verify No.070064296471

위변조방지/진위확인
www.docugr.com

TEST REPORT

KCTL Inc.
65, Sinwon-ro, Yeongtong-gu,
Suwon-si, Gyeonggi-do, 16677, Korea
TEL: 82-31-285-0894 FAX: 82-505-299-8311
www.kctl.co.kr

KCTL

1. Client

- Name : Samsung Electronics Co., Ltd.
- Address : 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
- Date of Receipt : 2019-09-27

2. Use of Report : -

3. Name of Product and Model : Mobile phone / SM-A515F/DSN

4. Manufacturer and Country of Origin : SAMSUNG ELECTRONICS VIETNAM CO.,LTD. / Vietnam

5. FCC ID : A3LSMA515FN

6. Date of Test : 2019-10-07 to 2019-11-22

7. Test Standards : FCC Part 2
FCC Part 22 Subpart H
FCC Part 90 Subpart S

8. Test Results : Refer to the test result in the test report

Affirmation	Tested by Name : Kwonse Kim (Signature)	Technical Manager Name : Gyungnam Park (Signature)

2019-11-23

KCTL Inc.

As a test result of the sample which was submitted from the client, this report does not guarantee the whole product quality. This test report should not be used and copied without a written agreement by KCTL Inc.

Report revision history

Date	Revision	Page No
2019-11-11	Initial report	-
2019-11-16	Added a comment	8, 45
2019-11-21	Updated	4, 6, 59~63
2019-11-23	Updated	8~9, 15, 18, 29~30, 40~41, 83, 89

This report shall not be reproduced except in full, without the written approval of KCTL Inc. This document may be altered or revised by KCTL Inc. personnel only, and shall be noted in the revision section of the document. Any alteration of this document not carried out by KCTL Inc. will constitute fraud and shall nullify the document. This test report is a General report that does not use the KOLAS accreditation mark and is not related to KOLAS accreditation.

Note. The report No. KR19-SRF0167-B is superseded by the report No. KR19-SRF0167-C.

CONTENTS

1. General information 4
2. Device information 4
2.1. Accessory information 6
2.2. Information about derivative model 6
2.3. Frequency/channel operations 6
3. Maximum ERP/EIRP power 7
4. Summary of tests 8
4.1. Worst case orientation 8
5. Measurement uncertainty 9
6. Measurement results explanation example 10
7. Test results 11
7.1. Conducted output power 11
7.2. 99% Occupied Bandwidth & 26 dB Bandwidth 15
7.3. Spurious Emissions at Antenna Terminal 41
7.4. Band Edge Emissions at Antenna Terminal 46
7.5. Frequency stability 68
7.6. Radiated Power (ERP/EIRP) 72
7.7. Radiated Spurious Emissions 78
8. Measurement equipment 89

This test report shall not be reproduced, except in full, without the written approval

1. General information

Client	:	Samsung Electronics Co., Ltd.
Address	:	129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
Manufacturer	:	SAMSUNG ELECTRONICS VIETNAM CO.,LTD.
Address	:	Kcn Yen Binh1, huyen pho Yen Tinh Thai Nguyen Vietnam
Laboratory	:	KCTL Inc.
Address	:	65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea
Accreditations	:	FCC Site Designation No: KR0040, FCC Site Registration No: 687132
		VCCI Registration No. : R-20080, G-20078, C-20059, T-20056
		Industry Canada Registration No. : 8035A
		KOLAS No.: KT231

2. Device information

Equipment under test	:	Mobile Phone
Model	:	SM-A515F/DSN
Derivative model	:	SM-A515F/N
Modulation technique	:	Bluetooth(BDR/EDR)_ GFSK, π/4DQPSK, 8DPSK
		Bluetooth(BLE), ANT+_GFSK
		WIFI(802.11b/g/n20/n40/ac20/ac40/ac80)_DSSS, OFDM
		NFC_ASK
		LTE_QPSK, 16QAM
		WCDMA_QPSK
		GSM_GMSK, 8-PSK
Number of channels	:	Bluetooth(BDR/EDR), ANT+_79ch / Bluetooth(BLE)_40ch
		11 ch: 802.11b/g/n_HT20
		UNII-1: 4 ch (20 MHz), 2 ch (40 MHz), 1 ch (80 MHz)
		UNII-2A: 4 ch (20 MHz), 2 ch (40 MHz), 1 ch (80 MHz)
		UNII-2C: 12 ch (20 MHz), 6 ch (40 MHz), 3 ch (80 MHz)
		UNII-3: 5 ch (20 MHz), 2 ch (40 MHz), 1 ch (80 MHz)
Power source	:	DC 3.85 V
Antenna specification	:	LTE/WCDMA_FPCB Antenna
		WIFI/Bluetooth(BDR/EDR/BLE)_FPCB Antenna
		NFC_FPCB Antenna
Antenna gain	:	WIFI/Bluetooth(BDR/EDR/BLE) : -4.70 dBi
		UNII-1 -4.10 dBi
		UNII-2A -4.74 dBi
		UNII-2C -3.92 dBi
		UNII-3 -4.40 dBi

