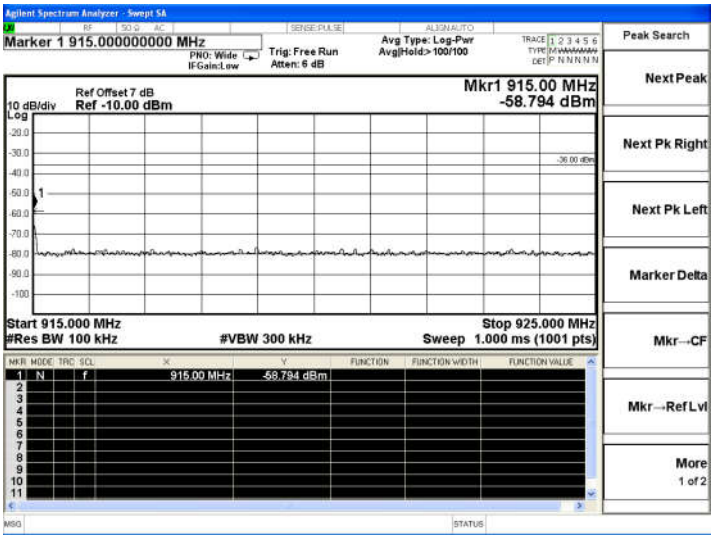


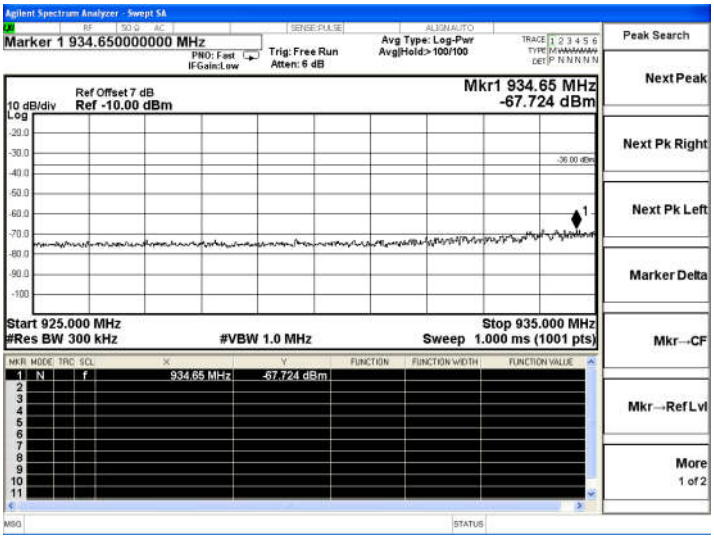




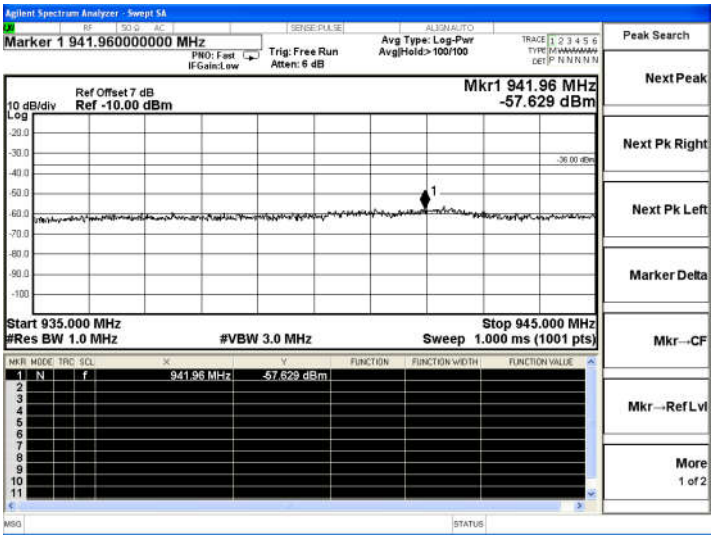
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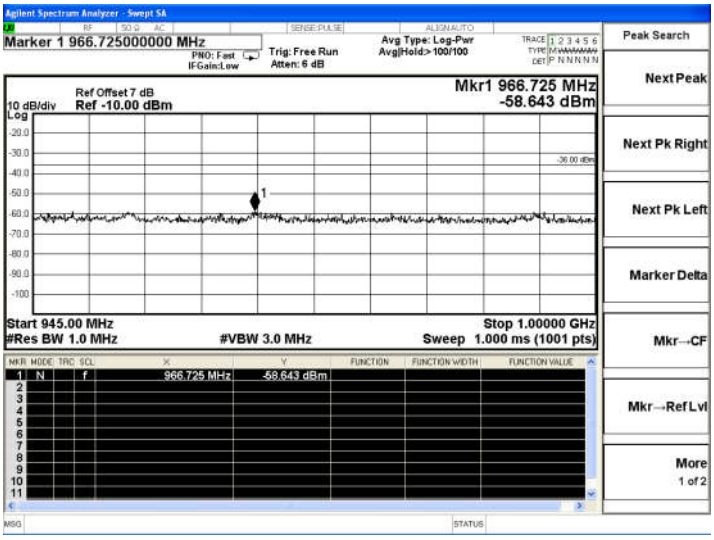


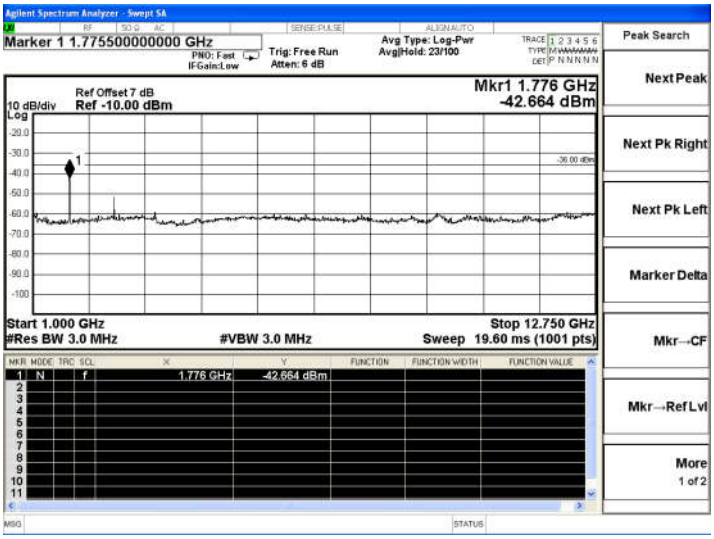




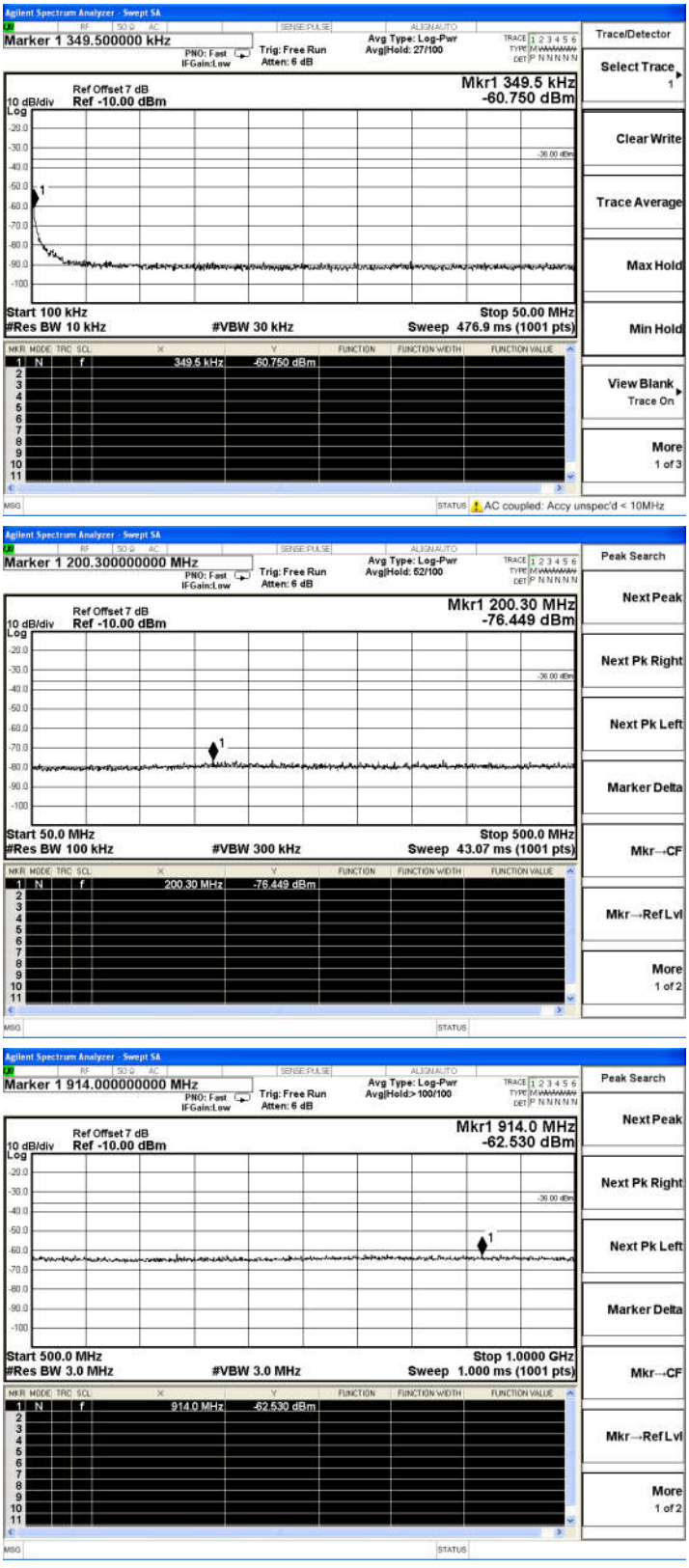
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Agilent Spectrum Analyzer - Swept SA
Marker 1 941.960000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 6 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 7 dB
10 dB/div
Ref -10.00 dBm
Log
Mkr1 941.96 MHz
-57.629 dBm
Start 935.000 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 945.000 MHz
Sweep 1.000 ms (1001 pts)
1 N 1 f 941.96 MHz -57.629 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

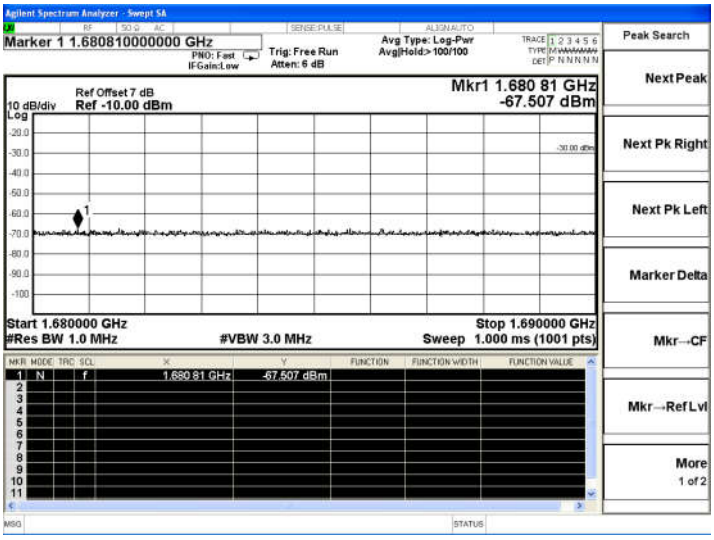

Agilent Spectrum Analyzer - Swept SA
Marker 1 966.725000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 6 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 7 dB
10 dB/div
Ref -10.00 dBm
Log
Mkr1 966.725 MHz
-58.643 dBm
Start 945.00 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 1.00000 GHz
Sweep 1.000 ms (1001 pts)
1 N 1 f 966.725 MHz -58.643 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