Frequency range	:	Bluetooth(BDR/EDR/BLE), ANT+_2 402 ㎒ ~ 2 480 ㎒ 2 412 ㎒ ~ 2 462 ㎒ (802.11b/g/n_HT20) UNII-1: 5 180 ㎒ ~ 5 240 ㎒ (802.11a/n_HT20/ac_VHT20) UNII-1: 5 190 ㎒ ~ 5 230 ㎒ (802.11n_HT40/ac_VHT40) UNII-1: 5 210 ㎒ (802.11ac_VHT80) UNII-2A: 5 260 ㎒ ~ 5 320 ㎒ (802.11a/n_HT20/ac_VHT20) UNII-2A: 5 270 ㎒ ~ 5 310 ㎒ (802.11n_HT40/ac_VHT40) UNII-2A: 5 290 ㎒ (802.11ac_VHT80) UNII-2C: 5 500 ㎒ ~ 5 720 ㎒ (802.11a/n_HT20/ac_VHT20) UNII-2C: 5 510 ㎒ ~ 5 710 ㎒ (802.11n_HT40/ac_VHT40) UNII-2C: 5 530 ㎒ ~ 5 690 ㎒ (802.11ac_VHT80) UNII-3: 5 745 ㎒ ~ 5 825 ㎒ (802.11a/n_HT20/ac_VHT20) UNII-3: 5 755 ㎒ ~ 5 795 ㎒ (802.11n_HT40/ac_VHT40) UNII-3: 5 775 ㎒ (802.11ac_VHT80) NFC_13.56 ㎒ LTE Band 2_1 850.7 ㎒ ~ 1 909.3 ㎒ LTE Band 4_1 710.7 ㎒ ~ 1 754.3 ㎒ LTE Band 5_824.7 ㎒ ~ 848.3 ㎒ LTE Band 12_699.7 ㎒ ~ 715.3 ㎒ LTE Band 13_779.5 ㎒ ~ 784.5 ㎒ LTE Band 17_706.5 ㎒ ~ 713.5 ㎒ LTE Band 26_824.7 ㎒ ~ 848.3 ㎒, 814.7 ㎒ ~ 823.3 ㎒ LTE Band 41_2 498.5 ㎒ ~ 2 687.5 ㎒ LTE Band 66_1 710.7 ㎒ ~ 1 779.3 ㎒ GSM 850_824.2 ㎒ ~ 848.8 ㎒ GSM 1900_1 850.2 ㎒ ~ 1 909.8 ㎒ WCDMA 850_826.4 ㎒ ~ 846.6 ㎒ WCDMA 1700_1 712.4 ㎒ ~ 1 752.6 ㎒ WCDMA 1910_1 852.4 ㎒ ~ 1 907.6 ㎒
Software version	:	A515F.001, A515X.001
Hardware version	:	REV0.1
Test device serial No.	:	Conducted(R38M908K75A, 352349/11/002988/6, 352349/11/002989/4) Radiated(R38M90ATJRB, R38M90ATDEX, R38MAOA8WJE)
Operation temperature	:	-30 ℃ ~ 50 ℃

2.1. Accessory information

Equipment	Manufacturer	Model	Serial No.	Power source
Earphone	Samsung Electronics Co., Ltd.	EHS61ASFBE	-	-
Travel Adapter	Samsung Electronics Co., Ltd.	EP-TA200	R37M6LAKG31DK3	AC 100-240V 50-60 Hz, 9.0V-1.67A 5.0V-2.0A
Micro USB Data Cable	Samsung Electronics Co., Ltd.	-	-	-

2.2. Information about derivative model

The difference between basic model and derivative models is:

SM-A515F/N
- It does not support Dual-Sim card, support Single-Sim card and changed from Dual SIM tray to single SIM tray.