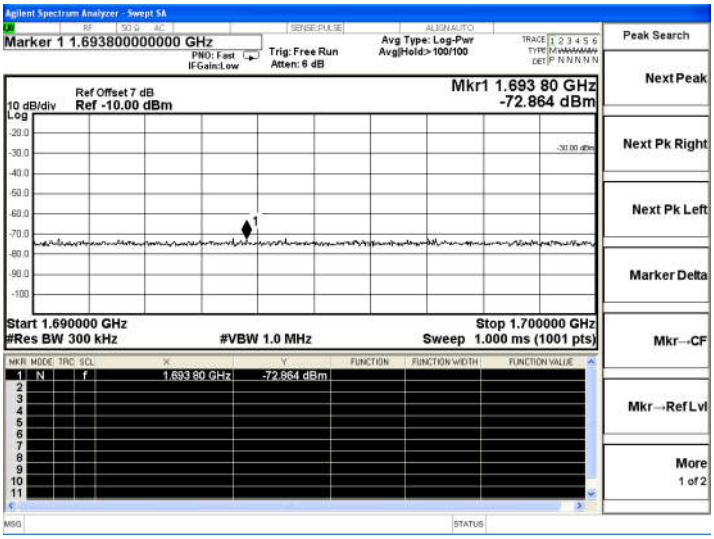

Agilent Spectrum Analyzer - Swept SA
Marker 1 1.775500000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 6 dB
Avg Type: Log-Pwr
Avg|Hold: 23/100
Ref Offset 7 dB
10 dB/div
Ref -10.00 dBm
Log
Mkr1 1.776 GHz
-42.664 dBm
Start 1.000 GHz
#Res BW 3.0 MHz
#VBW 3.0 MHz
Stop 12.750 GHz
Sweep 19.60 ms (1001 pts)
1 N 1 f 1.776 GHz -42.664 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

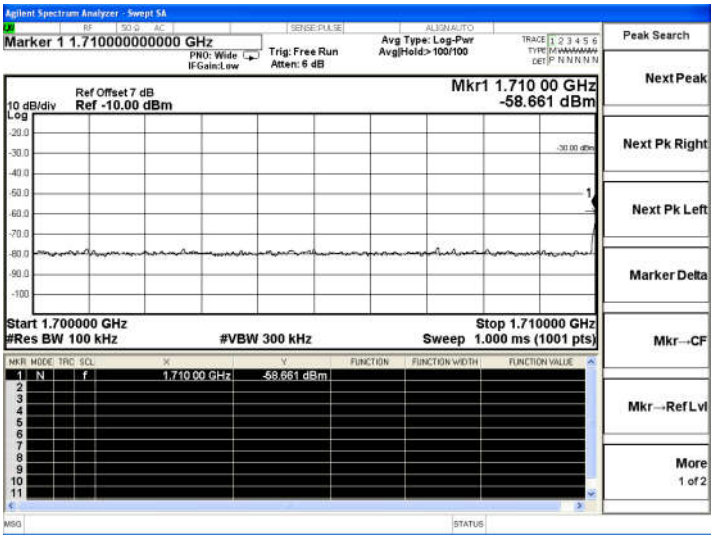
DCS 1800 Normal condition Middle channel original test data

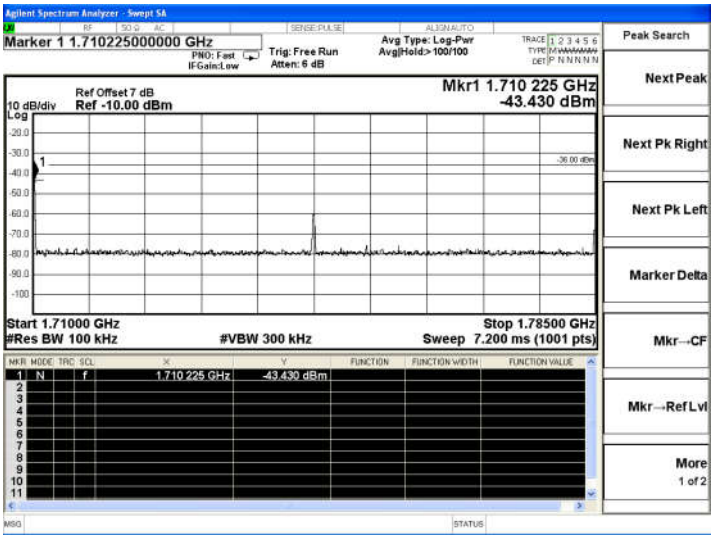


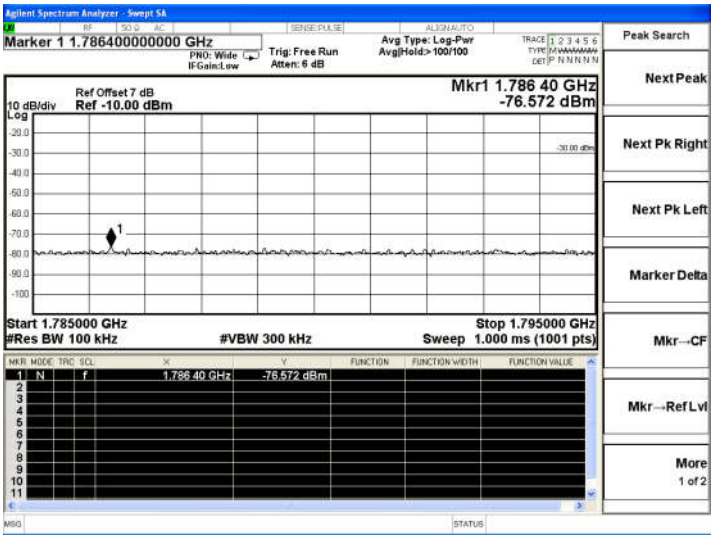

Agilent Spectrum Analyzer - Swept SA
Marker 1 1.579360000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 6 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 7 dB
10 dB/div
Ref -10.00 dBm
Log
Mkr1 1.579 36 GHz
-61.858 dBm
Start 1.0000 GHz
#Res BW 3.0 MHz
#VBW 3.0 MHz
Stop 1.6800 GHz
Sweep 1.000 ms (1001 pts)
1 N 1 f 1.579 36 GHz -61.858 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent Spectrum Analyzer - Swept SA
Marker 1 1.680810000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 6 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 7 dB
10 dB/div
Ref -10.00 dBm
Log
Mkr1 1.680 81 GHz
-67.507 dBm
Start 1.680000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 1.690000 GHz
Sweep 1.000 ms (1001 pts)
1 N 1 f 1.680 81 GHz -67.507 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

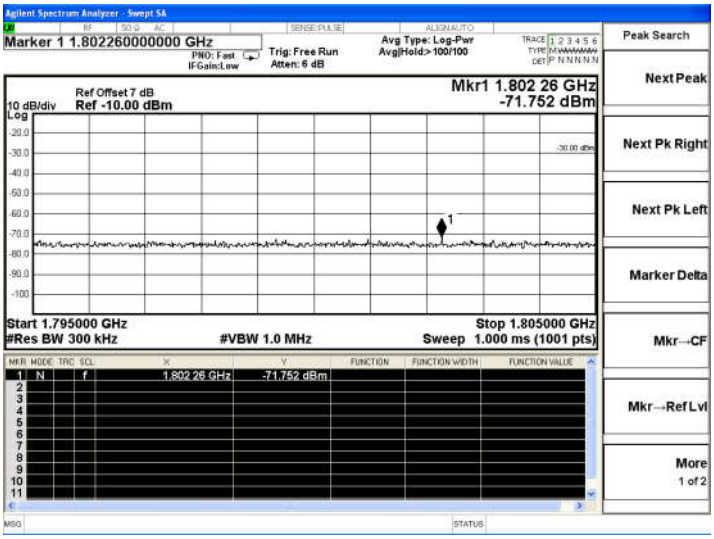

Agilent Spectrum Analyzer - Swept SA
Marker 1 1.693800000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 6 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 7 dB
10 dB/div
Ref -10.00 dBm
Log
Mkr1 1.693 80 GHz
-72.864 dBm
Start 1.690000 GHz
#Res BW 300 kHz
#VBW 1.0 MHz
Stop 1.700000 GHz
Sweep 1.000 ms (1001 pts)
1 N 1 f 1.693 80 GHz -72.864 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