2.3. Frequency/channel operations

This device contains the following capabilities:
WIFI(2.4㎓ band 802.11b/g/n(HT20), 5㎓ band 802.11a/n(HT20/HT40)/ac(VHT/20/40/80)), Bluetooth(BDR/EDR/BLE), NFC, ANT+
LTE Band 2, LTE Band 4, LTE Band 5, LTE Band 12, LTE Band 13, LTE Band 17, LTE Band 26, LTE Band41, WCDMA 850, WCDMA 1700, WCDMA 1900, GSM 850, GSM 1900

LTE Band 26

Ch.	Frequency (㎒)
26697	814.7
26797	824.7
26783	823.3
26915	836.5
27033	848.3

Table 2.3.1. 1.4M BW

Ch.	Frequency (㎒)
26705	815.5
26775	822.5
26805	825.5
26915	836.5
27025	847.5

Table 2.3.2. 3M BW

Ch.	Frequency (㎒)
26715	816.5
26765	821.5
26815	826.5
26915	836.5
27015	846.5

Table 2.3.3. 5M BW

Ch.	Frequency (㎒)
26740	819.0
26840	829.0
26915	836.5
26990	844.0

Table 2.3.4. 10M BW

Ch.	Frequency (㎒)
26765	821.5
26865	831.5
26965	841.5

Table 2.3.5. 15M BW

3. Maximum ERP/EIRP power

LTE Band 26

Mode	Tx frequency (MHz)	Emission designator	ERP	
			Max. power (dBm)	Max. power (W)
LTE Band 26 (Part 90S)	814.7 ~ 823.3	1M10G7D	18.69	0.074
		1M10W7D	17.41	0.055
	815.5 ~ 822.5	2M71G7D	18.50	0.071
		2M71W7D	17.60	0.058
	816.5 ~ 821.5	4M52G7D	18.64	0.073
		4M53W7D	17.72	0.059
	819.0	8M99G7D	18.43	0.070
		8M99W7D	17.23	0.053
	821.5	13M5G7D	18.43	0.070
		13M5W7D	17.40	0.055
LTE Band 26 (Part 22H)	824.7 ~ 848.3	1M11G7D	18.75	0.075
		1M10W7D	17.60	0.058
	825.5 ~ 847.5	2M72G7D	18.90	0.078
		2M71W7D	17.68	0.059
	826.5 ~ 846.5	4M55G7D	17.95	0.062
		4M53W7D	16.94	0.049
	829.0 ~ 844.0	9M08G7D	17.72	0.059
		9M04W7D	16.88	0.049
	831.5 ~ 841.5	13M6G7D	17.69	0.059
		13M5W7D	16.62	0.046
Straddle channel	824.0	1M10G7D	19.18	0.083
		1M09W7D	18.09	0.064
		2M71G7D	19.35	0.086
		2M72W7D	18.07	0.064
		4M55G7D	19.21	0.083
		4M56W7D	19.09	0.081
		9M02G7D	19.19	0.083
		9M07W7D	18.08	0.064
		13M5G7D	19.29	0.085
		13M5W7D	18.11	0.065

This test report shall not be reproduced, except in full, without the written approval

4. Summary of tests

FCC Part section(s)	Parameter	Test Limit	Test Condition	Test results
2.1046 90.635	Conducted Output Power	< 100 Watts	Conducted	Pass
2.1049	Occupied Bandwidth & 26 dB Bandwidth	N/A		Pass
2.1051 22.917(a) 90.691(a)	Band Edge Emissions at Antenna Terminal	>43 + 10Log$_{10}$(P) dB for all out-of-band emissions except >50 10Log$_{10}$(P) dB at Band Edge and for all out-of-band emissions within 37.5kHz of Block Edge		Pass
	Spurious Emissions at Antenna Terminal			Pass
2.1055 22.355 90.213	Frequency stability	< 2.5 ppm		Pass
22.913(a)(5)	Effective Radiated Power	< 7 Watts max. ERP	Radiated	Pass
2.1053 22.917(a) 90.691(a)	Radiated Spurious Emissions	>43 + 10Log$_{10}$(P) dB for all out-of-band emissions except		Pass

Notes:

1. The test procedure(s) in this report were performed in accordance as following.
   - ANSI C63.26-2015
   - ANSI/TIA-603-E-2016
   - KDB 971168 D01 v03r01