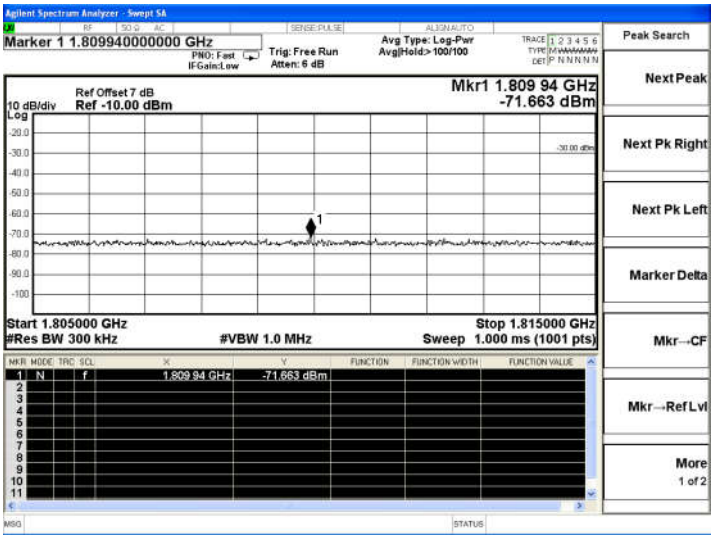


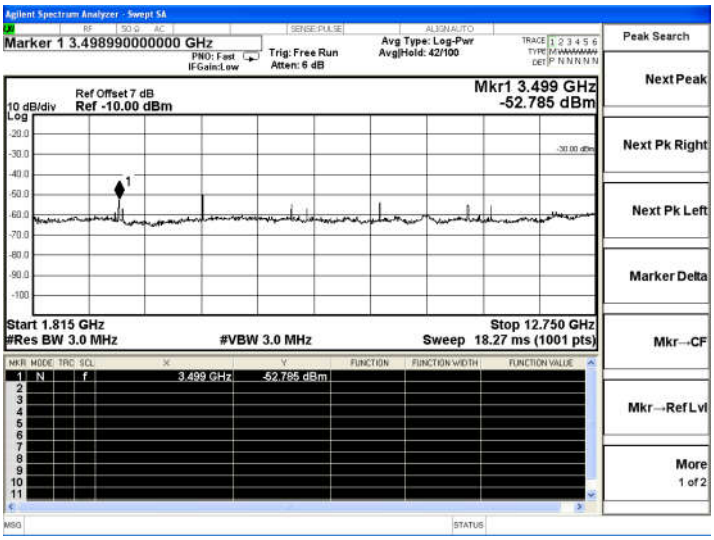




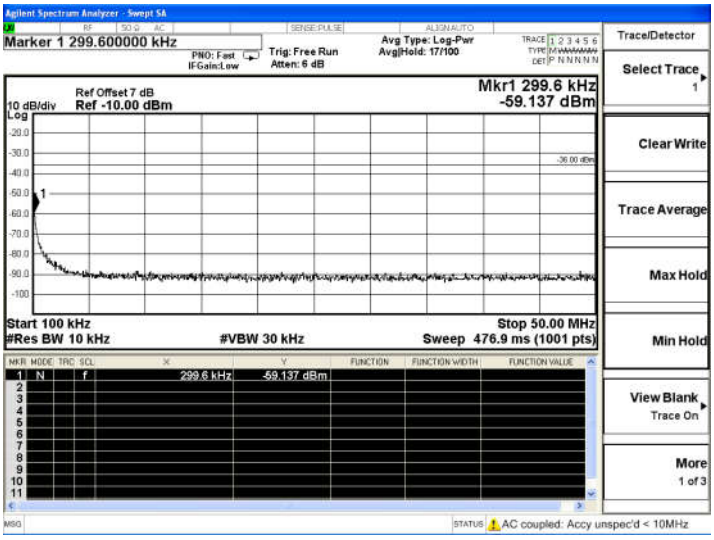
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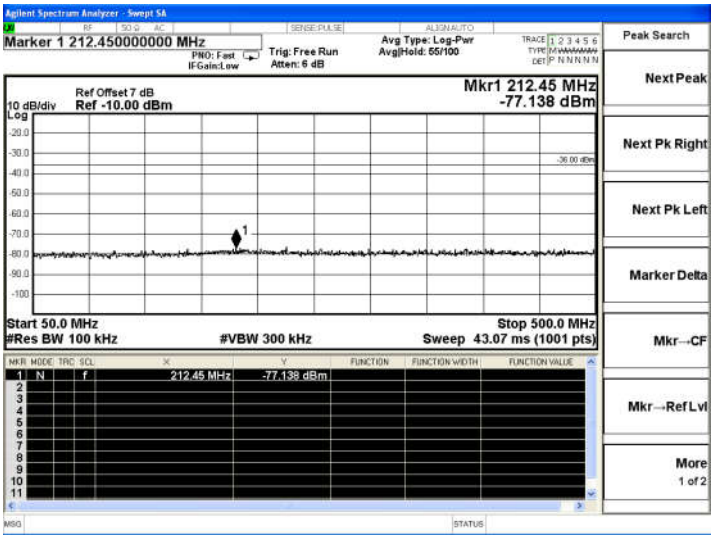

Agilent Spectrum Analyzer - Swept SA
Marker 1 1.802260000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 6 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Ref Offset 7 dB
10 dB/div
Log
Ref -10.00 dBm
Mkr1 1.802 26 GHz
-71.752 dBm
Start 1.795000 GHz
#Res BW 300 kHz
#VBW 1.0 MHz
Stop 1.805000 GHz
Sweep 1.000 ms (1001 pts)
1 N 1 f 1.802 26 GHz -71.752 dBm


Agilent Spectrum Analyzer - Swept SA
Marker 1 1.809940000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 6 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Ref Offset 7 dB
10 dB/div
Log
Ref -10.00 dBm
Mkr1 1.809 94 GHz
-71.663 dBm
Start 1.805000 GHz
#Res BW 300 kHz
#VBW 1.0 MHz
Stop 1.815000 GHz
Sweep 1.000 ms (1001 pts)
1 N 1 f 1.809 94 GHz -71.663 dBm


Agilent Spectrum Analyzer - Swept SA
Marker 1 3.498990000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 6 dB
Avg Type: Log-Pwr
Avg|Hold: 42/100
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Ref Offset 7 dB
10 dB/div
Log
Ref -10.00 dBm
Mkr1 3.499 GHz
-52.785 dBm
Start 1.815 GHz
#Res BW 3.0 MHz
#VBW 3.0 MHz
Stop 12.750 GHz
Sweep 18.27 ms (1001 pts)
1 N 1 f 3.499 GHz -52.785 dBm

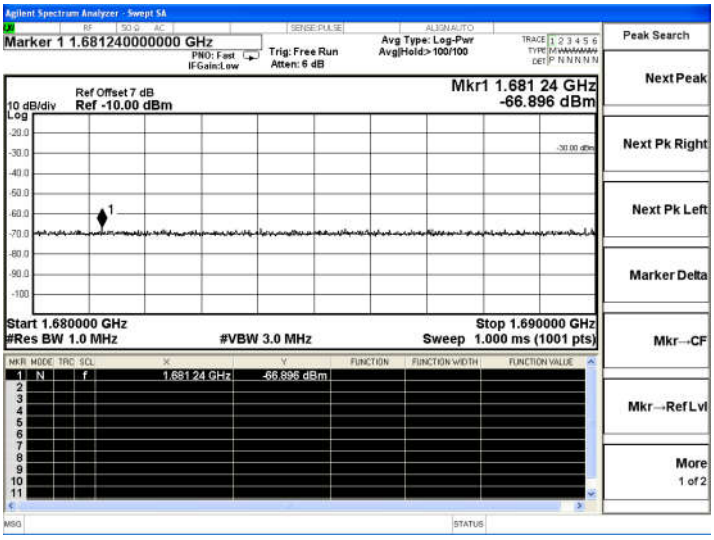
DCS 1800 Extreme conditions in Middle channel

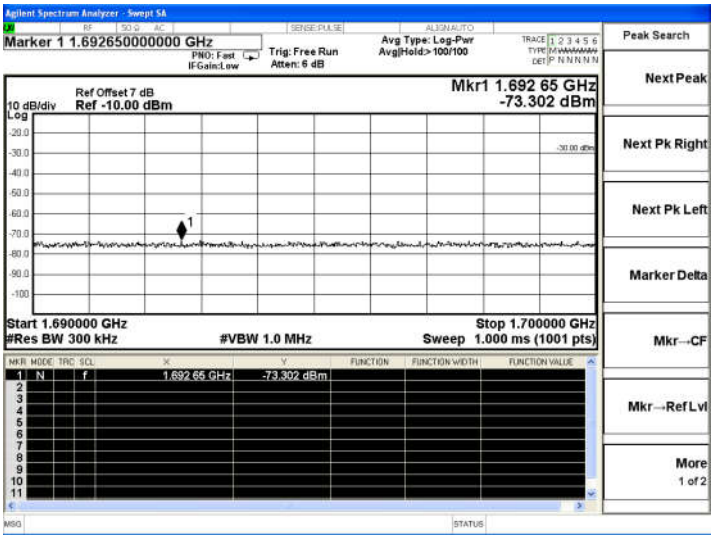


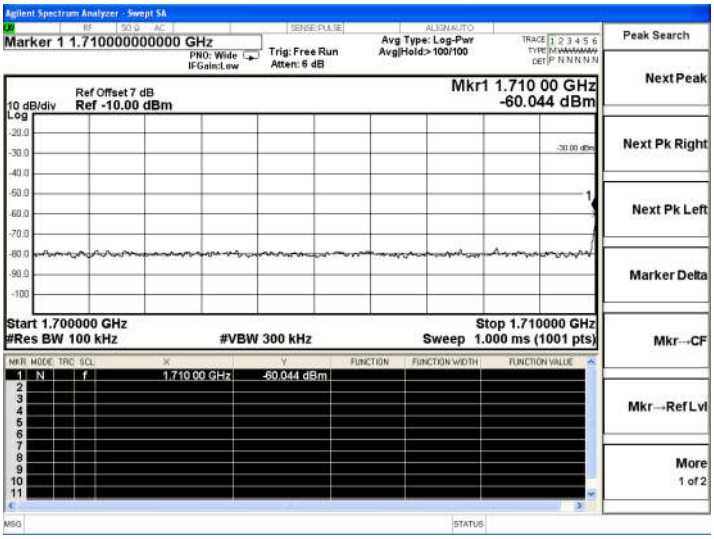


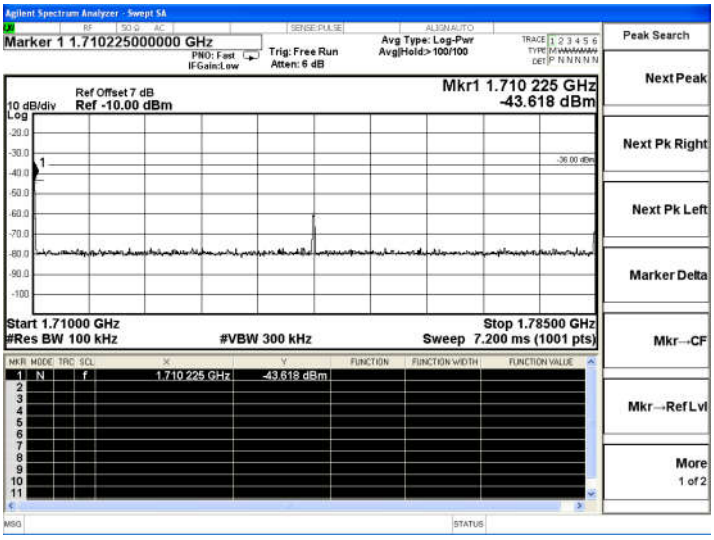


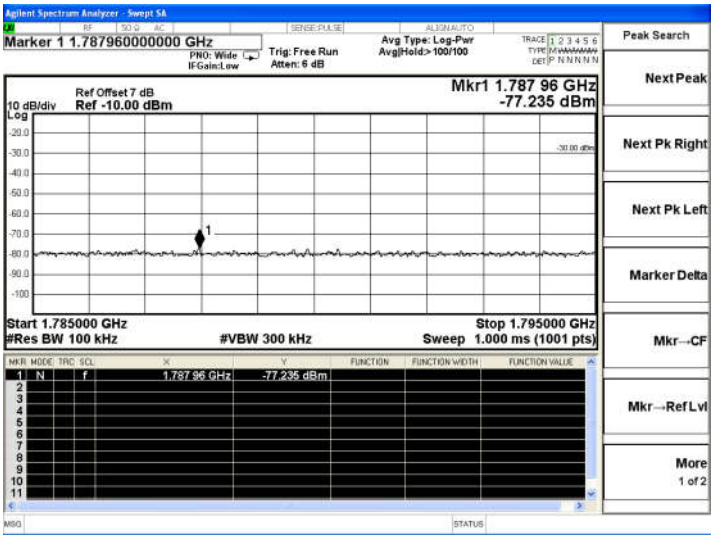

Agilent Spectrum Analyzer - Swept SA
Marker 1 1.383520000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 6 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 7 dB
10 dB/div
Ref -10.00 dBm
Log
Mkr1 1.383 52 GHz
-62.177 dBm
Start 1.0000 GHz
#Res BW 3.0 MHz
#VBW 3.0 MHz
Stop 1.6800 GHz
Sweep 1.000 ms (1001 pts)
1 N 1 f 1.383 52 GHz -62.177 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