4.1. Worst case orientation

1. All modes of operation were investigated and the worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations in the test data.
2. All final radiated testing was performed with the EUT in worst case orientation.
3. The fundamental of the EUT was investigated in three orthogonal orientations X, Y and Z. It was determined that Z orientation was worst-case orientation. Therefore, all final radiated testing was performed with the EUT in Z orientation

Test condition	LTE Band	Modulation	Bandwidth (MHz)	RB size	RB offset
Radiated	B26 (Part90)	QPSK	1.4	1	0
	B26 (Part22)		3	1	0
Conducted	B26 (Part90)	QPSK, 16QAM	1.4, 3, 5, 10, 15	1	0, 5, 14, 24, 49, 74
				Full	0
	B26 (Part22)		1.4, 3, 5, 10, 15	1	0, 5, 14, 24, 49, 74
				Full	0

5. Measurement uncertainty

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.4-2014.

All measurement uncertainty values are shown with a coverage factor of *k*=2 to indicated a 95 % level of confidence. The measurement data shown herein meets of exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and thus, can be compared directly to specified limits to determine compliance.

Parameter	Expanded uncertainty (±)	
Conducted RF power	1.76 dB	
Conducted spurious emissions	4.03 dB	
Radiated spurious emissions	9 kHz ~ 30 MHz:	2.28 dB
	30 MHz ~ 1 GHz	3.68 dB
	Above 1 GHz	5.72 dB

KCTL

6. Measurement results explanation example

The offset level is set in the spectrum analyzer to compensate the RF cable loss factor between EUT conducted output port and spectrum analyzer.
With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

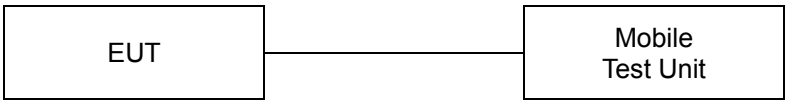
Frequency (㎒)	Factor(㏈)	Frequency (㎒)	Factor(㏈)
30	16.06	11 000	18.29
50	16.14	12 000	18.60
100	16.17	13 000	18.67
200	16.27	14 000	19.16
300	16.27	15 000	19.25
400	16.30	16 000	19.33
500	16.37	17 000	19.58
600	16.46	18 000	19.65
700	16.46	19 000	20.10
800	16.55	20 000	20.11
900	16.58	21 000	20.28
1 000	16.61	22 000	20.36
2 000	16.93	23 000	20.37
3 000	17.18	24 000	20.51
4 000	17.34	25 000	20.64
5 000	17.59	26 000	20.68
6 000	17.75	26 500	20.72
7 000	17.99	27 000	20.94
8 000	18.18	28 000	21.00
9 000	18.23	29 000	21.68
10 000	18.26	30 000	21.79

Note.
Offset(㏈) = RF cable loss(㏈) + Divider (㏈) + Attenuator(㏈)

7. Test results

7.1. Conducted output power

Test setup



Test procedure

971168 D01 v03r01 – Section 5.2
ANSI C63.26-2015 – Section 5.2.4.2
CFR 47, - Section §2.1046

Test settings

When an average power meter is used to perform RF output power measurements, the fundamental condition that measurement be performed only over durations of active transmissions at maximum output power level applies. Thus, an average power meter can always be used to perform the measurement when the EUT can be configured to transmit continuously.

If the EUT cannot be configured to transmit continuously (i.e., burst duty cycle < 98%), then the following options can be implemented to facilitate measurement of the average power with an average power meter:

a) A gated average power meter can be used to perform the measurement if the gating parameters can be adjusted such that the power is measured only during active transmission bursts at maximum output power levels.
b) A conventional average power meter with no signal gating capability can also be used if the measured burst duty cycle is constant (i.e., duty cycle variations are less than or equal to ± 2%) by performing the measurement over the on/off burst cycles and then correcting (increasing) the measured level by a factor equal to [10log (1/duty cycle)]. See 5.2.4.3.4 for guidance with respect to measuring the transmitter duty cycle.

See item r) of 4.1 for more information regarding power meter functional requirements and limitations, and consult the instrumentation-specific application literature for proper set-up and use.

Test results

Test Band	Bandwidth (㎒)	Test mode	RB size	RB offset	MPR	Maximum power Frequency (㎒) Low	Middle	High
LTE Band 26 (Part 90S)	1.4	QPSK	1	0	0	24.12	-	24.55
			1	3	0	24.08	-	24.53
			1	5	0	24.12	-	24.50
			3	0	0	24.12	-	24.48
			3	1	0	24.15	-	24.48
			3	3	0	24.16	-	24.44
			6	0	1	23.05	-	23.33
		16QAM	1	0	1	23.03	-	23.48
			1	3	1	22.91	-	23.54
			1	5	1	23.06	-	23.44
			3	0	1	23.09	-	23.49
			3	1	1	23.14	-	23.48
			3	3	1	23.14	-	23.49
			6	0	2	22.03	-	22.48
	3	QPSK	1	0	0	24.23	-	24.48
			1	8	0	24.23	-	24.41
			1	14	0	24.20	-	24.47
			8	0	1	23.12	-	23.37
			8	4	1	23.16	-	23.37
			8	7	1	23.11	-	23.35
			15	0	1	23.12	-	23.38
		16QAM	1	0	1	22.99	-	23.00
			1	8	1	22.91	-	23.49
			1	14	1	22.93	-	23.14
			8	0	2	22.17	-	22.40
			8	4	2	22.15	-	22.40
			8	7	2	22.19	-	22.39
			15	0	2	22.14	-	22.41
	5	QPSK	1	0	0	24.37	-	24.36
			1	12	0	24.38	-	24.40
			1	24	0	24.34	-	24.39
			12	0	1	23.16	-	23.33
			12	7	1	23.15	-	23.34
			12	13	1	23.14	-	23.32
			25	0	1	23.15	-	23.35
		16QAM	1	0	1	22.89	-	23.51
			1	12	1	22.93	-	23.38
			1	24	1	22.92	-	23.37
			12	0	2	22.09	-	22.33
			12	7	2	22.06	-	22.26
			12	13	2	22.02	-	22.30
			25	0	2	22.15	-	22.41
	10	QPSK	1	0	0	-	24.31	-
			1	25	0	-	24.30	-
			1	49	0	-	24.27	-
			25	0	1	-	23.15	-
			25	12	1	-	23.14	-
			25	25	1	-	23.10	-
			50	0	1	-	23.12	-
		16QAM	1	0	1	-	23.14	-
			1	25	1	-	23.10	-
			1	49	1	-	23.09	-
			25	0	2	-	22.12	-
			25	12	2	-	22.08	-
			25	25	2	-	22.12	-
			50	0	2	-	22.21	-
	15	QPSK	1	0	0	-	24.40	-
			1	36	0	-	24.32	-
			1	74	0	-	23.62	-
			36	0	1	-	23.34	-
			36	18	1	-	23.25	-
			36	37	1	-	23.27	-
			75	0	1	-	23.29	-
		16QAM	1	0	1	-	22.90	-
			1	36	1	-	23.02	-
			1	74	1	-	22.77	-
			36	0	2	-	22.23	-
			36	18	2	-	22.21	-
			36	37	2	-	22.21	-
			75	0	2	-	22.29	-

This test report shall not be reproduced, except in full, without the written approval