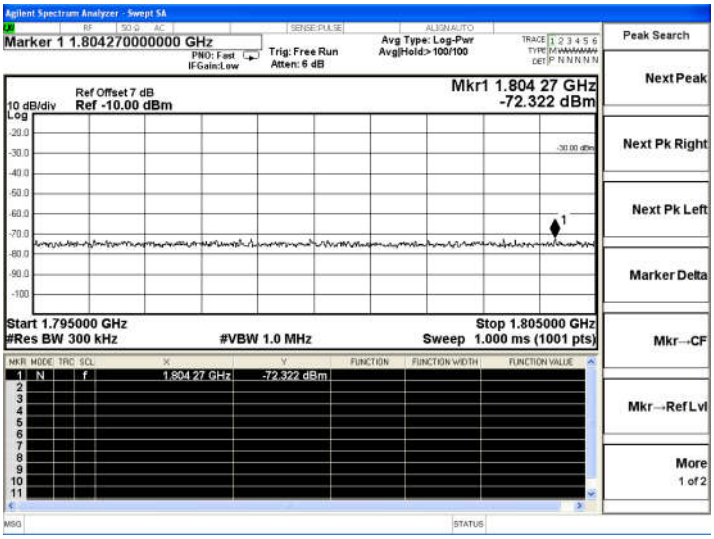

Agilent Spectrum Analyzer - Swept SA
Marker 1 1.681240000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 6 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 7 dB
10 dB/div
Ref -10.00 dBm
Log
Mkr1 1.681 24 GHz
-66.896 dBm
Start 1.680000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 1.690000 GHz
Sweep 1.000 ms (1001 pts)
1 N 1 f 1.681 24 GHz -66.896 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

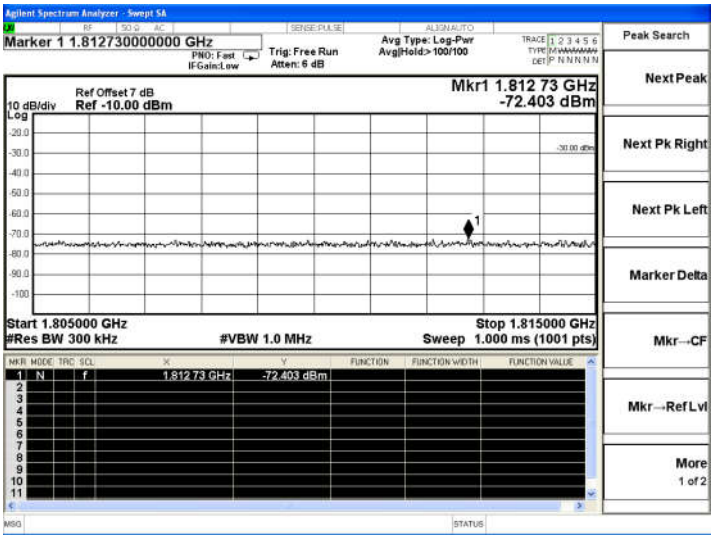

Agilent Spectrum Analyzer - Swept SA
Marker 1 1.692650000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 6 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 7 dB
10 dB/div
Ref -10.00 dBm
Log
Mkr1 1.692 65 GHz
-73.302 dBm
Start 1.690000 GHz
#Res BW 300 kHz
#VBW 1.0 MHz
Stop 1.700000 GHz
Sweep 1.000 ms (1001 pts)
1 N 1 f 1.692 65 GHz -73.302 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

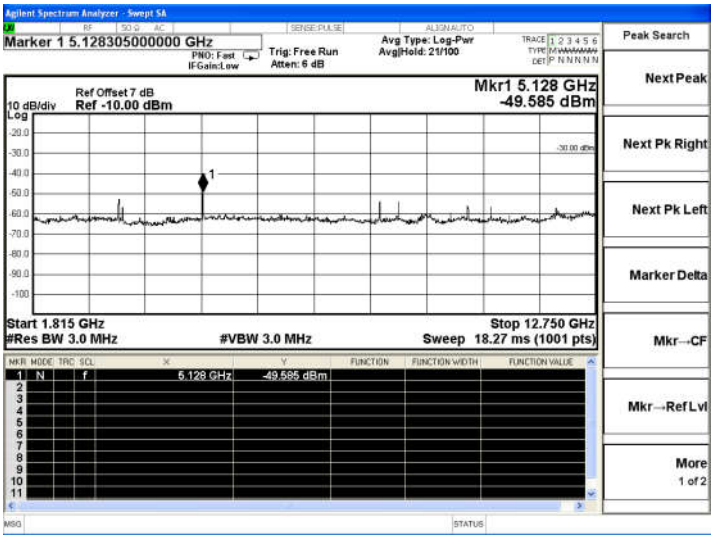

Agilent Spectrum Analyzer - Swept SA
Marker 1 1.710000000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
Atten: 6 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 7 dB
10 dB/div
Ref -10.00 dBm
Log
Mkr1 1.710 00 GHz
-60.044 dBm
Start 1.700000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.710000 GHz
Sweep 1.000 ms (1001 pts)
1 N 1 f 1.710 00 GHz -60.044 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent Spectrum Analyzer - Swept SA
Marker 1 1.710225000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 6 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 7 dB
10 dB/div
Ref -10.00 dBm
Log
Mkr1 1.710 225 GHz
-43.618 dBm
Start 1.71000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.78500 GHz
Sweep 7.200 ms (1001 pts)
1 N 1 f 1.710 225 GHz -43.618 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent Spectrum Analyzer - Swept SA
Marker 1 1.787960000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
Atten: 6 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 7 dB
10 dB/div
Ref -10.00 dBm
Log
Mkr1 1.787 96 GHz
-77.235 dBm
Start 1.785000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.795000 GHz
Sweep 1.000 ms (1001 pts)
1 N 1 f 1.787 96 GHz -77.235 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent Spectrum Analyzer - Swept SA
Marker 1 1.804270000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 6 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 7 dB
10 dB/div
Ref -10.00 dBm
Log
Mkr1 1.804 27 GHz
-72.322 dBm
Start 1.795000 GHz
#Res BW 300 kHz
#VBW 1.0 MHz
Stop 1.805000 GHz
Sweep 1.000 ms (1001 pts)
1 N 1 f 1.804 27 GHz -72.322 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent Spectrum Analyzer - Swept SA
Marker 1 1.812730000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 6 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 7 dB
10 dB/div
Ref -10.00 dBm
Log
Mkr1 1.812 73 GHz
-72.403 dBm
Start 1.805000 GHz
#Res BW 300 kHz
#VBW 1.0 MHz
Stop 1.815000 GHz
Sweep 1.000 ms (1001 pts)
1 N 1 f 1.812 73 GHz -72.403 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent Spectrum Analyzer - Swept SA
Marker 1 5.128305000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 6 dB
Avg Type: Log-Pwr
Avg|Hold: 21/100
Ref Offset 7 dB
10 dB/div
Ref -10.00 dBm
Log
Mkr1 5.128 GHz
-49.585 dBm
Start 1.815 GHz
#Res BW 3.0 MHz
#VBW 3.0 MHz
Stop 12.750 GHz
Sweep 18.27 ms (1001 pts)
1 N 1 f 5.128 GHz -49.585 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

Transmitter spurious emissions

Radiated spurious emissions - MS allocated a channel(Worst Case)

GSM 900 Band: Middle Channel, Normal condition				
Frequency (MHz)	Radiated Spurious Emission		Limit (dBm)	Test Result
	Polarization	Level(dBm)		
229.90	Horizontal	-51.28	-36.00	Pass
509.83	H	-48.07	-36.00	
1794.80	H	-45.40	-30.00	
2692.15	H	-42.35	-30.00	
3589.65	H	-45.38	-30.00	
GSM 900 Band: Middle Channel, Normal condition				
Frequency (MHz)	Radiated Spurious Emission		Limit (dBm)	Test Result
	Polarization	Level(dBm)		
309.00	Vertical	-52.61	-36.00	Pass
461.44	V	-53.47	-36.00	
1794.79	V	-42.37	-30.00	
2692.26	V	-42.42	-30.00	
3589.67	V	-42.77	-30.00	

Transmitter spurious emissions

Radiated spurious emissions - MS allocated a channel(Worst Case)

GSM 1800 Band: Middle Channel, Normal condition				
Frequency (MHz)	Radiated Spurious Emission		Limit (dBm)	Test Result
	Polarization	Level(dBm)		
262.66	Horizontal	-53.42	-36.00	Pass
437.95	H	-53.78	-36.00	
1537.59	H	-47.98	-30.00	
2998.99	H	-49.42	-30.00	
3494.89	H	-49.76	-30.00	
GSM 1800 Band: Middle Channel, Normal condition				
Frequency (MHz)	Radiated Spurious Emission		Limit (dBm)	Test Result
	Polarization	Level(dBm)		
318.33	Vertical	-46.34	-36.00	Pass
435.32	V	-48.12	-36.00	
1433.13	V	-46.61	-30.00	
2643.99	V	-42.96	-30.00	
3494.71	V	-44.89	-30.00	

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Radiated spurious emissions - MS in Idle Mode(Worst Case)

GSM 900 Band: Middle Channel, Normal condition				
Frequency (MHz)	Radiated Spurious Emission		Limit (dBm)	Test Result
	Polarization	Level(dBm)		
297.64	Horizontal	-71.48	-57.00	Pass
529.96	H	-74.74	-57.00	
1574.78	H	-63.22	-47.00	
2117.32	H	-60.96	-47.00	
3335.18	H	-63.75	-47.00	
GSM 900 Band: Middle Channel, Normal condition				
Frequency (MHz)	Radiated Spurious Emission		Limit (dBm)	Test Result
	Polarization	Level(dBm)		
62.79	Vertical	-76.56	-57.00	Pass
919.50	V	-70.15	-57.00	
1429.62	V	-58.52	-47.00	
2172.86	V	-58.35	-47.00	
3349.20	V	-59.10	-47.00	

DCS 1800 Band: Middle Channel, Normal condition				
Frequency (MHz)	Radiated Spurious Emission		Limit (dBm)	Test Result
	Polarization	Level(dBm)		
323.77	Horizontal	-67.72	-57.00	Pass
406.21	H	-69.16	-57.00	
1390.97	H	-66.11	-47.00	
2141.78	H	-66.39	-47.00	
3476.64	H	-61.68	-47.00	
DCS 1800 Band: Middle Channel, Normal condition				
Frequency (MHz)	Radiated Spurious Emission		Limit (dBm)	Test Result
	Polarization	Level(dBm)		
270.55	Vertical	-68.34	-57.00	Pass
445.07	V	-73.65	-57.00	
1616.32	V	-61.86	-47.00	
2219.56	V	-57.20	-47.00	
3571.21	V	-59.06	-47.00	

----------THE END OF REPORT----------

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