Test Band	Bandwidth (㎒)	Test mode	RB size	RB offset	MPR	Maximum power Frequency (㎒)		
						Low	Middle	High
LTE Band 26 (Part 22H)	1.4	QPSK	1	0	0	24.45	24.52	23.81
			1	3	0	24.40	24.41	23.78
			1	5	0	24.44	24.47	23.77
			3	0	0	24.48	24.41	23.82
			3	1	0	24.46	24.41	23.87
			3	3	0	24.41	24.40	23.85
			6	0	1	23.35	23.32	22.75
		16QAM	1	0	1	23.49	23.34	22.76
			1	3	1	23.50	23.31	22.73
			1	5	1	23.46	23.21	22.79
			3	0	1	23.50	23.25	22.76
			3	1	1	23.37	23.24	22.80
			3	3	1	23.33	23.18	22.71
			6	0	2	22.42	22.29	21.68
	3	QPSK	1	0	0	24.43	24.55	23.90
			1	8	0	24.44	24.56	23.89
			1	14	0	24.46	24.55	23.86
			8	0	1	23.36	23.32	22.77
			8	4	1	23.39	23.34	22.74
			8	7	1	23.38	23.32	22.76
			15	0	1	23.40	23.34	22.76
		16QAM	1	0	1	23.55	23.03	22.62
			1	8	1	23.50	23.31	22.60
			1	14	1	23.54	23.01	22.60
			8	0	2	22.39	22.22	21.75
			8	4	2	22.41	22.20	21.75
			8	7	2	22.39	22.21	21.75
			15	0	2	22.36	22.22	21.69
	5	QPSK	1	0	0	24.47	24.39	23.91
			1	12	0	24.45	24.41	23.96
			1	24	0	24.45	24.36	23.93
			12	0	1	23.44	23.34	22.79
			12	7	1	23.41	23.36	22.79
			12	13	1	23.40	23.32	22.82
			25	0	1	23.42	23.33	22.77
		16QAM	1	0	1	23.68	23.23	22.70
			1	12	1	23.78	23.44	22.70
			1	24	1	23.35	23.17	22.70
			12	0	2	22.27	22.27	21.72
			12	7	2	22.29	22.25	21.74
			12	13	2	22.27	22.26	21.71
			25	0	2	22.38	22.33	21.77
	10	QPSK	1	0	0	24.56	24.36	24.14
			1	25	0	24.56	24.30	24.06
			1	49	0	24.53	24.33	24.04
			25	0	1	23.47	23.37	23.01
			25	12	1	23.44	23.35	22.93
			25	25	1	23.41	23.31	22.94
			50	0	1	23.41	23.38	22.97
		16QAM	1	0	1	23.37	23.52	22.92
			1	25	1	23.40	23.35	22.88
			1	49	1	23.43	23.48	22.86
			25	0	2	22.41	22.30	22.02
			25	12	2	22.43	22.29	21.94
			25	25	2	22.41	22.27	21.95
			50	0	2	22.44	22.27	21.95
	15	QPSK	1	0	0	24.26	-	24.38
			1	36	0	24.56	-	24.25
			1	74	0	24.29	-	23.67
			36	0	1	23.41	-	23.13
			36	18	1	23.35	-	23.14
			36	37	1	23.34	-	23.09
			75	0	1	23.36	-	23.13
		16QAM	1	0	1	23.54	-	23.16
			1	36	1	23.49	-	23.09
			1	74	1	23.44	-	22.91
			36	0	2	22.43	-	22.09
			36	18	2	22.38	-	22.01
			36	37	2	22.33	-	22.00
			75	0	2	22.29	-	22.05

This test report shall not be reproduced, except in full, without the written approval

Straddle channel

Test Band	Bandwidth (㎒)	Test mode	RB size	RB offset	MPR	Maximum power Frequency (㎒)
LTE Band 26 (Part 90S)	1.4	QPSK	1	0	0	24.26
			1	3	0	24.16
			1	5	0	24.27
			3	0	0	24.17
			3	1	0	24.15
			3	3	0	24.10
			6	0	1	23.15
		16QAM	1	0	1	23.30
			1	3	1	23.27
			1	5	1	23.31
			3	0	1	23.07
			3	1	1	23.06
			3	3	1	23.05
			6	0	2	22.16
	3	QPSK	1	0	0	24.09
			1	8	0	24.14
			1	14	0	24.10
			8	0	1	23.09
			8	4	1	23.04
			8	7	1	23.08
			15	0	1	23.14
		16QAM	1	0	1	22.97
			1	8	1	22.94
			1	14	1	22.95
			8	0	2	22.12
			8	4	2	22.10
			8	7	2	22.09
			15	0	2	22.10
	5	QPSK	1	0	0	24.22
			1	12	0	24.25
			1	24	0	24.27
			12	0	1	23.14
			12	7	1	23.13
			12	13	1	23.13
			25	0	1	23.12
		16QAM	1	0	1	23.10
			1	12	1	23.07
			1	24	1	23.03
			12	0	2	22.05
			12	7	2	22.11
			12	13	2	22.09
			25	0	2	22.10
	10	QPSK	1	0	0	24.56
			1	25	0	24.56
			1	49	0	24.53
			25	0	1	23.47
			25	12	1	23.44
			25	25	1	23.41
			50	0	1	23.41
		16QAM	1	0	1	23.37
			1	25	1	23.40
			1	49	1	23.43
			25	0	2	22.41
			25	12	2	22.43
			25	25	2	22.41
			50	0	2	22.44
	15	QPSK	1	0	0	24.16
			1	36	0	24.06
			1	74	0	23.89
			36	0	1	23.05
			36	18	1	23.05
			36	37	1	23.05
			75	0	1	23.03
		16QAM	1	0	1	22.79
			1	36	1	22.82
			1	74	1	22.79
			36	0	2	22.02
			36	18	2	22.01
			36	37	2	21.97
			75	0	2	22.04

This test report shall not be reproduced, except in full, without the written approval